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JAERI Fast Reactor Group Constants Systems

Part I

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JAERI-1195 Errata

Page	Line	As Printed	To read
1	30	untill	until
2	6	narrow energy group	narrow energy groups
3	22	3.85 keV	2.85 keV
	28	yield	yields
	Eq. (4)	$=\int_{\Delta E_j} dE \int_{\_} dE' \cdots\cdots$	$=\int_{\Delta E_j} dE \int_{\Delta E_i} dE' \cdots\cdots$
4	Eq. (6)	$\int_{\Delta E_j} dE \int_{\Delta E_j} dE' \cdots\cdots$	$\int_{\Delta E_j} dE \int_{\Delta E_i} dE' \cdots\cdots$
	24	rlght	right
5	12	process··	process etc.
7	3	$\sigma_{ei\to j} = \sigma_{ei} \cdot \frac{\sigma_{ei\to j}}{\sum_k \sigma^0_{ei\to k}}$	$\sigma^0_{ei\to j} = \sigma_{ei} \cdot \frac{\sigma^0_{ei\to j}}{\sum_k \sigma^0_{ei\to k}}$
	4	are	is
8	Title of **Table 2**	$\sigma_e{}^{j\to j}$	$\sigma_e{}^{i\to j}$
9	Title of **Fig. 1-a**	cardon	carbon
14	Title of **Fig. 4**	closs	cross
15	3rd from the bottom	BNL	BNL 325
21	13	···^{239}Pu above 21.5 keV and those for ^{238}U and Pu above 21.5 keV·····	···^{239}Pu above 10.0 keV, and those for ^{238}U and ^{240}Pu above 21.5 keV·····
	16	infinit__	infinite
	17	infinit__	infinite
	28	increang	increasing
	29	decreasimg σ_0	decreasing σ_0
23	13 (Ref. (5))	26—	26-Gruppendarstellung", KFK 770 (1968)
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JAERI Fast Reactor Group Constants Systems · Part 1*

Summary

A concept of fast group constants has heen studied and a processing program has been developed using the ENDF/A format. An evaluation work has been performed from standpoint of reactor physics in order to find better interpretations of nuclear data for producing group constants. Three files, UKNDL, ENDF/B and KFK 120 (I, II, III and KFK 750) were compared with each other. A set of appropriate nuclear data was obtained.

Using the processing program and nuclear data, group constants have been produced for the following elements : ^{10}B, ^{11}B, C, O, Na, Al, Cr, Fe, Ni, Cu, ^{235}U, ^{238}U, ^{239}Pu, ^{240}Pu and ^{241}Pu.

The following quantities are prepared for users : 70-group cross section tables and 25-group cross section tables for infinite dilution, inelastic scattering matrices, 70-group fluxes for several values of admixture cross rection σ_0 and tables of self shielding factor f.

February 1970

Satoru KATSURAGI, Tatsuzo TONE
and Akira HASEGAWA
Division of Reactor Engineering
Tokai Research Institute
Japan Atomic Energy Research Institute

JAERI 高速炉定数系・その 1**

要　　旨

高速炉用の炉定数作成のため，高速炉用炉定数の概念を研究し，処理用プログラムを ENDF/A フォーマットをもとに作成した．また炉物理的観点からの核データの評価作業を行ない，UKNDL, ENDF/B, KFK 120 (I, II, III と KFK 750) のファイルを比較し，適当な核データの組を定めた．

処理用プログラムと核データを用いて次の元素に対する炉定数を作成した．^{10}B, ^{11}B, C, O, Na, Al, Fe, Ni, Cu, ^{235}U, ^{238}U, ^{239}Pu, ^{240}Pu, ^{241}Pu. 70 群および 25 群の無限稀釈系炉定数，非弾性散乱断面積，70 群中性子束，遮蔽因子の表を与えてある．

1970 年 2 月

日本原子力研究所　東海研究所
原子炉工学部
桂　木　　学
東　稔　達　三
長谷川　　明

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* The work has been performed under the conduct of Reactor Constant Sub-Committee of the Japanese Nuclear Data Committee

** この仕事はシグマ委員会炉定数専門部会の監督の下に行なわれたものである．

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1. Introduction

For analysing fast reactor characteristics in detail, multi-group treatments are frequently used. For these treatments a set of multi-group constants is indispensable. In Japan many sets of multi-group constants have been introduced from oversea countries. Among these sets the YOM[1], HR[2] and ABBN[3] were used extensively. However the YOM set was not designed adequately for studying fast reactors having soft spectrum[4]. By this reason the ABBN set has been used so far for studies of fast reactors.

However for an accurate interpretation of experiments and a detailed prediction of characteristic features of a fast reactor, a multi-group set should be produced from accurate nuclear data. Otherwise sometimes we will reach false conclusions on the characteristics of the reactor in question. Nuclear data from which the ABBN set was produced were compiled from older informations in view of the present knowledge of nuclear data. Knowledges of nuclear data have been rather increased and their accuracies were improved since that time of publication of the ABBN set. In fact, for example, at Karlsruhe a new set[5] of ABBN type has been produced from nuclear data based on their own evaluation. In this respect a new set was required earnestly by people working at design studies or analyses of experiments.

At the predominant resonance, the neutron spectrum is markedly influenced and consequently effective cross section depends on a composition of the medium envisaged. Because of this dependence a device for obtaining effective cross sections correctly was prepared in the ABBN set. The device for obtaining elastic removal cross sections, however, is not adequate : the Russian set applies the same self shielding factor for elastic removal cross section as for elastic scattering, derived from an assumption of constant collision density. A multi-group constant set should lend itself to use with a wide variety of compositions. To remove this shortcoming it is necessary to perform fine spectrum calculations such as ELMOE[6], ESELEM[7] or MC^2 type[8]. However, because these fine spectrum calculations are too expensive and laborious to obtain effective cross sections for each case, a simplified socalled iterative procedure[9] is occasionally used : That is, a composition dependent spectrum is obtained from a coarse group calculation and the spectrum (actually histogram) is made smooth over the whole range below 10.5 MeV, then this smooth spectrum is used especially for generating elastic removal cross sections. The procedure is repeated untill given convergence is satisfied. The spectrum within a broad scattering resonance is, however, not reproduced by this procedure. It seems to be very difficult to establish the concept of group constants used generally for a wide variety of composition.

To overcome the above difficulties it might be effective to make group widths narrow. For example at sodium resonance of 2.85 keV, the energy variation of the spectrum is synthesized from three typical spectra. Above 3.6 keV the spectrum is rather flat and from 2.8 to 3.6 keV the spectrum is steeply increasing. However in the latter region collision density is rather flat because neturons in this region come from the upper energy region. Below 2.8 keV the spectrum is rising with decreasing energy and finally the flux attains rather flat distribution. Neutrons being in the energy range, where the flat distribution exists, contribute the rate of neutron removal due to elastic scattering if we adopt the group structure of ABBN set. So if we divide every group of the ABBN set into a few narrow groups, the elastic removal cross sections for these narrow groups will come to be rather independent of composition.

Another merit of this narrow group structure is a reduction of error introduced by the assumption of constant collision density for obtaining effective cross sections. KFK's group cross sections might not be thought as group constants for a wide variety of composition, because they were produced by using a spectrum of a specific system[5]. Adopting narrow group width will make group cross sections more independent of the composition. Moreover by this set for narrow energy group it is possible to investigate an adequate group structure for use.

Studies on group constants for a fast reactor have been started in Japan in 1965. Since then two programs for processing nuclear data, whose values are given by tabular forms, into group constants have been developed. One is the program producing group constants for MUFT type spectrum program[9]. Based on this program we have developed the other program called PROF GROUCH-G[10]. The program can be used for obtaining fast reactor group constants of the ABBN type as well as group constants of the GAM type. Equations treated by the PROF GROUCH-G will be explained in chapter 2.

The program, however, can not be applied to resonance cross sections given by resonance parameters. So the group constants of heavy elements in resonance region have been processed by the other programs. The method of processing these resonance cross sections will be reported in other reports[11, 12].

An evaluation work has been performed for nuclear data of light and medium elements from standpoints of reactor physics. The work will be reported in chapter 3. Chapter 4 will be devoted to guides for users of the group constants obtained. In Appendices tables of group constants are given. We have also produced a group-constants set with the ABBN group structure, because most of programs working at criticality calculations for a fast reactor at JAERI are designed for this group structure.

2. Concepts of Fast Reactor Group Constants

2. 1 The Group Structure

There are many definitions of group effective cross sections[7, 13, 14]. Some of them are defined for obtaining accurate integral data such as the effective multiplication factor, reactivity effects etc. However our intension is to produce a set of cross sections applicable to every kind of physical quantities. From theoretical standpoint, for prediction of every kind of physical quantities, cross section should be averaged over energy alone with the flux $\phi(\boldsymbol{r}, E, \Omega)$ as the weight. Rigorously speaking, the flux depends on dimensions and compositions of a reactor. Moreover resulting effective cross sections are dependent of position and direction of flight of neutrons Ω. Because a reactor studied always has a reflector or a blanket and has large dimensions, the influence of Ω to effective cross sections is significant in the vicinity of the free surface of reactor and insignificant in the core region and a reflector or blanket region. The dependence on the other variables are reduced by making group widths so narrow that errors due to improper neutron spectrum become small. For the present set we have chosen group widths nearly equal to 0. 25 in lethargy. If smooth cross sections are averaged with a smooth spectrum, errors are expected less than 1%. If we assume that the lethargy dependence

of cross sections within a group is given by e^{bu}, and the flux is given by e^{au}, as seen near the 2.85 keV resonance of Na[4], then the effective cross section is given by

$$\sigma_{\text{eff}}=\left(\frac{a}{a+b}\right)(e^{(a+b)\Delta u}-1)/(e^{a\Delta u}-1)(e^{bu_i}) \tag{1}$$

Assuming that $b=\pm 10$ and calculating $\sigma_{\text{eff}}s$ for $a=\mp 10$ and $a=\mp 8$, it is found that the difference in $\sigma_{\text{eff}}s$ is a little less than 1% for this group structure. The difference in the "a", for example that between 10 and 8, or -10 and -8, produces a difference of factor 2 in flux at the other side of group-boundary. This means that for the present group widths a set of group constants is meaningful except for elastic removal cross sections.

We have divided each group from the 1st to 5th group of the ABBN into two groups having nearly equal lethargy width. Every group from 6th to 25th group is divided into three groups, so that the present set consists of 70-group cross sections.

Now let us examine the effect of this group structure to elastic removal cross sections. Again assuming lethargy dependence of cross section and flux as mentioned in the previous paragraph, the effective removal cross section is given by

$$\left\{\frac{ae^{bu_i}}{b+a+1}\left[1-e^{-(a+b+1)\ln 1/\alpha}\right]-\frac{ae^{bu_i}}{b+a}e^{-\ln 1/\alpha}\right.$$
$$\left.\times\left[1-e^{-(b+a)\ln 1/\alpha}\right]\right\}\Big/\{(1-e^{-a\Delta u})(1-\alpha)\} \tag{2}$$

where u_i is the lethargy corresponding to lower group boundary and $\alpha=\{(A-1)/(A+1)\}^2$. For carbon and oxygen the elastic removal cross sections are produced by using constant flux ($a=0$) and values are given by $(\xi/\Delta u)\sigma_s$. If the flux corresponds to $a=10$, then the elastic removal cross section reads $.75\sigma_s$ and $.67\sigma_s$ respectively. The percent error due to constant flux is 16% and 25% respectively. Actually, in the 34th group which lies in the lower energy side of the 3.85 keV Na resonance, the flux attains rather flat distribution at the midway to the lower boundary. Therefore the percent error will be markedly reduced for an actual case. Composition dependence of elastic removal cross sections for elements having constant cross sections becomes rather insignificant by adopting the present group structure.

For sodium, composition dependence of the effective elastic removal cross section is treated properly, to some extent, by the assumption of constant collision density. Again setting $b=-10$ and $a=10$, we have $e^{-10u_i}(10\xi_{Na}/1-e^{-2.5})$ for this cross section. Changing $a=8$ yield

$$e^{-10u_i}\frac{10}{1-e^{-2.5}}\frac{1}{2}\left(\frac{1-\alpha}{\alpha}\right)$$

for this value. The error is thought less than several percent for Na. This means that composition dependence can be treated rather accurately by the present group structure. The shortcoming of the ABBN set will be remarkably improved by adopting 70-group structure.

2.2 P_1 Form of Group Equations

The multi-group equation is written as

$$\Omega\cdot\text{grad}\,\phi_j+\Sigma_{tj}\phi_j=\sum_i\int d\Omega'\Sigma_{i\to j}(\Omega'\to\Omega)\phi_i+S_j \tag{3}$$

where

$$\Sigma_{tj}=\int_{\Delta E_j}\Sigma_t\phi dE\Big/\int_{\Delta E_j}\phi dE$$
$$\Sigma_{i\to j}=\int_{\Delta E_j}dE\int dE'\Sigma(E'\to E,\ \Omega'\to\Omega)\phi\Big/\int_{\Delta E_i}\phi dE \tag{4}$$

By this form of gronp equation Σ_{tj} has Ω dependence introduced by the flux. To remove this Ω dependence the P_1 form of Eq. (3) are useful. When a reactor is sufficiently large, ψ can be approximated by

$$\psi=\frac{1}{4\pi}(\phi+3\Omega\cdot J),\quad \text{where } |J|\ll\phi$$

Eq. (3) as well as its adjoint form is derived from the necessary and sufficient condition for obtaining the group constants applicable to predicting every type of physical quantitites. The condition is given by

$$\int_{\Delta E_j} dE\Sigma_t\psi=\Sigma_{tj}\phi_j \tag{5}$$

$$\int_{\Delta E_j} dE\int_{\Delta E_j} dE'\Sigma(E'\to E,\Omega\to\Omega)\psi=\Sigma_{i\to j}\phi_i \tag{6}$$

The P_1 form of the condition (5) is rewritten as

$$\int dE\Sigma_t(\phi+3\Omega\cdot J)=\Sigma_{tj}{}^0\phi_j+3\Omega\cdot\Sigma^1{}_{tj}J_j$$

This condition is equivalent to the following two conditions, because the components of Ω are orthogonal to 1.

$$\Sigma_{tj}{}^0\phi_j=\int_{\Delta E_j}\Sigma_t\phi dE$$

$$\Sigma_{tj}{}^1J=\int_{\Delta E_j}\Sigma_t J dE \tag{6'}$$

Then we have P_1 form of multi-group equations

$$grad\ \ \phi_j+3\int_{\Delta E_j}\Sigma_t J dE=\int_{\Delta E_j}\int\Sigma^1(E'\to E)JdE'dE \tag{7}$$

$$div\ \ J_j+\Sigma_{tj}{}^0\phi_j=\sum_j\Sigma_{i\to j}{}^0\phi_i+S_j \tag{8}$$

In the Eq. (7) the right hand side is thought to be small compared with the other terms. Hence Eq. (7) is equivalent to

$$grad\ \ \phi+3\Sigma_t J=0$$

From the above relation and an assumption of $\phi=\phi_0(r)f(E)$, we obtain

$$\Sigma_{tj}{}^1=\int_{\Delta Ej}\phi dE\Big/\int_{\Delta E_j}\frac{1}{\Sigma_t}\phi\, dE$$

For the rlght hand side of Eq. (7) we have

$$\int_{\Delta E_i}\Sigma^1(E'\to E)JdE'=\int_{\Delta E_i}\Sigma^1(E'\to E)\phi\frac{J}{\phi}dE' \tag{9}$$

The ratio J/ϕ can be replaced by its mean value

$$\overline{(J/\phi)}\cong\frac{J_i}{\phi_i}$$

Defining

$$\Sigma^1{}_{i\to j}=\int_{\Delta E_j}dE\int_{\Delta E_i}dE'\Sigma^1(E'\to E)\phi\Big/S_{\Delta E_i}\phi dE' \tag{10}$$

we have

$$grad\ \ \phi_j+\Sigma_t{}^1J_j=\sum_i\Sigma^1{}_{i\to j}J_i$$

Eq. (8) and (10) are the P_1 form of the Boltzmann equations. If in the Eq. (10) the terms for $i\neq j$ are neglected, we have the consistent P_1 equations. And if we set $\Sigma^1{}_{i\to i}=\Sigma^1{}_{i\to j}$ and $\Sigma^1{}_{i\to j}=0$ for $i\neq j$, as valid for heavy elements, we will have diffusion equations.

2. 3 Group Constants and Methods of Processing

As mentioned in 2. 2 the group constants required for multi-group treatments are $\sum_{tj}^{l}$ and $\sum^{l}{}_{i\to j}(l=0, 1)$. In most cases characteristic features of a fast reactor are investigated by using diffusion approximation. In this approximation we do not need the total cross section at all except for calculating diffusion coefficients. Moreover for the analysis of experiments, various reaction rates are very useful information. Therefore we must provide constants for predicting various reaction rates.

By the definition of $\sum_{tj}^{0}$, the effective cross section for x-type reaction for a nuclei A should be defined as follows,

$$\sigma_{xj}{}^{A}=\int_{\Delta E_j}\sigma_x{}^{A}\phi\, dE \Big/ \int_{\Delta E_j}\phi dE \tag{11}$$

where x means the elastic scattering, the inelastic scattering, the fission, the capture, and the (n, mn′) process.. For capture cross sections, acutally, we have processed every kind of reactions to be included in absorption cross sections separately. We have, however, summed up values of these cross sections to yield the capture cross sections and tabulated only the summed values.

Yields due to fissions are one component of $\sum^{0}{}_{i\to j}$ (we assumed isotropic distribution of fission neutrons). In rigorous sense, the quantity

$$\sum_{A}\int_{\Delta E_j}\int_{\Delta Ei}\chi_{E'}{}^{A}(E)\nu^{A}(E')\sum_f{}^{A}(E')\phi dE'dE \Big/ \int_{\Delta E_i}\phi dE' \tag{12}$$

should be prepared for the group constants. However E' dependence of the fission spectrum $\chi_{E'}{}^{A}(E)$ can be neglected, because E' dependence is introduced when $E'>a$ few MeV, and actually the dependence on E' is insignificant. By this approximation the quantity which we need are separeted into the two quantities

$$\int_{\Delta E_j}\chi^{A}(E)dE \tag{13}$$

$$\int_{\Delta E_j}\nu^{A}(\mathrm{E}')\sum_f{}^{A}(E')\phi\, dE' \Big/ \int_{\Delta E_i}\phi dE' \tag{14}$$

For the latter quantity, the energy dependence of ν^{A} is insignificant for both 70-group structure and the ABBN group structure, so the quantity (14) is approximated by

$$\nu_i{}^{A}\int_{\Delta E_i}\sum_f{}^{A}(E')\phi dE' \Big/ \int_{\Delta E_i}\phi dE' \tag{15}$$

where

$$\nu_i{}^{A}=\int_{\Delta E_i}\nu^{A}\phi_s dE \Big/ \int_{\Delta E_i}\phi_s dE \tag{16}$$

and ϕ_s is the standard flux, that is,

$$\phi_s=\frac{1}{E} \qquad \text{for } E\leq 1\,\mathrm{MeV}$$

and

$$\phi_s=\text{fission spectrum} \qquad \text{for } E\geq 1\,\mathrm{MeV}$$

Inelastic scattering cross sections include all processes leading to emissions of secondary neutrons. We have neglected P_1 component of inelastic scattering matrices. The program PROF GROUCH-G, however, is able to process angular distribution as well as energy distribution for producing the matrices. Equations employed are as follows:

$$\sigma_{\text{in}\,i\to j}=\int_{\Delta E_i}dE'\int_{\Delta E_j}dE\,\phi\,P_{\text{rob}}(E',\mu_L(E',E))\left.\frac{(A+1)\sqrt{\frac{E}{E'}}+(A-1)\sqrt{\frac{E'}{E}}-A\frac{w}{E'}\sqrt{\frac{E'}{E}}}{4E}\right/\phi_i \tag{17}$$

when the angular distribution P_{rob} is given in the L-system. Where $w=-1\times$Q-value and

$$\sigma_{\text{in}\,i\to j}=\int_{\Delta E_i}dE'\int_{\Delta E_j}dE\,\phi\,P_{\text{rob}}(E',\mu_c)\frac{d\mu_c}{d\mu_L}\left.\frac{(A+1)\sqrt{\frac{E}{E'}}+(A-1)\sqrt{\frac{E'}{E}}-A\frac{w}{E'}\sqrt{\frac{E'}{E}}}{4E}\right/\phi_i \tag{18}$$

when Prob is given in the C-system.

$$\sigma_{\text{in}\,i\to j}=\int_{\Delta E_i}dE'\int_{\Delta E_j}dE\,\phi\,P_{\text{rob}}(E',E)\Big/\phi_i \tag{19}$$

when energy distribution is used. For each case range of integration over E is set automatically by the program.

Energy distribution of inelastically scattered neutrons are derived, generally, based on some approximation, for example $\mu_L\cong\mu_c$. The $\sigma_{\text{in}\,i\to j}$ calculated from the energy distribution is not so different, as a whole, to that obtained from the angular distribution[52]. But a few $\sigma^{E}_{\text{in}\,i\to j}$ (E: level energy) show considerable differences between both distributions (see TABLE 1). By this reason we have used the angular distribution for calculating $\sigma_{\text{in}\,i\to j}$ due to discrete levels and the energy distribution for continum levels.

TABLE 1-a $\sigma^{0.44\,\text{MeV}}_{\text{in}\,i\to i+j}$ for Na (ABBN Group Structure)

Group	$i\diagdown j$	0	1	2	3	4
5	Eq. (18)	0.04908	0.39474	0.06305		
	Eq. (19)	0.03881	0.40486	0.06339		
6	Eq, (18)	0.08602	0.04255	0.00617	0.00118	0.00029
	Eq. (19)	0.08756	0.04162	0.00543	0.00131	0.00022

TABLE 1-b $\sigma^{0.98\,\text{MeV}}_{\text{in}\,i\to i+j}$ for ^{238}U (ABBN Group Structure)

Group	$i\diagdown j$	1	2	3	4	5	6
4	Eq. (18)	0.04894	0.17784				
	Eq. (19)	0.04963	0.17718				
5	Eq. (18)	0.01125	0.20606	0.08830	0.03362	0.00870	0.00168
	Eq. (19)	0.00458	0.21276	0.08833	0.03364	0.00703	0.00331

The last constituent of $\sum^0{}_{i\to j}$ is the elastic scattering matrices, which is processed by the similar formulas to Eq. (17) and (18).

In the present approximation $\sum^1{}_{i\to j}$ consists of P_1 component of elastic scattering cross section alone. In the ABBN type set we need $\mu_{i\to i+j}$ instead of $\sigma^1{}_{i\to i+j}$. Hence we have normalized $\sigma^1{}_{i\to i+j}$ by $\sigma^0{}_{i\to i\to j}$ for obtaining $\mu_{i\to i+j}$. From these quantities μ_i is also calculated.

At higher energies angular distributions of elastic removal cross sections show a complicated dependence on μ_c which can not be described by a linear anisotropy. By this reason we adopted direct numerical integration shown in the above, instead of making use of analytic expressions. For obtaining accurate $\sigma_{i\to i+j}$ for $j\geq 1$ mesh points should be carefully chosen. In the PROF GROUCH-G the mesh widths are calculated by relating to α and mesh points are given automatically.

For the $\sigma_{\text{in}\,i\to j}$ and $\sigma^0_{\text{e}\,i\to j}$ renormalizations are made for preserving neturon balance. For example the elastic scattering matrices are given by

$$\sigma_{\text{e}\,i\to j}=\sigma_{\text{e}\,i}\cdot\frac{\sigma_{\text{e}\,i\to j}}{\sum_k \sigma^0_{\text{e}\,i\to k}}.$$

The total cross section which should be used for calculating the diffusion coefficient are obtained by

$$\sigma^1_{tj}=\left(\int_{\Delta E_j}\phi\,dE\Big/\int_{\Delta E_j}\frac{\phi dE}{\sigma_t+\sigma_0}\right)-\sigma_0$$

where σ_0 is the total macroscopic cross section of admixtures per the nucleus of interest.

The composition dependence of the effective cross sections is treated by the assumption of constant collision density, that is, the flux is approximated by

$$\phi=\frac{1}{\sigma_t+\sigma_0}\phi_s$$

where ϕ_s is the standard flux. The probability for neutrons of i-th group entering into $(i+j)$ -th group is treated as independent of compositions. Therefore for the elastic scattering matrices, the composition dependence is introduced only through the elastic cross sections. For the heavy elements, however, the composition dependence as well as temperature dependence are treated properly, because it is rather significant for treating interaction between the Na resonance and heavy element resonances. The group constants for heavy elements in resonance energy region will be described in another report[12].

Details of functions of the processing program PROF GROUCH-G and full explanations of equations employed for producing group constants are described in the accompanying report[10].

3. An Evaluation of Existing Files

We have performed an evaluation work in order to find better interpretation of nuclear data for producing group constants. For the heavy element cross sections above a few tens keV we adopted UK data with minor alterations.

3. 1 Nuclear Data for Natural Carbon

We compared nuclear data for carbon in order to find a better combination for producing reasonable group-constants.

The values of σ_t near zero energy read as follows

ENDF/B	4. 85 b[15]
UKNDL	4. 71 b[17]
KFK	4. 71 b[16] .

The recent experimental result is 4. 95 b. Thus the value 4. 71 b seems to be smaller by a few percent. Capture cross section in this energy range are so small that the total cross section is practically equal to elastic scattering cross section. The small difference in σ_t will affect elastic removal cross sections and neutron current through transport cross sections. Both cross sections are proprtional to total cross sections. The difference of 5% in σ_t, however, will produce errors less than 0. 05%[51] in k_{eff} and breeding ratio. The recent evaluation by NISHIMURA *et al.* recommended 4. 73 b[18] for this value. Thus 4. 71 b is acceptable for our present

purpose.

From 300 keV to 1.4 MeV σ_t of UK agrees with the accurate measurement of C.M. HUDDLESTON *et al*[19]. and SETH K.K. *et al*[20]. However σ_t of ENDF/B are exceptionally small. The values adopted in KFK-120 and UKNDL are consistent with resonance parameters measured by WSILL[21] and recommendation of BNL 325 supple. No. 2[22]. The discrepancy amounts to nearly 1 b which corresponds to the potential scattering. The discrepancy will affect the elastic removal cross section of 7th group (for 70-group structure). However for the ABBN structure the elastic removal cross section of 8th group of 70-group structure is significant so that the error will become small. In 6th group there is a resonance near 2.95 MeV. Almost all evaluaters adopted 2.95±0.016 MeV as the resonance energy. ENDF/B adopted 2.965 MeV for this energy. The σ_t near the resonance peak are rather large compared with measured values. The 6th group elastic scattering cross section, however, is almost the same as those obtained from the other two files. In 5th group, UK values are rather small compared with the other two files and measured values. The difference in the elastic cross section amounts to several percent and that in the elastic removal cross section amounts to the same order. Whereas for the ABBN group structure the error becomes negligible.

TABLE 2 Comparison of σ_e and $\sigma_e^{i\to j}$ of carbon obtained from low and high resolution data

Lower energy \ Group		σ_e		$\sigma_e^{i\to i}$		$\sigma_e^{i\to i+1}$		$\sigma_e^{i\to i+2}$	
		high resolution	low resolution	high resolution	low resolution	high resolution	low resolution	high resolution	low resolution
6.5 MeV	2	0.8789	0.8978	0.5075	0.5078	0.3580	0.3739	0.0134	0.0161
5.1 〃	3	1.0449	1.0626	0.4604	0.4691	0.5249	0.5336	0.0597	0.0599
4.0 〃	4	1.6056	1.7223	0.7580	0.8509	0.7051	0.7254	0.1425	0.1460
3.1 〃	5	2.2135	2.0788	0.9520	0.8971	0.9645	0.9038	0.2971	0.2778

UKNDL (low resolution data)
KFK (high resolution data)

The differences in σ_{ei} and $\sigma_e^{i\to j}$, which are obtained from KFK and UK data, are shown in TABLE 2.

In Fig. 1 σ_t of ENDF/B and UKNDL are shown. In Fig. 2 σ_e of UKNDL and KFK files are shown. The discrepancies, however, are not so serious that we can expect $\Delta k_{eff}<0.1\%$[51]. With this respect three data are acceptable for our present purpose.

Capture cross section of ^{12}C is very small and can be neglected for fast reactors. So evaluation for σ_γ of ^{12}C is a matter of consciousness. Available measurements before 1964 are found in BNL 325 2nd ed. supple. No. 2. The value 3.4 mb is recommended for highest-purity graphite. The energy dependence of σ_γ is believed as $1/v$ (v: neutron velocity). Completely the same values are used in both ENDF/B and UKNDL.

Values of σ_α are very different between three files. ENDF/B adopted measured values of DAVIS *et al.*[23], which are rejected by Schmidt. UK files adopted rather small values. Following Schmid's argument the KFK value seems reasonable. The σ_α of ^{12}C, being significant only in the lst group (of 70-group structure), affects hardly characteristics of fast reactors. So UK values do not produce any significant effect on characteristics.

Values of $\sigma(n', 3\alpha)$ are given in ENDF/B and UK but not in KFK. Schmidt analyzes $(n', 3\alpha)$ reaction[16] and includes 75% of $(n', 3\alpha)$ reaction cross sections into inelastic scattering due to the level 7.65 MeV, and neglects 25% of this reaction because it is negligible compared with the experimental error in σ_t and σ_{tr} etc..

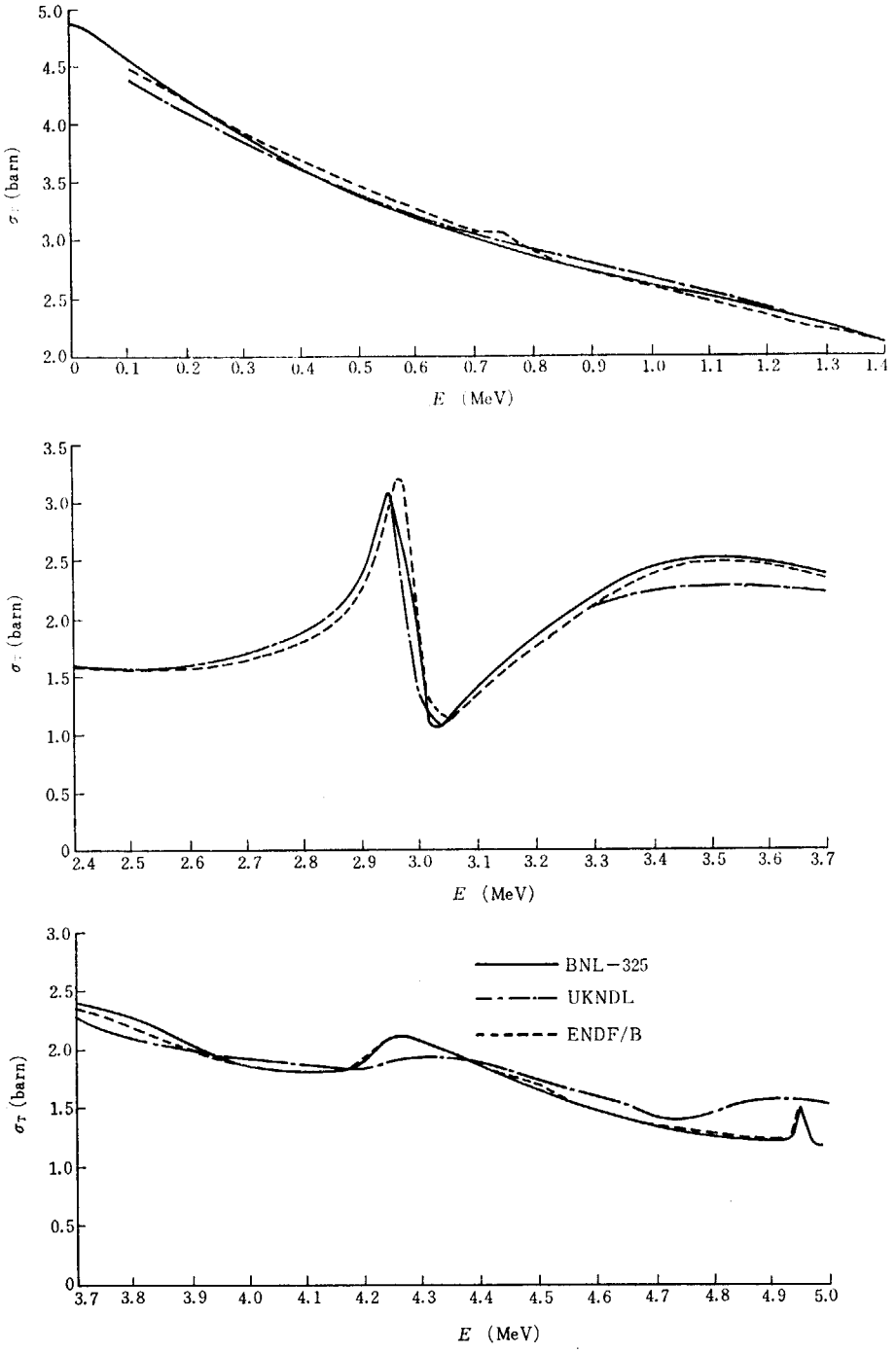

Fig. 1-a Total cross section σ_T of cardon

For σ_{in} all three files agree with each other in the range below 8.5 MeV. Particularly below 7 MeV, values agree well with measured cross section $\sigma_{in}^{4.43}$ within experimental errors. From 8 to 9.5 MeV KFK and UKNDL agree with each other.

ENDF/B does not agree with the others.

For the secondary neutron spectrum KFK adopted a simple evaporation spectrum with the nuclear temperature 0.9 MeV. On the other hand in the UK file the secondary neutron energy is given by a discrete energy loss and this means that the inelastic cross section is due to the 4.43 MeV level. The contribution from scattering by the second discrete level is very small so that the UK's view does not produce any significant error. A secondary neutron spectrum obtained from an evapolation model can be applied to inelastic scattering at very high energies. In ENDF/B the secondary distribution is not given.

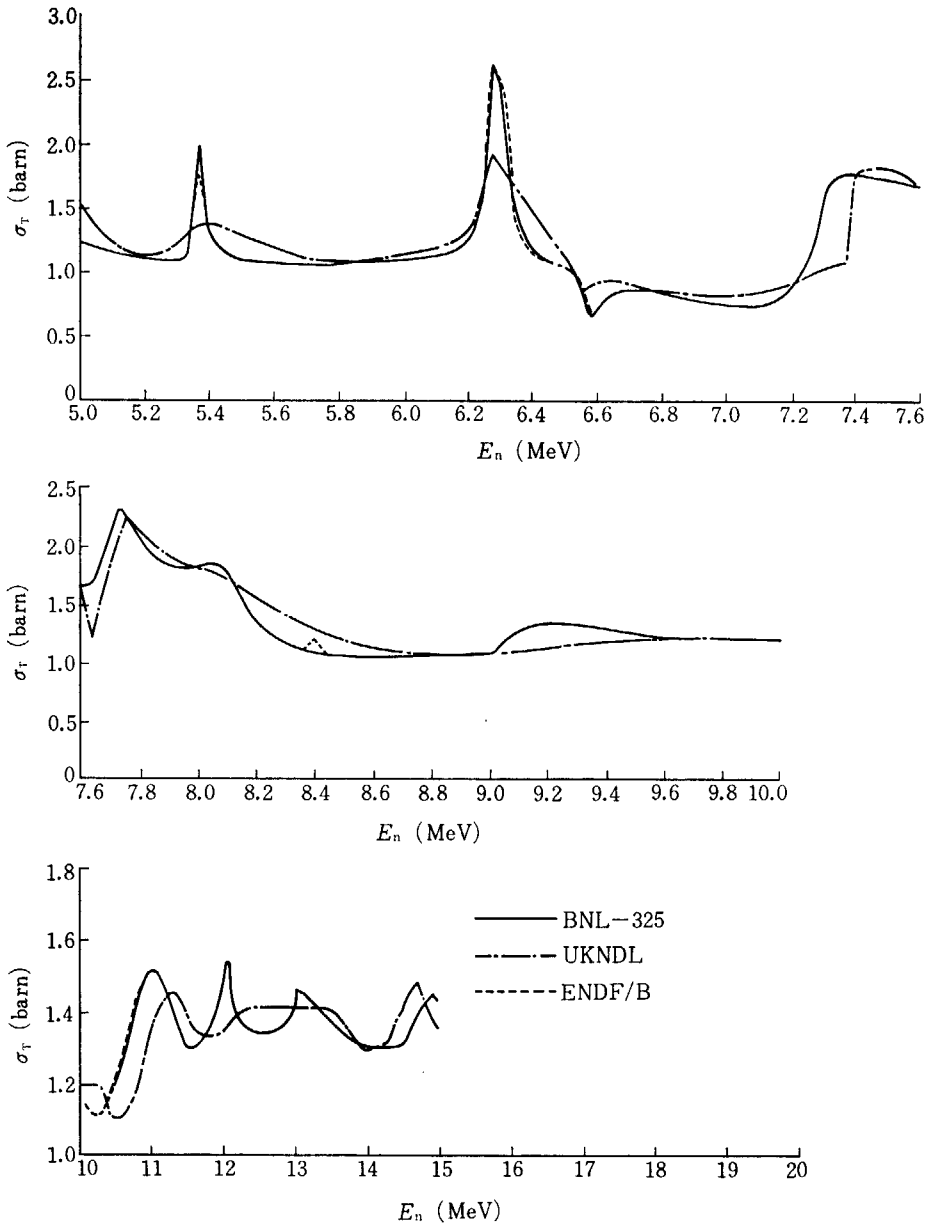

Fig. 1-b Total cross section σ_T of corbon

For angular distribution of elastically scattered neutrons Schmidt has adopted Joanou's μ_L-values[24] for KFK-120. The μ_L values from the UKNDL, on the average, agree with KFK-120.

ENDF/B gives Legendre coefficients. On the other hand the UKNDL gives values of $\sigma(\mu)$. It is preferable for us to use $\sigma(\mu)$ instead of Legendre coefficients, because sometimes, negative transfer cross section $\sigma^{i\to j}$ is obtained, if we use the latter form of angular distribution. To avoid occurrence of negative values for transfer cross section we have to confirm non-negative nature of transfer cross sections at a huge number of energy points. This deficiency was found for elastic transfer cross sections of ^{10}B obtained from ENDF/B.

Bearing the above argument and use of the file for thermal reactor in mind we arrive at a conclusion that for ^{12}C the UKNDL is adequate for the present, if we omit $\sigma(n, 3\alpha)$ data.

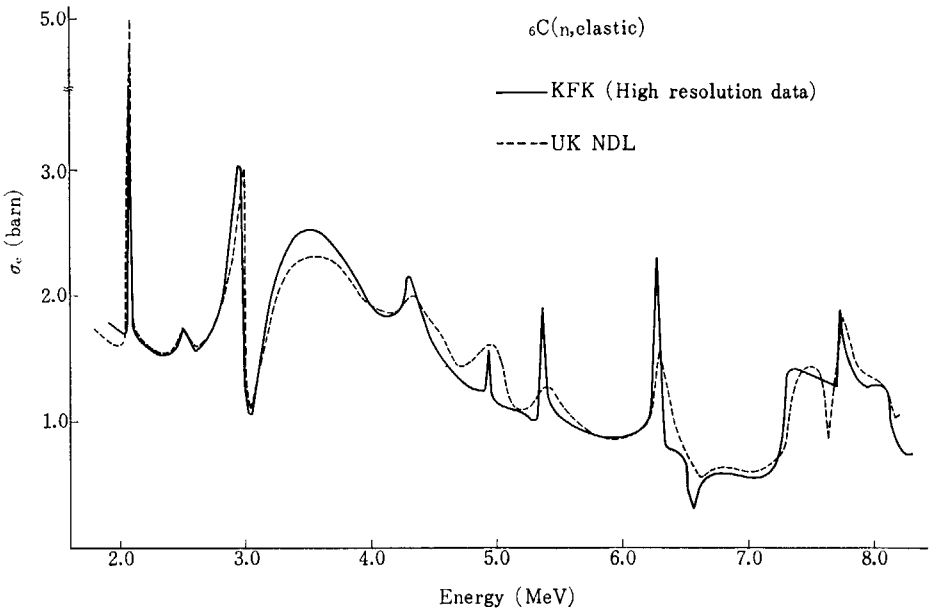

Fig. 2 Elastic scattering cross section σ_e of carbon

3. 2 Nuclear Data for Oxgen

From 1 eV to 200 keV σ_t is constant within experimental uncertainties. Below 1 eV measured values show some energy dependence which is due to molecular binding. When we calculate characteristics of thermal reactor, we have to treat group constants for thermal energy region separately, that is, a calculation of scattering kernel is needed. Therefore the energy dependence of this energy region is of no use.

According to experiments a constant σ_t of 3.7 ± 0.1 b is recommended between 1 eV and 1 keV. In ENDF/B, 3.76 b is used for this value. Both KFK-120 and UK files use 3.7 b.

Above 1 keV up to 300 keV UK and KFK adopt the same values. However, in ENDF/B values[25] fluctuate. At present there is no indication that these fluctuations are due to some unknown resonances.

From 300 keV to 3 MeV σ_t of UKNDL agrees with that of KFK-120. Values of σ_t in ENDF/B are slightly different from UKNDL and KFK-120, but at resonances agree with measurements made by LANE *et al.*[22] Discrepancies between ENDF/B and others are not so serious. At off-resonance energies discrepancies between measured values in three files are found, which will affect only slightly the group total elastic scattering and elastic removal cross section.

From 3 MeV to 10.5 MeV three files use the most accurate measured values[22] (FOSSAN *et al.*). Situations are shown in **Fig. 3.**

Because of double magic structure of ^{16}O, oxygen is highly stable and expected to have very small capture cross section. In both KFK and ENDF/B files capture cross section σ_γ is neglected. In UKNDL very small values are given. Therefore every file is acceptable for σ_γ of oxygen.

From threshold 3.64 MeV to 5 MeV $\sigma(n, \alpha)$ of three files agree with each other. From 5.0 to 8 MeV KFK-120 uses measured values of DAVIS *et al.*[26] However UKNDL uses old recommended values of KFK-120 which are substantially high (sometimes factor 2). ENDF/B adopts rather small values compared with KFK-120 and measurements of DAVIS. KFK-120

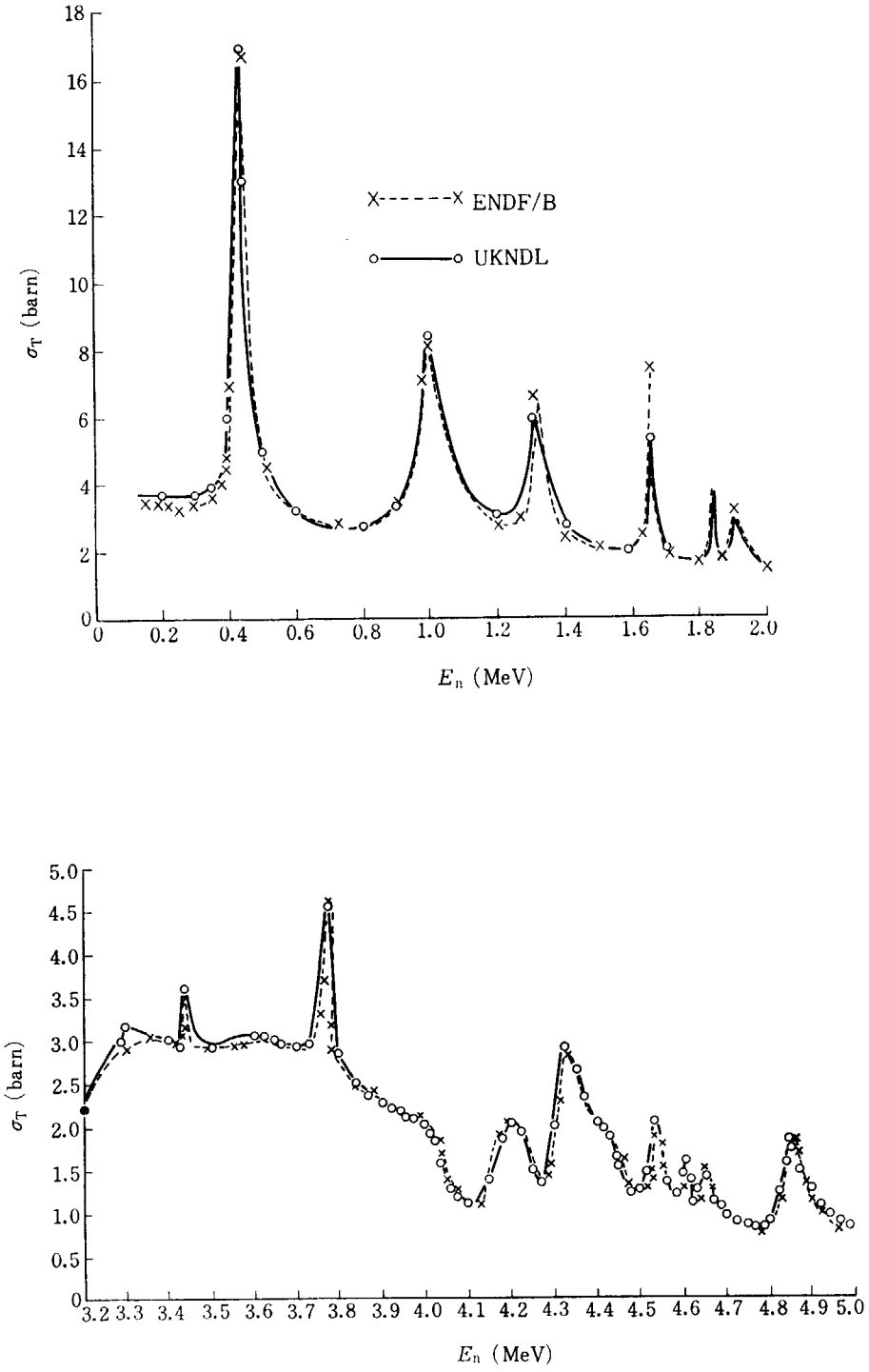

Fig. 3 Total cross section σ_T of oxygen

values are favourable for the present.

For inelastic cross section KFK-120 adopted results of HALL and BONNER[27]. To convert the cross sections measured by HALL and BONNER into neutron inelastic cross sections, SCHMIDT studied the decay scheme of the levels and obtained cross sections due to levels from this study. The inelastic scattering cross sections of UKNDL are adopted from the same origin as KFK-120. Data of ENDF/B are almost the same as those of other files.

From the above arguments it is preferable for us to use KFK-120 as basic nuclear data. UKNDL differs from KFK-120 only for (n, α) cross sections in the energy range from 5 MeV to 10 MeV. The effect of this discrepancy is very small for fast reacor characteristics so we

will make use of data in UKNDL. Reasons why we do not use ENDF/B file are that the scattering cross secss setions at low energies are not 3.7 b, and angular distribution of inelastically scattered neutrons is not given. And finally angular distribution of elastically scattered neutrons are given through Legendre coefficients. In case of using Legendre coefficients we do not always know proof for non-negative property of transfer cross sections at every energy.

3.3 Nuclear Data for Sodium

Sodium is a very important material for the safety of a large fast reactor because of its reactivity effect due to removal from a core region[28)29)]. The main contribution due to sodium to the positive reactivity is thought to come from changes of effective elastic removal cross sections especially for the groups near the 2.85 keV resonance. Another contribution comes from the change of the effective capture cross sections of the same resonance. For evaluating Na cross sections we should take this point into consideration.

In UKNDL and KFK-120 the completely same values are adopted for σ_t of Na between 10 keV to 820 keV. Between 65 keV and 1.0 MeV, differences between values of ENDF/B and KFK-120 are very small except near the 914 keV resonance, where ENDF/B uses a lower peak value and narrower resonance width. Between 0.8 and 2.0 MeV UKNDL uses old KFK -120 values which differs from those of the ENDF/B. In this range KFK-120 agree well with the recommended curves of BNL-325 (2nd ed. suppl. No. 2), whereas ENDF/B uses rather different data which are small at off-resonance positions. Also ENDF/B includes very small fluctuations in several narrow energy intervals. This fluctuations are thought to be statistical fluctuations. On the average, however, ENDF/B data seems to agree with old KFK-120 values and thus agree with UK values. This means that group total and scattering cross sections do not differ so much between UK and ENDF/B files. From 2.0 to 2.6 MeV ENDF/B uses measured values of MEIER[30)], VAUGHN[31)], and LANGSFORD. UK data agree with the curve of KFK-120 part III in this range. Between 2.6 and 5.0 MeV ENDF/B uses data of CALVI *et al.* and GLASGOW[22)]. However actually ENDF/B agrees very well with the recommended curve of BNL 325. In this range UK data are the same as those of KFK-120 part III.

Between 5.0 and 15 MeV ENDF/B adopted GLASGOW's measured values[22)], and UK uses old KFK-120 values. From 2 to 5 MeV Schmidt has made re-evaluation of his old KFK-120. KFK curve follows LANGSFORD's curve between 2 and 4 Mev and CALVI's curve between 4 and 5 MeV. In the range 5.4 to 8.5 MeV FABIANI's data are adopted. And GLASGOW's data are used in the range 8.5 to 15 MeV.

Here we have to consider effects of resolutions on group constants. In fast reactors we usually investigate characteristics by diffusion theory and it is said that there is not significant difference between diffusion theory and transport theory except for very small reactor systems. Therefore most important quantities are fission, absorption and removal cross section due to scattering. The total cross section is concerned with leakages which is not so significant. So in considering effects due to resolutions the best measure is removal cross sections. The elastic scattering cross section of UK and KFK are shown in **Fig. 4.**

TABLE 3 shows elastic removal cross sections as well as elastic cross sections for 7th to 11th groups (70-group structure). The differences among ENDF/B, KFK and UK for lst to 5th group are insignificant. In fact differences for the ABBN structure do not exceed a few percent. From **TABLE 3** it seems that in this range fine resolutions do not affects so much elastic removal cross sections, because differences are very small in μ_L values. Whereas lower

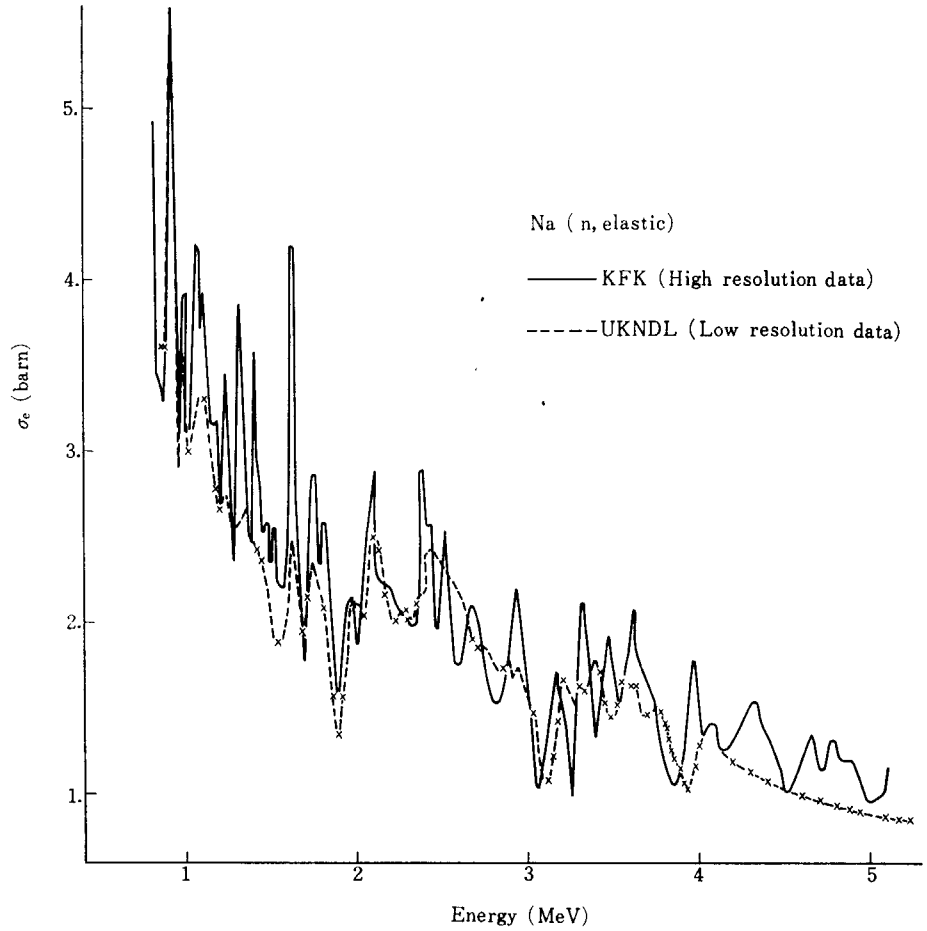

Fig. 4 Elastic scattering closs section σ_e of sodium

TABLE 3. Comparison of σ_e and $\sigma_e^{i\to j}$ of sodium obtained from low and high resolution data

Lower energy \ Group		σ_e		$\sigma_e^{i\to i}$		$\sigma_e^{i\to i+1}$	
		high resolution	low resolution	high resolution	low resolution	high resolution	low resolution
1.9 MeV	7	2.2298	2.1422	1.8485	1.7920	0.3813	0.3502
1.4 〃	8	2.4782	2.3379	1.9523	1.8124	0.5259	0.5255
1.1 〃	9	3.0357	2.8069	2.2658	2.0690	0.7698	0.7379
800 keV	10	3.9429	3.9068	3.2532	3.2168	0.6897	0.6900
630 〃	11	6.1035	6.1209	4.2744	4.2882	1.8290	1.8327

UKNDL (low resolution data)
KFK (high resolution data)

values of elastic removal cross sections from UK file can be interpreted as small total cross sections (thus small elastic scattering cross sections). However differences in σ_{er} due to these files are still in error ranges of measured cross sections.

The most important are total (or scattering) cross sections near the 2.85 keV resonance. The most of positive contributions from sodium to the sodium void effect seems to be due to elastic removal cross sections near this resonance. Following to SCHMIDT's argument the peak cross section of this resonance is thought 600 b which is measured by GARG and this peak value indicates the spin value $J=2$. The width is believed to be very close to

400 eV. This will affect the sodium void effect remarkably. ENDF/B uses the width of 410 eV, but the peak value is only 377 b. UKNDL uses KFK-120-III values, which corresponds to the peak value of 600 b and width of 220 eV.

We have produced cross sections in this range. According to SCHMIDT, cross sections in this range consists of two parts, a contribution from 2.85 keV resonance and contributions from potential and a negative resonance level. The latter contribution is not essentially energy dependent. However parameters derived by SCHMIDT do not reproduce well cross sections at off-resonance. So we calculate contribution from this resonance and add constant cross section of 3.5 b which is the same value as potential scattering cross section. By this procedure elastic scattering cross sections are reproduced at off-resonance position. Capture cross sections are also produced in this range. The cross sections are shown in **Figs. 5** and **6.**

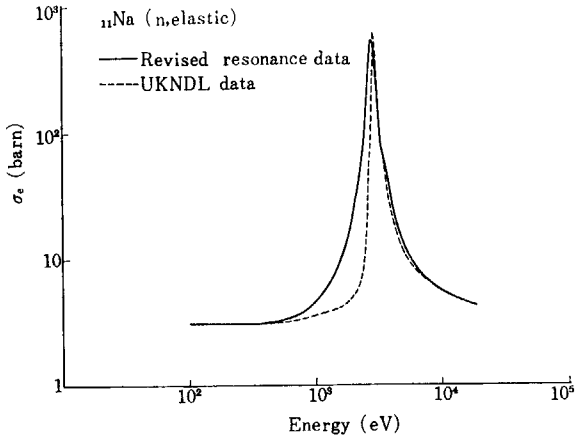

Fig. 5 Elastic scattering cross section σ_e at 2.85 keV resonance of sodium

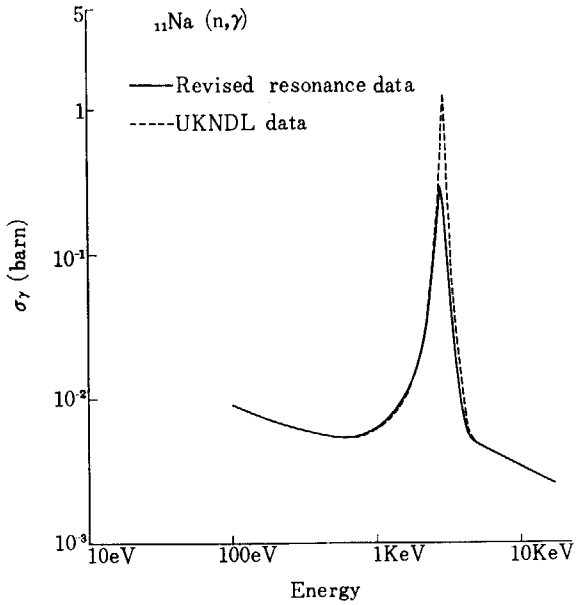

Fig. 6 Capture cross section σ_γ at 2.85 keV resonance of sodium

In ENDF/B σ_γ for thermal energy is given as tabulated cross sections. For the σ_γ (2200 m/sec) the recommended value of BNL (suppl. No.2) is used. From 1.5 eV to 65 keV σ_γ is given through resonance parameters. By our reproduction of capture cross sections from resonance parameters the capture cross section near the 2.85 keV resonance seems reasonable

compared with KFK's fast reactor group-constants, and smoothly joins to σ_γ in thermal range. However their spin value for resonance is not adequate. Above 5 keV to 20 keV the cross sections are too small compared with Le RIGOLEUR's measurement[32]. In the range 100 keV to 230 keV ENDF/B uses data of Le RIGOLEUR's[32] and BAME[33], which are slightly different from KFK-120-II.

UK's σ_γ are the same as KFK-120-II and-III and thus they are too large in the range 5 to 100 keV compared with measured value. SCHMIDT has made re-evaluation of σ_γ between 4 to 230 keV based mainly on Le RIGOLEUR's data. He also produced σ_γ below 4 keV from resonance parameters. If we use UK's value for σ_γ the group capture cross sections of some groups will become large. However for fast reactors, the effect on k_{eff} or other quantities due to error (of this order) in σ_γ of Na is very small and can be neglected.

Therefore we have calculated σ_γ from resonance parameters of which Γ_γ is adjusted in order to give the correct m/sec value. Γ_γ is taken as 0.22 eV. The calculated σ_γ were joined into UK values at 1.0 keV (see **Fig. 6**). In the range 4 keV to 7.5 keV we have adopted the SCHMIDT's recommended values. We prefer to use the SCHMIDT's new σ_γ between 7.5 to 230 keV. However at this time we will use UK value for this range.

Above 230 keV σ_γ s of UK are adopted for our file.

SCHMIDT summarized currently available experimental results for σ_{in} of the level 0.44 MeV and relied upon measurements made by TOWLE[34], LIND[35] and CHIEN[36] independently. Except for CHIEN's data in the range 1.3 to 1.5 MeV agreement are very good.

ENDF/B adopted CHIEN's values between 0.8 to 1.5 MeV. Above 1.6 MeV the same values as KFK-120 was used. The UK file uses values of KFK-120-II. However the differencs between KFK-120-II and KFKI-120-I are very amall and it is expected that alterations of UK values to the new KFK-values do not produce noticeable effects on quantities related to inelastic scatterings.

On the background of this argument we prefer to use UK values for σ_{in} of the 0.44 MeV level.

For other levels the evalution of Na cross sections in ENDF/B said that be used measured values of TOWLE[34], LIND[35], FREEMAN[37] and SHIPLEY[38] and values of KFK-120 for evaluation. From these references the evaluator had derived inelastic scattering cross sections due to various levels up to 5 MeV, whereas SCHMIDT evaluated them below 4 MeV. They did not mention actual procedures by which they had produced such inelastic cross sections above 4 MeV. It is thought that they might have used calculated results by using a complex potential model.

UK data are completely the same as those evaluated by SCHMIDT. The sum of inelastic scattering cross sections or those for continuum region completely coincide among the three files. Because lack of experimental information supporting ENDF/B evaluation we must believe the SCHNIDT's evaluation. These cross sections do not affect fast reactor characteristics so significantly that we adopt the SCHMIDT's recommendation. There are two measurement for σ_{p} and σ_α below 10.5 MeV, one is WILLIAMSON's measurement[39] and the other is BASS[40]. For σ_{p} BASS has given two curves, one is very similar to WILLIAMSON's curve and the other is rather high in the range 6 to 8 MeV. The discrepancies between these curves have not been explained. The estimation by BULLOCK and MOORE[40] based on statistical theory is in rather good agreement with WILLIAMSON's data and one of BASS' experiments (lower values) on the average. ENDF/B adopt BASS' higher values for σ_{p}. On the contrary UK and KFK adopt WILLIAMSON's values.

For σ_α BASS' data are larger than WILLIAMSON's[39] in the range above 8 to 9 MeV. They follow theoretical calculation made by BULLOCK[41]. Above 9 MeV ENDF/B uses BULLOCK's

results. KFK-120 and UK use WILLIAMSON's data.

Bearing in mind the above argument and less importance of difference of such small values in (n, p) and (n, α) cross section, we prefer to use UK data with some modifications.

3. 4 Nuclear Data for Iron

Total cross sections of ENDF/B, UK and KFK were compared. Near thermal energy. differences among the three files are very small. However σ_t of ENDF/B shows rather different energy dependence. This is because that σ_t of ENDF/B is based on the sum of σ_e and σ_γ of UNC evaluation. On the other hand KFK and UK use constant σ_e near thermal energy.

For the scattering cross section of a free atom, 11.39±0.046 was obtained by GOLDBERG and HARVEY[42]. Both UK and KFK adopted this value and put it in their files. According to the evaluation report of UNC, ENDF/B values in the range from 230 to 400 keV are obtained from the curve of BNL 325 2nd ed. suppl. No. 1. If this is true this will produce the same values for σ_t as those adopted by others. However the values are significantly lower than the other. It will affect k_{eff} through σ_{er} and σ_{tr}.

Above 400 keV UK and ENDF/B use low resolution data. SCHMIDT has evaluated σ_t in this range from high resolution measurements. The difference between UK and ENDF/B is not so serious, because σ_t affects only elastic scattering cross sections (other cross sections come from the same origin.). In both ENDF/B and KFK files there is a resonance at 1.15 keV, whereas UK has not this resonance. UK values of σ_t are different from others in the range 950 eV to 1.3 keV and this difference comes from those in capture cross sections which will be explained later.

In the range from 1.3 to 200 keV UK uses the same value as KFK. Small differences between ENDF/B and others are found near every resonance peak. From 100 to 180 keV ENDF/B values are always higher than the others. The difference amounts to 40 to 100% and this will produce a significant error in the effective multiplication factor through elastic removal cross sections.

From 200 to 400 keV UK and KFK use the same values for σ_t.

In **TABLE 4**, σ_e and $\sigma_e^{i\to j}$ are listed. Values are obtained from UK data (low resolution) and KFK data (high resolution). Corresponding elastic cross sections are shown in **Fig. 7**. High resolution data produce difference less than 1% in both cross sections except for the 9th and

TABLE 4. Comparison of σ_e and $\sigma_e^{i\to j}$ obtained from low and high resolution data

Lower energy \ Group		σ_e		$\sigma_e^{i\to i}$		$\sigma_e^{i\to i+1}$	
		high resolution	low resolution	high resolution	low resolution	high resolution	low resolution
1.9 MeV	7	2.2261	2.2968	2.0038	2.0691	0.2224	0.2277
1.4 〃	8	2.2515	2.2297	2.0437	2.0283	0.2078	0.2014
1.1 〃	9	2.0704	2.1298	1.8693	1.9055	0.2011	0.2244
800 keV	10	2.2185	2.2688	1.9908	2.0204	0.2211	0.2484
630 〃	11	3.0117	3.0307	2.7925	2.7367	0.2014	0.2939
500 〃	12	2.4625	2.6473	2.0786	2.2662	0.3723	0.3811
400 〃	13	3.6823	3.7591	3.0156	3.1087	0.6508	0.6504

UKNDL (low resolution data)
KFK (high resolution data)

10th group where the differences in σ_{er} become 10%. Generally the differences are not so significant that we do not need high resolution data.

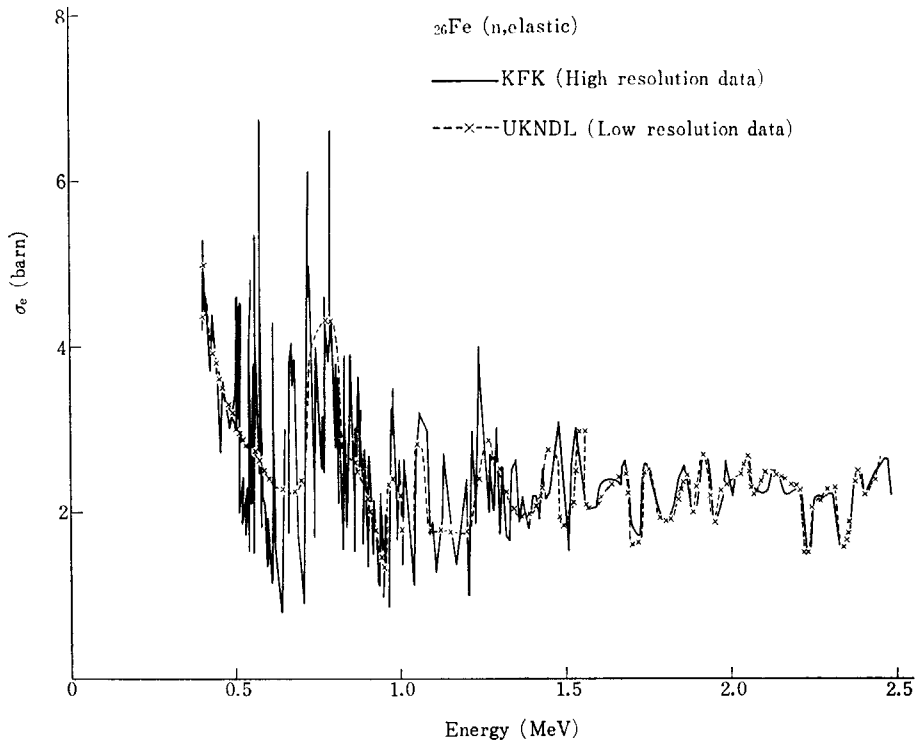

Fig. 7 Elastic scattering cross section σ_e of iron

For inelastic scattering cross section ENDF/B uses the same values as those of UKNDL. For the first level (0.845 MeV) high resolution data are adopted for KFK. Slightly significant discrepancy between UK and KFK is found in the range from 1.1 to 1.5 MeV. Below 1.1 MeV both data agree with each other. Above 5 MeV KFK data fluctuate around UK's curve.

For the second level of 2.080 MeV UK data seem slightly higher compared with experimental data. It seems that UK data are obtained by renormalizing recent experimental results with older results. Considering the agreement between data of the first level on which the two files are based, this procedure seems reasonable.

In UK and ENDF/B files there are a few peaks near 50, 130 and 350 eV. Accorrding to SCHMIDT's evaluation these peaks are due to impurity admixtures contained in iron samples. Below 1 keV the iron capture cross section is thought to follow an $1/v$ behavior. The largest discrepancies between both files are found from 500 eV to 100 keV. The UK data follows measurement by ISAKOV *et al.*[43] The ENDF/B adopts data of BNL 325 (2nd ed. suppl. No. 2). which are based on MOXON's high resolution measurements[44]. MOXON's data agree comparatively well with MACKLIN's data[45] except near the 28 keV rosonance. We prefer to use MOXON's data. From 100 to 200 keV, MACKLIN made new measurement[46]. Considering the behavior of σ_γ below 100 keV, MACKLIN's data seem reasonable. Therefore in this range we adopted the data. **Fig. 8** shows σ_γ of iron.

ENDF/B adopted the data of UKNDL for both σ_p and σ_γ. The σ_p of UKNDL is comparatively lower than the KFK-value. The reason seems that in UK data a contribution from σ_p of ^{54}Fe is neglected. On the other hand the σ_α of KFK are rather high compared with UK data. The difference is due to contribution from ^{56}Fe, for which we have no data at all. If σ_α of

^{56}Fe is negligible, UK data do not produce significant error for the sum of σ_p and σ_α. We will adopt UK data for the present.

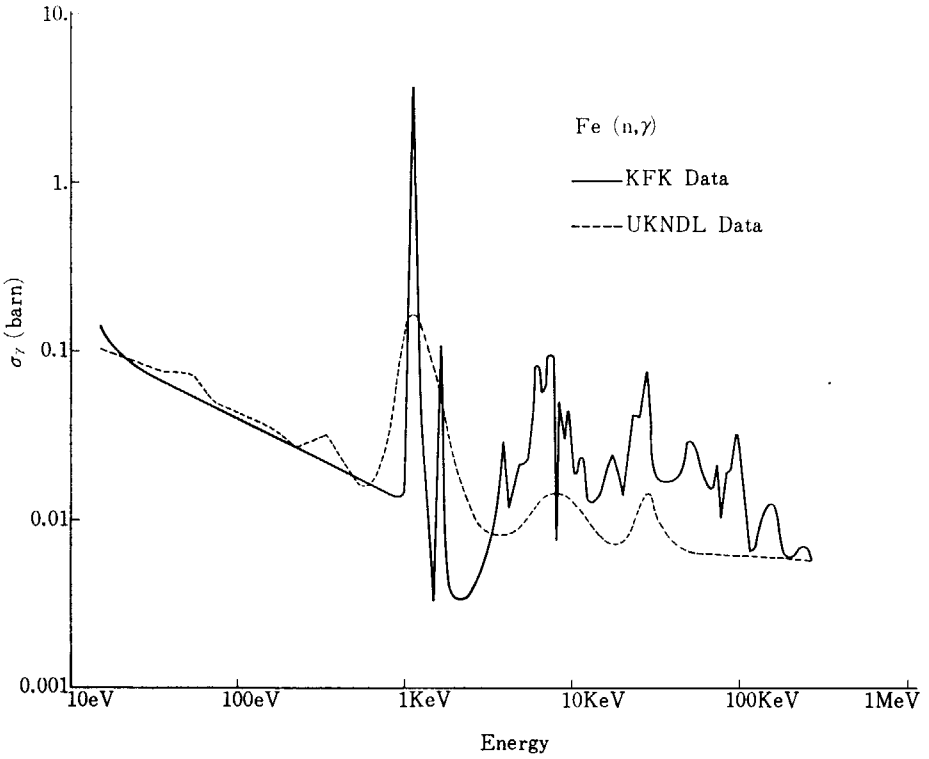

Fig. 8 Capture cross section σ_γ of iron

3. 5 Nuclear Data for Nickel and Chromium

These elements are less important than Fe, because contents of these elements in stsainless steel are relatively small.

For σ_t of Ni, ENDF/B uses the same data as UKNDL below 60 keV and above 200 keV. In the range from 60 to 200 keV σ_t are calculated from the resonance parameters of Bilpuch *et al.* However actually ENDF/B data agree well with UK data in this range.

KFK uses high resolution data above 200 keV. The data, however, do not produce significant differences in σ_e and σ_{er} except for the 6th and 7th groups. In these groups, total cross sections are comparatively low for KFK. The σ_e and σ_{er} of Ni are shown in **TABLE 5** and the elastic cross sections are shown in **Fig. 9.**

The inelastic cross section of 2.458 MeV levels and 2.772 MeV levels are different between UK and KFK files. The difference is thought to be due to renormalization considering natural abundance. We renormalized these cross section. For σ_γ of Ni both UK and ENDF/B data have peaks due to impurity. We have removed this peak and use this data for the present, although in the range from 500 keV to 2 MeV σ_γ of UK is rather small. For σ_p of Ni, UK and ENDF/B use the same data. KFK data differ largely from others above 4 MeV. The σ_α of UK and ENDF/B is small by almost factor 2. However σ_α are very small and hence the difference can be neglected.

For total cross sections of Cr, KFK adopted high resolution data above 500 keV. However effect of these high resolution cross sections on change in elastic cross sections as well as elastic removal cross sections is thought to be small. In the ranges from 0.8 to 1.1 MeV and

TABLE 5. Comparison of σ_e and $\sigma_e^{i\to j}$ of nickel obtained from low and high resolution data

Lower energy	Group	σ_e		$\sigma_e^{i\to i}$		$\sigma_e^{i\to i+1}$	
		high resolution	low resolution	high resolution	low resolution	high resolution	low resolution
2.5 MeV	6	1.9844	2.2322	1.7976	1.9810	0.1868	0.2512
1.9 〃	7	2.4506	2.4921	2.2216	2.2477	0.2290	0.2444
1.4 〃	8	2.7539	2.9174	2.4876	2.6556	0.2663	0.2618
1.1 〃	9	3.2286	3.2920	2.8420	2.9007	0.3867	0.3913
800 keV	10	2.9973	2.9308	2.7545	2.6893	0.2428	0.2415
630 〃	11	3.1758	3.2050	2.7648	2.7605	0.4110	0.4445
500 〃	12	3.1444	3.1550	2.6816	2.6972	0.4628	0.4578
400 〃	13	3.9693	3.9409	3.5769	3.5646	0.3889	0.3763

UKNDL (low resolution data)
KFK (high resolution data)

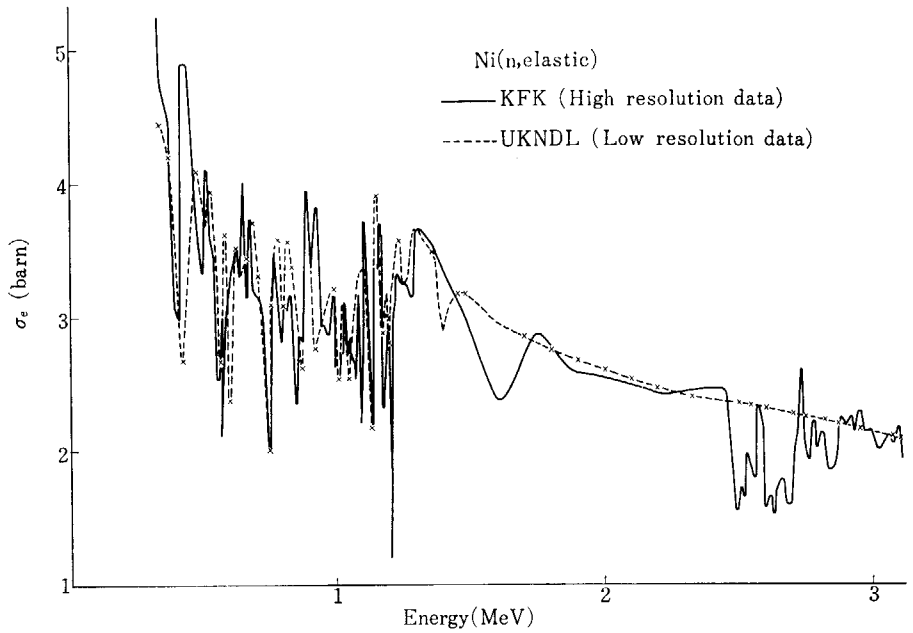

Fig. 9 Elastic scattering cross section σ_e of nickel

1.4 to 1.8 MeV replacement of data might be required for elastic removal cross sections.

For inelastic scattering cross sections we cannot understand ENDF/B evaluation. Whereas KFK and UK agree completely.

For σ_γ ENDF/B data below 10 keV was rejected. UK data in the range from 10 to 200 keV are very small compared with the other files. We have replaced UK data by KFK values between 7.73 to 250 keV.

The σ_p of three files agrees very well. σ_α is not included in the UK file. However σ_α is significant above 5 MeV. Because content of Cr in a fast reactor is relatively small, lack of σ_α of Cr does not affect characteristic features of a fast reactor.

3. 6 Heavy Element Cross Sections

For ^{239}Pu, fission cross section σ_f of three files thought to be too small[47] compared with the measured fission ratio of ^{239}Pu to ^{235}U. It might be thought that DAVEY's recommended values[48] for fission ratio are not so reliable for the energy range from 10 to 500 keV, because the averaged value over fission spectrum is not sensitive to the ratio in the lower energy ranges. We have changed the fission cross sections following SCHMIDT recommendation preserving α values.

For ^{240}Pu we have changed σ_f and σ_γ slightly. Values of σ_f were obtained averaging experimental data[44] by Petrel bomb explosion. For σ_γ, a Harwell measurement[50] was adopted.

4. Guides for Users

By using nuclear data and the program PROF GROUCH-G we obtained group constants for the following elements; ^{10}B, ^{11}B, C, O, Na, Al, Cr, Fe, Ni, Cu and ^{241}Pu. Group constants for ^{235}U and ^{239}Pu above 21.5 keV and those for ^{238}U and Pu above 21.5 keV also have been produced. In Appendices lists of these constants will be given for element by element. The list consists of

70-group cross section table for infinit dilution

25-group cross section table for infinit dilution which is derived from the 70-group table

elastic scattering transfer matrices for 70-group structure

inelastic scattering transfer matrices for both 70-group and 25-group structures

70-group fluxes for several values of σ_0

tables of self-shielding factors for fission, capture, elastic scattering and total cross sections for both 70-group and 25-group structures.

Most of readers might be familiar with the ABBN set. Therefore we do not explain further details of quantities contained in each table. The authors expect that readers use these group constants properly in their program for analyses.

Note that some of self-shielding factors seem to have odd σ_0 dependence. This odd behaviour, however, proves the proper functions of the proccesing program PROF GROUCH-G. For example near threshold energy, σ_p is steeply rising with increang energy, hence if σ_t is decreasing with increasing energy, then the effective σ_p will increase with decreasimg σ_0. When the cross section in question is varying with energy in the opposite direction of variation of σ_t, the odd σ_0 dependence is expected. In the self shielding factors for capture of Na, the odd behaviors are observed in the several groups. For example in the 17th, 14th and 12th groups σ_t are rising with increasing energy (lower half of scattering resonances), on the other hand σ_γ are decreasing in these energy regions. Moreover in the 12th group we observe a predominant resonance. Therefore σ_0 dependence is comparatively remarkable in this group. The odd behaviour observed in higher energy groups are interpreted as due to threshold reactions.

If the readers do not want to use self shielding factors having the odd behaviour, the factor should be set equal to 1. This approximation is usually adopted by several sets and thought as an admissible approximation.

We heve produced group constants of heavy elements ^{235}U, ^{239}Pu, ^{238}U and ^{240}Pu in the

resonance energy regions[12]. These constants are prepared for both 70-group and 25-group structures. These constants together with the constants reported in this report form a complete set for analyses of fast reactors and the composite set will be used extensively in JAERI.

If group constants for another group structures are desired, it is very easy for readers to have the desired constants. For this treatment we have listed fluxes. For obtaining group contants of fewer groups than 70, the following equations should be used;

For cross sections (including yield of neutron in fission ν and the average cosine $\bar{\mu}$)

$$\sigma_{xI}=\sum_{i\epsilon I}\phi_i\sigma_{xi}/\sum_{i\epsilon I}\phi_i .$$

For transfer matrices

$$\sigma^{I\to J}=\sum_{j\epsilon J}\sum_{i\epsilon I}\phi_i\sigma^{i\to j}/\sum_{i\epsilon I}\phi_i .$$

For total cross sections used in calculating diffusion coefficients

$$\sigma_{tI}=\frac{\sum_{i\epsilon J}\phi_i}{\sum_{i\epsilon I}\frac{\phi_i}{\sigma_{ti}+\sigma_0}}-\sigma_0 .$$

For self shielding factors

$$f_{xI}(\sigma_0)=\sigma_I(\sigma_0)/\sigma_I(\infty) .$$

5. Concluding Remarks

The group constants obtained here are based on better interpretations of nuclear data so that better predictions for characteristic feature of fast reactors and accurate interpretations of experiments are expected, if set based on this group constants are used. If any discrepancies are found in future, it is very easy for users to make any alterations to nuclear data and group constants.

We will add group constants for the other elements to the present set and make the set more complete. For example Ta, Mn, Mo and fission products data will be processed by the end of this fiscal year.

The 70-group structre adopted here seems to be fine enough to compare the results of analyses with more sophisticated analyses such as by using ESELEM-2, SDR, MC^2 and so on. By this comparison it will be possible for reactor physicists to determine the group structure which should be more reasonable and adequate for obtaining accurate results without making sophisticated calculations.

The present group constants together with heavy elements group constants in the resonance regions have been being examined by analyses of bench mark experiments and experiments performed at FCA of JAERI. The group constants for heavy elements in the resonance energy regions have been devised so as to treat the mutual interference effect with ^{238}U. Hence it is expected that the composite set can be applied to analyses of Doppler effects and sodium void effects and results in better interpretations of fast reactor characteristics.

The authors are expecting that many useful informations on application of the group constants are accumulated before a future revision.

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Appendices Table of Group Constants

Note 1. The element without having mass number means natural element.

Note 2. For each element (except for B-10, B-11, Pu-241), tables contain the following quantities titled by,

(1) TABLE OF 70-GROUP CONSTANTS FOR INFINITE DILUTION
(2) TABLE OF ELASTIC MATRICES
(3) TABLE OF INELASTIC MATRICES
(4) TABLE OF WEIGHTING FLUXES
(5)-1 TABLE OF SELF-SHIELDING FACTOR FOR FISSION CROSS SECTION
(5)-2 〃 CAPTURE 〃
(5)-3 〃 ELASTIC 〃
(5)-4 〃 TOTAL 〃

Note 3. For B-10, B-11, Pu-241, contains (1), (2), (3) only.

Note 4. Table (5)-1 is given only for fissile materials.

Note 1. The element without having mass number means natural element.

Note 2. For each element (except for B-10, B-11, Pu-241), tables contain the following quantites titled by,

(1) TABLE OF 25-GROUP CONSTANTS FOR INFINITE DILUTION
(2) TABLE OF INELASTIC MATRICES
(3)-1 TABLE OF SELF-SHIELDING FACTOR FOR FISSION CROSS SECTION
(3)-2 〃 CAPTURE 〃
(3)-3 〃 ELASTIC 〃
(3)-4 〃 TOTAL 〃

Note 3. For B-10, B-11, Pu-241, contains (1), (2) only.

