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A Division of North American Aviation, Inc.

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TECHNICAL DATA RECORD		PAGE 1 OF 173			
AUTHOR R. D. Doctor M. A. Boling		DEPT & GROUP NO 721-13		DATE 7-15-63	
				GO NO 7569	
TITLE A 23 Group Neutron Thermalization Cross Section Library		S/A NO 2001		TWR	
		SECURITY CLASSIFICATION			
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DISTRIBUTION		CONF. ☐			
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		AUTHORIZED CLASSIFIER SIGNATURE		DATE 7/17/63	
		<i>J. Miller</i>			
		STATEMENT OF PROBLEM			
		Provide an up-to-date 23 group neutron thermalization cross section library for the calculation of neutron thermalization and thermal neutron spectral effects in SNAP reactors.			
		ABSTRACT			
		A set of 23 group neutron cross sections for use in the calculation of neutron thermalization and thermal neutron spectral effects in SNAP reactors has been formulated. The sources and methods used to obtain the cross sections are described.			

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This report is a description of the sources and methods used to obtain neutron cross sections for a 23 group thermalization cross section library. The library is intended primarily for the calculation of neutron thermalization and thermal neutron spectral effects in zirconium hydride moderated, uranium fueled, SNAP reactors. The energy range from 10 Mev to .001 ev is divided into 14 fast and nine thermal energy groups. The nine thermal groups (groups 15 through 23) are characterized by transfer cross sections for energy gain (up-scatter) as well as energy loss (downscatter) while the 14 fast groups include only downscatter cross sections. Transfer cross sections for up to ~~nine~~^{fifteen} groups of energy loss are included in the library.

In general, the fast cross sections (groups 1 through 14) are those described by Hansen and Roach in LAMS-2543⁽³⁾. A smooth transition between the fast and thermal groups was accomplished by normalization of the highest energy thermal group (group 15) transfer cross section to the value calculated with an elastic unbound scattering model. With the exception of the macroscopic water cross sections the thermal group cross sections were weighted over a neutron spectrum characteristic of the zirconium hydride moderated SNAP 2-10A reactor.

The energy group structure and a list of the elements in the library are shown in Figures 1 and 2, respectively. The exceptions to the above generalities are discussed in greater detail in the appropriate sections of this report.

Fast Cross Sections

The fast cross sections (groups 1 through 14) for U233, U235, U238, Zr, Fe, Ni, Mo, $\emptyset$, Be, C, Na, K, B, Li-6, Li-7