Note 4. Table (3)-1 is given only for fissile materials.

Note. The symbols FF, FC, FE and FT appearing at the top of tables of shielding factor represent factors for fission, capture, elastic scattering and total cross sections, respectively.

PART A. 70-GROUP CONSTANTS

A-I. 70-GROUP STRUCTURE

ENERGY RANGE

70 GROUP STRUCTURE

GROUP	UP-ENERGY	LOW-ENERGY	DEL U	GROUP	UP-ENERGY	LOW-ENERGY	DEL U
1	1.0500E 07	8.3000E 06	0.2351	36	1.6600E 03	1.2900E 03	0.2522
2	8.3000E 06	6.5000E 06	0.2445	37	1.2900E 03	1.0000E 03	0.2546
3	6.5000E 06	5.1000E 06	0.2426	38	1.0000E 03	7.7300E 02	0.2575
4	5.1000E 06	4.0000E 06	0.2429	39	7.7300E 02	5.9800E 02	0.2567
5	4.0000E 06	3.1000E 06	0.2549	40	5.9800E 02	4.6500E 02	0.2516
6	3.1000E 06	2.5000E 06	0.2151	41	4.6500E 02	3.6000E 02	0.2559
7	2.5000E 06	1.9000E 06	0.2744	42	3.6000E 02	2.7800E 02	0.2585
8	1.9000E 06	1.4000E 06	0.3054	43	2.7800E 02	2.1500E 02	0.2570
9	1.4000E 06	1.1000E 06	0.2412	44	2.1500E 02	1.6600E 02	0.2587
10	1.1000E 06	8.0000E 05	0.3185	45	1.6600E 02	1.2900E 02	0.2522
11	8.0000E 05	6.3000E 05	0.2389	46	1.2900E 02	1.0000E 02	0.2546
12	6.3000E 05	5.0000E 05	0.2311	47	1.0000E 02	7.7300E 01	0.2575
13	5.0000E 05	4.0000E 05	0.2231	48	7.7300E 01	5.9800E 01	0.2567
14	4.0000E 05	3.1000E 05	0.2549	49	5.9800E 01	4.6500E 01	0.2516
15	3.1000E 05	2.5000E 05	0.2151	50	4.6500E 01	3.6000E 01	0.2559
16	2.5000E 05	2.0000E 05	0.2231	51	3.6000E 01	2.7800E 01	0.2585
17	2.0000E 05	1.5000E 05	0.2877	52	2.7800E 01	2.1500E 01	0.2570
18	1.5000E 05	1.2000E 05	0.2231	53	2.1500E 01	1.6600E 01	0.2587
19	1.2000E 05	1.0000E 05	0.1823	54	1.6600E 01	1.2900E 01	0.2522
20	1.0000E 05	7.7300E 04	0.2575	55	1.2900E 01	1.0000E 01	0.2546
21	7.7300E 04	5.9800E 04	0.2567	56	1.0000E 01	7.7300E 00	0.2575
22	5.9800E 04	4.6500E 04	0.2516	57	7.7300E 00	5.9800E 00	0.2567
23	4.6500E 04	3.6000E 04	0.2559	58	5.9800E 00	4.6500E 00	0.2516
24	3.6000E 04	2.7800E 04	0.2585	59	4.6500E 00	3.6000E 00	0.2559
25	2.7800E 04	2.1500E 04	0.2570	60	3.6000E 00	2.7800E 00	0.2585
26	2.1500E 04	1.6600E 04	0.2587	61	2.7800E 00	2.1500E 00	0.2570
27	1.6600E 04	1.2900E 04	0.2522	62	2.1500E 00	1.6600E 00	0.2587
28	1.2900E 04	1.0000E 04	0.2546	63	1.6600E 00	1.2900E 00	0.2522
29	1.0000E 04	7.7300E 03	0.2575	64	1.2900E 00	1.0000E 00	0.2546
30	7.7300E 03	5.9800E 03	0.2567	65	1.0000E 00	7.7300E-01	0.2575
31	5.9800E 03	4.6500E 03	0.2516	66	7.7300E-01	5.9800E-01	0.2567
32	4.6500E 03	3.6000E 03	0.2559	67	5.9800E-01	4.6500E-01	0.2516
33	3.6000E 03	2.7800E 03	0.2585	68	4.6500E-01	3.6000E-01	0.2559
34	2.7800E 03	2.1500E 03	0.2570	69	3.6000E-01	2.7800E-01	0.2585
35	2.1500E 03	1.6600E 03	0.2587	70	2.7800E-01	2.1500E-01	0.2570

A-II. FISSION SPECTRA

A-II-1. Pu-239 FISSION SPECTRUM

ELEMENT** PU-239 **

FISSION SPECTRUM *KAI*

70 GROUP STRUCTURE

GROUP	KAI	GROUP	KAI
1	5.01213E-03	36	0.0
2	1.50269E-02	37	0.0
3	3.30564E-02	38	0.0
4	5.92400E-02	39	0.0
5	8.91217E-02	40	0.0
6	9.14886E-02	41	0.0
7	1.26092E-01	42	0.0
8	1.36891E-01	43	0.0
9	9.61850E-02	44	0.0
10	1.04837E-01	45	0.0
11	6.14489E-02	46	0.0
12	4.67153E-02	47	0.0
13	3.49329E-02	48	0.0
14	2.99008E-02	49	0.0
15	1.87098E-02	50	0.0
16	1.45409E-02	51	0.0
17	1.32237E-02	52	0.0
18	7.13093E-03	53	0.0
19	4.41925E-03	54	0.0
20	4.31184E-03	55	0.0
21	2.57042E-03	56	0.0
22	1.51465E-03	57	0.0
23	9.28051E-04	58	0.0
24	5.60484E-04	59	0.0
25	3.32748E-04	60	0.0
26	2.00009E-04	61	0.0
27	1.16937E-04	62	0.0
28	7.11479E-05	63	0.0
29	0.0	64	0.0
30	0.0	65	0.0
31	0.0	66	0.0
32	0.0	67	0.0
33	0.0	68	0.0
34	0.0	69	0.0
35	0.0	70	0.0

A-II-2. U-235 FISSION SPECTRUM

ELEMENT** U-235 **

FISSION SPECTRUM *KAI*

70 GROUP STRUCTURE

GROUP	KAI	GROUP	KAI
1	3.44469E-03	36	0.0
2	1.29341E-02	37	0.0
3	3.10431E-02	38	0.0
4	5.75761E-02	39	0.0
5	9.01390E-02	40	0.0
6	9.36592E-02	41	0.0
7	1.29993E-01	42	0.0
8	1.40158E-01	43	0.0
9	9.75450E-02	44	0.0
10	1.04956E-01	45	0.0
11	6.08725E-02	46	0.0
12	4.58862E-02	47	0.0
13	3.40256E-02	48	0.0
14	2.89841E-02	49	0.0
15	1.80358E-02	50	0.0
16	1.39708E-02	51	0.0
17	1.27189E-02	52	0.0
18	6.87722E-03	53	0.0
19	4.21426E-03	54	0.0
20	4.33113E-03	55	0.0
21	2.99148E-03	56	0.0
22	2.01351E-03	57	0.0
23	1.39559E-03	58	0.0
24	9.55780E-04	59	0.0
25	6.54422E-04	60	0.0
26	4.55070E-04	61	0.0
27	3.00359E-04	62	0.0
28	2.08868E-04	63	0.0
29	0.0	64	0.0
30	0.0	65	0.0
31	0.0	66	0.0
32	0.0	67	0.0
33	0.0	68	0.0
34	0.0	69	0.0
35	0.0	70	0.0

A-III. TABLES OF 70-GROUP CONSTANTS

A-III-1. BORON-10

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** BORON 10 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	1.46039E 00	0.0	0.0	3.27395E-01	4.10614E-01	7.22379E-01	5.60283E-01	2.86356E-01	3.80804E-03
2	1.48329E 00	0.0	0.0	4.38375E-01	3.14518E-01	7.30402E-01	4.51760E-01	3.18867E-01	1.34826E-02
3	1.55904E 00	0.0	0.0	4.92695E-01	1.94624E-01	8.69100E-01	3.42285E-01	4.31351E-01	3.22616E-02
4	1.75752E 00	0.0	0.0	3.43378E-01	1.39493E-01	1.27465E 00	3.95431E-01	5.85275E-01	5.86639E-02
5	1.75834E 00	0.0	0.0	1.58342E-01	4.98127E-02	1.55017E 00	3.95429E-01	6.88593E-01	9.06178E-02
6	2.28746E 00	0.0	0.0	1.28091E-01	6.87717E-03	2.15249E 00	3.95374E-01	9.56745E-01	9.36397E-02
7	1.99949E 00	0.0	0.0	3.56773E-01	4.52053E-04	1.64226E 00	3.81316E-01	6.86180E-01	1.29365E-01
8	2.15214E 00	0.0	0.0	5.91596E-01	0.0	1.76054E 00	2.57449E-01	7.96983E-01	1.39098E-01
9	2.21894E 00	0.0	0.0	2.77336E-01	0.0	1.94160E 00	2.57429E-01	1.05398E 00	9.67136E-02
10	2.76179E 00	0.0	0.0	2.34211E-01	0.0	2.52755E 00	2.57447E-01	1.14126E 00	1.04096E-01
11	3.55852E 00	0.0	0.0	3.81065E-01	0.0	3.17745E 00	1.11262E-01	2.05188E 00	2.39484E-01
12	4.29093E 00	0.0	0.0	5.68229E-01	0.0	3.72270E 00	6.63923E-02	2.53922E 00	2.32143E-01
13	4.74870E 00	0.0	0.0	7.32767E-01	0.0	4.01593E 00	6.63959E-02	2.75464E 00	2.23417E-01
14	4.67608E 00	0.0	0.0	9.06932E-01	0.0	3.76915E 00	6.63979E-02	2.42424E 00	2.55298E-01
15	4.90072E 00	0.0	0.0	1.10251E 00	0.0	3.79821E 00	6.63921E-02	2.64753E 00	2.16129E-01
16	5.03641E 00	0.0	0.0	1.27174E 00	0.0	3.76467E 00	6.63921E-02	2.57717E 00	2.23695E-01
17	4.98076E 00	0.0	0.0	1.46863E 00	0.0	3.49213E 00	6.63938E-02	2.07753E 00	2.88346E-01
18	4.78114E 00	0.0	0.0	1.72536E 00	0.0	3.05576E 00	6.63918E-02	2.07735E 00	2.25000E-01
19	4.70454E 00	0.0	0.0	1.91809E 00	0.0	2.78645E 00	6.63933E-02	2.05394E 00	1.83333E-01
20	4.70436E 00	0.0	0.0	2.13478E 00	0.0	2.56958E 00	6.63955E-02	1.63379E 00	2.57950E-01
21	4.77125E 00	0.0	0.0	2.42683E 00	0.0	2.34442E 00	6.63951E-02	1.49480E 00	2.57462E-01
22	4.91182E 00	0.0	0.0	2.73650E 00	0.0	2.15532E 00	6.63951E-02	1.38901E 00	2.52574E-01
23	5.08587E 00	0.0	0.0	3.11829E 00	0.0	1.96758E 00	6.63974E-02	1.25531E 00	2.56698E-01
24	5.32500E 00	0.0	0.0	3.52785E 00	0.0	1.79715E 00	6.63971E-02	1.14239E 00	2.59171E-01
25	5.69925E 00	0.0	0.0	3.99824E 00	0.0	1.70095E 00	6.63947E-02	1.08972E 00	2.57755E-01
26	6.40537E 00	0.0	0.0	4.61219E 00	0.0	1.79318E 00	6.63953E-02	1.16547E 00	2.59793E-01
27	7.56957E 00	0.0	0.0	5.31765E 00	0.0	2.25192E 00	6.63955E-02	1.50029E 00	2.52921E-01
28	9.04158E 00	0.0	0.0	5.90842E 00	0.0	3.13316E 00	6.63935E-02	2.06727E 00	2.55717E-01
29	1.03282E 01	0.0	0.0	6.69906E 00	0.0	3.63919E 00	6.63950E-02	2.34883E 00	2.58258E-01
30	1.14135E 01	0.0	0.0	7.59921E 00	0.0	3.84429E 00	6.63944E-02	2.47817E 00	2.57503E-01
31	1.26002E 01	0.0	0.0	8.63013E 00	0.0	3.95005E 00	6.63951E-02	2.56853E 00	2.52574E-01
32	1.38838E 01	0.0	0.0	9.90722E 00	0.0	3.97663E 00	6.63947E-02	2.55956E 00	2.58736E-01
33	1.52672E 01	0.0	0.0	1.12863E 01	0.0	3.98094E 00	6.63946E-02	2.54938E 00	2.61371E-01
34	1.68419E 01	0.0	0.0	1.28566E 01	0.0	3.98526E 00	6.63944E-02	2.55977E 00	2.59821E-01
35	1.86392E 01	0.0	0.0	1.46496E 01	0.0	3.98959E 00	6.63954E-02	2.55407E 00	2.61544E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** BORON 10 **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	2.06556E 01	0.0	0.0	1.66617E 01	0.0	3.99386E 00	6.63963E-02	2.58986E 00	2.54857E-01
37	2.29425E 01	0.0	0.0	1.89444E 01	0.0	3.99813E 00	6.63954E-02	2.58000E 00	2.57403E-01
38	2.55442E 01	0.0	0.0	2.15442E 01	0.0	4.00000E 00	6.63950E-02	2.56647E 00	2.60330E-01
39	2.84873E 01	0.0	0.0	2.44873E 01	0.0	4.00000E 00	6.63959E-02	2.57050E 00	2.59516E-01
40	3.17819E 01	0.0	0.0	2.77819E 01	0.0	4.00000E 00	6.63960E-02	2.59679E 00	2.54215E-01
41	3.55372E 01	0.0	0.0	3.15372E 01	0.0	4.00000E 00	6.63947E-02	2.57436E 00	2.58737E-01
42	3.98570E 01	0.0	0.0	3.58570E 01	0.0	4.00000E 00	6.63946E-02	2.56133E 00	2.61371E-01
43	4.47661E 01	0.0	0.0	4.07661E 01	0.0	4.00000E 00	6.63944E-02	2.56899E 00	2.59821E-01
44	5.03609E 01	0.0	0.0	4.63609E 01	0.0	4.00000E 00	6.63954E-02	2.56048E 00	2.61544E-01
45	5.66268E 01	0.0	0.0	5.26268E 01	0.0	4.00000E 00	6.63963E-02	2.59360E 00	2.54856E-01
46	6.37215E 01	0.0	0.0	5.97215E 01	0.0	4.00000E 00	6.63954E-02	2.58096E 00	2.57403E-01
47	7.18995E 01	0.0	0.0	6.78995E 01	0.0	4.00000E 00	6.63950E-02	2.56647E 00	2.60331E-01
48	8.12419E 01	0.0	0.0	7.72419E 01	0.0	4.00000E 00	6.63959E-02	2.57050E 00	2.59516E-01
49	9.17094E 01	0.0	0.0	8.77094E 01	0.0	4.00000E 00	6.63960E-02	2.59679E 00	2.54215E-01
50	1.03651E 02	0.0	0.0	9.96509E 01	0.0	4.00000E 00	6.63947E-02	2.57436E 00	2.58737E-01
51	1.17399E 02	0.0	0.0	1.13399E 02	0.0	4.00000E 00	6.63946E-02	2.56133E 00	2.61371E-01
52	1.33037E 02	0.0	0.0	1.29037E 02	0.0	4.00000E 00	6.63944E-02	2.56899E 00	2.59821E-01
53	1.50874E 02	0.0	0.0	1.46874E 02	0.0	4.00000E 00	6.63954E-02	2.56048E 00	2.61545E-01
54	1.70868E 02	0.0	0.0	1.66868E 02	0.0	4.00000E 00	6.63963E-02	2.59360E 00	2.54856E-01
55	1.93526E 02	0.0	0.0	1.89526E 02	0.0	4.00000E 00	6.63954E-02	2.58096E 00	2.57403E-01
56	2.18898E 02	0.0	0.0	2.14898E 02	0.0	4.00000E 00	6.63949E-02	2.56647E 00	2.60331E-01
57	2.47221E 02	0.0	0.0	2.43221E 02	0.0	4.00000E 00	6.63959E-02	2.57050E 00	2.59516E-01
58	2.78794E 02	0.0	0.0	2.74794E 02	0.0	4.00000E 00	6.63960E-02	2.59679E 00	2.54215E-01
59	3.14630E 02	0.0	0.0	3.10630E 02	0.0	4.00000E 00	6.63947E-02	2.57436E 00	2.58737E-01
60	3.55678E 02	0.0	0.0	3.51678E 02	0.0	4.00000E 00	6.63946E-02	2.56133E 00	2.61371E-01
61	4.02130E 02	0.0	0.0	3.98130E 02	0.0	4.00000E 00	6.63944E-02	2.56899E 00	2.59821E-01
62	4.54844E 02	0.0	0.0	4.50844E 02	0.0	4.00000E 00	6.63954E-02	2.56048E 00	2.61544E-01
63	5.13635E 02	0.0	0.0	5.09635E 02	0.0	4.00000E 00	6.63963E-02	2.59360E 00	2.54856E-01
64	5.79921E 02	0.0	0.0	5.75921E 02	0.0	4.00000E 00	6.63953E-02	2.58096E 00	2.57403E-01
65	6.57498E 02	0.0	0.0	6.53498E 02	0.0	4.00000E 00	6.63950E-02	2.56647E 00	2.60331E-01
66	7.47090E 02	0.0	0.0	7.43090E 02	0.0	4.00000E 00	6.63959E-02	2.57050E 00	2.59516E-01
67	8.47429E 02	0.0	0.0	8.43429E 02	0.0	4.00000E 00	6.63960E-02	2.59679E 00	2.54215E-01
68	9.61846E 02	0.0	0.0	9.57846E 02	0.0	4.00000E 00	6.63960E-02	2.57436E 00	2.58736E-01
69	1.09352E 03	0.0	0.0	1.08952E 03	0.0	4.00000E 00	6.63960E-02	2.56134E 00	2.61371E-01
70	1.23458E 03	0.0	0.0	1.23058E 03	0.0	4.00000E 00	6.63960E-02	0.0	2.59821E-01

TABLE OF ELASTIC MATRICES

ELEMENT** BORON 10 **

GROUP RANGE (I= 1**35 , J= 1** 3)

GROUP (I)	J=I+K (K) 0	1	2
1	4.3602E-01	2.3775E-01	4.8603E-02
2	4.1153E-01	2.5453E-01	6.4337E-02
3	4.3775E-01	3.3870E-01	9.2652E-02
4	6.8937E-01	4.7386E-01	1.1142E-01
5	8.6158E-01	5.0332E-01	1.8528E-01
6	1.1957E 00	8.2357E-01	1.3317E-01
7	9.5608E-01	6.4408E-01	4.2100E-02
8	9.6356E-01	6.9495E-01	1.0203E-01
9	8.8762E-01	1.0137E 00	4.0237E-02
10	1.3863E 00	9.8715E-01	1.5411E-01
11	1.1256E 00	1.6199E 00	4.3200E-01
12	1.1835E 00	1.9747E 00	5.6455E-01
13	1.2613E 00	2.3477E 00	4.0699E-01
14	1.3449E 00	1.8771E 00	5.4717E-01
15	1.1507E 00	2.0456E 00	6.0189E-01
16	1.1872E 00	2.3518E 00	2.2533E-01
17	1.4146E 00	1.6816E 00	3.9593E-01
18	9.7841E-01	1.3788E 00	6.9855E-01
19	7.3251E-01	1.7253E 00	3.2864E-01
20	9.3574E-01	1.4202E 00	2.1362E-01
21	8.4962E-01	1.2837E 00	2.1106E-01
22	7.6631E-01	1.2026E 00	1.8639E-01
23	7.1227E-01	1.0944E 00	1.6051E-01
24	6.5476E-01	9.9313E-01	1.4926E-01
25	6.1123E-01	9.4847E-01	1.4124E-01
26	6.2771E-01	9.9277E-01	1.7268E-01
27	7.5163E-01	1.2757E 00	2.2437E-01
28	1.0657E 00	1.7769E 00	2.9041E-01
29	1.2904E 00	2.0300E 00	3.1883E-01
30	1.3661E 00	2.1187E 00	3.5929E-01
31	1.3815E 00	2.2155E 00	3.5275E-01
32	1.4171E 00	2.2245E 00	3.3507E-01
33	1.4316E 00	2.2100E 00	3.3935E-01
34	1.4255E 00	2.2263E 00	3.3350E-01
35	1.4359E 00	2.1901E 00	3.6394E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** BORON 10 **

GROUP RANGE (I= 36**70 , J= 1** 3)

GROUP (I)	J=I+K (K) 0	1	2
36	1.4040E 00	2.2288E 00	3.6103E-01
37	1.4181E 00	2.2363E 00	3.4373E-01
38	1.4335E 00	2.2227E 00	3.4375E-01
39	1.4295E 00	2.1998E 00	3.7066E-01
40	1.4032E 00	2.2409E 00	3.5585E-01
41	1.4256E 00	2.2374E 00	3.3692E-01
42	1.4387E 00	2.2205E 00	3.4086E-01
43	1.4310E 00	2.2344E 00	3.3462E-01
44	1.4395E 00	2.1957E 00	3.6477E-01
45	1.4064E 00	2.2321E 00	3.6146E-01
46	1.4190E 00	2.2372E 00	3.4377E-01
47	1.4335E 00	2.2227E 00	3.4375E-01
48	1.4295E 00	2.1998E 00	3.7066E-01
49	1.4032E 00	2.2409E 00	3.5585E-01
50	1.4256E 00	2.2374E 00	3.3692E-01
51	1.4387E 00	2.2205E 00	3.4086E-01
52	1.4310E 00	2.2344E 00	3.3462E-01
53	1.4395E 00	2.1957E 00	3.6477E-01
54	1.4064E 00	2.2321E 00	3.6146E-01
55	1.4190E 00	2.2372E 00	3.4377E-01
56	1.4335E 00	2.2227E 00	3.4375E-01
57	1.4295E 00	2.1998E 00	3.7066E-01
58	1.4032E 00	2.2409E 00	3.5585E-01
59	1.4256E 00	2.2374E 00	3.3692E-01
60	1.4387E 00	2.2205E 00	3.4086E-01
61	1.4310E 00	2.2344E 00	3.3462E-01
62	1.4395E 00	2.1957E 00	3.6477E-01
63	1.4064E 00	2.2321E 00	3.6146E-01
64	1.4190E 00	2.2372E 00	3.4377E-01
65	1.4335E 00	2.2227E 00	3.4375E-01
66	1.4295E 00	2.1998E 00	3.7066E-01
67	1.4032E 00	2.2409E 00	3.5585E-01
68	1.4256E 00	2.2374E 00	3.3692E-01
69	1.4387E 00	2.5613E 00	0.0
70	4.0000E 00	0.0	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** BORON 10 **

GROUP RANGE (I= 1** 7 , J= 1** 5)

GROUP (I)	J=I+K (K) 0	1	2	3	4
1	3.3184E-02	2.1441E-01	1.6091E-01	2.1078E-03	0.0
2	2.4700E-02	1.5500E-01	1.2550E-01	9.3139E-03	0.0
3	1.1552E-02	8.7569E-02	8.7414E-02	8.0895E-03	0.0
4	5.3404E-03	5.8543E-02	6.0074E-02	1.5536E-02	0.0
5	9.7545E-04	1.5551E-02	2.7477E-02	5.8093E-03	0.0
6	0.0	1.8334E-03	4.2269E-03	8.1465E-04	1.6606E-06
7	0.0	1.7101E-04	2.2294E-04	5.3107E-05	0.0

A-III-2. BORON-11

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** BORON 11 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	1.39034E 00	0.	0.	3.44366E-03	3.27400E-01	9.89481E-01	4.91635E-01	4.37003E-01	3.77786E-03
2	1.45699E 00	0.	0.	4.93815E-07	1.93270E-01	1.26372E 00	3.78914E-01	6.17461E-01	1.33959E-02
3	1.61351E 00	0.	0.	9.51650E-07	1.06600E-01	1.50691E 00	2.87552E-01	7.86368E-01	3.21068E-02
4	1.46663E 00	0.	0.	1.35737E-06	4.37360E-02	1.42289E 00	1.97191E-01	7.71903E-01	5.85117E-02
5	1.48266E 00	0.	0.	8.10391E-07	2.16890E-02	1.46097E 00	1.40610E-01	8.32406E-01	9.04285E-02
6	1.69084E 00	0.	0.	2.14378E-06	9.49820E-03	1.68134E 00	1.29330E-01	1.07045E 00	9.36325E-02
7	3.35896E 00	0.	0.	1.44735E-06	1.61090E-04	3.35862E 00	1.10451E-01	1.83416E 00	1.29354E-01
8	2.17621E 00	0.	0.	2.39670E-06	0.	2.17621E 00	8.87824E-02	1.18200E 00	1.39102E-01
9	3.14597E 00	0.	0.	2.24062E-06	0.	3.14597E 00	1.12743E-01	1.78826E 00	9.67256E-02
10	1.52842E 00	0.	0.	2.74382E-06	0.	1.52842E 00	1.36991E-01	7.34978E-01	1.04129E-01
11	2.04348E 00	0.	0.	1.18719E-06	0.	2.04348E 00	2.04099E-01	1.16280E 00	2.39215E-01
12	2.73938E 00	0.	0.	2.09510E-06	0.	2.73938E 00	2.13227E-01	1.57817E 00	2.31672E-01
13	5.13447E 00	0.	0.	1.66091E-05	0.	5.13445E 00	2.09123E-01	3.00471E 00	2.23225E-01
14	3.64401E 00	0.	0.	4.60348E-06	0.	3.64401E 00	1.70385E-01	1.96677E 00	2.55892E-01
15	3.75036E 00	0.	0.	2.12308E-06	0.	3.75036E 00	1.21657E-01	2.37628E 00	2.16758E-01
16	3.94126E 00	0.	0.	1.98074E-06	0.	3.94126E 00	8.04781E-02	2.54916E 00	2.24103E-01
17	4.06825E 00	0.	0.	2.10954E-06	0.	4.06825E 00	6.05172E-02	2.33587E 00	2.89852E-01
18	4.23807E 00	0.	0.	2.32697E-06	0.	4.23807E 00	6.05170E-02	2.80737E 00	2.25000E-01
19	4.36442E 00	0.	0.	2.51087E-06	0.	4.36442E 00	6.05176E-02	3.14188E 00	1.82574E-01
20	4.47173E 00	0.	0.	2.80493E-06	0.	4.47175E 00	6.05173E-02	2.74597E 00	2.60330E-01
21	4.58519E 00	0.	0.	3.16891E-06	0.	4.58519E 00	6.05172E-02	2.82058E 00	2.59516E-01
22	4.69504E 00	0.	0.	3.59089E-06	0.	4.69502E 00	6.05173E-02	2.92068E 00	2.52851E-01
23	4.81320E 00	0.	0.	4.17669E-06	0.	4.81320E 00	6.05172E-02	2.96560E 00	2.58736E-01
24	4.92759E 00	0.	0.	5.07313E-06	0.	4.92758E 00	6.05174E-02	3.01829E 00	2.59976E-01
25	5.03547E 00	0.	0.	3.00867E-05	0.	5.03544E 00	6.05171E-02	3.09382E 00	2.59821E-01
26	5.95596E 00	0.	0.	9.90855E-04	0.	5.95497E 00	6.05171E-02	3.49015E 00	2.58679E-01
27	5.04599E 00	0.	0.	3.80856E-05	0.	5.04595E 00	6.05173E-02	3.12611E 00	2.54856E-01
28	5.02004E 00	0.	0.	1.39381E-05	0.	5.02003E 00	6.05173E-02	3.09288E 00	2.57403E-01
29	5.01101E 00	0.	0.	8.74640E-06	0.	5.01100E 00	6.05173E-02	3.06954E 00	2.60330E-01
30	5.01508E 00	0.	0.	9.90286E-06	0.	5.01507E 00	6.05172E-02	3.07749E 00	2.59516E-01
31	5.01910E 00	0.	0.	1.11925E-05	0.	5.01909E 00	6.05173E-02	3.11561E 00	2.54214E-01
32	5.02314E 00	0.	0.	1.26569E-05	0.	5.02313E 00	6.05172E-02	3.08767E 00	2.58736E-01
33	5.02694E 00	0.	0.	1.42535E-05	0.	5.02693E 00	6.05174E-02	3.07176E 00	2.59568E-01
34	5.02893E 00	0.	0.	1.62898E-05	0.	5.02891E 00	6.05171E-02	3.08376E 00	2.59821E-01
35	5.03024E 00	0.	0.	1.85245E-05	0.	5.03020E 00	6.05170E-02	3.07298E 00	2.61544E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** BORON 11 **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	5.03149E 00	0.	0.	2.10271E-05	0.	5.03147E 00	6.05172E-02	3.11879E 00	2.54857E-01
37	5.03276E 00	0.	0.	2.38606E-05	0.	5.03274E 00	6.05173E-02	3.10239E 00	2.57403E-01
38	5.03357E 00	0.	0.	2.71184E-05	0.	5.03354E 00	6.05173E-02	3.08312E 00	2.60330E-01
39	5.03400E 00	0.	0.	3.08325E-05	0.	5.03397E 00	6.05170E-02	3.07720E 00	2.59516E-01
40	5.03442E 00	0.	0.	3.49915E-05	0.	5.03439E 00	6.05170E-02	3.12488E 00	2.54215E-01
41	5.03485E 00	0.	0.	3.97334E-05	0.	5.03481E 00	6.05171E-02	3.09462E 00	2.58737E-01
42	5.03522E 00	0.	0.	4.49152E-05	0.	5.03521E 00	6.05174E-02	3.07662E 00	2.59568E-01
43	5.03542E 00	0.	0.	5.13968E-05	0.	5.03540E 00	6.05171E-02	3.08767E 00	2.59821E-01
44	5.03558E 00	0.	0.	5.84739E-05	0.	5.03552E 00	6.05170E-02	3.07615E 00	2.61544E-01
45	5.03570E 00	0.	0.	6.64032E-05	0.	5.03563E 00	6.05172E-02	3.12130E 00	2.54856E-01
46	5.03583E 00	0.	0.	7.53849E-05	0.	5.03575E 00	6.05173E-02	3.10417E 00	2.57403E-01
47	5.03591E 00	0.	0.	8.56984E-05	0.	5.03582E 00	6.05173E-02	3.08449E 00	2.60331E-01
48	5.03597E 00	0.	0.	9.74457E-05	0.	5.03587E 00	6.05172E-02	3.07834E 00	2.59516E-01
49	5.03602E 00	0.	0.	1.10602E-04	0.	5.03591E 00	6.05172E-02	3.12581E 00	2.54215E-01
50	5.03608E 00	0.	0.	1.25604E-04	0.	5.03595E 00	6.05172E-02	3.09530E 00	2.58737E-01
51	5.03613E 00	0.	0.	1.41998E-04	0.	5.03599E 00	6.05174E-02	3.07708E 00	2.59569E-01
52	5.03616E 00	0.	0.	1.62499E-04	0.	5.03600E 00	6.05171E-02	3.08803E 00	2.59821E-01
53	5.03618E 00	0.	0.	1.84882E-04	0.	5.03600E 00	6.05171E-02	3.07644E 00	2.61545E-01
54	5.03621E 00	0.	0.	2.09961E-04	0.	5.03600E 00	6.05173E-02	3.12152E 00	2.54856E-01
55	5.03624E 00	0.	0.	2.38370E-04	0.	5.03600E 00	6.05173E-02	3.10432E 00	2.57403E-01
56	5.03627E 00	0.	0.	2.70989E-04	0.	5.03600E 00	6.05173E-02	3.08460E 00	2.60331E-01
57	5.03631E 00	0.	0.	3.08140E-04	0.	5.03600E 00	6.05172E-02	3.09008E 00	2.59516E-01
58	5.03635E 00	0.	0.	3.49748E-04	0.	5.03600E 00	6.05173E-02	3.12586E 00	2.54215E-01
59	5.03640E 00	0.	0.	3.97193E-04	0.	5.03600E 00	6.05172E-02	3.09533E 00	2.58737E-01
60	5.03645E 00	0.	0.	4.49043E-04	0.	5.03600E 00	6.05174E-02	3.07708E 00	2.59568E-01
61	5.03651E 00	0.	0.	5.13871E-04	0.	5.03600E 00	6.05171E-02	3.08803E 00	2.59821E-01
62	5.03658E 00	0.	0.	5.84649E-04	0.	5.03600E 00	6.05171E-02	3.07644E 00	2.61544E-01
63	5.03666E 00	0.	0.	6.63951E-04	0.	5.03600E 00	6.05172E-02	3.12152E 00	2.54856E-01
64	5.03675E 00	0.	0.	7.53782E-04	0.	5.03600E 00	6.05172E-02	3.10432E 00	2.57403E-01
65	5.03686E 00	0.	0.	8.56928E-04	0.	5.03600E 00	6.05173E-02	3.08460E 00	2.60331E-01
66	5.03697E 00	0.	0.	9.74409E-04	0.	5.03600E 00	6.05172E-02	3.09008E 00	2.59516E-01
67	5.03711E 00	0.	0.	1.10598E-03	0.	5.03600E 00	6.05172E-02	3.12586E 00	2.54215E-01
68	5.03726E 00	0.	0.	1.25602E-03	0.	5.03600E 00	6.05172E-02	3.09533E 00	2.58736E-01
69	5.03742E 00	0.	0.	1.41998E-03	0.	5.03600E 00	6.05172E-02	3.07708E 00	2.59568E-01
70	5.03793E 00	0.	0.	1.98320E-03	0.	5.03600E 00	6.05172E-02	0.	2.59821E-01

TABLE OF ELASTIC MATRICES

ELEMENT** BORON 11 **

GROUP RANGE (I= 1**35 , J= 1** 3)

GROUP (I)	J=I+K (K) 0	1	2
1	5.5246E-01	3.8271E-01	5.4788E-02
2	6.4626E-01	5.2920E-01	8.8260E-02
3	7.2054E-01	6.6697E-01	1.1940E-01
4	6.5099E-01	6.8213E-01	8.9772E-02
5	6.2856E-01	6.6389E-01	1.0852E-01
6	6.1089E-01	9.6474E-01	1.0572E-01
7	1.5247E 00	1.7892E 00	4.4990E-02
8	9.9421E-01	1.0490E 00	1.3295E-01
9	1.3577E 00	1.7639E 00	2.4380E-02
10	7.4344E-01	6.5707E-01	7.7903E-02
11	8.8068E-01	1.0305E 00	1.3230E-01
12	1.1612E 00	1.3578E 00	2.2035E-01
13	2.2297E 00	2.7462E 00	2.5852E-01
14	1.6772E 00	1.6540E 00	3.1280E-01
15	1.5741E 00	1.9909E 00	3.8540E-01
16	1.3921E 00	2.4270E 00	1.2219E-01
17	1.7324E 00	1.9940E 00	3.4184E-01
18	1.4307E 00	2.0389E 00	7.6850E-01
19	1.2225E 00	2.8172E 00	3.2471E-01
20	1.7258E 00	2.5054E 00	2.4054E-01
21	1.7640E 00	2.5489E 00	2.7168E-01
22	1.7743E 00	2.6545E 00	2.6116E-01
23	1.8476E 00	2.7141E 00	2.5153E-01
24	1.8092E 00	2.7565E 00	2.6194E-01
25	1.9416E 00	2.8331E 00	2.6072E-01
26	2.4646E 00	3.1980E 00	2.9216E-01
27	1.9196E 00	2.8414E 00	2.8466E-01
28	1.9274E 00	2.8266E 00	2.6607E-01
29	1.9415E 00	2.8024E 00	2.6719E-01
30	1.9376E 00	2.7829E 00	2.9460E-01
31	1.9033E 00	2.8378E 00	2.7780E-01
32	1.9352E 00	2.8274E 00	2.6028E-01
33	1.9552E 00	2.8069E 00	2.6487E-01
34	1.9456E 00	2.8252E 00	2.9355E-01
35	1.9572E 00	2.7829E 00	2.9012E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** BORON 11 **

GROUP RANGE (I= 36**70 , J= 1** 3)

GROUP (I)	J=I+K (K) 0	1	2
36	1.9127E 00	2.8344E 00	2.6441E-01
37	1.9304E 00	2.8351E 00	2.6727E-01
38	1.9504E 00	2.8148E 00	2.6832E-01
39	1.9568E 00	2.8100E 00	2.6723E-01
40	1.9095E 00	2.8463E 00	2.7857E-01
41	1.9402E 00	2.8338E 00	2.6082E-01
42	1.9586E 00	2.8114E 00	2.6526E-01
43	1.9477E 00	2.8288E 00	2.5886E-01
44	1.9594E 00	2.7857E 00	2.9040E-01
45	1.9143E 00	2.8367E 00	2.8462E-01
46	1.9316E 00	2.8368E 00	2.6741E-01
47	1.9513E 00	2.8161E 00	2.6843E-01
48	1.9575E 00	2.8110E 00	2.6733E-01
49	1.9101E 00	2.8472E 00	2.7865E-01
50	1.9406E 00	2.8344E 00	2.6087E-01
51	1.9589E 00	2.8118E 00	2.6529E-01
52	1.9480E 00	2.8291E 00	2.5889E-01
53	1.9596E 00	2.7860E 00	2.9043E-01
54	1.9143E 00	2.8369E 00	2.8464E-01
55	1.9317E 00	2.8369E 00	2.6742E-01
56	1.9514E 00	2.8162E 00	2.6844E-01
57	1.9459E 00	2.7943E 00	2.9575E-01
58	1.9101E 00	2.8472E 00	2.7865E-01
59	1.9407E 00	2.8345E 00	2.6087E-01
60	1.9589E 00	2.8118E 00	2.6529E-01
61	1.9480E 00	2.8291E 00	2.5889E-01
62	1.9596E 00	2.7860E 00	2.9043E-01
63	1.9145E 00	2.8369E 00	2.8464E-01
64	1.9317E 00	2.8369E 00	2.6742E-01
65	1.9514E 00	2.8162E 00	2.6844E-01
66	1.9459E 00	2.7943E 00	2.9575E-01
67	1.9101E 00	2.8472E 00	2.7865E-01
68	1.9407E 00	2.8345E 00	2.6087E-01
69	1.9589E 00	2.8118E 00	2.6529E-01
70	5.0360E 00	0.	0.

TABLE OF INELASTIC MATRICES

ELEMENT** BORON 11 **

GROUP RANGE (I= 1** 7 , J= 1**27)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
1	0.	0.	0.	4.2361E-03	4.1392E-02	6.8421E-02	1.1020E-01	7.7771E-02	2.4576E-02	7.9881E-04
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
2	0.	0.	0.	0.	0.	2.9489E-03	1.8295E-02	2.3939E-02	3.5845E-02	2.3081E-02
	1.8986E-02	1.3833E-02	1.2755E-02	9.2899E-03	7.4344E-03	7.4814E-03	2.2460E-03	1.8024E-03	2.5494E-03	2.5670E-03
	2.5799E-03	2.7352E-03	2.9205E-03	9.7496E-04	3.2391E-04	3.4811E-04	3.2434E-04			
3	0.	5.6237E-04	1.4164E-02	2.1047E-02	1.2464E-02	3.8639E-03	7.2117E-03	1.2835E-02	8.9814E-03	7.3558E-03
	5.8624E-03	4.8876E-03	2.6868E-03	1.8797E-03	1.4510E-03	6.3794E-04	3.0555E-04	2.3303E-04	9.4612E-05	4.3854E-05
	3.1991E-05	0.	0.	0.	0.	0.	0.			
4	0.	0.	2.5826E-03	1.5041E-02	1.7801E-02	4.4916E-03	2.0920E-04	0.	0.	0.
	2.5523E-04	4.5846E-04	9.5274E-04	6.6084E-04	4.4176E-04	2.9352E-04	3.3231E-04	2.4932E-04	1.6660E-04	1.0974E-04
	7.0196E-05	0.	0.	0.	0.	0.	0.			
5	0.	0.	0.	3.0712E-03	6.2216E-03	8.1350E-03	2.9829E-03	1.0963E-03	1.8199E-04	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
6	0.	0.	0.	0.	2.1347E-04	1.3362E-03	1.7810E-03	1.8176E-03	1.6518E-03	1.0496E-03
	7.1627E-04	5.3713E-04	2.1476E-04	9.9715E-05	6.2583E-05	1.5059E-05	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
7	0.	0.	0.	0.	0.	0.	0.	0.	7.7734E-07	2.8256E-05
	4.4019E-05	2.6287E-05	1.7423E-05	1.9645E-07	1.2029E-05	7.6432E-06	1.8499E-06	1.6446E-07	0.	0.
	0.	0.	0.	0.	0.	0.	0.			

A-III-3. CARBON

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** CARBON N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	1.14313E 00	0.0	0.0	1.24383E-02	3.56040E-01	7.74649E-01	4.21344E-01	4.05067E-01	3.77786E-03
2	1.20614E 00	0.0	0.0	1.34005E-03	3.06960E-01	8.97844E-01	3.41906E-01	3.90028E-01	1.33959E-02
3	1.22622E 00	0.0	0.0	0.0	1.63580E-01	1.06264E 00	1.84347E-01	5.93522E-01	3.21068E-02
4	1.72666E 00	0.0	0.0	0.0	4.33020E-03	1.72233E 00	2.10045E-01	8.71384E-01	5.85117E-02
5	2.07875E 00	0.0	0.0	0.0	0.0	2.07875E 00	1.60303E-02	1.18163E 00	9.04285E-02
6	1.78361E 00	0.0	0.0	0.0	0.0	1.78361E 00	3.08330E-02	1.09952E 00	9.36325E-02
7	1.73556E 00	0.0	0.0	0.0	0.0	1.73556E 00	-1.04617E-02	1.05966E 00	1.29354E-01
8	1.87920E 00	0.0	0.0	0.0	0.0	1.87920E 00	6.55485E-02	9.73622E-01	1.39081E-01
9	2.35866E 00	0.0	0.0	0.0	0.0	2.35866E 00	1.27710E-01	1.34054E 00	9.67067E-02
10	2.74536E 00	0.0	0.0	0.0	0.0	2.74536E 00	1.31729E-01	1.23295E 00	1.03973E-01
11	3.06363E 00	0.0	0.0	0.0	0.0	3.06363E 00	1.25735E-01	1.78801E 00	2.41170E-01
12	3.28611E 00	0.0	0.0	0.0	0.0	3.28611E 00	1.21370E-01	1.97687E 00	2.32143E-01
13	3.50473E 00	0.0	0.0	0.0	0.0	3.50473E 00	1.21370E-01	2.17597E 00	2.25000E-01
14	3.69744E 00	0.0	0.0	0.0	0.0	3.69744E 00	1.07295E-01	2.13480E 00	2.57661E-01
15	3.85734E 00	0.0	0.0	0.0	0.0	3.85734E 00	9.68858E-02	2.57125E 00	2.16774E-01
16	4.01684E 00	0.0	0.0	0.0	0.0	4.01684E 00	9.68853E-02	2.73572E 00	2.25000E-01
17	4.15740E 00	0.0	0.0	0.0	0.0	4.15740E 00	9.68856E-02	2.59412E 00	2.91666E-01
18	4.26008E 00	0.0	0.0	0.0	0.0	4.26008E 00	7.35941E-02	2.89191E 00	2.25000E-01
19	4.34445E 00	0.0	0.0	0.0	0.0	4.34445E 00	5.53689E-02	3.19336E 00	1.83333E-01
20	4.42349E 00	0.0	0.0	0.0	0.0	4.42349E 00	5.53714E-02	2.59176E 00	2.59339E-01
21	4.48719E 00	0.0	0.0	0.0	0.0	4.48719E 00	5.53722E-02	2.64470E 00	2.59407E-01
22	4.53493E 00	0.0	0.0	0.0	0.0	4.53493E 00	5.53686E-02	2.71759E 00	2.54214E-01
23	4.57485E 00	0.0	0.0	0.0	0.0	4.57485E 00	5.53706E-02	2.69920E 00	2.56698E-01
24	4.60167E 00	0.0	0.0	0.0	0.0	4.60167E 00	5.53704E-02	2.69431E 00	2.61371E-01
25	4.62398E 00	0.0	0.0	0.0	0.0	4.62398E 00	5.53704E-02	2.72657E 00	2.59821E-01
26	4.64338E 00	0.0	0.0	0.0	0.0	4.64338E 00	5.53688E-02	2.71431E 00	2.59793E-01
27	4.65890E 00	0.0	0.0	0.0	0.0	4.65890E 00	5.53687E-02	2.77327E 00	2.54856E-01
28	4.67357E 00	0.0	0.0	0.0	0.0	4.67357E 00	5.53701E-02	2.78105E 00	2.57403E-01
29	4.68008E 00	0.0	0.0	0.0	0.0	4.68008E 00	5.53713E-02	2.74210E 00	2.59339E-01
30	4.68620E 00	0.0	0.0	0.0	0.0	4.68620E 00	5.53722E-02	2.76199E 00	2.59407E-01
31	4.69357E 00	0.0	0.0	0.0	0.0	4.69357E 00	5.53689E-02	2.81266E 00	2.54214E-01
32	4.69899E 00	0.0	0.0	0.0	0.0	4.69899E 00	5.53705E-02	2.77244E 00	2.56698E-01
33	4.70000E 00	0.0	0.0	0.0	0.0	4.70000E 00	5.53703E-02	2.75188E 00	2.61371E-01
34	4.70000E 00	0.0	0.0	0.0	0.0	4.70000E 00	5.53703E-02	2.77140E 00	2.59821E-01
35	4.70106E 00	0.0	0.0	0.0	0.0	4.70106E 00	5.53687E-02	2.74803E 00	2.59793E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** CARBON N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	4.70473E 00	0.0	0.0	0.0	0.0	4.70473E 00	5.53688E-02	2.79959E 00	2.54857E-01
37	4.70839E 00	0.0	0.0	0.0	0.0	4.70839E 00	5.53700E-02	2.75869E 00	2.57403E-01
38	4.71001E 00	0.0	0.0	1.84257E-05	0.0	4.70999E 00	5.53702E-02	2.77601E 00	2.60330E-01
39	4.71000E 00	0.0	0.0	2.09529E-05	0.0	4.70998E 00	5.53685E-02	2.80368E 00	2.59516E-01
40	4.70999E 00	0.0	0.0	2.37834E-05	0.0	4.70997E 00	5.53688E-02	2.82248E 00	2.54215E-01
41	4.70999E 00	0.0	0.0	2.70112E-05	0.0	4.70996E 00	5.53702E-02	2.77891E 00	2.58737E-01
42	4.70998E 00	0.0	0.0	3.07259E-05	0.0	4.70995E 00	5.53703E-02	2.75771E 00	2.61371E-01
43	4.70997E 00	0.0	0.0	3.49496E-05	0.0	4.70994E 00	5.53703E-02	2.77726E 00	2.59821E-01
44	4.70997E 00	0.0	0.0	3.97655E-05	0.0	4.70993E 00	5.53689E-02	2.75322E 00	2.61544E-01
45	4.70996E 00	0.0	0.0	4.51617E-05	0.0	4.70992E 00	5.53688E-02	2.80364E 00	2.54856E-01
46	4.70995E 00	0.0	0.0	5.12747E-05	0.0	4.70990E 00	5.53700E-02	2.80267E 00	2.57403E-01
47	4.70995E 00	0.0	0.0	5.82905E-05	0.0	4.70989E 00	5.53704E-02	2.75957E 00	2.60331E-01
48	4.70995E 00	0.0	0.0	6.62785E-05	0.0	4.70988E 00	5.53684E-02	2.77595E 00	2.59516E-01
49	4.70994E 00	0.0	0.0	7.52243E-05	0.0	4.70987E 00	5.53687E-02	2.82242E 00	2.54215E-01
50	4.70994E 00	0.0	0.0	8.54248E-05	0.0	4.70986E 00	5.53703E-02	2.77885E 00	2.58737E-01
51	4.70995E 00	0.0	0.0	9.71630E-05	0.0	4.70985E 00	5.53703E-02	2.75765E 00	2.61371E-01
52	4.70995E 00	0.0	0.0	1.10508E-04	0.0	4.70984E 00	5.53703E-02	2.77720E 00	2.59821E-01
53	4.70995E 00	0.0	0.0	1.25722E-04	0.0	4.70983E 00	5.53690E-02	2.75316E 00	2.61545E-01
54	4.70996E 00	0.0	0.0	1.42768E-04	0.0	4.70982E 00	5.53688E-02	2.80358E 00	2.54856E-01
55	4.70996E 00	0.0	0.0	1.62076E-04	0.0	4.70980E 00	5.53700E-02	2.80261E 00	2.57403E-01
56	4.70996E 00	0.0	0.0	1.84254E-04	0.0	4.70978E 00	5.53704E-02	2.75950E 00	2.60331E-01
57	4.70996E 00	0.0	0.0	2.09522E-04	0.0	4.70975E 00	5.53686E-02	2.77587E 00	2.59516E-01
58	4.70995E 00	0.0	0.0	2.37821E-04	0.0	4.70971E 00	5.53688E-02	2.82233E 00	2.54215E-01
59	4.70995E 00	0.0	0.0	2.70092E-04	0.0	4.70968E 00	5.53703E-02	2.77875E 00	2.58737E-01
60	4.70996E 00	0.0	0.0	3.07230E-04	0.0	4.70965E 00	5.53704E-02	2.75753E 00	2.61371E-01
61	4.70996E 00	0.0	0.0	3.49456E-04	0.0	4.70961E 00	5.53704E-02	2.77707E 00	2.59821E-01
62	4.70998E 00	0.0	0.0	3.97601E-04	0.0	4.70958E 00	5.53690E-02	2.75301E 00	2.61544E-01
63	4.71000E 00	0.0	0.0	4.51546E-04	0.0	4.70955E 00	5.53686E-02	2.80342E 00	2.54856E-01
64	4.71002E 00	0.0	0.0	5.12656E-04	0.0	4.70951E 00	5.53700E-02	2.80244E 00	2.57403E-01
65	4.71000E 00	0.0	0.0	5.82814E-04	0.0	4.71542E 00	5.53703E-02	2.76281E 00	2.60331E-01
66	4.72657E 00	0.0	0.0	6.62715E-04	0.0	4.72591E 00	5.53685E-02	2.76540E 00	2.59516E-01
67	4.73703E 00	0.0	0.0	7.52201E-04	0.0	4.73628E 00	5.53686E-02	2.83625E 00	2.54215E-01
68	4.74755E 00	0.0	0.0	8.54242E-04	0.0	4.74670E 00	5.53688E-02	2.80059E 00	2.58736E-01
69	4.75825E 00	0.0	0.0	9.71671E-04	0.0	4.75728E 00	5.53688E-02	2.76542E 00	2.61371E-01
70	4.78412E 00	0.0	0.0	1.07871E-03	0.0	4.78300E 00	5.53688E-02	0.0	2.59821E-01

TABLE OF ELASTIC MATRICES

ELEMENT** CARBON N **

GROUP RANGE (I= 1**35 , J= 1** 3)

GROUP (I)	J=I&K (K) 0	1	2
1	3.6958E-01	3.7997E-01	2.5099E-02
2	5.0782E-01	3.7392E-01	1.6109E-02
3	4.6912E-01	5.3363E-01	5.9892E-02
4	8.5094E-01	7.2535E-01	1.4603E-01
5	8.9712E-01	9.0380E-01	2.7783E-01
6	6.8409E-01	1.0317E 00	6.7821E-02
7	6.7590E-01	1.0409E 00	1.8731E-02
8	9.0558E-01	9.0891E-01	6.4710E-02
9	1.0181E 00	1.3335E 00	7.0302E-03
10	1.5124E 00	1.1442E 00	8.8780E-02
11	1.2756E 00	1.6260E 00	1.6206E-01
12	1.3092E 00	1.7481E 00	2.2877E-01
13	1.3288E 00	1.9995E 00	1.7651E-01
14	1.5626E 00	1.8562E 00	2.7855E-01
15	1.2861E 00	2.0826E 00	4.8865E-01
16	1.2811E 00	2.4967E 00	2.3903E-01
17	1.5633E 00	1.9460E 00	6.4812E-01
18	1.3682E 00	1.9061E 00	9.8584E-01
19	1.1511E 00	2.7161E 00	4.7725E-01
20	1.8317E 00	2.4399E 00	1.5182E-01
21	1.8425E 00	2.4816E 00	1.6315E-01
22	1.8173E 00	2.5586E 00	1.5900E-01
23	1.8757E 00	2.5306E 00	1.6857E-01
24	1.9074E 00	2.5522E 00	1.4209E-01
25	1.8974E 00	2.5474E 00	1.7918E-01
26	1.9291E 00	2.5553E 00	1.5902E-01
27	1.8856E 00	2.6124E 00	1.6084E-01
28	1.8925E 00	2.5976E 00	1.8344E-01
29	1.9380E 00	2.5815E 00	1.6063E-01
30	1.9242E 00	2.5916E 00	1.7038E-01
31	1.8809E 00	2.6481E 00	1.6456E-01
32	1.9266E 00	2.5993E 00	1.7315E-01
33	1.9481E 00	2.6068E 00	1.4513E-01
34	1.9286E 00	2.5893E 00	1.8213E-01
35	1.9530E 00	2.5870E 00	1.6099E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** CARBON N **

GROUP RANGE (I= 36**69 , J= 1** 3)

GROUP (I)	J=I&K (K) 0	1	2
36	1.9051E 00	2.6149E 00	1.8467E-01
37	1.9497E 00	2.5971E 00	1.6160E-01
38	1.9340E 00	2.6048E 00	1.7125E-01
39	1.9063E 00	2.6411E 00	1.6260E-01
40	1.8875E 00	2.6573E 00	1.6513E-01
41	1.9310E 00	2.6054E 00	1.7355E-01
42	1.9522E 00	2.6123E 00	1.4543E-01
43	1.9327E 00	2.5947E 00	1.8251E-01
44	1.9567E 00	2.5919E 00	1.6130E-01
45	1.9063E 00	2.6410E 00	1.6260E-01
46	1.9072E 00	2.6178E 00	1.8487E-01
47	1.9503E 00	2.5979E 00	1.6165E-01
48	1.9339E 00	2.6047E 00	1.7124E-01
49	1.8874E 00	2.6573E 00	1.6513E-01
50	1.9310E 00	2.6053E 00	1.7355E-01
51	1.9522E 00	2.6122E 00	1.4543E-01
52	1.9326E 00	2.5947E 00	1.8251E-01
53	1.9567E 00	2.5919E 00	1.6129E-01
54	1.9062E 00	2.6410E 00	1.6260E-01
55	1.9072E 00	2.6177E 00	1.8487E-01
56	1.9503E 00	2.5979E 00	1.6165E-01
57	1.9339E 00	2.6046E 00	1.7124E-01
58	1.8874E 00	2.6572E 00	1.6513E-01
59	1.9309E 00	2.6052E 00	1.7354E-01
60	1.9521E 00	2.6121E 00	1.4542E-01
61	1.9325E 00	2.5946E 00	1.8250E-01
62	1.9566E 00	2.5917E 00	1.6129E-01
63	1.9061E 00	2.6408E 00	1.6259E-01
64	1.9071E 00	2.6176E 00	1.8486E-01
65	1.9526E 00	2.6010E 00	1.6184E-01
66	1.9405E 00	2.6136E 00	1.7182E-01
67	1.8980E 00	2.6722E 00	1.6606E-01
68	1.9461E 00	2.6257E 00	1.7490E-01
69	1.9719E 00	2.6385E 00	1.4689E-01

TABLE OF INELASTIC MATRICES

ELEMENT** CARBON N **

GROUP RANGE (I= 1** 4 , J= 1**21)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20									
1	0.0	0.0	1.7961E-02	1.0340E-01	1.5786E-01	6.8006E-02	8.8158E-03	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
2	0.0	0.0	0.0	2.0486E-02	6.1742E-02	1.0791E-01	8.2386E-02	3.1589E-02	2.8453E-03	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
3	0.0	0.0	0.0	0.0	3.1156E-04	2.1886E-02	3.4092E-02	4.8221E-02	2.3253E-02	1.4955E-02
	9.2349E-03	6.1570E-03	2.6428E-03	1.4404E-03	8.9971E-04	3.4030E-04	1.4724E-04	0.0	0.0	0.0
	0.0									
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9187E-05
	4.0427E-04	5.0059E-04	5.4811E-04	7.1740E-04	5.5765E-04	4.2147E-04	4.9220E-04	3.1844E-04	1.7830E-04	8.4116E-05
	4.8558E-05									

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** CARBON N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **			
(I)	INFI	10.0	1.0	0.0
1	3.7779E-03	3.3788E-04	1.7491E-03	3.2697E-03
2	1.3396E-02	1.1956E-03	6.2886E-03	1.2479E-02
3	3.2107E-02	2.8586E-03	1.4485E-02	2.6572E-02
4	5.8512E-02	4.9895E-03	2.1574E-02	3.4372E-02
5	9.0428E-02	7.4889E-03	2.9589E-02	4.4271E-02
6	9.3632E-02	7.9553E-03	3.4330E-02	5.5033E-02
7	1.2935E-01	1.1039E-02	4.8155E-02	7.4653E-02
8	1.3908E-01	1.1716E-02	4.8515E-02	7.4655E-02
9	9.6707E-02	7.8283E-03	2.8857E-02	4.1166E-02
10	1.0397E-01	8.1706E-03	2.7851E-02	3.8042E-02
11	2.4117E-01	1.8348E-02	5.9125E-02	7.8525E-02
12	2.3214E-01	1.7421E-02	5.4059E-02	7.0548E-02
13	2.2500E-01	1.6570E-02	4.9760E-02	6.4009E-02
14	2.5766E-01	1.8671E-02	5.4919E-02	6.9307E-02
15	2.1677E-01	1.5561E-02	4.4436E-02	5.5980E-02
16	2.2500E-01	1.5961E-02	4.4642E-02	5.5780E-02
17	2.9167E-01	2.0400E-02	5.6047E-02	6.9552E-02
18	2.2500E-01	1.5685E-02	4.2544E-02	5.2542E-02
19	1.8333E-01	1.2730E-02	3.4180E-02	4.2053E-02
20	2.5934E-01	1.7867E-02	4.7584E-02	5.8348E-02
21	2.5941E-01	1.7768E-02	4.6925E-02	5.7389E-02
22	2.5421E-01	1.7355E-02	4.5585E-02	5.5642E-02
23	2.5670E-01	1.7574E-02	4.5947E-02	5.5992E-02
24	2.6137E-01	1.7753E-02	4.6281E-02	5.6341E-02
25	2.5982E-01	1.7622E-02	4.5829E-02	5.5742E-02
26	2.5979E-01	1.7683E-02	4.5886E-02	5.5768E-02
27	2.5486E-01	1.7249E-02	4.4686E-02	5.4279E-02
28	2.5740E-01	1.7402E-02	4.5009E-02	5.4641E-02
29	2.5934E-01	1.7571E-02	4.5411E-02	5.5115E-02
30	2.5941E-01	1.7525E-02	4.5265E-02	5.4925E-02
31	2.5421E-01	1.7165E-02	4.4301E-02	5.3740E-02
32	2.5670E-01	1.7425E-02	4.4943E-02	5.4507E-02
33	2.6137E-01	1.7633E-02	4.5474E-02	5.5150E-02
34	2.5982E-01	1.7530E-02	4.5209E-02	5.4828E-02
35	2.5979E-01	1.7613E-02	4.5419E-02	5.5081E-02

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** CARBON N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	**SIGMA 0 **			
(I)	INFI	10.0	1.0	0.0
36	2.5486E-01	1.7195E-02	4.4323E-02	5.3744E-02
37	2.5740E-01	1.7360E-02	4.4730E-02	5.4231E-02
38	2.6033E-01	1.7552E-02	4.5217E-02	5.4817E-02
39	2.5952E-01	1.7498E-02	4.5078E-02	5.4648E-02
40	2.5421E-01	1.7146E-02	4.4171E-02	5.3549E-02
41	2.5874E-01	1.7446E-02	4.4944E-02	5.4487E-02
42	2.6137E-01	1.7621E-02	4.5395E-02	5.5032E-02
43	2.5982E-01	1.7518E-02	4.5130E-02	5.4711E-02
44	2.6154E-01	1.7632E-02	4.5424E-02	5.5068E-02
45	2.5486E-01	1.7189E-02	4.4281E-02	5.3682E-02
46	2.5740E-01	1.7358E-02	4.4716E-02	5.4210E-02
47	2.6033E-01	1.7552E-02	4.5217E-02	5.4817E-02
48	2.5952E-01	1.7498E-02	4.5078E-02	5.4648E-02
49	2.5421E-01	1.7146E-02	4.4171E-02	5.3549E-02
50	2.5874E-01	1.7446E-02	4.4944E-02	5.4487E-02
51	2.6137E-01	1.7621E-02	4.5395E-02	5.5032E-02
52	2.5982E-01	1.7518E-02	4.5130E-02	5.4711E-02
53	2.6154E-01	1.7632E-02	4.5424E-02	5.5068E-02
54	2.5486E-01	1.7189E-02	4.4281E-02	5.3682E-02
55	2.5740E-01	1.7358E-02	4.4716E-02	5.4210E-02
56	2.6033E-01	1.7552E-02	4.5217E-02	5.4817E-02
57	2.5952E-01	1.7498E-02	4.5078E-02	5.4648E-02
58	2.5421E-01	1.7146E-02	4.4171E-02	5.3549E-02
59	2.5874E-01	1.7446E-02	4.4944E-02	5.4487E-02
60	2.6137E-01	1.7621E-02	4.5395E-02	5.5032E-02
61	2.5982E-01	1.7518E-02	4.5130E-02	5.4711E-02
62	2.6154E-01	1.7632E-02	4.5424E-02	5.5068E-02
63	2.5486E-01	1.7189E-02	4.4281E-02	5.3682E-02
64	2.5740E-01	1.7358E-02	4.4716E-02	5.4210E-02
65	2.6033E-01	1.7545E-02	4.5173E-02	5.4753E-02
66	2.5952E-01	1.7479E-02	4.4951E-02	5.4462E-02
67	2.5421E-01	1.7115E-02	4.3966E-02	5.3248E-02
68	2.5874E-01	1.7402E-02	4.4654E-02	5.4060E-02
69	2.6137E-01	1.7564E-02	4.5017E-02	5.4479E-02
70	2.5982E-01	1.7564E-02	4.5017E-02	5.4479E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CARBON N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10.0	1.0	0.0
1	0.1244E-01	1.0003	1.0011	1.0015
2	0.1340E-02	0.9639	0.8343	0.7218
3	0.0	1.0000	1.0000	1.0000
4	0.0	1.0000	1.0000	1.0000
5	0.0	1.0000	1.0000	1.0000
6	0.0	1.0000	1.0000	1.0000
7	0.0	1.0000	1.0000	1.0000
8	0.0	1.0000	1.0000	1.0000
9	0.0	1.0000	1.0000	1.0000
10	0.0	1.0000	1.0000	1.0000
11	0.0	1.0000	1.0000	1.0000
12	0.0	1.0000	1.0000	1.0000
13	0.0	1.0000	1.0000	1.0000
14	0.0	1.0000	1.0000	1.0000
15	0.0	1.0000	1.0000	1.0000
16	0.0	1.0000	1.0000	1.0000
17	0.0	1.0000	1.0000	1.0000
18	0.0	1.0000	1.0000	1.0000
19	0.0	1.0000	1.0000	1.0000
20	0.0	1.0000	1.0000	1.0000
21	0.0	1.0000	1.0000	1.0000
22	0.0	1.0000	1.0000	1.0000
23	0.0	1.0000	1.0000	1.0000
24	0.0	1.0000	1.0000	1.0000
25	0.0	1.0000	1.0000	1.0000
26	0.0	1.0000	1.0000	1.0000
27	0.0	1.0000	1.0000	1.0000
28	0.0	1.0000	1.0000	1.0000
29	0.0	1.0000	1.0000	1.0000
30	0.0	1.0000	1.0000	1.0000
31	0.0	1.0000	1.0000	1.0000
32	0.0	1.0000	1.0000	1.0000
33	0.0	1.0000	1.0000	1.0000
34	0.0	1.0000	1.0000	1.0000
35	0.0	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CARBON N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10.0	1.0	0.0
36	0.0	1.0000	1.0000	1.0000
37	0.0	1.0000	1.0000	1.0000
38	0.1843E-04	1.0000	1.0000	1.0000
39	0.2095E-04	1.0000	1.0000	1.0000
40	0.2378E-04	1.0000	1.0000	1.0000
41	0.2701E-04	1.0000	1.0000	1.0000
42	0.3073E-04	1.0000	1.0000	1.0000
43	0.3495E-04	1.0000	1.0000	1.0000
44	0.3977E-04	1.0000	1.0000	1.0000
45	0.4516E-04	1.0000	1.0000	1.0000
46	0.5127E-04	1.0000	1.0000	1.0000
47	0.5829E-04	1.0000	1.0000	1.0000
48	0.6628E-04	1.0000	1.0000	1.0000
49	0.7522E-04	1.0000	1.0000	1.0000
50	0.8542E-04	1.0000	1.0000	1.0000
51	0.9716E-04	1.0000	1.0000	1.0000
52	0.1105E-03	1.0000	1.0000	1.0000
53	0.1257E-03	1.0000	1.0000	1.0000
54	0.1428E-03	1.0000	1.0000	1.0000
55	0.1621E-03	1.0000	1.0000	1.0000
56	0.1843E-03	1.0000	1.0000	1.0000
57	0.2095E-03	1.0000	1.0000	1.0000
58	0.2378E-03	1.0000	1.0000	1.0000
59	0.2701E-03	1.0000	1.0000	1.0000
60	0.3072E-03	1.0000	1.0000	1.0000
61	0.3495E-03	1.0000	1.0000	1.0000
62	0.3976E-03	1.0000	1.0000	1.0000
63	0.4515E-03	1.0000	1.0000	1.0000
64	0.5127E-03	1.0000	1.0000	1.0000
65	0.5828E-03	1.0000	1.0000	1.0000
66	0.6627E-03	1.0000	1.0000	1.0000
67	0.7522E-03	1.0000	1.0000	1.0000
68	0.8542E-03	1.0000	1.0000	1.0000
69	0.9717E-03	1.0000	1.0000	1.0000
70	0.1079E-02	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CARBON N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10.0	1.0	0.0
1	0.7746E 00	1.0000	0.9981	0.9960
2	0.8978E 00	0.9855	0.9303	0.8823
3	0.1063E 01	0.9973	0.9916	0.9857
4	0.1722E 01	0.9976	0.9906	0.9849
5	0.2079E 01	0.9970	0.9889	0.9825
6	0.1784E 01	0.9921	0.9684	0.9516
7	0.1736E 01	0.9861	0.9715	0.9652
8	0.1879E 01	0.9988	0.9936	0.9915
9	0.2359E 01	0.9993	0.9971	0.9961
10	0.2745E 01	0.9994	0.9972	0.9967
11	0.3064E 01	0.9996	0.9956	0.9954
12	0.3286E 01	0.9998	0.9981	0.9980
13	0.3505E 01	0.9998	0.9969	0.9968
14	0.3697E 01	0.9999	0.9974	0.9974
15	0.3857E 01	0.9999	0.9982	0.9981
16	0.4017E 01	0.9999	0.9980	0.9980
17	0.4157E 01	0.9999	0.9984	0.9983
18	0.4260E 01	1.0000	0.9990	0.9990
19	0.4344E 01	1.0000	0.9993	0.9993
20	0.4423E 01	1.0000	0.9994	0.9994
21	0.4487E 01	1.0000	0.9994	0.9994
22	0.4535E 01	1.0000	0.9995	0.9995
23	0.4575E 01	1.0000	0.9999	0.9999
24	0.4602E 01	1.0000	0.9998	0.9998
25	0.4624E 01	1.0000	0.9998	0.9998
26	0.4643E 01	1.0000	0.9999	0.9999
27	0.4659E 01	1.0000	0.9999	0.9999
28	0.4674E 01	1.0000	0.9998	0.9998
29	0.4680E 01	1.0000	1.0000	1.0000
30	0.4686E 01	1.0000	0.9999	0.9999
31	0.4694E 01	1.0000	0.9999	0.9999
32	0.4699E 01	1.0000	1.0000	1.0000
33	0.4700E 01	1.0000	1.0000	1.0000
34	0.4700E 01	1.0000	1.0000	1.0000
35	0.4701E 01	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CARBON N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10.0	1.0	0.0
36	0.4705E 01	1.0000	1.0000	1.0000
37	0.4708E 01	1.0000	1.0000	1.0000
38	0.4710E 01	1.0000	1.0000	1.0000
39	0.4710E 01	1.0000	1.0000	1.0000
40	0.4710E 01	1.0000	1.0000	1.0000
41	0.4710E 01	1.0000	1.0000	1.0000
42	0.4710E 01	1.0000	1.0000	1.0000
43	0.4710E 01	1.0000	1.0000	1.0000
44	0.4710E 01	1.0000	1.0000	1.0000
45	0.4710E 01	1.0000	1.0000	1.0000
46	0.4710E 01	1.0000	1.0000	1.0000
47	0.4710E 01	1.0000	1.0000	1.0000
48	0.4710E 01	1.0000	1.0000	1.0000
49	0.4710E 01	1.0000	1.0000	1.0000
50	0.4710E 01	1.0000	1.0000	1.0000
51	0.4710E 01	1.0000	1.0000	1.0000
52	0.4710E 01	1.0000	1.0000	1.0000
53	0.4710E 01	1.0000	1.0000	1.0000
54	0.4710E 01	1.0000	1.0000	1.0000
55	0.4710E 01	1.0000	1.0000	1.0000
56	0.4710E 01	1.0000	1.0000	1.0000
57	0.4710E 01	1.0000	1.0000	1.0000
58	0.4710E 01	1.0000	1.0000	1.0000
59	0.4710E 01	1.0000	1.0000	1.0000
60	0.4710E 01	1.0000	1.0000	1.0000
61	0.4710E 01	1.0000	1.0000	1.0000
62	0.4710E 01	1.0000	1.0000	1.0000
63	0.4710E 01	1.0000	1.0000	1.0000
64	0.4710E 01	1.0000	1.0000	1.0000
65	0.4715E 01	1.0000	0.9999	0.9999
66	0.4726E 01	1.0000	0.9999	0.9999
67	0.4736E 01	1.0000	0.9999	0.9999
68	0.4747E 01	1.0000	0.9999	0.9999
69	0.4757E 01	1.0000	0.9999	0.9999
70	0.4783E 01	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CARBON N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10.0	1.0	0.0
1	0.1157E 01	1.0000	0.9960	0.9921
2	0.1207E 01	0.9719	0.8787	0.8108
3	0.1227E 01	0.9960	0.9826	0.9719
4	0.1727E 01	0.9957	0.9818	0.9704
5	0.2079E 01	0.9946	0.9767	0.9619
6	0.1784E 01	0.9843	0.9398	0.9102
7	0.1736E 01	0.9817	0.9813	0.9811
8	0.1879E 01	0.9956	0.9897	0.9856
9	0.2359E 01	0.9981	0.9949	0.9930
10	0.2745E 01	0.9977	0.9959	0.9950
11	0.3064E 01	0.9958	0.9950	0.9946
12	0.3286E 01	0.9982	0.9978	0.9976
13	0.3505E 01	0.9970	0.9965	0.9963
14	0.3697E 01	0.9975	0.9972	0.9971
15	0.3857E 01	0.9982	0.9980	0.9979
16	0.4017E 01	0.9981	0.9979	0.9978
17	0.4157E 01	0.9984	0.9983	0.9982
18	0.4260E 01	0.9990	0.9990	0.9989
19	0.4344E 01	0.9993	0.9993	0.9993
20	0.4423E 01	0.9994	0.9994	0.9993
21	0.4487E 01	0.9994	0.9994	0.9994
22	0.4535E 01	0.9995	0.9995	0.9995
23	0.4575E 01	0.9999	0.9999	0.9999
24	0.4602E 01	0.9998	0.9998	0.9998
25	0.4624E 01	0.9998	0.9998	0.9998
26	0.4643E 01	0.9999	0.9999	0.9999
27	0.4659E 01	0.9999	0.9999	0.9999
28	0.4674E 01	0.9999	0.9998	0.9998
29	0.4680E 01	1.0000	1.0000	1.0000
30	0.4686E 01	0.9999	0.9999	0.9999
31	0.4694E 01	0.9999	0.9999	0.9999
32	0.4699E 01	1.0000	1.0000	1.0000
33	0.4700E 01	1.0000	1.0000	1.0000
34	0.4700E 01	1.0000	1.0000	1.0000
35	0.4701E 01	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CARBON N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10.0	1.0	0.0
36	0.4705E 01	1.0000	1.0000	1.0000
37	0.4708E 01	1.0000	1.0000	1.0000
38	0.4710E 01	1.0000	1.0000	1.0000
39	0.4710E 01	1.0000	1.0000	1.0000
40	0.4710E 01	1.0000	1.0000	1.0000
41	0.4710E 01	1.0000	1.0000	1.0000
42	0.4710E 01	1.0000	1.0000	1.0000
43	0.4710E 01	1.0000	1.0000	1.0000
44	0.4710E 01	1.0000	1.0000	1.0000
45	0.4710E 01	1.0000	1.0000	1.0000
46	0.4710E 01	1.0000	1.0000	1.0000
47	0.4710E 01	1.0000	1.0000	1.0000
48	0.4710E 01	1.0000	1.0000	1.0000
49	0.4710E 01	1.0000	1.0000	1.0000
50	0.4710E 01	1.0000	1.0000	1.0000
51	0.4710E 01	1.0000	1.0000	1.0000
52	0.4710E 01	1.0000	1.0000	1.0000
53	0.4710E 01	1.0000	1.0000	1.0000
54	0.4710E 01	1.0000	1.0000	1.0000
55	0.4710E 01	1.0000	1.0000	1.0000
56	0.4710E 01	1.0000	1.0000	1.0000
57	0.4710E 01	1.0000	1.0000	1.0000
58	0.4710E 01	1.0000	1.0000	1.0000
59	0.4710E 01	1.0000	1.0000	1.0000
60	0.4710E 01	1.0000	1.0000	1.0000
61	0.4710E 01	1.0000	1.0000	1.0000
62	0.4710E 01	1.0000	1.0000	1.0000
63	0.4710E 01	1.0000	1.0000	1.0000
64	0.4710E 01	1.0000	1.0000	1.0000
65	0.4716E 01	0.9999	0.9999	0.9999
66	0.4727E 01	0.9999	0.9999	0.9999
67	0.4737E 01	0.9999	0.9999	0.9999
68	0.4748E 01	0.9999	0.9999	0.9999
69	0.4758E 01	0.9999	0.9999	0.9999
70	0.4784E 01	1.0000	1.0000	1.0000

A-III-4. OXYGEN

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** OXYGEN N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	8.56212E-01	0.0	0.0	2.77620E-01	3.92020E-02	5.39390E-01	6.53866E-01	1.41999E-01	3.78153E-03
2	1.07630E 00	0.0	0.0	1.80119E-01	1.30620E-01	7.65558E-01	5.91309E-01	2.04665E-01	1.33959E-02
3	1.22489E 00	0.0	0.0	4.33580E-02	0.0	1.18153E 00	4.10425E-01	4.75454E-01	3.21068E-02
4	1.52627E 00	0.0	0.0	7.72948E-02	0.0	1.44898E 00	3.34009E-01	5.69557E-01	5.85117E-02
5	2.76363E 00	0.0	0.0	4.77042E-03	0.0	2.75886E 00	2.41621E-01	1.00643E 00	9.04285E-02
6	1.16799E 00	0.0	0.0	0.0	0.0	1.16799E 00	2.33943E-01	5.06253E-01	9.36325E-02
7	1.24630E 00	0.0	0.0	0.0	0.0	1.24630E 00	1.66702E-01	6.12205E-01	1.29354E-01
8	2.21289E 00	0.0	0.0	0.0	0.0	2.21289E 00	9.00182E-02	8.89441E-01	1.39102E-01
9	3.51114E 00	0.0	0.0	0.0	0.0	3.51114E 00	9.21140E-02	1.55382E 00	9.67256E-02
10	4.68651E 00	0.0	0.0	0.0	0.0	4.68651E 00	4.67162E-02	1.42427E 00	1.04129E-01
11	2.85194E 00	0.0	0.0	0.0	0.0	2.85194E 00	1.73801E-01	1.25970E 00	2.38914E-01
12	3.62871E 00	0.0	0.0	0.0	0.0	3.62871E 00	3.32320E-01	1.48150E 00	2.31159E-01
13	1.04213E 01	0.0	0.0	0.0	0.0	1.04213E 01	2.11291E-01	4.45938E 00	2.23162E-01
14	4.28897E 00	0.0	0.0	0.0	0.0	4.28897E 00	-1.94711E-01	2.35669E 00	2.54919E-01
15	3.71016E 00	0.0	0.0	0.0	0.0	3.71016E 00	-1.17573E-01	2.35712E 00	2.15158E-01
16	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	-6.27555E-02	2.17868E 00	2.23218E-01
17	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	-2.12498E-02	1.63926E 00	2.87844E-01
18	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	6.11286E-04	2.04767E 00	2.23351E-01
19	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	1.23243E-02	2.32049E 00	1.82576E-01
20	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	2.04034E-02	1.76276E 00	2.57950E-01
21	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	2.56047E-02	1.75913E 00	2.57462E-01
22	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	3.05831E-02	1.78603E 00	2.52574E-01
23	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	3.30277E-02	1.75152E 00	2.56698E-01
24	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	3.46000E-02	1.73226E 00	2.59568E-01
25	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	3.61739E-02	1.74231E 00	2.59821E-01
26	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	3.77478E-02	1.72416E 00	2.59793E-01
27	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	3.93067E-02	1.76783E 00	2.54856E-01
28	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.08510E-02	1.74903E 00	2.57403E-01
29	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16259E-02	1.72931E 00	2.60330E-01
30	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16255E-02	1.73439E 00	2.59516E-01
31	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16255E-02	1.76757E 00	2.54214E-01
32	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16254E-02	1.73925E 00	2.58736E-01
33	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16237E-02	1.72280E 00	2.61371E-01
34	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16235E-02	1.73248E 00	2.59821E-01
35	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16247E-02	1.72172E 00	2.61544E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** OXYGEN N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16246E-02	1.76354E 00	2.54857E-01
37	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16253E-02	1.74759E 00	2.57403E-01
38	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16254E-02	1.72930E 00	2.60330E-01
39	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16251E-02	1.73438E 00	2.59516E-01
40	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16248E-02	1.76757E 00	2.54215E-01
41	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16253E-02	1.73925E 00	2.58737E-01
42	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16267E-02	1.72280E 00	2.61371E-01
43	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16239E-02	1.73248E 00	2.59821E-01
44	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16248E-02	1.72172E 00	2.61544E-01
45	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16242E-02	1.76354E 00	2.54856E-01
46	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16255E-02	1.74759E 00	2.57403E-01
47	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16258E-02	1.72929E 00	2.60331E-01
48	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16250E-02	1.73439E 00	2.59516E-01
49	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16244E-02	1.76756E 00	2.54215E-01
50	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16257E-02	1.73925E 00	2.58737E-01
51	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16246E-02	1.72280E 00	2.61371E-01
52	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16253E-02	1.73249E 00	2.59821E-01
53	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16262E-02	1.72173E 00	2.61545E-01
54	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16243E-02	1.76355E 00	2.54856E-01
55	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16256E-02	1.74759E 00	2.57403E-01
56	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16258E-02	1.72929E 00	2.60331E-01
57	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16251E-02	1.73438E 00	2.59516E-01
58	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16241E-02	1.76757E 00	2.54215E-01
59	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16250E-02	1.73925E 00	2.58737E-01
60	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16244E-02	1.72280E 00	2.61371E-01
61	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16239E-02	1.73248E 00	2.59821E-01
62	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16254E-02	1.72173E 00	2.61544E-01
63	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16258E-02	1.76354E 00	2.54856E-01
64	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16266E-02	1.74759E 00	2.57403E-01
65	3.70000E 00	0.0	0.0	1.49432E-05	0.0	3.69999E 00	4.16253E-02	1.72929E 00	2.60331E-01
66	3.70001E 00	0.0	0.0	1.69923E-05	0.0	3.69999E 00	4.16248E-02	1.73438E 00	2.59516E-01
67	3.70002E 00	0.0	0.0	1.92934E-05	0.0	3.70000E 00	4.16239E-02	1.76757E 00	2.54215E-01
68	3.70001E 00	0.0	0.0	2.19032E-05	0.0	3.69999E 00	4.16244E-02	1.73925E 00	2.58736E-01
69	3.70001E 00	0.0	0.0	2.49089E-05	0.0	3.69999E 00	4.16240E-02	1.72280E 00	2.61371E-01
70	3.70002E 00	0.0	0.0	3.88561E-05	0.0	3.69999E 00	4.16240E-02	0.0	2.59821E-01

TABLE OF ELASTIC MATRICES

ELEMENT** OXYGEN N **

GROUP RANGE (I= 1**35 , J= 1** 3)

GROUP (I)	J=I&K (K) 0	1	2
1	3.9739E-01	1.4178E-01	2.2226E-04
2	5.6089E-01	2.0454E-01	1.2242E-04
3	7.0608E-01	4.7499E-01	4.6163E-04
4	8.7942E-01	5.6956E-01	0.0
5	1.7524E 00	9.9483E-01	1.1594E-02
6	6.6174E-01	5.0625E-01	0.0
7	6.3410E-01	6.1220E-01	0.0
8	1.3234E 00	8.8583E-01	3.6073E-03
9	1.9573E 00	1.5538E 00	0.0
10	3.2622E 00	1.4217E 00	2.6085E-03
11	1.5922E 00	1.2561E 00	3.6272E-03
12	2.1472E 00	1.4740E 00	7.4631E-03
13	5.9619E 00	4.4594E 00	0.0
14	1.9323E 00	2.3066E 00	5.0130E-02
15	1.3530E 00	2.3263E 00	3.0829E-02
16	1.5213E 00	2.1787E 00	0.0
17	2.0607E 00	1.6195E 00	1.9802E-02
18	1.6523E 00	1.8975E 00	1.5015E-01
19	1.3735E 00	2.3265E 00	0.0
20	1.9372E 00	1.7628E 00	0.0
21	1.9409E 00	1.7591E 00	0.0
22	1.9140E 00	1.7860E 00	0.0
23	1.9485E 00	1.7515E 00	0.0
24	1.9677E 00	1.7323E 00	0.0
25	1.9577E 00	1.7423E 00	0.0
26	1.9758E 00	1.7242E 00	0.0
27	1.9322E 00	1.7678E 00	0.0
28	1.9510E 00	1.7490E 00	0.0
29	1.9707E 00	1.7293E 00	0.0
30	1.9656E 00	1.7344E 00	0.0
31	1.9324E 00	1.7676E 00	0.0
32	1.9607E 00	1.7392E 00	0.0
33	1.9772E 00	1.7228E 00	0.0
34	1.9675E 00	1.7325E 00	0.0
35	1.9783E 00	1.7217E 00	0.0

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** OXYGEN N **

GROUP RANGE (I= 36**70 , J= 1** 3)

GROUP (I)	J=I&K (K) 0	1	2
36	1.9364E 00	1.7635E 00	0.0
37	1.9524E 00	1.7476E 00	0.0
38	1.9707E 00	1.7293E 00	0.0
39	1.9656E 00	1.7344E 00	0.0
40	1.9324E 00	1.7676E 00	0.0
41	1.9607E 00	1.7392E 00	0.0
42	1.9772E 00	1.7228E 00	0.0
43	1.9675E 00	1.7325E 00	0.0
44	1.9783E 00	1.7217E 00	0.0
45	1.9364E 00	1.7635E 00	0.0
46	1.9524E 00	1.7476E 00	0.0
47	1.9707E 00	1.7293E 00	0.0
48	1.9656E 00	1.7344E 00	0.0
49	1.9324E 00	1.7676E 00	0.0
50	1.9607E 00	1.7392E 00	0.0
51	1.9772E 00	1.7228E 00	0.0
52	1.9675E 00	1.7325E 00	0.0
53	1.9783E 00	1.7217E 00	0.0
54	1.9364E 00	1.7635E 00	0.0
55	1.9524E 00	1.7476E 00	0.0
56	1.9707E 00	1.7293E 00	0.0
57	1.9656E 00	1.7344E 00	0.0
58	1.9324E 00	1.7676E 00	0.0
59	1.9607E 00	1.7392E 00	0.0
60	1.9772E 00	1.7228E 00	0.0
61	1.9675E 00	1.7325E 00	0.0
62	1.9783E 00	1.7217E 00	0.0
63	1.9364E 00	1.7635E 00	0.0
64	1.9524E 00	1.7476E 00	0.0
65	1.9707E 00	1.7293E 00	0.0
66	1.9656E 00	1.7344E 00	0.0
67	1.9324E 00	1.7676E 00	0.0
68	1.9607E 00	1.7392E 00	0.0
69	1.9772E 00	1.7228E 00	0.0
70	3.7000E 00	0.0	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** OXYGEN N **

GROUP RANGE (I= 1** 2 , J= 1**24)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23						
1	0.0	0.0	0.0	0.0	9.8368E-03	1.7133E-02	9.8438E-03	0.0	0.0	8.5347E-04
	0.0	0.0	1.2279E-03	0.0	2.3247E-04	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	7.4780E-05						
2	0.0	0.0	0.0	0.0	0.0	8.6702E-04	1.7554E-02	2.5740E-02	3.3333E-02	1.7278E-02
	1.1129E-02	7.4084E-03	6.3138E-03	3.6474E-03	2.7355E-03	2.3865E-03	9.8874E-04	4.4771E-04	3.4583E-04	1.9373E-04
	1.1212E-04	7.1365E-05	4.2666E-05	2.5839E-05						

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** OXYGEN N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **				
(I)	INFI	100.0	10.0	1.0	0.0
1	3.7815E-03	3.7270E-05	3.3736E-04	1.7338E-03	3.2180E-03
2	1.3396E-02	1.3235E-04	1.2080E-03	6.5042E-03	1.2918E-02
3	3.2107E-02	3.1695E-04	2.8617E-03	1.4849E-02	2.8693E-02
4	5.8512E-02	5.7610E-04	5.0825E-03	2.3913E-02	4.1952E-02
5	9.0428E-02	8.7982E-04	7.0967E-03	2.4573E-02	3.4191E-02
6	9.3632E-02	9.2548E-04	8.3843E-03	4.3271E-02	8.0659E-02
7	1.2935E-01	1.2776E-03	1.1522E-02	6.0119E-02	1.2298E-01
8	1.3910E-01	1.3610E-03	1.1415E-02	4.4414E-02	6.6045E-02
9	9.6726E-02	9.3452E-04	7.1776E-03	2.1870E-02	2.8420E-02
10	1.0413E-01	9.9500E-04	7.1779E-03	1.9807E-02	2.4958E-02
11	2.3891E-01	2.3228E-03	1.8590E-02	6.2048E-02	8.3831E-02
12	2.3116E-01	2.2305E-03	1.6987E-02	5.0524E-02	6.4881E-02
13	2.2316E-01	2.0233E-03	1.1305E-02	2.1884E-02	2.4597E-02
14	2.5492E-01	2.4443E-03	1.7874E-02	4.8824E-02	6.0584E-02
15	2.1516E-01	2.0743E-03	1.5691E-02	4.5672E-02	5.7983E-02
16	2.2322E-01	2.1520E-03	1.6289E-02	4.7481E-02	6.0314E-02
17	2.8784E-01	2.7746E-03	2.1002E-02	6.1217E-02	7.7763E-02
18	2.2335E-01	2.1523E-03	1.6292E-02	4.7488E-02	6.0323E-02
19	1.6258E-01	1.7588E-03	1.3313E-02	3.8805E-02	4.9293E-02
20	2.5795E-01	2.4840E-03	1.8802E-02	5.4807E-02	6.9620E-02
21	2.5746E-01	2.4772E-03	1.8750E-02	5.4656E-02	6.9427E-02
22	2.5257E-01	2.4282E-03	1.8380E-02	5.3576E-02	6.8056E-02
23	2.5670E-01	2.4699E-03	1.8695E-02	5.4494E-02	6.9223E-02
24	2.5957E-01	2.4952E-03	1.8887E-02	5.5054E-02	6.9933E-02
25	2.5982E-01	2.4850E-03	1.8809E-02	5.4828E-02	6.9646E-02
26	2.5979E-01	2.4970E-03	1.8900E-02	5.5093E-02	6.9983E-02
27	2.5486E-01	2.4382E-03	1.8456E-02	5.3797E-02	6.8336E-02
28	2.5740E-01	2.4622E-03	1.8637E-02	5.4326E-02	6.9008E-02
29	2.6033E-01	2.4898E-03	1.8846E-02	5.4934E-02	6.9780E-02
30	2.5952E-01	2.4821E-03	1.8788E-02	5.4765E-02	6.9566E-02
31	2.5421E-01	2.4322E-03	1.8410E-02	5.3663E-02	6.8167E-02
32	2.5874E-01	2.4748E-03	1.8732E-02	5.4603E-02	6.9360E-02
33	2.6137E-01	2.4995E-03	1.8920E-02	5.5150E-02	7.0055E-02
34	2.5982E-01	2.4850E-03	1.8809E-02	5.4828E-02	6.9646E-02
35	2.6154E-01	2.5012E-03	1.8932E-02	5.5185E-02	7.0100E-02

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** OXYGEN N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	**SIGMA 0 **				
(I)	INFI	100.0	10.0	1.0	0.0
36	2.5486E-01	2.4382E-03	1.8456E-02	5.3797E-02	6.8336E-02
37	2.5740E-01	2.4622E-03	1.8637E-02	5.4326E-02	6.9008E-02
38	2.6033E-01	2.4898E-03	1.8846E-02	5.4934E-02	6.9780E-02
39	2.5952E-01	2.4821E-03	1.8788E-02	5.4765E-02	6.9566E-02
40	2.5421E-01	2.4322E-03	1.8410E-02	5.3663E-02	6.8167E-02
41	2.5874E-01	2.4748E-03	1.8732E-02	5.4603E-02	6.9360E-02
42	2.6137E-01	2.4995E-03	1.8920E-02	5.5150E-02	7.0055E-02
43	2.5982E-01	2.4850E-03	1.8809E-02	5.4828E-02	6.9646E-02
44	2.6154E-01	2.5012E-03	1.8932E-02	5.5185E-02	7.0100E-02
45	2.5486E-01	2.4382E-03	1.8456E-02	5.3797E-02	6.8336E-02
46	2.5740E-01	2.4622E-03	1.8637E-02	5.4326E-02	6.9008E-02
47	2.6033E-01	2.4898E-03	1.8846E-02	5.4934E-02	6.9780E-02
48	2.5952E-01	2.4821E-03	1.8788E-02	5.4765E-02	6.9566E-02
49	2.5421E-01	2.4322E-03	1.8410E-02	5.3663E-02	6.8167E-02
50	2.5874E-01	2.4748E-03	1.8732E-02	5.4603E-02	6.9360E-02
51	2.6137E-01	2.4995E-03	1.8920E-02	5.5150E-02	7.0055E-02
52	2.5982E-01	2.4850E-03	1.8809E-02	5.4828E-02	6.9646E-02
53	2.6154E-01	2.5012E-03	1.8932E-02	5.5185E-02	7.0100E-02
54	2.5486E-01	2.4382E-03	1.8456E-02	5.3797E-02	6.8336E-02
55	2.5740E-01	2.4622E-03	1.8637E-02	5.4326E-02	6.9008E-02
56	2.6033E-01	2.4898E-03	1.8846E-02	5.4934E-02	6.9780E-02
57	2.5952E-01	2.4821E-03	1.8788E-02	5.4765E-02	6.9566E-02
58	2.5421E-01	2.4322E-03	1.8410E-02	5.3663E-02	6.8167E-02
59	2.5874E-01	2.4748E-03	1.8732E-02	5.4603E-02	6.9360E-02
60	2.6137E-01	2.4995E-03	1.8920E-02	5.5150E-02	7.0055E-02
61	2.5982E-01	2.4850E-03	1.8809E-02	5.4828E-02	6.9646E-02
62	2.6154E-01	2.5012E-03	1.8932E-02	5.5185E-02	7.0100E-02
63	2.5486E-01	2.4382E-03	1.8456E-02	5.3797E-02	6.8336E-02
64	2.5740E-01	2.4622E-03	1.8637E-02	5.4326E-02	6.9008E-02
65	2.6033E-01	2.4898E-03	1.8846E-02	5.4934E-02	6.9780E-02
66	2.5952E-01	2.4821E-03	1.8788E-02	5.4765E-02	6.9566E-02
67	2.5421E-01	2.4322E-03	1.8410E-02	5.3663E-02	6.8167E-02
68	2.5874E-01	2.4748E-03	1.8732E-02	5.4603E-02	6.9360E-02
69	2.6137E-01	2.4995E-03	1.8920E-02	5.5150E-02	7.0055E-02
70	2.5982E-01	2.4995E-03	1.8920E-02	5.5150E-02	7.0055E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** OXYGEN N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
1	0.2776E 00	1.0000	0.9998	0.9993	0.9987
2	0.1801E 00	0.9997	0.9979	0.9863	0.9740
3	0.4336E-01	0.9990	0.9964	0.9886	0.9886
4	0.7729E-01	1.0001	1.0015	1.0036	1.0049
5	0.4770E-02	0.9998	0.9998	0.9652	0.9289
6	0.0	1.0000	1.0000	1.0000	1.0000
7	0.0	1.0000	1.0000	1.0000	1.0000
8	0.0	1.0000	1.0000	1.0000	1.0000
9	0.0	1.0000	1.0000	1.0000	1.0000
10	0.0	1.0000	1.0000	1.0000	1.0000
11	0.0	1.0000	1.0000	1.0000	1.0000
12	0.0	1.0000	1.0000	1.0000	1.0000
13	0.0	1.0000	1.0000	1.0000	1.0000
14	0.0	1.0000	1.0000	1.0000	1.0000
15	0.0	1.0000	1.0000	1.0000	1.0000
16	0.0	1.0000	1.0000	1.0000	1.0000
17	0.0	1.0000	1.0000	1.0000	1.0000
18	0.0	1.0000	1.0000	1.0000	1.0000
19	0.0	1.0000	1.0000	1.0000	1.0000
20	0.0	1.0000	1.0000	1.0000	1.0000
21	0.0	1.0000	1.0000	1.0000	1.0000
22	0.0	1.0000	1.0000	1.0000	1.0000
23	0.0	1.0000	1.0000	1.0000	1.0000
24	0.0	1.0000	1.0000	1.0000	1.0000
25	0.0	1.0000	1.0000	1.0000	1.0000
26	0.0	1.0000	1.0000	1.0000	1.0000
27	0.0	1.0000	1.0000	1.0000	1.0000
28	0.0	1.0000	1.0000	1.0000	1.0000
29	0.0	1.0000	1.0000	1.0000	1.0000
30	0.0	1.0000	1.0000	1.0000	1.0000
31	0.0	1.0000	1.0000	1.0000	1.0000
32	0.0	1.0000	1.0000	1.0000	1.0000
33	0.0	1.0000	1.0000	1.0000	1.0000
34	0.0	1.0000	1.0000	1.0000	1.0000
35	0.0	1.0000	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** OXYGEN N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
36	0.0	1.0000	1.0000	1.0000	1.0000
37	0.0	1.0000	1.0000	1.0000	1.0000
38	0.0	1.0000	1.0000	1.0000	1.0000
39	0.0	1.0000	1.0000	1.0000	1.0000
40	0.0	1.0000	1.0000	1.0000	1.0000
41	0.0	1.0000	1.0000	1.0000	1.0000
42	0.0	1.0000	1.0000	1.0000	1.0000
43	0.0	1.0000	1.0000	1.0000	1.0000
44	0.0	1.0000	1.0000	1.0000	1.0000
45	0.0	1.0000	1.0000	1.0000	1.0000
46	0.0	1.0000	1.0000	1.0000	1.0000
47	0.0	1.0000	1.0000	1.0000	1.0000
48	0.0	1.0000	1.0000	1.0000	1.0000
49	0.0	1.0000	1.0000	1.0000	1.0000
50	0.0	1.0000	1.0000	1.0000	1.0000
51	0.0	1.0000	1.0000	1.0000	1.0000
52	0.0	1.0000	1.0000	1.0000	1.0000
53	0.0	1.0000	1.0000	1.0000	1.0000
54	0.0	1.0000	1.0000	1.0000	1.0000
55	0.0	1.0000	1.0000	1.0000	1.0000
56	0.0	1.0000	1.0000	1.0000	1.0000
57	0.0	1.0000	1.0000	1.0000	1.0000
58	0.0	1.0000	1.0000	1.0000	1.0000
59	0.0	1.0000	1.0000	1.0000	1.0000
60	0.0	1.0000	1.0000	1.0000	1.0000
61	0.0	1.0000	1.0000	1.0000	1.0000
62	0.0	1.0000	1.0000	1.0000	1.0000
63	0.0	1.0000	1.0000	1.0000	1.0000
64	0.0	1.0000	1.0000	1.0000	1.0000
65	0.1494E-04	1.0000	1.0000	1.0000	1.0000
66	0.1699E-04	1.0000	1.0000	1.0000	1.0000
67	0.1929E-04	1.0000	1.0000	1.0000	1.0000
68	0.2190E-04	1.0000	1.0000	1.0000	1.0000
69	0.2491E-04	1.0000	1.0000	1.0000	1.0000
70	0.3866E-04	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** OXYGEN N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
1	0.5394E 00	1.0000	0.9990	0.9885	0.9893
2	0.7656E 00	1.0000	0.9970	0.9777	0.9640
3	0.1162E 01	0.9987	0.9876	0.9729	0.9083
4	0.1449E 01	0.9984	0.9869	0.9568	0.9083
5	0.2759E 01	0.9988	0.9913	0.9591	0.9564
6	0.1168E 01	0.9999	0.9993	0.9974	0.9938
7	0.1246E 01	0.9974	0.9838	0.9197	0.8439
8	0.2213E 01	0.9979	0.9877	0.9639	0.9518
9	0.3511E 01	0.9982	0.9901	0.9738	0.9693
10	0.4687E 01	0.9935	0.9618	0.9082	0.8903
11	0.2852E 01	0.9999	0.9998	0.9996	0.9992
12	0.3629E 01	0.9980	0.9938	0.9852	0.9817
13	0.1042E 02	0.9875	0.9345	0.8788	0.8706
14	0.4289E 01	0.9991	0.9936	0.9841	0.9810
15	0.3710E 01	1.0000	1.0000	1.0000	1.0000
16	0.3700E 01	1.0000	1.0000	1.0000	1.0000
17	0.3700E 01	1.0000	1.0000	1.0000	1.0000
18	0.3700E 01	1.0000	1.0000	1.0000	1.0000
19	0.3700E 01	1.0000	1.0000	1.0000	1.0000
20	0.3700E 01	1.0000	1.0000	1.0000	1.0000
21	0.3700E 01	1.0000	1.0000	1.0000	1.0000
22	0.3700E 01	1.0000	1.0000	1.0000	1.0000
23	0.3700E 01	1.0000	1.0000	1.0000	1.0000
24	0.3700E 01	1.0000	1.0000	1.0000	1.0000
25	0.3700E 01	1.0000	1.0000	1.0000	1.0000
26	0.3700E 01	1.0000	1.0000	1.0000	1.0000
27	0.3700E 01	1.0000	1.0000	1.0000	1.0000
28	0.3700E 01	1.0000	1.0000	1.0000	1.0000
29	0.3700E 01	1.0000	1.0000	1.0000	1.0000
30	0.3700E 01	1.0000	1.0000	1.0000	1.0000
31	0.3700E 01	1.0000	1.0000	1.0000	1.0000
32	0.3700E 01	1.0000	1.0000	1.0000	1.0000
33	0.3700E 01	1.0000	1.0000	1.0000	1.0000
34	0.3700E 01	1.0000	1.0000	1.0000	1.0000
35	0.3700E 01	1.0000	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** OXYGEN N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
36	0.3700E 01	1.0000	1.0000	1.0000	1.0000
37	0.3700E 01	1.0000	1.0000	1.0000	1.0000
38	0.3700E 01	1.0000	1.0000	1.0000	1.0000
39	0.3700E 01	1.0000	1.0000	1.0000	1.0000
40	0.3700E 01	1.0000	1.0000	1.0000	1.0000
41	0.3700E 01	1.0000	1.0000	1.0000	1.0000
42	0.3700E 01	1.0000	1.0000	1.0000	1.0000
43	0.3700E 01	1.0000	1.0000	1.0000	1.0000
44	0.3700E 01	1.0000	1.0000	1.0000	1.0000
45	0.3700E 01	1.0000	1.0000	1.0000	1.0000
46	0.3700E 01	1.0000	1.0000	1.0000	1.0000
47	0.3700E 01	1.0000	1.0000	1.0000	1.0000
48	0.3700E 01	1.0000	1.0000	1.0000	1.0000
49	0.3700E 01	1.0000	1.0000	1.0000	1.0000
50	0.3700E 01	1.0000	1.0000	1.0000	1.0000
51	0.3700E 01	1.0000	1.0000	1.0000	1.0000
52	0.3700E 01	1.0000	1.0000	1.0000	1.0000
53	0.3700E 01	1.0000	1.0000	1.0000	1.0000
54	0.3700E 01	1.0000	1.0000	1.0000	1.0000
55	0.3700E 01	1.0000	1.0000	1.0000	1.0000
56	0.3700E 01	1.0000	1.0000	1.0000	1.0000
57	0.3700E 01	1.0000	1.0000	1.0000	1.0000
58	0.3700E 01	1.0000	1.0000	1.0000	1.0000
59	0.3700E 01	1.0000	1.0000	1.0000	1.0000
60	0.3700E 01	1.0000	1.0000	1.0000	1.0000
61	0.3700E 01	1.0000	1.0000	1.0000	1.0000
62	0.3700E 01	1.0000	1.0000	1.0000	1.0000
63	0.3700E 01	1.0000	1.0000	1.0000	1.0000
64	0.3700E 01	1.0000	1.0000	1.0000	1.0000
65	0.3700E 01	1.0000	1.0000	1.0000	1.0000
66	0.3700E 01	1.0000	1.0000	1.0000	1.0000
67	0.3700E 01	1.0000	1.0000	1.0000	1.0000
68	0.3700E 01	1.0000	1.0000	1.0000	1.0000
69	0.3700E 01	1.0000	1.0000	1.0000	1.0000
70	0.3700E 01	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** OXYGEN N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
1	0.1177E 01	1.0000	0.9989	0.9940	0.9888
2	0.1078E 01	0.9999	0.9932	0.9606	0.9209
3	0.1226E 01	0.9972	0.9756	0.9041	0.8477
4	0.1527E 01	0.9971	0.9757	0.8995	0.8386
5	0.2764E 01	0.9978	0.9826	0.9378	0.9107
6	0.1168E 01	0.9999	0.9985	0.9932	0.9888
7	0.1246E 01	0.9957	0.9688	0.8514	0.6746
8	0.2213E 01	0.9964	0.9770	0.9370	0.9194
9	0.3511E 01	0.9968	0.9814	0.9553	0.9466
10	0.4687E 01	0.9880	0.9273	0.8351	0.8068
11	0.2852E 01	0.9999	0.9996	0.9989	0.9986
12	0.3629E 01	0.9974	0.9890	0.9728	0.9669
13	0.1043E 02	0.9746	0.8736	0.7834	0.7639
14	0.4290E 01	0.9980	0.9874	0.9705	0.9653
15	0.3710E 01	1.0000	1.0000	1.0000	1.0000
16	0.3700E 01	1.0000	1.0000	1.0000	1.0000
17	0.3700E 01	1.0000	1.0000	1.0000	1.0000
18	0.3700E 01	1.0000	1.0000	1.0000	1.0000
19	0.3700E 01	1.0000	1.0000	1.0000	1.0000
20	0.3700E 01	1.0000	1.0000	1.0000	1.0000
21	0.3700E 01	1.0000	1.0000	1.0000	1.0000
22	0.3700E 01	1.0000	1.0000	1.0000	1.0000
23	0.3700E 01	1.0000	1.0000	1.0000	1.0000
24	0.3700E 01	1.0000	1.0000	1.0000	1.0000
25	0.3700E 01	1.0000	1.0000	1.0000	1.0000
26	0.3700E 01	1.0000	1.0000	1.0000	1.0000
27	0.3700E 01	1.0000	1.0000	1.0000	1.0000
28	0.3700E 01	1.0000	1.0000	1.0000	1.0000
29	0.3700E 01	1.0000	1.0000	1.0000	1.0000
30	0.3700E 01	1.0000	1.0000	1.0000	1.0000
31	0.3700E 01	1.0000	1.0000	1.0000	1.0000
32	0.3700E 01	1.0000	1.0000	1.0000	1.0000
33	0.3700E 01	1.0000	1.0000	1.0000	1.0000
34	0.3700E 01	1.0000	1.0000	1.0000	1.0000
35	0.3700E 01	1.0000	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** OXYGEN N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
36	0.3700E 01	1.0000	1.0000	1.0000	1.0000
37	0.3700E 01	1.0000	1.0000	1.0000	1.0000
38	0.3700E 01	1.0000	1.0000	1.0000	1.0000
39	0.3700E 01	1.0000	1.0000	1.0000	1.0000
40	0.3700E 01	1.0000	1.0000	1.0000	1.0000
41	0.3700E 01	1.0000	1.0000	1.0000	1.0000
42	0.3700E 01	1.0000	1.0000	1.0000	1.0000
43	0.3700E 01	1.0000	1.0000	1.0000	1.0000
44	0.3700E 01	1.0000	1.0000	1.0000	1.0000
45	0.3700E 01	1.0000	1.0000	1.0000	1.0000
46	0.3700E 01	1.0000	1.0000	1.0000	1.0000
47	0.3700E 01	1.0000	1.0000	1.0000	1.0000
48	0.3700E 01	1.0000	1.0000	1.0000	1.0000
49	0.3700E 01	1.0000	1.0000	1.0000	1.0000
50	0.3700E 01	1.0000	1.0000	1.0000	1.0000
51	0.3700E 01	1.0000	1.0000	1.0000	1.0000
52	0.3700E 01	1.0000	1.0000	1.0000	1.0000
53	0.3700E 01	1.0000	1.0000	1.0000	1.0000
54	0.3700E 01	1.0000	1.0000	1.0000	1.0000
55	0.3700E 01	1.0000	1.0000	1.0000	1.0000
56	0.3700E 01	1.0000	1.0000	1.0000	1.0000
57	0.3700E 01	1.0000	1.0000	1.0000	1.0000
58	0.3700E 01	1.0000	1.0000	1.0000	1.0000
59	0.3700E 01	1.0000	1.0000	1.0000	1.0000
60	0.3700E 01	1.0000	1.0000	1.0000	1.0000
61	0.3700E 01	1.0000	1.0000	1.0000	1.0000
62	0.3700E 01	1.0000	1.0000	1.0000	1.0000
63	0.3700E 01	1.0000	1.0000	1.0000	1.0000
64	0.3700E 01	1.0000	1.0000	1.0000	1.0000
65	0.3700E 01	1.0000	1.0000	1.0000	1.0000
66	0.3700E 01	1.0000	1.0000	1.0000	1.0000
67	0.3700E 01	1.0000	1.0000	1.0000	1.0000
68	0.3700E 01	1.0000	1.0000	1.0000	1.0000
69	0.3700E 01	1.0000	1.0000	1.0000	1.0000
70	0.3700E 01	1.0000	1.0000	1.0000	1.0000

A-III-5. SODIUM

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** SODIUM N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	1.7573CE 00	0.0	0.0	9.46347E-02	8.61430E-01	8.01240E-01	6.02967E-01	1.81785E-01	3.77008E-03
2	1.76068E 00	0.0	0.0	4.19736E-02	9.22020E-01	7.96692E-01	5.85097E-01	1.59971E-01	1.33781E-02
3	1.72255E 00	0.0	0.0	1.33289E-02	8.98540E-01	8.10679E-01	5.29608E-01	1.83036E-01	3.20850E-02
4	1.85960E 00	0.0	0.0	9.26156E-04	7.7257CE-01	1.0863CE 00	4.86153E-01	2.73153E-01	5.84922E-02
5	1.83952E 00	0.0	0.0	1.10000E-04	3.70900E-01	1.46851E 00	4.84605E-01	2.75624E-01	9.04084E-02
6	1.99438E 00	0.0	0.0	1.18636E-04	1.60230E-01	1.83403E 00	4.98648E-01	4.51275E-01	9.36255E-02
7	2.16537E 00	0.0	0.0	1.23760E-04	2.30490E-02	2.14220E 00	4.51034E-01	3.50194E-01	1.29348E-01
8	2.33802E 00	0.0	0.0	1.39220E-04	0.0	2.33788E 00	3.24777E-01	5.25488E-01	1.39103E-01
9	2.80708E 00	0.0	0.0	1.66256E-04	0.0	2.80691E 00	3.23677E-01	7.37877E-01	9.67274E-02
10	3.90764E 00	0.0	0.0	2.12607E-04	0.0	3.90683E 00	3.39496E-01	6.90039E-01	1.04133E-01
11	6.12119E 00	0.0	0.0	2.79887E-04	0.0	6.12091E 00	1.83273E-01	1.83268E 00	2.38894E-01
12	3.48658E 00	0.0	0.0	3.39618E-04	0.0	3.48624E 00	-1.00000E-02	1.06430E 00	2.31115E-01
13	3.39374E 00	0.0	0.0	4.23306E-04	0.0	3.39332E 00	7.97593E-02	1.36989E 00	2.23144E-01
14	3.44477E 00	0.0	0.0	5.25440E-04	0.0	3.44425E 00	2.24722E-02	1.12652E 00	2.54693E-01
15	3.33698E 00	0.0	0.0	6.18219E-04	0.0	3.33636E 00	7.36976E-02	1.25170E 00	2.15112E-01
16	5.16798E 00	0.0	0.0	6.92028E-04	0.0	5.16729E 00	7.66940E-02	1.95954E 00	2.23145E-01
17	3.63046E 00	0.0	0.0	7.92969E-04	0.0	3.62967E 00	3.45199E-02	9.69236E-01	2.87686E-01
18	3.24209E 00	0.0	0.0	9.34816E-04	0.0	3.24116E 00	3.18304E-02	1.22521E 00	2.23162E-01
19	3.25001E 00	0.0	0.0	1.05054E-03	0.0	3.24896E 00	2.97513E-02	1.52255E 00	1.82350E-01
20	3.43842E 00	0.0	0.0	1.13682E-03	0.0	3.43728E 00	2.89271E-02	1.18024E 00	2.57481E-01
21	4.00012E 00	0.0	0.0	1.29773E-03	0.0	3.99882E 00	2.89269E-02	1.33117E 00	2.56692E-01
22	6.28360E 00	0.0	0.0	1.47558E-03	0.0	6.28212E 00	2.89275E-02	1.68606E 00	2.51554E-01
23	3.84902E 00	0.0	0.0	1.68023E-03	0.0	3.84734E 00	2.89273E-02	1.27157E 00	2.55944E-01
24	4.01301E 00	0.0	0.0	1.91905E-03	0.0	4.01109E 00	2.89267E-02	1.33210E 00	2.58501E-01
25	4.13830E 00	0.0	0.0	2.17371E-03	0.0	4.13613E 00	2.89264E-02	1.37043E 00	2.56990E-01
26	4.24770E 00	0.0	0.0	2.47359E-03	0.0	4.24523E 00	2.89269E-02	1.40618E 00	2.58655E-01
27	4.56262E 00	0.0	0.0	2.83236E-03	0.0	4.55979E 00	2.89271E-02	1.57424E 00	2.52180E-01
28	5.29067E 00	0.0	0.0	3.17945E-03	0.0	5.28749E 00	2.89269E-02	1.84985E 00	2.54651E-01
29	6.24765E 00	0.0	0.0	3.63639E-03	0.0	6.24401E 00	2.89274E-02	2.15305E 00	2.57480E-01
30	7.84062E 00	0.0	0.0	2.61881E-03	0.0	7.83800E 00	2.89273E-02	2.80117E 00	2.56690E-01
31	1.17850E 01	0.0	0.0	3.28534E-03	0.0	1.17817E 01	2.89274E-02	4.56023E 00	2.51555E-01
32	2.94140E 01	0.0	0.0	6.30161E-03	0.0	2.94057E 01	2.89275E-02	1.33034E 01	2.55939E-01
33	2.60364E 02	0.0	0.0	1.23721E-01	0.0	2.60240E 02	2.89273E-02	1.44594E 02	2.58485E-01
34	1.56651E 02	0.0	0.0	9.61496E-02	0.0	1.56555E 02	2.89264E-02	1.90523E 01	2.56987E-01
35	1.97410E 01	0.0	0.0	1.73963E-02	0.0	1.97236E 01	2.89267E-02	4.65358E 00	2.58653E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** SODIUM N **

GROUP (36** 7C)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	8.67627E 00	0.0	0.0	9.42111E-03	0.0	8.66685E 00	2.89273E-02	2.47503E 00	2.52180E-01
37	5.48856E 00	0.0	0.0	6.90335E-03	0.0	5.48166E 00	2.89269E-02	1.64868E 00	2.54651E-01
38	4.18332E 00	0.0	0.0	5.95357E-03	0.0	4.17737E 00	2.89273E-02	1.29906E 00	2.57480E-01
39	3.56488E 00	0.0	0.0	5.59017E-03	0.0	3.55921E 00	2.89270E-02	1.13487E 00	2.56694E-01
40	3.22448E 00	0.0	0.0	5.50000E-03	0.0	3.21898E 00	2.89277E-02	1.06627E 00	2.51562E-01
41	3.11969E 00	0.0	0.0	5.64523E-03	0.0	3.11405E 00	2.89272E-02	1.02866E 00	2.55946E-01
42	3.10011E 00	0.0	0.0	5.94260E-03	0.0	3.09417E 00	2.89267E-02	1.01662E 00	2.58502E-01
43	3.10000E 00	0.0	0.0	6.45088E-03	0.0	3.09355E 00	2.89274E-02	1.02200E 00	2.57004E-01
44	3.10233E 00	0.0	0.0	7.06264E-03	0.0	3.09527E 00	2.89259E-02	1.02331E 00	2.58682E-01
45	3.10928E 00	0.0	0.0	7.79111E-03	0.0	3.10149E 00	2.89276E-02	1.04434E 00	2.52196E-01
46	3.10999E 00	0.0	0.0	8.65529E-03	0.0	3.10134E 00	2.89259E-02	1.04195E 00	2.54719E-01
47	3.11000E 00	0.0	0.0	9.60150E-03	0.0	3.10040E 00	2.89275E-02	1.01868E 00	2.57480E-01
48	3.11000E 00	0.0	0.0	1.07723E-02	0.0	3.09923E 00	2.89270E-02	1.02212E 00	2.56694E-01
49	3.11000E 00	0.0	0.0	1.21195E-02	0.0	3.09788E 00	2.89275E-02	1.04319E 00	2.51562E-01
50	3.11163E 00	0.0	0.0	1.36489E-02	0.0	3.09798E 00	2.89272E-02	1.02817E 00	2.55946E-01
51	3.12582E 00	0.0	0.0	1.54377E-02	0.0	3.11038E 00	2.89267E-02	1.02301E 00	2.58502E-01
52	3.13501E 00	0.0	0.0	1.75539E-02	0.0	3.11746E 00	2.89264E-02	1.02996E 00	2.56994E-01
53	3.14108E 00	0.0	0.0	1.99107E-02	0.0	3.12117E 00	2.89266E-02	1.02335E 00	2.58660E-01
54	3.14977E 00	0.0	0.0	2.26124E-02	0.0	3.12716E 00	2.89266E-02	1.05141E 00	2.52189E-01
55	3.15359E 00	0.0	0.0	2.55758E-02	0.0	3.12802E 00	2.89260E-02	1.04886E 00	2.54672E-01
56	3.16362E 00	0.0	0.0	2.89036E-02	0.0	3.13472E 00	2.89277E-02	1.03310E 00	2.57489E-01
57	3.17314E 00	0.0	0.0	3.28351E-02	0.0	3.14031E 00	2.89278E-02	1.03739E 00	2.56710E-01
58	3.18689E 00	0.0	0.0	3.72632E-02	0.0	3.14963E 00	2.89269E-02	1.06841E 00	2.51582E-01
59	3.19754E 00	0.0	0.0	4.22858E-02	0.0	3.15526E 00	2.89274E-02	1.04826E 00	2.55955E-01
60	3.21055E 00	0.0	0.0	4.81033E-02	0.0	3.16245E 00	2.89267E-02	1.03985E 00	2.58502E-01
61	3.22462E 00	0.0	0.0	5.47679E-02	0.0	3.16985E 00	2.89265E-02	1.04688E 00	2.56994E-01
62	3.24051E 00	0.0	0.0	6.21315E-02	0.0	3.17838E 00	2.89267E-02	1.04254E 00	2.58660E-01
63	3.25717E 00	0.0	0.0	7.04415E-02	0.0	3.18673E 00	2.89266E-02	1.07247E 00	2.52189E-01
64	3.27625E 00	0.0	0.0	7.98876E-02	0.0	3.19636E 00	2.89259E-02	1.07176E 00	2.54672E-01
65	3.29585E 00	0.0	0.0	9.10760E-02	0.0	3.20477E 00	2.89277E-02	1.05596E 00	2.57489E-01
66	3.31737E 00	0.0	0.0	1.03614E-01	0.0	3.21376E 00	2.89278E-02	1.06170E 00	2.56710E-01
67	3.34077E 00	0.0	0.0	1.17618E-01	0.0	3.22315E 00	2.89269E-02	1.09351E 00	2.51582E-01
68	3.36596E 00	0.0	0.0	1.33543E-01	0.0	3.23242E 00	2.89274E-02	1.07423E 00	2.55955E-01
69	3.39406E 00	0.0	0.0	1.51879E-01	0.0	3.24218E 00	2.89274E-02	1.06607E 00	2.58513E-01
70	3.42175E 00	0.0	0.0	1.70552E-01	0.0	3.25120E 00	2.89274E-02	0.0	2.56994E-01

TABLE OF ELASTIC MATRICES

ELEMENT** SODIUM N **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
1	6.1945E-01	1.8179E-01
2	6.3672E-01	1.5997E-01
3	6.2764E-01	1.6834E-01
4	6.1315E-01	2.7315E-01
5	1.1929E 00	2.7562E-01
6	1.3828E 00	4.5127E-01
7	1.7926E 00	3.5019E-01
8	1.8124E 00	5.2549E-01
9	2.0690E 00	7.3787E-01
10	3.2168E 00	6.9004E-01
11	4.2882E 00	1.8327E 00
12	2.4219E 00	1.0648E 00
13	2.0034E 00	1.3899E 00
14	2.3177E 00	1.1265E 00
15	2.0847E 00	1.2517E 00
16	3.2077E 00	1.9595E 00
17	2.6604E 00	9.6923E-01
18	2.0160E 00	1.2252E 00
19	1.7264E 00	1.5225E 00
20	2.2570E 00	1.1802E 00
21	2.6676E 00	1.3312E 00
22	4.5961E 00	1.6861E 00
23	2.5758E 00	1.2716E 00
24	2.6792E 00	1.3321E 00
25	2.7657E 00	1.3704E 00
26	2.8390E 00	1.4062E 00
27	2.9855E 00	1.5742E 00
28	3.4376E 00	1.8498E 00
29	4.0910E 00	2.1530E 00
30	5.0368E 00	2.6012E 00
31	7.2215E 00	4.5662E 00
32	1.6102E 01	1.3303E 01
33	1.1565E 02	1.4459E 02
34	1.3750E 02	1.9052E 01
35	1.5070E 01	4.6536E 00

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** SODIUM N **

GROUP RANGE (I= 36**69 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
36	6.1918E 00	2.4750E 00
37	3.8330E 00	1.6487E 00
38	2.8783E 00	1.2951E 00
39	2.4243E 00	1.1349E 00
40	2.1527E 00	1.0663E 00
41	2.0854E 00	1.0287E 00
42	2.0776E 00	1.0166E 00
43	2.0716E 00	1.0220E 00
44	2.0720E 00	1.0233E 00
45	2.0571E 00	1.0443E 00
46	2.0594E 00	1.0419E 00
47	2.0817E 00	1.0187E 00
48	2.0771E 00	1.0221E 00
49	2.0547E 00	1.0432E 00
50	2.0698E 00	1.0282E 00
51	2.0674E 00	1.0230E 00
52	2.0875E 00	1.0300E 00
53	2.0978E 00	1.0233E 00
54	2.0758E 00	1.0514E 00
55	2.0792E 00	1.0469E 00
56	2.1016E 00	1.0331E 00
57	2.1029E 00	1.0374E 00
58	2.0812E 00	1.0684E 00
59	2.1070E 00	1.0483E 00
60	2.1226E 00	1.0398E 00
61	2.1230E 00	1.0469E 00
62	2.1358E 00	1.0425E 00
63	2.1143E 00	1.0725E 00
64	2.1246E 00	1.0718E 00
65	2.1488E 00	1.0560E 00
66	2.1521E 00	1.0617E 00
67	2.1296E 00	1.0935E 00
68	2.1582E 00	1.0742E 00
69	3.2422E 00	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** SODIUM N **

GROUP RANGE (I= 1** 7 , J= 1**26)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25				
1	3.9279E-02	1.3456E-01	9.3921E-02	1.0762E-01	1.1228E-01	8.5574E-02	9.0439E-02	7.3902E-02	4.1101E-02	3.5419E-02
	1.7107E-02	1.1219E-02	6.9024E-03	4.9007E-03	2.5769E-03	1.7256E-03	1.3422E-03	6.2121E-04	3.3745E-04	3.0867E-04
	1.8401E-04	1.0843E-04	0.0	0.0	0.0	0.0				
2	7.5679E-02	2.2182E-01	1.5190E-01	1.2733E-01	8.6062E-02	8.4863E-02	6.6522E-02	3.5922E-02	3.0993E-02	1.4618E-02
	9.6629E-03	6.0488E-03	4.2932E-03	2.2575E-03	1.5117E-03	1.1757E-03	5.4421E-04	2.9562E-04	2.7041E-04	1.6120E-04
	9.4988E-05	0.0	0.0	0.0	0.0	0.0				
3	1.6683E-01	2.8166E-01	1.7980E-01	9.4545E-02	7.4285E-02	4.6428E-02	2.1104E-02	1.6039E-02	6.8404E-03	4.1335E-03
	2.5325E-03	1.7980E-03	9.4545E-04	6.3311E-04	4.9242E-04	2.2792E-04	1.2381E-04	1.1325E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0				
4	1.6244E-01	2.4373E-01	1.2816E-01	1.0069E-01	6.2934E-02	2.8606E-02	2.1740E-02	9.2723E-03	5.6030E-03	3.4328E-03
	2.4373E-03	1.2816E-03	8.5819E-04	6.6748E-04	3.0895E-04	1.6783E-04	1.5351E-04	9.1512E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0				
5	0.0	0.0	0.0	5.4026E-02	7.0395E-02	8.5184E-02	4.2305E-02	3.0460E-02	2.2759E-02	1.9476E-02
	1.1012E-02	6.9863E-03	9.5530E-03	5.8706E-03	3.4565E-03	3.3283E-03	1.9627E-03	1.0567E-03	5.5325E-04	2.9575E-04
	1.4611E-04	7.4074E-05	0.0	0.0	0.0	0.0				
6	0.0	0.0	0.0	0.0	1.0109E-02	2.7778E-02	3.3546E-02	3.0161E-02	2.1969E-02	1.1855E-02
	8.6559E-03	6.8170E-03	2.8696E-03	1.5682E-03	1.5662E-03	1.0452E-03	7.2174E-04	5.3972E-04	3.7574E-04	2.4371E-04
	1.5827E-04	9.9816E-05	6.5753E-05	4.3483E-05	2.2728E-05	0.0				
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7962E-03	3.4999E-03	3.7589E-03
	4.1520E-03	2.5260E-03	1.6055E-03	1.0960E-03	1.2880E-03	9.3706E-04	6.6947E-04	4.3932E-04	2.8107E-04	1.7544E-04
	9.5808E-05	5.7689E-05	3.4549E-05	1.8832E-05	1.1307E-05	5.9310E-06				

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** SODIUM N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	0.0
1	3.7701E-03	3.7646E-06	3.7060E-05	3.2073E-04	2.1461E-03
2	1.3378E-02	1.3356E-05	1.3148E-04	1.1376E-03	7.5976E-03
3	3.2085E-02	3.2030E-05	3.1541E-04	2.7368E-03	1.8618E-02
4	5.8492E-02	5.8381E-05	5.7392E-04	4.9082E-03	3.0622E-02
5	9.0408E-02	9.0213E-05	8.8489E-04	7.4307E-03	4.1993E-02
6	9.3625E-02	9.3395E-05	9.1308E-04	7.5109E-03	3.8426E-02
7	1.2935E-01	1.2898E-04	1.2580E-03	1.0092E-02	4.6326E-02
8	1.3910E-01	1.3871E-04	1.3526E-03	1.0842E-02	5.0081E-02
9	9.6727E-02	9.6403E-05	9.3578E-04	7.2423E-03	2.9065E-02
10	1.0413E-01	1.0368E-04	9.9804E-04	7.2783E-03	2.4585E-02
11	2.3889E-01	2.3736E-04	2.2445E-03	1.4598E-02	3.8331E-02
12	2.3111E-01	2.3030E-04	2.2320E-03	1.7154E-02	7.2583E-02
13	2.2314E-01	2.2239E-04	2.1582E-03	1.6710E-02	6.9276E-02
14	2.5489E-01	2.5402E-04	2.4642E-03	1.8988E-02	7.5583E-02
15	2.1511E-01	2.1440E-04	2.0818E-03	1.6170E-02	6.7350E-02
16	2.2314E-01	2.2200E-04	2.1219E-03	1.4781E-02	4.5061E-02
17	2.8769E-01	2.8668E-04	2.7765E-03	2.1137E-02	8.0577E-02
18	2.2316E-01	2.2259E-04	2.1630E-03	1.6864E-02	6.8882E-02
19	1.8235E-01	1.8198E-04	1.7683E-03	1.3779E-02	5.6170E-02
20	2.5748E-01	2.5661E-04	2.4893E-03	1.9163E-02	7.5036E-02
21	2.5669E-01	2.5570E-04	2.4684E-03	1.8337E-02	6.4198E-02
22	2.5155E-01	2.4999E-04	2.3677E-03	1.5679E-02	4.4158E-02
23	2.5594E-01	2.5502E-04	2.4652E-03	1.8487E-02	6.6575E-02
24	2.5650E-01	2.5762E-04	2.4867E-03	1.8457E-02	6.4453E-02
25	2.5699E-01	2.5598E-04	2.4883E-03	1.8181E-02	6.2114E-02
26	2.5865E-01	2.5759E-04	2.4815E-03	1.8156E-02	6.0909E-02
27	2.5218E-01	2.5107E-04	2.4121E-03	1.7321E-02	5.5324E-02
28	2.5469E-01	2.5338E-04	2.4192E-03	1.6663E-02	4.8275E-02
29	2.5748E-01	2.5591E-04	2.4236E-03	1.5854E-02	4.1318E-02
30	2.5669E-01	2.5471E-04	2.3805E-03	1.4409E-02	3.2978E-02
31	2.5155E-01	2.4863E-04	2.2510E-03	1.1628E-02	2.1860E-02
32	2.5594E-01	2.4865E-04	1.9914E-03	6.9833E-03	9.9428E-03
33	2.5848E-01	2.0924E-04	9.2502E-04	1.6054E-03	1.7702E-03
34	2.5699E-01	2.2470E-04	1.2203E-03	2.5687E-03	2.9921E-03
35	2.5865E-01	2.5367E-04	2.1661E-03	9.0717E-03	1.4415E-02

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** SODIUM N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	0.0
36	2.5218E-01	2.5004E-04	2.3208E-03	1.3572E-02	2.9828E-02
37	2.5469E-01	2.5333E-04	2.4148E-03	1.6470E-02	4.6936E-02
38	2.5748E-01	2.5643E-04	2.4717E-03	1.8161E-02	6.1762E-02
39	2.5669E-01	2.5583E-04	2.4791E-03	1.8929E-02	7.2124E-02
40	2.5156E-01	2.5082E-04	2.4377E-03	1.9028E-02	7.8070E-02
41	2.5595E-01	2.5525E-04	2.4831E-03	1.9517E-02	8.2081E-02
42	2.5850E-01	2.5786E-04	2.5088E-03	1.9744E-02	8.3434E-02
43	2.5700E-01	2.5636E-04	2.4944E-03	1.9632E-02	8.2960E-02
44	2.5868E-01	2.5813E-04	2.5114E-03	1.9762E-02	8.3465E-02
45	2.5220E-01	2.5156E-04	2.4475E-03	1.9251E-02	8.1163E-02
46	2.5472E-01	2.5454E-04	2.4763E-03	1.9476E-02	8.2100E-02
47	2.5748E-01	2.5671E-04	2.4974E-03	1.9642E-02	8.2800E-02
48	2.5669E-01	2.5594E-04	2.4900E-03	1.9584E-02	8.2553E-02
49	2.5156E-01	2.5085E-04	2.4404E-03	1.9194E-02	8.0910E-02
50	2.5595E-01	2.5526E-04	2.4832E-03	1.9529E-02	8.2268E-02
51	2.5850E-01	2.5785E-04	2.5081E-03	1.9706E-02	8.2747E-02
52	2.5699E-01	2.5628E-04	2.4927E-03	1.9572E-02	8.2004E-02
53	2.5866E-01	2.5793E-04	2.5086E-03	1.9689E-02	8.2372E-02
54	2.5219E-01	2.5151E-04	2.4459E-03	1.9187E-02	8.0101E-02
55	2.5467E-01	2.5411E-04	2.4712E-03	1.9379E-02	8.0830E-02
56	2.5749E-01	2.5678E-04	2.4969E-03	1.9569E-02	8.1423E-02
57	2.5671E-01	2.5607E-04	2.4898E-03	1.9500E-02	8.0954E-02
58	2.5158E-01	2.5101E-04	2.4403E-03	1.9095E-02	7.9012E-02
59	2.5595E-01	2.5531E-04	2.4819E-03	1.9407E-02	8.0099E-02
60	2.5850E-01	2.5783E-04	2.5061E-03	1.9579E-02	8.0563E-02
61	2.5699E-01	2.5626E-04	2.4905E-03	1.9440E-02	7.9725E-02
62	2.5866E-01	2.5790E-04	2.5061E-03	1.9541E-02	7.9844E-02
63	2.5219E-01	2.5148E-04	2.4434E-03	1.9031E-02	7.7459E-02
64	2.5467E-01	2.5408E-04	2.4682E-03	1.9200E-02	7.7804E-02
65	2.5749E-01	2.5675E-04	2.4938E-03	1.9374E-02	7.8157E-02
66	2.5671E-01	2.5603E-04	2.4863E-03	1.9289E-02	7.7434E-02
67	2.5158E-01	2.5097E-04	2.4367E-03	1.8875E-02	7.5372E-02
68	2.5595E-01	2.5526E-04	2.4778E-03	1.9162E-02	7.6089E-02
69	2.5851E-01	2.5786E-04	2.5026E-03	1.9318E-02	7.6233E-02
70	2.5699E-01	2.5786E-04	2.5026E-03	1.9318E-02	7.6233E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** SODIUM N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA O ** 1000.0	100.0	10.0	0.0
1	0.9463E-01	1.0000	1.0001	1.0009	1.0059
2	0.4197E-01	1.0000	0.9999	0.9993	0.9954
3	0.1333E-01	1.0000	1.0001	1.0005	1.0035
4	0.9262E-03	1.0000	1.0008	1.0076	1.0476
5	0.1100E-03	1.0000	1.0000	1.0000	1.0000
6	0.1186E-03	1.0000	0.9999	0.9995	0.9969
7	0.1238E-03	1.0000	1.0000	1.0004	1.0019
8	0.1392E-03	1.0000	0.9999	0.9992	0.9961
9	0.1663E-03	1.0000	0.9998	0.9986	0.9949
10	0.2126E-03	1.0000	0.9999	0.9993	0.9981
11	0.2799E-03	1.0000	1.0001	1.0005	1.0015
12	0.3396E-03	1.0001	1.0006	1.0045	1.0196
13	0.4233E-03	1.0000	0.9997	0.9973	0.9886
14	0.5254E-03	1.0000	1.0002	1.0013	1.0042
15	0.6182E-03	1.0000	1.0000	1.0000	0.9993
16	0.6920E-03	1.0000	1.0000	0.9999	0.9994
17	0.7936E-03	1.0000	1.0002	1.0014	1.0046
18	0.9348E-03	1.0000	1.0000	1.0000	1.0002
19	0.1051E-02	1.0000	1.0000	1.0000	0.9999
20	0.1137E-02	1.0000	0.9999	0.9996	0.9984
21	0.1298E-02	1.0000	1.0000	0.9998	0.9995
22	0.1476E-02	1.0000	1.0003	1.0021	1.0061
23	0.1680E-02	1.0000	1.0000	1.0001	1.0003
24	0.1919E-02	1.0000	1.0000	0.9999	0.9995
25	0.2174E-02	1.0000	1.0000	0.9999	0.9997
26	0.2474E-02	1.0000	1.0000	0.9999	0.9996
27	0.2832E-02	1.0000	1.0000	0.9996	0.9988
28	0.3179E-02	1.0000	0.9999	0.9993	0.9981
29	0.3636E-02	1.0000	0.9999	0.9993	0.9982
30	0.2619E-02	1.0001	1.0009	1.0056	1.0133
31	0.3265E-02	0.9997	0.9976	0.9880	0.9780
32	0.8302E-02	0.9954	0.9651	0.8934	0.8595
33	0.1237E 00	0.8910	0.6511	0.5317	0.5109
34	0.9615E-01	0.9276	0.7399	0.6210	0.5966
35	0.1740E-01	0.9984	0.9866	0.9499	0.9264

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** SODIUM N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA O ** 1000.0	100.0	10.0	0.0
36	0.9421E-02	0.9998	0.9984	0.9906	0.9802
37	0.6903E-02	1.0000	0.9996	0.9976	0.9932
38	0.5954E-02	1.0000	0.9999	0.9995	0.9984
39	0.5590E-02	1.0000	1.0000	0.9999	0.9996
40	0.5500E-02	1.0000	1.0000	1.0000	1.0000
41	0.5645E-02	1.0000	1.0000	1.0000	1.0001
42	0.5943E-02	1.0000	1.0000	1.0000	1.0000
43	0.6451E-02	1.0000	1.0000	1.0000	1.0000
44	0.7163E-02	1.0000	1.0000	1.0000	1.0000
45	0.7791E-02	1.0000	1.0000	1.0000	1.0000
46	0.8655E-02	1.0000	1.0000	1.0000	1.0000
47	0.9601E-02	1.0000	1.0000	1.0000	1.0000
48	0.1077E-01	1.0000	1.0000	1.0000	1.0000
49	0.1212E-01	1.0000	1.0000	1.0000	1.0000
50	0.1365E-01	1.0000	1.0000	1.0000	1.0000
51	0.1544E-01	1.0000	1.0000	1.0000	1.0000
52	0.1755E-01	1.0000	1.0000	1.0000	0.9999
53	0.1991E-01	1.0000	1.0000	1.0000	1.0000
54	0.2261E-01	1.0000	1.0000	1.0000	1.0000
55	0.2556E-01	1.0000	1.0000	1.0000	1.0000
56	0.2890E-01	1.0000	1.0000	1.0000	1.0000
57	0.3284E-01	1.0000	1.0000	1.0000	1.0000
58	0.3726E-01	1.0000	1.0000	1.0000	0.9999
59	0.4229E-01	1.0000	1.0000	1.0000	1.0000
60	0.4810E-01	1.0000	1.0000	1.0000	0.9999
61	0.5477E-01	1.0000	1.0000	1.0000	0.9999
62	0.6213E-01	1.0000	1.0000	1.0000	0.9999
63	0.7044E-01	1.0000	1.0000	1.0000	0.9999
64	0.7985E-01	1.0000	1.0000	1.0000	0.9999
65	0.9168E-01	1.0000	1.0000	1.0000	0.9999
66	0.1036E 00	1.0000	1.0000	1.0000	0.9999
67	0.1176E 00	1.0000	1.0000	1.0000	0.9999
68	0.1335E 00	1.0000	1.0000	1.0000	0.9999
69	0.1519E 00	1.0000	1.0000	1.0000	0.9999
70	0.1706E 00	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** SODIUM N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
1	0.8012E 00	1.0000	1.0000	0.9999	0.9991
2	0.7967E 00	1.0000	1.0000	0.9999	0.9996
3	0.8107E 00	1.0000	1.0000	1.0000	0.9998
4	0.1088E 01	1.0000	0.9998	0.9983	0.9900
5	0.1469E 01	1.0000	0.9998	0.9980	0.9877
6	0.1834E 01	1.0000	0.9996	0.9966	0.9813
7	0.2142E 01	1.0000	0.9997	0.9974	0.9872
8	0.2338E 01	1.0000	0.9991	0.9922	0.9668
9	0.2607E 01	1.0000	0.9996	0.9966	0.9876
10	0.3907E 01	1.0000	0.9988	0.9909	0.9720
11	0.6121E 01	1.0000	0.9981	0.9861	0.9636
12	0.3486E 01	1.0000	0.9973	0.9767	0.8932
13	0.3393E 01	1.0000	0.9982	0.9852	0.9442
14	0.3444E 01	1.0000	0.9992	0.9938	0.9789
15	0.3336E 01	1.0000	0.9986	0.9885	0.9530
16	0.5167E 01	1.0000	0.9977	0.9832	0.9546
17	0.3630E 01	1.0000	0.9993	0.9947	0.9834
18	0.3241E 01	1.0000	1.0000	1.0000	1.0000
19	0.3249E 01	1.0000	1.0000	1.0000	1.0000
20	0.3437E 01	1.0000	0.9999	0.9994	0.9980
21	0.3599E 01	1.0000	1.0000	0.9999	0.9996
22	0.6282E 01	1.0000	0.9943	0.9609	0.9042
23	0.3847E 01	1.0000	1.0000	0.9998	0.9992
24	0.4011E 01	1.0000	1.0000	1.0000	0.9999
25	0.4136E 01	1.0000	1.0000	1.0000	1.0000
26	0.4245E 01	1.0000	1.0000	0.9999	0.9998
27	0.4560E 01	1.0000	1.0000	0.9997	0.9991
28	0.5287E 01	1.0000	0.9999	0.9990	0.9970
29	0.6244E 01	1.0000	0.9999	0.9990	0.9974
30	0.7838E 01	1.0000	0.9995	0.9968	0.9927
31	0.1178E 02	1.0000	0.9977	0.9872	0.9765
32	0.2941E 02	0.9974	0.9706	0.9061	0.8749
33	0.2602E 03	0.9651	0.6892	0.5796	0.5603
34	0.1566E 03	0.9183	0.7052	0.5734	0.5466
35	0.1972E 02	0.9981	0.9833	0.9376	0.9088

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** SODIUM N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
36	0.8667E 01	0.9996	0.9976	0.9870	0.9725
37	0.5482E 01	0.9996	0.9991	0.9958	0.9887
38	0.4177E 01	0.9999	0.9998	0.9989	0.9967
39	0.3559E 01	0.9999	0.9998	0.9995	0.9986
40	0.3219E 01	0.9999	0.9999	0.9998	0.9995
41	0.3114E 01	1.0000	1.0000	1.0000	0.9999
42	0.3094E 01	1.0000	1.0000	1.0000	1.0000
43	0.3094E 01	1.0000	1.0000	1.0000	1.0000
44	0.3095E 01	1.0000	1.0000	1.0000	1.0000
45	0.3101E 01	1.0000	1.0000	1.0000	1.0000
46	0.3101E 01	1.0000	1.0000	1.0000	1.0000
47	0.3100E 01	1.0000	1.0000	1.0000	1.0000
48	0.3099E 01	1.0000	1.0000	1.0000	1.0000
49	0.3098E 01	1.0000	1.0000	1.0000	1.0000
50	0.3098E 01	1.0000	1.0000	1.0000	1.0000
51	0.3110E 01	1.0000	1.0000	1.0000	1.0000
52	0.3117E 01	1.0000	1.0000	1.0000	1.0000
53	0.3121E 01	1.0000	1.0000	1.0000	1.0000
54	0.3127E 01	1.0000	1.0000	1.0000	1.0000
55	0.3128E 01	1.0000	1.0000	1.0000	1.0000
56	0.3135E 01	1.0000	1.0000	1.0000	1.0000
57	0.3140E 01	1.0000	1.0000	1.0000	1.0000
58	0.3150E 01	1.0000	1.0000	1.0000	1.0000
59	0.3155E 01	1.0000	1.0000	1.0000	1.0000
60	0.3162E 01	1.0000	1.0000	1.0000	1.0000
61	0.3170E 01	1.0000	1.0000	1.0000	1.0000
62	0.3178E 01	1.0000	1.0000	1.0000	1.0000
63	0.3187E 01	1.0000	1.0000	1.0000	1.0000
64	0.3196E 01	1.0000	1.0000	1.0000	1.0000
65	0.3205E 01	1.0000	1.0000	1.0000	1.0000
66	0.3214E 01	1.0000	1.0000	1.0000	1.0000
67	0.3223E 01	1.0000	1.0000	1.0000	1.0000
68	0.3232E 01	1.0000	1.0000	1.0000	1.0000
69	0.3242E 01	1.0000	1.0000	1.0000	1.0000
70	0.3251E 01	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** SODIUM N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA O **			
(I)	INFI	1000.0	100.0	10.0	0.0
1	0.1758E 01	1.0000	1.0000	0.9998	0.9990
2	0.1762E 01	1.0000	1.0000	0.9999	0.9994
3	0.1723E 01	1.0000	1.0000	1.0000	0.9999
4	0.1919E 01	1.0000	0.9998	0.9985	0.9910
5	0.2170E 01	1.0000	0.9997	0.9974	0.9842
6	0.2472E 01	1.0000	0.9994	0.9948	0.9700
7	0.2825E 01	1.0000	0.9995	0.9956	0.9767
8	0.2846E 01	0.9998	0.9985	0.9888	0.9532
9	0.3366E 01	0.9999	0.9992	0.9938	0.9786
10	0.4342E 01	0.9998	0.9977	0.9844	0.9541
11	0.6448E 01	0.9996	0.9960	0.9742	0.9341
12	0.3555E 01	0.9994	0.9942	0.9529	0.7902
13	0.3401E 01	0.9996	0.9963	0.9727	0.8990
14	0.3445E 01	0.9998	0.9983	0.9879	0.9618
15	0.3341E 01	0.9997	0.9971	0.9782	0.9140
16	0.5182E 01	0.9995	0.9950	0.9683	0.9183
17	0.3631E 01	0.9998	0.9985	0.9897	0.9706
18	0.3242E 01	1.0000	1.0000	1.0000	1.0000
19	0.3250E 01	1.0000	1.0000	1.0000	1.0000
20	0.3438E 01	1.0000	0.9999	0.9989	0.9961
21	0.4006E 01	1.0000	1.0000	0.9998	0.9994
22	0.6286E 01	0.9987	0.9877	0.9260	0.8336
23	0.3648E 01	1.0000	0.9999	0.9996	0.9984
24	0.4014E 01	1.0000	1.0000	0.9999	0.9997
25	0.4138E 01	1.0000	1.0000	1.0000	0.9999
26	0.4248E 01	1.0000	1.0000	0.9999	0.9997
27	0.4563E 01	1.0000	0.9999	0.9994	0.9982
28	0.5293E 01	1.0000	0.9997	0.9979	0.9939
29	0.6248E 01	1.0000	0.9997	0.9980	0.9949
30	0.7842E 01	0.9999	0.9989	0.9936	0.9855
31	0.1179E 02	0.9994	0.9949	0.9745	0.9541
32	0.2941E 02	0.9921	0.9409	0.8277	0.7786
33	0.2604E 03	0.8167	0.4955	0.3827	0.3660
34	0.1567E 03	0.8444	0.5353	0.3993	0.3760
35	0.1974E 02	0.9959	0.9672	0.8844	0.8374

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** SODIUM N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA O **			
(I)	INFI	1000.0	100.0	10.0	0.0
36	0.8698E 01	0.9995	0.9954	0.9742	0.9461
37	0.5487E 01	0.9999	0.9988	0.9922	0.9783
38	0.4183E 01	1.0000	0.9997	0.9981	0.9935
39	0.3564E 01	1.0000	0.9999	0.9993	0.9974
40	0.3224E 01	1.0000	1.0000	0.9998	0.9993
41	0.3120E 01	1.0000	1.0000	1.0000	1.0000
42	0.3100E 01	1.0000	1.0000	1.0000	1.0000
43	0.3100E 01	1.0000	1.0000	1.0000	1.0000
44	0.3102E 01	1.0000	1.0000	1.0000	1.0000
45	0.3109E 01	1.0000	1.0000	1.0000	1.0000
46	0.3110E 01	1.0000	1.0000	1.0000	1.0000
47	0.3110E 01	1.0000	1.0000	1.0000	1.0000
48	0.3110E 01	1.0000	1.0000	1.0000	1.0000
49	0.3110E 01	1.0000	1.0000	1.0000	1.0000
50	0.3112E 01	1.0000	1.0000	1.0000	1.0000
51	0.3126E 01	1.0000	1.0000	1.0000	1.0000
52	0.3135E 01	1.0000	1.0000	1.0000	1.0000
53	0.3141E 01	1.0000	1.0000	1.0000	1.0000
54	0.3150E 01	1.0000	1.0000	1.0000	1.0000
55	0.3154E 01	1.0000	1.0000	1.0000	1.0000
56	0.3164E 01	1.0000	1.0000	1.0000	1.0000
57	0.3173E 01	1.0000	1.0000	1.0000	1.0000
58	0.3187E 01	1.0000	1.0000	1.0000	1.0000
59	0.3198E 01	1.0000	1.0000	1.0000	1.0000
60	0.3211E 01	1.0000	1.0000	1.0000	1.0000
61	0.3225E 01	1.0000	1.0000	1.0000	1.0000
62	0.3241E 01	1.0000	1.0000	1.0000	1.0000
63	0.3257E 01	1.0000	1.0000	1.0000	1.0000
64	0.3276E 01	1.0000	1.0000	1.0000	1.0000
65	0.3296E 01	1.0000	1.0000	1.0000	1.0000
66	0.3317E 01	1.0000	1.0000	1.0000	1.0000
67	0.3341E 01	1.0000	1.0000	1.0000	1.0000
68	0.3366E 01	1.0000	1.0000	1.0000	1.0000
69	0.3394E 01	1.0000	1.0000	1.0000	1.0000
70	0.3422E 01	1.0000	1.0000	1.0000	1.0000

A-Ⅲ-6. ALUMINIUM

ELEMENT** ALUMINIUM N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	1.70021E 00	0.0	0.0	1.46929E-01	8.52415E-01	7.00868E-01	6.49956E-01	1.41582E-01	3.76964E-03
2	1.97674E 00	0.0	0.0	8.56081E-02	8.58289E-01	1.03282E 00	6.08191E-01	2.11281E-01	1.33772E-02
3	2.14208E 00	0.0	0.0	3.69567E-02	8.59853E-01	1.24527E 00	6.16506E-01	2.10844E-01	3.20818E-02
4	2.28322E 00	0.0	0.0	1.39190E-02	8.14685E-01	1.45465E 00	4.97898E-01	3.06633E-01	5.84852E-02
5	2.50140E 00	0.0	0.0	5.92817E-03	6.95708E-01	1.79976E 00	4.30905E-01	3.42938E-01	9.04039E-02
6	2.83834E 00	0.0	0.0	1.62486E-03	4.08900E-01	2.42781E 00	3.70457E-01	6.68775E-01	9.36227E-02
7	2.92478E 00	0.0	0.0	3.99984E-04	2.86446E-01	2.63793E 00	3.97765E-01	4.92161E-01	1.29344E-01
8	2.94356E 00	0.0	0.0	3.64380E-04	2.88861E-01	2.64644E 00	3.39121E-01	4.61948E-01	1.39098E-01
9	3.46004E 00	0.0	0.0	3.97647E-04	2.60786E-01	3.19886E 00	3.16639E-01	7.20336E-01	9.67238E-02
10	3.25288E 00	0.0	0.0	4.43052E-04	1.53481E-02	3.23709E 00	2.99561E-01	7.27502E-01	1.04131E-01
11	3.69510E 00	0.0	0.0	5.78520E-04	0.0	3.69452E 00	2.43687E-01	9.13953E-01	2.38888E-01
12	3.79772E 00	0.0	0.0	7.34734E-04	0.0	3.79699E 00	2.24769E-01	1.01504E 00	2.31103E-01
13	4.33389E 00	0.0	0.0	1.18748E-03	0.0	4.33270E 00	1.72150E-01	1.26188E 00	2.23134E-01
14	3.55601E 00	0.0	0.0	1.58763E-03	0.0	3.55442E 00	1.17371E-01	1.03432E 00	2.54883E-01
15	3.72269E 00	0.0	0.0	1.37745E-03	0.0	3.72128E 00	9.77902E-02	8.84840E-01	2.15099E-01
16	4.74830E 00	0.0	0.0	1.53663E-03	0.0	4.74676E 00	1.00195E-01	1.76903E 00	2.23137E-01
17	6.99694E 00	0.0	0.0	2.27856E-03	0.0	6.99464E 00	7.40335E-02	2.52145E 00	2.87675E-01
18	4.26464E 00	0.0	0.0	4.62414E-03	0.0	4.26002E 00	5.69665E-02	9.97133E-01	2.23137E-01
19	3.69073E 00	0.0	0.0	4.60940E-03	0.0	3.68612E 00	5.03832E-02	1.54034E 00	1.82319E-01
20	1.01001E 01	0.0	0.0	2.35537E-03	0.0	1.00977E 01	4.61575E-02	1.59240E 00	2.57475E-01
21	1.62540E 00	0.0	0.0	2.09330E-03	0.0	1.62331E 00	4.04282F-02	4.30870E-01	2.56685E-01
22	2.49925E 00	0.0	0.0	3.76409E-03	0.0	2.49549E 00	3.61889F-02	9.09811E-01	2.51557E-01
23	8.46335E 00	0.0	0.0	1.43026E-02	0.0	8.44904E 00	3.33904F-02	4.17677E 00	2.55935E-01
24	8.33583E 00	0.0	0.0	7.07386E-03	0.0	8.32876E 00	3.20691E-02	2.26214E-01	2.58480E-01
25	5.82560E-01	0.0	0.0	2.17615E-03	0.0	5.80381E-01	2.95086E-02	1.88470E-01	2.56981E-01
26	8.36461E-01	0.0	0.0	2.26692E-03	0.0	8.34194E-01	2.81050E-02	2.49652E-01	2.58651E-01
27	1.00834E 00	0.0	0.0	2.72060E-03	0.0	1.00560E 00	2.66914E-02	3.03483E-01	2.52180E-01
28	1.17433E 00	0.0	0.0	3.72175E-03	0.0	1.17061E 00	2.52989E-02	3.54848E-01	2.54645E-01
29	1.31201E 00	0.0	0.0	5.11374E-03	0.0	1.30690E 00	2.46523E-02	3.71953E-01	2.57476E-01
30	1.56331E 00	0.0	0.0	6.21046E-03	0.0	1.55710E 00	2.46525E-02	5.17236E-01	2.56692E-01
31	1.71066E 00	0.0	0.0	7.37285E-03	0.0	1.70323E 00	2.46536E-02	4.06170E-01	2.51551E-01
32	1.42599E 00	0.0	0.0	8.51090E-03	0.0	1.41745E 00	2.46519E-02	3.97961E-01	2.55934E-01
33	1.40443E 00	0.0	0.0	9.70831E-03	0.0	1.39472E 00	2.46526E-02	3.90347E-01	2.58490E-01
34	1.39996E 00	0.0	0.0	1.06501E-02	0.0	1.38925E 00	2.46514E-02	3.93995E-01	2.57006E-01
35	1.39984E 00	0.0	0.0	1.15252E-02	0.0	1.38831E 00	2.46513E-02	3.91100E-01	2.58673E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** ALUMINIUM N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	1.39984E 00	0.0	0.0	1.24627E-02	0.0	1.38738E 00	2.46512E-02	4.01053E-01	2.52197E-01
37	1.39993E 00	0.0	0.0	1.34686E-02	0.0	1.38646E 00	2.46521E-02	3.96896E-01	2.54665E-01
38	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46523E-02	3.92382E-01	2.57499E-01
39	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46517E-02	3.93623E-01	2.56711E-01
40	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46501E-02	4.01720E-01	2.51575E-01
41	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46499E-02	3.94812E-01	2.55955E-01
42	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46511E-02	3.90794E-01	2.58506E-01
43	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46516E-02	3.93158E-01	2.57005E-01
44	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46515E-02	3.90531E-01	2.58673E-01
45	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46513E-02	4.00736E-01	2.52197E-01
46	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46514E-02	3.96768E-01	2.54665E-01
47	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46510E-02	3.92297E-01	2.57499E-01
48	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46516E-02	3.93623E-01	2.56711E-01
49	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46515E-02	4.01720E-01	2.51575E-01
50	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46516E-02	3.94813E-01	2.55955E-01
51	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46517E-02	3.90794E-01	2.58506E-01
52	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46514E-02	3.93160E-01	2.57005E-01
53	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46496E-02	3.90529E-01	2.58674E-01
54	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46498E-02	4.00737E-01	2.52196E-01
55	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46514E-02	3.96847E-01	2.54665E-01
56	1.40398E 00	0.0	0.0	1.47761E-02	0.0	1.38916E 00	2.46514E-02	3.93837E-01	2.57500E-01
57	1.41193E 00	0.0	0.0	1.64392E-02	0.0	1.39549E 00	2.46512E-02	3.96879E-01	2.56711E-01
58	1.42003E 00	0.0	0.0	1.82667E-02	0.0	1.40178E 00	2.46516E-02	4.06849E-01	2.51575E-01
59	1.42837E 00	0.0	0.0	2.02949E-02	0.0	1.40808E 00	2.46516E-02	4.01667E-01	2.55956E-01
60	1.43709E 00	0.0	0.0	2.25807E-02	0.0	1.41450E 00	2.46517E-02	3.99402E-01	2.58506E-01
61	1.44609E 00	0.0	0.0	2.51289E-02	0.0	1.42096E 00	2.46526E-02	4.03646E-01	2.57006E-01
62	1.45543E 00	0.0	0.0	2.79661E-02	0.0	1.42746E 00	2.46503E-02	4.02792E-01	2.58673E-01
63	1.46501E 00	0.0	0.0	3.10915E-02	0.0	1.43392E 00	2.46500E-02	4.15163E-01	2.52197E-01
64	1.47490E 00	0.0	0.0	3.45387E-02	0.0	1.44036E 00	2.46514E-02	4.12988E-01	2.54664E-01
65	1.48254E 00	0.0	0.0	3.84442E-02	0.0	1.44367E 00	2.46512E-02	4.08719E-01	2.57499E-01
66	1.48796E 00	0.0	0.0	4.41758E-02	0.0	1.44380E 00	2.46514E-02	4.10049E-01	2.56711E-01
67	1.49409E 00	0.0	0.0	5.01636E-02	0.0	1.44393E 00	2.46516E-02	4.18521E-01	2.51575E-01
68	1.50104E 00	0.0	0.0	5.69554E-02	0.0	1.44406E 00	2.46512E-02	4.11362E-01	2.55956E-01
69	1.50898E 00	0.0	0.0	6.47783E-02	0.0	1.44420E 00	2.46513E-02	4.07216E-01	2.58506E-01
70	1.52006E 00	0.0	0.0	7.57512E-02	0.0	1.44433E 00	2.46515E-02	0.0	2.57006E-01

TABLE OF ELASTIC MATRICES

ELEMENT** ALUMINIUM N **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
1	5.5929E-01	1.4158E-01
2	8.2154E-01	2.1129E-01
3	1.0344E 00	2.1084E-01
4	1.1480E 00	3.0663E-01
5	1.4560E 00	3.4294E-01
6	1.7590E 00	6.6876E-01
7	2.1458E 00	4.9216E-01
8	2.1845E 00	4.6195E-01
9	2.4785E 00	7.2034E-01
10	2.5096E 00	7.2750E-01
11	2.7806E 00	9.1395E-04
12	2.7819E 00	1.0150E 00
13	3.0708E 00	1.2619E 00
14	2.5201E 00	1.0343E 00
15	2.8364E 00	8.8484E-01
16	2.9777E 00	1.7690E 00
17	4.4732E 00	2.5214E 00
18	3.2629E 00	9.9713E-01
19	2.1450E 00	1.5403E 00
20	8.5053E 00	1.5924E 00
21	1.1924E 00	4.3087E-01
22	1.5857E 00	9.0981E-01
23	4.2725E 00	4.1768E 00
24	8.1025E 00	2.2625E-01
25	3.9191E-01	1.8847E-01
26	5.8454E-01	2.4965E-01
27	7.0214E-01	3.0348E-01
28	8.1576E-01	3.5485E-01
29	9.3492E-01	3.7195E-01
30	1.0399E 00	5.1724E-01
31	1.2971E 00	4.0617E-01
32	1.0192E 00	3.9796E-01
33	1.0044E 00	3.9035E-01
34	9.9525E-01	3.9400E-01
35	9.9721E-01	3.9110E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** ALUMINIUM N **

GROUP RANGE (I= 36**70 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
36	9.8633E-01	4.0105E-01
37	9.8959E-01	3.9690E-01
38	9.9362E-01	3.9238E-01
39	9.9238E-01	3.9362E-01
40	9.8428E-01	4.0172E-01
41	9.9119E-01	3.9481E-01
42	9.9521E-01	3.9079E-01
43	9.9284E-01	3.9316E-01
44	9.9547E-01	3.9053E-01
45	9.8528E-01	4.0074E-01
46	9.8923E-01	3.9677E-01
47	9.9370E-01	3.9230E-01
48	9.9238E-01	3.9362E-01
49	9.8428E-01	4.0172E-01
50	9.9119E-01	3.9481E-01
51	9.9521E-01	3.9079E-01
52	9.9284E-01	3.9316E-01
53	9.9547E-01	3.9053E-01
54	9.8524E-01	4.0074E-01
55	9.8915E-01	3.9685E-01
56	9.9532E-01	3.9384E-01
57	9.9864E-01	3.9688E-01
58	9.9493E-01	4.0685E-01
59	1.0064E 00	4.0167E-01
60	1.0151E 00	3.9940E-01
61	1.0173E 00	4.0365E-01
62	1.0247E 00	4.0279E-01
63	1.0188E 00	4.1516E-01
64	1.0274E 00	4.1299E-01
65	1.0350E 00	4.0872E-01
66	1.0338E 00	4.1003E-01
67	1.0254E 00	4.1852E-01
68	1.0327E 00	4.1136E-01
69	1.0370E 00	4.0722E-01
70	1.4443E 00	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** ALUMINIUM N **

GROUP RANGE (I= 1**10 , J= 1**23)

GROUP (I)	J=I+K (K)									
	0 10 20	1 11 21	2 12 22	3 13	4 14	5 15	6 16	7 17	8 18	9 19
1	1.3457E-01 2.5340E-03 0.0	2.7768E-01 1.5312E-03 0.0	1.6928E-01 9.3811E-04 0.0	1.0434E-01	6.6606E-02 5.5023E-04	3.5023E-02 2.3453E-04	2.7518E-02 1.8241E-04	1.7199E-02 0.0	7.8176E-03 0.0	5.9414E-03 0.0
2	1.4991E-01 2.4638E-03 0.0	2.7233E-01 1.5099E-03 0.0	1.6789E-01 1.0717E-03 0.0	1.0717E-01 5.6359E-04	5.6359E-02 3.7737E-04	4.427bE-02 2.9351E-04	2.7674E-02 1.3585E-04	1.2579E-02 0.0	9.5601E-03 0.0	4.0773E-03 0.0
3	8.0484E-02 1.2015E-02 0.0	6.3016E-02 1.8713E-03 0.0	8.0379E-02 2.1152E-04 1.9552E-02	1.8330E-01 1.4164E-04	1.9466E-01 1.1017E-04	6.0074E-02 0.0	6.9791E-02 0.0	5.9856E-02 0.0	1.9931E-02 0.0	1.4435E-02 0.0
4	0.0 1.8113E-02 0.0	1.0593E-01 5.7916E-03 0.0	2.6078E-02 6.8941E-03 0.0	1.9543E-01 7.0404E-04	2.7409E-01 1.9879E-03	5.0082E-02 0.0	3.4774E-02 4.3231E-04	4.0716E-02 0.0	2.6428E-02 6.8741E-04	2.6535E-02 0.0
5	2.0113E-04 1.6465E-02 0.0	6.3359E-02 9.6781E-03 0.0	1.5152E-01 6.3767E-03 0.0	4.6744E-02 3.0945E-03	7.2243E-02 1.4514E-03	1.3146E-01 9.7594E-04	7.7769E-02 4.1866E-04	4.8286E-02 0.0	3.6611E-02 0.0	2.9060E-02 0.0
6	0.0 9.5414E-03 0.0	3.8047E-02 5.9245E-03 0.0	1.9657E-01 7.4873E-04 0.0	1.9072E-02 1.8539E-04	3.2333E-03 0.0	3.6675E-02 0.0	3.8344E-02 0.0	2.7378E-02 0.0	2.1419E-02 0.0	1.1759E-02 0.0
7	0.0 2.3489E-03 0.0	1.2896E-02 1.1646E-03 0.0	1.1159E-01 3.2445E-04 0.0	1.4695E-01 8.9043E-05	1.0196E-02 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	8.9023E-04 0.0
8	0.0 0.0 0.0	0.0 0.0 0.0	3.4106E-02 0.0 0.0	9.2277E-02 0.0	8.3595E-02 0.0	4.8614E-02 0.0	2.7795E-02 0.0	2.4741E-03 0.0	0.0 0.0	0.0 0.0
9	0.0 2.3025E-02 0.0	0.0 1.5733E-02 0.0	0.0 9.7561E-03 0.0	3.8699E-03 7.2130E-03	3.4319E-02 1.8366E-03	3.2432E-02 8.1803E-04	5.7812E-02 0.0	4.5196E-02 0.0	4.9208E-03 0.0	2.3853E-02 0.0
10	0.0 0.0 0.0	0.0 1.3387E-04 0.0	0.0 1.6125E-03 0.0	0.0 2.2332E-03	0.0 1.9467E-03	0.0 9.3471E-04	3.7167E-03 3.9028E-04	4.2145E-03 1.4183E-04	0.0 3.4699E-05	0.0 3.9919E-06

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** ALUMINIUM N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP		**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
1	3.7696E-03	3.7641E-06	3.7142E-05	3.2248E-04	1.3961E-03	2.2177E-03
2	1.3377E-02	1.3353E-05	1.3135E-04	1.1175E-03	4.5061E-03	6.8108E-03
3	3.2082E-02	3.2019E-05	3.1435E-04	2.6455E-03	1.0218E-02	1.5004E-02
4	5.8485E-02	5.8358E-05	5.7203E-04	4.7624E-03	1.7825E-02	2.5659E-02
5	9.0404E-02	9.0185E-05	8.8223E-04	7.2352E-03	2.5837E-02	3.6200E-02
6	9.3623E-02	9.3366E-05	9.1043E-04	7.3027E-03	2.4496E-02	3.3284E-02
7	1.2934E-01	1.2897E-04	1.2566E-03	1.0370E-02	3.3179E-02	4.4792E-02
8	1.3910E-01	1.3870E-04	1.3513E-03	1.0759E-02	3.5568E-02	4.7936E-02
9	9.6724E-02	9.6390E-05	9.3456E-04	7.1900E-03	2.2109E-02	2.8892E-02
10	1.0413E-01	1.0379E-04	1.0041E-03	7.4617E-03	2.5468E-02	3.4142E-02
11	2.3889E-01	2.3803E-04	2.3031E-03	1.7449E-02	5.1897E-02	6.6756E-02
12	2.3110E-01	2.3024E-04	2.2251E-03	1.6701E-02	4.9044E-02	6.2651E-02
13	2.2313E-01	2.2218E-04	2.1392E-03	1.5635E-02	4.2898E-02	5.3515E-02
14	2.5488E-01	2.5399E-04	2.4628E-03	1.8983E-02	5.8776E-02	7.7997E-02
15	2.1510E-01	2.1431E-04	2.0731E-03	1.5784E-02	5.0173E-02	6.8749E-02
16	2.2314E-01	2.2210E-04	2.1302E-03	1.5266E-02	4.1451E-02	5.2003E-02
17	2.8768E-01	2.8570E-04	2.6839E-03	1.7382E-02	4.2969E-02	5.2111E-02
18	2.2314E-01	2.2219E-04	2.1360E-03	1.6234E-02	5.8450E-02	8.8368E-02
19	1.8232E-01	1.8169E-04	1.7571E-03	1.3405E-02	4.2385E-02	5.6692E-02
20	2.5748E-01	2.5496E-04	2.3164E-03	1.3298E-02	3.0191E-02	3.6453E-02
21	2.5669E-01	2.5633E-04	2.2270E-03	2.2071E-02	9.8354E-02	1.6018E-01
22	2.5156E-01	2.5107E-04	2.4580E-03	2.0108E-02	7.4224E-02	1.0756E-01
23	2.5593E-01	2.5388E-04	2.3578E-03	1.4823E-02	3.4774E-02	4.1368E-02
24	2.5648E-01	2.5636E-04	2.3914E-03	1.7731E-02	8.2318E-02	1.7963E-01
25	2.5698E-01	2.5687E-04	2.5563E-03	2.4294E-02	1.6280E-01	4.4962E-01
26	2.5865E-01	2.5852E-04	2.5684E-03	2.3896E-02	1.4100E-01	3.1077E-01
27	2.5218E-01	2.5211E-04	2.5038E-03	2.2966E-02	1.2569E-01	2.5073E-01
28	2.5464E-01	2.5449E-04	2.2219E-03	2.2823E-02	1.1724E-01	2.1759E-01
29	2.5748E-01	2.5722E-04	2.5446E-03	2.2739E-02	1.1142E-01	1.9642E-01
30	2.5669E-01	2.5651E-04	2.5361E-03	2.2268E-02	1.0111E-01	1.6807E-01
31	2.5155E-01	2.5120E-04	2.4764E-03	2.1540E-02	9.4973E-02	1.5502E-01
32	2.5593E-01	2.5566E-04	2.2270E-03	2.2432E-02	1.0554E-01	1.7956E-01
33	2.5849E-01	2.5839E-04	2.5597E-03	2.2761E-02	1.0762E-01	1.8425E-01
34	2.5701E-01	2.5733E-04	2.5523E-03	2.2791E-02	1.0737E-01	1.8406E-01
35	2.5867E-01	2.5901E-04	2.5793E-03	2.2942E-02	1.0807E-01	1.8527E-01

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** ALUMINIUM N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP		**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
36	2.5220E-01	2.5249E-04	2.5134E-03	2.2356E-02	1.0535E-01	1.8060E-01
37	2.5467E-01	2.5497E-04	2.5385E-03	2.2579E-02	1.0639E-01	1.8238E-01
38	2.5750E-01	2.5783E-04	2.5674E-03	2.2836E-02	1.0758E-01	1.8442E-01
39	2.5671E-01	2.5703E-04	2.5593E-03	2.2765E-02	1.0725E-01	1.8385E-01
40	2.5158E-01	2.5186E-04	2.5079E-03	2.2300E-02	1.0509E-01	1.8016E-01
41	2.5596E-01	2.5627E-04	2.5516E-03	2.2696E-02	1.0693E-01	1.8331E-01
42	2.5851E-01	2.5884E-04	2.5776E-03	2.2927E-02	1.0800E-01	1.8515E-01
43	2.5700E-01	2.5733E-04	2.5623E-03	2.2791E-02	1.0737E-01	1.8406E-01
44	2.5867E-01	2.5901E-04	2.5793E-03	2.2942E-02	1.0807E-01	1.8527E-01
45	2.5220E-01	2.5249E-04	2.5134E-03	2.2356E-02	1.0535E-01	1.8060E-01
46	2.5467E-01	2.5497E-04	2.5385E-03	2.2579E-02	1.0639E-01	1.8238E-01
47	2.5750E-01	2.5783E-04	2.5674E-03	2.2836E-02	1.0758E-01	1.8442E-01
48	2.5671E-01	2.5703E-04	2.5593E-03	2.2765E-02	1.0725E-01	1.8385E-01
49	2.5158E-01	2.5186E-04	2.5079E-03	2.2300E-02	1.0509E-01	1.8016E-01
50	2.5596E-01	2.5627E-04	2.5516E-03	2.2696E-02	1.0693E-01	1.8331E-01
51	2.5851E-01	2.5884E-04	2.5776E-03	2.2927E-02	1.0800E-01	1.8515E-01
52	2.5700E-01	2.5733E-04	2.5623E-03	2.2791E-02	1.0737E-01	1.8406E-01
53	2.5867E-01	2.5901E-04	2.5793E-03	2.2942E-02	1.0807E-01	1.8527E-01
54	2.5220E-01	2.5249E-04	2.5134E-03	2.2356E-02	1.0535E-01	1.8060E-01
55	2.5467E-01	2.5497E-04	2.5385E-03	2.2579E-02	1.0639E-01	1.8238E-01
56	2.5750E-01	2.5783E-04	2.5672E-03	2.2826E-02	1.0738E-01	1.8383E-01
57	2.5671E-01	2.5703E-04	2.5590E-03	2.2737E-02	1.0666E-01	1.8213E-01
58	2.5158E-01	2.5186E-04	2.5065E-03	2.2255E-02	1.0414E-01	1.7738E-01
59	2.5596E-01	2.5627E-04	2.5508E-03	2.2634E-02	1.0558E-01	1.7938E-01
60	2.5851E-01	2.5883E-04	2.5766E-03	2.2846E-02	1.0625E-01	1.8006E-01
61	2.5701E-01	2.5732E-04	2.5611E-03	2.2630E-02	1.0524E-01	1.7789E-01
62	2.5867E-01	2.5899E-04	2.5778E-03	2.2825E-02	1.0554E-01	1.7794E-01
63	2.5220E-01	2.5247E-04	2.5117E-03	2.2225E-02	1.0251E-01	1.7240E-01
64	2.5466E-01	2.5495E-04	2.5366E-03	2.2429E-02	1.0314E-01	1.7303E-01
65	2.5750E-01	2.5780E-04	2.5652E-03	2.2667E-02	1.0392E-01	1.7392E-01
66	2.5671E-01	2.5701E-04	2.5570E-03	2.2579E-02	1.0324E-01	1.7237E-01
67	2.5158E-01	2.5184E-04	2.5045E-03	2.2100E-02	1.0081E-01	1.6793E-01
68	2.5596E-01	2.5625E-04	2.5488E-03	2.2476E-02	1.0222E-01	1.6988E-01
69	2.5851E-01	2.5881E-04	2.5746E-03	2.2687E-02	1.0287E-01	1.7057E-01
70	2.5701E-01	2.5881E-04	2.5591E-03	2.2687E-02	1.0287E-01	1.7057E-01

TABLE OF SELF SHIELDING FACTOR

ELEMENT** ALUMINIUM N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
1	0.1469E 00	1.0000	1.0000	1.0013	1.0012	1.0019
2	0.8561E-01	1.0000	1.0000	1.0037	1.0129	1.0197
3	0.3696E-01	1.0000	1.0000	1.0006	1.0041	1.0061
4	0.1392E-01	1.0000	1.0000	1.0024	1.0095	1.0137
5	0.5928E-02	1.0000	1.0000	0.9999	1.0011	1.0015
6	0.1625E-02	1.0000	1.0000	1.0039	1.0364	1.0500
7	0.4000E-03	1.0000	1.0000	1.0013	1.0022	1.0033
8	0.3644E-03	1.0000	1.0000	0.9982	0.9936	0.9914
9	0.3976E-03	1.0000	1.0000	0.9974	0.9909	0.9886
10	0.4431E-03	1.0000	0.9992	0.9862	0.9568	0.9461
11	0.5765E-03	1.0000	1.0000	0.9964	0.9925	0.9907
12	0.7347E-03	1.0000	1.0000	1.0055	1.0061	1.0076
13	0.1187E-02	1.0000	0.9986	0.9867	0.9656	0.9584
14	0.1588E-02	1.0000	0.9979	0.9775	0.9633	0.9615
15	0.1377E-02	1.0000	1.0000	1.0114	1.0677	1.1091
16	0.1537E-02	1.0000	0.9986	0.9768	0.9350	0.9179
17	0.2279E-02	1.0000	0.9866	0.9258	0.7996	0.7701
18	0.4624E-02	1.0000	1.0000	1.0064	1.0297	1.0385
19	0.4609E-02	0.9998	0.9994	1.0034	1.0126	1.0173
20	0.2355E-02	0.9999	0.9954	0.9594	0.9484	0.9337
21	0.2093E-02	1.0000	1.0000	1.0042	1.0044	1.0066
22	0.3764E-02	1.0000	0.9991	0.9880	0.9469	0.9263
23	0.1430E-01	1.0000	0.9954	0.9766	0.9247	0.9115
24	0.7074E-02	0.9985	0.9479	0.7971	0.5768	0.4965
25	0.2179E-02	1.0000	1.0000	1.0001	1.0008	1.0020
26	0.2267E-02	1.0000	1.0000	0.9998	0.9989	0.9975
27	0.2721E-02	1.0000	1.0000	0.9995	0.9980	0.9961
28	0.3722E-02	1.0000	1.0000	0.9995	0.9960	0.9927
29	0.5114E-02	1.0000	1.0000	0.9999	0.9997	0.9995
30	0.6210E-02	1.0000	1.0000	0.9989	0.9956	0.9931
31	0.7373E-02	1.0000	1.0000	1.0013	1.0052	1.0078
32	0.8511E-02	1.0000	1.0000	1.0000	1.0001	1.0002
33	0.9708E-02	1.0000	1.0000	1.0000	1.0001	1.0001
34	0.1065E-01	1.0000	1.0000	1.0000	1.0000	1.0000
35	0.1153E-01	1.0000	1.0000	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** ALUMINIUM N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
36	0.1246E-01	1.0000	1.0000	1.0000	1.0000	1.0000
37	0.1347E-01	1.0000	1.0000	1.0000	1.0000	1.0000
38	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
39	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
40	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
41	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
42	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
43	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
44	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
46	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
47	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
48	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
49	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
51	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
52	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
53	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
54	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
55	0.1400E-01	1.0000	1.0000	1.0000	1.0000	1.0000
56	0.1478E-01	1.0000	1.0000	1.0000	1.0000	0.9999
57	0.1644E-01	1.0000	1.0000	1.0000	1.0000	0.9999
58	0.1827E-01	1.0000	1.0000	1.0000	1.0000	0.9999
59	0.2029E-01	1.0000	1.0000	1.0000	1.0000	0.9999
60	0.2258E-01	1.0000	1.0000	1.0000	1.0000	0.9999
61	0.2513E-01	1.0000	1.0000	1.0000	1.0000	0.9999
62	0.2797E-01	1.0000	1.0000	1.0000	1.0000	0.9999
63	0.3109E-01	1.0000	1.0000	1.0000	1.0000	0.9999
64	0.3454E-01	1.0000	1.0000	1.0000	1.0000	0.9999
65	0.3834E-01	1.0000	1.0000	1.0000	0.9999	0.9999
66	0.4418E-01	1.0000	1.0000	1.0000	0.9999	0.9999
67	0.5016E-01	1.0000	1.0000	1.0000	0.9999	0.9999
68	0.5696E-01	1.0000	1.0000	1.0000	0.9999	0.9999
69	0.6478E-01	1.0000	1.0000	1.0000	0.9999	0.9999
70	0.7575E-01	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** ALUMINIUM N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	CROSS C INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	1.0	0.0
1	0.7009E 00	1.0000	1.0000	1.0000	1.0000	1.0000
2	0.1033E 01	1.0000	0.9993	0.9979	0.9929	0.9847
3	0.1245E 01	1.0000	1.0000	0.9988	0.9951	0.9961
4	0.1455E 01	1.0000	1.0000	0.9992	0.9967	0.9949
5	0.1800E 01	1.0000	1.0000	0.9989	0.9956	0.9970
6	0.2428E 01	1.0000	1.0000	0.9953	0.9842	0.9835
7	0.2638E 01	1.0000	1.0000	0.9982	0.9939	0.9876
8	0.2646E 01	1.0000	1.0000	0.9969	0.9897	0.9873
9	0.3199E 01	1.0000	1.0000	0.9913	0.9702	0.9645
10	0.3237E 01	1.0000	0.9984	0.9817	0.9477	0.9349
11	0.3695E 01	1.0000	0.9999	0.9901	0.9667	0.9686
12	0.3797E 01	1.0000	1.0000	0.9945	0.9868	0.9714
13	0.4333E 01	1.0000	0.9991	0.9883	0.9673	0.9621
14	0.3554E 01	1.0000	0.9977	0.9746	0.9149	0.9190
15	0.3721E 01	1.0000	0.9968	0.9669	0.8795	0.8404
16	0.4747E 01	1.0000	0.9971	0.9710	0.9176	0.9037
17	0.6995E 01	0.9989	0.9866	0.9269	0.8414	0.7891
18	0.4260E 01	0.9960	0.9785	0.8645	0.6529	0.5916
19	0.3686E 01	0.9965	0.9947	0.9580	0.8858	0.8714
20	0.1010E 02	1.0000	0.9818	0.8817	0.6743	0.6996
21	0.1623E 01	1.0000	1.0000	0.9971	0.9894	0.9861
22	0.2495E 01	1.0000	0.9998	0.9892	0.9550	0.9363
23	0.8449E 01	0.9921	0.9628	0.8723	0.7764	0.7309
24	0.8324E 01	0.9881	0.8950	0.5442	0.2752	0.1724
25	0.5804E 00	1.0000	1.0000	0.9990	0.9924	0.9812
26	0.8342E 00	1.0000	1.0000	0.9996	0.9973	0.9953
27	0.1006E 01	1.0000	1.0000	0.9997	0.9982	0.9982
28	0.1171E 01	1.0000	1.0000	0.9993	0.9960	0.9971
29	0.1307E 01	1.0000	1.0000	0.9999	0.9993	0.9994
30	0.1557E 01	1.0000	1.0000	0.9960	0.9826	0.9777
31	0.1703E 01	1.0000	0.9981	0.9911	0.9637	0.9487
32	0.1417E 01	1.0000	1.0000	1.0000	0.9999	0.9999
33	0.1395E 01	1.0000	1.0000	1.0000	1.0000	0.9999
34	0.1369E 01	1.0000	1.0000	1.0000	1.0000	1.0000
35	0.1388E 01	1.0000	1.0000	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** ALUMINIUM N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	CROSS C INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	1.0	0.0
36	0.1387E 01	1.0000	1.0000	1.0000	1.0000	1.0000
37	0.1386F 01	1.0000	1.0000	1.0000	1.0000	1.0000
38	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
39	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
40	0.1386F 01	1.0000	1.0000	1.0000	1.0000	1.0000
41	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
42	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
43	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
44	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.1386F 01	1.0000	1.0000	1.0000	1.0000	1.0000
46	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
47	0.1386F 01	1.0000	1.0000	1.0000	1.0000	1.0000
48	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
49	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.1386F 01	1.0000	1.0000	1.0000	1.0000	1.0000
51	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
52	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
53	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
54	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
55	0.1386E 01	1.0000	1.0000	1.0000	1.0000	1.0000
56	0.1389E 01	1.0000	1.0000	1.0000	1.0000	1.0000
57	0.1395E 01	1.0000	1.0000	1.0000	1.0000	1.0000
58	0.1402E 01	1.0000	1.0000	1.0000	1.0000	1.0000
59	0.1408E 01	1.0000	1.0000	1.0000	1.0000	1.0000
60	0.1414E 01	1.0000	1.0000	1.0000	1.0000	1.0000
61	0.1421E 01	1.0000	1.0000	1.0000	1.0000	1.0000
62	0.1427E 01	1.0000	1.0000	1.0000	1.0000	1.0000
63	0.1434E 01	1.0000	1.0000	1.0000	1.0000	1.0000
64	0.1440E 01	1.0000	1.0000	1.0000	1.0000	1.0000
65	0.1444E 01	1.0000	1.0000	1.0000	1.0000	1.0000
66	0.1444E 01	1.0000	1.0000	1.0000	1.0000	1.0000
67	0.1444E 01	1.0000	1.0000	1.0000	1.0000	1.0000
68	0.1444E 01	1.0000	1.0000	1.0000	1.0000	1.0000
69	0.1444E 01	1.0000	1.0000	1.0000	1.0000	1.0000
70	0.1444E 01	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** ALUMINIUM N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	1.0	0.0
1	0.1700E 01	1.0000	0.9998	0.9995	1.0000	0.9994
2	0.1977E 01	1.0000	0.9995	0.9984	0.9913	0.9866
3	0.2143E 01	1.0000	0.9998	0.9985	0.9972	0.9958
4	0.2286E 01	1.0000	0.9999	0.9998	0.9962	0.9945
5	0.2505E 01	0.9995	0.9990	0.9988	0.9961	0.9948
6	0.2851E 01	0.9996	0.9988	0.9952	0.9809	0.9749
7	0.2926E 01	0.9996	0.9960	0.9899	0.9795	0.9718
8	0.2939E 01	0.9991	0.9985	0.9950	0.9815	0.9754
9	0.3470E 01	0.9994	0.9967	0.9831	0.9467	0.9319
10	0.3263E 01	0.9997	0.9997	0.9618	0.9085	0.8922
11	0.3700E 01	1.0000	0.9961	0.9811	0.9497	0.9383
12	0.3805E 01	1.0000	0.9983	0.9704	0.9530	0.9418
13	0.4338E 01	0.9996	0.9990	0.9798	0.9384	0.9243
14	0.3562E 01	0.9997	0.9996	0.9888	0.8778	0.8385
15	0.3729E 01	1.0000	0.9953	0.9369	0.7639	0.6863
16	0.4757E 01	1.0000	0.9974	0.9571	0.8441	0.8076
17	0.7011E 01	0.9960	0.9577	0.8077	0.6864	0.6557
18	0.4275E 01	1.0000	0.9892	0.7922	0.4889	0.4317
19	0.3699E 01	1.0000	0.9941	0.9461	0.8172	0.7857
20	0.1010E 02	1.0000	0.9991	0.9952	0.5115	0.4455
21	0.1626E 01	0.9997	0.9992	0.9976	0.9821	0.9744
22	0.2502E 01	1.0000	0.9981	0.9956	0.9086	0.8717
23	0.8475E 01	0.9990	0.9797	0.7658	0.6330	0.6122
24	0.8344E 01	0.9930	0.9042	0.3791	0.1213	0.0901
25	0.5837E 00	0.9998	0.9994	0.9990	0.9843	0.9612
26	0.8385E 00	0.9982	0.9970	0.9912	0.9934	0.9876
27	0.1012E 01	1.0000	0.9998	0.9991	0.9946	0.9919
28	0.1181E 01	1.0000	0.9998	0.9987	0.9908	0.9871
29	0.1313E 01	0.9997	0.9997	0.9997	0.9989	0.9984
30	0.1574E 01	1.0000	0.9985	0.9917	0.9659	0.9535
31	0.1709E 01	1.0000	0.9987	0.9808	0.9372	0.9148
32	0.1426E 01	1.0000	1.0000	1.0000	1.0000	0.9999
33	0.1404E 01	1.0000	1.0000	1.0000	1.0000	1.0000
34	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
35	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** ALUMINIUM N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	1.0	0.0
36	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
37	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
38	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
39	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
40	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
41	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
42	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
43	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
44	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
46	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
47	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
48	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
49	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
51	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
52	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
53	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
54	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
55	0.1400E 01	1.0000	1.0000	1.0000	1.0000	1.0000
56	0.1405E 01	1.0000	1.0000	1.0000	1.0000	1.0000
57	0.1414E 01	1.0000	1.0000	1.0000	1.0000	1.0000
58	0.1422E 01	1.0000	1.0000	1.0000	1.0000	1.0000
59	0.1431E 01	1.0000	1.0000	1.0000	1.0000	1.0000
60	0.1440E 01	1.0000	1.0000	1.0000	1.0000	1.0000
61	0.1449E 01	1.0000	1.0000	1.0000	1.0000	1.0000
62	0.1458E 01	1.0000	1.0000	1.0000	1.0000	1.0000
63	0.1467E 01	1.0000	1.0000	1.0000	1.0000	1.0000
64	0.1476E 01	1.0000	1.0000	1.0000	1.0000	1.0000
65	0.1485E 01	1.0000	1.0000	1.0000	1.0000	1.0000
66	0.1494E 01	1.0000	1.0000	1.0000	1.0000	1.0000
67	0.1502E 01	1.0000	1.0000	1.0000	1.0000	1.0000
68	0.1511E 01	1.0000	1.0000	1.0000	1.0000	1.0000
69	0.1520E 01	1.0000	1.0000	1.0000	1.0000	1.0000
70	0.1529E 01	1.0000	1.0000	1.0000	1.0000	1.0000

A-III-7. CHROMIUM

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** CHROMIUM N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	3.02980E 00	0.0	0.0	4.41216E-02	1.23674E 00	1.74894E 00	8.21505E-01	1.35052E-01	3.77220E-03
2	3.44239E 00	0.0	0.0	1.33328E-02	1.28628E 00	2.14278E 00	8.07291E-01	1.56277E-01	1.33830E-02
3	3.63534E 00	0.0	0.0	4.25519E-03	1.29556E 00	2.33552E 00	7.75265E-01	1.62260E-01	3.20935E-02
4	3.74955E 00	0.0	0.0	1.59023E-03	1.28209E 00	2.46587E 00	7.22897E-01	1.48290E-01	5.85019E-02
5	3.80502E 00	0.0	0.0	1.47954E-03	9.75090E-01	2.82845E 00	6.35894E-01	1.95395E-01	9.04205E-02
6	3.81154E 00	0.0	0.0	1.69059E-03	9.30501E-01	2.87935E 00	5.15023E-01	2.61235E-01	9.36257E-02
7	3.83571E 00	0.0	0.0	1.85542E-03	8.26752E-01	3.00710E 00	3.83376E-01	3.26154E-01	1.29349E-01
8	2.89137E 00	0.0	0.0	2.14732E-03	4.64767E-01	2.42446E 00	2.75826E-01	2.46938E-01	1.39100E-01
9	2.81930E 00	0.0	0.0	2.68126E-03	1.11100E-01	2.70552E 00	1.54414E-01	3.34203E-01	9.67214E-02
10	3.06801E 00	0.0	0.0	3.88853E-03	5.54746E-02	3.00867E 00	1.84543E-01	3.45193E-01	1.04126E-01
11	3.11755E 00	0.0	0.0	4.30295E-03	1.64260E-02	3.09682E 00	1.75615E-01	3.49992E-01	2.38895E-01
12	2.77642E 00	0.0	0.0	4.05096E-03	4.33825E-03	2.76803E 00	1.97036E-01	4.51383E-01	2.31125E-01
13	3.11189E 00	0.0	0.0	3.84643E-03	0.0	3.10804E 00	1.25497E-01	5.69054E-01	2.23149E-01
14	2.78110E 00	0.0	0.0	3.67134E-03	0.0	2.77743E 00	1.05439E-01	3.14222E-01	2.54902E-01
15	2.12382E 00	0.0	0.0	3.85451E-03	0.0	2.11997E 00	2.03775E-01	3.90220E-01	2.15112E-01
16	3.24140E 00	0.0	0.0	4.60918E-03	0.0	3.23679E 00	1.59045E-01	4.56395E-01	2.23146E-01
17	5.10836E 00	0.0	0.0	4.86382E-03	0.0	5.10350E 00	9.11626E-02	1.03299E 00	2.87691E-01
18	6.48049E 00	0.0	0.0	5.15999E-03	0.0	6.47533E 00	6.02253E-02	6.81695E-01	2.23150E-01
19	7.24778E 00	0.0	0.0	5.37619E-03	0.0	7.24240E 00	5.27021E-02	2.40555E 00	1.82331E-01
20	4.16C50E 00	0.0	0.0	5.00225E-03	0.0	4.15550E 00	4.88078E-02	2.81562E-01	2.57491E-01
21	2.83876E 00	0.0	0.0	3.79827E-03	0.0	2.83496E 00	3.90354E-02	4.60091E-01	2.56693E-01
22	7.66739E 00	0.0	0.0	4.67783E-03	0.0	7.66271E 00	2.86742E-02	2.61139E-01	2.51560E-01
23	2.37157E 00	0.0	0.0	6.22080E-03	0.0	2.36935E 00	1.41219E-02	5.15944E-01	2.56005E-01
24	3.70206E 00	0.0	0.0	7.32172E-03	0.0	3.69474E 00	1.28121E-02	6.01395E-01	2.56536E-01
25	2.86354E 00	0.0	0.0	8.36752E-03	0.0	2.85517E 00	1.28124E-02	3.90157E-01	2.56993E-01
26	3.17569E 00	0.0	0.0	9.61991E-03	0.0	3.16607E 00	1.28131E-02	4.75679E-01	2.56653E-01
27	3.67887E 00	0.0	0.0	1.12838E-02	0.0	3.66759E 00	1.28132E-02	7.67679E-01	2.52198E-01
28	6.72848E 00	0.0	0.0	1.40392E-02	0.0	6.71444E 00	1.28147E-02	1.46285E 00	2.54646E-01
29	1.35024E 01	0.0	0.0	2.33794E-02	0.0	1.34790E 01	1.28146E-02	2.48134E 00	2.57484E-01
30	1.69742E 01	0.0	0.0	4.10826E-02	0.0	1.69331E 01	1.28149E-02	2.46741E 00	2.56701E-01
31	2.09197E 01	0.0	0.0	4.90214E-02	0.0	2.08707E 01	1.28159E-02	2.79733E 00	2.51561E-01
32	1.90135E 01	0.0	0.0	3.86778E-02	0.0	1.89748E 01	1.28136E-02	2.23984E 00	2.55942E-01
33	8.87319E 00	0.0	0.0	3.08593E-02	0.0	8.84233E 00	1.28112E-02	9.88121E-01	2.58492E-01
34	5.44761E 00	0.0	0.0	4.24654E-02	0.0	5.40514E 00	1.28112E-02	7.25655E-01	2.56995E-01
35	4.49994E 00	0.0	0.0	7.40610E-02	0.0	4.42588E 00	1.28113E-02	6.34090E-01	2.58662E-01

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TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** CHROMIUM N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	4.31568E 00	0.0	0.0	5.92233E-02	0.0	4.25646E 00	1.28113E-02	6.46832E-01	2.52180E-01
37	4.29914E 00	0.0	0.0	3.02104E-02	0.0	4.26893E 00	1.28134E-02	6.42947E-01	2.54652E-01
38	4.30114E 00	0.0	0.0	2.37816E-02	0.0	4.27736E 00	1.28131E-02	6.35818E-01	2.57490E-01
39	4.30338E 00	0.0	0.0	2.24106E-02	0.0	4.28097E 00	1.28130E-02	6.45301E-01	2.56709E-01
40	4.30624E 00	0.0	0.0	2.13911E-02	0.0	4.28485E 00	1.28163E-02	6.50784E-01	2.51563E-01
41	4.30922E 00	0.0	0.0	2.42281E-02	0.0	4.28499E 00	1.28154E-02	6.37043E-01	2.55934E-01
42	4.31273E 00	0.0	0.0	2.75379E-02	0.0	4.28519E 00	1.27355E-02	6.35926E-01	2.58493E-01
43	4.31666E 00	0.0	0.0	3.12407E-02	0.0	4.28542E 00	1.28133E-02	6.39194E-01	2.56993E-01
44	4.31962E 00	0.0	0.0	3.54306E-02	0.0	4.28419E 00	1.28117E-02	6.32834E-01	2.56653E-01
45	4.31948E 00	0.0	0.0	4.03391E-02	0.0	4.27914E 00	1.28127E-02	6.48250E-01	2.52185E-01
46	4.31974E 00	0.0	0.0	4.58306E-02	0.0	4.27391E 00	1.28129E-02	6.42158E-01	2.54653E-01
47	4.32000E 00	0.0	0.0	5.20648E-02	0.0	4.26794E 00	1.28130E-02	6.30200E-01	2.57476E-01
48	4.32000E 00	0.0	0.0	5.93370E-02	0.0	4.26066E 00	1.28134E-02	6.32604E-01	2.56690E-01
49	4.32697E 00	0.0	0.0	6.67076E-02	0.0	4.26026E 00	1.28137E-02	6.46716E-01	2.51556E-01
50	4.33873E 00	0.0	0.0	7.65315E-02	0.0	4.26220E 00	1.28143E-02	6.33586E-01	2.55934E-01
51	4.34823E 00	0.0	0.0	8.76595E-02	0.0	4.26057E 00	1.28152E-02	6.26856E-01	2.58486E-01
52	4.35992E 00	0.0	0.0	9.94295E-02	0.0	4.26049E 00	1.28161E-02	6.35490E-01	2.56993E-01
53	4.36991E 00	0.0	0.0	1.12439E-01	0.0	4.25747E 00	1.28178E-02	6.28445E-01	2.58653E-01
54	4.37289E 00	0.0	0.0	1.28078E-01	0.0	4.24481E 00	1.28132E-02	6.42570E-01	2.52184E-01
55	4.37735E 00	0.0	0.0	1.45608E-01	0.0	4.23174E 00	1.28120E-02	6.35342E-01	2.54653E-01
56	4.38378E 00	0.0	0.0	1.65105E-01	0.0	4.21868E 00	1.28120E-02	6.23034E-01	2.57477E-01
57	4.39855E 00	0.0	0.0	1.88634E-01	0.0	4.20992E 00	1.28129E-02	6.24327E-01	2.56690E-01
58	4.40191E 00	0.0	0.0	2.13567E-01	0.0	4.18832E 00	1.28129E-02	6.34693E-01	2.51556E-01
59	4.43641E 00	0.0	0.0	2.41592E-01	0.0	4.19482E 00	1.28135E-02	6.24738E-01	2.55935E-01
60	4.48738E 00	0.0	0.0	2.74871E-01	0.0	4.21251E 00	1.28129E-02	6.20215E-01	2.58485E-01
61	4.51948E 00	0.0	0.0	3.13726E-01	0.0	4.20576E 00	1.28136E-02	6.26363E-01	2.56994E-01
62	4.53709E 00	0.0	0.0	3.56918E-01	0.0	4.18017E 00	1.28140E-02	6.14738E-01	2.58653E-01
63	4.53448E 00	0.0	0.0	4.06161E-01	0.0	4.12832E 00	1.28159E-02	6.22513E-01	2.52185E-01
64	4.53717E 00	0.0	0.0	4.61136E-01	0.0	4.07603E 00	1.28161E-02	6.09562E-01	2.54652E-01
65	4.58049E 00	0.0	0.0	5.21046E-01	0.0	4.05945E 00	1.28116E-02	5.99554E-01	2.57476E-01
66	4.68113E 00	0.0	0.0	5.93062E-01	0.0	4.08807E 00	1.28127E-02	6.07806E-01	2.56689E-01
67	4.77588E 00	0.0	0.0	6.72885E-01	0.0	4.10300E 00	1.28125E-02	6.23637E-01	2.51556E-01
68	4.87417E 00	0.0	0.0	7.62678E-01	0.0	4.11149E 00	1.28126E-02	6.11844E-01	2.55935E-01
69	4.99433E 00	0.0	0.0	8.67594E-01	0.0	4.12674E 00	1.28124E-02	6.08520E-01	2.58485E-01
70	5.13347E 00	0.0	0.0	9.81926E-01	0.0	4.15134E 00	1.28124E-02	0.0	2.56984E-01

TABLE OF ELASTIC MATRICES

ELEMENT** CHROMIUM N **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
1	1.6139E 00	1.3505E-01
2	1.9865E 00	1.5627E-01
3	2.1733E 00	1.6226E-01
4	2.2676E 00	1.9829E-01
5	2.4331E 00	1.9539E-01
6	2.4181E 00	2.6123E-01
7	2.6809E 00	3.2615E-01
8	2.1755E 00	2.4894E-01
9	2.3713E 00	3.3420E-01
10	2.6635E 00	3.4519E-01
11	2.5468E 00	5.4999E-01
12	2.3166E 00	4.5138E-01
13	2.5390E 00	5.6905E-01
14	2.4632E 00	3.1422E-01
15	1.7297E 00	3.9022E-01
16	2.7804E 00	4.5639E-01
17	4.0705E 00	1.0330E 00
18	5.5936E 00	8.8169E-01
19	4.8369E 00	2.4055E 00
20	3.8739E 00	2.8158E-01
21	2.3749E 00	4.6009E-01
22	7.4016E 00	2.6114E-01
23	1.8494E 00	5.1594E-01
24	3.0933E 00	6.0139E-01
25	2.4650E 00	3.9016E-01
26	2.6904E 00	4.7568E-01
27	2.8999E 00	7.6768E-01
28	5.2516E 00	1.4628E 00
29	1.0998E 01	2.4813E 00
30	1.4466E 01	2.4674E 00
31	1.8073E 01	2.7973E 00
32	1.6735E 01	2.2398E 00
33	7.8542E 00	9.8812E-01
34	4.6795E 00	7.2585E-01
35	3.7918E 00	6.3409E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** CHROMIUM N **

GROUP RANGE (I= 36**70 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
36	3.6096E 00	6.4683E-01
37	3.6260E 00	6.4295E-01
38	3.6415E 00	6.3582E-01
39	3.6357E 00	6.4530E-01
40	3.6341E 00	6.5076E-01
41	3.6479E 00	6.3704E-01
42	3.6493E 00	6.3593E-01
43	3.6462E 00	6.3919E-01
44	3.6514E 00	6.3283E-01
45	3.6309E 00	6.4825E-01
46	3.6318E 00	6.4216E-01
47	3.6377E 00	6.3020E-01
48	3.6281E 00	6.3260E-01
49	3.6135E 00	6.4672E-01
50	3.6286E 00	6.3359E-01
51	3.6337E 00	6.2685E-01
52	3.6250E 00	6.3549E-01
53	3.6290E 00	6.2844E-01
54	3.6022E 00	6.4257E-01
55	3.5964E 00	6.3534E-01
56	3.5956E 00	6.2303E-01
57	3.5856E 00	6.2433E-01
58	3.5534E 00	6.3489E-01
59	3.5701E 00	6.2474E-01
60	3.5923E 00	6.2022E-01
61	3.5794E 00	6.2636E-01
62	3.5654E 00	6.1474E-01
63	3.5056E 00	6.2251E-01
64	3.4665E 00	6.0956E-01
65	3.4596E 00	5.9985E-01
66	3.4803E 00	6.0781E-01
67	3.4794E 00	6.2364E-01
68	3.4996E 00	6.1184E-01
69	3.5182E 00	6.0852E-01
70	4.1515E 00	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** CHROMIUM N **

GROUP RANGE (I= 1** 9 , J= 1**31)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	29
	30									
1	0.0	0.0	4.0343E-02	8.9052E-02	1.3904E-01	1.4000E-01	1.8752E-01	1.9107E-01	1.2458E-01	1.2353E-01
	6.4946E-02	4.4960E-02	3.0671E-02	2.3627E-02	1.3166E-02	8.8335E-03	6.8705E-03	3.1801E-03	1.7274E-03	1.5801E-03
	9.4195E-04	5.5506E-04	3.4009E-04	2.0539E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
2	0.0	1.4443E-02	6.9531E-02	1.2433E-01	1.3549E-01	1.9345E-01	2.0920E-01	1.4230E-01	1.4618E-01	7.8907E-02
	5.5418E-02	3.8221E-02	2.9808E-02	1.6959E-02	1.1605E-02	9.0263E-03	4.1779E-03	2.2095E-03	2.0739E-03	1.2375E-03
	7.2922E-04	4.4680E-04	2.6984E-04	1.6020E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
3	0.0	4.3866E-02	1.0100E-01	1.2312E-01	1.8760E-01	2.1722E-01	1.5501E-01	1.6552E-01	9.2105E-02	6.5850E-02
	4.6029E-02	3.0524E-02	2.0857E-02	1.4763E-02	1.1526E-02	5.3348E-03	2.6979E-03	2.6506E-03	1.5902E-03	9.3115E-04
	5.7053E-04	3.4456E-04	2.0456E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
4	2.1006E-03	5.6912E-03	3.8690E-02	3.9171E-01	2.8123E-01	1.2615E-01	1.2705E-01	7.1990E-02	5.4775E-02	4.1037E-02
	3.7327E-02	2.4647E-02	2.0307E-02	2.0143E-02	1.1973E-02	7.8641E-03	7.5898E-03	4.5245E-03	2.6661E-03	1.6336E-03
	9.8657E-04	5.8571E-04	3.5206E-04	2.0584E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
5	0.0	0.0	2.1407E-01	2.8710E-01	1.0526E-01	1.0511E-01	5.9561E-02	4.5547E-02	3.5036E-02	3.1532E-02
	2.1022E-02	1.7518E-02	1.7518E-02	1.0511E-02	7.0072E-03	7.3932E-03	4.4525E-03	2.6237E-03	1.6017E-03	9.7087E-04
	5.7639E-04	3.4644E-04	2.0256E-04	1.2324E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
6	1.0613E-04	5.0048E-02	2.5153E-01	3.8841E-01	1.4056E-01	1.0261E-02	1.3999E-02	1.0484E-02	1.6140E-02	1.1808E-02
	9.0188E-03	8.0935E-03	4.0393E-03	4.0990E-03	3.6977E-03	1.3982E-03	2.9942E-03	2.1035E-03	0.0	0.0
	0.0	0.0	0.0	0.0	3.5546E-04	2.6995E-04	2.6352E-04	2.7211E-04	2.0395E-04	1.6255E-04
	1.2273E-04									
7	1.8052E-04	4.3175E-02	6.1755E-02	2.7757E-01	2.1080E-01	1.5663E-01	7.2109E-02	1.3514E-03	7.6927E-04	5.3700E-04
	9.5727E-05	0.0	3.9596E-04	3.3826E-04	2.5913E-04	4.6593E-04	2.2559E-04	0.0	0.0	9.1272E-05
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
8	0.0	9.0048E-03	5.1518E-02	3.6146E-02	1.7318E-02	4.7368E-02	9.0075E-02	5.2531E-02	4.2777E-02	3.9599E-02
	1.9718E-02	1.2687E-02	1.3687E-02	7.7870E-03	8.5859E-03	3.6505E-03	4.0521E-03	3.8508E-03	1.2091E-03	0.0
	0.0	0.0	0.0	5.5938E-04	7.6317E-04	5.9607E-04	4.5776E-04	3.5596E-04	2.6885E-04	0.0
	0.0									
9	0.0	7.4517E-04	1.3096E-02	2.4117E-02	1.9603E-02	2.3177E-02	1.1346E-02	5.6397E-03	5.8642E-03	3.4051E-03
	2.2663E-03	1.7563E-03	8.4156E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									

CONTINUED

TABLE OF INELASTIC MATRICES

ELEMENT** CHROMIUM N **

GROUP RANGE (I= 10**12 , J= 1**31)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	29
	30									
10	0.0	0.0	9.0232E-04	7.6969E-03	7.0158E-03	1.0028E-02	8.9846E-03	6.0614E-03	3.1837E-03	1.6078E-03
	2.4507E-03	2.6451E-03	1.8673E-03	1.0687E-03	7.1359E-04	4.7450E-04	1.3851E-04	1.3458E-04	1.9543E-04	1.7537E-04
	6.5105E-05	2.6158E-05	9.5753E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
11	0.0	0.0	0.0	0.0	0.0	1.9631E-03	5.1580E-03	3.0817E-03	1.9855E-03	2.0811E-03
	1.6957E-03	4.6083E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9751E-05
	7.3798E-04	9.8921E-04	4.8804E-04	7.3677E-04	3.0172E-04	1.3445E-04	3.6268E-04	2.5162E-04	5.6860E-06	9.2768E-05
	7.3235E-05	5.7203E-05	2.5133E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0									

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** CHROMIUM N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP		**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
1	3.7722E-03	3.7677E-06	3.6673E-05	2.8962E-04	9.3400E-04	1.2411E-03
2	1.3383E-02	1.3366E-05	1.2965E-04	9.9766E-04	3.0193E-03	3.8971E-03
3	3.2093E-02	3.2034E-05	3.1022E-04	2.3577E-03	6.9352E-03	8.8430E-03
4	5.8502E-02	5.8383E-05	5.6484E-04	4.2619E-03	1.2337E-02	1.5627E-02
5	9.0420E-02	9.0101E-05	8.7174E-04	6.5799E-03	1.9063E-02	2.4156E-02
6	9.3626E-02	9.3293E-05	9.0361E-04	6.8764E-03	2.0296E-02	2.5921E-02
7	1.2935E-01	1.2886E-04	1.2457E-03	9.3585E-03	2.6997E-02	3.4243E-02
8	1.3910E-01	1.3870E-04	1.3518E-03	1.0789E-02	3.5877E-02	4.8471E-02
9	9.6721E-02	9.6455E-05	9.4079E-04	7.5554E-03	2.5685E-02	3.5226E-02
10	1.0413E-01	1.0382E-04	1.0108E-03	8.0237E-03	2.6784E-02	3.6524E-02
11	2.3889E-01	2.3816E-04	2.3176E-03	1.8379E-02	6.2567E-02	8.7573E-02
12	2.3112E-01	2.3049E-04	2.2495E-03	1.8227E-02	6.5868E-02	9.5731E-02
13	2.2315E-01	2.2247E-04	2.1652E-03	1.7222E-02	6.1239E-02	9.2013E-02
14	2.5490E-01	2.5420E-04	2.4807E-03	2.0168E-02	7.5753E-02	1.1404E-01
15	2.1511E-01	2.1467E-04	2.1065E-03	1.7762E-02	7.0038E-02	1.0507E-01
16	2.2315E-01	2.2244E-04	2.1616E-03	1.6881E-02	5.3438E-02	7.0645E-02
17	2.8769E-01	2.8625E-04	2.7377E-03	1.9253E-02	5.0108E-02	6.1425E-02
18	2.2315E-01	2.2172E-04	2.0967E-03	1.4130E-02	3.9230E-02	5.2487E-02
19	1.8233E-01	1.8103E-04	1.7013E-03	1.1022E-02	2.7541E-02	3.4378E-02
20	2.5749E-01	2.5647E-04	2.4760E-03	1.9644E-02	8.2696E-02	1.4597E-01
21	2.5669E-01	2.5598E-04	2.4962E-03	2.0030E-02	8.8357E-02	9.4220E-02
22	2.5156E-01	2.4965E-04	2.3401E-03	1.5472E-02	4.5479E-02	6.7937E-02
23	2.5600E-01	2.5560E-04	2.5012E-03	2.0769E-02	8.5296E-02	1.4634E-01
24	2.5854E-01	2.5786E-04	2.4953E-03	1.8895E-02	5.5743E-02	7.1500E-02
25	2.5699E-01	2.5630E-04	2.4987E-03	2.0006E-02	6.7733E-02	9.2805E-02
26	2.5865E-01	2.5785E-04	2.5072E-03	1.9645E-02	6.2202E-02	8.2000E-02
27	2.5220E-01	2.5140E-04	2.4336E-03	1.8501E-02	5.5699E-02	7.2417E-02
28	2.5465E-01	2.5297E-04	2.3867E-03	1.5412E-02	3.4797E-02	4.0625E-02
29	2.5748E-01	2.5407E-04	2.2707E-03	1.1201E-02	1.8833E-02	2.0417E-02
30	2.5670E-01	2.5244E-04	2.1949E-03	9.5441E-03	1.4377E-02	1.5237E-02
31	2.5156E-01	2.4642E-04	2.0813E-03	8.1907E-03	1.1634E-02	1.2207E-02
32	2.5594E-01	2.5118E-04	2.1517E-03	8.9046E-03	1.3053E-02	1.3772E-02
33	2.5849E-01	2.5626E-04	2.3753E-03	1.3834E-02	2.7123E-02	3.0430E-02
34	2.5699E-01	2.5568E-04	2.4380E-03	1.6659E-02	4.0105E-02	4.7575E-02
35	2.5866E-01	2.5761E-04	2.4763E-03	1.7848E-02	4.7076E-02	5.7553E-02

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** CHROMIUM N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP		**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
36	2.5218E-01	2.5128E-04	2.4192E-03	1.7626E-02	4.7455E-02	5.8445E-02
37	2.5465E-01	2.5424E-04	2.4480E-03	1.7851E-02	4.8148E-02	5.9337E-02
38	2.5749E-01	2.5684E-04	2.4730E-03	1.8036E-02	4.8657E-02	5.9970E-02
39	2.5671E-01	2.5626E-04	2.4675E-03	1.7993E-02	4.8526E-02	5.9802E-02
40	2.5156E-01	2.5114E-04	2.4180E-03	1.7630E-02	4.7531E-02	5.8569E-02
41	2.5593E-01	2.5502E-04	2.4554E-03	1.7899E-02	4.8240E-02	5.9435E-02
42	2.5849E-01	2.5809E-04	2.4849E-03	1.8109E-02	4.8785E-02	6.0096E-02
43	2.5699E-01	2.5658E-04	2.4703E-03	1.7999E-02	4.8465E-02	5.9692E-02
44	2.5865E-01	2.5782E-04	2.4821E-03	1.8082E-02	4.8673E-02	5.9941E-02
45	2.5218E-01	2.5176E-04	2.4237E-03	1.7657E-02	4.7527E-02	5.8529E-02
46	2.5465E-01	2.5423E-04	2.4476E-03	1.7830E-02	4.7994E-02	5.9104E-02
47	2.5748E-01	2.5649E-04	2.4693E-03	1.7988E-02	4.8420E-02	5.9628E-02
48	2.5669E-01	2.5578E-04	2.4624E-03	1.7939E-02	4.8286E-02	5.9463E-02
49	2.5156E-01	2.5072E-04	2.4136E-03	1.7576E-02	4.7270E-02	5.8194E-02
50	2.5593E-01	2.5502E-04	2.4547E-03	1.7862E-02	4.7974E-02	5.9031E-02
51	2.5849E-01	2.5763E-04	2.4797E-03	1.8034E-02	4.8380E-02	5.9506E-02
52	2.5699E-01	2.5657E-04	2.4692E-03	1.7965E-02	4.8074E-02	5.9099E-02
53	2.5865E-01	2.5781E-04	2.4809E-03	1.8019E-02	4.8214E-02	5.9246E-02
54	2.5218E-01	2.5174E-04	2.4225E-03	1.7590E-02	4.7045E-02	5.7799E-02
55	2.5465E-01	2.5422E-04	2.4462E-03	1.7758E-02	4.7475E-02	5.8318E-02
56	2.5748E-01	2.5647E-04	2.4678E-03	1.7909E-02	4.7846E-02	5.8760E-02
57	2.5669E-01	2.5576E-04	2.4606E-03	1.7841E-02	4.7583E-02	5.8401E-02
58	2.5156E-01	2.5070E-04	2.4119E-03	1.7484E-02	4.6615E-02	5.7205E-02
59	2.5593E-01	2.5499E-04	2.4524E-03	1.7741E-02	4.7110E-02	5.7729E-02
60	2.5848E-01	2.5760E-04	2.4764E-03	1.7860E-02	4.7150E-02	5.7656E-02
61	2.5699E-01	2.5653E-04	2.4655E-03	1.7747E-02	4.6678E-02	5.7004E-02
62	2.5865E-01	2.5777E-04	2.4769E-03	1.7810E-02	4.6748E-02	5.7047E-02
63	2.5218E-01	2.5170E-04	2.4186E-03	1.7390E-02	4.5640E-02	5.5692E-02
64	2.5465E-01	2.5418E-04	2.4424E-03	1.7561E-02	4.6089E-02	5.6240E-02
65	2.5748E-01	2.5642E-04	2.4631E-03	1.7667E-02	4.6160E-02	5.6237E-02
66	2.5669E-01	2.5568E-04	2.4539E-03	1.7497E-02	4.5216E-02	5.4875E-02
67	2.5156E-01	2.5061E-04	2.4033E-03	1.7041E-02	4.3594E-02	5.2722E-02
68	2.5593E-01	2.5486E-04	2.4422E-03	1.7219E-02	4.3597E-02	5.2541E-02
69	2.5848E-01	2.5747E-04	2.4644E-03	1.7256E-02	4.3161E-02	5.1802E-02
70	2.5698E-01	2.5747E-04	2.4644E-03	1.7256E-02	4.3161E-02	5.1802E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CHROMIUM N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
1	0.4412E-01	1.0073	1.0077	1.0109	1.0192	1.0232
2	0.1333E-01	1.0070	1.0073	1.0093	1.0139	1.0160
3	0.4255E-02	1.0071	1.0073	1.0085	1.0111	1.0122
4	0.1590E-02	1.0015	1.0015	1.0015	1.0017	1.0017
5	0.1480E-02	1.0000	1.0000	1.0001	1.0003	1.0004
6	0.1690E-02	1.0000	1.0000	1.0001	1.0002	1.0003
7	0.1855E-02	1.0000	1.0000	0.9996	0.9987	0.9983
8	0.2147E-02	1.0000	1.0001	1.0007	1.0023	1.0031
9	0.2681E-02	1.0000	1.0000	1.0004	1.0013	1.0019
10	0.3869E-02	0.9999	0.9996	0.9977	0.9937	0.9920
11	0.4303E-02	1.0000	1.0001	1.0004	1.0009	1.0009
12	0.4051E-02	1.0000	1.0000	1.0003	1.0011	1.0016
13	0.3846E-02	1.0000	1.0001	1.0004	1.0017	1.0029
14	0.3671E-02	1.0000	1.0000	1.0003	1.0004	1.0005
15	0.3855E-02	1.0000	0.9997	0.9977	0.9915	0.9877
16	0.4809E-02	1.0000	1.0001	1.0005	1.0013	1.0016
17	0.4864E-02	1.0000	0.9997	0.9983	0.9962	0.9955
18	0.5160E-02	1.0000	1.0003	1.0021	1.0045	1.0052
19	0.5376E-02	1.0000	0.9997	0.9981	0.9957	0.9948
20	0.5002E-02	0.9997	0.9972	0.9859	0.9753	0.9728
21	0.3798E-02	1.0000	1.0002	1.0017	1.0059	1.0081
22	0.4678E-02	1.0000	1.0005	1.0089	1.0458	1.0755
23	0.6221E-02	0.9999	0.9992	0.9935	0.9735	0.9567
24	0.7322E-02	1.0000	0.9998	0.9985	0.9954	0.9940
25	0.8368E-02	1.0000	1.0000	0.9996	0.9994	0.9992
26	0.9620E-02	1.0000	1.0000	1.0000	1.0001	1.0001
27	0.1128E-01	0.9999	0.9995	0.9984	0.9897	0.9868
28	0.1404E-01	0.9999	0.9987	0.9923	0.9849	0.9831
29	0.2338E-01	0.9995	0.9951	0.9786	0.9617	0.9588
30	0.4108E-01	1.0000	0.9997	0.9989	0.9984	0.9983
31	0.4902E-01	1.0000	0.9996	0.9985	0.9978	0.9977
32	0.3668E-01	0.9999	0.9989	0.9951	0.9924	0.9919
33	0.3086E-01	1.0000	0.9998	0.9993	0.9992	0.9992
34	0.4247E-01	1.0001	1.0006	1.0052	1.0124	1.0146
35	0.7406E-01	1.0000	1.0002	1.0011	1.0029	1.0035

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CHROMIUM N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
36	0.5922E-01	1.0000	1.0000	0.9998	0.9995	0.9994
37	0.3021E-01	1.0000	1.0000	1.0000	0.9999	0.9999
38	0.2378E-01	1.0000	1.0000	1.0000	1.0000	1.0000
39	0.2241E-01	1.0000	1.0000	1.0000	1.0000	1.0000
40	0.2139E-01	1.0000	1.0000	1.0000	1.0000	1.0000
41	0.2423E-01	1.0000	1.0000	1.0000	1.0000	1.0000
42	0.2754E-01	1.0000	1.0000	1.0000	1.0000	1.0000
43	0.3124E-01	1.0000	1.0000	1.0000	1.0000	1.0000
44	0.3543E-01	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.4034E-01	1.0000	1.0000	1.0000	1.0000	1.0000
46	0.4583E-01	1.0000	1.0000	1.0000	1.0000	1.0000
47	0.5206E-01	1.0000	1.0000	1.0000	1.0000	1.0000
48	0.5934E-01	1.0000	1.0000	1.0000	1.0000	1.0000
49	0.6671E-01	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.7653E-01	1.0000	1.0000	1.0000	1.0000	1.0000
51	0.8766E-01	1.0000	1.0000	1.0000	1.0000	1.0000
52	0.9943E-01	1.0000	1.0000	1.0000	1.0000	1.0000
53	0.1124E 00	1.0000	1.0000	1.0000	1.0000	1.0000
54	0.1281E 00	1.0000	1.0000	1.0000	1.0000	1.0000
55	0.1456E 00	1.0000	1.0000	1.0000	1.0000	1.0000
56	0.1651E 00	1.0000	1.0000	1.0000	1.0000	1.0000
57	0.1886E 00	1.0000	1.0000	1.0000	1.0000	1.0000
58	0.2136E 00	1.0000	1.0000	1.0000	1.0000	1.0000
59	0.2416E 00	1.0000	1.0000	1.0000	0.9999	0.9999
60	0.2749E 00	1.0000	1.0000	1.0000	0.9999	0.9999
61	0.3137E 00	1.0000	1.0000	1.0000	0.9999	0.9999
62	0.3569E 00	1.0000	1.0000	1.0000	1.0000	1.0000
63	0.4062E 00	1.0000	1.0000	1.0000	1.0000	1.0000
64	0.4611E 00	1.0000	1.0000	1.0000	1.0000	1.0000
65	0.5210E 00	1.0000	1.0000	0.9999	0.9999	0.9998
66	0.5931E 00	1.0000	1.0000	0.9999	0.9998	0.9998
67	0.6729E 00	1.0000	1.0000	0.9999	0.9998	0.9997
68	0.7627E 00	1.0000	1.0000	0.9999	0.9998	0.9997
69	0.8676E 00	1.0000	1.0000	0.9999	0.9997	0.9997
70	0.9819E 00	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CHROMIUM N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
1	0.1749E 01	1.0000	0.9999	0.9993	0.9977	0.9970
2	0.2143E 01	1.0000	1.0000	0.9997	0.9991	0.9989
3	0.2336E 01	1.0000	1.0000	0.9999	0.9998	0.9997
4	0.2466E 01	1.0000	1.0000	1.0000	0.9999	0.9999
5	0.2628E 01	1.0000	1.0000	1.0000	1.0001	1.0001
6	0.2679E 01	1.0000	0.9999	0.9995	0.9984	0.9980
7	0.3007E 01	0.9988	0.9982	0.9938	0.9851	0.9781
8	0.2424E 01	1.0000	0.9997	0.9980	0.9938	0.9918
9	0.2706E 01	0.9989	0.9983	0.9936	0.9801	0.9727
10	0.3009E 01	0.9865	0.9847	0.9696	0.9394	0.9270
11	0.3097E 01	0.9901	0.9868	0.9612	0.9027	0.8739
12	0.2768E 01	0.9921	0.9890	0.9649	0.9029	0.8686
13	0.3108E 01	0.9891	0.9848	0.9501	0.8494	0.7790
14	0.2777E 01	0.9968	0.9910	0.9489	0.8501	0.7991
15	0.2120E 01	1.0000	0.9992	0.9930	0.9741	0.9627
16	0.3237E 01	1.0000	0.9991	0.9926	0.9791	0.9736
17	0.5103E 01	1.0000	0.9951	0.9660	0.9265	0.9152
18	0.6475E 01	1.0000	0.9842	0.8855	0.7164	0.6496
19	0.7242E 01	1.0000	0.9840	0.8959	0.7695	0.7261
20	0.4155E 01	1.0000	0.9538	0.7384	0.5016	0.4184
21	0.2835E 01	1.0000	0.9990	0.9908	0.9694	0.9586
22	0.7663E 01	1.0000	0.9651	0.8042	0.5819	0.4754
23	0.2365E 01	1.0000	0.9947	0.9519	0.8160	0.7127
24	0.3695E 01	1.0000	0.9991	0.9924	0.9777	0.9714
25	0.2855E 01	1.0000	0.9990	0.9916	0.9732	0.9644
26	0.3166E 01	1.0000	0.9999	0.9987	0.9959	0.9947
27	0.3668E 01	1.0000	0.9981	0.9840	0.9552	0.9428
28	0.6714E 01	1.0000	0.9950	0.9663	0.9378	0.9304
29	0.1348E 02	1.0000	0.9925	0.9618	0.9384	0.9339
30	0.1693E 02	1.0000	0.9990	0.9951	0.9926	0.9921
31	0.2087E 02	1.0000	0.9977	0.9899	0.9836	0.9849
32	0.1897E 02	1.0000	0.9969	0.9856	0.9785	0.9773
33	0.8842E 01	0.9996	0.9962	0.9790	0.9614	0.9573
34	0.5405E 01	0.9997	0.9993	0.9966	0.9929	0.9917
35	0.4426E 01	0.9998	0.9998	0.9995	0.9991	0.9990

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CHROMIUM N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	1.0	0.0
36	0.4256E 01	1.0000	1.0000	1.0000	1.0000	1.0000
37	0.4269E 01	1.0001	1.0001	1.0001	1.0001	1.0001
38	0.4277E 01	1.0000	1.0000	1.0000	1.0000	1.0000
39	0.4281E 01	1.0000	1.0000	1.0000	1.0000	1.0000
40	0.4285E 01	1.0000	1.0000	1.0000	1.0000	1.0000
41	0.4285E 01	1.0000	1.0000	1.0000	1.0000	1.0000
42	0.4285E 01	1.0000	1.0000	1.0000	1.0000	1.0000
43	0.4285E 01	1.0000	1.0000	1.0000	1.0000	1.0000
44	0.4284E 01	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.4279E 01	1.0000	1.0000	1.0000	1.0000	1.0000
46	0.4274E 01	1.0000	1.0000	1.0000	1.0000	1.0000
47	0.4268E 01	1.0000	1.0000	1.0000	1.0000	1.0000
48	0.4261E 01	1.0000	1.0000	1.0000	1.0000	1.0000
49	0.4260E 01	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.4262E 01	1.0000	1.0000	1.0000	1.0000	1.0000
51	0.4261E 01	1.0000	1.0000	1.0000	1.0000	1.0000
52	0.4260E 01	1.0000	1.0000	1.0000	1.0000	1.0000
53	0.4257E 01	1.0000	1.0000	1.0000	1.0000	1.0000
54	0.4245E 01	1.0000	1.0000	1.0000	1.0000	1.0000
55	0.4232E 01	1.0000	1.0000	1.0000	1.0000	1.0000
56	0.4219E 01	1.0000	1.0000	1.0000	1.0000	1.0000
57	0.4210E 01	1.0000	1.0000	1.0000	1.0000	1.0000
58	0.4188E 01	1.0000	1.0000	1.0000	1.0000	1.0000
59	0.4195E 01	1.0000	1.0000	1.0000	1.0000	1.0000
60	0.4213E 01	1.0000	1.0000	1.0000	1.0000	1.0000
61	0.4206E 01	0.9999	0.9999	0.9999	0.9999	0.9999
62	0.4180E 01	0.9999	0.9999	0.9999	0.9999	0.9999
63	0.4128E 01	0.9998	0.9998	0.9998	0.9998	0.9998
64	0.4076E 01	0.9998	0.9998	0.9998	0.9998	0.9998
65	0.4059E 01	1.0000	1.0000	1.0000	1.0000	1.0000
66	0.4088E 01	1.0000	1.0000	1.0000	1.0000	1.0000
67	0.4103E 01	1.0000	1.0000	1.0000	1.0000	1.0000
68	0.4111E 01	1.0000	1.0000	1.0000	1.0000	1.0000
69	0.4127E 01	1.0000	1.0000	1.0000	1.0000	1.0000
70	0.4152E 01	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CHROMIUM N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	1.0	0.0
1	0.3655E 01	0.9986	0.9985	0.9978	0.9960	0.9951
2	0.3448E 01	0.9989	0.9989	0.9986	0.9978	0.9975
3	0.3639E 01	0.9994	0.9993	0.9993	0.9991	0.9990
4	0.3752E 01	0.9997	0.9997	0.9997	0.9996	0.9996
5	0.3745E 01	1.0001	1.0001	0.9999	0.9997	0.9996
6	0.3618E 01	0.9999	0.9998	0.9991	0.9976	0.9969
7	0.3838E 01	0.9994	0.9985	0.9919	0.9747	0.9665
8	0.2900E 01	0.9996	0.9991	0.9949	0.9847	0.9798
9	0.2818E 01	1.0000	0.9988	0.9897	0.9628	0.9483
10	0.3021E 01	1.0000	0.9939	0.9702	0.9152	0.8930
11	0.3066E 01	1.0000	0.9914	0.9454	0.8389	0.7822
12	0.2728E 01	1.0000	0.9923	0.9481	0.8371	0.7679
13	0.3050E 01	1.0000	0.9890	0.9234	0.7189	0.5786
14	0.2731E 01	1.0000	0.9879	0.9088	0.7519	0.6664
15	0.2124E 01	1.0000	0.9985	0.9862	0.9517	0.9302
16	0.3243E 01	1.0000	0.9982	0.9857	0.9621	0.9534
17	0.5115E 01	1.0000	0.9902	0.9367	0.8739	0.8578
18	0.6430E 01	1.0000	0.9684	0.7762	0.5062	0.4137
19	0.7162E 01	1.0000	0.9681	0.8022	0.5934	0.5196
20	0.4140E 01	1.0000	0.9112	0.5820	0.3542	0.2819
21	0.2839E 01	1.0000	0.9979	0.9818	0.9413	0.9200
22	0.7643E 01	1.0000	0.9323	0.6547	0.3312	0.2093
23	0.2341E 01	1.0000	0.9893	0.9049	0.6866	0.4968
24	0.3691E 01	1.0000	0.9982	0.9849	0.9646	0.9434
25	0.2862E 01	1.0000	0.9980	0.9835	0.9521	0.9330
26	0.3174E 01	0.9992	0.9989	0.9966	0.9911	0.9887
27	0.3678E 01	1.0000	0.9963	0.9696	0.9133	0.8904
28	0.6731E 01	1.0000	0.9902	0.9405	0.8920	0.8816
29	0.1352E 02	0.9976	0.9829	0.9243	0.8827	0.8751
30	0.1698E 02	1.0000	0.9979	0.9902	0.9853	0.9844
31	0.2093E 02	0.9993	0.9946	0.9792	0.9707	0.9693
32	0.1902E 02	0.9992	0.9930	0.9703	0.9555	0.9529
33	0.8870E 01	0.9996	0.9928	0.9600	0.9281	0.9211
34	0.5440E 01	1.0000	0.9993	0.9945	0.9870	0.9847
35	0.4497E 01	1.0000	0.9999	0.9995	0.9988	0.9985

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** CHROMIUM N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	1.0	0.0
36	0.4318E 01	1.0000	1.0000	1.0000	1.0000	1.0000
37	0.4303E 01	1.0000	1.0000	1.0000	1.0000	1.0000
38	0.4301E 01	1.0000	1.0000	1.0000	1.0000	1.0000
39	0.4304E 01	1.0000	1.0000	1.0000	1.0000	1.0000
40	0.4306E 01	1.0000	1.0000	1.0000	1.0000	1.0000
41	0.4309E 01	1.0000	1.0000	1.0000	1.0000	1.0000
42	0.4313E 01	1.0000	1.0000	1.0000	1.0000	1.0000
43	0.4317E 01	1.0000	1.0000	1.0000	1.0000	1.0000
44	0.4320E 01	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.4320E 01	1.0000	1.0000	1.0000	1.0000	1.0000
46	0.4320E 01	1.0000	1.0000	1.0000	1.0000	1.0000
47	0.4320E 01	1.0000	1.0000	1.0000	1.0000	1.0000
48	0.4320E 01	1.0000	1.0000	1.0000	1.0000	1.0000
49	0.4327E 01	0.9999	0.9999	0.9999	0.9999	0.9999
50	0.4339E 01	1.0000	1.0000	1.0000	1.0000	1.0000
51	0.4349E 01	1.0000	1.0000	1.0000	1.0000	1.0000
52	0.4361E 01	0.9999	0.9999	0.9999	0.9999	0.9999
53	0.4371E 01	1.0000	1.0000	1.0000	1.0000	1.0000
54	0.4375E 01	1.0000	1.0000	1.0000	1.0000	1.0000
55	0.4378E 01	1.0000	1.0000	1.0000	1.0000	1.0000
56	0.4384E 01	1.0000	1.0000	1.0000	1.0000	1.0000
57	0.4399E 01	1.0000	1.0000	1.0000	1.0000	1.0000
58	0.4402E 01	1.0000	1.0000	1.0000	1.0000	1.0000
59	0.4437E 01	0.9999	0.9999	0.9999	0.9998	0.9998
60	0.4489E 01	0.9998	0.9998	0.9998	0.9998	0.9998
61	0.4522E 01	0.9997	0.9997	0.9997	0.9997	0.9997
62	0.4539E 01	1.0000	1.0000	1.0000	1.0000	1.0000
63	0.4540E 01	1.0000	1.0000	1.0000	1.0000	1.0000
64	0.4540E 01	1.0000	1.0000	1.0000	1.0000	1.0000
65	0.4581E 01	0.9999	0.9999	0.9999	0.9998	0.9998
66	0.4663E 01	0.9998	0.9997	0.9997	0.9997	0.9997
67	0.4778E 01	0.9996	0.9996	0.9995	0.9995	0.9995
68	0.4876E 01	0.9997	0.9997	0.9997	0.9997	0.9996
69	0.4998E 01	0.9995	0.9995	0.9995	0.9994	0.9994
70	0.5136E 01	1.0000	1.0000	1.0000	1.0000	1.0000

A-III-8. IRON

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** IRON N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	3.21657E 00	0.	0.	5.88603E-02	1.34078E 00	1.81693E 00	8.53377E-01	1.26523E-01	3.77665E-03
2	3.33171E 00	0.	0.	5.08867E-02	1.35535E 00	2.14547E 00	8.22599E-01	1.52280E-01	1.33832E-02
3	3.66879E 00	0.	0.	9.97307E-03	1.34887E 00	2.32995E 00	7.91125E-01	1.75562E-01	3.20949E-02
4	3.69634E 00	0.	0.	2.07436E-03	1.42505E 00	2.26919E 00	7.44189E-01	1.73349E-01	5.85062E-02
5	3.47160E 00	0.	0.	2.03278E-03	1.18858E 00	2.28099E 00	5.68934E-01	1.91795E-01	9.04037E-02
6	3.32459E 00	0.	0.	2.33535E-03	9.59147E-01	2.36317E 00	4.54181E-01	2.56614E-01	9.36153E-02
7	3.15843E 00	0.	0.	2.70562E-03	8.28920E-01	2.29680F 00	3.58385E-01	2.27715E-01	1.29348E-01
8	2.88826E 00	0.	0.	3.17512E-03	6.35382E-01	2.22970F 00	2.22061E-01	2.01383E-01	1.39103E-01
9	2.54762E 00	0.	0.	3.69951E-03	4.14128E-01	2.12962F 00	1.79439E-01	2.24356E-01	9.67273E-02
10	2.47069E 00	0.	0.	4.23618E-03	1.97675E-01	2.26878E 00	2.44630E-01	2.48408E-01	1.04133E-01
11	3.03541E 00	0.	0.	4.72263E-03	0.	3.03069F 00	1.49447E-01	2.93944E-01	2.38903E-01
12	2.65235E 00	0.	0.	5.04827E-03	0.	2.64730E 00	2.18593E-01	3.81049E-01	2.31117E-01
13	3.76436E 00	0.	0.	5.28123E-03	0.	3.75908F 00	1.38519E-01	6.50373E-01	2.23146E-01
14	3.26653E 00	0.	0.	5.51829E-03	0.	3.26101E 00	9.88402E-02	4.23042E-01	2.54893E-01
15	2.44521E 00	0.	0.	5.91042E-03	0.	2.43930F 00	9.03853E-02	3.96164E-01	2.15111E-01
16	3.19776E 00	0.	0.	6.56965E-03	0.	3.19119E 00	8.34408E-02	5.75926E-01	2.23145E-01
17	3.79689E 00	0.	0.	8.79710E-03	0.	3.78809F 00	7.24744E-02	3.97119E-01	2.87684E-01
18	4.22827E 00	0.	0.	9.32317E-03	0.	4.21895F 00	6.03161E-02	3.27490E-01	2.23144E-01
19	2.91583E 00	0.	0.	1.00543E-02	0.	2.90580E 00	4.87172E-02	7.58565E-01	1.82331E-01
20	6.98719E 00	0.	0.	2.27929E-02	0.	6.96440E 00	3.83057E-02	4.13744E-01	2.57482E-01
21	4.36648E 00	0.	0.	1.71758E-02	0.	4.36930F 00	2.80390E-02	4.59077E-01	2.56696E-01
22	4.40270E 00	0.	0.	2.52943E-02	0.	4.37741F 00	1.47754E-02	5.96869E-01	2.51557E-01
23	5.46872E 00	0.	0.	1.77689E-02	0.	5.45098F 00	1.19119E-02	9.36660E-01	2.55949E-01
24	2.96043E 01	0.	0.	2.76666E-02	0.	2.55766E 01	1.19131E-02	9.84736E 00	2.58491E-01
25	8.11225E 00	0.	0.	4.08194E-02	0.	8.07143F 00	1.19102E-02	2.04442E-01	2.56994E-01
26	2.23217E 00	0.	0.	1.50249E-02	0.	2.21715E 00	1.19124E-02	3.89698E-01	2.58676E-01
27	3.76037E 00	0.	0.	1.84614E-02	0.	3.74191E 00	1.19102E-02	6.22183E-01	2.52219E-01
28	5.78272E 00	0.	0.	2.19512E-02	0.	5.76080E 00	1.19125E-02	9.43071E-01	2.54721E-01
29	1.12721E 01	0.	0.	3.57780E-02	0.	1.12363E 01	1.19097E-02	2.40170E 00	2.57480E-01
30	1.95454E 01	0.	0.	7.68496E-02	0.	1.94686E 01	1.19086E-02	1.78597E 00	2.56690E-01
31	8.44362E 00	0.	0.	2.82985E-02	0.	8.41532E 00	1.19138E-02	7.21540E-01	2.51557E-01
32	5.51644E 00	0.	0.	1.92634E-02	0.	5.49718E 00	1.19121E-02	8.63948E-01	2.55939E-01
33	5.26419E 00	0.	0.	8.49038E-03	0.	5.25570E 00	1.19115E-02	7.31550E-01	2.58504E-01
34	5.94224E 00	0.	0.	3.80921E-03	0.	5.93840E 00	1.19114E-02	8.72208E-01	2.57045E-01
35	6.86384E 00	0.	0.	1.01651E-02	0.	6.85364F 00	1.19113E-02	9.85018E-01	2.58686E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** IRON N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	7.65831E 00	0.	0.	1.73326E-02	0.	7.64098E 00	1.19110E-02	1.11368E 00	2.52219E-01
37	9.05615E 00	0.	0.	6.29464E-01	0.	8.42669E 00	1.19110E-02	1.22571E 00	2.54670E-01
38	9.33307E 00	0.	0.	1.38321E-02	0.	9.31924F 00	1.19101E-02	1.32187E 00	2.57507E-01
39	9.95611E 00	0.	0.	1.54444E-02	0.	9.94067F 00	1.19113E-02	1.39825E 00	2.56741E-01
40	1.03976E 01	0.	0.	1.75548E-02	0.	1.03800E 01	1.19091E-02	1.48166E 00	2.51630E-01
41	1.07300E 01	0.	0.	1.99070E-02	0.	1.07101E 01	1.19107E-02	1.49694E 00	2.56015E-01
42	1.09912E 01	0.	0.	2.26221E-02	0.	1.09686E 01	1.19122E-02	1.51486E 00	2.58525E-01
43	1.11860E 01	0.	0.	2.57677E-02	0.	1.11602E 01	1.19121E-02	1.54639E 00	2.57045E-01
44	1.13145E 01	0.	0.	2.93213E-02	0.	1.12852E 01	1.19107E-02	1.55018E 00	2.58737E-01
45	1.13890E 01	0.	0.	3.32889E-02	0.	1.13557E 01	1.19106E-02	1.59753E 00	2.52299E-01
46	1.14256E 01	0.	0.	3.77851E-02	0.	1.13880F 01	1.19104E-02	1.58799E 00	2.54911E-01
47	1.14424E 01	0.	0.	4.29378E-02	0.	1.13995F 01	1.19098E-02	1.56753E 00	2.57507E-01
48	1.14489E 01	0.	0.	4.88588E-02	0.	1.14000F 01	1.19083E-02	1.57218E 00	2.56741E-01
49	1.14555E 01	0.	0.	5.54833E-02	0.	1.14000F 01	1.19109E-02	1.60471E 00	2.51630E-01
50	1.14630E 01	0.	0.	6.29835E-02	0.	1.14000F 01	1.19083E-02	1.57872E 00	2.56124E-01
51	1.14716E 01	0.	0.	7.16115E-02	0.	1.14000E 01	1.19065E-02	1.56434E 00	2.58650E-01
52	1.14815E 01	0.	0.	8.14568E-02	0.	1.14000F 01	1.19105E-02	1.57053E 00	2.57171E-01
53	1.14927E 01	0.	0.	9.26581E-02	0.	1.14000F 01	1.19136E-02	1.56100E 00	2.58737E-01
54	1.15055E 01	0.	0.	1.05332E-01	0.	1.14000E 01	1.19110E-02	1.60499E 00	2.52362E-01
55	1.15198E 01	0.	0.	1.19798E-01	0.	1.14000F 01	1.19102E-02	1.59821E 00	2.55331E-01
56	1.15362E 01	0.	0.	1.36167E-01	0.	1.14000F 01	1.19109E-02	1.58151E 00	2.58188E-01
57	1.15546E 01	0.	0.	1.54555E-01	0.	1.14000E 01	1.19112E-02	1.57423E 00	2.56892E-01
58	1.15755E 01	0.	0.	1.75533E-01	0.	1.14000F 01	1.19099E-02	1.60470E 00	2.51808E-01
59	1.15992E 01	0.	0.	1.99208E-01	0.	1.14000F 01	1.19107E-02	1.57872E 00	2.56124E-01
60	1.16266E 01	0.	0.	2.26582E-01	0.	1.14000E 01	1.19124E-02	1.56161E 00	2.58754E-01
61	1.16584E 01	0.	0.	2.58169E-01	0.	1.14000E 01	1.19097E-02	1.58441E 00	2.57691E-01
62	1.16933E 01	0.	0.	2.93316E-01	0.	1.14000E 01	1.19062E-02	1.56658E 00	2.58936E-01
63	1.17331E 01	0.	0.	3.33127E-01	0.	1.14000F 01	1.19102E-02	1.60499E 00	2.52362E-01
64	1.17787E 01	0.	0.	3.78743E-01	0.	1.14000E 01	1.19100E-02	1.59821E 00	2.55331E-01
65	1.18296E 01	0.	0.	4.29638E-01	0.	1.14000F 01	1.19117E-02	1.56946E 00	2.57595E-01
66	1.18887E 01	0.	0.	4.88707E-01	0.	1.14000E 01	1.19157E-02	1.57465E 00	2.56882E-01
67	1.19550E 01	0.	0.	5.54997E-01	0.	1.14000F 01	1.19119E-02	1.60470E 00	2.51808E-01
68	1.20300E 01	0.	0.	6.29972E-01	0.	1.14000F 01	1.19118E-02	1.57872E 00	2.56124E-01
69	1.21166E 01	0.	0.	7.16597E-01	0.	1.14000E 01	1.19119E-02	1.56161E 00	2.58754E-01
70	1.21586E 01	0.	0.	8.46827E-01	0.	1.14000E 01	1.19110E-02	0.	2.57691E-01

TABLE OF ELASTIC MATRICES

ELEMENT** IRON N **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
1	1.6904E 00	1.2652E-01
2	1.9934E 00	1.5228E-01
3	2.1544E 00	1.7556E-01
4	2.6958E 00	1.7335E-01
5	2.0892E 00	1.9179E-01
6	2.1066E 00	2.5661E-01
7	2.0691E 00	2.2771E-01
8	2.0283E 00	2.0138E-01
9	1.9059E 00	2.2436E-01
10	2.0204E 00	2.4841E-01
11	2.7367E 00	2.9394E-01
12	2.2663E 00	3.8105E-01
13	3.1087E 00	6.5037E-01
14	2.8380E 00	4.2304E-01
15	2.0431E 00	3.9616E-01
16	2.6153E 00	5.7593E-01
17	3.3910E 00	3.9712E-01
18	3.8915E 00	3.2749E-01
19	2.1472E 00	7.5856E-01
20	6.5507E 00	4.1374E-01
21	3.9102E 00	4.5908E-01
22	3.7805E 00	5.9687E-01
23	4.5143E 00	9.3666E-01
24	1.5729E 01	9.8474E 00
25	7.8670E 00	2.0444E-01
26	1.8272E 00	3.8970E-01
27	3.1197E 00	6.2218E-01
28	4.8177E 00	9.4307E-01
29	8.8340E 00	2.4017E 00
30	1.7683E 01	1.7860E 00
31	7.6938E 00	7.2154E-01
32	4.6332E 00	8.6395E-01
33	4.5242E 00	7.3155E-01
34	5.0662E 00	8.7221E-01
35	5.8686E 00	9.6502E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** IRON N **

GROUP RANGE (I= 36**70 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
36	6.5273E 00	1.1137E 00
37	7.2010E 00	1.2257E 00
38	7.9974E 00	1.3219E 00
39	8.5424E 00	1.3983E 00
40	8.8983E 00	1.4817E 00
41	9.2132E 00	1.4969E 00
42	9.4537E 00	1.5149E 00
43	9.6138E 00	1.5464E 00
44	9.7350E 00	1.5502E 00
45	9.7582E 00	1.5975E 00
46	9.8000E 00	1.5880E 00
47	9.8320E 00	1.5675E 00
48	9.8276E 00	1.5722E 00
49	9.7953E 00	1.6047E 00
50	9.8213E 00	1.5787E 00
51	9.8357E 00	1.5643E 00
52	9.8292E 00	1.5705E 00
53	9.8390E 00	1.5610E 00
54	9.7950E 00	1.6050E 00
55	9.8018E 00	1.5982E 00
56	9.8185E 00	1.5815E 00
57	9.8258E 00	1.5742E 00
58	9.7953E 00	1.6047E 00
59	9.8213E 00	1.5787E 00
60	9.8384E 00	1.5616E 00
61	9.8156E 00	1.5844E 00
62	9.8334E 00	1.5666E 00
63	9.7950E 00	1.6050E 00
64	9.8018E 00	1.5982E 00
65	9.8302E 00	1.5695E 00
66	9.8254E 00	1.5746E 00
67	9.7953E 00	1.6047E 00
68	9.8213E 00	1.5787E 00
69	9.8384E 00	1.5616E 00
70	1.1490E 01	0.

TABLE OF INELASTIC MATRICES

ELEMENT** IRON N **

GROUP RANGE (I= 1**10 , J= 1**25)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24					
1	0.	9.6887E-03	5.0281E-02	9.2069E-02	1.4219E-01	1.4691E-01	1.9929E-01	2.0446E-01	1.3491E-01	1.3545E-01
	7.2151E-02	4.3612E-02	3.3080E-02	2.5917E-02	1.4859E-02	1.0355E-02	8.4905E-03	4.0792E-03	2.2164E-03	2.0274E-03
	1.2096E-03	7.1217E-04	4.3636E-04	2.6353E-04	1.5646E-04					
2	9.7249E-04	2.9177E-02	7.3460E-02	1.2265F-01	1.3673E-01	1.9871E-01	2.1751E-01	1.4847E-01	1.5499E-01	8.4919E-02
	5.4873E-02	4.0443E-02	3.1478E-02	1.8322E-02	1.2946E-02	1.0568E-02	5.1637E-03	2.8307E-03	2.5893E-03	1.5435E-03
	9.0956E-04	5.5730E-04	3.3657E-04	1.9982E-04	0.					
3	9.0620E-03	5.2140E-02	9.9933E-02	1.2087E-01	1.8920E-01	2.2248E-01	1.5933E-01	1.7249E-01	9.7455E-02	7.0312E-02
	4.6857E-02	3.7897E-02	2.1995E-02	1.5978E-02	1.3026F-02	6.3732E-03	3.5714E-03	3.2691E-03	1.9488E-03	1.1484E-03
	7.0362E-04	4.2494E-04	2.5228E-04	1.5164E-04	0.					
4	1.9890E-02	8.3650E-02	1.0951E-01	1.8568E-01	2.3651E-01	1.8043E-01	2.0206E-01	1.1824E-01	8.7545E-02	6.2346E-02
	4.9069E-02	2.8285E-02	2.0810E-02	1.7254E-02	8.4007E-03	4.7749E-03	4.4269E-03	2.6390E-03	1.5551E-03	9.5283E-04
	5.7544E-04	3.4163E-04	2.0535E-04	0.	0.					
5	3.5153E-03	2.5673E-01	2.2716E-01	6.9443E-02	8.0657E-02	1.2057E-01	8.0605E-02	9.1055E-02	7.4693E-02	5.6343E-02
	4.0652E-02	2.9321E-02	2.3018E-02	1.2298F-02	5.9182E-03	6.1834F-03	2.4304E-03	8.6180E-04	7.0536E-04	2.5981E-04
	1.6263E-04	0.	0.	0.	0.					
6	0.	2.7392E-01	5.0154E-01	0.	2.9214E-02	3.2874E-02	2.6949E-02	1.8645E-02	2.0988E-02	1.4175E-02
	8.6990E-03	8.3334F-03	2.6756E-03	2.3364E-03	4.7866E-03	3.4366E-03	3.7037E-03	3.0436E-03	1.2248E-03	9.2156E-04
	6.1388E-04	4.6343E-04	4.3752E-04	1.6892E-04	0.					
7	0.	2.5179E-01	4.4107E-01	1.3782E-01	0.	0.	0.	7.4049E-03	6.9012E-03	4.8938E-03
	3.8783E-03	1.4509E-03	1.0507E-03	9.4334E-04	6.3330E-04	2.9693E-04	2.1841E-04	1.6657E-04	0.	0.
	0.	0.	0.	0.	0.					
8	0.	0.	2.4695E-01	2.4371E-01	1.4390E-01	8.1282E-04	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.					
9	0.	0.	0.	3.8601E-02	1.5393E-01	1.1633E-01	7.8778E-02	2.6481E-02	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.					
10	0.	0.	0.	0.	0.	0.	4.2301E-02	6.2840E-02	3.0834E-02	1.8233E-02
	1.8299E-02	9.9732E-03	5.0715E-03	3.3728E-03	3.1461E-03	1.5552E-03	8.2684E-04	5.2666E-04	3.7765E-04	1.4295E-04
	9.7784E-05	3.2602E-05	2.5733E-05	2.0100E-05	0.					

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** IRON N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP		**SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
1	3.7744E-03	3.6590E-03	2.8579E-04	8.9043E-04	1.1757E-03
2	1.3383E-03	1.2927E-04	9.8913E-04	2.9244E-03	3.7924E-03
3	3.2495E-02	3.0953E-04	2.3446E-03	6.8453E-03	8.7011E-03
4	5.8306E-02	5.6426E-04	4.2746E-03	1.2483E-02	1.5870E-02
5	9.6404E-02	8.7369E-04	6.7101E-03	2.0218E-02	2.6046E-02
6	9.3515E-02	9.0602E-04	7.0262E-03	2.1077E-02	2.8227E-02
7	1.2735E-01	1.2536E-03	9.8315E-03	3.1232E-02	4.1263E-02
8	1.3810E-01	1.3520E-03	1.0814E-02	3.6498E-02	4.9099E-02
9	9.8727E-02	9.4314E-04	7.7133E-03	2.7492E-02	3.8594E-02
10	1.0413E-01	1.0161E-03	8.3995E-03	3.0271E-02	4.3809E-02
11	2.3890E-01	2.3188E-03	1.8400E-02	6.4040E-02	8.4482E-02
12	2.3412E-01	2.2515E-03	1.8273E-02	6.3221E-02	8.7769E-02
13	2.2815E-01	2.1545E-03	1.6232E-02	4.7023E-02	6.0260E-02
14	2.3489E-01	2.2680E-03	1.9372E-02	6.5841E-02	9.3524E-02
15	2.1511E-01	2.0998E-03	1.7414E-02	6.0840E-02	1.0828E-01
16	2.2814E-01	2.1622E-03	1.6986E-02	5.0130E-02	7.7478E-02
17	2.2768E-01	2.2713E-03	2.1451E-02	7.6195E-02	1.3123E-01
18	2.2814E-01	2.1396E-03	1.6387E-02	6.2001E-02	1.0419E-01
19	1.8233E-01	1.7718E-03	1.4176E-02	4.8700E-02	6.7932E-02
20	2.5748E-01	2.4146E-03	1.6688E-02	4.9363E-02	6.8169E-02
21	2.3670E-01	2.4639E-03	1.8978E-02	6.5020E-02	9.2815E-02
22	2.5156E-01	2.4101E-03	1.7537E-02	4.7009E-02	5.9012E-02
23	2.5595E-01	2.4272E-03	1.6609E-02	4.0403E-02	4.7839E-02
24	2.5349E-01	2.1241E-03	9.9841E-03	1.7439E-02	1.9136E-02
25	2.3599E-01	2.4153E-03	1.9384E-02	9.7769E-02	2.0730E-01
26	2.5368E-01	2.3305E-03	2.1181E-02	8.1443E-02	1.2013E-01
27	2.5222E-01	2.4310E-03	1.8364E-02	5.3669E-02	6.8441E-02
28	2.5472E-01	2.4082E-03	1.6179E-02	3.8025E-02	4.4805E-02
29	2.5748E-01	2.3168E-03	1.2433E-02	2.2661E-02	2.5019E-02
30	2.5669E-01	2.1537E-03	9.0956E-03	1.3790E-02	1.4662E-02
31	2.5156E-01	2.3216E-03	1.3970E-02	2.9172E-02	3.3413E-02
32	2.5394E-01	2.4260E-03	1.6240E-02	3.9788E-02	4.7221E-02
33	2.5850E-01	2.4557E-03	1.6938E-02	4.1310E-02	4.9178E-02
34	2.5705E-01	2.4260E-03	1.6118E-02	3.7036E-02	4.3286E-02
35	2.5469E-01	2.4203E-03	1.5326E-02	3.2851E-02	3.7636E-02

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TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** IRON N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP		**SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
36	2.5222E-01	2.3412E-03	1.4229E-02	2.8918E-02	3.2666E-02
37	2.5467E-01	2.3314E-03	1.3300E-02	2.5474E-02	2.8102E-02
38	2.5751E-01	2.3544E-03	1.3293E-02	2.4833E-02	2.7484E-02
39	2.5674E-01	2.3348E-03	1.2863E-02	2.3429E-02	2.5782E-02
40	2.5163E-01	2.2793E-03	1.2337E-02	2.2081E-02	2.4205E-02
41	2.5802E-01	2.3119E-03	1.2347E-02	2.1816E-02	2.3849E-02
42	2.5853E-01	2.3290E-03	1.2311E-02	2.1544E-02	2.3503E-02
43	2.5705E-01	2.3118E-03	1.2132E-02	2.1091E-02	2.2976E-02
44	2.5874E-01	2.3244E-03	1.2139E-02	2.1011E-02	2.2868E-02
45	2.5230E-01	2.2649E-03	1.1793E-02	2.0358E-02	2.2145E-02
46	2.5491E-01	2.2877E-03	1.1896E-02	2.0511E-02	2.2306E-02
47	2.5751E-01	2.3106E-03	1.2009E-02	2.0694E-02	2.2503E-02
48	2.5674E-01	2.3035E-03	1.1967E-02	2.0614E-02	2.2414E-02
49	2.5163E-01	2.2573E-03	1.1719E-02	2.0175E-02	2.1933E-02
50	2.5612E-01	2.2976E-03	1.1926E-02	2.0530E-02	2.2319E-02
51	2.5665E-01	2.3201E-03	1.2042E-02	2.0727E-02	2.2532E-02
52	2.5717E-01	2.3068E-03	1.1970E-02	2.0599E-02	2.2392E-02
53	2.5674E-01	2.3206E-03	1.2038E-02	2.0709E-02	2.2511E-02
54	2.5236E-01	2.2632E-03	1.1734E-02	2.0180E-02	2.1933E-02
55	2.5533E-01	2.2695E-03	1.1865E-02	2.0394E-02	2.2164E-02
56	2.5819E-01	2.3148E-03	1.1988E-02	2.0595E-02	2.2381E-02
57	2.5689E-01	2.3078E-03	1.1918E-02	2.0462E-02	2.2232E-02
58	2.5181E-01	2.2568E-03	1.1671E-02	2.0023E-02	2.1753E-02
59	2.5612E-01	2.2950E-03	1.1858E-02	2.0328E-02	2.2081E-02
60	2.5879E-01	2.3180E-03	1.1964E-02	2.0492E-02	2.2255E-02
61	2.5769E-01	2.3078E-03	1.1898E-02	2.0356E-02	2.2102E-02
62	2.5894E-01	2.3182E-03	1.1936E-02	2.0398E-02	2.2142E-02
63	2.5236E-01	2.2586E-03	1.1611E-02	1.9818E-02	2.1506E-02
64	2.5533E-01	2.2842E-03	1.1723E-02	1.9979E-02	2.1675E-02
65	2.5760E-01	2.3034E-03	1.1800E-02	2.0078E-02	2.1775E-02
66	2.5688E-01	2.2958E-03	1.1736E-02	1.9931E-02	2.1607E-02
67	2.5181E-01	2.2492E-03	1.1469E-02	1.9437E-02	2.1063E-02
68	2.5612E-01	2.2862E-03	1.1626E-02	1.9656E-02	2.1290E-02
69	2.5875E-01	2.3079E-03	1.1699E-02	1.9726E-02	2.1353E-02
70	2.5769E-01	2.2918E-03	1.1576E-02	1.9460E-02	2.1053E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** IRON N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
1	0.5866E-01	1.0005	1.0015	1.0040	1.0051
2	0.3084E-01	1.0011	1.0023	1.0049	1.0061
3	0.9973E-02	1.0012	1.0017	1.0028	1.0033
4	0.2074E-02	0.9999	0.9997	0.9992	0.9992
5	0.2033E-02	1.0000	1.0003	1.0009	1.0011
6	0.2355E-02	1.0000	0.9997	0.9991	0.9989
7	0.2706E-02	1.0000	1.0001	1.0004	1.0005
8	0.3175E-02	1.0000	0.9998	0.9995	0.9994
9	0.3700E-02	1.0000	1.0004	1.0014	1.0020
10	0.4236E-02	1.0000	0.9998	0.9994	0.9992
11	0.4723E-02	1.0002	1.0012	1.0037	1.0049
12	0.5044E-02	1.0000	0.9997	0.9989	0.9985
13	0.5281E-02	0.9999	0.9996	0.9989	0.9986
14	0.5514E-02	1.0000	1.0003	1.0008	1.0010
15	0.5410E-02	0.9999	0.9993	0.9953	0.9915
16	0.6570E-02	1.0000	1.0000	0.9999	0.9997
17	0.8797E-02	1.0000	1.0000	1.0000	1.0000
18	0.9323E-02	0.9971	0.9811	0.9601	0.9582
19	0.1005E-01	0.9965	0.9732	0.9176	0.8919
20	0.2279E-01	1.0000	1.0000	1.0000	1.0000
21	0.1716E-01	1.0000	1.0000	1.0000	1.0000
22	0.2529E-01	0.9995	0.9966	0.9907	0.9884
23	0.1777E-01	1.0065	1.0037	1.0089	1.0107
24	0.2767E-01	0.9182	0.7901	0.7417	0.7341
25	0.4082E-01	0.9620	0.8697	0.8044	0.7891
26	0.1502E-01	1.0001	1.0010	1.0043	1.0071
27	0.1846E-01	0.9989	0.9916	0.9739	0.9660
28	0.2195E-01	0.9988	0.9915	0.9785	0.9742
29	0.3578E-01	0.9943	0.9781	0.9696	0.9682
30	0.7685E-01	0.9980	0.9912	0.9867	0.9859
31	0.2830E-01	0.9908	0.9507	0.9114	0.9025
32	0.1926E-01	0.9983	0.9883	0.9726	0.9678
33	0.8490E-02	0.9998	0.9984	0.9964	0.9957
34	0.3809E-02	1.0003	1.0023	1.0053	1.0062
35	0.1017E-01	0.9978	0.9860	0.9703	0.9661

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** IRON N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
36	0.1733E-01	1.0019	1.0117	1.0241	1.0274
37	0.6295E 00	0.9721	0.8629	0.7732	0.7552
38	0.1383E-01	1.0000	0.9999	0.9998	0.9997
39	0.1544E-01	0.9999	0.9997	0.9995	0.9995
40	0.1755E-01	1.0000	0.9998	0.9996	0.9996
41	0.1991E-01	1.0000	0.9998	0.9997	0.9997
42	0.2262E-01	1.0000	0.9999	0.9998	0.9998
43	0.2577E-01	1.0000	0.9999	0.9999	0.9998
44	0.2932E-01	1.0000	0.9999	0.9999	0.9999
45	0.3329E-01	1.0000	1.0000	1.0000	0.9999
46	0.3779E-01	1.0000	1.0000	1.0000	1.0000
47	0.4294E-01	1.0000	1.0000	1.0000	1.0000
48	0.4886E-01	1.0000	1.0000	1.0000	1.0000
49	0.5568E-01	1.0000	1.0000	1.0000	1.0000
50	0.6298E-01	1.0000	1.0000	1.0000	1.0000
51	0.7161E-01	1.0000	1.0000	1.0000	1.0000
52	0.8146E-01	1.0000	1.0000	1.0000	1.0000
53	0.9266E-01	1.0000	1.0000	1.0000	1.0000
54	0.1053E 00	1.0000	1.0000	1.0000	1.0000
55	0.1194E 00	1.0000	1.0000	1.0000	1.0000
56	0.1362E 00	1.0000	1.0000	1.0000	1.0000
57	0.1545E 00	1.0000	1.0000	1.0000	1.0000
58	0.1755E 00	1.0000	1.0000	1.0000	1.0000
59	0.1992E 00	1.0000	1.0000	1.0000	1.0000
60	0.2266E 00	1.0000	1.0000	1.0000	1.0000
61	0.2582E 00	1.0000	1.0000	1.0000	1.0000
62	0.2933E 00	1.0000	1.0000	1.0000	1.0000
63	0.3331E 00	1.0000	1.0000	1.0000	1.0000
64	0.3787E 00	1.0000	1.0000	0.9999	0.9999
65	0.4296E 00	1.0000	1.0000	0.9999	0.9999
66	0.4887E 00	1.0000	1.0000	0.9999	0.9999
67	0.5550E 00	1.0000	1.0000	0.9999	0.9999
68	0.6300E 00	1.0000	1.0000	0.9999	0.9999
69	0.7166E 00	1.0000	0.9999	0.9999	0.9999
70	0.8468E 00	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** IRON N **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
1	0.1817E 01	0.9991	0.9987	0.9979	0.9975
2	0.2145E 01	0.9995	0.9993	0.9988	0.9986
3	0.2330E 01	0.9999	0.9999	0.9999	0.9999
4	0.2269E 01	1.0000	0.9999	0.9998	0.9997
5	0.2281E 01	1.0000	1.0001	1.0005	1.0007
6	0.2363E 01	0.9999	0.9991	0.9973	0.9966
7	0.2297E 01	1.0000	0.9978	0.9917	0.9886
8	0.2230E 01	1.0003	0.9971	0.9868	0.9847
9	0.2130E 01	0.9993	0.9960	0.9867	0.9818
10	0.2269E 01	1.0000	0.9922	0.9697	0.9566
11	0.3031E 01	0.9979	0.9828	0.9473	0.9315
12	0.2647E 01	0.9997	0.9984	0.9947	0.9928
13	0.3759E 01	0.9993	0.9953	0.9869	0.9837
14	0.3261E 01	1.0000	0.9652	0.8777	0.8330
15	0.2439E 01	0.9962	0.9618	0.8686	0.8120
16	0.3191E 01	0.9993	0.9810	0.9305	0.9006
17	0.3788E 01	1.0000	0.8972	0.7043	0.5760
18	0.4219E 01	1.0000	0.8437	0.6059	0.4990
19	0.2906E 01	0.9982	0.9826	0.9422	0.9216
20	0.6964E 01	0.9519	0.7787	0.6045	0.5414
21	0.4369E 01	0.9552	0.8054	0.6732	0.6315
22	0.4377E 01	0.9987	0.9910	0.9772	0.9724
23	0.5451E 01	0.9990	0.9929	0.9832	0.9802
24	0.2558E 02	0.8476	0.6209	0.5401	0.5278
25	0.8071E 01	0.7917	0.4024	0.2005	0.1523
26	0.2217E 01	0.9997	0.9945	0.9781	0.9678
27	0.3742E 01	0.9999	0.9958	0.9866	0.9828
28	0.5761E 01	1.0000	0.9950	0.9872	0.9849
29	0.1124E 02	0.9899	0.9519	0.9210	0.9147
30	0.1947E 02	0.9847	0.9352	0.9040	0.8986
31	0.8415E 01	0.9912	0.9503	0.9047	0.8935
32	0.5497E 01	0.9992	0.9943	0.9868	0.9845
33	0.5256E 01	1.0000	0.9995	0.9967	0.9985
34	0.5939E 01	1.0000	0.9993	0.9981	0.9978
35	0.6854E 01	1.0000	0.9995	0.9989	0.9987

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** IRON N **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
36	0.7641E 01	1.0000	0.9997	0.9993	0.9992
37	0.8427E 01	1.0000	0.9998	0.9995	0.9994
38	0.9319E 01	1.0000	0.9998	0.9996	0.9995
39	0.9941E 01	1.0000	0.9999	0.9999	0.9998
40	0.1038E 02	1.0000	1.0000	1.0000	0.9999
41	0.1071E 02	1.0000	1.0000	1.0000	1.0000
42	0.1097E 02	1.0000	1.0000	1.0000	1.0000
43	0.1116E 02	1.0000	1.0000	1.0000	1.0000
44	0.1129E 02	1.0000	1.0000	1.0000	1.0000
45	0.1136E 02	1.0000	1.0000	1.0000	1.0000
46	0.1139E 02	1.0000	1.0000	1.0000	1.0000
47	0.1140E 02	1.0000	1.0000	1.0000	1.0000
48	0.1140E 02	1.0000	1.0000	1.0000	1.0000
49	0.1140E 02	1.0000	1.0000	1.0000	1.0000
50	0.1140E 02	1.0000	1.0000	1.0000	1.0000
51	0.1140E 02	1.0000	1.0000	1.0000	1.0000
52	0.1140E 02	1.0000	1.0000	1.0000	1.0000
53	0.1140E 02	1.0000	1.0000	1.0000	1.0000
54	0.1140E 02	1.0000	1.0000	1.0000	1.0000
55	0.1140E 02	1.0000	1.0000	1.0000	1.0000
56	0.1140E 02	1.0000	1.0000	1.0000	1.0000
57	0.1140E 02	1.0000	1.0000	1.0000	1.0000
58	0.1140E 02	1.0000	1.0000	1.0000	1.0000
59	0.1140E 02	1.0000	1.0000	1.0000	1.0000
60	0.1140E 02	1.0000	1.0000	1.0000	1.0000
61	0.1140E 02	1.0000	1.0000	1.0000	1.0000
62	0.1140E 02	1.0000	1.0000	1.0000	1.0000
63	0.1140E 02	1.0000	1.0000	1.0000	1.0000
64	0.1140E 02	1.0000	1.0000	1.0000	1.0000
65	0.1140E 02	1.0000	1.0000	1.0000	1.0000
66	0.1140E 02	1.0000	1.0000	1.0000	1.0000
67	0.1140E 02	1.0000	1.0000	1.0000	1.0000
68	0.1140E 02	1.0000	1.0000	1.0000	1.0000
69	0.1140E 02	1.0000	1.0000	1.0000	1.0000
70	0.1140E 02	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** IRON N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
1	0.3215E 01	0.9999	0.9996	0.9986	0.9981
2	0.3531E 01	1.0000	0.9997	0.9992	0.9990
3	0.3689E 01	0.9999	1.0000	1.0000	1.0000
4	0.3687E 01	1.0000	1.0000	0.9999	0.9999
5	0.3473E 01	0.9999	0.9996	0.9989	0.9986
6	0.3326E 01	0.9997	0.9984	0.9955	0.9943
7	0.3158E 01	1.0001	0.9967	0.9880	0.9833
8	0.2868E 01	1.0000	0.9947	0.9815	0.9750
9	0.2547E 01	0.9993	0.9935	0.9775	0.9689
10	0.2470E 01	1.0001	0.9862	0.9466	0.9230
11	0.3035E 01	0.9958	0.9663	0.9022	0.8769
12	0.2652E 01	0.9997	0.9971	0.9898	0.9859
13	0.3764E 01	0.9988	0.9909	0.9749	0.9688
14	0.3269E 01	0.9952	0.9266	0.7652	0.6928
15	0.2444E 01	0.9915	0.9254	0.7610	0.6718
16	0.3198E 01	0.9965	0.9597	0.8548	0.7888
17	0.3809E 01	0.9795	0.7962	0.4954	0.2810
18	0.4270E 01	0.9729	0.7071	0.4033	0.2973
19	0.2913E 01	0.9957	0.9648	0.8883	0.8510
20	0.6670E 01	0.9491	0.6697	0.4381	0.3530
21	0.4221E 01	0.9494	0.7296	0.5814	0.5283
22	0.4360E 01	0.9982	0.9832	0.9574	0.9488
23	0.5457E 01	0.9981	0.9860	0.9676	0.9621
24	0.2548E 02	0.7345	0.4697	0.4074	0.3989
25	0.7967E 01	0.6499	0.2328	0.1246	0.1032
26	0.2225E 01	0.9986	0.9884	0.9561	0.9361
27	0.3752E 01	0.9987	0.9904	0.9722	0.9646
28	0.5777E 01	0.9983	0.9884	0.9730	0.9684
29	0.1124E 02	0.9808	0.9109	0.8600	0.8502
30	0.1946E 02	0.9703	0.8732	0.8179	0.8089
31	0.8424E 01	0.9827	0.9046	0.8256	0.8077
32	0.5504E 01	0.9985	0.9840	0.9747	0.9704
33	0.5264E 01	0.9999	0.9989	0.9975	0.9970
34	0.5952E 01	0.9997	0.9982	0.9959	0.9952
35	0.6803E 01	0.9998	0.9988	0.9975	0.9972

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** IRON N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
36	0.7728E 01	0.9998	0.9992	0.9983	0.9981
37	0.9249E 01	0.9960	0.9793	0.9671	0.9648
38	0.9374E 01	0.9999	0.9995	0.9991	0.9990
39	0.9960E 01	1.0000	0.9998	0.9996	0.9996
40	0.1040E 02	1.0000	0.9999	0.9998	0.9998
41	0.1074E 02	1.0000	0.9999	0.9999	0.9999
42	0.1100E 02	1.0000	1.0000	0.9999	0.9999
43	0.1119E 02	1.0000	1.0000	1.0000	1.0000
44	0.1131E 02	1.0000	1.0000	1.0000	1.0000
45	0.1139E 02	1.0000	1.0000	1.0000	1.0000
46	0.1144E 02	1.0000	1.0000	1.0000	1.0000
47	0.1144E 02	1.0000	1.0000	1.0000	1.0000
48	0.1145E 02	1.0000	1.0000	1.0000	1.0000
49	0.1147E 02	1.0000	1.0000	1.0000	1.0000
50	0.1148E 02	1.0000	1.0000	1.0000	1.0000
51	0.1148E 02	1.0000	1.0000	1.0000	1.0000
52	0.1148E 02	1.0000	1.0000	1.0000	1.0000
53	0.1149E 02	1.0000	1.0000	1.0000	1.0000
54	0.1151E 02	1.0000	1.0000	1.0000	1.0000
55	0.1152E 02	1.0000	1.0000	1.0000	1.0000
56	0.1154E 02	1.0000	1.0000	1.0000	1.0000
57	0.1155E 02	1.0000	1.0000	1.0000	1.0000
58	0.1158E 02	1.0000	1.0000	1.0000	1.0000
59	0.1160E 02	1.0000	1.0000	1.0000	1.0000
60	0.1163E 02	1.0000	1.0000	1.0000	1.0000
61	0.1166E 02	1.0000	1.0000	1.0000	1.0000
62	0.1169E 02	1.0000	1.0000	1.0000	1.0000
63	0.1173E 02	1.0000	1.0000	1.0000	1.0000
64	0.1178E 02	1.0000	1.0000	1.0000	1.0000
65	0.1183E 02	1.0000	1.0000	1.0000	1.0000
66	0.1189E 02	1.0000	1.0000	1.0000	1.0000
67	0.1196E 02	1.0000	1.0000	1.0000	1.0000
68	0.1203E 02	1.0000	1.0000	1.0000	1.0000
69	0.1212E 02	1.0000	1.0000	1.0000	1.0000
70	0.1215E 02	1.0000	1.0000	1.0000	1.0000

A-III-9. NICKEL

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** NICKEL N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	3.32509E 00	0.0	0.0	4.42503E-01	1.02028E 00	1.86128E 00	8.24541E-01	1.01307E-01	3.80804E-03
2	3.58388E 00	0.0	0.0	4.31709E-01	1.06202E 00	2.09010E 00	8.07069E-01	1.04240E-01	1.35144E-02
3	3.65182E 00	0.0	0.0	3.84117E-01	1.43472E 00	2.13301E 00	7.75330E-01	1.04440E-01	3.23520E-02
4	3.52444E 00	0.0	0.0	3.22453E-01	1.20889E 00	1.99015E 00	7.17737E-01	1.06977E-01	5.88192E-02
5	3.32084E 00	0.0	0.0	1.90874E-01	1.45594E 00	1.96794E 00	6.00102E-01	1.48021E-01	9.04285E-02
6	3.30405E 00	0.0	0.0	1.23163E-01	9.48625E-01	2.23224E 00	4.34403E-01	2.51201E-01	9.36325E-02
7	3.21219E 00	0.0	0.0	5.06492E-02	6.69487E-01	2.49205E 00	3.06583E-01	2.44346E-01	1.29375E-01
8	3.20344E 00	0.0	0.0	1.70983E-02	2.68955E-01	2.91737E 00	2.54832E-01	2.61810E-01	1.39099E-01
9	3.29976E 00	0.0	0.0	7.13702E-03	6.21060E-04	3.29197E 00	9.87314E-02	3.91299E-01	9.67256E-02
10	2.93834E 00	0.0	0.0	7.53137E-03	0.0	2.93079E 00	1.27880E-01	2.41485E-01	1.04129E-01
11	3.21319E 00	0.0	0.0	8.14711E-03	0.0	3.20501E 00	1.15752E-01	4.44462E-01	2.38914E-01
12	3.16340E 00	0.0	0.0	8.44675E-03	0.0	3.15495E 00	1.31019E-01	4.57788E-01	2.31132E-01
13	3.94944E 00	0.0	0.0	8.56268E-03	0.0	3.94085E 00	8.77734E-02	3.76296E-01	2.23207E-01
14	4.17034E 00	0.0	0.0	8.60108E-03	0.0	4.16174E 00	5.99215E-02	5.11029E-01	2.54919E-01
15	4.97526E 00	0.0	0.0	8.31610E-03	0.0	4.96688E 00	5.64616E-02	7.33071E-01	2.15128E-01
16	5.96990E 00	0.0	0.0	7.87360E-03	0.0	5.96203E 00	5.97108E-02	8.27116E-01	2.23162E-01
17	6.48451E 00	0.0	0.0	7.38229E-03	0.0	6.47719E 00	5.75478E-02	4.79346E-01	2.87721E-01
18	5.64069E 00	0.0	0.0	7.02800E-03	0.0	5.63365E 00	5.27976E-02	6.30687E-01	2.23162E-01
19	6.00123E 00	0.0	0.0	6.99964E-03	0.0	5.99423E 00	4.80448E-02	1.00824E 00	1.82331E-01
20	6.67410E 00	0.0	0.0	6.99929E-03	0.0	6.66710E 00	4.31199E-02	1.05102E 00	2.57504E-01
21	1.46329E 01	0.0	0.0	7.01823E-03	0.0	1.46256E 01	3.77071E-02	5.58818E-01	2.56716E-01
22	3.61719E 00	0.0	0.0	7.49763E-03	0.0	3.60969E 00	2.62315E-02	6.55563E-01	2.51579E-01
23	5.64651E 00	0.0	0.0	8.36009E-03	0.0	5.63815E 00	1.36133E-02	8.68071E-01	2.55996E-01
24	1.49561E 01	0.0	0.0	1.30451E-02	0.0	1.49431E 01	1.13326E-02	2.58735E 00	2.58511E-01
25	1.32434E 01	0.0	0.0	1.06477E-02	0.0	1.32368E 01	1.13309E-02	2.20847E 00	2.57047E-01
26	3.13813E 01	0.0	0.0	1.48897E-02	0.0	3.13666E 01	1.13334E-02	6.98905E 00	2.58730E-01
27	6.51893E 01	0.0	0.0	3.84069E-02	0.0	6.51509E 01	1.13320E-02	6.59173E 00	2.52202E-01
28	2.96745E 01	0.0	0.0	2.20274E-02	0.0	2.96526E 01	1.13350E-02	1.48525E 00	2.54669E-01
29	9.30603E 00	0.0	0.0	1.33272E-02	0.0	9.29272E 00	1.13313E-02	1.24578E 00	2.57504E-01
30	1.19553E 01	0.0	0.0	1.37946E-02	0.0	1.19415E 01	1.13306E-02	1.91864E 00	2.56745E-01
31	2.32284E 01	0.0	0.0	1.79498E-02	0.0	2.32104E 01	1.13358E-02	4.03262E 00	2.51638E-01
32	2.60631E 01	0.0	0.0	1.99902E-02	0.0	2.60441E 01	1.13329E-02	2.92624E 00	2.56059E-01
33	1.82339E 01	0.0	0.0	2.53685E-02	0.0	1.82085E 01	1.13316E-02	2.22835E 00	2.58713E-01
34	1.59194E 01	0.0	0.0	3.08072E-02	0.0	1.58886E 01	1.13318E-02	2.04231E 00	2.57338E-01
35	1.51297E 01	0.0	0.0	2.84566E-02	0.0	1.51016E 01	1.13327E-02	1.97090E 00	2.59135E-01

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TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** NICKEL N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	1.48013E 01	0.0	0.0	2.17941E-02	0.0	1.47795E 01	1.13318E-02	1.97059E 00	2.52921E-01
37	1.47447E 01	0.0	0.0	2.22939E-02	0.0	1.47224E 01	1.13338E-02	2.00042E 00	2.56504E-01
38	1.49711E 01	0.0	0.0	2.47335E-02	0.0	1.49470E 01	1.13318E-02	1.98611E 00	2.57950E-01
39	1.55442E 01	0.0	0.0	2.81530E-02	0.0	1.55160E 01	1.13326E-02	2.09879E 00	2.57462E-01
40	1.62065E 01	0.0	0.0	3.19167E-02	0.0	1.61747E 01	1.13306E-02	2.20174E 00	2.51859E-01
41	1.66559E 01	0.0	0.0	3.62540E-02	0.0	1.66193E 01	1.13323E-02	2.20796E 00	2.56407E-01
42	1.68519E 01	0.0	0.0	4.14586E-02	0.0	1.68103E 01	1.13361E-02	2.20058E 00	2.59171E-01
43	1.69551E 01	0.0	0.0	4.69558E-02	0.0	1.69081E 01	1.13321E-02	2.22750E 00	2.57755E-01
44	1.70364E 01	0.0	0.0	5.34838E-02	0.0	1.69825E 01	1.13306E-02	2.22445E 00	2.59793E-01
45	1.71001E 01	0.0	0.0	6.06840E-02	0.0	1.70394E 01	1.13316E-02	2.28549E 00	2.52921E-01
46	1.71508E 01	0.0	0.0	6.93490E-02	0.0	1.70815E 01	1.13333E-02	2.29194E 00	2.57403E-01
47	1.71943E 01	0.0	0.0	7.82112E-02	0.0	1.71161E 01	1.13316E-02	2.24760E 00	2.57951E-01
48	1.72297E 01	0.0	0.0	8.90338E-02	0.0	1.71409E 01	1.13328E-02	2.26128E 00	2.57462E-01
49	1.72598E 01	0.0	0.0	1.01187E-01	0.0	1.71586E 01	1.13329E-02	2.29922E 00	2.52574E-01
50	1.72862E 01	0.0	0.0	1.14772E-01	0.0	1.71717E 01	1.13344E-02	2.26647E 00	2.56698E-01
51	1.73133E 01	0.0	0.0	1.30650E-01	0.0	1.71826E 01	1.13306E-02	2.24258E 00	2.59569E-01
52	1.73389E 01	0.0	0.0	1.48453E-01	0.0	1.71904E 01	1.13325E-02	2.26317E 00	2.57755E-01
53	1.73648E 01	0.0	0.0	1.69113E-01	0.0	1.71957E 01	1.13349E-02	2.25084E 00	2.59794E-01
54	1.73915E 01	0.0	0.0	1.91888E-01	0.0	1.71991E 01	1.13320E-02	2.30730E 00	2.52921E-01
55	1.74215E 01	0.0	0.0	2.19308E-01	0.0	1.72017E 01	1.13339E-02	2.30593E 00	2.57403E-01
56	1.74503E 01	0.0	0.0	2.47335E-01	0.0	1.72030E 01	1.13321E-02	2.25756E 00	2.57951E-01
57	1.74842E 01	0.0	0.0	2.81531E-01	0.0	1.72030E 01	1.13328E-02	2.26836E 00	2.57462E-01
58	1.75229E 01	0.0	0.0	3.19916E-01	0.0	1.72029E 01	1.13323E-02	2.30432E 00	2.52574E-01
59	1.75641E 01	0.0	0.0	3.62863E-01	0.0	1.72012E 01	1.13329E-02	2.26961E 00	2.56698E-01
60	1.76123E 01	0.0	0.0	4.13087E-01	0.0	1.71992E 01	1.13321E-02	2.24409E 00	2.59568E-01
61	1.76653E 01	0.0	0.0	4.69558E-01	0.0	1.71957E 01	1.13314E-02	2.26333E 00	2.57755E-01
62	1.77261E 01	0.0	0.0	5.34838E-01	0.0	1.71919E 01	1.13298E-02	2.24992E 00	2.59793E-01
63	1.77937E 01	0.0	0.0	6.06841E-01	0.0	1.71871E 01	1.13342E-02	2.30517E 00	2.52921E-01
64	1.78737E 01	0.0	0.0	6.93493E-01	0.0	1.71804E 01	1.13357E-02	2.30253E 00	2.57403E-01
65	1.79601E 01	0.0	0.0	7.82115E-01	0.0	1.71786E 01	1.13326E-02	2.25707E 00	2.57950E-01
66	1.82888E 01	0.0	0.0	8.90345E-01	0.0	1.73985E 01	1.13330E-02	2.30107E 00	2.57462E-01
67	1.84723E 01	0.0	0.0	1.01188E 00	0.0	1.74604E 01	1.13327E-02	2.33681E 00	2.52574E-01
68	1.85969E 01	0.0	0.0	1.14773E 00	0.0	1.74489E 01	1.13328E-02	2.30242E 00	2.56698E-01
69	1.87703E 01	0.0	0.0	1.30650E 00	0.0	1.74638E 01	1.13320E-02	2.28159E 00	2.59568E-01
70	1.90186E 01	0.0	0.0	1.48453E 00	0.0	1.75335E 01	1.13320E-02	0.0	2.57755E-01

TABLE OF ELASTIC MATRICES

ELEMENT** NICKEL N **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
1	1.760UE 00	1.0131E-01
2	1.985?E 00	1.0424E-01
3	2.0286E 00	1.0444E-01
4	1.8834E 00	1.0698E-01
5	1.820UE 00	1.4802E-01
6	1.981UE 00	2.512UE-01
7	2.2477E 00	2.4435E-01
8	2.6556E 00	2.6184E-01
9	2.900?E 00	3.913UE-01
10	2.6893E 00	2.4149E-01
11	2.7602E 00	4.4440E-01
12	2.6974E 00	4.5777E-01
13	3.5649E 00	3.763UE-01
14	3.650?E 00	5.1103E-01
15	4.2338E 00	7.3307E-01
16	5.1349E 00	8.2712E-01
17	5.9979E 00	4.7935E-01
18	5.003UE 00	6.3069E-01
19	4.9860E 00	1.0082E 00
20	5.6164E 00	1.051UE 00
21	1.4067E 01	5.5882E-01
22	2.9544E 00	6.3556E-01
23	4.7704E 00	8.6807E-01
24	1.2359E 01	2.2872E 00
25	1.1024E 01	2.2082E 00
26	2.4378E 01	6.9896E 00
27	5.8559E 01	6.5917E 00
28	2.816?E 01	1.4854E 00
29	8.0469E 00	1.2458E 00
30	1.0023E 01	1.9186E 00
31	1.9179E 01	4.0326E 00
32	2.3118E 01	2.9262E 00
33	1.598UE 01	2.2284E 00
34	1.3849E 01	2.0423E 00
35	1.3131E 01	1.9709E 00

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** NICKEL N **

GROUP RANGE (I= 36**70 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
36	1.2809E 01	1.9706E 00
37	1.2724E 01	2.0004E 00
38	1.2961E 01	1.9861E 00
39	1.341?E 01	2.0988E 00
40	1.3973E 01	2.201?E 00
41	1.4411E 01	2.2080E 00
42	1.4610E 01	2.2006E 00
43	1.4681E 01	2.2275E 00
44	1.4758E 01	2.2245E 00
45	1.4754E 01	2.2855E 00
46	1.4790E 01	2.2919E 00
47	1.4868E 01	2.2476E 00
48	1.4886E 01	2.2613E 00
49	1.4859E 01	2.2992E 00
50	1.4903E 01	2.2662E 00
51	1.4940E 01	2.2426E 00
52	1.4927E 01	2.2634E 00
53	1.4945E 01	2.2508E 00
54	1.4894E 01	2.3073E 00
55	1.4896E 01	2.3059E 00
56	1.4945E 01	2.2576E 00
57	1.4935E 01	2.2684E 00
58	1.4899E 01	2.3043E 00
59	1.4934E 01	2.2696E 00
60	1.4955E 01	2.2441E 00
61	1.4934E 01	2.2633E 00
62	1.4944E 01	2.2499E 00
63	1.4884E 01	2.3052E 00
64	1.4879E 01	2.3029E 00
65	1.4922E 01	2.2571E 00
66	1.5091E 01	2.3011E 00
67	1.5124E 01	2.3388E 00
68	1.5146E 01	2.3024E 00
69	1.5184E 01	2.2816E 00
70	1.7534E 01	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** NICKEL N **

GROUP RANGE (I= 1** 9 , J= 1**27)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
1	0.0	3.1719E-04	2.5383E-03	1.0688E-02	3.1605E-02	5.0508E-02	1.0641E-01	1.5441E-01	1.3193E-01	1.6068E-01
	1.0099E-01	7.7768E-02	5.7300E-02	4.7036E-02	2.7918E-02	2.0026E-02	1.7036E-02	8.3855E-03	4.5570E-03	4.1683E-03
	2.4848E-03	1.4644E-03	8.9716E-04	5.4183E-04	3.2167E-04	1.9335E-04	1.1304E-04			
2	0.0	1.0257E-03	5.9309E-03	2.1063E-02	3.9387E-02	8.9676E-02	1.4886E-01	1.3555E-01	1.7559E-01	1.1461E-01
	9.1503E-02	6.8916E-02	5.7790E-02	3.4919E-02	2.5412E-02	2.1483E-02	1.0883E-02	6.0023E-03	5.4904E-03	3.2730E-03
	1.9287E-03	1.1817E-03	7.1368E-04	4.2370E-04	2.5468E-04	1.4890E-04	0.0			
3	2.2963E-04	2.9824E-03	1.3326E-02	2.9522E-02	7.3482E-02	1.4120E-01	1.3874E-01	1.9255E-01	1.3125E-01	1.0876E-01
	8.4337E-02	7.2525E-02	4.4151E-02	3.3124E-02	2.7924E-02	1.4195E-02	8.1190E-03	7.4357E-03	4.4327E-03	2.6120E-03
	1.6004E-03	9.8652E-04	5.7384E-04	3.4491E-04	2.0166E-04	1.2269E-04	0.0			
4	2.0012E-01	3.7401E-01	1.9788E-01	1.5845E-01	1.0497E-01	5.2617E-02	4.5947E-02	2.3051E-02	1.6026E-02	1.1124E-02
	8.8327E-03	5.0888E-03	3.6850E-03	3.0290E-03	1.4903E-03	8.4848E-04	7.7921E-04	4.6451E-04	2.7372E-04	1.6771E-04
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
5	2.4592E-01	3.1824E-01	2.5004E-01	1.5628E-01	7.1032E-02	5.3987E-02	2.3025E-02	1.3913E-02	8.5242E-03	6.0522E-03
	3.1824E-03	2.1311E-03	1.6575E-03	7.6716E-04	4.1674E-04	3.8119E-04	2.2724E-04	1.3391E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
6	7.9103E-03	6.2152E-03	1.9968E-01	3.5689E-01	1.2328E-01	3.2941E-02	4.3831E-02	4.5580E-02	4.4497E-02	2.5462E-02
	2.0959E-02	1.5945E-02	8.3495E-03	4.9884E-03	6.4016E-03	1.1297E-03	2.2955E-03	1.8663E-03	4.0442E-04	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
7	0.0	0.0	7.9193E-03	2.4567E-01	2.0804E-01	1.2912E-01	5.3929E-02	5.4916E-03	3.1868E-03	5.5303E-03
	4.2927E-03	4.3218E-03	2.0033E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
8	0.0	0.0	0.0	0.0	1.1412E-02	4.5768E-02	7.2081E-02	4.5664E-02	3.4603E-02	3.2225E-02
	1.4039E-02	1.1512E-02	9.5371E-04	4.8668E-04	1.1568E-04	1.0033E-04	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	9.5512E-05	1.6735E-04	1.0709E-05	2.0944E-04	1.6291E-04	5.1344E-06	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** NICKEL N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **				
(I)	INFI	100.0	10.0	1.0	0.0
1	3.8080E-03	3.6763E-05	2.8361E-04	8.7403E-04	1.1372E-03
2	1.3514E-02	1.2948E-04	9.8727E-04	2.9256E-03	3.7419E-03
3	3.2352E-02	3.1017E-04	2.3549E-03	6.9105E-03	8.8026E-03
4	5.8819E-02	5.6577E-04	4.3306E-03	1.2946E-02	1.6620E-02
5	9.0428E-02	8.7508E-04	6.7857E-03	2.0910E-02	2.7203E-02
6	9.3633E-02	9.0634E-04	7.0372E-03	2.1750E-02	2.8332E-02
7	1.4937E-01	1.2532E-03	9.7862E-03	3.0666E-02	4.0196E-02
8	1.3910E-01	1.3477E-03	1.0527E-02	3.3014E-02	4.3293E-02
9	9.6726E-02	9.3641E-04	7.2803E-03	2.2698E-02	2.9773E-02
10	1.0413E-01	1.0117E-03	8.0607E-03	2.6759E-02	3.6181E-02
11	2.3891E-01	2.3148E-03	1.8117E-02	5.7740E-02	7.6798E-02
12	2.3113E-01	2.2406E-03	1.7599E-02	5.6543E-02	7.5373E-02
13	2.2321E-01	2.1469E-03	1.6068E-02	4.6855E-02	6.0159E-02
14	2.5492E-01	2.4473E-03	1.8061E-02	5.0759E-02	6.3971E-02
15	2.1513E-01	2.0493E-03	1.4433E-02	3.7119E-02	4.5220E-02
16	2.2316E-01	2.1063E-03	1.4158E-02	3.4605E-02	4.1809E-02
17	2.8772E-01	2.7045E-03	1.8154E-02	4.6491E-02	5.7779E-02
18	2.2316E-01	2.1141E-03	1.4831E-02	4.2439E-02	5.6260E-02
19	1.8233E-01	1.7210E-03	1.1666E-02	2.9379E-02	3.5924E-02
20	2.5750E-01	2.4139E-03	1.5509E-02	3.4268E-02	3.9686E-02
21	2.5672E-01	2.2508E-03	1.1745E-02	2.5227E-02	3.1247E-02
22	2.5158E-01	2.4281E-03	1.8579E-02	5.7580E-02	7.6721E-02
23	2.5600E-01	2.4228E-03	1.6377E-02	3.8741E-02	4.5705E-02
24	2.5851E-01	2.2601E-03	1.1351E-02	2.0181E-02	2.2223E-02
25	2.5705E-01	2.2703E-03	1.1165E-02	1.8521E-02	2.0003E-02
26	2.5873E-01	1.9845E-03	6.7344E-03	9.0163E-03	9.3774E-03
27	2.5220E-01	1.5747E-03	3.8791E-03	4.6050E-03	4.7047E-03
28	2.5467E-01	1.9969E-03	7.0908E-03	1.1483E-02	1.2201E-02
29	2.5750E-01	2.3557E-03	1.3341E-02	2.5011E-02	2.7705E-02
30	2.5675E-01	2.2933E-03	1.1750E-02	2.0094E-02	2.1828E-02
31	2.5164E-01	2.0444E-03	7.7290E-03	1.0806E-02	1.1313E-02
32	2.5606E-01	2.0317E-03	7.1500E-03	9.5828E-03	9.9609E-03
33	2.5871E-01	2.1870E-03	9.1748E-03	1.3497E-02	1.4243E-02
34	2.5734E-01	2.2177E-03	9.9204E-03	1.5201E-02	1.6157E-02
35	2.5914E-01	2.2477E-03	1.0298E-02	1.6045E-02	1.7106E-02

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** NICKEL N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	**SIGMA 0 **				
(I)	INFI	100.0	10.0	1.0	0.0
36	2.5292E-01	2.1983E-03	1.0176E-02	1.5972E-02	1.7051E-02
37	2.5650E-01	2.2232E-03	1.0309E-02	1.6201E-02	1.7300E-02
38	2.5795E-01	2.2405E-03	1.0315E-02	1.6128E-02	1.7206E-02
39	2.5746E-01	2.2232E-03	1.0056E-02	1.5527E-02	1.6525E-02
40	2.5186E-01	2.1654E-03	9.6018E-03	1.4625E-02	1.5527E-02
41	2.5641E-01	2.1949E-03	9.6058E-03	1.4502E-02	1.5373E-02
42	2.5917E-01	2.2135E-03	9.6327E-03	1.4489E-02	1.5349E-02
43	2.5775E-01	2.1989E-03	9.5409E-03	1.4323E-02	1.5168E-02
44	2.5979E-01	2.2124E-03	9.5772E-03	1.4356E-02	1.5199E-02
45	2.5292E-01	2.1551E-03	9.3120E-03	1.3942E-02	1.4758E-02
46	2.5740E-01	2.1795E-03	9.4040E-03	1.4067E-02	1.4887E-02
47	2.5795E-01	2.1980E-03	9.4724E-03	1.4158E-02	1.4981E-02
48	2.5746E-01	2.1913E-03	9.4339E-03	1.4092E-02	1.4909E-02
49	2.5257E-01	2.1474E-03	9.2375E-03	1.3791E-02	1.4590E-02
50	2.5670E-01	2.1837E-03	9.3865E-03	1.4006E-02	1.4816E-02
51	2.5957E-01	2.2057E-03	9.4735E-03	1.4129E-02	1.4945E-02
52	2.5775E-01	2.1917E-03	9.4070E-03	1.4024E-02	1.4832E-02
53	2.5979E-01	2.2062E-03	9.4623E-03	1.4099E-02	1.4911E-02
54	2.5292E-01	2.1498E-03	9.2132E-03	1.3722E-02	1.4511E-02
55	2.5740E-01	2.1745E-03	9.3118E-03	1.3862E-02	1.4657E-02
56	2.5795E-01	2.1932E-03	9.3841E-03	1.3962E-02	1.4762E-02
57	2.5746E-01	2.1865E-03	9.3464E-03	1.3897E-02	1.4692E-02
58	2.5257E-01	2.1426E-03	9.1493E-03	1.3595E-02	1.4371E-02
59	2.5670E-01	2.1786E-03	9.2920E-03	1.3797E-02	1.4582E-02
60	2.5957E-01	2.2001E-03	9.3712E-03	1.3903E-02	1.4692E-02
61	2.5775E-01	2.1857E-03	9.2961E-03	1.3779E-02	1.4559E-02
62	2.5979E-01	2.1995E-03	9.3392E-03	1.3828E-02	1.4608E-02
63	2.5292E-01	2.1424E-03	9.0798E-03	1.3428E-02	1.4183E-02
64	2.5740E-01	2.1662E-03	9.1611E-03	1.3530E-02	1.4287E-02
65	2.5795E-01	2.1837E-03	9.2130E-03	1.3586E-02	1.4343E-02
66	2.5746E-01	2.1717E-03	9.0811E-03	1.3319E-02	1.4047E-02
67	2.5257E-01	2.1255E-03	8.8445E-03	1.2933E-02	1.3633E-02
68	2.5670E-01	2.1596E-03	8.9568E-03	1.3070E-02	1.3773E-02
69	2.5957E-01	2.1786E-03	8.9944E-03	1.3089E-02	1.3787E-02
70	2.5775E-01	2.1786E-03	8.9944E-03	1.3089E-02	1.3787E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** NICKEL N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
1	0.4435E 00	1.0000	1.0000	0.9979	0.9999
2	0.4317E 00	1.0000	1.0001	1.0002	1.0003
3	0.3841E 00	1.0000	1.0000	0.9999	0.9999
4	0.3255E 00	1.0000	0.9998	0.9974	0.9992
5	0.1969E 00	1.0000	0.9987	0.9933	0.9920
6	0.1232E 00	0.9984	0.9986	0.9980	0.9977
7	0.5065E-01	1.0000	0.9998	0.9992	0.9990
8	0.1710E-01	0.9999	0.9995	0.9986	0.9982
9	0.7137E-02	0.9994	0.9986	0.9961	0.9948
10	0.7531E-02	0.9997	0.9988	0.9967	0.9957
11	0.8117E-02	1.0000	0.9998	0.9993	0.9991
12	0.8447E-02	1.0000	0.9999	0.9998	0.9997
13	0.8563E-02	1.0000	1.0000	1.0001	1.0002
14	0.8601E-02	1.0000	1.0000	1.0000	1.0000
15	0.8316E-02	1.0000	0.9999	0.9997	0.9996
16	0.7874E-02	1.0000	1.0000	0.9979	0.9999
17	0.7382E-02	1.0000	1.0000	1.0000	1.0000
18	0.7028E-02	1.0000	0.9994	0.9984	0.9981
19	0.7000E-02	1.0000	1.0000	1.0000	1.0000
20	0.6999E-02	1.0000	1.0000	1.0000	1.0000
21	0.7016E-02	1.0000	1.0013	1.0038	1.0048
22	0.7498E-02	0.9995	0.9977	0.9949	0.9906
23	0.8300E-02	0.9998	0.9990	0.9977	0.9974
24	0.1305E-01	0.9764	0.9121	0.8735	0.8664
25	0.1065E-01	1.0004	1.0023	1.0040	1.0044
26	0.1489E-01	0.9732	0.9283	0.9126	0.9104
27	0.3841E-01	0.9634	0.9213	0.9103	0.9089
28	0.2203E-01	0.9651	0.8870	0.8496	0.8436
29	0.1333E-01	1.0000	0.9999	0.9999	0.9999
30	0.1379E-01	0.9996	0.9982	0.9970	0.9968
31	0.1795E-01	0.9935	0.9791	0.9716	0.9704
32	0.1959E-01	0.9990	0.9971	0.9963	0.9962
33	0.2537E-01	0.9993	1.0042	1.0040	1.0043
34	0.3081E-01	0.9993	0.9996	0.9998	0.9998
35	0.2826E-01	1.0000	0.9997	0.9995	0.9995

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** NICKEL N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
36	0.2179E-01	1.0000	0.9999	0.9998	0.9998
37	0.2229E-01	1.0000	1.0000	0.9999	0.9999
38	0.2473E-01	1.0000	0.9999	0.9998	0.9997
39	0.2815E-01	1.0000	0.9997	0.9996	0.9995
40	0.3192E-01	1.0000	0.9998	0.9997	0.9997
41	0.3625E-01	1.0000	0.9999	0.9998	0.9998
42	0.4126E-01	1.0000	1.0000	0.9999	0.9999
43	0.4696E-01	1.0000	1.0000	0.9999	0.9999
44	0.5348E-01	1.0000	1.0000	1.0000	1.0000
45	0.6068E-01	1.0000	1.0000	1.0000	1.0000
46	0.6935E-01	1.0000	1.0000	1.0000	1.0000
47	0.7821E-01	1.0000	1.0000	1.0000	1.0000
48	0.8903E-01	1.0000	1.0000	1.0000	1.0000
49	0.1012E 00	1.0000	1.0000	1.0000	1.0000
50	0.1148E 00	1.0000	1.0000	1.0000	1.0000
51	0.1306E 00	1.0000	1.0000	1.0000	1.0000
52	0.1485E 00	1.0000	1.0000	1.0000	1.0000
53	0.1691E 00	1.0000	1.0000	1.0000	1.0000
54	0.1919E 00	1.0000	1.0000	1.0000	1.0000
55	0.2193E 00	1.0000	1.0000	1.0000	1.0000
56	0.2473E 00	1.0000	1.0000	1.0000	1.0000
57	0.2815E 00	1.0000	1.0000	1.0000	1.0000
58	0.3199E 00	1.0000	1.0000	1.0000	1.0000
59	0.3629E 00	1.0000	1.0000	1.0000	1.0000
60	0.4131E 00	1.0000	1.0000	1.0000	1.0000
61	0.4696E 00	1.0000	1.0000	1.0000	1.0000
62	0.5348E 00	1.0000	1.0000	1.0000	1.0000
63	0.6068E 00	1.0000	1.0000	1.0000	1.0000
64	0.6935E 00	1.0000	1.0000	0.9999	0.9999
65	0.7821E 00	1.0000	1.0000	0.9999	0.9999
66	0.8903E 00	1.0000	0.9999	0.9998	0.9998
67	0.1012E 01	1.0000	1.0000	0.9999	0.9999
68	0.1148E 01	1.0000	1.0000	0.9999	0.9999
69	0.1306E 01	1.0000	0.9999	0.9999	0.9999
70	0.1485E 01	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** NICKEL N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
1	0.1861E 01	1.0000	0.9998	0.9993	0.9989
2	0.2090E 01	1.0000	0.9999	0.9997	0.9997
3	0.2133E 01	0.9999	0.9999	0.9998	0.9998
4	0.1990E 01	0.9996	0.9995	0.9993	0.9992
5	0.1968E 01	1.0000	1.0000	1.0001	1.0002
6	0.2232E 01	1.0000	1.0000	1.0001	1.0002
7	0.2492E 01	1.0000	1.0000	1.0001	1.0001
8	0.2917E 01	1.0000	1.0000	1.0000	0.9999
9	0.3292E 01	0.9986	0.9958	0.9883	0.9844
10	0.2931E 01	0.9969	0.9933	0.9840	0.9795
11	0.3205E 01	0.9971	0.9916	0.9763	0.9680
12	0.3155E 01	0.9957	0.9900	0.9739	0.9692
13	0.3941E 01	0.9992	0.9845	0.9546	0.9391
14	0.4162E 01	0.9972	0.9864	0.9643	0.9554
15	0.4967E 01	0.9985	0.9857	0.9638	0.9561
16	0.5962E 01	0.9951	0.9650	0.9125	0.8939
17	0.6477E 01	0.9823	0.9015	0.7998	0.7676
18	0.5634E 01	0.9829	0.8943	0.7550	0.7028
19	0.5994E 01	0.9894	0.9377	0.8613	0.8455
20	0.6667E 01	0.9983	0.9891	0.9759	0.9721
21	0.1463E 02	0.9597	0.8101	0.6269	0.5612
22	0.3610E 01	0.9965	0.9787	0.9312	0.9063
23	0.5638E 01	0.9991	0.9967	0.9929	0.9918
24	0.1494E 02	0.9610	0.8540	0.7895	0.7776
25	0.1323E 02	0.9966	0.9830	0.9722	0.9701
26	0.3137E 02	0.9669	0.9053	0.8823	0.8790
27	0.6515E 02	0.9226	0.8438	0.8247	0.8222
28	0.2965E 02	0.9276	0.7788	0.7135	0.7032
29	0.9293E 01	0.9999	0.9993	0.9988	0.9987
30	0.1194E 02	0.9983	0.9910	0.9849	0.9837
31	0.2321E 02	0.9925	0.9707	0.9592	0.9573
32	0.2604E 02	0.9971	0.9898	0.9864	0.9859
33	0.1821E 02	0.9992	0.9970	0.9957	0.9955
34	0.1589E 02	0.9998	0.9996	0.9995	0.9995
35	0.1510E 02	0.9999	0.9999	0.9999	0.9998

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** NICKEL N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	100.0	10.0	1.0	0.0
36	0.1478E 02	0.9999	0.9999	0.9999	0.9999
37	0.1472E 02	1.0000	1.0000	1.0000	1.0000
38	0.1495E 02	1.0000	0.9999	0.9999	0.9999
39	0.1552E 02	1.0000	0.9999	0.9998	0.9998
40	0.1617E 02	1.0000	1.0000	1.0000	1.0000
41	0.1662E 02	1.0000	1.0000	1.0000	1.0000
42	0.1681E 02	1.0000	1.0000	1.0000	1.0000
43	0.1691E 02	1.0000	1.0000	1.0000	1.0000
44	0.1698E 02	1.0000	1.0000	1.0000	1.0000
45	0.1704E 02	1.0000	1.0000	1.0000	1.0000
46	0.1708E 02	1.0000	1.0000	1.0000	1.0000
47	0.1712E 02	1.0000	1.0000	1.0000	1.0000
48	0.1714E 02	1.0000	1.0000	1.0000	1.0000
49	0.1716E 02	1.0000	1.0000	1.0000	1.0000
50	0.1717E 02	1.0000	1.0000	1.0000	1.0000
51	0.1718E 02	1.0000	1.0000	1.0000	1.0000
52	0.1719E 02	1.0000	1.0000	1.0000	1.0000
53	0.1720E 02	1.0000	1.0000	1.0000	1.0000
54	0.1720E 02	1.0000	1.0000	1.0000	1.0000
55	0.1720E 02	1.0000	1.0000	1.0000	1.0000
56	0.1720E 02	1.0000	1.0000	1.0000	1.0000
57	0.1720E 02	1.0000	1.0000	1.0000	1.0000
58	0.1720E 02	1.0000	1.0000	1.0000	1.0000
59	0.1720E 02	1.0000	1.0000	1.0000	1.0000
60	0.1720E 02	1.0000	1.0000	1.0000	1.0000
61	0.1720E 02	1.0000	1.0000	1.0000	1.0000
62	0.1719E 02	1.0000	1.0000	1.0000	1.0000
63	0.1719E 02	1.0000	1.0000	1.0000	1.0000
64	0.1718E 02	1.0000	1.0000	1.0000	1.0000
65	0.1718E 02	1.0000	1.0000	1.0000	1.0000
66	0.1740E 02	1.0000	1.0000	1.0000	1.0000
67	0.1746E 02	1.0000	1.0000	1.0000	1.0000
68	0.1745E 02	1.0000	1.0000	1.0000	1.0000
69	0.1746E 02	1.0000	1.0000	1.0000	1.0000
70	0.1753E 02	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** NICKEL N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
1	0.3329E 01	1.0000	0.9987	0.9980	0.9976
2	0.3587E 01	0.9993	0.9992	0.9990	0.9989
3	0.3652E 01	1.0000	1.0000	0.9999	0.9999
4	0.3522E 01	1.0000	0.9999	0.9997	0.9996
5	0.3326E 01	0.9998	0.9996	0.9992	0.9991
6	0.3305E 01	0.9999	0.9999	0.9999	0.9998
7	0.3218E 01	1.0000	0.9999	0.9999	0.9999
8	0.3215E 01	0.9999	0.9997	0.9992	0.9990
9	0.3299E 01	0.9984	0.9947	0.9767	0.9680
10	0.2932E 01	0.9986	0.9914	0.9733	0.9641
11	0.3207E 01	0.9981	0.9870	0.9540	0.9349
12	0.3153E 01	0.9982	0.9869	0.9570	0.9458
13	0.3955E 01	0.9955	0.9664	0.9036	0.8777
14	0.4168E 01	0.9961	0.9747	0.9309	0.9127
15	0.4975E 01	0.9964	0.9711	0.9287	0.9131
16	0.5970E 01	0.9900	0.9292	0.8232	0.7861
17	0.6485E 01	0.9655	0.8213	0.6608	0.6100
18	0.5641E 01	0.9676	0.8021	0.5809	0.5111
19	0.6001E 01	0.9743	0.8839	0.7657	0.7307
20	0.6674E 01	0.9966	0.9783	0.9516	0.9439
21	0.1463E 02	0.9209	0.6369	0.3265	0.2526
22	0.3617E 01	0.9939	0.9577	0.8576	0.8058
23	0.5647E 01	0.9987	0.9940	0.9864	0.9840
24	0.1496E 02	0.9257	0.7527	0.6681	0.6539
25	0.1326E 02	0.9917	0.9650	0.9444	0.9404
26	0.3144E 02	0.9343	0.8307	0.7965	0.7917
27	0.6511E 02	0.8579	0.7366	0.7108	0.7075
28	0.2966E 02	0.8615	0.6250	0.5449	0.5336
29	0.9307E 01	0.9997	0.9986	0.9975	0.9973
30	0.1197E 02	0.9956	0.9813	0.9697	0.9674
31	0.2328E 02	0.9823	0.9393	0.9170	0.9133
32	0.2605E 02	0.9947	0.9803	0.9736	0.9725
33	0.1822E 02	0.9992	0.9950	0.9924	0.9920
34	0.1591E 02	1.0000	0.9995	0.9973	0.9992
35	0.1513E 02	1.0000	0.9999	0.9999	0.9999

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** NICKEL N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 100.0	10.0	1.0	0.0
36	0.1480E 02	1.0000	0.9999	0.9999	0.9999
37	0.1475E 02	0.9997	0.9997	0.9997	0.9997
38	0.1498E 02	0.9998	0.9997	0.9997	0.9997
39	0.1556E 02	0.9993	0.9991	0.9990	0.9990
40	0.1621E 02	0.9998	0.9997	0.9996	0.9996
41	0.1666E 02	0.9998	0.9998	0.9998	0.9998
42	0.1685E 02	0.9999	0.9999	0.9999	0.9999
43	0.1696E 02	0.9999	0.9999	0.9999	0.9999
44	0.1704E 02	0.9999	0.9999	0.9999	0.9999
45	0.1710E 02	1.0000	1.0000	1.0000	1.0000
46	0.1715E 02	0.9999	0.9999	0.9999	0.9999
47	0.1719E 02	1.0000	1.0000	1.0000	1.0000
48	0.1723E 02	1.0000	1.0000	1.0000	1.0000
49	0.1726E 02	1.0000	1.0000	1.0000	1.0000
50	0.1729E 02	1.0000	1.0000	1.0000	1.0000
51	0.1731E 02	1.0000	1.0000	1.0000	1.0000
52	0.1734E 02	1.0000	1.0000	1.0000	1.0000
53	0.1737E 02	1.0000	1.0000	1.0000	1.0000
54	0.1739E 02	1.0000	1.0000	1.0000	1.0000
55	0.1742E 02	0.9999	0.9999	0.9999	0.9999
56	0.1745E 02	1.0000	1.0000	1.0000	1.0000
57	0.1748E 02	1.0000	1.0000	1.0000	1.0000
58	0.1752E 02	1.0000	1.0000	1.0000	1.0000
59	0.1756E 02	1.0000	1.0000	1.0000	1.0000
60	0.1761E 02	0.9999	0.9999	0.9999	0.9999
61	0.1767E 02	1.0000	1.0000	1.0000	1.0000
62	0.1773E 02	0.9999	0.9999	0.9999	0.9999
63	0.1779E 02	0.9999	0.9999	0.9999	0.9999
64	0.1787E 02	0.9998	0.9998	0.9998	0.9998
65	0.1796E 02	1.0000	0.9999	0.9999	0.9999
66	0.1829E 02	0.9998	0.9998	0.9998	0.9997
67	0.1847E 02	0.9999	0.9999	0.9999	0.9999
68	0.1860E 02	0.9999	0.9999	0.9999	0.9999
69	0.1877E 02	0.9998	0.9998	0.9998	0.9998
70	0.1902E 02	1.0000	1.0000	1.0000	1.0000

A-III-10. COPPER

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** COPPER N **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	3.39668E 00	0.0	0.0	9.63903E-02	1.47918E 00	1.82111E 00	6.53285E-01	1.50377E-01	1.12841E-02
2	3.57998E 00	0.0	0.0	9.12870E-02	1.54955E 00	1.93914E 00	6.99773E-01	1.00842E-01	3.92236E-02
3	3.66243E 00	0.0	0.0	8.06998E-02	1.60628E 00	1.97545E 00	7.66905E-01	2.92810E-01	9.55045E-02
4	3.56246E 00	0.0	0.0	6.60815E-02	1.59561E 00	1.90077E 00	8.28532E-01	1.95398E-01	1.71080E-01
5	3.31763E 00	0.0	0.0	5.12742E-02	1.53090E 00	1.73546E 00	7.48242E-01	1.66082E-01	2.65679E-01
6	3.15306E 00	0.0	0.0	3.84836E-02	1.36966E 00	1.74492E 00	7.24993E-01	1.95265E-01	2.72871E-01
7	2.98092E 00	0.0	0.0	2.44886E-02	1.02072E 00	1.93571E 00	6.54682E-01	1.82650E-01	3.76319E-01
8	2.63149E 00	0.0	0.0	1.07032E-02	1.69741E-01	2.45105E 00	4.88235E-01	2.25797E-01	4.03645E-01
9	3.32268E 00	0.0	0.0	1.20011E-02	4.29695E-01	2.88099E 00	3.82225E-01	3.14970E-01	2.80717E-01
10	3.55096E 00	0.0	0.0	1.34230E-02	1.75440E-01	3.36210E 00	2.56179E-01	3.42680E-01	3.02196E-01
11	3.89078E 00	0.0	0.0	1.43812E-02	2.88317E-02	3.84757E 00	1.50616E-01	5.65583E-01	2.38981E-01
12	4.30376E 00	0.0	0.0	1.50000E-02	0.0	4.28876E 00	1.18502E-01	6.38247E-01	2.33174E-01
13	4.67033E 00	0.0	0.0	1.53434E-02	0.0	4.65499E 00	1.30269E-01	7.02980E-01	2.25000E-01
14	4.95289E 00	0.0	0.0	1.59066E-02	0.0	4.93698E 00	1.51887E-01	6.39400E-01	2.55587E-01
15	5.00142E 00	0.0	0.0	1.60000E-02	0.0	4.98542E 00	8.63228E-02	7.43452E-01	2.16774E-01
16	5.27866E 00	0.0	0.0	1.60000E-02	0.0	5.26266E 00	6.23591E-02	7.84646E-01	2.24999E-01
17	5.08192E 00	0.0	0.0	1.67251E-02	0.0	5.06520E 00	3.97702E-02	5.34010E-01	2.88916E-01
18	5.15183E 00	0.0	0.0	1.84261E-02	0.0	5.13340E 00	2.30124E-02	6.01413E-01	2.23431E-01
19	4.97995E 00	0.0	0.0	2.00457E-02	0.0	4.95990E 00	9.30737E-03	8.10336E-01	1.82384E-01
20	5.67737E 00	0.0	0.0	2.23126E-02	0.0	5.65506E 00	4.11587E-03	7.08302E-01	2.57618E-01
21	7.32442E 00	0.0	0.0	2.50052E-02	0.0	7.29942E 00	4.27223E-03	1.21072E 00	2.56731E-01
22	7.63952E 00	0.0	0.0	2.91626E-02	0.0	7.61036E 00	3.94909E-03	7.99379E-01	2.51570E-01
23	6.81588E 00	0.0	0.0	3.64172E-02	0.0	6.77946E 00	4.23410E-03	9.79762E-01	2.56022E-01
24	7.63682E 00	0.0	0.0	4.43337E-02	0.0	7.59249E 00	4.06446E-03	9.80709E-01	2.58765E-01
25	9.69100E 00	0.0	0.0	5.36765E-02	0.0	9.63732E 00	4.00556E-03	1.04003E 00	2.57030E-01
26	8.79889E 00	0.0	0.0	6.24928E-02	0.0	8.73640E 00	4.06192E-03	1.02752E 00	2.58746E-01
27	9.09080E 00	0.0	0.0	7.26930E-02	0.0	9.01811E 00	4.12053E-03	1.21732E 00	2.52217E-01
28	1.09920E 01	0.0	0.0	8.48719E-02	0.0	1.09071E 01	4.02914E-03	1.21913E 00	2.54743E-01
29	9.76320E 00	0.0	0.0	9.85752E-02	0.0	9.66463E 00	4.34730E-03	1.67263E 00	2.57495E-01
30	1.04858E 01	0.0	0.0	1.71393E-01	0.0	1.03144E 01	4.17344E-03	2.79305E 00	2.56667E-01
31	1.94032E 01	0.0	0.0	2.05353E-01	0.0	1.91978E 01	3.77488E-03	1.06874E 00	2.51506E-01
32	1.23205E 01	0.0	0.0	8.18309E-02	0.0	1.22387E 01	3.80741E-03	8.50490E-01	2.55893E-01
33	9.32701E 00	0.0	0.0	9.93550E-03	0.0	9.31708E 00	4.22922E-03	1.44359E 00	2.58808E-01
34	2.34526E 01	0.0	0.0	5.40840E-01	0.0	2.29118E 01	3.92340E-03	2.93324E 00	2.56964E-01
35	4.00678E 01	0.0	0.0	4.40771E-01	0.0	3.96270E 01	3.54163E-03	6.35803E-01	2.58726E-01

CONTINUED

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** COPPER N **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	6.08865E 00	0.0	0.0	1.09215E-02	0.0	6.07773E 00	4.11316E-03	7.81859E-01	2.52414E-01
37	6.56909E 00	0.0	0.0	7.69607E-03	0.0	6.56140E 00	4.11642E-03	8.22450E-01	2.55113E-01
38	6.90818E 00	0.0	0.0	9.13073E-03	0.0	6.89905E 00	4.11372E-03	8.54844E-01	2.57744E-01
39	7.86176E 00	0.0	0.0	7.28863E-02	0.0	7.78887E 00	4.16451E-03	1.15026E 00	2.56773E-01
40	2.31479E 01	0.0	0.0	6.48191E 00	0.0	1.66660E 01	3.68852E-03	7.35585E-01	2.51659E-01
41	6.68130E 00	0.0	0.0	1.97932E-02	0.0	6.66151E 00	4.11389E-03	8.25310E-01	2.56405E-01
42	6.88568E 00	0.0	0.0	1.67329E-02	0.0	6.86895E 00	4.10494E-03	8.40680E-01	2.59169E-01
43	7.94455E 00	0.0	0.0	8.37981E-01	0.0	7.10657E 00	4.05740E-03	8.26890E-01	2.57769E-01
44	6.98692E 00	0.0	0.0	2.11777E-02	0.0	6.96574E 00	4.09601E-03	8.45140E-01	2.59792E-01
45	7.06819E 00	0.0	0.0	2.14308E-02	0.0	7.04676E 00	4.09180E-03	8.74393E-01	2.52921E-01
46	7.12674E 00	0.0	0.0	2.60658E-02	0.0	7.10068E 00	4.13075E-03	8.75517E-01	2.57403E-01
47	7.17548E 00	0.0	0.0	3.16475E-02	0.0	7.14383E 00	4.05786E-03	8.67280E-01	2.57949E-01
48	7.22229E 00	0.0	0.0	3.95215E-02	0.0	7.18277E 00	4.07168E-03	8.74064E-01	2.57461E-01
49	7.26594E 00	0.0	0.0	4.91549E-02	0.0	7.21679E 00	4.09343E-03	8.95913E-01	2.52573E-01
50	7.30685E 00	0.0	0.0	6.06047E-02	0.0	7.24625E 00	4.07334E-03	8.83774E-01	2.56697E-01
51	7.34711E 00	0.0	0.0	7.45492E-02	0.0	7.27256E 00	4.08933E-03	8.78408E-01	2.59568E-01
52	7.38672E 00	0.0	0.0	9.14078E-02	0.0	7.29531E 00	4.12048E-03	8.89596E-01	2.59820E-01
53	7.42247E 00	0.0	0.0	1.09067E-01	0.0	7.31340E 00	4.09472E-03	8.82750E-01	2.59792E-01
54	7.45832E 00	0.0	0.0	1.30288E-01	0.0	7.32803E 00	4.14003E-03	9.10443E-01	2.54855E-01
55	7.49610E 00	0.0	0.0	1.54256E-01	0.0	7.34184E 00	4.12948E-03	9.03316E-01	2.57403E-01
56	7.53249E 00	0.0	0.0	1.79684E-01	0.0	7.35281E 00	4.05769E-03	8.90989E-01	2.57949E-01
57	7.57110E 00	0.0	0.0	2.09849E-01	0.0	7.36125E 00	4.07038E-03	8.94284E-01	2.57461E-01
58	7.61117E 00	0.0	0.0	2.43264E-01	0.0	7.36791E 00	4.09354E-03	9.13328E-01	2.52573E-01
59	7.65337E 00	0.0	0.0	2.80255E-01	0.0	7.37312E 00	4.07413E-03	8.98060E-01	2.56697E-01
60	7.70041E 00	0.0	0.0	3.23098E-01	0.0	7.37731E 00	4.08774E-03	8.90019E-01	2.59567E-01
61	7.75407E 00	0.0	0.0	3.73471E-01	0.0	7.38060E 00	4.11598E-03	8.99075E-01	2.59821E-01
62	7.80869E 00	0.0	0.0	4.25600E-01	0.0	7.38309E 00	4.09121E-03	8.90519E-01	2.59792E-01
63	7.87372E 00	0.0	0.0	4.88801E-01	0.0	7.38492E 00	4.14089E-03	9.16878E-01	2.54856E-01
64	7.94445E 00	0.0	0.0	5.57809E-01	0.0	7.38664E 00	4.12679E-03	9.08183E-01	2.57402E-01
65	8.02456E 00	0.0	0.0	6.36592E-01	0.0	7.38797E 00	4.11454E-03	8.98087E-01	2.60330E-01
66	8.11074E 00	0.0	0.0	7.21783E-01	0.0	7.38896E 00	4.08321E-03	8.97320E-01	2.57863E-01
67	8.21064E 00	0.0	0.0	8.20985E-01	0.0	7.38966E 00	4.09358E-03	9.15755E-01	2.52573E-01
68	8.32853E 00	0.0	0.0	9.38579E-01	0.0	7.38995E 00	4.12194E-03	9.03866E-01	2.58736E-01
69	8.45838E 00	0.0	0.0	1.06823E 00	0.0	7.39015E 00	4.10964E-03	8.94674E-01	2.61370E-01
70	8.60609E 00	0.0	0.0	1.21573E 00	0.0	7.39036E 00	4.11163E-03	0.0	2.59821E-01

TABLE OF ELASTIC MATRICES

ELEMENT** COPPER N **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
1	1.6707E 00	1.5038E-01
2	1.8383E 00	1.0084E-01
3	1.6826E 00	2.9281E-01
4	1.7054E 00	1.9540E-01
5	1.5694E 00	1.6608E-01
6	1.5497E 00	1.9526E-01
7	1.7531E 00	1.8265E-01
8	2.2253E 00	2.2580E-01
9	2.5660E 00	3.1497E-01
10	3.0194E 00	3.4268E-01
11	3.2820E 00	5.6558E-01
12	3.6505E 00	6.3825E-01
13	3.9520E 00	7.0298E-01
14	4.2976E 00	6.3940E-01
15	4.2420E 00	7.4345E-01
16	4.4780E 00	7.8465E-01
17	4.5312E 00	5.3401E-01
18	4.5320E 00	6.0141E-01
19	4.1496E 00	8.1034E-01
20	4.9468E 00	7.0830E-01
21	6.0887E 00	1.2107E 00
22	6.8110E 00	7.9938E-01
23	5.7997E 00	9.7976E-01
24	6.6118E 00	9.8071E-01
25	8.5973E 00	1.0400E 00
26	7.7089E 00	1.0275E 00
27	7.8008E 00	1.2173E 00
28	9.6880E 00	1.2191E 00
29	7.9920E 00	1.6726E 00
30	7.5214E 00	2.793CE 00
31	1.8129E 01	1.0687E 00
32	1.1388E 01	8.5049E-01
33	7.8735E 00	1.4436E 00
34	1.9979E 01	2.9332E 00
35	3.8991E 01	6.3579E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** COPPER N **

GROUP RANGE (I= 36**70 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
36	5.2959E 00	7.8186E-01
37	5.7389E 00	8.2245E-01
38	6.0442E 00	8.5484E-01
39	6.6386E 00	1.1503E 00
40	1.5930E 01	7.3559E-01
41	5.8362E 00	8.2531E-01
42	6.0283E 00	8.4068E-01
43	6.2797E 00	8.2688E-01
44	6.1206E 00	8.4513E-01
45	6.1724E 00	8.7439E-01
46	6.2252E 00	8.7551E-01
47	6.2765E 00	8.6728E-01
48	6.3087E 00	8.7406E-01
49	6.3209E 00	8.9591E-01
50	6.3625E 00	8.8377E-01
51	6.3942E 00	8.7840E-01
52	6.4057E 00	8.8959E-01
53	6.4306E 00	8.8275E-01
54	6.4176E 00	9.1044E-01
55	6.4385E 00	9.0331E-01
56	6.4618E 00	8.9098E-01
57	6.4670E 00	8.9428E-01
58	6.4546E 00	9.1333E-01
59	6.4751E 00	8.9805E-01
60	6.4873E 00	8.9002E-01
61	6.4815E 00	8.9907E-01
62	6.4926E 00	8.9051E-01
63	6.4680E 00	9.1688E-01
64	6.4785E 00	9.0818E-01
65	6.4899E 00	8.9808E-01
66	6.4916E 00	8.9732E-01
67	6.4739E 00	9.1576E-01
68	6.4861E 00	9.0387E-01
69	6.4955E 00	8.9467E-01
70	7.3904E 00	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** COPPER N **

GROUP RANGE (I= 1**11 , J= 1**25)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24					
1	1.2570E-03	1.0464E-02	3.2225E-02	7.1911E-02	1.2793E-01	1.4655E-01	2.1500E-01	2.3804E-01	1.6459E-01	1.7158E-01
	9.3872E-02	6.6358E-02	4.5912E-02	3.5866E-02	2.0207E-02	1.3570E-02	1.0554E-02	4.8850E-03	2.6536E-03	2.4273E-03
	1.4470E-03	8.5264E-04	5.2243E-04	3.1551E-04	1.8731E-04					
2	3.2530E-03	2.0764E-02	5.3804E-02	1.0888E-01	1.3504E-01	2.1525E-01	2.5494E-01	1.8505E-01	2.0050E-01	1.1288E-01
	8.1482E-02	5.7093E-02	4.5242E-02	2.6032E-02	1.7891E-02	1.3915E-02	6.4409E-03	3.4987E-03	3.2003E-03	1.9078E-03
	1.1242E-03	6.8881E-04	4.1600E-04	2.4697E-04	0.0					
3	6.1960E-03	3.6000E-02	8.4854E-02	1.1716E-01	2.0429E-01	2.6339E-01	2.0313E-01	2.2996E-01	1.3462E-01	9.9457E-02
	7.1002E-02	5.7207E-02	3.3149E-02	2.3718E-02	1.8565E-02	8.5931E-03	4.6679E-03	4.2697E-03	2.5453E-03	1.4999E-03
	9.1898E-04	5.5501E-04	3.2950E-04	1.9806E-04	0.0					
4	1.2682E-02	6.0890E-02	9.4899E-02	1.8029E-01	2.5452E-01	2.0863E-01	2.4735E-01	1.5061E-01	1.1373E-01	8.2844E-02
	6.7687E-02	3.9750E-02	2.8935E-02	2.3258E-02	1.0765E-02	5.8477E-03	5.3489E-03	3.1887E-03	1.8790E-03	1.1513E-03
	6.9529E-04	4.1278E-04	2.4812E-04	0.0	0.0					
5	2.0647E-02	6.8289E-02	1.4562E-01	2.2875E-01	2.0280E-01	2.5501E-01	1.6244E-01	1.2674E-01	9.4451E-02	7.8706E-02
	4.7062E-02	3.4457E-02	2.8846E-02	1.3455E-02	7.3088E-03	6.6854E-03	3.9854E-03	2.3484E-03	1.4389E-03	8.6902E-04
	5.1592E-04	3.1011E-04	1.8131E-04	0.0	0.0					
6	2.5066E-02	1.0812E-01	1.8750E-01	1.7962E-01	2.3954E-01	1.5925E-01	1.2835E-01	9.7654E-02	8.3067E-02	5.0321E-02
	3.7346E-02	3.1863E-02	1.5219E-02	8.2672E-03	7.5621E-03	4.5080E-03	2.6564E-03	1.6276E-03	9.8297E-04	5.8357E-04
	3.5077E-04	2.0508E-04	0.0	0.0	0.0					
7	3.9366E-02	1.1077E-01	1.4998E-01	2.0974E-01	1.1584E-01	1.0438E-01	9.5632E-02	6.5406E-02	3.9449E-02	2.9676E-02
	2.5540E-02	1.2628E-02	6.8668E-03	6.2811E-03	3.7444E-03	2.2064E-03	1.3519E-03	8.1646E-04	4.8472E-04	2.9136E-04
	1.7034E-04	1.0364E-04	0.0	0.0	0.0					
8	0.0	3.6051E-02	6.2493E-02	1.7583E-02	1.1147E-02	5.6019E-03	2.6061E-02	4.5333E-03	2.5242E-03	1.5587E-03
	9.7621E-04	5.5331E-04	7.5856E-05	3.4101E-04	3.0986E-05	0.0	2.1002E-04	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0					
9	0.0	0.0	3.1744E-02	8.8170E-02	7.3757E-02	7.4436E-02	4.9809E-02	4.7743E-02	3.6531E-02	1.1653E-02
	9.7652E-03	3.7620E-03	1.9743E-03	3.5009E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0					
10	0.0	0.0	0.0	7.4228E-03	3.3660E-02	3.9172E-02	2.4726E-02	2.0994E-02	7.4057E-03	1.1897E-02
	1.0079E-02	8.4280E-03	4.6360E-03	3.5827E-03	1.2941E-03	1.4624E-03	6.8108E-04	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0					
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7360E-04	7.2571E-03	3.9239E-03
	7.2192E-03	4.3249E-03	2.0428E-03	1.4910E-03	7.6987E-04	1.0117E-03	1.7639E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0					

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** COPPER N **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	0.0
1	1.1284E-02	1.1246E-05	1.0913E-04	8.4234E-04	3.3244E-03
2	3.9224E-02	3.9084E-05	3.7868E-04	2.8884E-03	1.0959E-02
3	9.5504E-02	9.5156E-05	9.2130E-04	6.9901E-03	2.6075E-02
4	1.7108E-01	1.7047E-04	1.6519E-03	1.2615E-02	4.8043E-02
5	2.6568E-01	2.6480E-04	2.5715E-03	1.9951E-02	8.0150E-02
6	2.7287E-01	2.7201E-04	2.6453E-03	2.0746E-02	8.6571E-02
7	3.7632E-01	3.7518E-04	3.6522E-03	2.8862E-02	1.2387E-01
8	4.0364E-01	4.0238E-04	3.9133E-03	3.0705E-02	1.2839E-01
9	2.8072E-01	2.7979E-04	2.7168E-03	2.1065E-02	8.4410E-02
10	3.0220E-01	3.0113E-04	2.9183E-03	2.2298E-02	8.5104E-02
11	2.3898E-01	2.3805E-04	2.3003E-03	1.7202E-02	6.1432E-02
12	2.3317E-01	2.3217E-04	2.2355E-03	1.6305E-02	5.4323E-02
13	2.2500E-01	2.2395E-04	2.1496E-03	1.5339E-02	4.8228E-02
14	2.5559E-01	2.5433E-04	2.4352E-03	1.7093E-02	5.1618E-02
15	2.1677E-01	2.1569E-04	2.0645E-03	1.4450E-02	4.3342E-02
16	2.2500E-01	2.2382E-04	2.1372E-03	1.4730E-02	4.2719E-02
17	2.8892E-01	2.8745E-04	2.7495E-03	1.9166E-02	5.7110E-02
18	2.2343E-01	2.2229E-04	2.1250E-03	1.4783E-02	4.4294E-02
19	1.8238E-01	1.8148E-04	1.7374E-03	1.2189E-02	3.7013E-02
20	2.5762E-01	2.5616E-04	2.4382E-03	1.6565E-02	4.8041E-02
21	2.5673E-01	2.5486E-04	2.3926E-03	1.4948E-02	3.6788E-02
22	2.5157E-01	2.4966E-04	2.3393E-03	1.4743E-02	3.9639E-02
23	2.5602E-01	2.5429E-04	2.3977E-03	1.5464E-02	4.2276E-02
24	2.5876E-01	2.5680E-04	2.4042E-03	1.4710E-02	3.4366E-02
25	2.5703E-01	2.5456E-04	2.3435E-03	1.3107E-02	2.6987E-02
26	2.5875E-01	2.5649E-04	2.3789E-03	1.3901E-02	3.0706E-02
27	2.5222E-01	2.4994E-04	2.3124E-03	1.3292E-02	2.8545E-02
28	2.5474E-01	2.5197E-04	2.2954E-03	1.2180E-02	2.3493E-02
29	2.5749E-01	2.5500E-04	2.3472E-03	1.3262E-02	2.8361E-02
30	2.5667E-01	2.5406E-04	2.3527E-03	1.5248E-02	5.3838E-02
31	2.5151E-01	2.4689E-04	2.1764E-03	1.1460E-02	2.3619E-02
32	2.5589E-01	2.5281E-04	2.3010E-03	1.3192E-02	3.0146E-02
33	2.5881E-01	2.5642E-04	2.3677E-03	1.3466E-02	2.8399E-02
34	2.5696E-01	2.5128E-04	2.1543E-03	1.0061E-02	1.8345E-02
35	2.5873E-01	2.4966E-04	2.0918E-03	1.1428E-02	2.7557E-02

CONTINUED

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** COPPER N **

TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP	**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	0.0
36	2.5241E-01	2.5089E-04	2.3793E-03	1.5691E-02	4.1498E-02
37	2.5511E-01	2.5345E-04	2.3939E-03	1.5398E-02	3.8849E-02
38	2.5774E-01	2.5597E-04	2.4109E-03	1.5244E-02	3.7319E-02
39	2.5677E-01	2.5477E-04	2.3806E-03	1.4409E-02	3.3045E-02
40	2.5166E-01	2.4716E-04	2.2610E-03	1.3981E-02	3.5443E-02
41	2.5640E-01	2.5470E-04	2.4035E-03	1.5371E-02	3.8383E-02
42	2.5917E-01	2.5740E-04	2.4247E-03	1.5347E-02	3.7630E-02
43	2.5777E-01	2.5574E-04	2.3935E-03	1.4816E-02	3.5364E-02
44	2.5979E-01	2.5799E-04	2.4283E-03	1.5294E-02	3.7183E-02
45	2.5292E-01	2.5115E-04	2.3622E-03	1.4818E-02	3.5783E-02
46	2.5740E-01	2.5558E-04	2.4028E-03	1.5029E-02	3.6118E-02
47	2.5795E-01	2.5611E-04	2.4068E-03	1.5018E-02	3.5949E-02
48	2.5746E-01	2.5561E-04	2.4012E-03	1.4949E-02	3.5648E-02
49	2.5257E-01	2.5075E-04	2.3546E-03	1.4628E-02	3.4761E-02
50	2.5670E-01	2.5483E-04	2.3922E-03	1.4832E-02	3.5130E-02
51	2.5957E-01	2.5767E-04	2.4180E-03	1.4963E-02	3.5328E-02
52	2.5982E-01	2.5791E-04	2.4195E-03	1.4943E-02	3.5171E-02
53	2.5979E-01	2.5788E-04	2.4184E-03	1.4910E-02	3.4996E-02
54	2.5485E-01	2.5297E-04	2.3716E-03	1.4595E-02	3.4158E-02
55	2.5740E-01	2.5549E-04	2.3945E-03	1.4711E-02	3.4332E-02
56	2.5795E-01	2.5602E-04	2.3988E-03	1.4713E-02	3.4245E-02
57	2.5746E-01	2.5553E-04	2.3934E-03	1.4652E-02	3.4006E-02
58	2.5257E-01	2.5066E-04	2.3471E-03	1.4342E-02	3.3184E-02
59	2.5670E-01	2.5475E-04	2.3845E-03	1.4541E-02	3.3539E-02
60	2.5957E-01	2.5758E-04	2.4101E-03	1.4664E-02	3.3706E-02
61	2.5982E-01	2.5782E-04	2.4112E-03	1.4633E-02	3.3503E-02
62	2.5979E-01	2.5778E-04	2.4097E-03	1.4586E-02	3.3260E-02
63	2.5486E-01	2.5286E-04	2.3624E-03	1.4254E-02	3.2342E-02
64	2.5740E-01	2.5537E-04	2.3845E-03	1.4342E-02	3.2388E-02
65	2.6033E-01	2.5826E-04	2.4099E-03	1.4441E-02	3.2434E-02
66	2.5786E-01	2.5579E-04	2.3851E-03	1.4237E-02	3.1788E-02
67	2.5257E-01	2.5051E-04	2.3340E-03	1.3866E-02	3.0744E-02
68	2.5874E-01	2.5658E-04	2.3865E-03	1.4051E-02	3.0755E-02
69	2.6137E-01	2.5913E-04	2.4059E-03	1.4024E-02	3.0264E-02
70	2.5982E-01	2.5754E-04	2.3866E-03	1.3771E-02	2.9305E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** COPPER N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
1	0.9639E-01	1.0000	1.0000	1.0001	1.0005
2	0.9129E-01	1.0000	1.0000	1.0001	1.0002
3	0.8070E-01	1.0000	1.0000	1.0000	0.9999
4	0.6608E-01	1.0000	0.9999	0.9996	0.9983
5	0.5127E-01	1.0000	0.9999	0.9995	0.9980
6	0.3848E-01	1.0000	1.0000	0.9997	0.9988
7	0.2449E-01	1.0000	0.9999	0.9995	0.9980
8	0.1070E-01	1.0000	1.0000	0.9998	0.9990
9	0.1200E-01	1.0000	1.0000	0.9998	0.9993
10	0.1342E-01	1.0000	1.0000	0.9998	0.9992
11	0.1438E-01	1.0000	1.0000	0.9998	0.9992
12	0.1500E-01	1.0000	1.0000	1.0000	1.0000
13	0.1534E-01	1.0000	1.0000	0.9998	0.9993
14	0.1591E-01	1.0000	1.0000	0.9999	0.9998
15	0.1600E-01	1.0000	1.0000	1.0000	1.0000
16	0.1600E-01	1.0000	1.0000	1.0000	1.0000
17	0.1673E-01	1.0000	1.0001	1.0005	1.0014
18	0.1843E-01	1.0000	1.0003	1.0018	1.0053
19	0.2005E-01	1.0000	1.0000	0.9997	0.9990
20	0.2231E-01	1.0000	0.9996	0.9974	0.9938
21	0.2501E-01	1.0000	0.9996	0.9979	0.9958
22	0.2916E-01	1.0002	1.0020	1.0106	1.0203
23	0.3642E-01	1.0000	1.0001	1.0002	0.9982
24	0.4433E-01	1.0000	1.0000	1.0004	1.0012
25	0.5368E-01	1.0000	1.0001	1.0008	1.0016
26	0.6249E-01	1.0000	1.0004	1.0019	1.0036
27	0.7269E-01	1.0000	1.0001	1.0006	1.0016
28	0.8487E-01	1.0000	1.0003	1.0018	1.0035
29	0.9858E-01	0.9999	0.9988	0.9944	0.9908
30	0.1714E 00	0.9618	0.8019	0.6367	0.6197
31	0.2054E 00	0.9435	0.7020	0.4232	0.3337
32	0.8183E-01	0.9690	0.7982	0.5124	0.4025
33	0.9935E-02	0.9987	0.9885	0.9396	0.8850
34	0.5408E 00	0.9024	0.6020	0.3557	0.2813
35	0.4408E 00	0.9003	0.5706	0.2752	0.1818

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** COPPER N **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
36	0.1092E-01	1.0000	1.0004	1.0026	1.0068
37	0.7696E-02	1.0000	1.0000	1.0001	1.0003
38	0.9131E-02	1.0000	0.9999	0.9991	0.9979
39	0.7289E-01	0.9987	0.9879	0.9328	0.8630
40	0.6482E 01	0.7094	0.3134	0.1314	0.0855
41	0.1979E-01	1.0000	1.0002	1.0010	1.0025
42	0.1673E-01	1.0000	0.9999	0.9994	0.9986
43	0.8380E 00	0.9491	0.7074	0.3899	0.2784
44	0.2118E-01	1.0000	1.0000	1.0002	1.0005
45	0.2143E-01	1.0000	1.0000	0.9999	0.9998
46	0.2607E-01	1.0000	1.0000	0.9999	0.9996
47	0.3165E-01	1.0000	1.0000	0.9999	0.9998
48	0.3952E-01	1.0000	1.0000	0.9999	0.9998
49	0.4915E-01	1.0000	1.0000	0.9999	0.9998
50	0.6060E-01	1.0000	1.0000	0.9999	0.9999
51	0.7455E-01	1.0000	1.0000	0.9999	0.9998
52	0.9141E-01	1.0000	1.0000	0.9999	0.9998
53	0.1091E 00	1.0000	1.0000	0.9999	0.9999
54	0.1303E 00	1.0000	1.0000	0.9999	0.9998
55	0.1543E 00	1.0000	1.0000	0.9999	0.9998
56	0.1797E 00	1.0000	1.0000	1.0000	0.9999
57	0.2098E 00	1.0000	1.0000	1.0000	0.9999
58	0.2433E 00	1.0000	1.0000	1.0000	0.9999
59	0.2803E 00	1.0000	1.0000	1.0000	0.9999
60	0.3231E 00	1.0000	1.0000	0.9999	0.9999
61	0.3735E 00	1.0000	1.0000	0.9999	0.9998
62	0.4256E 00	1.0000	1.0000	0.9999	0.9998
63	0.4888E 00	1.0000	1.0000	0.9999	0.9997
64	0.5578E 00	1.0000	1.0000	0.9999	0.9997
65	0.6366E 00	1.0000	1.0000	0.9998	0.9996
66	0.7218E 00	1.0000	1.0000	0.9999	0.9998
67	0.8210E 00	1.0000	1.0000	0.9999	0.9997
68	0.9386E 00	1.0000	0.9999	0.9996	0.9992
69	0.1068E 01	1.0000	0.9999	0.9996	0.9992
70	0.1216E 01	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** COPPER N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
1	0.1821E 01	1.0000	1.0000	0.9998	0.9993
2	0.1939E 01	1.0000	1.0000	0.9999	0.9998
3	0.1975E 01	1.0000	1.0000	1.0000	1.0000
4	0.1901E 01	1.0000	1.0000	0.9998	0.9994
5	0.1735E 01	1.0000	1.0000	0.9998	0.9991
6	0.1745E 01	1.0000	1.0000	1.0001	1.0005
7	0.1936E 01	1.0000	1.0000	1.0002	1.0007
8	0.2451E 01	1.0000	0.9999	0.9995	0.9980
9	0.2881E 01	1.0000	1.0000	0.9999	0.9995
10	0.3362E 01	1.0000	1.0000	0.9997	0.9988
11	0.3848E 01	1.0000	1.0000	0.9997	0.9991
12	0.4289E 01	1.0000	0.9999	0.9992	0.9973
13	0.4655E 01	1.0000	1.0000	0.9997	0.9989
14	0.4937E 01	1.0000	1.0000	0.9999	0.9997
15	0.4985E 01	1.0000	1.0000	1.0000	1.0000
16	0.5263E 01	1.0000	0.9999	0.9992	0.9978
17	0.5065E 01	1.0000	0.9998	0.9985	0.9954
18	0.5133E 01	0.9999	0.9992	0.9942	0.9829
19	0.4960E 01	0.9999	0.9995	0.9965	0.9894
20	0.5655E 01	0.9996	0.9965	0.9778	0.9443
21	0.7299E 01	0.9996	0.9966	0.9794	0.9526
22	0.7610E 01	0.9986	0.9867	0.9238	0.8296
23	0.6779E 01	0.9994	0.9942	0.9612	0.8875
24	0.7592E 01	0.9999	0.9990	0.9939	0.9858
25	0.9637E 01	0.9998	0.9985	0.9915	0.9826
26	0.8736E 01	0.9996	0.9961	0.9786	0.9573
27	0.9018E 01	0.9998	0.9978	0.9870	0.9715
28	0.1091E 02	0.9999	0.9987	0.9929	0.9863
29	0.9665E 01	0.9992	0.9930	0.9634	0.9286
30	0.1031E 02	0.9779	0.8669	0.6502	0.4505
31	0.1920E 02	0.9619	0.8029	0.6177	0.5511
32	0.1224E 02	0.9867	0.9101	0.7644	0.6908
33	0.9317E 01	0.9998	0.9978	0.9883	0.9769
34	0.2291E 02	0.9639	0.8270	0.6698	0.6046
35	0.3963E 02	0.9054	0.5913	0.3159	0.2349

CONTINUED

TABLE OF SELF SHIELDING FACTOR

ELEMENT** COPPER N **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
36	0.6078E 01	1.0000	0.9999	0.9996	0.9990
37	0.6561E 01	1.0000	1.0000	0.9999	0.9996
38	0.6899E 01	1.0000	1.0000	0.9999	0.9998
39	0.7789E 01	0.9999	0.9990	0.9946	0.9889
40	0.1667E 02	0.8136	0.5556	0.4284	0.3923
41	0.6662E 01	1.0000	1.0000	0.9999	0.9998
42	0.6869E 01	1.0000	1.0000	1.0000	0.9999
43	0.7107E 01	0.9994	0.9966	0.9927	0.9908
44	0.6966E 01	1.0000	1.0000	1.0000	1.0000
45	0.7047E 01	1.0000	1.0000	1.0000	1.0000
46	0.7101E 01	1.0000	1.0000	1.0000	1.0000
47	0.7144E 01	1.0000	1.0000	1.0000	1.0000
48	0.7183E 01	1.0000	1.0000	1.0000	1.0000
49	0.7217E 01	1.0000	1.0000	1.0000	1.0000
50	0.7246E 01	1.0000	1.0000	1.0000	1.0000
51	0.7273E 01	1.0000	1.0000	1.0000	1.0000
52	0.7295E 01	1.0000	1.0000	1.0000	1.0000
53	0.7313E 01	1.0000	1.0000	1.0000	1.0000
54	0.7328E 01	1.0000	1.0000	1.0000	1.0000
55	0.7342E 01	1.0000	1.0000	1.0000	1.0000
56	0.7353E 01	1.0000	1.0000	1.0000	1.0000
57	0.7361E 01	1.0000	1.0000	1.0000	1.0000
58	0.7368E 01	1.0000	1.0000	1.0000	1.0000
59	0.7373E 01	1.0000	1.0000	1.0000	1.0000
60	0.7377E 01	1.0000	1.0000	1.0000	1.0000
61	0.7381E 01	1.0000	1.0000	1.0000	1.0000
62	0.7383E 01	1.0000	1.0000	1.0000	1.0000
63	0.7385E 01	1.0000	1.0000	1.0000	1.0000
64	0.7387E 01	1.0000	1.0000	1.0000	1.0000
65	0.7388E 01	1.0000	1.0000	1.0000	1.0000
66	0.7389E 01	1.0000	1.0000	1.0000	1.0000
67	0.7390E 01	1.0000	1.0000	1.0000	1.0000
68	0.7390E 01	1.0000	1.0000	1.0000	1.0000
69	0.7390E 01	1.0000	1.0000	1.0000	1.0000
70	0.7390E 01	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** COPPER N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
1	0.3397E 01	0.9998	1.0000	0.9997	0.9986
2	0.3580E 01	1.0000	1.0000	0.9999	0.9996
3	0.3663E 01	1.0001	1.0000	1.0000	1.0000
4	0.3562E 01	0.9997	1.0000	0.9998	0.9991
5	0.3317E 01	0.9995	1.0000	0.9996	0.9984
6	0.3153E 01	0.9998	1.0000	0.9999	0.9995
7	0.3039E 01	0.9999	1.0000	0.9999	0.9995
8	0.3146E 01	0.9998	1.0000	0.9997	0.9985
9	0.3326E 01	0.9998	1.0000	0.9999	0.9996
10	0.3553E 01	0.9996	1.0000	0.9997	0.9988
11	0.3893E 01	0.9996	0.9999	0.9996	0.9985
12	0.4304E 01	1.0000	0.9998	0.9984	0.9947
13	0.4670E 01	1.0000	0.9999	0.9993	0.9979
14	0.4953E 01	0.9999	1.0000	0.9998	0.9994
15	0.5001E 01	1.0001	1.0000	1.0000	1.0000
16	0.5279E 01	0.9999	0.9998	0.9985	0.9955
17	0.5082E 01	0.9999	0.9996	0.9970	0.9908
18	0.5149E 01	0.9996	0.9980	0.9864	0.9596
19	0.4980E 01	0.9997	0.9990	0.9931	0.9789
20	0.5678E 01	0.9989	0.9930	0.9575	0.9004
21	0.7325E 01	0.9969	0.9932	0.9599	0.9105
22	0.7643E 01	0.9968	0.9738	0.8568	0.7076
23	0.6818E 01	0.9985	0.9885	0.9211	0.7701
24	0.7637E 01	0.9996	0.9980	0.9879	0.9719
25	0.9692E 01	0.9995	0.9969	0.9832	0.9658
26	0.8800E 01	0.9989	0.9923	0.9594	0.9226
27	0.9092E 01	0.9993	0.9956	0.9740	0.9427
28	0.1099E 02	0.9996	0.9974	0.9860	0.9728
29	0.9770E 01	0.9982	0.9862	0.9308	0.8694
30	0.1050E 02	0.9567	0.7794	0.5079	0.2964
31	0.1941E 02	0.9262	0.6911	0.5147	0.4646
32	0.1232E 02	0.9712	0.8436	0.6711	0.6017
33	0.9330E 01	0.9995	0.9956	0.9771	0.9565
34	0.2346E 02	0.9280	0.7264	0.5551	0.4865
35	0.4007E 02	0.8229	0.3999	0.1987	0.1645

TABLE OF SELF SHIELDING FACTOR

ELEMENT** COPPER N **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (36**70)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
36	0.6089E 01	1.0000	0.9999	0.9992	0.9980
37	0.6569E 01	0.9999	1.0000	0.9997	0.9993
38	0.6908E 01	0.9998	1.0000	0.9998	0.9995
39	0.7868E 01	0.9996	0.9979	0.9885	0.9774
40	0.2316E 02	0.6525	0.3789	0.2936	0.2739
41	0.6681E 01	0.9998	1.0000	0.9998	0.9996
42	0.6888E 01	0.9998	1.0000	0.9999	0.9998
43	0.7969E 01	0.9887	0.9457	0.9103	0.9012
44	0.6987E 01	0.9999	1.0000	1.0000	0.9999
45	0.7068E 01	1.0000	1.0000	1.0000	1.0000
46	0.7127E 01	1.0000	1.0000	1.0000	1.0000
47	0.7175E 01	0.9999	1.0000	1.0000	1.0000
48	0.7222E 01	0.9999	1.0000	1.0000	1.0000
49	0.7266E 01	1.0000	1.0000	1.0000	1.0000
50	0.7307E 01	1.0000	1.0000	1.0000	1.0000
51	0.7347E 01	0.9999	1.0000	1.0000	1.0000
52	0.7387E 01	1.0000	1.0000	1.0000	1.0000
53	0.7423E 01	0.9998	1.0000	1.0000	1.0000
54	0.7461E 01	1.0000	1.0000	1.0000	1.0000
55	0.7497E 01	0.9999	1.0000	1.0000	1.0000
56	0.7532E 01	0.9999	1.0000	1.0000	1.0000
57	0.7571E 01	0.9999	1.0000	1.0000	1.0000
58	0.7611E 01	0.9999	1.0000	1.0000	1.0000
59	0.7654E 01	0.9999	1.0000	1.0000	1.0000
60	0.7701E 01	1.0000	1.0000	1.0000	1.0000
61	0.7755E 01	0.9999	1.0000	1.0000	1.0000
62	0.7811E 01	0.9999	1.0000	1.0000	1.0000
63	0.7880E 01	0.9999	1.0000	1.0000	1.0000
64	0.7948E 01	1.0000	1.0000	1.0000	1.0000
65	0.8027E 01	1.0000	1.0000	1.0000	0.9999
66	0.8112E 01	1.0000	1.0000	1.0000	1.0000
67	0.8215E 01	1.0000	1.0000	1.0000	0.9999
68	0.8414E 01	1.0000	1.0000	0.9998	0.9997
69	0.8638E 01	1.0000	1.0000	0.9998	0.9997
70	0.8867E 01	1.0000	1.0000	1.0000	1.0000

A-III-11. URANIUM-235

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** URANIUM 235 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	6.02443E 00	1.80719E 00	3.67128E 00	1.83978E-03	1.07980E 00	3.13560E 00	8.61634E-01	4.06799E-02	3.77018E-03
2	6.67870E 00	1.61844E 00	3.38519E 00	2.54126E-03	1.32498E 00	3.73274E 00	8.51320E-01	6.50816E-02	1.33788E-02
3	7.09605E 00	1.12448E 00	3.15348E 00	3.49361E-03	1.77040E 00	4.19768E 00	8.37159E-01	4.60291E-02	3.20846E-02
4	7.56492E 00	1.11936E 00	2.96099E 00	5.03199E-03	1.82860E 00	4.61199E 00	8.23889E-01	8.86564E-02	5.84921E-02
5	7.61018E 00	1.18623E 00	2.82311E 00	7.87072E-03	1.81650E 00	4.79958E 00	7.94603E-01	5.18408E-02	9.04099E-02
6	7.70053E 00	1.25684E 00	2.73175E 00	1.32541E-02	1.77420E 00	4.65624E 00	7.32598E-01	8.76894E-02	9.36268E-02
7	7.23486E 00	1.30556E 00	2.659d5E 00	2.59026E-02	1.74620E 00	4.15720E 00	6.09109E-01	5.99918E-02	1.29349E-01
8	6.79326E 00	1.27417E 00	2.6C426E 00	5.01126E-02	1.57280E 00	3.89618E 00	5.23223E-01	5.58214E-02	1.39103E-01
9	6.63933E 00	1.23555E 00	2.56489E C0	7.88904E-02	1.43080E 00	3.89409E 00	4.77335E-01	7.89595E-02	9.67275E-02
10	6.77198E 00	1.19044E 00	2.52956E 00	1.05799E-01	1.35790E 00	4.11784E 00	4.31275E-01	6.18286E-02	1.04133E-01
11	7.17919E 00	1.13911E 00	2.50581E 00	1.27774E-01	1.29260E 00	4.61971E 00	3.86537E-01	1.11856E-01	2.38893E-01
12	7.69589E 00	1.14880E 00	2.48915E C0	1.45436E-01	1.14070E 00	5.26096E 00	3.46622E-01	1.61490E-01	2.31114E-01
13	8.34856E 00	1.19046E 00	2.47865E 00	1.65484E-01	1.03620E 00	5.95042E 00	2.99679E-01	2.14347E-01	2.23147E-01
14	8.97303E 00	1.25656E 00	2.47229E C0	1.92474E-01	8.95340E-01	6.62866E 00	2.50251E-01	2.17933E-01	2.54898E-01
15	9.53162E 00	1.32140E 00	2.46627E 00	2.24441E-01	7.69990E-01	7.21579E 00	2.03274E-01	3.00281E-01	2.15120E-01
16	1.00100E 01	1.38230E 00	2.46054E 00	2.59780E-01	6.59400E-01	7.70852E 00	1.71630E-01	3.07223E-01	2.23152E-01
17	1.06137E 01	1.46036E 00	2.45369E 00	3.12038E-01	5.49990E-01	8.29136E C0	1.46258E-01	2.23616E-01	2.87705E-01
18	1.12054E 01	1.54144E 00	2.44728E C0	3.78577E-01	4.49060E-01	8.83631E 00	1.20329E-01	4.14555E-01	2.23159E-01
19	1.16097E 01	1.60773E 00	2.44214E 00	4.23161E-01	3.93090E-01	9.18572E 00	9.91295E-02	4.03132E-01	1.82325E-01
20	1.20886E 01	1.69074E 00	2.43990E 00	5.02295E-01	2.93530E-01	9.60207E 00	7.56879E-02	3.09990E-01	2.57478E-01
21	1.28606E 01	1.80379E 00	2.43973E C0	5.73725E-01	1.85920E-01	1.02972E 01	6.29129E-02	3.36713E-01	2.56695E-01
22	1.31789E 01	1.92915E 00	2.43957E C0	6.39764E-01	5.33810E-02	1.05566E 01	5.91316E-02	3.55481E-01	2.51559E-01
23	1.35262E 01	2.06994E 00	2.43940E 00	7.10226E-01	3.08540E-02	1.07152E 01	5.53708E-02	3.65090E-01	2.55940E-01
24	1.39237E 01	2.22164E 00	2.43923E 00	7.84384E-01	2.05120E-02	1.08972E 01	5.15746E-02	3.62535E-01	2.58492E-01
25	1.44076E 01	2.38169E 00	2.43906E 00	8.56048E-01	5.06110E-03	1.11648E 01	4.77938E-02	5.20200E-01	2.57006E-01
26	1.45655E 01	2.61152E 00	2.43889E 00	8.92130E-01	3.68590E-04	1.10615E 01	4.40604E-02	3.51336E-01	2.58651E-01
27	1.49431E 01	2.93896E 00	2.43872E 00	9.94682E-01	0.0	1.10095E 01	4.03424E-02	3.60829E-01	2.52176E-01
28	1.54388E 01	3.23794E 00	2.43856E 00	1.11462E 00	0.0	1.10862E 01	3.66944E-02	4.11680E-01	2.54644E-01

TABLE OF ELASTIC MATRICES

ELEMENT** URANIUM 235 **

GROUP RANGE (I= 1**30 , J= 1** 2)

GROUP (I)	J=1&K (K) 0	1
1	3.0949E 00	4.0680E-02
2	3.6677E 00	6.5082E-02
3	4.1517E 00	4.6029E-02
4	4.5233E 00	8.8656E-02
5	4.7477E 00	5.1840E-02
6	4.5686E 00	8.7685E-02
7	4.0972E 00	5.9989E-02
8	3.8404E 00	5.5820E-02
9	3.8151E C0	7.8959E-02
10	4.0560E 00	6.1828E-02
11	4.5079E 00	1.11d5E-01
12	5.0995E 00	1.6149E-01
13	5.7361E 00	2.1435E-01
14	6.4107E 00	2.1793E-01
15	6.9155E C0	3.0028E-01
16	7.4013E 00	3.0722E-01
17	8.0677E 00	2.2361E-01
18	8.4218E 00	4.1455E-01
19	8.7826E 00	4.0313E-01
20	9.2921E 00	3.0999E-01
21	9.9605E 00	3.3671E-01
22	1.0201E 01	3.5548E-01
23	1.0350E 01	3.6508E-01
24	1.0535E 01	3.6253E-01
25	1.0645E 01	5.2019E-01
26	1.0710E 01	3.5134E-01
27	1.0649E 01	3.6083E-01
28	1.0675E 01	4.1167E-01

TABLE OF INELASTIC MATRICES

ELEMENT** URANIUM 235 **

GROUP RANGE (I= 1**12 , J= 1**29)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	
1	1.9827E-02	7.0869E-02	1.2969E-01	4.4052E-01	6.9948E-01	1.2809E-01	3.9183E-02	3.8960E-02	2.8370E-02	3.0607E-02
	1.7237E-02	1.2432E-02	8.7462E-03	6.9473E-03	3.9895E-03	2.8511E-03	2.3518E-03	1.1414E-03	6.3813E-04	5.9828E-04
	3.6512E-04	2.1916E-04	1.3597E-04	8.3388E-05	4.9935E-05	0.0	0.0	0.0	0.0	
2	6.9278E-03	1.3993E-02	2.5777E-02	5.4662E-02	2.1062E-01	4.0570E-01	3.5146E-01	1.6992E-01	1.3725E-01	8.0212E-02
	5.9114E-02	4.2284E-02	3.4156E-02	1.9839E-02	1.4296E-02	1.1884E-02	5.8064E-03	3.2603E-03	3.0646E-03	1.8753E-03
	1.1299E-03	7.0164E-04	4.2984E-04	2.5856E-04	1.5644E-04	0.0	0.0	0.0	0.0	
3	3.7536E-03	2.3565E-02	6.4539E-02	1.0007E-01	1.9059E-01	2.6788E-01	2.3418E-01	3.1255E-01	1.7915E-01	1.4231E-01
	9.7288E-02	8.0429E-02	4.1965E-02	3.0366E-02	2.7189E-02	1.3092E-02	7.2743E-03	6.8064E-03	4.1841E-03	2.5037E-03
	1.5681E-03	9.4363E-04	5.6884E-04	3.4468E-04	2.0279E-04	0.0	0.0	0.0	0.0	
4	8.4472E-03	4.6213E-02	8.1792E-02	1.7391E-01	2.6953E-01	2.3787E-01	2.9835E-01	1.8884E-01	1.4686E-01	1.0900E-01
	9.0659E-02	5.4394E-02	3.9893E-02	3.3730E-02	1.6715E-02	9.4745E-03	8.9743E-03	5.5295E-03	3.3414E-03	2.0920E-03
	1.2803E-03	7.7134E-04	4.6930E-04	2.7617E-04	0.0	0.0	0.0	0.0	0.0	
5	1.7127E-02	5.7651E-02	1.3937E-01	2.4176E-01	2.3155E-01	3.0941E-01	2.0603E-01	1.6523E-01	1.2581E-01	1.0689E-01
	6.4993E-02	4.8339E-02	4.1268E-02	2.0625E-02	1.1755E-02	1.1190E-02	6.9241E-03	4.1996E-03	2.6323E-03	1.6173E-03
	9.7282E-04	5.9362E-04	3.4973E-04	2.1409E-04	0.0	0.0	0.0	0.0	0.0	
6	2.2158E-02	1.0535E-01	2.6666E-01	2.1576E-01	3.0878E-01	2.1683E-01	1.7998E-01	1.4086E-01	1.2212E-01	7.5468E-02
	5.6966E-02	4.9171E-02	2.4805E-02	1.4216E-02	1.3606E-02	8.4000E-03	5.1479E-03	3.2324E-03	1.9945E-03	1.1996E-03
	7.3187E-04	4.3273E-04	2.6499E-04	0.0	0.0	0.0	0.0	0.0	0.0	
7	4.4314E-02	1.6923E-01	1.9548E-01	3.0376E-01	2.2697E-01	1.9670E-01	1.5869E-01	1.4144E-01	8.9121E-02	6.8263E-02
	5.9698E-02	3.0525E-02	1.7620E-02	1.6963E-02	1.0612E-02	6.4842E-03	4.0867E-03	2.5255E-03	1.5242E-03	9.2849E-04
	5.5090E-04	3.3763E-04	2.0585E-04	0.0	0.0	0.0	0.0	0.0	0.0	
8	7.1135E-02	1.9354E-01	2.6515E-01	2.1492E-01	1.9648E-01	1.6530E-01	1.5253E-01	9.8625E-02	7.6962E-02	6.8884E-02
	3.5620E-02	2.0749E-02	2.0123E-02	1.2689E-02	7.7987E-03	4.9348E-03	3.0563E-03	1.8541E-03	1.1292E-03	6.6997E-04
	4.1233E-04	2.5151E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9	1.1664E-01	2.7594E-01	1.8801E-01	1.7737E-01	1.5649E-01	1.4977E-01	9.9929E-02	7.9593E-02	7.2596E-02	3.8244E-02
	2.2474E-02	2.1985E-02	1.3973E-02	8.6464E-03	5.4968E-03	3.4183E-03	2.0770E-03	1.2700E-03	7.5225E-04	4.6456E-04
	2.8372E-04	1.7018E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	2.9568E-01	3.1038E-01	1.4543E-01	1.2958E-01	1.2971E-01	8.9555E-02	7.3108E-02	6.8148E-02	3.6632E-02	2.1779E-02
	2.1509E-02	1.3797E-02	8.0025E-03	5.5008E-03	3.4342E-03	2.0918E-03	1.2852E-03	7.6140E-04	4.6996E-04	2.8830E-04
	1.7300E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	3.1773E-01	4.3955E-01	1.6267E-01	9.4644E-02	6.8023E-02	5.7346E-02	5.4816E-02	3.6085E-02	1.8202E-02	1.8156E-02
	1.1775E-02	7.4035E-03	4.7665E-03	2.9922E-03	1.8303E-03	1.1262E-03	6.7033E-04	4.1304E-04	2.5415E-04	1.5276E-04
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	2.3109E-01	4.7238E-01	2.0029E-01	6.2995E-02	7.1902E-02	3.5348E-02	1.8851E-02	1.3972E-02	7.9833E-03	1.1113E-02
	9.3531E-03	2.1378E-03	1.3468E-03	8.2617E-04	5.0911E-04	3.0414E-04	1.8738E-04	1.1525E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

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TABLE OF INELASTIC MATRICES

ELEMENT** URANIUM 235 **

GROUP RANGE (I= 13**24 , J= 1**29)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	
13	1.2861E-01	4.8843E-01	1.3334E-01	9.9061E-02	9.5724E-02	3.1148E-02	1.6683E-02	1.3266E-02	7.5170E-03	6.2612E-03
	1.3867E-02	2.3059E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14	1.4712E-01	3.6200E-01	1.2943E-01	1.2216E-01	2.6034E-02	2.2403E-02	2.9501E-02	1.8206E-02	1.5939E-02	5.4150E-03
	3.7972E-03	6.4335E-03	3.1656E-03	1.6493E-03	1.4317E-03	6.3400E-04	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15	4.7518E-02	2.6703E-01	2.5816E-01	7.2289E-02	3.2651E-02	4.1064E-02	0.0	9.6780E-03	8.3290E-03	1.0104E-02
	1.1756E-03	9.5062E-03	2.7320E-03	2.1605E-03	1.4412E-03	2.5085E-03	7.4161E-04	8.5343E-04	0.0	7.4161E-04
	0.0	0.0	0.0	0.0	6.5418E-04	3.2709E-04	0.0	0.0	3.2709E-04	
16	2.5656E-02	2.9927E-01	1.7938E-01	6.6917E-02	5.1509E-02	9.4313E-03	2.4643E-02	6.6644E-04	1.9222E-04	0.0
	0.0	0.0	9.3815E-04	4.3684E-04	7.0989E-05	8.6478E-05	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17	1.9366E-02	1.6233E-01	2.0861E-01	9.3216E-02	4.7016E-02	9.2879E-03	6.2373E-03	2.2750E-03	6.2065E-04	5.4299E-04
	1.6054E-04	1.9194E-04	1.2979E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18	2.2222E-02	2.7778E-02	1.4222E-01	1.8489E-01	2.7822E-02	2.8960E-02	1.2631E-02	1.7379E-03	6.3770E-04	1.6481E-04
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
19	1.7101E-02	3.2899E-02	1.0402E-01	1.9342E-01	0.0	1.6043E-02	1.1280E-02	1.4877E-02	2.5369E-03	2.8465E-04
	2.3022E-04	1.8620E-04	0.0	1.5059E-04	0.0	0.0	0.0	6.1577E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
20	9.7001E-03	4.0250E-02	5.6261E-02	8.0835E-02	8.8700E-02	1.2586E-02	0.0	2.5484E-03	1.2196E-03	6.7863E-04
	2.9923E-04	1.9644E-04	9.6364E-05	6.3999E-05	5.1395E-05	0.0	4.4374E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
21	9.0252E-03	3.0711E-02	6.6587E-03	0.0	4.9624E-02	2.9403E-02	3.4873E-02	1.4147E-02	1.1478E-02	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
22	4.2593E-03	3.0915E-02	5.4339E-03	0.0	0.0	0.0	0.0	7.1393E-03	3.2443E-03	1.4753E-03
	3.8323E-04	2.4410E-04	1.5548E-04	6.4023E-06	9.2628E-05	0.0	1.8459E-05	1.3334E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
23	0.0	9.5181E-03	2.0936E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24	0.0	4.3403E-03	1.2641E-02	3.5305E-03	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

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TABLE OF INELASTIC MATRICES

ELEMENT** URANIUM 235 **

GROUP RANGE (I= 25**26 , J= 1**29)

GROUP (I)	J=1&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	
25	0.0	0.0	2.2575E-03	2.0896E-03	7.1387E-04	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
26	0.0	0.0	0.0	2.1074E-04	1.5785E-04	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** URANIUM 235 **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **				
(I)	INFI	1000.0	100.0	10.0	0.0
1	3.7702E-03	3.7852E-06	3.5914E-05	2.3760E-04	6.2755E-04
2	1.3379E-02	1.3424E-05	1.2665E-04	8.0890E-04	2.0025E-03
3	3.2085E-02	3.2068E-05	3.0153E-04	1.8880E-03	4.5268E-03
4	5.8492E-02	5.8502E-05	5.4795E-04	3.3540E-03	7.7472E-03
5	9.0410E-02	8.9841E-05	8.3983E-04	5.0840E-03	1.1581E-02
6	9.3627E-02	9.3010E-05	8.7027E-04	5.2960E-03	1.2164E-02
7	1.2935E-01	1.2850E-04	1.2070E-03	7.5130E-03	1.7894E-02
8	1.3910E-01	1.3816E-04	1.3025E-03	8.2830E-03	2.0476E-02
9	9.6727E-02	9.6074E-05	9.0687E-04	5.8110E-03	1.4560E-02
10	1.0413E-01	1.0341E-04	9.7507E-04	6.2070E-03	1.5376E-02
11	2.3889E-01	2.3736E-04	2.2304E-03	1.3910E-02	3.3283E-02
12	2.3111E-01	2.2962E-04	2.1484E-03	1.3070E-02	3.0045E-02
13	2.2315E-01	2.2176E-04	2.0636E-03	1.2180E-02	2.6744E-02
14	2.5490E-01	2.5331E-04	2.3451E-03	1.3460E-02	2.8422E-02
15	2.1512E-01	2.1408E-04	1.9729E-03	1.1060E-02	2.2585E-02
16	2.2315E-01	2.2194E-04	2.0373E-03	1.1190E-02	2.2304E-02
17	2.8770E-01	2.8739E-04	2.6246E-03	1.4060E-02	2.7122E-02
18	2.2316E-01	2.2250E-04	2.0226E-03	1.0590E-02	1.9930E-02
19	1.8232E-01	1.8064E-04	1.6371E-03	8.4510E-03	1.5705E-02
20	2.5748E-01	2.5467E-04	2.2994E-03	1.1670E-02	2.1306E-02
21	2.5669E-01	2.5419E-04	2.2811E-03	1.1260E-02	1.9976E-02
22	2.5156E-01	2.4900E-04	2.2287E-03	1.0880E-02	1.9078E-02
23	2.5594E-01	2.5327E-04	2.2610E-03	1.0910E-02	1.8938E-02
24	2.5849E-01	2.5600E-04	2.2783E-03	1.0850E-02	1.8587E-02
25	2.5701E-01	2.5612E-04	2.2705E-03	1.0630E-02	1.7889E-02
26	2.5865E-01	2.5496E-04	2.2579E-03	1.0530E-02	1.7761E-02
27	2.5218E-01	2.4849E-04	2.1942E-03	1.0110E-02	1.6879E-02
28	2.5464E-01	2.5080E-04	2.2061E-03	1.0010E-02	1.6501E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 235 **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	1000.0	100.0	10.0	0.0
1	0.1807E 01	1.0000	1.0000	1.0000	0.9998
2	0.1618E 01	1.0000	1.0001	1.0006	1.0044
3	0.1124E 01	1.0000	1.0001	1.0005	1.0034
4	0.1119E 01	1.0000	1.0000	0.9999	0.9985
5	0.1186E 01	1.0000	1.0000	1.0000	0.9996
6	0.1257E 01	1.0000	1.0000	1.0000	0.9997
7	0.1306E 01	1.0000	1.0000	1.0000	0.9999
8	0.1274E 01	1.0000	1.0000	0.9999	0.9999
9	0.1236E 01	1.0000	1.0000	1.0000	1.0001
10	0.1190E 01	1.0000	1.0000	1.0001	1.0003
11	0.1139E 01	1.0000	1.0000	1.0001	1.0002
12	0.1149E 01	1.0000	1.0000	0.9999	0.9995
13	0.1196E 01	1.0000	1.0000	0.9998	0.9992
14	0.1257E 01	1.0000	1.0000	0.9998	0.9990
15	0.1321E 01	1.0000	1.0000	0.9998	0.9985
16	0.13B2E 01	1.0000	1.0000	0.9998	0.9986
17	0.1460E 01	1.0000	0.9999	0.9996	0.9972
18	0.1541E 01	1.0000	1.0000	0.9998	0.9976
19	0.1608E 01	1.0000	1.0000	0.9999	0.9993
20	0.1691E 01	1.0000	1.0000	0.9998	0.9994
21	0.1804E 01	1.0000	1.0000	0.9998	0.9988
22	0.1929E 01	1.0000	1.0000	0.9999	0.9989
23	0.2070E 01	1.0000	1.0000	0.9999	0.9988
24	0.2222E 01	1.0000	1.0000	0.9998	0.9984
25	0.2382E 01	1.0000	0.9999	0.9997	0.9963
26	0.2612E 01	1.0000	1.0000	1.0000	0.9996
27	0.2939E 01	1.0000	0.9999	0.9997	0.9993
28	0.3238E 01	1.0000	0.9998	0.9993	0.9986

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 235 **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **			
(I)	INFI	1000.0	100.0	10.0	0.0
1	0.1640E-02	1.0000	0.9999	0.9991	0.9945
2	0.2541E-02	1.0000	0.9999	0.9992	0.9935
3	0.3494E-02	1.0000	0.9999	0.9992	0.9941
4	0.5032E-02	1.0000	0.9999	0.9994	0.9986
5	0.7871E-02	1.0000	1.0000	0.9997	0.9956
6	0.1325E-01	1.0000	1.0001	1.0007	1.0025
7	0.2590E-01	1.0000	1.0003	1.0020	1.0054
8	0.5011E-01	1.0000	1.0002	1.0002	1.0007
9	0.7689E-01	1.0000	1.0000	1.0000	0.9988
10	0.1058E 00	1.0000	0.9999	0.9996	0.9984
11	0.1278E 00	1.0000	1.0000	0.9997	0.9989
12	0.1454E 00	1.0000	0.9999	0.9996	0.9983
13	0.1655E 00	1.0000	0.9999	0.9994	0.9971
14	0.1925E 00	1.0000	0.9999	0.9994	0.9967
15	0.2244E 00	1.0000	0.9999	0.9993	0.9946
16	0.2598E 00	1.0000	0.9999	0.9993	0.9948
17	0.3120E 00	1.0000	1.0001	1.0003	1.0055
18	0.3786E 00	1.0000	0.9999	0.9993	0.9928
19	0.4232E 00	1.0000	1.0000	0.9997	0.9980
20	0.5023E 00	1.0000	0.9999	0.9995	0.9975
21	0.5737E 00	1.0000	0.9999	0.9997	0.9978
22	0.6398E 00	1.0000	1.0000	0.9998	0.9983
23	0.7102E 00	1.0000	1.0000	0.9998	0.9982
24	0.7844E 00	1.0000	1.0000	0.9998	0.9978
25	0.8560E 00	1.0000	0.9999	0.9996	0.9955
26	0.8921E 00	1.0000	1.0000	0.9999	0.9993
27	0.9947E 00	1.0000	0.9999	0.9997	0.9992
28	0.1115E 01	1.0000	0.9998	0.9993	0.9985

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 235 **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA O ** 1000.0	100.0	10.0	0.0
1	0.3136E 01	1.0000	0.9999	0.9995	0.9971
2	0.3733E 01	1.0000	1.0000	0.9997	0.9979
3	0.4198E 01	1.0000	1.0000	0.9997	0.9978
4	0.4612E 01	1.0000	1.0000	0.9998	0.9982
5	0.4800E 01	1.0000	1.0000	1.0000	0.9996
6	0.4656E 01	0.9993	0.9993	0.9993	0.9993
7	0.4157E 01	0.9987	0.9986	0.9986	0.9986
8	0.3696E 01	1.0000	1.0000	0.9999	0.9999
9	0.3694E 01	1.0000	1.0000	1.0000	0.9999
10	0.4118E 01	1.0000	1.0000	0.9999	0.9995
11	0.4620E 01	1.0000	1.0000	0.9997	0.9988
12	0.5261E 01	1.0000	0.9999	0.9995	0.9982
13	0.5950E 01	1.0000	0.9999	0.9995	0.9978
14	0.6629E 01	1.0000	0.9999	0.9996	0.9980
15	0.7216E 01	1.0000	1.0000	0.9997	0.9978
16	0.7709E 01	1.0000	1.0000	0.9997	0.9981
17	0.8291E 01	1.0000	0.9999	0.9995	0.9960
18	0.8836E 01	1.0000	1.0000	0.9998	0.9979
19	0.9186E 01	1.0000	1.0000	0.9999	0.9994
20	0.9602E 01	1.0000	1.0000	0.9998	0.9995
21	0.1030E 02	1.0000	1.0000	0.9998	0.9993
22	0.1056E 02	1.0000	1.0000	1.0000	0.9997
23	0.1072E 02	1.0000	1.0000	1.0000	0.9998
24	0.1090E 02	1.0000	1.0000	1.0000	0.9996
25	0.1116E 02	1.0000	1.0000	0.9999	0.9986
26	0.1106E 02	1.0000	1.0000	0.9999	0.9996
27	0.1101E 02	1.0000	1.0000	0.9999	0.9999
28	0.1109E 02	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 235 **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA O ** 1000.0	100.0	10.0	0.0
1	0.6024E 01	1.0000	0.9996	0.9992	0.9974
2	0.6699E 01	1.0000	1.0000	0.9996	0.9980
3	0.7100E 01	1.0000	0.9999	0.9996	0.9985
4	0.7564E 01	1.0000	0.9999	0.9997	0.9984
5	0.7810E 01	1.0000	1.0000	0.9999	0.9998
6	0.7701E 01	1.0000	1.0000	1.0000	1.0000
7	0.7235E 01	0.9992	0.9991	0.9986	0.9986
8	0.6795E 01	1.0000	0.9999	0.9997	0.9996
9	0.6643E 01	1.0000	0.9999	0.9999	0.9999
10	0.6773E 01	1.0000	0.9999	0.9998	0.9995
11	0.7181E 01	1.0000	0.9999	0.9996	0.9989
12	0.7697E 01	1.0000	0.9999	0.9994	0.9984
13	0.8350E 01	1.0000	1.0000	0.9994	0.9981
14	0.8976E 01	1.0000	1.0000	0.9995	0.9983
15	0.9534E 01	1.0000	1.0000	0.9996	0.9981
16	0.1001E 02	1.0000	0.9999	0.9995	0.9981
17	0.1063E 02	1.0000	1.0000	0.9993	0.9965
18	0.1122E 02	1.0000	0.9999	0.9995	0.9977
19	0.1162E 02	1.0000	1.0000	0.9998	0.9992
20	0.1209E 02	1.0000	1.0000	0.9997	0.9993
21	0.1286E 02	1.0000	1.0000	0.9997	0.9991
22	0.1319E 02	1.0000	1.0000	0.9999	0.9996
23	0.1352E 02	1.0000	1.0000	0.9999	0.9995
24	0.1392E 02	1.0000	1.0000	0.9999	0.9993
25	0.1440E 02	1.0000	1.0000	0.9996	0.9978
26	0.1456E 02	0.9835	0.9982	0.9995	0.9998
27	0.1494E 02	0.9959	0.9996	0.9998	0.9998
28	0.1544E 02	1.0000	0.9997	0.9995	0.9994

A-Ⅲ-12. URANIUM-238

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** URANIUM 238 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	6.11586E 00	1.01752E 00	3.68426E 00	7.92067E-03	1.99217E 00	3.09825E 00	8.60934E-01	3.88832E-02	3.77018E-03
2	6.68787E 00	9.53259E-01	3.40127E 00	9.92035E-03	2.09423E 00	3.63046E 00	8.51117E-01	4.96273E-02	1.33782E-02
3	7.36594E 00	6.34464E-01	3.17200E 00	1.26541E-02	2.45541E 00	4.26342E 00	8.37130E-01	6.82144E-02	3.20840E-02
4	7.76567E 00	5.67893E-01	2.98754E 00	1.47673E-02	2.54850E 00	4.65451E 00	8.23949E-01	8.78677E-02	5.84921E-02
5	7.87584E 00	5.59986E-01	2.84522E 00	1.59289E-02	2.57920E 00	4.72073E 00	7.94628E-01	5.02119E-02	9.04099E-02
6	7.72741E 00	5.58686E-01	2.74770E 00	2.44110E-02	2.59000E 00	4.55432E 00	7.32481E-01	8.61444E-02	9.36268E-02
7	7.49431E 00	5.53913E-01	2.65779E 00	3.99011E-02	2.58000E 00	4.32050E 00	6.07140E-01	1.11281E-01	1.29349E-01
8	7.09249E 00	3.66181E-01	2.56106E 00	6.51811E-02	2.57330E 00	4.06583E 00	4.87535E-01	6.38866E-02	1.39103E-01
9	6.85533E 00	5.87835E-02	2.52471E 00	9.79414E-02	2.53250E 00	4.16591E 00	3.92796E-01	9.10063E-02	9.67274E-02
10	7.07465E 00	1.41824E-02	2.47512E 00	1.61960E-01	2.33990E 00	4.55861E 00	3.14976E-01	8.13313E-02	1.04133E-01
11	7.64172E 00	2.54881E-04	2.45839E 00	1.55246E-01	2.05920E 00	5.42473E 00	2.89697E-01	1.49780E-01	2.38892E-01
12	8.24288E 00	7.36589E-04	1.06210E 00	1.33331E-01	1.87700E 00	6.23181E 00	2.73407E-01	1.84985E-01	2.31112E-01
13	8.85486E 00	0.0	0.0	1.28808E-01	1.68380E 00	7.04425E 00	2.48283E-01	2.20320E-01	2.23144E-01
14	9.46862E 00	0.0	0.0	1.25030E-01	1.51940E 00	7.82419E 00	2.20324E-01	2.22427E-01	2.54893E-01
15	1.00284E 01	0.0	0.0	1.38143E-01	1.38530E 00	8.50491E 00	1.94049E-01	3.02400E-01	2.15112E-01
16	1.04820E 01	0.0	0.0	1.54821E-01	1.25380E 00	9.07337E 00	1.71613E-01	3.14174E-01	2.23148E-01
17	1.09647E 01	0.0	0.0	1.79069E-01	1.06890E 00	9.71674E 00	1.46257E-01	2.63690E-01	2.87603E-01
18	1.14259E 01	0.0	0.0	2.11771E-01	8.46810E-01	1.03673E 01	1.20275E-01	4.88632E-01	2.23159E-01
19	1.18068E 01	0.0	0.0	2.42358E-01	6.96540E-01	1.08679E 01	9.90798E-02	5.21532E-01	1.82330E-01
20	1.21778E 01	0.0	0.0	2.61387E-01	4.85620E-01	1.14106E 01	7.56645E-02	3.61941E-01	2.57479E-01
21	1.25634E 01	0.0	0.0	3.35896E-01	1.48150E-01	1.20794E 01	6.28784E-02	4.08478E-01	2.56690E-01
22	1.28445E 01	0.0	0.0	3.93319E-01	8.86520E-03	1.24425E 01	5.90968E-02	4.15960E-01	2.51562E-01
23	1.31954E 01	0.0	0.0	4.42552E-01	4.50250E-05	1.27526E 01	5.53336E-02	4.32301E-01	2.55939E-01
24	1.35262E 01	0.0	0.0	4.86508E-01	0.0	1.30417E 01	5.15375E-02	4.31353E-01	2.58489E-01
25	1.40752E 01	0.0	0.0	5.25492E-01	0.0	1.35497E 01	4.77559E-02	5.00454E-01	2.56989E-01

TABLE OF ELASTIC MATRICES

ELEMENT** URANIUM 238 **

GROUP RANGE (I= 1**30 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
1	3.0594E 00	3.8883E-02
2	3.5808E 00	4.9625E-02
3	4.1952E 00	6.8211E-02
4	4.5666E 00	8.7868E-02
5	4.6705E 00	5.0211E-02
6	4.4682E 00	8.6144E-02
7	4.2092E 00	1.1128E-01
8	4.0019E 00	6.3886E-02
9	4.0749E 00	9.1005E-02
10	4.4773E 00	6.1331E-02
11	5.2749E 00	1.4978E-01
12	6.0468E 00	1.8499E-01
13	6.8239E 00	2.2032E-01
14	7.6018E 00	2.2243E-01
15	8.2025E 00	3.0240E-01
16	8.7592E 00	3.1417E-01
17	9.4530E 00	2.6309E-01
18	9.8787E 00	4.8862E-01
19	1.0346E 01	5.2153E-01
20	1.1049E 01	3.6194E-01
21	1.1671E 01	4.0847E-01
22	1.2027E 01	4.1596E-01
23	1.2320E 01	4.3230E-01
24	1.2610E 01	4.3135E-01
25	1.3049E 01	5.0045E-01

TABLE OF INELASTIC MATRICES

ELEMENT** URANIUM 238 **

GROUP RANGE (I= 1**12 , J= 1**30)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	29
1	2.2974E-02	9.0505E-02	8.9525E-02	1.8141E-01	9.6894E-01	7.7776E-01	9.7932E-01	4.5576E-02	4.0095E-02	5.0109E-02
	3.1691E-02	2.4633E-02	1.8292E-02	1.5237E-02	9.0669E-03	6.6487E-03	5.6216E-03	2.7873E-03	1.5785E-03	1.4960E-03
	9.2049E-04	5.5608E-04	3.4658E-04	2.1377E-04	1.2872E-04	7.8258E-05	0.0	0.0	0.0	0.0
2	8.8690E-03	1.1118E-02	1.1922E-02	2.8508E-02	4.9118E-02	4.3374E-01	5.2203E-01	4.5621E-01	4.2870E-01	2.3436E-01
	1.6293E-01	1.1182E-01	8.3789E-02	5.0842E-02	3.7648E-02	3.2160E-02	1.6094E-02	9.1707E-03	8.7268E-03	5.3963E-03
	3.2749E-03	2.0437E-03	1.2585E-03	7.6173E-04	4.6295E-04	2.7337E-04	1.6707E-04	0.0	0.0	0.0
3	4.3608E-04	4.6703E-03	2.2567E-02	5.3446E-02	1.4530E-01	2.8290E-01	2.9387E-01	4.1801E-01	2.5184E-01	2.4199E-01
	1.9051E-01	1.6652E-01	1.0395E-01	7.7267E-02	6.6466E-02	3.3671E-02	1.9186E-02	1.6279E-02	1.1338E-02	6.8880E-03
	4.3262E-03	2.6355E-03	1.6076E-03	9.8266E-04	5.8692E-04	3.5205E-04	0.0	0.0	0.0	2.6438E-06
4	1.3181E-03	1.2057E-02	3.4152E-02	1.0878E-01	2.4276E-01	2.7861E-01	4.2968E-01	3.1862E-01	2.7500E-01	2.2155E-01
	1.9715E-01	1.2407E-01	9.4736E-02	8.2653E-02	4.2109E-02	2.4323E-02	2.3400E-02	1.4631E-02	8.9276E-03	5.6295E-03
	3.4618E-03	2.0968E-03	1.2834E-03	7.5666E-04	4.6586E-04	2.8359E-04	0.0	0.0	0.0	0.0
5	3.8140E-03	1.9257E-02	7.3842E-02	1.9216E-01	2.4674E-01	4.1641E-01	3.3086E-01	2.9836E-01	2.4686E-01	2.2796E-01
	1.4667E-01	1.1396E-01	1.0106E-01	5.2045E-02	3.0204E-02	2.9331E-02	1.8451E-02	1.1330E-02	7.1568E-03	4.4228E-03
	2.8732E-03	1.6410E-03	9.7167E-04	5.9778E-04	3.6439E-04	0.0	0.0	0.0	0.0	0.0
6	6.4140E-03	4.6740E-02	1.4442E-01	2.0869E-01	3.8812E-01	3.3223E-01	3.1417E-01	2.7203E-01	2.5695E-01	1.6953E-01
	1.3398E-01	1.2104E-01	6.3074E-02	3.6945E-02	3.6073E-02	2.2854E-02	1.4106E-02	8.9398E-03	5.5557E-03	3.3570E-03
	2.0594E-03	1.2249E-03	7.5342E-04	4.6062E-04	2.7580E-04	0.0	0.0	0.0	0.0	0.0
7	1.7741E-02	6.8090E-02	1.4358E-01	2.9558E-01	4.3168E-01	2.7200E-01	2.7476E-01	2.4823E-01	1.9180E-01	1.3962E-01
	1.1976E-01	1.4243E-01	3.7572E-02	3.6713E-02	1.0260E-01	1.4545E-02	9.2709E-03	5.7722E-03	3.5005E-03	2.1434E-03
	1.2792E-03	7.8745E-04	4.8248E-04	2.8915E-04	0.0	0.0	0.0	0.0	0.0	0.0
8	2.3107E-01	2.3081E-01	1.9594E-01	3.6108E-01	3.2100E-01	3.7745E-01	2.4585E-01	7.3108E-02	7.4614E-02	6.8665E-02
	7.4812E-02	6.0803E-03	8.5066E-02	9.2788E-02	6.3267E-02	3.6510E-02	2.6129E-03	1.2169E-02	4.9391E-03	2.9087E-03
	1.9882E-03	1.8818E-03	1.4200E-03	1.2054E-03	0.0	0.0	4.3963E-04	0.0	0.0	0.0
9	5.0181E-01	5.1284E-01	7.7872E-02	1.9131E-01	1.8732E-01	2.7404E-01	2.4256E-01	1.9380E-01	1.5446E-01	7.9068E-02
	5.4657E-02	3.0610E-02	1.2996E-02	1.0563E-02	6.1383E-03	2.2013E-03	2.0500E-04	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	1.1242E 00	5.9059E-01	4.1116E-02	1.6397E-03	1.6703E-01	9.0296E-02	9.8068E-02	6.1615E-02	3.4349E-02	3.9861E-02
	3.4784E-02	1.8986E-02	1.4168E-02	3.5068E-03	1.1368E-02	4.1835E-03	1.0082E-03	2.2755E-03	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	1.1203E 00	7.7662E-01	9.7065E-02	3.2621E-02	0.0	0.0	0.0	0.0	0.0	1.9375E-02
	1.9127E-02	2.0887E-03	7.1570E-04	3.2612E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	9.7953E-01	7.4715E-01	1.0153E-01	2.5651E-02	1.8795E-02	4.5422E-03	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTINUED

TABLE OF INELASTIC MATRICES

ELEMENT** URANIUM 238 **

GROUP RANGE (I= 13**23 , J= 1**30)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26	27	28	29
13	8.0486E-01	7.5282E-01	9.2412E-02	3.4805E-03	1.3192E-02	1.0941E-02	3.8396E-03	2.2397E-03	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	5.9502E-01	8.3430E-01	5.2539E-02	2.8666E-02	0.0	0.0	3.9256E-03	2.2493E-03	1.2210E-03	7.5145E-04
	4.8787E-04	2.3857E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4.2164E-01	9.1205E-01	1.8645E-02	2.5331E-02	7.4332E-03	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	3.4342E-01	8.8152E-01	0.0	5.5374E-03	9.3991E-03	1.1747E-02	2.1825E-03	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	1.0163E-01	6.3162E-01	3.2716E-01	0.0	0.0	2.4386E-03	2.5900E-03	1.4425E-03	9.1416E-04	5.3098E-04
	3.3636E-04	1.2512E-04	1.1749E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	2.2268E-01	4.2343E-01	2.0050E-01	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	3.4745E-01	3.4909E-01	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	2.1142E-01	2.0981E-01	6.4590E-02	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	7.7007E-02	5.1615E-02	1.7308E-02	2.2205E-03	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	4.2533E-03	2.0059E-03	1.2868E-03	4.4158E-04	3.4725E-04
	1.9626E-04	1.0472E-04	3.3373E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	2.3992E-05	2.1033E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** URANIUM 238 **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	**SIGMA 0 **					
(I)	INFI	10000.0	1000.0	100.0	10.0	0.0
1	3.7732E-03	3.7769E-07	3.7562E-06	3.5613E-05	2.3450E-04	8.1798E-04
2	1.3370E-02	1.3385E-06	1.3304E-05	1.2553E-04	8.0223E-04	2.8016E-03
3	3.2034E-02	3.2693E-06	3.1862E-05	2.9913E-04	1.8494E-03	4.3627E-03
4	5.6472E-02	5.6557E-06	5.8150E-05	5.4369E-04	3.2949E-03	7.5272E-03
5	7.6410E-02	9.0371E-06	8.9736E-05	8.3841E-04	5.0600E-03	1.1486E-02
6	9.3827E-02	9.3579E-06	9.2933E-05	8.6934E-04	5.2834E-03	1.2123E-02
7	1.2933E-01	1.2926E-05	1.2840E-04	1.2034E-03	7.3923E-03	1.7251E-02
8	1.3910E-01	1.3900E-05	1.3812E-04	1.2969E-03	8.1367E-03	1.9608E-02
9	9.6727E-02	9.6661E-06	9.6069E-05	9.0521E-04	5.7383E-03	1.4107E-02
10	1.0491E-01	1.0460E-05	1.0340E-04	9.7248E-04	6.0975E-03	1.4715E-02
11	2.3009E-01	2.3072E-05	2.3709E-04	2.2194E-03	1.3542E-02	3.1275E-02
12	2.3111E-01	2.3094E-05	2.2924E-04	2.1352E-03	1.2669E-02	2.8047E-02
13	2.2314E-01	2.2297E-05	2.2121E-04	2.0501E-03	1.1836E-02	2.5207E-02
14	2.5403E-01	2.5406E-05	2.5253E-04	2.3287E-03	1.3394E-02	2.6928E-02
15	2.1511E-01	2.1493E-05	2.1301E-04	1.9553E-03	1.0742E-02	2.1454E-02
16	2.2315E-01	2.2305E-05	2.2095E-04	2.0208E-03	1.0899E-02	2.1293E-02
17	2.6763E-01	2.8741E-05	2.8460E-04	2.5930E-03	1.3727E-02	2.6252E-02
18	2.2316E-01	2.2335E-05	2.2108E-04	2.0068E-03	1.0459E-02	1.9581E-02
19	1.6233E-01	1.8230E-05	1.8044E-04	1.6327E-03	8.3675E-03	1.5448E-02
20	2.5748E-01	2.5726E-05	2.5447E-04	2.2958E-03	1.1606E-02	2.1124E-02
21	2.5669E-01	2.5643E-05	2.5357E-04	2.2812E-03	1.1366E-02	2.0459E-02
22	2.5156E-01	2.5146E-05	2.4861E-04	2.2315E-03	1.1023E-02	1.9600E-02
23	2.5594E-01	2.5576E-05	2.5277E-04	2.2629E-03	1.1053E-02	1.9446E-02
24	2.5843E-01	2.5830E-05	2.5526E-04	2.2781E-03	1.0987E-02	1.9102E-02
25	2.5699E-01	2.5681E-05	2.5381E-04	2.2545E-03	1.0864E-02	1.8279E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 238 **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	10000.0	1000.0	100.0	10.0	0.0
1	0.1018E 01	1.0000	1.0000	1.0000	1.0000	1.0000
2	0.9533E 00	1.0000	1.0000	1.0001	1.0007	1.0016
3	0.6345E 00	1.0000	1.0000	1.0002	1.0012	1.0028
4	0.5679E 00	1.0000	1.0000	1.0000	1.0000	1.0001
5	0.5600E 00	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.5587E 00	1.0000	1.0000	1.0000	1.0000	1.0000
7	0.5539E 00	1.0000	1.0000	1.0000	0.9999	0.9998
8	0.3682E 00	1.0000	1.0000	0.9997	0.9981	0.9955
9	0.5898E-01	1.0000	1.0000	1.0000	0.9998	0.9995
10	0.1418E-01	1.0000	1.0000	1.0005	1.0032	1.0076
11	0.2549E-02	1.0000	1.0000	1.0004	1.0024	1.0055
12	0.7366E-03	1.0000	1.0002	1.0018	1.0106	1.0239
13	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
14	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
15	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
16	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
17	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
18	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
19	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
20	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
21	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
22	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
23	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
24	0.0	1.0000	1.0000	1.0000	1.0000	1.0000
25	0.0	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 238 **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	10000.0	1000.0	100.0	10.0	0.0
1	0.7921E-02	1.0000	1.0000	0.9999	0.9995	0.9989
2	0.9520E-02	1.0000	1.0000	0.9999	0.9992	0.9980
3	0.1265E-01	1.0000	1.0000	0.9999	0.9992	0.9851
4	0.1477E-01	1.0000	1.0000	1.0000	0.9999	0.9653
5	0.1593E-01	1.0000	1.0000	1.0000	1.0000	1.0001
6	0.2441E-01	1.0000	1.0000	1.0001	1.0006	1.0012
7	0.3990E-01	1.0000	1.0000	1.0001	1.0007	1.0016
8	0.6518E-01	1.0000	1.0000	1.0002	1.0011	1.0026
9	0.9794E-01	1.0000	1.0000	1.0000	1.0000	0.9999
10	0.1620E 00	1.0000	1.0000	1.0000	0.9999	0.9997
11	0.1552E 00	1.0000	1.0000	1.0001	1.0005	1.0011
12	0.1333E 00	1.0000	1.0000	1.0000	1.0002	1.0005
13	0.1268E 00	1.0000	1.0000	1.0000	1.0001	1.0001
14	0.1250E 00	1.0000	1.0000	1.0000	0.9997	0.9995
15	0.1381E 00	1.0000	1.0000	0.9999	0.9997	0.9995
16	0.1548E 00	1.0000	1.0000	0.9999	0.9997	0.9996
17	0.1791E 00	1.0000	1.0000	0.9999	0.9996	0.9994
18	0.2116E 00	1.0000	1.0000	0.9998	0.9992	0.9992
19	0.2424E 00	1.0000	1.0000	0.9999	0.9995	0.9995
20	0.2814E 00	1.0000	1.0000	0.9999	0.9997	0.9995
21	0.3359E 00	1.0000	1.0000	0.9999	0.9997	0.9996
22	0.3933E 00	1.0000	1.0000	1.0000	0.9998	0.9997
23	0.4426E 00	1.0000	1.0000	1.0000	0.9998	0.9997
24	0.4865E 00	1.0000	1.0000	1.0000	0.9998	0.9997
25	0.5255E 00	1.0000	1.0000	0.9999	0.9997	0.9997

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 238 **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	10000.0	1000.0	100.0	10.0	0.0
1	0.3098E 01	1.0000	1.0000	1.0000	0.9998	0.9996
2	0.3630E 01	1.0000	1.0000	0.9999	0.9993	0.9983
3	0.4263E 01	1.0000	1.0000	0.9999	0.9994	0.9986
4	0.4655E 01	1.0000	1.0000	1.0000	1.0000	0.9999
5	0.4721E 01	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.4554E 01	1.0000	1.0000	1.0000	0.9999	0.9999
7	0.4320E 01	1.0000	1.0000	1.0000	0.9999	0.9998
8	0.4066E 01	1.0000	1.0000	1.0000	0.9999	0.9998
9	0.4166E 01	1.0000	1.0000	1.0000	1.0000	1.0000
10	0.4559E 01	1.0000	1.0000	1.0000	0.9997	0.9992
11	0.5425E 01	1.0000	1.0000	0.9999	0.9996	0.9990
12	0.6232E 01	1.0000	1.0000	0.9999	0.9996	0.9992
13	0.7044E 01	1.0000	1.0000	1.0000	0.9997	0.9994
14	0.7824E 01	1.0000	1.0000	1.0000	0.9997	0.9994
15	0.8505E 01	1.0000	1.0000	1.0000	0.9998	0.9997
16	0.9073E 01	1.0000	1.0000	1.0000	0.9999	0.9998
17	0.9717E 01	1.0000	1.0000	1.0000	0.9998	0.9997
18	0.1037E 02	1.0000	1.0000	1.0000	0.9997	0.9997
19	0.1087E 02	1.0000	1.0000	1.0000	0.9998	0.9998
20	0.1141E 02	1.0000	1.0000	1.0000	0.9999	0.9999
21	0.1208E 02	1.0000	1.0000	1.0000	0.9999	0.9999
22	0.1244E 02	1.0000	1.0000	1.0000	1.0000	1.0000
23	0.1275E 02	1.0000	1.0000	1.0000	1.0000	0.9999
24	0.1304E 02	1.0000	1.0000	1.0000	0.9999	0.9999
25	0.1355E 02	1.0000	1.0000	1.0000	0.9999	0.9998

TABLE OF SELF SHIELDING FACTOR

ELEMENT** URANIUM 238 **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **				
(I)	INFI	10000.0	1000.0	100.0	10.0	0.0
1	0.6116E 01	1.0000	1.0000	0.9999	0.9998	0.9995
2	0.6696E 01	1.0000	1.0000	0.9999	0.9992	0.9980
3	0.7366E 01	1.0000	1.0000	0.9999	0.9993	0.9983
4	0.7785E 01	1.0000	1.0000	1.0000	0.9999	0.9999
5	0.7674E 01	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.7726E 01	1.0000	1.0000	1.0000	0.9999	0.9999
7	0.7500E 01	1.0000	1.0000	1.0000	0.9999	0.9998
8	0.7097E 01	1.0000	1.0000	0.9999	0.9997	0.9992
9	0.6856E 01	1.0000	1.0000	1.0000	1.0000	1.0000
10	0.7079E 01	1.0000	1.0000	1.0000	0.9997	0.9993
11	0.7642E 01	1.0000	0.9999	0.9998	0.9995	0.9990
12	0.8244E 01	1.0000	1.0000	0.9999	0.9995	0.9990
13	0.8856E 01	1.0000	1.0000	0.9999	0.9997	0.9993
14	0.9470E 01	1.0000	1.0000	0.9999	0.9996	0.9992
15	0.1003E 02	1.0000	1.0000	1.0000	0.9998	0.9995
16	0.1049E 02	1.0000	1.0000	1.0000	0.9999	0.9997
17	0.1096E 02	1.0000	1.0000	1.0000	0.9998	0.9997
18	0.1142E 02	1.0000	1.0000	1.0000	0.9998	0.9996
19	0.1182E 02	1.0000	1.0000	1.0000	0.9999	0.9998
20	0.1219E 02	1.0000	1.0000	1.0000	0.9999	0.9999
21	0.1255E 02	1.0000	1.0000	1.0000	0.9999	0.9999
22	0.1284E 02	1.0000	1.0000	1.0000	0.9999	0.9999
23	0.1317E 02	1.0000	1.0000	1.0000	0.9999	0.9998
24	0.1354E 02	1.0000	1.0000	1.0000	0.9999	0.9999
25	0.1407E 02	1.0000	1.0000	0.9999	0.9998	0.9996

A-III-13. PLUTONIUM-239

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** PLUTONIUM 239 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	6.17918E 00	2.38942E 00	4.05611E 00	1.03237E-03	6.91886E-01	3.09684E 00	8.60835E-01	3.92217E-02	3.79372E-03
2	6.93033E 00	2.14396E 00	3.79608E 00	1.13989E-03	1.06834E 00	3.71689E 00	8.51286E-01	1.58951E-01	1.34338E-02
3	7.74392E 00	1.84830E 00	3.58930E 00	1.41700E-03	1.41743E 00	4.47677E 00	8.37189E-01	1.67891E-01	3.22017E-02
4	8.07642E 00	1.86680E 00	3.42581E 00	1.78990E-03	1.43530E 00	4.77253E 00	8.23875E-01	1.60533E-01	5.86035E-02
5	8.16788E 00	1.96390E 00	3.30189E 00	2.57960E-03	1.33390E 00	4.86750E 00	7.94339E-01	1.50684E-01	9.05432E-02
6	8.00663E 00	1.97870E 00	3.21568E 00	4.00920E-03	1.24940E 00	4.77452E 00	7.31625E-01	1.46840E-01	9.36561E-02
7	7.69111E 00	1.99933E 00	3.14065E 00	7.37570E-03	1.16140E 00	4.52300E 00	5.96644E-01	1.27701E-01	1.29385E-01
8	7.33237E 00	1.94060E 00	3.07451E 00	1.60310E-02	1.12350E 00	4.25224E 00	5.22285E-01	1.06446E-01	1.39091E-01
9	7.21432E 00	1.81490E 00	3.02722E 00	3.11290E-02	1.10350E 00	4.26479E 00	5.06830E-01	1.18275E-01	9.67187E-02
10	7.47026E 00	1.70580E 00	2.98860E 00	5.25540E-02	1.08340E 00	4.62851E 00	4.82780E-01	1.05086E-01	1.04112E-01
11	7.98738E 00	1.61390E 00	2.96105E 00	7.70790E-02	1.07090E 00	5.22550E 00	4.28882E-01	1.65044E-01	2.39064E-01
12	8.56872E 00	1.62120F 00	2.94033E 00	1.02950E-01	1.04000E 00	5.80457E 00	3.73603E-01	1.92475E-01	2.31277E-01
13	9.08603E 00	1.62630E 00	2.93008E 00	1.29760E-01	9.52530E-01	6.37744E 00	3.18821E-01	1.77120E-01	2.23321E-01
14	9.65842E 00	1.60290F 00	2.92768E 00	1.54940E-01	8.31360E-01	7.06922E 00	2.61963E-01	1.87689E-01	2.55014E-01
15	1.02672E 01	1.61000E 00	2.92541E 00	1.78760E-01	7.37610E-01	7.74085E 00	2.06936E-01	2.76652E-01	2.15706E-01
16	1.08333E 01	1.60000F 00	2.92325E 00	1.94610E-01	6.67830E-01	8.37087E 00	1.71570E-01	3.19878E-01	2.25000E-01
17	1.13718E 01	1.62000E 00	2.92065E 00	2.12440E-01	5.92330E-01	8.94704E 00	1.46259E-01	2.47243E-01	2.88690E-01
18	1.18614E 01	1.68000F 00	2.91822F 00	2.31550E-01	5.2555UE-01	9.42432E 00	1.20298E-01	3.21538E-01	2.24166E-01
19	1.21760E 01	1.73000E 00	2.91627E 00	2.45080E-01	4.81890E-01	9.71905E 00	9.90956E-02	4.40212E-01	1.83333E-01
20	1.24452E 01	1.72000F 00	2.91403F 00	2.50170E-01	4.34580E-01	1.00404E 01	7.56849E-02	3.16807E-01	2.57761E-01
21	1.28305E 01	1.71000F 00	2.91151E 00	2.59750E-01	3.92270E-01	1.04685E 01	6.28684E-02	3.29863E-01	2.57069E-01
22	1.33257E 01	1.72000F 00	2.90903F 00	3.03280E-01	3.63130E-01	1.09393E 01	5.90796E-02	3.51964E-01	2.51784E-01
23	1.38843E 01	1.79000F 00	2.90656E 00	4.22050E-01	3.59190E-01	1.13131E 01	5.53209E-02	4.13743E-01	2.56471E-01
24	1.42621E 01	1.78000F 00	2.90402F 00	5.61020E-01	3.47910E-01	1.15732E 01	5.15320E-02	3.56696E-01	2.58707E-01
25	1.40061E 01	1.75820E 00	2.90150F 00	5.34800E-01	3.31470E-01	1.13816E 01	4.77654E-02	4.02308E-01	2.57154E-01
26	1.40904E 01	1.82910E 00	2.89898E 00	7.06700E-01	3.07620E-01	1.12470E 01	4.40020E-02	3.50455E-01	2.58679E-01
27	1.41869E 01	1.90170E 00	2.89650E 00	8.32000E-01	2.69310E-01	1.11839E 01	4.02732E-02	3.95799E-01	2.52202E-01
28	1.48697E 01	2.00730E 00	2.89403E 00	9.87900E-01	2.07760E-01	1.16676E 01	3.66597E-02	4.03291E-01	2.54660E-01
29					5.45320E-02				

TABLE OF ELASTIC MATRICES

ELEMENT** PLUTONIUM 239 **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I&K (K) 0	1
1	3.0576E 00	3.9222E-02
2	3.5579E 00	1.5895E-01
3	4.3089E 00	1.6789E-01
4	4.6120E 00	1.6053E-01
5	4.7168E 00	1.5068E-01
6	4.6277E 00	1.4684E-01
7	4.3953E 00	1.2770E-01
8	4.1458E 00	1.0645E-01
9	4.1465E 00	1.1827E-01
10	4.5234E 00	1.0509E-01
11	5.0605E 00	1.6534E-01
12	5.6121E 00	1.9247E-01
13	6.2003E 00	1.7712E-01
14	6.6815E 00	1.8769E-01
15	7.4642E 00	2.7665E-01
16	8.0510E 00	3.1988E-01
17	8.6998E 00	2.4724E-01
18	9.1028E 00	3.2154E-01
19	9.2788E 00	4.4021E-01
20	9.7236E 00	3.1881E-01
21	1.0139E 01	3.2986E-01
22	1.0587E 01	3.5196E-01
23	1.0899E 01	4.1374E-01
24	1.1216E 01	3.5670E-01
25	1.0979E 01	4.0231E-01
26	1.0897E 01	3.5045E-01
27	1.0788E 01	3.9580E-01
28	1.1204E 01	4.0329E-01

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 239 **

GROUP RANGE (I= 1**12 , J= 1**27)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
1	3.2755E-03	1.3468E-02	1.0941E-02	1.8201E-01	4.9176E-01	5.5949E-01	4.1767E-03	5.7419E-03	5.3702E-03	6.9341E-03
	4.5337E-03	3.6018E-03	2.7192E-03	2.2682E-03	1.3601E-03	9.9990E-04	8.2980E-04	4.1025E-04	2.2501E-04	2.0582E-04
	1.2270E-04	7.2299E-05	4.4298E-05	2.6753E-05	1.5883E-05	9.5470E-06	0.0			
2	1.0290E-03	1.3177E-03	2.0853E-03	4.4281E-03	6.3204E-02	3.9142E-01	3.4020E-01	5.6483E-01	2.3166E-01	4.2267E-02
	3.4929E-02	2.7181E-02	2.3363E-02	1.4245E-02	1.0640E-02	8.9978E-03	4.4600E-03	2.5206E-03	2.3072E-03	1.3754E-03
	8.1048E-04	4.9688E-04	2.9991E-04	1.7805E-04	1.0702E-04	6.2571E-05	3.8070E-05			
3	0.0	2.4854E-03	8.6942E-03	2.0932E-02	6.4153E-02	1.3311E-01	1.5059E-01	2.5139E-01	2.3689E-01	1.7651E-01
	1.3782E-01	1.1033E-01	6.4670E-02	4.7477E-02	4.0844E-02	2.0109E-02	1.1514E-02	1.0651E-02	6.4008E-03	3.7277E-03
	2.3073E-03	1.3794E-03	8.1692E-04	4.9224E-04	2.8779E-04	1.7510E-04	0.0			
4	5.8352E-04	6.4230E-03	1.3333E-02	4.6509E-02	1.1678E-01	1.4394E-01	2.3804E-01	1.8342E-01	1.6263E-01	1.3435E-01
	1.2191E-01	7.7392E-02	5.9250E-02	5.2120E-02	2.6167E-02	1.5012E-02	1.4314E-02	8.5586E-03	5.0433E-03	3.0901E-03
	1.8662E-03	1.1080E-03	6.6596E-04	3.8936E-04	2.3690E-04	1.4357E-04	0.0			
5	2.2609E-03	7.3688E-03	2.8177E-02	8.2659E-02	1.1225E-01	2.0602E-01	1.7245E-01	1.5981E-01	1.3706E-01	1.2848E-01
	8.4139E-02	6.5464E-02	5.8558E-02	3.0156E-02	1.7250E-02	1.6702E-02	1.0172E-02	5.9937E-03	3.6724E-03	2.2179E-03
	1.3167E-03	7.9148E-04	4.6273E-04	2.8154E-04	1.7062E-04	0.0	0.0			
6	2.8087E-03	1.5737E-02	5.6365E-02	8.5858E-02	1.7366E-01	1.5898E-01	1.5494E-01	1.3778E-01	1.3370E-01	8.9991E-02
	7.1781E-02	6.5088E-02	3.4218E-02	1.9777E-02	1.9140E-02	1.1985E-02	7.0726E-03	4.3335E-03	2.6172E-03	1.5537E-03
	9.3394E-04	5.4604E-04	3.3222E-04	2.0134E-04	0.0	0.0	0.0			
7	1.5446E-02	1.2148E-01	9.4394E-02	1.4704E-01	1.2874E-01	1.2750E-01	1.1521E-01	1.1428E-01	7.8569E-02	6.4016E-02
	5.8674E-02	3.1315E-02	1.8469E-02	1.7839E-02	1.1348E-02	6.7843E-03	4.1569E-03	2.5105E-03	1.4904E-03	8.9587E-04
	5.2378E-04	3.1868E-04	1.9318E-04	0.0	0.0	0.0	0.0			
8	2.8367E-01	5.5322E-01	2.3383E-01	9.6086E-02	5.8063E-02	3.5573E-02	2.5257E-02	1.3281E-02	8.8932E-03	6.9169E-03
	3.2016E-03	1.7392E-03	1.5907E-03	9.4831E-04	5.5880E-04	3.4239E-04	2.0678E-04	1.2276E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
9	2.1853E-01	5.1129E-01	1.5191E-01	8.2177E-02	5.0347E-02	3.5746E-02	1.8796E-02	1.2587E-02	9.7895E-03	4.5311E-03
	2.4614E-03	2.2514E-03	1.3422E-03	7.9088E-04	4.8459E-04	2.9266E-04	1.7374E-04	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
10	6.1654E-01	2.6903E-01	1.4357E-01	2.8503E-02	1.0656E-02	5.3572E-03	3.5874E-03	2.7902E-03	1.2915E-03	7.0153E-04
	6.4170E-04	3.8254E-04	2.2542E-04	1.3612E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
11	6.1950E-01	2.1020E-01	1.2911E-01	8.6983E-02	2.0919E-02	2.8682E-03	6.8127E-04	3.1533E-04	1.7129E-04	1.5668E-04
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
12	5.2680E-01	2.8649E-01	5.2765E-02	7.7345E-02	6.8045E-02	2.1892E-02	4.5767E-03	2.0120E-03	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

CONTINUED

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 239 **

GROUP RANGE (I= 13**24 , J= 1**27)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
13	4.9192E-01	2.9513E-01	9.9695E-03	2.0684E-02	4.4939E-02	6.0442E-02	5.6936E-03	1.7208E-02	5.0027E-03	7.4702E-04
	3.7558E-04	2.7268E-04	1.2464E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
14	4.4388E-01	2.9206E-01	2.9479E-02	7.0669E-03	5.3618E-04	8.5302E-03	1.9284E-02	1.4608E-02	8.1376E-03	4.4589E-03
	2.4398E-03	7.7335E-04	1.0358E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
15	3.6982E-01	3.2652E-01	9.4257E-02	3.1704E-03	1.3219E-03	1.5463E-03	0.0	0.0	0.0	0.0
	2.1307E-04	4.0951E-04	2.6389E-04	8.7151E-05	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
16	2.0000E-01	3.3393E-01	1.3179E-01	0.0	3.1640E-04	9.2355E-04	5.8673E-04	2.0743E-04	8.4201E-05	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
17	2.9672E-01	1.6389E-01	6.8286E-02	5.8849E-02	4.5794E-03	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
18	1.9167E-01	2.5177E-01	6.2106E-02	4.7774E-02	1.0249E-02	1.9766E-03	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
19	1.8152E-01	2.1382E-01	1.9074E-02	3.4267E-02	2.0412E-02	8.8940E-03	3.9046E-03	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
20	1.8383E-01	2.0068E-01	0.0	1.2136E-02	1.2787E-02	1.1302E-02	9.6614E-03	1.4655E-03	8.7639E-04	2.8583E-04
	2.7074E-04	1.3048E-04	9.9439E-05	0.0	5.8455E-05	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
21	2.1848E-01	1.5397E-01	0.0	0.0	0.0	3.0862E-03	5.2255E-03	4.3310E-03	3.9052E-03	0.0
	2.9472E-03	5.1945E-04	2.0754E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
22	1.0034E-01	2.5662E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	7.0239E-05	6.3835E-05	3.6516E-05	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
23	6.4755E-02	2.8239E-01	1.2000E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
24	1.4329E-02	2.3201E-01	1.0157E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

CONTINUED

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 239 **

GROUP RANGE (I= 25**29 , J= 1**27)

GROUP (I)	J=I&K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
25	0.0	1.5945E-01	1.7202E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
26	0.0	2.8863E-02	1.7603E-01	1.0273E-01	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
27	0.0	0.0	5.0131E-02	1.1467E-01	9.8359E-02	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
28	0.0	0.0	0.0	1.4021E-02	7.5428E-02	6.6312E-02	3.8928E-02	1.2270E-02	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
29	0.0	0.0	0.0	0.0	0.0	0.0	1.5734E-02	2.3543E-02	1.1397E-02	5.0869E-03
	6.5185E-04	1.2098E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** PLUTONIUM 239 **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	**SIGMA 0 **				
	INFI	1000.0	100.0	10.0	0.0
1	3.7937E-03	3.7704E-03	3.5729E-03	2.3343E-04	6.1167E-04
2	1.3434E-02	1.3341E-03	1.2562E-04	7.9109E-04	1.9350E-03
3	3.2202E-02	3.1958E-03	2.9917E-04	1.8211E-03	4.2075E-03
4	5.8603E-02	5.8142E-03	5.4294E-04	3.2624E-03	7.3729E-03
5	9.0543E-02	8.9823E-03	8.3819E-04	5.0184E-03	1.1274E-02
6	9.3658E-02	9.2917E-03	8.6760E-04	5.2166E-03	1.1779E-02
7	1.2933E-01	1.2840E-02	1.2014E-03	7.3111E-03	1.6816E-02
8	1.3909E-01	1.3806E-02	1.2959E-03	8.0239E-03	1.8963E-02
9	9.6719E-02	9.6025E-03	9.0205E-04	5.6166E-03	1.3394E-02
10	1.0411E-01	1.0334E-02	9.6866E-04	5.9574E-03	1.3926E-02
11	2.3900E-01	2.3717E-02	2.2138E-03	1.3285E-02	2.9928E-02
12	2.3128E-01	2.2933E-02	2.1315E-03	1.2495E-02	2.7201E-02
13	2.2332E-01	2.2133E-02	2.0488E-03	1.1747E-02	2.4804E-02
14	2.5501E-01	2.5259E-02	2.3269E-03	1.3013E-02	2.6589E-02
15	2.1571E-01	2.1353E-02	1.9577E-03	1.0671E-02	2.1167E-02
16	2.2500E-01	2.2261E-02	2.0316E-03	1.0790E-02	2.0854E-02
17	2.8869E-01	2.8548E-02	2.5949E-03	1.3554E-02	2.5613E-02
18	2.2417E-01	2.2156E-02	2.0076E-03	1.0317E-02	1.9171E-02
19	1.8333E-01	1.8118E-02	1.6383E-03	8.3369E-03	1.5343E-02
20	2.5773E-01	2.5466E-02	2.2979E-03	1.1616E-02	2.1161E-02
21	2.5707E-01	2.5388E-02	2.2839E-03	1.1387E-02	2.0459E-02
22	2.5178E-01	2.4855E-02	2.2279E-03	1.0934E-02	1.9339E-02
23	2.5047E-01	2.4807E-02	2.2608E-03	1.0925E-02	1.9055E-02
24	2.5071E-01	2.5520E-02	2.2743E-03	1.0885E-02	1.8801E-02
25	2.5715E-01	2.5381E-02	2.2562E-03	1.0721E-02	1.8594E-02
26	2.5663E-01	2.5556E-02	2.2674E-03	1.0748E-02	1.8395E-02
27	2.5229E-01	2.4666E-02	2.2097E-03	1.0448E-02	1.7872E-02
28	2.5460E-01	2.5082E-02	2.2086E-03	1.0067E-02	1.6658E-02

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 239 **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
1	0.2389E 01	1.0000	1.0000	1.0000	1.0002
2	0.2144E 01	1.0000	1.0001	1.0009	1.0029
3	0.1848E 01	1.0000	1.0000	1.0003	1.0011
4	0.1867E 01	1.0000	1.0000	1.0000	0.9997
5	0.1964E 01	1.0000	1.0000	1.0000	0.9997
6	0.1979E 01	1.0000	1.0000	1.0000	0.9999
7	0.1999E 01	1.0000	1.0000	1.0000	1.0000
8	0.1941E 01	1.0000	1.0000	0.9999	1.0000
9	0.1815E 01	1.0000	1.0000	1.0000	1.0001
10	0.1706E 01	1.0000	1.0000	1.0001	1.0004
11	0.1614E 01	1.0000	1.0000	1.0001	1.0004
12	0.1621E 01	1.0000	1.0000	1.0000	1.0001
13	0.1626E 01	1.0000	1.0000	1.0000	1.0000
14	0.1603E 01	1.0000	1.0000	1.0000	1.0000
15	0.1610E 01	1.0000	1.0000	1.0000	1.0001
16	0.1600E 01	1.0000	1.0000	1.0000	1.0002
17	0.1620F 01	1.0000	1.0000	1.0000	1.0001
18	0.1680F 01	1.0000	1.0000	1.0000	1.0001
19	0.1730E 01	1.0000	1.0000	1.0000	1.0003
20	0.1720F 01	1.0000	1.0000	1.0000	1.0001
21	0.1710E 01	1.0000	1.0000	1.0000	1.0001
22	0.1720E 01	1.0000	1.0000	1.0000	1.0001
23	0.1790E 01	1.0000	1.0000	1.0000	1.0003
24	0.1780E 01	1.0000	1.0000	1.0000	1.0001
25	0.1758E 01	1.0000	1.0000	0.9999	0.9994
26	0.1829E 01	1.0000	0.9999	0.9993	0.9974
27	0.1902E 01	1.0000	0.9985	0.9926	0.9903
28	0.2007E 01	1.0000	0.9995	0.9976	0.9965

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 239 **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 1000.0	100.0	10.0	0.0
1	0.1032E-02	1.0000	1.0000	0.9999	0.9994
2	0.1140E-02	1.0000	0.9999	0.9994	0.9979
3	0.1417E-02	1.0000	0.9999	0.9996	0.9980
4	0.1790F-02	1.0000	1.0000	0.9997	0.9977
5	0.2580E-02	1.0000	1.0000	1.0000	0.9965
6	0.4009E-02	1.0000	1.0000	1.0000	1.0000
7	0.7376E-02	1.0000	1.0000	1.0000	1.0000
8	0.1603E-01	1.0000	1.0002	1.0012	1.0028
9	0.3113E-01	1.0000	1.0000	0.9998	0.9978
10	0.5255F-01	1.0000	0.9998	0.9988	0.9958
11	0.7708E-01	1.0000	0.9999	0.9993	0.9973
12	0.1029E 00	1.0000	0.9999	0.9994	0.9976
13	0.1298E 00	1.0000	0.9999	0.9994	0.9979
14	0.1549F 00	1.0000	0.9999	0.9995	0.9987
15	0.1788E 00	1.0000	0.9999	0.9996	0.9980
16	0.1946F 00	1.0000	0.9999	0.9995	0.9960
17	0.2174E 00	1.0000	1.0000	0.9998	0.9989
18	0.2316F 00	1.0000	1.0000	0.9999	0.9991
19	0.2451E 00	1.0000	1.0000	1.0000	0.9995
20	0.2502F 00	1.0000	1.0000	1.0000	0.9998
21	0.2598E 00	1.0000	1.0000	0.9999	0.9995
22	0.3033E 00	1.0000	0.9999	0.9996	0.9982
23	0.4220E 00	1.0000	0.9999	0.9995	0.9955
24	0.5610E 00	1.0000	0.9999	0.9998	0.9984
25	0.5348F 00	1.0000	1.0000	0.9997	0.9980
26	0.7067E 00	1.0000	0.9999	0.9993	0.9974
27	0.8320E 00	1.0000	0.9982	0.9912	0.9879
28	0.9870E 00	1.0000	0.9996	0.9980	0.9971

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 239 **

REACTION** E ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS S)	** F TABLES ** ** SIGMA O **			
(I)	INFI	1000.0	100.0	10.0	0.0
1	0.3097E 01	1.0000	1.0000	0.9997	0.9986
2	0.3717E 01	1.0000	0.9998	0.9988	0.9959
3	0.4477E 01	1.0000	1.0000	0.9998	0.9958
4	0.5773E 01	1.0000	1.0000	1.0000	0.9997
5	0.4867E 01	1.0000	1.0000	1.0000	1.0000
6	0.4775E 01	1.0000	1.0000	1.0000	1.0000
7	0.4523E 01	1.0000	1.0000	1.0000	1.0000
8	0.4252E 01	1.0000	1.0000	1.0000	1.0000
9	0.4265E 01	1.0000	1.0000	1.0000	0.9999
10	0.4629E 01	1.0000	1.0000	0.9997	0.9992
11	0.5225E 01	1.0000	1.0000	0.9997	0.9990
12	0.5805E 01	1.0000	1.0000	0.9997	0.9991
13	0.6377E 01	1.0000	1.0000	0.9997	0.9991
14	0.7069E 01	1.0000	0.9999	0.9997	0.9992
15	0.7741E 01	1.0000	0.9999	0.9996	0.9981
16	0.8371E 01	1.0000	0.9999	0.9996	0.9965
17	0.8947E 01	1.0000	1.0000	0.9998	0.9987
18	0.9424E 01	1.0000	1.0000	0.9999	0.9990
19	0.9719E 01	1.0000	1.0000	0.9999	0.9990
20	0.1004E 02	1.0000	1.0000	0.9999	0.9997
21	0.1047E 02	1.0000	1.0000	0.9999	0.9996
22	0.1094E 02	1.0000	1.0000	0.9999	0.9997
23	0.1131E 02	1.0000	1.0000	1.0000	0.9997
24	0.1157E 02	1.0000	1.0000	1.0000	0.9999
25	0.1138E 02	1.0000	1.0000	1.0000	1.0001
26	0.1125E 02	1.0000	1.0000	1.0000	0.9992
27	0.1118E 02	0.9999	0.9990	0.9957	0.9955
28	0.1167E 02	1.0000	0.9998	0.9991	0.9990

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 239 **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS S)	** F TABLES ** ** SIGMA O **			
(I)	INFI	1000.0	100.0	10.0	0.0
1	6.17918E 00	1.0000	0.9997	0.9993	0.9981
2	6.93033E 00	1.0000	0.9999	0.9986	0.9958
3	7.74392E 00	1.0000	1.0000	0.9998	0.9991
4	8.07642E 00	1.0000	0.9998	0.9998	0.9996
5	8.16788E 00	1.0000	1.0000	1.0000	1.0000
6	8.00663E 00	1.0000	1.0000	0.9999	0.9999
7	7.69111E 00	0.9998	0.9998	0.9997	0.9996
8	7.33237E 00	0.9999	0.9999	0.9997	0.9997
9	7.21432E 00	1.0000	0.9998	0.9998	0.9998
10	7.47026E 00	1.0000	0.9999	0.9996	0.9992
11	7.98738E 00	1.0000	1.0000	0.9997	0.9992
12	8.56872E 00	1.0000	0.9999	0.9996	0.9991
13	9.08603E 00	1.0000	1.0000	0.9997	0.9992
14	9.65842E 00	1.0000	1.0000	0.9997	0.9992
15	1.02672E 01	1.0000	0.9999	0.9995	0.9984
16	1.08333E 01	1.0000	0.9999	0.9994	0.9974
17	1.13718E 01	1.0000	0.9999	0.9997	0.9989
18	1.18614E 01	1.0000	1.0000	0.9999	0.9992
19	1.21760E 01	1.0000	1.0000	0.9999	0.9993
20	1.24452E 01	1.0000	1.0000	1.0000	0.9998
21	1.28305E 01	1.0000	1.0000	0.9999	0.9996
22	1.33257E 01	1.0000	1.0000	0.9999	0.9996
23	1.38843E 01	1.0000	1.0000	0.9999	0.9996
24	1.42621E 01	1.0000	1.0000	1.0000	0.9999
25	1.40061E 01	1.0000	1.0000	1.0000	1.0000
26	1.40904E 01	1.0000	1.0000	1.0000	0.9986
27	1.41869E 01	1.0000	1.0000	0.9952	0.9897
28	1.48697E 01	1.0000	0.9996	0.9976	0.9971

A-III-14. PLUTONIUM-240

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILU ION

ELEMENT** PLUTONIUM 240 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	6.20519E 00	2.17936E 00	3.91515E 00	1.39307E-02	9.25541E-01	3.08636E 00	8.607 3E-01	3.86782E-02	3.77396E-03
2	6.87871E 00	1.97599E 00	3.72863E 00	1.78396E-02	1.23616E 00	3.64872E 00	8.507 4E-01	4.67997E-02	1.33865E-02
3	7.62051E 00	1.56240E 00	3.57816E 00	2.19044E-02	1.70919E 00	4.32702E 00	8.370 5E-01	4.23405E-02	3.21001E-02
4	7.88005E 00	1.51211E 00	3.44410E 00	2.57372E-02	1.76167E 00	4.58053E 00	8.237 9E-01	5.65496E-02	5.85175E-02
5	8.00630E 00	1.61080E 00	3.32497E 00	2.72849E-02	1.66163E 00	4.70659E 00	7.944 0E-01	4.52985E-02	9.04225E-02
6	7.93642E 00	1.65614E 00	3.23505E 00	4.27559E-02	1.59770E 00	4.63980E 00	7.296 1E-01	8.79245E-02	9.36501E-02
7	7.65739E 00	1.62039E 00	3.16111E 00	6.98747E-02	1.58273E 00	4.38439E 00	5.981 4E-01	1.13169E-01	1.29349E-01
8	7.33997E 00	1.62018E 00	3.09379E 00	1.12584E-01	1.38686E 00	4.22035E 00	5.223 9E-01	5.45607E-02	1.39099E-01
9	7.20649E 00	1.61517E 00	3.04613E 00	1.72494E-01	1.08188E 00	4.33695E 00	5.367 0E-01	7.49699E-02	9.67239E-02
10	7.40579E 00	1.41399E 00	3.01032E 00	2.82508E-01	8.57968E-01	4.85132E 00	4.823 1E-01	6.78685E-02	1.04128E-01
11	8.01920E 00	1.02249E 00	2.98583E 00	2.72963E-01	1.07041E 00	5.65333E 00	4.283 3E-01	1.52784E-01	2.38910E-01
12	8.64405E 00	7.46948E-01	2.96688E 00	2.32260E-01	1.22565E 00	6.43919E 00	3.730 6E-01	1.62724E-01	2.31128E-01
13	9.14947E 00	3.58523E-01	2.94867E 00	2.21525E-01	1.33655E 00	7.23287E 00	3.185 3E-01	2.04125E-01	2.23171E-01
14	9.72098E 00	2.19880E-01	2.93637E 00	2.21426E-01	1.28411E 00	7.99556E 00	2.616 4E-01	2.11805E-01	2.54936E-01
15	1.03268E 01	1.59594E-01	2.92993E 00	2.42512E-01	1.18123E 00	8.74347E 00	2.064 5E-01	2.98961E-01	2.15175E-01
16	1.09465E 01	1.53143E-01	2.92391E 00	2.71290E-01	1.07188E 00	9.45021E 00	1.711 6E-01	3.20264E-01	2.23259E-01
17	1.16545E 01	1.25956E-01	2.91685E 00	3.11389E-01	9.08379E-01	1.03088E 01	1.461 0E-01	2.71665E-01	2.87714E-01
18	1.20156E 01	1.05242E-01	2.90993E 00	3.66278E-01	6.88999E-01	1.08551E 01	1.202 4E-01	3.66086E-01	2.23176E-01
19	1.20408E 01	9.47003E-02	2.90443E 00	4.21726E-01	4.90887E-01	1.10335E 01	9.898 1E-02	4.63329E-01	1.82356E-01
20	1.21469E 01	1.33870E-01	2.90098E 00	4.89875E-01	2.50255E-01	1.12729E 01	7.558 7E-02	3.48616E-01	2.57503E-01
21	1.22541E 01	1.06925E-01	2.89902E 00	5.31957E-01	5.14654E-02	1.17638E 01	6.284 1E-02	3.72414E-01	2.56726E-01
22	1.27309E 01	9.96654E-02	2.89707E 00	3.52652E-01	5.87142E-03	1.22727E 01	5.906 3E-02	4.42829E-01	2.51593E-01
23	1.34072E 01	1.40871E-01	2.89532E 00	3.78128E-01	0.	1.28882E 01	5.528 2E-02	4.13332E-01	2.55998E-01
24	1.39288E 01	1.47981E-01	2.89493E 00	4.04646E-01	0.	1.33762E 01	5.146 2E-02	4.21018E-01	2.58653E-01
25	1.41966E 01	1.50111E-01	2.89487E 00	4.26199E-01	0.	1.36203E 01	4.768 1E-02	4.44356E-01	2.57174E-01

TABLE OF ELASTIC MATRICES

ELEMENT** PLUTONIUM 240 **

GROUP RANGE (I= 1**3 , J= 1** 2)

GROUP	J=I+K	
(I)	(K)	
	0	1
1	3.0477E 00	3.8678E-02
2	3.6019E 00	4.6800E-02
3	4.2847E 00	4.2340E-02
4	4.5240E 00	5.6550E-02
5	4.6613E 00	4.5298E-02
6	4.5519E 00	8.7924E-02
7	4.2712E 00	1.1317E-01
8	4.1658E 00	5.4561E-02
9	4.2620E 00	7.4970E-02
10	4.7835E 00	6.7868E-02
11	5.5005E 00	1.5278E-01
12	6.2765E 00	1.6272E-01
13	7.0287E 00	2.0412E-01
14	7.7838E 00	2.1180E-01
15	8.4445E 00	2.9896E-01
16	9.1299E 00	3.2026E-01
17	1.0037E 01	2.7166E-01
18	1.0489E 01	3.6609E-01
19	1.0570E 01	4.6333E-01
20	1.0924E 01	3.4862E-01
21	1.1391E 01	3.7241E-01
22	1.1830E 01	4.4283E-01
23	1.2475E 01	4.1333E-01
24	1.2955E 01	4.2102E-01
25	1.3176E 01	4.4436E-01

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 240 **

GROUP RANGE (I= 1**1 , J= 1**27)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
1	4.0367E-03	8.4233E-03	6.3472E-03	3.3977E-02	3.3173E-01	4.6223E-01	6.7167E-01	1.4711E-01	1.1984E-02	1.5168E-02
	1.0003E-02	8.1894E-03	6.2121E-03	5.2498E-03	3.1704E-03	2.3486E-03	1.9998E-03	9.9529E-04	5.6685E-04	5.3406E-04
	3.9218E-04	2.0130E-04	1.2337E-04	7.4508E-05	4.4234E-05	2.6588E-05	1.5545E-05			
2	0.	1.1521E-03	2.5394E-03	9.2960E-03	2.1756E-02	6.0002E-02	3.4808E-01	2.5611E-01	3.2654E-01	1.4206E-01
	1.1400E-01	8.6312E-02	7.0886E-02	3.6517E-02	2.9093E-02	2.3598E-02	1.1839E-02	6.8023E-03	6.5768E-03	3.9978E-03
	2.4548E-03	1.5157E-03	9.1540E-04	5.4346E-04	3.2666E-04	1.9099E-04	1.1620E-04			
3	7.3784E-04	3.6725E-03	9.9645E-03	2.7290E-02	8.3295E-02	1.7786E-01	1.9697E-01	2.8803E-01	2.0347E-01	1.7517E-01
	1.4358E-01	1.2698E-01	7.9411E-02	6.0329E-02	5.2584E-02	2.6696E-02	1.5327E-02	1.4741E-02	9.1187E-03	5.6082E-03
	3.5156E-03	2.1233E-03	1.2606E-03	7.5771E-04	4.4300E-04	2.6953E-04	0.			
4	6.1035E-04	5.1061E-03	1.1944E-02	4.6139E-02	1.2681E-01	1.6451E-01	2.8301E-01	2.2054E-01	2.0010E-01	1.7208E-01
	1.6094E-01	1.0434E-01	8.1386E-02	7.2679E-02	3.7590E-02	2.1317E-02	1.9928E-02	1.2520E-02	7.9282E-03	5.2045E-03
	3.1715E-03	1.8829E-03	1.1318E-03	6.6170E-04	4.0260E-04	2.4399E-04	0.			
5	1.7931E-03	5.9322E-03	2.5139E-02	8.4139E-02	1.2780E-01	2.4578E-01	2.0846E-01	1.9736E-01	1.7442E-01	1.7082E-01
	1.1426E-01	9.0922E-02	8.2727E-02	4.3468E-02	2.5412E-02	2.3794E-02	1.4707E-02	9.2660E-03	6.1445E-03	3.8518E-03
	2.2868E-03	1.3746E-03	8.0365E-04	4.8896E-04	2.9633E-04	1.7665F-04	0.			
6	2.2571E-03	1.3668E-02	5.5725E-02	9.7449E-02	2.0793E-01	1.9629E-01	1.9415E-01	1.7678E-01	1.7898E-01	1.2435E-01
	1.0118E-01	9.3782E-02	5.0096E-02	2.9712E-02	2.8588E-02	1.7475F-02	1.0885E-02	7.1849E-03	4.6441E-03	2.7747E-03
	1.6678E-03	9.7510E-04	5.9328E-04	3.5955E-04	2.1434E-04	0.	0.			
7	3.6219E-01	5.5799E-01	2.5363E-01	1.9276E-01	8.2210E-02	4.9678E-02	3.0436E-02	2.1609E-02	1.1363E-02	7.6089E-03
	5.9180E-03	2.7392E-03	1.4880E-03	1.3611F-03	8.1136E-04	4.7810E-04	2.9294E-04	1.7692E-04	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
8	5.3262E-01	3.3988E-01	2.4246E-01	1.0341E-01	6.2486E-02	3.8283E-02	2.7181E-02	1.4292E-02	9.5708E-03	7.4439E-03
	3.4455E-03	1.8716F-03	1.7120E-03	1.0206E-03	6.0138E-04	3.6847E-04	2.2254E-04	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
9	5.5215E-01	2.6771F-01	9.9597E-02	6.0184E-02	3.6873E-02	2.6180E-02	1.3766E-02	9.2181E-03	7.1697E-03	3.3185E-03
	1.8027E-03	1.6489E-03	9.8296E-04	5.7922E-04	3.5490E-04	2.1434E-04	1.2725E-04	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
10	6.3073E-01	1.2800E-01	3.6804E-02	2.2544E-02	1.6009E-02	8.4181E-03	5.6371E-03	4.3844E-03	2.0294E-03	1.1024E-03
	1.0083E-03	6.0110F-04	3.5421E-04	2.1703F-04	1.3107E-04	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
11	9.1945E-01	8.0649F-02	2.5390E-02	1.8027E-02	9.4789E-03	6.3475E-03	4.9369E-03	2.2851E-03	1.2413E-03	1.1354E-03
	6.7685E-04	3.9884F-04	2.4938E-04	1.4759E-04	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
12	1.1068E 00	1.1634F-01	1.0806E-03	5.6819E-04	3.8048E-04	2.9593E-04	1.3697E-04	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			

CONTINUED

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 240 **

GROUP RANGE (I= 13**2 , J= 1**27)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
13	1.1507E 00	1.8586F-01	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
14	1.1673E 00	1.1684E-01	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
15	9.1657E-01	2.6466E-01	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
16	7.9147E-01	2.8041F-01	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
17	8.1685E-01	9.1527E-02	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
18	6.3395E-01	5.5049E-02	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
19	4.3526E-01	5.5626F-02	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
20	2.4654E-01	3.7194F-03	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
21	5.0396E-02	1.0692E-03	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			
22	5.8714E-03	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.			

TABLE OF WEIGHTING FLUXES FOR EACH SIGMA 0

ELEMENT** PLUTONIUM 240 **

TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP		**SIGMA 0 **		
(I)	INFI	10000.0	1000.0	100.0
1	3.7740E-03	3.7716E-07	3.7507E-06	3.5534E-05
2	1.3386E-02	1.3377E-06	1.3295E-05	1.2524E-04
3	3.2100E-02	3.2076E-06	3.1857E-05	2.9827E-04
4	5.8517E-02	5.8472E-06	5.8060E-05	5.4243E-04
5	9.0422E-02	9.0350E-06	8.9704E-05	8.3719E-04
6	9.3650E-02	9.3576E-06	9.2913E-05	8.6763E-04
7	1.2935E-01	1.2925E-05	1.2837E-04	1.2015E-03
8	1.3910E-01	1.3900E-05	1.3809E-04	1.2959E-03
9	9.6724E-02	9.6654E-06	9.6032E-05	9.0221E-04
10	1.0413E-01	1.0405E-05	1.0336E-04	9.6954E-04
11	2.3891E-01	2.3872E-05	2.3704E-04	2.2145E-03
12	2.3113E-01	2.3093E-05	2.2919E-04	2.1408E-03
13	2.2317E-01	2.2297E-05	2.2116E-04	2.0459E-03
14	2.5494E-01	2.5469E-05	2.5249E-04	2.3245E-03
15	2.1517E-01	2.1495E-05	2.1298E-04	1.9509E-03
16	2.2326E-01	2.2302E-05	2.2085E-04	2.0132E-03
17	2.8771E-01	2.8738E-05	2.8441E-04	2.5779E-03
18	2.2318E-01	2.2291E-05	2.2053E-04	1.9930E-03
19	1.8236E-01	1.8214E-05	1.8019E-04	1.6280E-03
20	2.5750E-01	2.5719E-05	2.5443E-04	2.2975E-03
21	2.5673E-01	2.5641E-05	2.5356E-04	2.2827E-03
22	2.5159E-01	2.5147E-05	2.4836E-04	2.2260E-03
23	2.5600E-01	2.5565E-05	2.5253E-04	2.2510E-03
24	2.5865E-01	2.5828E-05	2.5501E-04	2.2634E-03
25	2.5717E-01	2.5680E-05	2.5348E-04	2.2447E-03

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 240 **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **		
(I)	INFI	10000.0	1000.0	100.0
1	0.2179E 01	1.0000	1.0000	1.0000
2	0.1976E 01	1.0000	1.0000	1.0000
3	0.1562E 01	1.0000	1.0000	1.0000
4	0.1512E 01	1.0000	1.0000	1.0000
5	0.1611E 01	1.0000	1.0000	1.0000
6	0.1656E 01	1.0000	1.0000	1.0000
7	0.1620E 01	1.0000	1.0000	1.0000
8	0.1620E 01	1.0000	1.0000	1.0000
9	0.1615E 01	1.0000	1.0000	1.0000
10	0.1414E 01	1.0000	1.0000	1.0000
11	0.1022E 01	1.0000	1.0000	1.0000
12	0.7469E 00	1.0000	1.0000	1.0000
13	0.3585E 00	1.0000	1.0000	1.0000
14	0.2199E 00	1.0000	1.0000	1.0000
15	0.1596E 00	1.0000	1.0000	1.0000
16	0.1531E 00	1.0000	1.0000	1.0000
17	0.1260E 00	1.0000	1.0000	1.0000
18	0.1052E 00	1.0000	1.0000	1.0000
19	0.9470E-01	1.0000	1.0000	1.0000
20	0.1339E 00	1.0000	1.0000	1.0000
21	0.1069E 00	1.0000	1.0000	1.0000
22	0.9967E-01	1.0000	1.0000	1.0000
23	0.1409E 00	1.0000	1.0000	1.0000
24	0.1480E 00	1.0000	1.0000	1.0000
25	0.1501E 00	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 240 **

REACTION** C ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **		
(I)	INFI	10000.0	1000.0	100.0
1	0.1393E-01	1.0000	1.0000	0.9999
2	0.1784E-01	1.0000	1.0000	0.9999
3	0.2190E-01	1.0000	1.0000	0.9999
4	0.2574E-01	1.0000	1.0000	1.0000
5	0.2728E-01	1.0000	1.0000	1.0000
6	0.4276E-01	1.0000	1.0000	1.0000
7	0.6987E-01	1.0000	1.0000	1.0000
8	0.1126E 00	1.0000	1.0000	1.0000
9	0.1725E 00	1.0000	1.0000	1.0000
10	0.2825E 00	1.0000	1.0000	1.0000
11	0.2730E 00	1.0000	1.0000	1.0000
12	0.2323E 00	1.0000	1.0000	1.0000
13	0.2215E 00	1.0000	1.0000	1.0000
14	0.2214E 00	1.0000	1.0000	1.0000
15	0.2425E 00	1.0000	1.0000	1.0000
16	0.2713E 00	1.0000	1.0000	0.9999
17	0.3114E 00	1.0000	1.0000	0.9999
18	0.3663E 00	1.0000	1.0000	1.0000
19	0.4217E 00	1.0000	1.0000	1.0000
20	0.4899E 00	1.0000	1.0000	1.0000
21	0.3320E 00	1.0000	1.0000	1.0000
22	0.3527E 00	1.0000	1.0000	1.0000
23	0.3781E 00	1.0000	1.0000	1.0000
24	0.4046E 00	1.0000	1.0000	1.0000
25	0.4262E 00	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 240 **

REACTION** F ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP	(CROSS C)	** F TABLES ** ** SIGMA 0 **		
(I)	INFI	10000.0	1000.0	100.0
1	0.3086E 01	1.0000	1.0000	1.0000
2	0.3649E 01	1.0000	1.0000	0.9998
3	0.4327E 01	1.0000	1.0000	1.0000
4	0.4581E 01	1.0000	1.0000	1.0000
5	0.4707E 01	1.0000	1.0000	1.0000
6	0.4640E 01	1.0000	1.0000	1.0000
7	0.4384E 01	1.0000	1.0000	1.0000
8	0.4220E 01	1.0000	1.0000	1.0000
9	0.4337E 01	1.0000	1.0000	1.0000
10	0.4851E 01	1.0000	1.0000	0.9999
11	0.5653E 01	1.0000	1.0000	0.9999
12	0.6439E 01	1.0000	1.0000	0.9999
13	0.7233E 01	1.0000	1.0000	1.0000
14	0.7996E 01	1.0000	1.0000	1.0000
15	0.8743E 01	1.0000	1.0000	1.0000
16	0.9450E 01	1.0000	1.0000	1.0000
17	0.1031E 02	1.0000	1.0000	1.0000
18	0.1086E 02	1.0000	1.0000	1.0000
19	0.1103E 02	1.0000	1.0000	1.0000
20	0.1127E 02	1.0000	1.0000	1.0000
21	0.1176E 02	1.0000	1.0000	1.0000
22	0.1227E 02	1.0000	1.0000	1.0000
23	0.1289E 02	1.0000	1.0000	1.0000
24	0.1338E 02	1.0000	1.0000	1.0000
25	0.1367E 02	1.0000	1.0000	1.0000

TABLE OF SELF SHIELDING FACTOR

ELEMENT** PLUTONIUM 240 **

REACTION** T ** TEMPERATURE** 300 K **
GROUP RANGE (1**35)

GROUP (I)	(CROSS C) INFI	** F TABLES ** ** SIGMA 0 ** 10000.0	1000.0	100.0
1	0.6206E 01	1.0000	1.0000	1.0000
2	0.6887E 01	1.0000	1.0000	1.0000
3	0.7620E 01	1.0000	1.0000	1.0000
4	0.7881E 01	1.0000	1.0000	1.0000
5	0.8007E 01	1.0000	1.0000	1.0000
6	0.7937E 01	1.0000	1.0000	1.0000
7	0.7658E 01	1.0000	1.0000	1.0000
8	0.7341E 01	1.0000	1.0000	1.0000
9	0.7207E 01	1.0000	1.0000	1.0000
10	0.7399E 01	1.0000	1.0000	1.0000
11	0.7886E 01	1.0000	1.0000	1.0000
12	0.8472E 01	1.0000	1.0000	1.0000
13	0.9082E 01	1.0000	1.0000	1.0000
14	0.9675E 01	1.0000	1.0000	1.0000
15	0.1030E 02	1.0000	1.0000	1.0000
16	0.1090E 02	1.0000	1.0000	1.0000
17	0.1161E 02	1.0000	1.0000	1.0000
18	0.1198E 02	1.0000	1.0000	1.0000
19	0.1201E 02	1.0000	1.0000	1.0000
20	0.1208E 02	1.0000	1.0000	1.0000
21	0.1247E 02	1.0000	1.0000	1.0000
22	0.1303E 02	1.0000	1.0000	1.0000
23	0.1373E 02	1.0000	1.0000	1.0000
24	0.1427E 02	1.0000	1.0000	1.0000
25	0.1457E 02	1.0000	1.0000	1.0000

A-III-15. PLUTONIUM-241

TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** PLUTONIUM 241 **

GROUP (1** 35)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
1	6.20664E 00	2.36542E 00	4.09122E 00	1.81671E-03	7.49932E-01	3.08947E 00	8.60850E-01	3.85484E-02	3.88329E-03
2	6.48083E 00	2.10972E 00	3.86145E 00	2.49807E-03	1.12184E 00	3.64677E 00	8.50768E-01	4.66641E-02	1.34657E-02
3	7.62175E 00	1.65162E 00	3.67304E 00	3.52878E-03	1.62965E 00	4.33696E 00	8.37028E-01	4.35460E-02	3.22881E-02
4	7.88465E 00	1.57972E 00	3.52319E 00	4.99658E-03	1.71538E 00	4.58455E 00	8.23701E-01	5.64469E-02	5.89421E-02
5	8.00667E 00	1.58320E 00	3.40398E 00	7.06848E-03	1.70951E 00	4.70689E 00	7.94066E-01	5.01593E-02	9.05351E-02
6	7.93636E 00	1.66174E 00	3.31405E 00	1.00877E-02	1.62456E 00	4.63997E 00	7.29690E-01	8.77500E-02	9.37242E-02
7	7.66131E 00	1.78194E 00	3.24007E 00	1.49213E-02	1.47659E 00	4.38786E 00	5.95446E-01	6.57775E-02	1.29428E-01
8	7.34057E 00	1.82971E 00	3.17274E 00	2.26779E-02	1.34124E 00	4.14694E 00	5.22402E-01	5.61303E-02	1.39099E-01
9	7.21004E 00	1.74736E 00	3.12417E 00	3.43919E-02	1.31261E 00	4.11566E 00	5.06794E-01	7.63315E-02	9.67160E-02
10	7.40335E 00	1.63816E 00	3.08752E 00	5.42870E-02	1.29347E 00	4.41743E 00	4.82293E-01	6.76178E-02	1.04093E-01
11	7.87892E 00	1.61637E 00	3.05804E 00	8.41190E-02	1.17410E 00	5.00433E 00	4.27358E-01	1.21812E-01	2.39040E-01
12	8.47694E 00	1.61702E 00	3.03932E 00	1.09715E-01	1.06805E 00	5.68216E 00	3.71324E-01	1.72715E-01	2.31626E-01
13	9.09283E 00	1.66133E 00	3.02741E 00	1.37399E-01	9.51378E-01	6.34272E 00	3.17888E-01	1.86574E-01	2.23607E-01
14	9.67967E 00	1.76045E 00	3.01991E 00	1.63235E-01	8.38452E-01	6.91753E 00	2.60888E-01	1.91802E-01	2.55583E-01
15	1.03069E 01	1.87628E 00	3.01262E 00	1.86324E-01	7.49103E-01	7.49519E 00	2.04883E-01	2.72956E-01	2.15526E-01
16	1.09472E 01	2.01639E 00	3.00580E 00	2.09663E-01	6.72000E-01	8.04913E 00	1.70104E-01	3.05272E-01	2.23607E-01
17	1.16054E 01	2.21305E 00	2.99781E 00	2.38491E-01	5.92536E-01	8.56131E 00	1.45686E-01	2.31880E-01	2.88675E-01
18	1.19824E 01	2.53721E 00	2.98997E 00	2.74845E-01	5.23756E-01	8.64660E 00	1.20207E-01	2.83172E-01	2.23607E-01
19	1.20034E 01	2.81629E 00	2.98375E 00	3.01150E-01	4.72363E-01	8.41360E 00	9.83130E-01	3.70764E-01	1.82574E-01
20	1.20914E 01	3.01903E 00	2.98036E 00	3.34821E-01	4.34668E-01	8.30269E 00	7.54440E-02	2.51921E-01	2.58188E-01
21	1.24845E 01	3.32371E 00	2.97913E 00	3.85945E-01	3.64212E-01	8.41066E 00	6.28373E-02	2.62686E-01	2.57394E-01
22	1.30230E 01	3.71607E 00	2.97792E 00	4.37222E-01	1.93173E-01	8.67653E 00	5.90304F-02	2.79049E-01	2.52217E-01
23	1.37314E 01	4.24531E 00	2.97671E 00	4.96728E-01	3.22186E-04	8.98904E 00	5.52603E-02	2.85800E-01	2.56632E-01
24	1.43055E 01	4.53475E 00	2.97548E 00	5.57860E-01	0.0	9.21287E 00	5.14583E-02	2.87007E-01	2.59203E-01
25	1.46284E 01	4.70697E 00	2.97425E 00	6.33293E-01	0.0	9.28793E 00	4.76740E-02	2.99201E-01	2.57691E-01
26	1.47912E 01	4.83102E 00	2.97302E 00	7.17320E-01	0.0	9.24287E 00	4.38882E-02	3.02680E-01	2.59372E-01
27	1.49379E 01	4.97810E 00	2.97180E 00	7.99383E-01	0.0	9.16042E 00	4.02326E-02	3.00830E-01	2.52844E-01
28	1.51104E 01	5.19164E 00	2.97059E 00	8.92269E-01	0.0	9.02644E 00	3.64270E-02	3.25085E-01	2.55331E-01
29	1.53787E 01	5.41063E 00	2.96994E 00	1.00421E 00	0.0	8.96383E 00	3.27363E-02	3.22241E-01	2.58188E-01
30	1.57403E 01	5.63015E 00	2.96983E 00	1.13894E 00	0.0	8.97125E 00	2.90771E-02	3.23945E-01	2.57394E-01
31	1.61212E 01	5.85766E 00	2.96972E 00	1.28913E 00	0.0	8.97440E 00	2.56395E-02	2.92178E-01	2.52217E-01
32	1.65677E 01	6.17795E 00	2.96961E 00	1.48184E 00	0.0	8.90788E 00	2.20911E-02	2.86072E-01	2.56632E-01
33	1.71258E 01	6.60685E 00	2.96950E 00	1.70336E 00	0.0	8.81555E 00	1.84830E-02	2.80238E-01	2.59203E-01
34	1.76603E 01	7.09576E 00	2.96939F 00	1.94547E 00	0.0	8.61905E 00	1.49705E-02	2.67042E-01	2.57691E-01
35	1.81475E 01	8.32381E 00	2.96927F 00	2.19313E 00	0.0	7.63060E 00	1.14970E-02	2.10183E-01	2.59372E-01

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TABLE OF 70 GROUP CROSS SECTION FOR INFINITE DILUTION

ELEMENT** PLUTONIUM 241 **

GROUP (36** 70)

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL	FLUX
36	1.86711E 01	9.46416E 00	2.96916E 00	2.42352E 00	0.0	6.78345E 00	7.80846E-03	2.75707E-01	2.52844E-01
37	2.00097E 01	9.83466E 00	2.96905E 00	2.70916E 00	0.0	7.46587E 00	4.50668E-03	3.89322E-01	2.55331E-01
38	2.9491UE 01	1.01559E 01	2.96900F 00	9.01158E 00	0.0	1.03235E 01	2.77446E-03	3.65545E-01	2.58188E-01
39	3.44158E 01	1.13434E 01	2.96900E 00	1.15362E 01	0.0	1.15362E 01	2.76799E-03	4.44385E-01	2.57394E-01
40	4.52417E 01	1.71109E 01	2.96900E 00	1.37357E 01	0.0	1.43951E 01	2.76980E-03	3.73039E-01	2.52217E-01
41	4.29572E 01	2.13105E 01	2.96900F 00	9.72120E 00	0.0	1.19255E 01	2.76842E-03	2.38415E-01	2.56632E-01
42	4.32762E 01	2.18347E 01	2.96900E 00	9.62901E 00	0.0	1.18125E 01	2.76553E-03	4.06364E-01	2.59203E-01
43	5.07505E 01	2.83005E 01	2.96900E 00	1.07367E 01	0.0	1.17133E 01	2.76973E-03	5.29997E-01	2.57691E-01
44	5.43431E 01	3.14490E 01	2.96900E 00	1.12586E 01	0.0	1.16355E 01	2.76970E-03	1.79542E-01	2.59372E-01
45	5.58825E 01	3.23482E 01	2.96900E 00	1.15717E 01	0.0	1.19626E 01	2.76973E-03	4.31574E-01	2.52844E-01
46	2.79122E 01	1.81570E 01	2.96900F 00	4.49563E 00	0.0	5.25985E 00	2.77006E-03	3.69551E-01	2.55331E-01
47	8.79173E 01	5.74257E 01	2.96900F 00	1.40118E 01	0.0	1.64798E 01	2.76889E-03	3.13715E-01	2.58188E-01
48	8.76444E 01	5.14863E 01	2.96900F 00	2.24373E 01	0.0	1.37208E 01	2.76748E-03	2.42894E-01	2.57394E-01
49	6.29057E 01	3.76462E 01	2.96900E 00	1.51918E 01	0.0	1.00677E 01	2.77566E-03	4.45764E-01	2.52217E-01
50	5.58189E 01	3.33050E 01	2.96900E 00	7.72749E 00	0.0	1.47864E 01	2.77404E-03	4.88966E-01	2.56632E-01
51	1.14825E 02	8.94591E 01	2.96900F 00	9.54267E 00	0.0	1.58228E 01	2.76818E-03	4.02370E-01	2.59203E-01
52	1.04625E 02	7.89282E 01	2.96900E 00	1.17391E 01	0.0	1.39581F 01	2.76294E-03	4.50134E-01	2.57691E-01
53	8.64531E 01	4.82742E 01	2.96900E 00	2.15045E 01	0.0	1.66744E 01	2.76212E-03	6.34919E-01	2.59372E-01
54	4.09138E 02	2.95008E 02	2.96900E 00	9.61783E 01	0.0	1.79512E 01	2.76757E-03	3.09108E-01	2.52844E-01
55	8.83441E 01	6.66336E 01	2.96900E 00	9.59649E 00	0.0	1.21140F 01	2.77024E-03	4.62558E-01	2.55331E-01
56	2.51018E 02	1.92006E 02	2.96900F 00	4.57625E 01	0.0	1.32492E 01	2.76568E-03	4.13454E-01	2.58188E-01
57	3.90315E 02	3.33365E 02	2.96900F 00	4.38398E 01	0.0	1.31107E 01	2.77213E-03	3.46979E-01	2.57394E-01
58	2.01861E 02	1.66079E 02	2.96900E 00	2.44907E 01	0.0	1.12912F 01	2.76858E-03	5.68174E-01	2.52217E-01
59	5.30477E 02	2.61831E 02	2.96900F 00	2.57143E 02	0.0	1.15032E 01	2.76670E-03	3.15273E-01	2.56632E-01
60	5.04634E 01	3.59227E 01	2.96900E 00	5.02250E 00	0.0	9.51804E 00	2.76162E-03	3.29011E-01	2.59203E-01
61	3.56218E 01	2.27026E 01	2.96900F 00	2.59380E 00	0.0	1.03254E 01	2.77693E-03	3.53663E-01	2.57691E-01
62	3.16407E 01	1.83517E 01	2.96900F 00	2.16947E 00	0.0	1.11195E 01	2.76786E-03	4.15778E-01	2.59372E-01
63	3.19008E 01	1.69559E 01	2.96900F 00	2.48956E 00	0.0	1.24553E 01	2.77102E-03	4.30942E-01	2.52844E-01
64	3.34639E 01	1.69460E 01	2.96900E 00	3.70040E 00	0.0	1.28175E 01	2.77257E-03	4.75099E-01	2.55331E-01
65	3.85547E 01	1.89241E 01	2.96900F 00	6.53799E 00	0.0	1.30926E 01	2.76927E-03	4.80535E-01	2.58188E-01
66	5.22141E 01	2.52893E 01	2.96900F 00	1.34931E 01	0.0	1.34317E 01	2.76958E-03	4.50962E-01	2.57394E-01
67	9.51026E 01	4.72943E 01	2.96900F 00	3.38604E 01	0.0	1.39479E 01	2.77058E-03	4.75671E-01	2.52217E-01
68	2.83947E 02	1.54790E 02	2.96900E 00	1.14355E 02	0.0	1.48020E 01	2.76849E-03	5.01432E-01	2.56632E-01
69	1.19006E 03	7.13236E 02	2.96900E 00	4.61093E 02	0.0	1.57312E 01	2.77001E-03	5.30522E-01	2.59203E-01
70	2.17197E 03	1.38472E 03	2.96900E 00	7.73907E 02	0.0	1.33567E 01	2.77105E-03	0.0	2.57691E-01

TABLE OF ELASTIC MATRICES

ELEMENT** PLUTONIUM 241 **

GROUP RANGE (I= 1**35 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
1	3.0509E 00	3.8548E-02
2	3.6001E 00	4.6664E-02
3	4.2934E 00	4.3546E-02
4	4.5281E 00	5.6447E-02
5	4.6567E 00	5.0159E-02
6	4.5522E 00	8.7750E-02
7	4.3221E 00	6.5778E-02
8	4.0908E 00	5.6130E-02
9	4.0393E 00	7.6332E-02
10	4.3498E 00	6.7618E-02
11	4.8825E 00	1.2181E-01
12	5.5094E 00	1.7272E-01
13	6.1561E 00	1.8657E-01
14	6.7257E 00	1.9180E-01
15	7.2224E 00	2.7296E-01
16	7.7439E 00	3.0527E-01
17	8.3294E 00	2.3188E-01
18	8.3634E 00	2.8317E-01
19	8.0428E 00	3.7076E-01
20	8.0508E 00	2.5192E-01
21	8.1480E 00	2.6269E-01
22	8.3975E 00	2.7905E-01
23	8.7032E 00	2.8580E-01
24	8.9259E 00	2.8701E-01
25	8.9887E 00	2.9920E-01
26	8.9402E 00	3.0268E-01
27	8.8596E 00	3.0083E-01
28	8.7014E 00	3.2509E-01
29	8.6416E 00	3.2224E-01
30	8.6473E 00	3.2395E-01
31	8.6824E 00	2.9218E-01
32	8.6218E 00	2.8607E-01
33	8.5353E 00	2.8024E-01
34	8.3520E 00	2.6704E-01
35	7.4204E 00	2.1016E-01

CONTINUED

TABLE OF ELASTIC MATRICES

ELEMENT** PLUTONIUM 241 **

GROUP RANGE (I= 36**70 , J= 1** 2)

GROUP (I)	J=I+K (K) 0	1
36	6.5077E 00	2.7571E-01
37	7.0765E 00	3.8932E-01
38	9.9580E 00	3.6554E-01
39	1.1092E 01	4.4438E-01
40	1.4022E 01	3.7304E-01
41	1.1687E 01	2.3841E-01
42	1.1406E 01	4.0636E-01
43	1.1183E 01	5.3000E-01
44	1.1456E 01	1.7954E-01
45	1.1531E 01	4.3157E-01
46	4.8903E 00	3.6955E-01
47	1.6166E 01	3.1371E-01
48	1.3478E 01	2.4289E-01
49	9.6219E 00	4.4576E-01
50	1.4297E 01	4.8897E-01
51	1.5420E 01	4.0237E-01
52	1.3508E 01	4.5013E-01
53	1.6039E 01	6.3492E-01
54	1.7642E 01	3.0911E-01
55	1.1651E 01	4.6256E-01
56	1.2836E 01	4.1345E-01
57	1.2764E 01	3.4698E-01
58	1.0723E 01	5.6817E-01
59	1.1188E 01	3.1527E-01
60	9.1890E 00	3.2901E-01
61	9.9717E 00	3.5366E-01
62	1.0704E 01	4.1578E-01
63	1.2024E 01	4.3094E-01
64	1.2342E 01	4.7510E-01
65	1.2612E 01	4.8053E-01
66	1.2981E 01	4.5096E-01
67	1.3472E 01	4.7567E-01
68	1.4301E 01	5.0143E-01
69	1.5201E 01	5.3052E-01
70	1.3357E 01	0.0

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 241 **

GROUP RANGE (I= 1**12 , J= 1**27)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
1	2.2847E-03	3.7612E-03	3.0887E-03	2.7662E-01	7.1267E-01	4.0601E-01	3.5821E-03	5.9476E-03	5.4798E-03	6.9337E-03
	4.5719E-03	3.7417E-03	2.8378E-03	2.3980E-03	1.4480E-03	1.0726E-03	9.1323E-04	4.5451E-04	2.5883E-04	2.4387E-04
	1.5168E-04	9.1909E-05	5.6328E-05	3.4018E-05	2.0196E-05	1.2139E-05	7.0975E-06			
2	0.0	4.5396E-04	1.0055E-03	3.6705E-03	1.0769E-01	4.3628E-01	5.2439E-01	3.3604E-01	2.9532E-01	4.1222E-02
	3.4834E-02	2.7479E-02	2.3746E-02	1.4600E-02	1.0956E-02	9.4381E-03	4.7361E-03	2.7212E-03	2.5819E-03	1.5995E-03
	9.8229E-04	6.0662E-04	3.6636E-04	2.1750E-04	1.3074E-04	7.6437E-05	4.6506E-05			
3	5.8587E-04	3.1488E-03	8.3920E-03	2.3185E-02	7.1198E-02	1.5288E-01	1.6990E-01	3.4881E-01	2.4108E-01	2.0681E-01
	1.7116E-01	1.3434E-01	6.9158E-02	5.9255E-02	4.8896E-02	2.4216E-02	1.3368E-02	1.2863E-02	7.9572E-03	4.9526E-03
	3.0697E-03	1.8541E-03	1.1007E-03	6.6164E-04	3.8682E-04	2.3535E-04	0.0			
4	1.4799E-03	5.6428E-03	1.5679E-02	5.7763E-02	1.4392E-01	1.7456E-01	2.8460E-01	2.1255E-01	1.8745E-01	1.5848E-01
	1.4570E-01	9.3106E-02	7.1882E-02	6.3553E-02	3.2647E-02	1.8870E-02	1.8281E-02	1.1393E-02	6.9819E-03	4.4460E-03
	2.6987E-03	1.6022E-03	9.6304E-04	5.6305E-04	3.4258E-04	2.0761E-04	0.0			
5	2.1173E-03	7.9941E-03	3.5989E-02	1.0674E-01	1.4876E-01	2.6702E-01	2.1677E-01	1.9758E-01	1.7069E-01	1.6432E-01
	1.0796E-01	8.4924E-02	7.6376E-02	3.9753E-02	2.3260E-02	2.2560E-02	1.4276E-02	8.7253E-03	5.5793E-03	3.4405E-03
	2.0426E-03	1.2278E-03	7.1784E-04	4.3675E-04	2.6469E-04	0.0	0.0			
6	2.4820E-03	2.0145E-02	7.3082E-02	1.1599E-01	2.2931E-01	2.0553E-01	1.9534E-01	1.7268E-01	1.7152E-01	1.1699E-01
	9.3834E-02	8.5904E-02	4.5392E-02	2.6754E-02	2.6186E-02	1.6709E-02	1.0269E-02	6.5462E-03	4.1037E-03	2.4449E-03
	1.4696E-03	8.5921E-04	5.2277E-04	3.1682E-04	1.8887E-04	0.0	0.0			
7	1.9265E-02	1.5281E-01	1.2031E-01	1.9047E-01	1.6517E-01	1.5912E-01	1.4165E-01	1.4174E-01	9.9932E-02	8.1588E-02
	7.5887E-02	4.0616E-02	2.4145E-02	2.3841E-02	1.5257E-02	9.4954E-03	6.0321E-03	3.8022E-03	2.2928E-03	1.3782E-03
	8.0577E-04	4.9026E-04	2.9711E-04	1.7712E-04	0.0	0.0	0.0			
8	3.4384E-01	3.8175E-01	2.9013E-01	1.2374E-01	7.4771E-02	4.5809E-02	3.2525E-02	1.7102E-02	1.1452E-02	8.9074E-03
	4.1226E-03	2.2396E-03	2.0486E-03	1.2214E-03	7.1961E-04	4.4092E-04	2.6629E-04	1.5809E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
9	2.7306E-01	4.8981E-01	2.0890E-01	1.2623E-01	7.7339E-02	5.4911E-02	2.8873E-02	1.9335E-02	1.5038E-02	6.9605E-03
	3.7810E-03	3.4585E-03	2.0617E-03	1.2149E-03	7.4439E-04	4.4956E-04	2.6690E-04	1.6043E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
10	3.4951E-01	3.5865E-01	2.1673E-01	1.3278E-01	9.4273E-02	4.9571E-02	3.3195E-02	2.5818E-02	1.1950E-02	6.4914E-03
	5.9378E-03	3.5397E-03	2.0858E-03	1.2780E-03	7.7183E-04	4.5822E-04	2.7543E-04	1.6103E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
11	2.3450E-01	3.4785E-01	2.1311E-01	1.5131E-01	7.9563E-02	5.3279E-02	4.1439E-02	1.9180E-02	1.0419E-02	9.5303E-03
	5.6813E-03	3.3478E-03	2.0512E-03	1.2388E-03	7.3546E-04	4.4207E-04	2.5846E-04	1.5726E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
12	1.9997E-01	3.1258E-01	2.2193E-01	1.1670E-01	7.8146E-02	6.0780E-02	2.8133E-02	1.5282E-02	1.3978E-02	8.3330E-03
	4.9103E-03	3.0086E-03	1.8170E-03	1.0787E-03	6.4840E-04	3.7910E-04	2.3065E-04	1.3978E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

CONTINUED

TABLE OF INELASTIC MATRICES

ELEMENT** PLUTONIUM 241 **

GROUP RANGE (I= 13**23 , J= 1**27)

GROUP (I)	J=I+K (K)									
	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19
	20	21	22	23	24	25	26			
13	1.8128E-01	3.0763E-01	1.6176E-01	1.0832E-01	8.4248E-02	3.8995E-02	2.1182E-02	1.9376E-02	1.1550E-02	6.8062E-03
	4.1703E-03	2.5188E-03	1.4952E-03	8.9876E-04	5.2547E-04	3.1971E-04	1.9376E-04	1.1550E-04	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
14	1.7817E-01	2.3091E-01	1.5463E-01	1.2027E-01	5.5666E-02	3.0238E-02	2.7659E-02	1.6489E-02	9.7161E-03	5.9532E-03
	3.5953E-03	2.1345E-03	1.2830E-03	7.5012E-04	4.5639E-04	2.7659E-04	1.6488E-04	9.7161E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
15	1.3014E-01	2.2287E-01	1.7335E-01	8.0234E-02	4.3584E-02	3.9867E-02	2.3766E-02	1.4004E-02	8.5806E-03	5.1821E-03
	3.0765E-03	1.8492E-03	1.0812E-03	6.5782E-04	3.9867E-04	2.3766E-04	1.4004E-04	8.5806E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
16	1.1474E-01	2.4385E-01	1.1287E-01	6.1310E-02	5.6081E-02	3.3432E-02	1.9700E-02	1.2071E-02	7.2898E-03	4.3278E-03
	2.6014E-03	1.5209E-03	9.2537E-04	5.6081E-04	3.3432E-04	1.9700E-04	1.2071E-04	7.2898E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
17	1.3851E-01	1.6348E-01	8.8806E-02	8.1231E-02	4.8424E-02	2.8535E-02	1.7484E-02	1.0559E-02	6.2687E-03	3.7680E-03
	2.2030E-03	1.3404E-03	8.1231E-04	4.8424E-04	2.8535E-04	1.7484E-04	1.0559E-04	6.2687E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
18	1.0080E-01	1.2926E-01	1.1824E-01	7.0484E-02	4.1534E-02	2.5448E-02	1.5369E-02	9.1244E-03	5.4845E-03	3.2066E-03
	1.9510E-03	1.1824E-03	7.0484E-04	4.1534E-04	2.5448E-04	1.5369E-04	9.1244E-05	5.4845E-05	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
19	6.6683E-02	1.6332E-01	9.7360E-02	5.7370E-02	3.5152E-02	2.1229E-02	1.2603E-02	7.5757E-03	4.4292E-03	2.6949E-03
	1.6332E-03	9.7359E-04	5.7370E-04	3.5152E-04	2.1229E-04	1.2603E-04	7.5757E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
20	9.4544E-02	1.3661E-01	8.0498E-02	4.9322E-02	2.9787E-02	1.7684E-02	1.0630E-02	6.2147E-03	3.7812E-03	2.2916E-03
	1.3661E-03	8.0498E-04	4.9322E-04	2.9787E-04	1.7684E-04	1.0630E-04	6.2147E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
21	8.1437E-02	1.1183E-01	6.8518E-02	4.1380E-02	2.4567E-02	1.4767E-02	8.6334E-03	5.2528E-03	3.1834E-03	1.8977E-03
	1.1183E-03	6.8518E-04	4.1380E-04	2.4567E-04	1.4767E-04	8.6334E-05	5.2528E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
22	5.2183E-02	5.6500E-02	3.4122E-02	2.0258E-02	1.2177E-02	7.1191E-03	4.3315E-03	2.6251E-03	1.5649E-03	9.2212E-04
	5.6500E-04	3.4122E-04	2.0258E-04	1.2177E-04	7.1191E-05	4.3315E-05	2.6251E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
23	1.2440E-04	7.9865E-05	4.7414E-05	2.8500E-05	1.6663E-05	1.0138E-05	6.1440E-06	3.6627E-06	2.1583E-06	1.3224E-06
	7.9865E-07	4.7414E-07	2.8500E-07	1.6663E-07	1.0138E-07	6.1440E-08	3.6627E-08	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

PART B 25-GROUP CONSTANTS

B-I. 25-GROUP STRUCTURE

25 GROUP STRUCTURE

GROUP	UP-ENERGY	LOW-ENERGY	DEL U
1	1.0500E 07	6.5000E 06	0.4796
2	6.5000E 06	4.0000E 06	0.4855
3	4.0000E 06	2.5000E 06	0.4700
4	2.5000E 06	1.4000E 06	0.5798
5	1.4000E 06	8.0000E 05	0.5596
6	8.0000E 05	4.0000E 05	0.6931
7	4.0000E 05	2.0000E 05	0.6931
8	2.0000E 05	1.0000E 05	0.6931
9	1.0000E 05	4.6500E 04	0.7657
10	4.6500E 04	2.1500E 04	0.7714
11	2.1500E 04	1.0000E 04	0.7655
12	1.0000E 04	4.6500E 03	0.7657
13	4.6500E 03	2.1500E 03	0.7714
14	2.1500E 03	1.0000E 03	0.7655
15	1.0000E 03	4.6500E 02	0.7657
16	4.6500E 02	2.1500E 02	0.7714
17	2.1500E 02	1.0000E 02	0.7655
18	1.0000E 02	4.6500E 01	0.7657
19	4.6500E 01	2.1500E 01	0.7714
20	2.1500E 01	1.0000E 01	0.7655
21	1.0000E 01	4.6500E 00	0.7657
22	4.6500E 00	2.1500E 00	0.7714
23	2.1500E 00	1.0000E 00	0.7655
24	1.0000E 00	4.6500E-01	0.7657
25	4.6500E-01	2.1500E-01	0.7714

B-II. FISSION SPECTRA

B-II-1. Pu-239 FISSION SPECTRUM

ELEMENT** PU-239 **

FISSION SPECTRUM *KAI*

25 GROUP STRUCTURE

GROUP	KAI
1	2.06390E-02
2	9.30964E-02
3	1.80610E-01
4	2.62983E-01
5	2.01022E-01
6	1.43117E-01
7	6.31515E-02
8	2.47739E-02
9	8.39692E-03
10	1.82128E-03
11	3.88094E-04
12	0.0
13	0.0
14	0.0
15	0.0
16	0.0
17	0.0
18	0.0
19	0.0
20	0.0
21	0.0
22	0.0
23	0.0
24	0.0
25	0.0

B-II-2. U-235 FISSION SPECTRUM

ELEMENT** U-235 **

FISSION SPECTRUM *KAI*

25 GROUP STRUCTURE

GROUP	KAI
1	1.60788E-02
2	8.86192E-02
3	1.83798E-01
4	2.70151E-01
5	2.02501E-01
6	1.40784E-01
7	6.09906E-02
8	2.38104E-02
9	9.29612E-03
10	3.00580E-03
11	9.64298E-04
12	0.0
13	0.0
14	0.0
15	0.0
16	0.0
17	0.0
18	0.0
19	0.0
20	0.0
21	0.0
22	0.0
23	0.0
24	0.0
25	0.0

B-III. TABLES OF 25-GROUP CONSTANTS

B-III-1. BORON-10

BORON 10 NCODE = 105

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	1.47825E 00	0.0	0.0	4.13933E-01	3.35682E-01	7.28635E-01	4.75456E-01	2.59345E-01
2	1.68709E 00	0.0	0.0	3.97280E-01	1.59054E-01	1.13076E 00	3.80938E-01	4.10486E-01
3	2.02723E 00	0.0	0.0	1.42968E-01	2.79929E-02	1.85627E 00	3.95397E-01	5.77336E-01
4	2.07858E 00	0.0	0.0	3.74816E-01	2.17832E-04	1.70354E 00	3.14990E-01	4.33226E-01
5	2.50033E 00	0.0	0.0	2.54981E-01	0.0	2.24535E 00	2.57439E-01	6.10986E-01
6	4.18572E 00	0.0	0.0	5.56629E-01	0.0	3.62909E 00	7.99300E-02	1.07402E 00
7	4.86188E 00	0.0	0.0	1.08514E 00	0.0	3.77674E 00	6.63942E-02	1.01649E 00
8	4.84360E 00	0.0	0.0	1.67810E 00	0.0	3.16550E 00	6.63930E-02	7.66104E-01
9	4.79501E 00	0.0	0.0	2.43716E 00	0.0	2.35786E 00	6.63952E-02	5.27574E-01
10	5.37034E 00	0.0	0.0	3.54869E 00	0.0	1.82165E 00	6.63965E-02	4.13074E-01
11	7.66583E 00	0.0	0.0	5.27574E 00	0.0	2.39009E 00	6.63946E-02	7.61794E-01
12	1.14388E 01	0.0	0.0	7.62870E 00	0.0	3.81012E 00	6.63948E-02	9.64764E-01
13	1.53329E 01	0.0	0.0	1.13519E 01	0.0	3.98095E 00	6.63946E-02	9.66475E-01
14	2.07348E 01	0.0	0.0	1.67409E 01	0.0	3.99384E 00	6.63957E-02	9.77134E-01
15	2.85795E 01	0.0	0.0	2.45795E 01	0.0	4.00000E 00	6.63956E-02	9.77099E-01
16	4.00593E 01	0.0	0.0	3.60593E 01	0.0	4.00000E 00	6.63946E-02	9.70050E-01
17	5.68690E 01	0.0	0.0	5.28690E 01	0.0	4.00000E 00	6.63957E-02	9.77599E-01
18	8.15376E 01	0.0	0.0	7.75376E 01	0.0	4.00000E 00	6.63957E-02	9.77098E-01
19	1.18048E 02	0.0	0.0	1.14048E 02	0.0	4.00000E 00	6.63946E-02	9.70050E-01
20	1.71647E 02	0.0	0.0	1.67647E 02	0.0	4.00000E 00	6.63957E-02	9.77598E-01
21	2.48065E 02	0.0	0.0	2.44065E 02	0.0	4.00000E 00	6.63956E-02	9.77098E-01
22	3.57535E 02	0.0	0.0	3.53535E 02	0.0	4.00000E 00	6.63946E-02	9.70050E-01
23	5.15814E 02	0.0	0.0	5.11814E 02	0.0	4.00000E 00	6.63957E-02	9.77599E-01
24	7.49912E 02	0.0	0.0	7.45912E 02	0.0	4.00000E 00	6.63956E-02	9.77098E-01
25	1.09683E 03	0.0	0.0	1.09283E 03	0.0	4.00000E 00	6.63960E-02	0.0

BORON 10 NCODE = 105

GROUP	INELASTIC + (N,2N) TRANSFER TO I+0 ---- I+ 2		
1	7.37905E-02	2.54629E-01	7.26260E-03
2	3.86146E-02	1.10416E-01	1.00239E-02
3	8.12755E-03	1.94505E-02	4.14849E-04
4	8.24045E-05	1.35428E-04	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0
14	0.0	0.0	0.0
15	0.0	0.0	0.0
16	0.0	0.0	0.0
17	0.0	0.0	0.0
18	0.0	0.0	0.0
19	0.0	0.0	0.0
20	0.0	0.0	0.0
21	0.0	0.0	0.0
22	0.0	0.0	0.0
23	0.0	0.0	0.0
24	0.0	0.0	0.0
25	0.0	0.0	0.0

B-III-2. BORON-11

BORON 11 NCODE = 115

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	1.42693E 00	0.	0.	7.57917E-04	2.22776E-01	1.20339E 00	3.99303E-01	4.93575E-01
2	1.51867E 00	0.	0.	1.21362E-06	9.60092E-02	1.45266E 00	2.30402E-01	5.40715E-01
3	1.58856E 00	0.	0.	1.48869E-06	1.54875E-02	1.57307E 00	1.34477E-01	6.27336E-01
4	2.74612E 00	0.	0.	1.94408E-06	7.76203E-05	2.74604E 00	1.01553E-01	6.34136E-01
5	2.30739E 00	0.	0.	2.90149E-06	0.	2.30738E 00	1.20933E-01	3.92775E-01
6	3.26980E 00	0.	0.	6.44988E-06	0.	3.26980E 00	2.09188E-01	1.03985E 00
7	3.77271E 00	0.	0.	2.98826E-06	0.	3.77270E 00	1.25106E-01	9.39808E-01
8	4.20057E 00	0.	0.	2.28475E-06	0.	4.20057E 00	6.05172E-02	1.07042E 00
9	4.58291E 00	0.	0.	3.18437E-06	0.	4.58291E 00	6.05173E-02	1.04698E 00
10	4.92558E 00	0.	0.	1.31230E-05	0.	4.92556E 00	6.05172E-02	1.11998E 00
11	5.34266F 00	0.	0.	3.49713E-04	0.	5.34231E 00	6.05172E-02	1.12677E 00
12	5.01503E 00	0.	0.	9.93746E-06	0.	5.01502E 00	6.05172E-02	1.12199E 00
13	5.02634F 00	0.	0.	1.44025E-05	0.	5.02633E 00	6.05172E-02	1.11804E 00
14	5.03148F 00	0.	0.	2.11238E-05	0.	5.03146E 00	6.05172E-02	1.12567E 00
15	5.03399F 00	0.	0.	3.09493E-05	0.	5.03396E 00	6.05171E-02	1.11586E 00
16	5.03519F 00	0.	0.	4.53564E-05	0.	5.03514E 00	6.05172E-02	1.11947E 00
17	5.03570F 00	0.	0.	6.67108E-05	0.	5.03563F 00	6.05172E-02	1.12635E 00
18	5.03596E 00	0.	0.	9.78156E-05	0.	5.03587E 00	6.05172E-02	1.11619E 00
19	5.03612F 00	0.	0.	1.43392E-04	0.	5.03598E 00	6.05172E-02	1.11961E 00
20	5.03621F 00	0.	0.	2.10934E-04	0.	5.03600E 00	6.05172E-02	1.12639E 00
21	5.03631F 00	0.	0.	3.09310E-04	0.	5.03600E 00	6.05172E-02	1.12574E 00
22	5.03645F 00	0.	0.	4.53449E-04	0.	5.03600E 00	6.05172E-02	1.11961E 00
23	5.03667F 00	0.	0.	6.67029E-04	0.	5.03600E 00	6.05172E-02	1.12639E 00
24	5.03698F 00	0.	0.	9.78108E-04	0.	5.03600E 00	6.05172E-02	1.12574E 00
25	5.03755F 00	0.	0.	1.55352E-03	0.	5.03600E 00	6.05172E-02	0.

BORON 11 NCODE =115

GROUP	INELASTIC + (N,2N) TRANSFER TO I+0 ---- I+10							
1	0.	9.31862E-04	2.41565E-02	5.79212E-02	5.22150E-02	4.36031E-02	2.29944E-02	8.99345E-03
	6.00324E-03	5.17209E-03	7.84990E-04					
2	1.99252E-04	1.41433E-02	2.69910E-02	1.01378E-02	1.86947E-03	4.16737E-03	1.76277E-03	6.14756E-04
	1.27521E-04	0.	0.					
3	0.	1.50886E-03	7.16193E-03	4.60388E-03	1.73858E-03	4.33218E-04	4.10257E-05	0.
	0.	0.	0.					
4	0.	0.	0.	1.29896E-05	4.22718E-05	2.03883E-05	9.70608E-07	0.
	0.	0.	0.					
5	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
6	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
7	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
8	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
9	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
10	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
11	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
12	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
13	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
14	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
15	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
16	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
17	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
18	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
19	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
20	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
21	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
22	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
23	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
24	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
25	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					

B-III-3. CARBON

CARBON N NCODE = 6

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	1.19228E 00	0.0	0.0	3.78143E-03	3.17756E-01	8.70744E-01	3.57452E-01	3.09751E-01
2	1.54935E 00	0.0	0.0	0.0	6.07535E-02	1.48860E 00	2.03545E-01	5.83866E-01
3	1.92861E 00	0.0	0.0	0.0	0.0	1.92861E 00	2.29943E-02	6.95825E-01
4	1.80998E 00	0.0	0.0	0.0	0.0	1.80998E 00	3.04266E-02	5.13477E-01
5	2.55901E 00	0.0	0.0	0.0	0.0	2.55901E 00	1.29944E-01	6.42183E-01
6	3.27971E 00	0.0	0.0	0.0	0.0	3.27971E 00	1.22778E-01	7.77159E-01
7	3.84974E 00	0.0	0.0	0.0	0.0	3.84974E 00	1.00568E-01	1.03150E 00
8	4.23939E 00	0.0	0.0	0.0	0.0	4.23939E 00	7.82196E-02	1.15323E 00
9	4.48151E 00	0.0	0.0	0.0	0.0	4.48151E 00	5.53707E-02	9.48522E-01
10	4.60027E 00	0.0	0.0	0.0	0.0	4.60027E 00	5.53705E-02	9.58440E-01
11	4.65857E 00	0.0	0.0	0.0	0.0	4.65857E 00	5.53692E-02	9.80301E-01
12	4.68657E 00	0.0	0.0	0.0	0.0	4.68657E 00	5.53708E-02	9.82218E-01
13	4.69966E 00	0.0	0.0	0.0	0.0	4.69966E 00	5.53704E-02	9.74432E-01
14	4.70471E 00	0.0	0.0	0.0	0.0	4.70471E 00	5.53691E-02	9.80712E-01
15	4.71000E 00	0.0	0.0	2.10325E-05	0.0	4.70998E 00	5.53691E-02	9.81467E-01
16	4.70998E 00	0.0	0.0	3.09006E-05	0.0	4.70995E 00	5.53703E-02	9.73941E-01
17	4.70996E 00	0.0	0.0	4.53712E-05	0.0	4.70991E 00	5.53692E-02	9.85853E-01
18	4.70994E 00	0.0	0.0	6.65299E-05	0.0	4.70988E 00	5.53692E-02	9.84344E-01
19	4.70994E 00	0.0	0.0	9.77145E-05	0.0	4.70985E 00	5.53703E-02	9.73920E-01
20	4.70996E 00	0.0	0.0	1.43429E-04	0.0	4.70981E 00	5.53692E-02	9.85830E-01
21	4.70995E 00	0.0	0.0	2.10318E-04	0.0	4.70974E 00	5.53692E-02	9.84311E-01
22	4.70995E 00	0.0	0.0	3.08976E-04	0.0	4.70964E 00	5.53704E-02	9.73872E-01
23	4.71000E 00	0.0	0.0	4.53640E-04	0.0	4.70954E 00	5.53692E-02	9.85770E-01
24	4.72645E 00	0.0	0.0	6.65231E-04	0.0	4.72579E 00	5.53692E-02	9.89738E-01
25	4.76331E 00	0.0	0.0	9.68373E-04	0.0	4.76234E 00	5.53688E-02	0.0

CARBON N NCODE = 6

GROUP	INELASTIC & (N,2N) TRANSFER TO I&O ---- I& 8							
1	0.0	2.66969E-02	1.13825E-01	1.50375E-01	2.68593E-02	0.0	0.0	0.0
2	0.0	0.0	7.86470E-03	2.91640E-02	1.68475E-02	4.56631E-03	1.58694E-03	6.38549E-04
3	8.56666E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							

CARBON N NCODE = 6

FC (1) T = 300

GROUP	SIGMA-0	1.0E 01	1.0E 00	0.0
1		0.9913	0.9479	0.8866
2		1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000
4		1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000
6		1.0000	1.0000	1.0000
7		1.0000	1.0000	1.0000
8		1.0000	1.0000	1.0000
9		1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000
11		1.0000	1.0000	1.0000
12		1.0000	1.0000	1.0000
13		1.0000	1.0000	1.0000
14		1.0000	1.0000	1.0000
15		1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000
24		0.9999	0.9999	0.9998
25		1.0000	1.0000	1.0000

CARBON N NCODE = 6

FE (1) T = 300

GROUP	SIGMA-0 =	1.0E 01	1.0E 00	0.0
1		0.9883	0.9437	0.9048
2		0.9932	0.9701	0.9495
3		0.9937	0.9744	0.9598
4		0.9926	0.9818	0.9774
5		0.9983	0.9930	0.9907
6		0.9990	0.9945	0.9937
7		0.9996	0.9969	0.9966
8		0.9999	0.9986	0.9985
9		0.9999	0.9994	0.9993
10		1.0000	0.9998	0.9998
11		1.0000	0.9999	0.9999
12		1.0000	0.9999	0.9999
13		1.0000	1.0000	1.0000
14		1.0000	1.0000	1.0000
15		1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000
24		1.0000	0.9999	0.9999
25		1.0000	0.9999	0.9999

CARBON N NCODE = 6

FT (1) T = 300

GROUP	SIGMA-0 =	1.0E 01	1.0E 00	0.0
1		0.9779	0.9029	0.8441
2		0.9894	0.9515	0.9188
3		0.9877	0.9485	0.9188
4		0.9886	0.9699	0.9803
5		0.9956	0.9872	0.9825
6		0.9955	0.9918	0.9901
7		0.9973	0.9958	0.9952
8		0.9987	0.9983	0.9981
9		0.9994	0.9993	0.9992
10		0.9998	0.9998	0.9998
11		0.9999	0.9999	0.9999
12		0.9999	0.9999	0.9999
13		1.0000	1.0000	1.0000
14		1.0000	1.0000	1.0000
15		1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000
24		0.9999	0.9999	0.9999
25		0.9999	0.9999	0.9999

B-III-4. OXYGEN

OXYGEN N NCODE = 8

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	1.02785E 00	0.0	0.0	2.01583E-01	1.10495E-01	7.15768E-01	6.01687E-01	1.59658E-01
2	1.41949E 00	0.0	0.0	6.52707E-02	0.0	1.35422E 00	3.57631E-01	3.67921E-01
3	1.95192E 00	0.0	0.0	2.34369E-03	0.0	1.94958E 00	2.39280E-01	2.63229E-01
4	1.74714E 00	0.0	0.0	0.0	0.0	1.74714E 00	1.17063E-01	4.60869E-01
5	4.12049E 00	0.0	0.0	0.0	0.0	4.12049E 00	6.53453E-02	7.38385E-01
6	5.54763E 00	0.0	0.0	0.0	0.0	5.54763E 00	2.31046E-01	1.43803E 00
7	3.91971E 00	0.0	0.0	0.0	0.0	3.91971E 00	-1.31948E-01	7.11032E-01
8	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	-5.37637E-03	6.60589E-01
9	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	2.54950E-02	5.87387E-01
10	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	3.46069E-02	5.83298E-01
11	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	3.92970E-02	5.83129E-01
12	3.70000E 00	0.0	0.0	0.0	0.0	3.70000E 00	4.16256E-02	5.80503E-01
13	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16241E-02	5.77148E-01
14	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16248E-02	5.81330E-01
15	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16251E-02	5.80500E-01
16	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16253E-02	5.77148E-01
17	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16248E-02	5.81330E-01
18	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16250E-02	5.80499E-01
19	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16252E-02	5.77151E-01
20	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16254E-02	5.81331E-01
21	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16250E-02	5.80500E-01
22	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16244E-02	5.77148E-01
23	3.69999E 00	0.0	0.0	0.0	0.0	3.69999E 00	4.16260E-02	5.81332E-01
24	3.70001E 00	0.0	0.0	1.70589E-05	0.0	3.69999E 00	4.16247E-02	5.80500E-01
25	3.70001E 00	0.0	0.0	2.84915E-05	0.0	3.69999E 00	4.16241E-02	0.0

OXYGEN N NCODE = 8

GROUP	INELASTIC & (N,2N) TRANSFER TO I&C ---- I& 9							
1	0.0	0.0	5.93724E-03	1.65328E-02	4.62560E-02	2.82011E-02	9.95278E-03	2.98132E-03
	5.08211E-04	1.25541E-04						
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						

OXYGEN N NCODE = 8

FC (1) T = 300

GROUP	SIGMA-0 =	1.0E 02	1.0E 01	1.0E 00	0.0
1		0.9996	0.9976	0.9854	0.9710
2		0.9996	0.9972	0.9848	0.9734
3		0.9918	0.9329	0.7116	0.5629
4		1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000
6		1.0000	1.0000	1.0000	1.0000
7		1.0000	1.0000	1.0000	1.0000
8		1.0000	1.0000	1.0000	1.0000
9		1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
11		1.0000	1.0000	1.0000	1.0000
12		1.0000	1.0000	1.0000	1.0000
13		1.0000	1.0000	1.0000	1.0000
14		1.0000	1.0000	1.0000	1.0000
15		1.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000	1.0000
24		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000

OXYGEN N NCODE = 8

FT (1) T = 300

GROUP	SIGMA-0 =	1.0E 02	1.0E 01	1.0E 00	0.0
1		0.9999	0.9942	0.9660	0.9299
2		0.9968	0.9732	0.8903	0.8239
3		0.9920	0.9359	0.7810	0.7053
4		0.9935	0.9518	0.7993	0.6053
5		0.9901	0.9420	0.8745	0.8550
6		0.9487	0.7671	0.6366	0.6121
7		0.9988	0.9925	0.9829	0.9801
8		1.0000	1.0000	1.0000	1.0000
9		1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
11		1.0000	1.0000	1.0000	1.0000
12		1.0000	1.0000	1.0000	1.0000
13		1.0000	1.0000	1.0000	1.0000
14		1.0000	1.0000	1.0000	1.0000
15		1.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000	1.0000
24		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000

OXYGEN N NCODE = 8

FE (1) T = 300

GROUP	SIGMA-0 =	1.0E 02	1.0E 01	1.0E 00	0.0
1		1.0002	0.9979	0.9824	0.9741
2		0.9984	0.9860	0.9568	0.8990
3		0.9960	0.9673	0.8727	0.8211
4		0.9965	0.9751	0.8960	0.8129
5		0.9946	0.9688	0.9263	0.9132
6		0.9737	0.8626	0.7480	0.7210
7		0.9994	0.9961	0.9905	0.9886
8		1.0000	1.0000	1.0000	1.0000
9		1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
11		1.0000	1.0000	1.0000	1.0000
12		1.0000	1.0000	1.0000	1.0000
13		1.0000	1.0000	1.0000	1.0000
14		1.0000	1.0000	1.0000	1.0000
15		1.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000	1.0000
24		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000

B-III-5. SODIUM

SODIUM N NCODE = 11

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	1.75994E 00	0.0	0.0	5.35513E-02	9.08699E-01	7.97692E-01	5.89047E-01	1.24801E-01
2	1.81118E 00	0.0	0.0	5.31957E-03	8.17192E-01	9.88667E-01	4.98775E-01	1.76395E-01
3	1.91830E 00	0.0	0.0	1.14393E-04	2.63724E-01	1.65446E 00	4.92524E-01	2.29583E-01
4	2.25483E 00	0.0	0.0	1.31771E-04	1.11057E-02	2.24359E 00	3.82862E-01	2.72291E-01
5	3.37734E 00	0.0	0.0	1.90286E-04	0.0	3.37715E 00	3.33164E-01	3.57741E-01
6	4.36472E 00	0.0	0.0	3.45973E-04	0.0	4.36436E 00	1.05887E-01	4.47443E-01
7	3.96607E 00	0.0	0.0	6.07860E-04	0.0	3.96546E 00	5.85933E-02	6.30834E-01
8	3.40535E 00	0.0	0.0	9.06389E-04	0.0	3.40445E 00	3.24985E-02	4.00517E-01
9	4.56140E 00	0.0	0.0	1.30205E-03	0.0	4.56010E 00	2.89272E-02	5.53900E-01
10	4.00034E 00	0.0	0.0	1.92465E-03	0.0	3.99841E 00	2.89268E-02	4.56536E-01
11	4.69841E 00	0.0	0.0	2.82660E-03	0.0	4.69558E 00	2.89270E-02	6.15383E-01
12	8.60077E 00	0.0	0.0	3.17994E-03	0.0	8.59759E 00	2.89274E-02	1.49812E 00
13	1.49188E 02	0.0	0.0	7.62420E-02	0.0	1.49112E 02	2.89270E-02	6.34708E 00
14	1.13545E 01	0.0	0.0	1.12783E-02	0.0	1.13433E 01	2.89269E-02	5.48461E-01
15	3.66097E 00	0.0	0.0	5.68273E-03	0.0	3.65529E 00	2.89273E-02	3.50296E-01
16	3.10657E 00	0.0	0.0	6.01326E-03	0.0	3.10056E 00	2.89271E-02	3.40473E-01
17	3.10717E 00	0.0	0.0	7.83248E-03	0.0	3.09934E 00	2.89265E-02	3.46662E-01
18	3.11000E 00	0.0	0.0	1.08212E-02	0.0	3.09918E 00	2.89273E-02	3.42716E-01
19	3.12417E 00	0.0	0.0	1.55492E-02	0.0	3.10862E 00	2.89268E-02	3.43115E-01
20	3.14810E 00	0.0	0.0	2.26854E-02	0.0	3.12542E 00	2.89264E-02	3.48936E-01
21	3.17446E 00	0.0	0.0	3.29679E-02	0.0	3.14149E 00	2.89275E-02	3.51007E-01
22	3.21052E 00	0.0	0.0	4.83933E-02	0.0	3.16253E 00	2.89269E-02	3.48748E-01
23	3.25789E 00	0.0	0.0	7.07761E-02	0.0	3.18711E 00	2.89264E-02	3.56551E-01
24	3.31782E 00	0.0	0.0	1.03999E-01	0.0	3.21382E 00	2.89275E-02	3.59253E-01
25	3.39396E 00	0.0	0.0	1.52015E-01	0.0	3.24195E 00	2.89274E-02	0.0

SODIUM N NCODE = 11

GROUP	INELASTIC & (N,2N) TRANSFER TO I&O ---- 1& 9							
1	9.72595E-02	3.35860E-01	2.09980E-01	1.54233E-01	6.90264E-02	3.14050E-02	8.31314E-03	2.07828E-03
	5.42978E-04	0.0						
2	2.63767E-01	3.37336E-01	1.48424E-01	4.56695E-02	1.66072E-02	4.15182E-03	1.03796E-03	1.98342E-04
	0.0	0.0						
3	0.0	2.65409E-02	8.15721E-02	9.34687E-02	4.10038E-02	1.50110E-02	4.81405E-03	1.07857E-03
	2.01138E-04	3.36840E-05						
4	0.0	0.0	0.0	4.36298E-03	3.99125E-03	1.88930E-03	6.69678E-04	1.58490E-04
	3.11682E-05	2.85774E-06						
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						

SODIUM N NCODE = 11

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0000	1.0000	0.9999
2	1.0001	1.0012	1.0101	1.0642
3	1.0000	0.9999	0.9993	0.9962
4	1.0000	1.0000	0.9997	0.9989
5	0.9999	0.9993	0.9948	0.9820
6	1.0002	1.0020	1.0136	1.0405
7	0.9999	0.9993	0.9953	0.9858
8	1.0001	1.0003	1.0019	1.0065
9	0.9999	0.9989	0.9929	0.9799
10	1.0000	0.9999	0.9991	0.9967
11	1.0000	0.9995	0.9967	0.9899
12	1.0000	1.0000	1.0007	1.0064
13	0.8677	0.5621	0.3653	0.3162
14	0.9967	0.9721	0.8841	0.8067
15	1.0000	0.9998	0.9988	0.9959
16	1.0000	1.0000	1.0000	1.0002
17	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	0.9999	0.9996
20	1.0000	1.0000	1.0000	0.9998
21	1.0000	1.0000	0.9999	0.9997
22	1.0000	1.0000	0.9999	0.9996
23	1.0000	1.0000	0.9999	0.9995
24	1.0000	1.0000	0.9999	0.9994
25	1.0000	1.0000	1.0000	0.9998

SODIUM N NCODE = 11

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0000	0.9999	0.9995
2	1.0000	0.9997	0.9978	0.9864
3	1.0000	0.9995	0.9959	0.9776
4	1.0000	0.9994	0.9946	0.9763
5	0.9999	0.9984	0.9877	0.9600
6	0.9996	0.9940	0.9569	0.8571
7	0.9998	0.9968	0.9767	0.9272
8	1.0000	0.9996	0.9969	0.9904
9	0.9997	0.9943	0.9641	0.9146
10	1.0000	1.0000	0.9997	0.9988
11	1.0000	0.9996	0.9968	0.9904
12	0.9994	0.9931	0.9627	0.9259
13	0.8732	0.5795	0.3960	0.3511
14	0.9954	0.9619	0.8424	0.7388
15	0.9998	0.9994	0.9963	0.9870
16	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000

SODIUM N NCODE = 11

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0000	0.9999	0.9993
2	1.0000	0.9998	0.9982	0.9894
3	0.9999	0.9993	0.9945	0.9698
4	0.9998	0.9990	0.9921	0.9644
5	0.9997	0.9972	0.9802	0.9388
6	0.9986	0.9873	0.9138	0.7295
7	0.9992	0.9933	0.9559	0.8711
8	0.9999	0.9991	0.9941	0.9835
9	0.9987	0.9884	0.9354	0.8664
10	1.0000	0.9999	0.9993	0.9975
11	0.9999	0.9991	0.9937	0.9815
12	0.9985	0.9861	0.9298	0.8694
13	0.7658	0.3850	0.2281	0.1957
14	0.9910	0.9270	0.7350	0.6061
15	0.9999	0.9990	0.9929	0.9751
16	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	0.9999
25	1.0000	1.0000	1.0000	1.0000

B-III-6. ALUMINIUM

ALUMINIUM N NCODE = 13

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	1.91593E 00	0.0	0.0	9.90891E-02	8.56997E-01	9.59842E-01	6.14895E-01	1.64832E-01
2	2.23325E 00	0.0	0.0	2.20798E-02	8.30685E-01	1.38048E 00	5.35798E-01	1.98014E-01
3	2.67281E 00	0.0	0.0	3.73888E-03	5.49796E-01	2.11978E 00	3.95675E-01	3.40236E-01
4	2.93042E 00	0.0	0.0	3.81535E-04	2.87698E-01	2.64234E 00	3.67331E-01	2.39366E-01
5	3.35264E 00	0.0	0.0	4.21187E-04	1.33541E-01	3.21868E 00	3.07734E-01	3.77166E-01
6	3.93496E 00	0.0	0.0	8.26644E-04	0.0	3.93413E 00	2.12236E-01	4.06231E-01
7	3.99156E 00	0.0	0.0	1.50599E-03	0.0	3.99005E 00	1.05126E-01	5.69508E-01
8	5.24768E 00	0.0	0.0	3.64676E-03	0.0	5.24403E 00	6.51974E-02	4.05167E-01
9	4.76212E 00	0.0	0.0	2.73032E-03	0.0	4.75939E 00	4.37853E-02	2.98995E-01
10	5.79523E 00	0.0	0.0	7.84161E-03	0.0	5.78739E 00	3.26235E-02	6.27863E-02
11	1.00548E 00	0.0	0.0	2.90035E-03	0.0	1.00258E 00	2.65480E-02	1.18045E-01
12	1.52720E 00	0.0	0.0	6.22355E-03	0.0	1.52098E 00	2.46529E-02	1.33434E-01
13	1.41006E 00	0.0	0.0	9.62481E-03	0.0	1.40044E 00	2.46519E-02	1.31262E-01
14	1.39987E 00	0.0	0.0	1.24805E-02	0.0	1.38739E 00	2.46516E-02	1.32033E-01
15	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46514E-02	1.31973E-01
16	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46508E-02	1.30976E-01
17	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46514E-02	1.31990E-01
18	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46513E-02	1.31973E-01
19	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46516E-02	1.30977E-01
20	1.40000E 00	0.0	0.0	1.40000E-02	0.0	1.38600E 00	2.46503E-02	1.32016E-01
21	1.41191E 00	0.0	0.0	1.64803E-02	0.0	1.39543E 00	2.46514E-02	1.33658E-01
22	1.43719E 00	0.0	0.0	2.26712E-02	0.0	1.41452E 00	2.46519E-02	1.34470E-01
23	1.46506E 00	0.0	0.0	3.11822E-02	0.0	1.43388E 00	2.46506E-02	1.37386E-01
24	1.48815E 00	0.0	0.0	4.43701E-02	0.0	1.44380E 00	2.46514E-02	1.37492E-01
25	1.51004E 00	0.0	0.0	6.58383E-02	0.0	1.44420E 00	2.46514E-02	0.0

ALUMINIUM N NCODE = 13

GROUP	INELASTIC + (N,2N) TRANSFER TO I-0 ---- I+ 8							
1	2.07587E-01	4.03629E-01	1.49919E-01	6.59645E-02	2.02968E-02	7.38064E-03	1.84516E-03	3.75073E-04
	0.0							
2	5.08322E-02	1.78652E-01	3.93448E-01	1.00723E-01	7.69259E-02	2.06769E-02	1.77742E-03	7.23074E-04
	6.92612E-03							
3	3.12218E-02	2.16757E-01	1.11420E-01	1.32004E-01	4.88523E-02	8.85496E-03	6.85104E-04	0.0
	0.0							
4	6.21067E-03	1.42247E-01	1.21235E-01	1.61135E-02	1.84879E-03	4.29049E-05	0.0	0.0
	0.0							
5	0.0	1.83902E-02	6.71501E-02	2.71268E-02	1.66456E-02	3.93012E-03	2.96446E-04	2.06957E-06
	0.0							
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0							

ALUMINIUM N NCODE = 13

FC (1) T = 300

GROUP	SIGMA-0 = 1·0E 03	1·0E 02	1·0E 01	1·0E 00	0·0
1	1·0000	1·0004	1·0054	1·0193	1·0295
2	1·0001	1·0004	1·0043	1·0169	1·0246
3	1·0001	1·0010	1·0093	1·0340	1·0458
4	1·0000	1·0000	1·0006	0·9980	0·9976
5	1·0000	0·9996	0·9904	0·9735	0·9669
6	0·9999	0·9986	0·9893	0·9692	0·9626
7	1·0000	0·9982	0·9869	0·9856	0·9937
8	1·0004	1·0008	1·0160	1·0572	1·0871
9	1·0003	1·0015	0·9973	0·9732	0·9545
10	0·9977	0·9631	0·8075	0·5243	0·4092
11	1·0000	0·9998	0·9970	0·9835	0·9675
12	1·0000	0·9998	0·9981	0·9921	0·9874
13	1·0001	1·0004	1·0004	1·0005	1·0009
14	1·0000	1·0000	1·0000	1·0000	1·0000
15	1·0000	1·0000	1·0000	1·0000	1·0000
16	1·0000	1·0000	1·0000	1·0000	1·0000
17	1·0000	1·0000	1·0000	1·0000	1·0000
18	1·0000	1·0000	1·0000	1·0000	1·0000
19	1·0000	1·0000	1·0000	1·0000	1·0000
20	1·0000	1·0000	1·0000	1·0000	1·0000
21	1·0000	1·0000	0·9999	0·9997	0·9995
22	1·0000	1·0000	0·9998	0·9997	0·9995
23	1·0000	1·0000	0·9999	0·9997	0·9995
24	1·0000	1·0000	0·9999	0·9996	0·9994
25	1·0000	1·0000	1·0000	1·0000	1·0000

ALUMINIUM N NCODE = 13

FE (1) T = 300

GROUP	SIGMA-0 = 1·0E 03	1·0E 02	1·0E 01	1·0E 00	0·0
1	0·9994	0·9992	0·9968	0·9884	0·9786
2	1·0000	0·9999	0·9986	0·9947	0·9931
3	1·0000	0·9997	0·9949	0·9827	0·9808
4	1·0000	1·0000	0·9975	0·9917	0·9874
5	1·0000	0·9992	0·9863	0·9583	0·9486
6	1·0000	0·9995	0·9897	0·9700	0·9630
7	0·9999	0·9965	0·9663	0·8939	0·8737
8	0·9973	0·9819	0·8915	0·7345	0·6697
9	0·9969	0·9554	0·7717	0·5600	0·5286
10	0·9882	0·9104	0·6416	0·3152	0·1982
11	1·0000	0·9999	0·9978	0·9876	0·9777
12	1·0000	0·9991	0·9939	0·9752	0·9655
13	1·0000	1·0000	0·9999	0·9999	0·9999
14	1·0000	1·0000	1·0000	1·0000	1·0000
15	1·0000	1·0000	1·0000	1·0000	1·0000
16	1·0000	1·0000	1·0000	1·0000	1·0000
17	1·0000	1·0000	1·0000	1·0000	1·0000
18	1·0000	1·0000	1·0000	1·0000	1·0000
19	1·0000	1·0000	1·0000	1·0000	1·0000
20	1·0000	1·0000	1·0000	1·0000	1·0000
21	1·0000	1·0000	1·0000	1·0000	1·0000
22	1·0000	1·0000	1·0000	1·0000	1·0000
23	1·0000	1·0000	1·0000	1·0000	1·0000
24	1·0000	1·0000	1·0000	1·0000	1·0000
25	1·0000	1·0000	1·0000	1·0000	1·0000

ALUMINIUM N NCODE = 13

FT (1) T = 300

GROUP	SIGMA-0 = 1·0E 03	1·0E 02	1·0E 01	1·0E 00	0·0
1	1·0000	0·9994	0·9975	0·9884	0·9822
2	1·0000	0·9998	0·9990	0·9953	0·9931
3	0·9995	0·9987	0·9952	0·9831	0·9779
4	0·9994	0·9973	0·9925	0·9805	0·9737
5	0·9995	0·9982	0·9727	0·9241	0·9072
6	0·9998	0·9975	0·9746	0·9407	0·9274
7	0·9998	0·9962	0·9532	0·8081	0·7473
8	0·9970	0·9656	0·7953	0·5520	0·4763
9	0·9938	0·9390	0·6922	0·4404	0·4028
10	0·9915	0·9021	0·4339	0·1497	0·1102
11	0·9995	0·9986	0·9931	0·9738	0·9507
12	0·9999	0·9986	0·9874	0·9561	0·9402
13	1·0000	1·0000	1·0000	0·9999	0·9998
14	1·0000	1·0000	1·0000	1·0000	1·0000
15	1·0000	1·0000	1·0000	1·0000	1·0000
16	1·0000	1·0000	1·0000	1·0000	1·0000
17	1·0000	1·0000	1·0000	1·0000	1·0000
18	1·0000	1·0000	1·0000	1·0000	1·0000
19	1·0000	1·0000	1·0000	1·0000	1·0000
20	1·0000	1·0000	1·0000	1·0000	1·0000
21	1·0000	1·0000	1·0000	1·0000	0·9999
22	1·0000	1·0000	1·0000	1·0000	0·9999
23	1·0000	1·0000	1·0000	1·0000	0·9999
24	1·0000	1·0000	1·0000	1·0000	1·0000
25	1·0000	1·0000	1·0000	1·0000	1·0000

B-Ⅲ-7. CHROMIUM

CHROMIUM N NCODE = 24

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	3.35166E 00	0.0	0.0	2.01029E-02	1.27538E 00	2.05618E 00	8.09949E-01	1.21913E-01
2	3.70909E 00	0.0	0.0	2.53429E-03	1.28686E 00	2.41969E 00	7.40803E-01	1.28046E-01
3	3.60834E 00	0.0	0.0	1.58686E-03	9.52407E-01	2.65434E 00	5.73827E-01	1.32894E-01
4	3.34639E 00	0.0	0.0	2.00667E-03	6.39185E-01	2.70520E 00	3.33431E-01	1.28990E-01
5	2.94824E 00	0.0	0.0	3.29678E-03	8.22619E-02	2.86268E 00	1.70830E-01	1.78961E-01
6	3.00198E 00	0.0	0.0	4.07196E-03	7.10759E-03	2.99080E 00	1.65459E-01	1.83193E-01
7	2.72530E 00	0.0	0.0	4.03010E-03	0.0	2.72127E 00	1.49739E-01	1.46925E-01
8	6.11283E 00	0.0	0.0	5.09394E-03	0.0	6.10774E 00	6.86145E-02	6.32755E-01
9	4.86950E 00	0.0	0.0	4.49207E-03	0.0	4.86500E 00	3.64810E-02	8.57897E-02
10	2.98128E 00	0.0	0.0	7.30477E-03	0.0	2.97397E 00	1.31579E-02	1.29960E-01
11	4.52332E 00	0.0	0.0	1.16382E-02	0.0	4.51168E 00	1.28139E-02	4.86626E-01
12	1.71029E 01	0.0	0.0	3.77365E-02	0.0	1.70652E 01	1.28152E-02	9.18976E-01
13	1.10963E 01	0.0	0.0	3.73198E-02	0.0	1.10590E 01	1.28126E-02	2.41752E-01
14	4.37244E 00	0.0	0.0	5.45854E-02	0.0	4.31785E 00	1.28120E-02	2.13885E-01
15	4.30356E 00	0.0	0.0	2.25367E-02	0.0	4.28103E 00	1.28141E-02	2.13790E-01
16	4.31287E 00	0.0	0.0	2.76734E-02	0.0	4.28520E 00	1.27879E-02	2.12943E-01
17	4.31961E 00	0.0	0.0	4.05074E-02	0.0	4.27910E 00	1.28124E-02	2.13625E-01
18	4.32229E 00	0.0	0.0	5.93131E-02	0.0	4.26297E 00	1.28134E-02	2.12461E-01
19	4.34897E 00	0.0	0.0	8.78885E-02	0.0	4.26108E 00	1.28152E-02	2.11713E-01
20	4.37336E 00	0.0	0.0	1.28625E-01	0.0	4.24474E 00	1.28146E-02	2.11357E-01
21	4.39469E 00	0.0	0.0	1.88920E-01	0.0	4.20577E 00	1.28126E-02	2.08576E-01
22	4.48116E 00	0.0	0.0	2.76774E-01	0.0	4.20439E 00	1.28133E-02	2.08673E-01
23	4.53625E 00	0.0	0.0	4.07810E-01	0.0	4.12844E 00	1.28153E-02	2.02781E-01
24	4.67842E 00	0.0	0.0	5.95070E-01	0.0	4.08335E 00	1.28123E-02	2.04880E-01
25	5.00081E 00	0.0	0.0	8.70873E-01	0.0	4.12994E 00	1.28126E-02	0.0

CHROMIUM N NCODE = 24

GROUP	INELASTIC & (N,2N) TRANSFER TO I&O ---- I&11							
1	0.0	9.39609E-02	2.64042E-01	3.97359E-01	2.79600E-01	1.65517E-01	5.56164E-02	1.46610E-02
	3.83031E-03	8.03978E-04	0.0	0.0				
2	1.68960E-02	1.08054E-01	5.77963E-01	2.77052E-01	1.81157E-01	7.87296E-02	3.28164E-02	1.13732E-02
	2.46683E-03	3.60261E-04	0.0	0.0				
3	5.39904E-05	3.99638E-01	3.72441E-01	8.65257E-02	5.32310E-02	2.54701E-02	1.12242E-02	2.65055E-03
	3.30275E-04	3.18152E-04	3.78773E-04	1.45122E-04				
4	2.08903E-02	1.94859E-01	2.64037E-01	9.73390E-02	3.75467E-02	1.61919E-02	6.09523E-03	6.70511E-04
	2.89847E-04	9.41498E-04	3.23752E-04	0.0				
5	3.58847E-04	3.18186E-02	3.28349E-02	1.11817E-02	4.51178E-03	1.16999E-03	2.42897E-04	1.38179E-04
	4.96413E-06	0.0	0.0	0.0				
6	0.0	6.76564E-04	3.52404E-03	1.73314E-03	7.38891E-04	2.66364E-04	1.16727E-04	5.18723E-05
	0.0	0.0	0.0	0.0				
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				

CHROMIUM N NCODE = 24

FC (1) T = 300

GROUP	SIGMA-0 =	1.0E 03	1.0E 02	1.0E 01	1.0E 00	0.0
1		1.0072	1.0084	1.0179	1.0421	1.0535
2		1.0049	1.0052	1.0077	1.0133	1.0156
3		1.0000	1.0000	1.0004	1.0012	1.0015
4		1.0000	1.0004	1.0028	1.0085	1.0112
5		0.9999	0.9996	0.9975	0.9939	0.9926
6		1.0000	1.0000	1.0003	1.0003	1.0005
7		1.0000	0.9997	0.9969	0.9870	0.9804
8		1.0000	0.9996	0.9978	0.9969	0.9976
9		0.9998	0.9981	0.9935	1.0048	1.0208
10		0.9999	0.9995	0.9954	0.9765	0.9550
11		0.9997	0.9971	0.9814	0.9575	0.9498
12		0.9990	0.9915	0.9600	0.9349	0.9299
13		1.0000	1.0004	1.0069	1.0218	1.0267
14		0.9997	0.9995	0.9984	0.9964	0.9957
15		1.0000	1.0000	1.0000	1.0000	1.0000
16		1.0001	1.0001	1.0001	1.0000	1.0000
17		1.0001	1.0001	1.0001	1.0001	1.0001
18		1.0000	1.0000	1.0000	1.0000	0.9999
19		1.0001	1.0001	1.0000	0.9999	0.9998
20		1.0001	1.0001	1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000	0.9999	0.9998
22		1.0001	1.0000	0.9998	0.9993	0.9992
23		1.0001	1.0001	1.0001	1.0001	1.0001
24		1.0000	0.9999	0.9994	0.9984	0.9980
25		1.0003	1.0002	0.9999	0.9993	0.9991

CHROMIUM N NCODE = 24

FE (1) T = 300

GROUP	SIGMA-0 =	1.0E 03	1.0E 02	1.0E 01	1.0E 00	0.0
1		1.0000	0.9998	0.9987	0.9957	0.9943
2		1.0000	1.0000	0.9998	0.9996	0.9995
3		1.0000	1.0000	0.9998	0.9994	0.9992
4		0.9993	0.9984	0.9921	0.9774	0.9710
5		0.9922	0.9908	0.9802	0.9575	0.9473
6		0.9904	0.9868	0.9581	0.8835	0.8379
7		0.9987	0.9954	0.9707	0.9090	0.8753
8		0.9999	0.9867	0.9124	0.8018	0.7601
9		0.9991	0.9611	0.7898	0.5889	0.5052
10		0.9999	0.9970	0.9731	0.8926	0.8214
11		0.9994	0.9919	0.9482	0.8860	0.8664
12		0.9995	0.9921	0.9624	0.9397	0.9353
13		0.9968	0.9710	0.8631	0.7751	0.7567
14		0.9999	0.9999	0.9998	0.9994	0.9993
15		1.0000	1.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000	1.0000
20		1.0000	1.0000	1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000	1.0000	1.0000
23		0.9998	0.9998	0.9998	0.9998	0.9998
24		1.0000	1.0000	1.0000	1.0000	0.9999
25		1.0000	1.0000	1.0000	1.0000	1.0000

CHROMIUM N NCODE = 24

FT (1) T = 300

GROUP	SIGMA-0 =	1.0E 03	1.0E 02	1.0E 01	1.0E 00	0.0
1		0.9988	0.9986	0.9972	0.9935	0.9917
2		0.9996	0.9995	0.9994	0.9991	0.9990
3		1.0000	0.9999	0.9994	0.9981	0.9976
4		0.9991	0.9975	0.9837	0.9522	0.9386
5		1.0000	0.9961	0.9790	0.9371	0.9185
6		0.9999	0.9907	0.9379	0.7944	0.6951
7		0.9998	0.9930	0.9460	0.8378	0.7714
8		0.9997	0.9739	0.8361	0.6493	0.5678
9		0.9983	0.9255	0.6573	0.4166	0.3117
10		0.9998	0.9938	0.9446	0.7777	0.5781
11		0.9987	0.9838	0.9052	0.8097	0.7827
12		0.9980	0.9832	0.9220	0.8732	0.8634
13		0.9935	0.9431	0.7571	0.6396	0.6188
14		1.0000	1.0000	0.9996	0.9990	0.9988
15		1.0000	1.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000	1.0000	1.0000
18		1.0000	1.0000	1.0000	1.0000	1.0000
19		0.9999	0.9999	0.9999	0.9999	0.9999
20		1.0000	1.0000	1.0000	1.0000	1.0000
21		1.0000	1.0000	1.0000	1.0000	1.0000
22		0.9998	0.9998	0.9998	0.9997	0.9997
23		1.0000	1.0000	1.0000	1.0000	1.0000
24		0.9997	0.9997	0.9995	0.9992	0.9991
25		0.9998	0.9998	0.9996	0.9992	0.9991

B-Ⅲ-8. IRON

IRON N NCODE = 26

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-BAR	ELASTIC-REMOVAL
1	3.46235E 00	0.	0.	3.70433E-02	1.35214E 00	2.07316E 00	8.28536E-01	1.18765E-01
2	3.69365E 00	0.	0.	4.87243E-03	1.39806E 00	2.29071E 00	7.61100E-01	1.11941E-01
3	3.39685E 00	0.	0.	2.18671E-03	1.07186E 00	2.32280E 00	5.09541E-01	1.30547E-01
4	3.00807E 00	0.	0.	2.94890E-03	7.43090E-01	2.26203E 00	2.88756E-01	1.04350E-01
5	2.50775E 00	0.	0.	3.97774E-03	3.01912E-01	2.20186E 00	2.14263E-01	1.28784E-01
6	3.14236E 00	0.	0.	5.61103E-03	0.	3.13734E 00	1.64686E-01	2.09370E-01
7	2.98450E 00	0.	0.	5.97845E-03	0.	2.98352E 00	9.13924E-02	1.85407E-01
8	3.70401E 00	0.	0.	9.29715E-03	0.	3.69471E 00	6.30902E-02	1.99536E-01
9	5.26631E 00	0.	0.	2.17316E-02	0.	5.24458E 00	2.89864E-02	1.96082E-01
10	1.30964E 01	0.	0.	2.87644E-02	0.	1.30676E 01	1.19123E-02	6.81075E-02
11	3.91689E 00	0.	0.	1.84614E-02	0.	3.89843E 00	1.19118E-02	3.13760E-01
12	1.31163E 01	0.	0.	4.70890E-02	0.	1.30692E 01	1.19100E-02	2.37041E-01
13	5.57373E 00	0.	0.	1.05046E-02	0.	5.56327E 00	1.19117E-02	2.90603E-01
14	7.85484E 00	0.	0.	2.18537E-01	0.	7.63631E 00	1.19111E-02	4.07735E-01
15	9.89167E 00	0.	0.	1.55957E-02	0.	9.87607E 00	1.19102E-02	4.86802E-01
16	1.09694E 01	0.	0.	2.27691E-02	0.	1.09467E 01	1.19117E-02	5.15161E-01
17	1.13761E 01	0.	0.	3.34450E-02	0.	1.13426E 01	1.19106E-02	5.28490E-01
18	1.14489E 01	0.	0.	4.90445E-02	0.	1.13998E 01	1.19097E-02	5.27230E-01
19	1.14720E 01	0.	0.	7.20287E-02	0.	1.14000E 01	1.19084E-02	5.23218E-01
20	1.15059E 01	0.	0.	1.05873E-01	0.	1.14000E 01	1.19116E-02	5.32433E-01
21	1.15553E 01	0.	0.	1.55252E-01	0.	1.14000E 01	1.19107E-02	5.26903E-01
22	1.16280E 01	0.	0.	2.28043E-01	0.	1.14000E 01	1.19109E-02	5.28482E-01
23	1.17349E 01	0.	0.	3.34873E-01	0.	1.14000E 01	1.19088E-02	5.32295E-01
24	1.18906E 01	0.	0.	4.90634E-01	0.	1.14000E 01	1.19131E-02	5.27318E-01
25	1.20879E 01	0.	0.	6.87879E-01	0.	1.14000E 01	1.19116E-02	0.

IRON N NCODE = 26

GROUP	INELASTIC + (N,2N) TRANSFER TO I+0 ---- I+ 9							
1	2.89078E-03	1.11377E-01	2.65919E-01	4.13472E-01	2.96174E-01	1.78546E-01	6.01900E-02	1.77313E-02
	4.80156E-03	1.04145E-03						
2	3.44685E-02	2.02952E-01	4.18464E-01	3.64537E-01	2.49882E-01	9.02673E-02	2.77875E-02	7.82235E-03
	1.69665E-03	1.86323E-04						
3	1.27854E-01	5.40206E-01	1.13717E-01	1.63893E-01	8.43713E-02	2.70463E-02	1.07227E-02	3.19434E-03
	7.70634E-04	8.59328E-05						
4	1.21320E-01	4.06892E-01	2.01272E-01	9.25110E-03	3.26678E-03	9.02746E-04	1.85497E-04	0.
	0.	0.						
5	0.	9.27184E-02	1.28642E-01	5.80165E-02	1.72863E-02	4.18595E-03	8.97491E-04	1.41710E-04
	2.37613E-05	0.						
6	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
7	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
8	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
9	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
10	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
11	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
12	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
13	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
14	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
15	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
16	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
17	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
18	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
19	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
20	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
21	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
22	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
23	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
24	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						
25	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.						

IRON N NCODE = 26

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 02	1.0E 01	1.0E 00	0.
1	1.0013	1.0051	1.0142	1.0183
2	1.0008	1.0011	1.0017	1.0020
3	1.0000	1.0004	1.0011	1.0015
4	1.0001	1.0009	1.0026	1.0038
5	1.0000	1.0003	1.0014	1.0022
6	0.9999	0.9993	0.9975	0.9966
7	1.0000	0.9997	0.9970	0.9942
8	0.9983	0.9871	0.9635	0.9553
9	0.9993	0.9933	0.9757	0.9670
10	0.9579	0.9094	0.9594	1.0045
11	0.9971	0.9787	0.9419	0.9276
12	0.9777	0.8996	0.8363	0.8225
13	0.9997	0.9981	0.9966	0.9964
14	0.9624	0.8144	0.6907	0.6654
15	0.9996	0.9978	0.9959	0.9955
16	0.9998	0.9990	0.9982	0.9980
17	1.0000	0.9997	0.9996	0.9995
18	1.0000	0.9999	0.9999	0.9999
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	0.9999	0.9999	0.9999
21	1.0000	0.9999	0.9998	0.9998
22	1.0000	0.9999	0.9998	0.9997
23	1.0000	0.9998	0.9997	0.9996
24	0.9999	0.9997	0.9995	0.9995
25	0.9999	0.9996	0.9996	0.9996

IRON N NCODE = 26

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 02	1.0E 01	1.0E 00	0.
1	0.9993	0.9985	0.9966	0.9958
2	0.9999	0.9999	0.9998	0.9998
3	1.0000	0.9997	0.9991	0.9989
4	1.0001	0.9973	0.9896	0.9858
5	0.9997	0.9941	0.9780	0.9688
6	0.9983	0.9871	0.9606	0.9486
7	0.9984	0.9662	0.8800	0.8295
8	0.9989	0.8935	0.7170	0.6135
9	0.9634	0.8363	0.7094	0.6625
10	0.8205	0.5183	0.3026	0.2145
11	0.9947	0.9569	0.8756	0.8394
12	0.9736	0.8844	0.8154	0.8007
13	0.9996	0.9968	0.9924	0.9910
14	0.9993	0.9954	0.9908	0.9897
15	0.9999	0.9990	0.9981	0.9979
16	1.0000	0.9999	0.9997	0.9997
17	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000

IRON N NCODE = 26

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 02	1.0E 01	1.0E 00	0.
1	0.9999	0.9990	0.9967	0.9957
2	0.9999	1.0000	0.9999	0.9999
3	0.9998	0.9988	0.9964	0.9954
4	0.9999	0.9996	0.9810	0.9739
5	0.9997	0.9897	0.9605	0.9430
6	0.9968	0.9747	0.9252	0.9043
7	0.9938	0.9305	0.7675	0.6771
8	0.9791	0.7973	0.5314	0.3512
9	0.9590	0.7632	0.5871	0.5092
10	0.6973	0.3466	0.1328	0.0801
11	0.9881	0.9143	0.7662	0.7056
12	0.9491	0.7921	0.6834	0.6610
13	0.9991	0.9935	0.9849	0.9822
14	0.9962	0.9800	0.9654	0.9621
15	0.9996	0.9979	0.9962	0.9958
16	0.9999	0.9997	0.9994	0.9993
17	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000

B-III-9. NICKEL

NICKEL N NCODE = 28

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MUBE	ELASTIC-REMOVAL
1	3.52694E 00	0.0	0.0	4.34302E-01	1.05284E 00	2.03980E 00	8.10574E-01	8.13245E-02
2	3.56968E 00	0.0	0.0	3.46270E-01	1.18257E 00	2.04084E 00	7.39097E-01	6.90164E-02
3	3.31227E 00	0.0	0.0	1.59377E-01	1.05048E 00	2.10241E 00	5.10605E-01	1.27787E-01
4	3.20765E 00	0.0	0.0	3.32661E-02	4.61967E-01	2.71241E 00	2.17744E-01	1.35646E-01
5	3.11238E 00	0.0	0.0	7.34146E-03	3.13531E-04	3.10472E 00	1.12996E-01	1.25193E-01
6	3.43361E 00	0.0	0.0	8.37047E-03	0.0	3.42524E 00	1.10076E-01	1.21156E-01
7	4.99944E 00	0.0	0.0	8.27345E-03	0.0	4.99116E 00	5.87720E-02	2.66270E-01
8	6.08577E 00	0.0	0.0	7.16759E-03	0.0	6.07861E 00	5.36657E-02	2.65190E-01
9	8.33775E 00	0.0	0.0	7.16935E-03	0.0	8.33058E 00	3.75302E-02	2.15364E-01
10	1.12967E 01	0.0	0.0	1.06919E-02	0.0	1.12860E 01	1.17100E-02	7.35765E-01
11	4.19506E 01	0.0	0.0	2.50109E-02	0.0	4.19256E 01	1.13331E-02	4.94052E-01
12	1.47684E 01	0.0	0.0	1.50027E-02	0.0	1.47534E 01	1.13334E-02	1.32495E 00
13	2.00591E 01	0.0	0.0	2.52649E-02	0.0	2.00339E 01	1.13322E-02	6.80685E-01
14	1.48932E 01	0.0	0.0	2.41399E-02	0.0	1.48690E 01	1.13328E-02	6.67632E-01
15	1.55692E 01	0.0	0.0	2.82388E-02	0.0	1.55409E 01	1.13315E-02	7.22728E-01
16	1.68211E 01	0.0	0.0	4.14982E-02	0.0	1.67796E 01	1.13335E-02	7.42435E-01
17	1.70954E 01	0.0	0.0	6.11512E-02	0.0	1.70343E 01	1.13318E-02	7.66057E-01
18	1.72278E 01	0.0	0.0	8.93956E-02	0.0	1.71384E 01	1.13324E-02	7.56162E-01
19	1.73129E 01	0.0	0.0	1.31313E-01	0.0	1.71816E 01	1.13325E-02	7.53651E-01
20	1.73922E 01	0.0	0.0	1.93370E-01	0.0	1.71988E 01	1.13334E-02	7.70729E-01
21	1.74856E 01	0.0	0.0	2.82669E-01	0.0	1.72030E 01	1.13324E-02	7.57839E-01
22	1.76139E 01	0.0	0.0	4.15236E-01	0.0	1.71987E 01	1.13321E-02	7.53708E-01
23	1.77980E 01	0.0	0.0	6.11514E-01	0.0	1.71865E 01	1.13332E-02	7.69593E-01
24	1.82390E 01	0.0	0.0	8.93963E-01	0.0	1.73450E 01	1.13328E-02	7.69184E-01
25	1.87952E 01	0.0	0.0	1.31313E 00	0.0	1.74821E 01	1.13323E-02	0.0

NICKEL N NCODE = 28

GROUP	INELASTIC + (N,2N) TRANSFER TO I+0 ---- I+10							
1	6.97290E-05	8.33452E-03	6.52123E-02	2.43431E-01	3.07067E-01	2.66462E-01	1.13039E-01	3.65241E-02
	1.01260E-02	2.19633E-03	3.82213E-04					
2	1.30268E-01	3.84164E-01	2.46126E-01	1.81147E-01	1.47484E-01	6.45151E-02	2.12902E-02	6.11732E-03
	1.22270E-03	2.37487E-04	0.0					
3	2.81207E-01	3.04362E-01	3.05688E-01	8.45767E-02	5.18341E-02	1.62921E-02	5.36367E-03	1.15514E-03
	0.0	0.0	0.0					
4	0.0	1.22203E-01	2.18078E-01	8.57601E-02	3.50482E-02	8.06213E-04	5.19825E-05	0.0
	0.0	0.0	0.0					
5	0.0	0.0	0.0	0.0	4.59955E-05	1.86610E-04	8.09258E-05	0.0
	0.0	0.0	0.0					
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					

NICKEL N NCODE = 28

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 02	1.0E 01	1.0E 00	0.0
1	1.0000	1.0001	1.0004	1.0006
2	0.9999	0.9994	0.9984	0.9980
3	0.9995	0.9985	0.9946	0.9936
4	0.9994	0.9990	0.9980	0.9983
5	0.9996	0.9991	0.9976	0.9969
6	1.0000	0.9996	0.9987	0.9984
7	1.0003	1.0016	1.0036	1.0042
8	0.9999	0.9994	0.9984	0.9979
9	1.0007	1.0042	1.0082	1.0088
10	0.9849	0.9402	0.9071	0.9000
11	0.9317	0.8314	0.7938	0.7881
12	0.9906	0.9655	0.9515	0.9491
13	1.0053	1.0232	1.0329	1.0345
14	0.9999	0.9994	0.9986	0.9985
15	0.9996	0.9976	0.9965	0.9963
16	0.9994	0.9994	0.9992	0.9991
17	0.9997	0.9996	0.9995	0.9995
18	0.9999	0.9998	0.9996	0.9997
19	1.0000	0.9999	0.9999	0.9999
20	0.9998	0.9997	0.9996	0.9996
21	0.9999	0.9998	0.9997	0.9997
22	1.0000	0.9998	0.9997	0.9997
23	0.9997	0.9995	0.9994	0.9994
24	0.9997	0.9991	0.9987	0.9986
25	1.0002	1.0000	0.9998	0.9998

NICKEL N NCODE = 28

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 02	1.0E 01	1.0E 00	0.0
1	0.9998	0.9995	0.9985	0.9980
2	0.9997	0.9995	0.9990	0.9988
3	1.0000	1.0001	1.0003	1.0004
4	1.0000	1.0000	1.0001	1.0001
5	0.9977	0.9937	0.9835	0.9784
6	0.9971	0.9860	0.9615	0.9506
7	0.9958	0.9717	0.9318	0.9181
8	0.9841	0.9074	0.7983	0.7592
9	0.9544	0.8043	0.6642	0.6217
10	0.9690	0.8705	0.7932	0.7765
11	0.9005	0.7582	0.7030	0.6942
12	0.9754	0.9027	0.8596	0.8521
13	0.9909	0.9670	0.9549	0.9529
14	0.9999	0.9999	0.9998	0.9998
15	0.9999	0.9993	0.9989	0.9989
16	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	0.9999	0.9999
25	1.0000	1.0000	1.0000	1.0000

NICKEL N NCODE = 28

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 02	1.0E 01	1.0E 00	0.0
1	0.9993	0.9986	0.9972	0.9966
2	1.0000	0.9997	0.9993	0.9991
3	0.9999	0.9998	0.9995	0.9995
4	0.9999	0.9998	0.9996	0.9994
5	0.9983	0.9904	0.9697	0.9590
6	0.9965	0.9748	0.9281	0.9074
7	0.9918	0.9453	0.8720	0.8467
8	0.9693	0.8289	0.6467	0.5823
9	0.9137	0.6793	0.4889	0.4311
10	0.9404	0.7754	0.6643	0.6428
11	0.8197	0.5962	0.5141	0.5015
12	0.9507	0.8289	0.7706	0.7615
13	0.9827	0.9393	0.9193	0.9162
14	0.9999	0.9997	0.9996	0.9996
15	0.9993	0.9982	0.9975	0.9973
16	0.9999	0.9998	0.9998	0.9998
17	0.9999	0.9999	0.9999	0.9999
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	0.9999	0.9999
23	0.9999	0.9999	0.9999	0.9999
24	0.9998	0.9997	0.9996	0.9996
25	0.9999	0.9999	0.9998	0.9998

B-III-10. COPPER

COPPER N NCODE = 29

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	3.53902E 00	0.0	0.0	9.24271E-02	1.53383E 00	1.91277E 00	6.89885E-01	7.83119E-02
2	3.59827E 00	0.0	0.0	7.13185E-02	1.59943E 00	1.92752E 00	8.05905E-01	1.25397E-01
3	3.23425E 00	0.0	0.0	4.47935E-02	1.44920E 00	1.74025E 00	7.36431E-01	9.89370E-02
4	2.80008E 00	0.0	0.0	1.73544E-02	5.80323E-01	2.20241E 00	5.58818E-01	1.16856E-01
5	3.44103E 00	0.0	0.0	1.27382E-02	2.97883E-01	3.13040E 00	3.12043E-01	1.77651E-01
6	4.28050E 00	0.0	0.0	1.48987E-02	9.88335E-03	4.25572E 00	1.32609E-01	2.26881E-01
7	5.07308E 00	0.0	0.0	1.59658E-02	0.0	5.05711E 00	1.01736E-01	2.53162E-01
8	5.07763E 00	0.0	0.0	1.81439E-02	0.0	5.05949E 00	2.64622E-02	2.12735E-01
9	6.87393E 00	0.0	0.0	2.54650E-02	0.0	6.84846E 00	4.11085E-03	2.62559E-01
10	8.04858E 00	0.0	0.0	4.48190E-02	0.0	8.00376E 00	4.08850E-03	3.46352E-01
11	9.62466E 00	0.0	0.0	7.32979E-02	0.0	9.55136E 00	4.06769E-03	4.05593E-01
12	1.31720E 01	0.0	0.0	1.58059E-01	0.0	1.30139E 01	4.02373E-03	3.51060E-01
13	1.50235E 01	0.0	0.0	2.10568E-01	0.0	1.48130E 01	3.95613E-03	9.76768E-01
14	1.77217E 01	0.0	0.0	1.54987E-01	0.0	1.75667E 01	3.67825E-03	2.73834E-01
15	1.25619E 01	0.0	0.0	2.15655E 00	0.0	1.04053E 01	3.90277E-03	2.41612E-01
16	7.17086E 00	0.0	0.0	2.91484E-01	0.0	6.87937E 00	4.09144E-03	2.75618E-01
17	7.06034E 00	0.0	0.0	2.28946E-02	0.0	7.03745E 00	4.10634E-03	2.92636E-01
18	7.22092E 00	0.0	0.0	4.60450E-02	0.0	7.18088E 00	4.07425E-03	2.94649E-01
19	7.34705E 00	0.0	0.0	7.55808E-02	0.0	7.27147E 00	4.09451E-03	2.97824E-01
20	7.45885E 00	0.0	0.0	1.31138E-01	0.0	7.32771E 00	4.12128E-03	3.01169E-01
21	7.57131E 00	0.0	0.0	2.10707E-01	0.0	7.36060E 00	4.07374E-03	3.00378E-01
22	7.70281E 00	0.0	0.0	3.25791E-01	0.0	7.37702E 00	4.09269E-03	3.00999E-01
23	7.87542E 00	0.0	0.0	4.90541E-01	0.0	7.38488E 00	4.11947E-03	3.02791E-01
24	8.11437E 00	0.0	0.0	7.25517E-01	0.0	7.38885E 00	4.09719E-03	3.00085E-01
25	8.46451E 00	0.0	0.0	1.07436E 00	0.0	7.39015E 00	4.11438E-03	0.0

COPPER N NCODE = 29

GROUP INELASTIC & (N,2N) TRANSFER TO I&O ---- I& 9

1	5.14487E-03	8.11740E-02	2.50752E-01	4.66360E-01	3.74523E-01	2.41334E-01	8.48036E-02	2.25677E-02
	5.89599E-03	1.27883E-03						
2	2.32558E-02	1.72350E-01	4.46586E-01	4.47781E-01	3.32104E-01	1.28384E-01	3.69889E-02	9.66364E-03
	2.09603E-03	2.30181E-04						
3	5.65746E-02	3.34466E-01	4.38228E-01	3.84453E-01	1.65549E-01	5.25181E-02	1.38843E-02	3.01148E-03
	5.24068E-04	0.0						
4	7.24379E-02	2.24553E-01	1.70164E-01	8.20487E-02	2.33264E-02	6.13344E-03	1.38876E-03	2.72767E-04
	0.0	0.0						
5	0.0	9.71155E-02	1.33402E-01	4.87976E-02	1.49289E-02	3.28639E-03	3.53089E-04	0.0
	0.0	0.0						
6	0.0	0.0	2.75287E-03	5.30236E-03	1.47527E-03	3.52847E-04	0.0	0.0
	0.0	0.0						
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0						

COPPER N NCODE = 29

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0000	1.0002	1.0008
2	1.0000	0.9999	0.9994	0.9976
3	1.0000	0.9998	0.9987	0.9948
4	1.0000	1.0002	1.0012	1.0051
5	1.0000	0.9999	0.9993	0.9974
6	1.0000	0.9999	0.9993	0.9975
7	1.0000	1.0000	1.0000	0.9999
8	1.0000	1.0001	1.0009	1.0027
9	1.0000	0.9997	0.9985	0.9972
10	0.9998	0.9984	0.9896	0.9717
11	0.9999	0.9992	0.9954	0.9901
12	0.9612	0.7988	0.6268	0.6043
13	0.9069	0.6050	0.3381	0.2491
14	0.8879	0.5362	0.2544	0.1772
15	0.7081	0.3147	0.1384	0.0967
16	0.9505	0.7159	0.4070	0.2970
17	1.0000	1.0000	0.9997	0.9993
18	1.0000	0.9999	0.9995	0.9989
19	1.0000	0.9999	0.9996	0.9991
20	1.0000	0.9999	0.9997	0.9992
21	1.0000	1.0000	0.9997	0.9994
22	1.0000	0.9999	0.9997	0.9992
23	1.0000	0.9999	0.9995	0.9990
24	1.0000	0.9999	0.9994	0.9987
25	1.0000	0.9998	0.9987	0.9972

COPPER N NCODE = 29

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0000	0.9998	0.9991
2	1.0000	1.0000	0.9998	0.9993
3	1.0000	1.0000	1.0000	0.9999
4	1.0000	0.9999	0.9993	0.9972
5	1.0000	0.9999	0.9991	0.9966
6	1.0000	0.9997	0.9978	0.9927
7	1.0000	0.9999	0.9994	0.9984
8	0.9999	0.9995	0.9965	0.9897
9	0.9991	0.9920	0.9537	0.8946
10	0.9996	0.9958	0.9729	0.9249
11	0.9996	0.9967	0.9814	0.9612
12	0.9743	0.8617	0.6953	0.5479
13	0.9756	0.8753	0.7387	0.6739
14	0.9169	0.6566	0.4544	0.4027
15	0.9005	0.7644	0.6973	0.6755
16	0.9958	0.9987	0.9970	0.9959
17	1.0000	1.0000	1.0000	0.9999
18	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
21	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000

COPPER N NCODE = 29

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	0.9999	0.9996	0.9984
2	0.9996	1.0000	0.9998	0.9991
3	0.9997	0.9999	0.9994	0.9977
4	0.9998	0.9999	0.9996	0.9984
5	0.9996	0.9999	0.9992	0.9970
6	0.9998	0.9994	0.9958	0.9861
7	0.9998	0.9999	0.9989	0.9969
8	0.9997	0.9989	0.9924	0.9773
9	0.9975	0.9842	0.9131	0.8133
10	0.9989	0.9915	0.9439	0.8271
11	0.9991	0.9934	0.9631	0.9234
12	0.9501	0.7808	0.5817	0.3452
13	0.9508	0.7952	0.6458	0.5778
14	0.8463	0.5138	0.3798	0.3597
15	0.7870	0.6222	0.5689	0.5507
16	0.9956	0.9795	0.9657	0.9614
17	1.0000	1.0000	0.9999	0.9998
18	1.0000	1.0000	1.0000	0.9999
19	0.9999	1.0000	1.0000	1.0000
20	0.9999	1.0000	1.0000	1.0000
21	0.9999	1.0000	1.0000	1.0000
22	0.9999	1.0000	1.0000	0.9999
23	0.9999	1.0000	0.9999	0.9999
24	1.0000	1.0000	0.9999	0.9998
25	1.0000	0.9999	0.9995	0.9989

B-Ⅲ-11. URANIUM-235

URANIUM 235 NCODE = 925

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	6.53485E 00	1.65994E 00	3.45366E 00	2.38704E-03	1.27107E 00	3.60146E 00	8.53294E-01	5.07727E-02
2	7.39884E 00	1.12113E 00	3.03325E 00	4.48705E-03	1.80798E 00	4.46523E 00	8.28308E-01	5.72529E-02
3	7.75439E 00	1.22215E 00	2.77531E 00	1.06095E-02	1.79498E 00	4.72666E 00	7.63528E-01	4.46119E-02
4	7.00603E 00	1.28929E 00	2.63138E 00	3.84474E-02	1.65635E 00	4.02195E 00	5.65997E-01	2.89278E-02
5	6.70810E 00	1.21216E 00	2.54690E 00	9.28407E-02	1.39301E 00	4.01009E 00	4.52814E-01	3.20549E-02
6	7.72793E 00	1.16080E 00	2.49130E 00	1.45803E-01	1.15941E 00	5.26191E 00	3.42215E-01	6.90069E-02
7	9.48021E 00	1.31716E 00	2.46644E 00	2.24062E-01	7.80482E-01	7.15851E 00	2.08300E-01	9.89065E-02
8	1.10662E 01	1.52522E 00	2.44840E 00	3.62687E-01	4.76229E-01	8.70203E 00	1.24697E-01	1.06034E-01
9	1.27056E 01	1.80696E 00	2.43973E 00	5.71402E-01	1.78562E-01	1.01487E 01	6.56850E-02	1.16785E-01
10	1.39530E 01	2.22463E 00	2.43922E 00	7.83655E-01	1.87957E-02	1.09260E 01	5.15226E-02	1.73308E-01
11	1.49804E 01	2.92778E 00	2.43871E 00	9.99928E-01	1.24546E-04	1.10526E 01	4.03825E-02	1.36951E-01

URANIUM 235 NCODE = 925

GROUP INELASTIC & (N,2N) TRANSFER TO I&O ---- I&10

1	2.53421E-02	1.56367E-01	3.88904E-01	6.10999E-01	2.52606E-01	1.50129E-01	5.63088E-02	1.72528E-02
	4.99538E-03	1.14365E-03	1.22045E-04					
2	1.51321E-02	1.46900E-01	4.48763E-01	5.39945E-01	4.35501E-01	1.75799E-01	5.55403E-02	1.63040E-02
	3.76710E-03	6.75331E-04	0.0					
3	4.80077E-02	3.45971E-01	5.32607E-01	5.17733E-01	2.37685E-01	8.10475E-02	2.48064E-02	5.83496E-03
	1.29589E-03	0.0	0.0					
4	1.39740E-01	4.57502E-01	5.79420E-01	3.14002E-01	1.16959E-01	3.74536E-02	9.02184E-03	2.02142E-03
	2.29510E-04	0.0	0.0					
5	3.42443E-01	5.52393E-01	3.10150E-01	1.29812E-01	4.42432E-02	1.10101E-02	2.50224E-03	4.57738E-04
	0.0	0.0	0.0					
6	5.93015E-01	4.19638E-01	1.04479E-01	3.10600E-02	9.94911E-03	1.09515E-03	1.78669E-04	0.0
	0.0	0.0	0.0					
7	3.40755E-01	3.51052E-01	6.67C39E-02	1.21151E-02	7.07496E-03	1.88036E-03	4.95008E-04	0.0
	3.04530E-04	1.01510E-04	0.0					
8	1.82591E-01	2.63207E-01	2.49260E-02	5.28514E-03	1.63398E-04	3.96087E-05	1.61962E-05	0.0
	0.0	0.0	0.0					
9	5.04336E-02	9.20470E-02	2.75566E-02	8.13652E-03	3.28381E-04	4.74545E-05	1.04447E-05	0.0
	0.0	0.0	0.0					
10	1.16908E-02	6.867C7E-03	2.37827E-04	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
11	0.0	1.24546E-04	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					

URANIUM 235 NCODE = 925

FF (1) T = 300.

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0002	1.0013	1.0053
2	1.0000	1.0000	1.0001	1.0003
3	1.0000	1.0000	1.0001	0.9998
4	1.0000	1.0000	0.9998	0.9995
5	1.0000	1.0000	1.0001	1.0003
6	1.0000	0.9999	0.9994	0.9984
7	1.0000	0.9998	0.9989	0.9969
8	0.9999	0.9997	0.9989	0.9964
9	1.0000	0.9998	0.9988	0.9971
10	1.0002	1.0000	0.9991	0.9984
11	1.0000	0.9997	0.9984	0.9971

URANIUM 235 NCODE = 925

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	0.9996	0.9970	0.9882
2	1.0000	0.9996	0.9973	0.9923
3	1.0000	1.0001	1.0011	1.0018
4	1.0000	1.0008	1.0047	1.0120
5	1.0000	0.9999	0.9992	0.9972
6	1.0000	0.9995	0.9968	0.9917
7	1.0000	0.9995	0.9967	0.9898
8	0.9996	0.9992	0.9971	0.9943
9	1.0000	0.9996	0.9978	0.9943
10	1.0002	0.9999	0.9988	0.9952
11	1.0000	0.9996	0.9983	0.9968

URANIUM 235 NCODE = 925

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	0.9998	0.9985	0.9946
2	1.0000	0.9999	0.9992	0.9967
3	0.9997	0.9996	0.9995	0.9994
4	0.9993	0.9992	0.9986	0.9983
5	1.0000	1.0000	0.9998	0.9994
6	1.0000	0.9995	0.9969	0.9920
7	1.0000	0.9997	0.9983	0.9951
8	0.9999	0.9997	0.9988	0.9959
9	1.0000	0.9999	0.9991	0.9980
10	1.0001	1.0000	0.9997	0.9989
11	1.0000	1.0000	1.0000	0.9998

URANIUM 235 NCODE = 925

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	0.9999	0.9997	0.9980	0.9939
2	1.0000	0.9998	0.9989	0.9966
3	1.0000	1.0000	0.9999	0.9998
4	0.9996	0.9994	0.9984	0.9972
5	1.0000	0.9999	0.9997	0.9995
6	1.0000	0.9994	0.9962	0.9910
7	1.0000	0.9996	0.9975	0.9940
8	0.9998	0.9996	0.9980	0.9948
9	1.0000	0.9997	0.9983	0.9966
10	1.0001	0.9999	0.9991	0.9976
11	0.9992	0.9990	0.9990	0.9985

B-III-12. URANIUM-238

URANIUM 238 NCODE = 926

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	6.56211E 00	9.673E7E-01	3.46671E 00	9.48070E-03	2.07179E 00	3.51345E 00	8.53020E-01	3.87163E-02
2	7.63700E 00	5.91474E-01	3.05763E 00	1.40188E-02	2.51552E 00	4.51598E 00	8.28357E-01	5.67446E-02
3	7.80032E 00	5.59322E-01	2.79566E 00	2.02441E-02	2.58469E 00	4.63607E 00	7.63569E-01	4.38251E-02
4	7.28610E 00	4.68036E-01	2.62508E 00	5.30003E-02	2.57653E 00	4.18854E 00	5.46980E-01	3.31059E-02
5	6.96903E 00	3.57570E-02	2.51451E 00	1.31131E-01	2.43265E 00	4.36950E 00	3.50705E-01	4.21658E-02
6	8.23270E 00	1.12404E-03	2.15331E 00	1.38784E-01	1.87760E 00	6.21520E 00	2.69140E-01	7.09295E-02
7	9.96856E 00	0.0	0.0	1.38690E-01	1.39226E 00	8.43759E 00	1.95241E-01	1.01144E-01
8	1.13347E 01	0.0	0.0	2.06244E-01	8.99456E-01	1.02290E 01	1.24595E-01	1.37187E-01
9	1.25261E 01	0.0	0.0	3.36432E-01	2.15868E-01	1.19738E 01	6.56845E-02	1.36659E-01
10	1.36000E 01	0.0	0.0	4.84911E-01	1.49383E-05	1.31151E 01	5.14606E-02	1.66724E-01

URANIUM 238 NCODE = 928

GROUP INELASTIC & (N,2N) TRANSFER TO I&O ---- I&11

1	3.18684E-02	7.75406E-02	4.44644E-01	9.70971E-01	7.10187E-01	4.13580E-01	1.41206E-01	4.69957E-02
	1.42265E-02	3.32158E-03	7.21985E-04	0.0				
2	2.66002E-03	5.67064E-02	3.78693E-01	7.09564E-01	7.82999E-01	3.92498E-01	1.38542E-01	4.32559E-02
	1.02677E-02	2.30049E-03	1.83138E-04	9.36476E-07				
3	1.45968E-02	2.27928E-01	6.29403E-01	8.98611E-01	5.25155E-01	2.02543E-01	6.61938E-02	1.60841E-02
	3.63134E-03	5.53661E-04	0.0	0.0				
4	1.70727E-01	4.35835E-01	1.02046E 00	4.83229E-01	2.21833E-01	1.99084E-01	3.55128E-02	6.91798E-03
	2.70729E-03	2.27803E-04	0.0	0.0				
5	1.07145E 00	5.48237E-01	5.26736E-01	2.09196E-01	6.13068E-02	1.40243E-02	1.70240E-03	0.0
	0.0	0.0	0.0	0.0				
6	1.52204E 00	3.33073E-01	1.05194E-02	1.16085E-02	3.59059E-04	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
7	1.06938E 00	3.12129E-01	1.02300E-02	5.43608E-04	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
8	5.11847E-01	3.85096E-01	2.05298E-03	4.11904E-04	4.87606E-05	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
9	7.10905E-02	1.35384E-01	8.60267E-03	6.82556E-04	1.07872E-04	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
10	0.0	0.0	0.0	7.96001E-06	6.97828E-06	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0				

URANIUM 238 NCODE = 928

FF (1) T = 300

GROUP	SIGMA-0 =	1.0E 04	1.0E 03	1.0E 02	1.0E 01	0.0
1		1.0000	1.0000	1.0002	1.0009	1.0023
2		1.0000	1.0000	1.0001	1.0011	1.0025
3		1.0000	1.0000	1.0000	1.0000	1.0000
4		1.0000	1.0000	0.9995	0.9971	0.9930
5		1.0000	1.0001	1.0007	1.0046	1.0110
6		1.0000	1.0005	1.0049	1.0296	1.0662
7		1.0000	1.0000	1.0000	1.0000	1.0000
8		1.0000	1.0000	1.0000	1.0000	1.0000
9		1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000

URANIUM 238 NCODE = 928

FC (1) T = 300

GROUP	SIGMA-0 =	1.0E 04	1.0E 03	1.0E 02	1.0E 01	0.0
1		1.0000	0.9999	0.9996	0.9979	0.9948
2		1.0000	1.0000	0.9998	0.9989	0.9700
3		1.0000	1.0000	1.0002	1.0012	1.0027
4		1.0000	1.0001	1.0006	1.0037	1.0089
5		1.0000	1.0000	0.9997	0.9983	0.9959
6		1.0000	1.0000	1.0004	1.0026	1.0058
7		1.0000	1.0000	0.9996	0.9979	0.9958
8		1.0001	1.0000	0.9996	0.9975	0.9956
9		1.0000	1.0000	0.9997	0.9982	0.9968
10		1.0000	1.0000	0.9997	0.9987	0.9978

URANIUM 238 NCODE = 928

FE (1) T = 300

GROUP	SIGMA-0 =	1.0E 04	1.0E 03	1.0E 02	1.0E 01	0.0
1		1.0000	1.0000	0.9997	0.9985	0.9961
2		1.0000	1.0000	0.9999	0.9993	0.9984
3		1.0000	1.0000	1.0000	0.9999	0.9998
4		1.0000	1.0000	0.9999	0.9996	0.9990
5		1.0000	1.0000	0.9999	0.9996	0.9989
6		1.0000	1.0000	0.9995	0.9967	0.9928
7		1.0000	1.0000	0.9997	0.9985	0.9970
8		1.0000	1.0000	0.9998	0.9991	0.9984
9		1.0000	1.0000	0.9999	0.9995	0.9992
10		1.0000	1.0000	0.9999	0.9995	0.9992

URANIUM 238 NCODE = 928

FT (1) T = 300

GROUP	SIGMA-0 =	1.0E 04	1.0E 03	1.0E 02	1.0E 01	0.0
1		0.9997	0.9999	0.9997	0.9982	0.9955
2		1.0000	1.0000	0.9999	0.9991	0.9979
3		1.0000	1.0000	1.0000	0.9999	0.9997
4		0.9996	0.9999	0.9999	0.9991	0.9980
5		0.9997	1.0000	1.0000	0.9997	0.9992
6		1.0000	0.9999	0.9993	0.9963	0.9919
7		1.0000	1.0000	0.9996	0.9980	0.9959
8		1.0000	1.0000	0.9998	0.9988	0.9978
9		1.0000	1.0000	0.9999	0.9994	0.9990
10		1.0000	1.0000	0.9998	0.9990	0.9983

B-III-13. PLUTONIUM-239

PLUTONIUM 239 MCODE = 949

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-F	ELASTIC-REMOVAL
1	6.76491E 00	2.19801E 00	3.85833E 00	1.11621E-03	9.85438E-01	3.58035E 00	8.53105E-01	1.23948E-01
2	7.95851E 00	1.86024E 00	3.48342E 00	1.65766E-03	1.42896E 00	4.66765E 00	8.28403E-01	1.03604E-01
3	8.08589E 00	1.97143E 00	3.25789E 00	3.30648E-03	1.29094E 00	4.82022E 00	7.62754E-01	7.46608E-02
4	7.50525E 00	1.96890E 00	3.10688E 00	1.18598E-02	1.14176E 00	4.38273E 00	5.59267E-01	5.51473E-02
5	7.34700E 00	1.75834E 00	3.00780E 00	4.22359E-02	1.09308E 00	4.45334E 00	4.93872E-01	5.44772E-02
6	8.53491E 00	1.62033E 00	2.94413E 00	1.02665E-01	1.02249E 00	5.78943E 00	3.71371E-01	5.70228E-02
7	1.02271E 01	1.60416E 00	2.92554E 00	1.75155E-01	7.49406E-01	7.69842E 00	2.13021E-01	1.03451E-01
8	1.17412E 01	1.66829E 00	2.91867E 00	2.27189E-01	5.41744E-01	9.30402E 00	1.24818E-01	1.15925E-01
9	1.28636E 01	1.71665E 00	2.91154E 00	2.70826E-01	3.96925E-01	1.04792E 01	6.56983E-02	1.15598E-01
10	1.40514E 01	1.77606E 00	2.90403E 00	5.06142E-01	3.46182E-01	1.14230E 01	5.15265E-02	1.33952E-01
11	1.43814E 01	1.91229E 00	2.89644E 00	8.91222E-01	2.61780E-01	1.13661E 01	4.02860E-02	1.34156E-01
12					1.83367E-02			

PLUTONIUM 239 MCODE = 949

GROUP INELASTIC & (N,2N) TRANSFER TO I&O ---- I&10

1	4.48957E-03	4.51478E-02	2.84237E-01	5.72665E-01	6.23799E-01	8.37824E-02	3.86424E-02	1.27824E-02
	3.59189E-03	7.79061E-04	1.64035E-04					
2	1.25759E-03	2.33272E-02	1.76628E-01	3.89073E-01	5.05514E-01	2.45855E-01	8.59118E-02	2.53853E-02
	5.51150E-03	1.17268E-03	9.26582E-05					
3	6.17129E-03	9.11416E-02	2.88394E-01	4.60366E-01	2.86925E-01	1.12635E-01	3.55774E-02	7.86670E-03
	1.67630E-03	1.86241E-04	0.0					
4	2.12950E-01	4.20495E-01	2.77297E-01	1.48361E-01	5.85176E-02	1.89402E-02	4.27951E-03	8.37738E-04
	9.30751E-05	0.0	0.0					
5	6.71092E-01	3.05649E-01	4.24899E-02	1.05617E-02	2.75935E-03	5.29591E-04	0.0	0.0
	0.0	0.0	0.0					
6	7.60003E-01	2.09135E-01	4.56581E-02	7.44518E-03	2.48637E-04	0.0	0.0	0.0
	0.0	0.0	0.0					
7	5.42539E-01	1.87145E-01	1.64761E-02	2.97252E-03	2.73771E-04	0.0	0.0	0.0
	0.0	0.0	0.0					
8	3.97026E-01	1.35336E-01	9.38210E-03	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
9	2.89103E-01	9.67986E-02	8.27541E-03	2.39469E-03	3.19937E-04	3.29589E-05	0.0	0.0
	0.0	0.0	0.0					
10	2.01794E-01	1.44387E-01	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
11	6.92334E-02	1.28365E-01	6.01000E-02	4.08173E-03	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
12	0.0	0.0	1.63666E-02	1.97007E-03	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					

PLUTONIUM 239 NCODE = 949

FF (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	1.0002	1.0015	1.0044
2	1.0000	1.0000	1.0001	1.0002
3	1.0000	1.0000	1.0000	0.9999
4	1.0000	1.0000	0.9998	0.9996
5	1.0000	1.0000	1.0003	1.0008
6	1.0000	1.0001	1.0004	1.0010
7	1.0000	1.0000	1.0001	1.0004
8	1.0000	1.0000	1.0001	1.0003
9	1.0000	1.0000	1.0001	1.0003
10	1.0000	0.9998	0.9993	0.9986
11	1.0000	0.9991	0.9957	0.9933

PLUTONIUM 239 NCODE = 949

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	0.9998	0.9987	0.9963
2	1.0000	0.9998	0.9989	0.9959
3	1.0000	1.0000	1.0000	0.9999
4	1.0001	1.0007	1.0046	1.0108
5	1.0000	0.9996	0.9973	0.9922
6	0.9999	0.9992	0.9951	0.9884
7	1.0000	0.9995	0.9972	0.9931
8	1.0000	0.9999	0.9995	0.9985
9	1.0000	0.9997	0.9987	0.9972
10	1.0000	0.9996	0.9981	0.9946
11	0.9999	0.9986	0.9933	0.9894

PLUTONIUM 239 NCODE = 949

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	1.0000	0.9996	0.9976	0.9930
2	1.0000	0.9999	0.9997	0.9988
3	1.0000	1.0000	1.0000	1.0000
4	1.0000	0.9999	0.9997	0.9992
5	1.0000	0.9999	0.9995	0.9988
6	1.0000	0.9996	0.9979	0.9951
7	1.0000	0.9996	0.9978	0.9946
8	1.0000	0.9999	0.9994	0.9980
9	1.0000	0.9999	0.9994	0.9987
10	1.0000	1.0000	1.0000	0.9998
11	0.9999	0.9995	0.9979	0.9972

PLUTONIUM 239 NCODE = 949

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 03	1.0E 02	1.0E 01	0.0
1	0.9999	0.9996	0.9970	0.9917
2	1.0000	0.9998	0.9995	0.9987
3	1.0000	1.0000	0.9999	0.9999
4	0.9998	0.9998	0.9992	0.9985
5	1.0000	0.9998	0.9995	0.9989
6	0.9999	0.9996	0.9975	0.9944
7	0.9999	0.9995	0.9973	0.9940
8	0.9999	0.9999	0.9992	0.9980
9	1.0000	0.9999	0.9991	0.9982
10	1.0000	1.0000	0.9997	0.9993
11	1.0000	0.9995	0.9959	0.9922

B-III-14. PLUTONIUM-240

PLUTONIUM 240 NCODE = 940

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	6.73059E 00	2.02072E 00	3.77287E 00	1.69799E-02	1.16785E 00	3.52504E 00	8.52688E-0	3.65074E-02
2	7.78811E 00	1.52992E 00	3.49260E 00	2.43795E-02	1.74308E 00	4.49073E 00	8.28251E-0	3.65177E-02
3	7.97075E 00	1.63388E 00	3.27860E 00	3.51560E-02	1.62910E 00	4.67261E 00	7.61709E-0	4.47331E-02
4	7.49292E 00	1.62028E 00	3.12623E 00	9.20049E-02	1.48124E 00	4.29939E 00	5.59627E-0	2.82712E-02
5	7.30981E 00	1.51087E 00	3.02876E 00	2.29529E-01	9.65797E-01	4.60362E 00	5.07061E-0	3.51853E-02
6	8.59141E 00	7.14864E-01	2.97326E 00	2.42832E-01	1.20785E 00	6.42386E 00	3.70083E-0	6.57157E-02
7	1.03036E 01	1.79683E-01	2.93118E 00	2.44025E-01	1.18385E 00	8.69604E 00	2.12755E-0	1.03122E-01
8	1.18724E 01	1.11066E-01	2.91195E 00	3.58083E-01	7.27934E-01	1.06753E 01	1.24828E-0	1.21877E-01
9	1.23747E 01	1.11600E-01	2.89923E 00	3.91855E-01	1.03328E-01	1.17659E 01	6.56549E-0	1.45481E-01
10	1.38450E 01	1.46332E-01	2.89503E 00	4.03032E-01	0.	1.32957E 01	5.14027E-0	1.48061E-01

PLUTONIUM 240 NCODE = 940

GROUP	INELASTIC + (N,2N) TRANSFER TO I+0 ---- I+10							
1	2.74022E-03	1.17479E-02	1.98834E-01	4.98407E-01	4.60489E-01	2.72444E-01	1.08846E-0	3.37333E-02
	1.03987E-02	2.37364E-03	5.03717E-04					
2	1.95646E-03	2.38842E-02	2.04191E-01	4.60796E-01	2.67740E-01	3.18348E-01	1.18487E-0	3.65119E-02
	9.06890E-03	1.93895E-03	1.57559E-04					
3	4.94327E-03	8.89857E-02	3.38888E-01	5.73642E-01	3.90502E-01	1.62791E-01	5.24381E-0	1.34637E-02
	2.95667E-03	5.24321E-04	0.					
4	7.19357E-01	5.16831E-01	1.84010E-01	4.60023E-02	1.15006E-02	3.00463E-03	5.32634E-0	0.
	0.	0.	0.					
5	7.21810E-01	1.91829E-01	3.92620E-02	9.81550E-03	2.56438E-03	5.15870E-04	0.	0.
	0.	0.	0.					
6	1.13171E 00	7.21807E-02	3.06115E-03	7.62040E-04	1.35088E-04	0.	0.	0.
	0.	0.	0.					
7	1.09356E 00	9.02899E-02	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
8	7.13302E-01	1.46323E-02	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
9	1.03328E-01	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
10	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
11	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
12	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
13	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
14	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
15	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
16	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
17	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
18	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
19	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
20	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
21	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
22	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
23	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
24	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					
25	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.					

PLUTONIUM 240 NCODE = 940

FF (1) T = 300

GROUP	SIGMA-0 = 1.0E 04	1.0E 03	1.0E 02
1	1.0000	1.0000	1.0001
2	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0001
6	1.0000	1.0002	1.0017
7	1.0000	1.0001	1.0007
8	1.0000	1.0000	1.0002
9	1.0000	1.0000	1.0004
10	1.0000	1.0000	0.9999

PLUTONIUM 240 NCODE = 940

FC (1) T = 300

GROUP	SIGMA-0 = 1.0E 04	1.0E 03	1.0E 02
1	1.0000	1.0000	0.9996
2	1.0000	1.0000	0.9999
3	1.0000	1.0000	1.0001
4	1.0000	1.0000	1.0003
5	1.0000	1.0000	0.9998
6	1.0000	1.0000	1.0004
7	1.0000	1.0000	0.9996
8	1.0000	1.0000	0.9998
9	1.0000	1.0000	1.0004
10	1.0000	1.0000	0.9999

PLUTONIUM 240 NCODE = 940

FE (1) T = 300

GROUP	SIGMA-0 = 1.0E 04	1.0E 03	1.0E 02
1	1.0000	1.0000	0.9997
2	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000
5	1.0000	1.0000	0.9999
6	1.0000	0.9999	0.9995
7	1.0000	1.0000	0.9996
8	1.0000	1.0000	0.9999
9	1.0000	1.0000	0.9999
10	1.0000	1.0000	0.9999

PLUTONIUM 240 NCODE = 940

FT (1) T = 300

GROUP	SIGMA-0 = 1.0E 04	1.0E 03	1.0E 02
1	1.0000	1.0000	0.9998
2	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000
4	1.0000	1.0000	0.9999
5	1.0000	1.0000	1.0000
6	1.0000	0.9999	0.9995
7	1.0000	0.9999	0.9995
8	1.0000	1.0000	0.9999
9	1.0000	1.0000	0.9998
10	1.0000	1.0000	0.9999

B-III-15. PLUTONIUM-241

PLUTONIUM 241 NCODE = 941

GROUP	TOTAL	FISSION	NU	CAPTURE	INELASTIC	ELASTIC	MU-E	ELASTIC-REMOVAL
1	6.72992E 00	2.16695E 00	3.91759E 00	2.34556E-03	1.03860E 00	3.52203E 00	8.52748E-01	3.62192E-02
2	7.79160E 00	1.60517E 00	3.57776E 00	4.47710E-03	1.68504E 00	4.49692E 00	8.28250E-01	3.64693E-02
3	7.97090E 00	1.62315E 00	3.35715E 00	8.60422E-03	1.66630E 00	4.67285E 00	7.61551E-01	4.46345E-02
4	7.49516E 00	1.80669E 00	3.20475E 00	1.89393E-02	1.40648E 00	4.26306E 00	5.58639E-01	2.90759E-02
5	7.31024E 00	1.69075E 00	3.10576E 00	4.47049E-02	1.30269E 00	4.27209E 00	4.93661E-01	3.50509E-02
6	8.46940E 00	1.63107E 00	3.04180E 00	1.09819E-01	1.06699E 00	5.66153E 00	3.69096E-01	6.00905E-02
7	1.02822E 01	1.87876E 00	3.01278E 00	1.85342E-01	7.57157E-01	7.46097E 00	2.11910E-01	9.82574E-02
8	1.18313E 01	2.47587E 00	2.99102E 00	2.66654E-01	5.38827E-01	8.54995E 00	3.53924E-01	9.74183E-02
9	1.25291E 01	3.35014E 00	2.97906E 00	3.85598E-01	3.31719E-01	8.46169E 00	6.57146E-02	9.16660E-02
10	1.42225E 01	4.49610E 00	2.97544E 00	5.62708E-01	1.06891E-04	9.16362E 00	5.14179E-02	9.96754E-02
11	1.49457E 01	4.99943E 00	2.97178E 00	8.02551E-01	0.0	9.14372E 00	4.02316E-02	1.08143E-01
12	1.57438E 01	5.63107E 00	2.96983E 00	1.14497E 00	0.0	8.96979E 00	2.91769E-02	9.59785E-02
13	1.71187E 01	6.62743E 00	2.96949E 00	1.71053E 00	0.0	8.78072E 00	1.85488E-02	8.89618E-02
14	1.89395E 01	9.20206E 00	2.96915E 00	2.44069E 00	0.0	7.29673E 00	7.98810E-03	1.29511E-01
15	3.63160E 01	1.28387E 01	2.96900E 00	1.14098E 01	0.0	1.20675E 01	2.77056E-03	1.22541E-01
16	4.56603E 01	2.38148E 01	2.96900E 00	1.00286E 01	0.0	1.18169E 01	2.76788E-03	1.76563E-01
17	4.60578E 01	2.73235E 01	2.96900E 00	9.11198E 00	0.0	9.62234E 00	2.76978E-03	1.22934E-01
18	7.96097E 01	4.89372E 01	2.96900E 00	1.72240E 01	0.0	1.34485E 01	2.77007E-03	1.46431E-01
19	9.18506E 01	6.73207E 01	2.96900E 00	9.67216E 00	0.0	1.48578E 01	2.76848E-03	1.49957E-01
20	1.93380E 02	1.35660E 02	2.96900E 00	4.21421E 01	0.0	1.55779E 01	2.76629E-03	1.53874E-01
21	2.81568E 02	2.30878E 02	2.96900E 00	3.81303E 01	0.0	1.25596E 01	2.76865E-03	1.86641E-01
22	2.04773E 02	1.06468E 02	2.96900E 00	8.78592E 01	0.0	1.04456E 01	2.76852E-03	1.17819E-01
23	3.23329E 01	1.74243E 01	2.96900E 00	2.78419E 00	0.0	1.21244E 01	2.77058E-03	1.58046E-01
24	6.17094E 01	3.03774E 01	2.96900E 00	1.78448E 01	0.0	1.34872E 01	2.76982E-03	1.56255E-01
25	1.21656E 03	7.51659E 02	2.96900E 00	4.50266E 02	0.0	1.46319E 01	2.76981E-03	0.0

PLUTONIUM 241 NCODE = 941

GROUP	INELASTIC + (N,2N) TRANSFER TO I+0 ---- I+10							
1	1.35326E-03	6.37412E-02	3.36833E-01	7.47773E-01	4.92820E-01	8.28561E-02	3.93666E-02	1.34777E-02
	4.11697E-03	9.48763E-04	2.01204E-04					
2	2.27788E-03	2.49509E-02	2.09612E-01	4.80234E-01	5.79927E-01	2.93728E-01	1.04953E-01	3.28042E-02
	7.78340E-03	1.66167E-03	1.34136E-04					
3	6.23068E-03	1.17539E-01	3.79928E-01	5.79197E-01	3.69995E-01	1.48878E-01	4.94284E-02	1.20962E-02
	2.62104E-03	3.87273E-04	0.0					
4	2.61055E-01	4.97833E-01	3.51139E-01	1.87449E-01	7.57016E-02	2.54883E-02	6.29343E-03	1.28896E-03
	2.28577E-04	0.0	0.0					
5	5.48600E-01	5.65747E-01	1.41437E-01	3.53592E-02	9.23788E-03	2.00369E-03	3.03514E-04	0.0
	0.0	0.0	0.0					
6	5.03267E-01	4.22944E-01	1.05736E-01	2.76244E-02	5.99170E-03	1.27676E-03	1.46240E-04	0.0
	0.0	0.0	0.0					
7	3.53833E-01	3.02590E-01	7.90540E-02	1.71467E-02	3.65376E-03	7.90540E-04	8.89349E-05	0.0
	0.0	0.0	0.0					
8	2.53910E-01	2.23384E-01	4.84518E-02	1.03245E-02	2.23384E-03	4.84518E-04	3.75547E-05	0.0
	0.0	0.0	0.0					
9	1.86729E-01	1.14050E-01	2.43027E-02	5.25819E-03	1.14050E-03	2.30311E-04	8.62315E-06	0.0
	0.0	0.0	0.0					
10	8.34978E-05	1.83469E-05	3.96960E-06	8.61003E-07	1.83469E-07	3.25356E-08	0.0	0.0
	0.0	0.0	0.0					
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0					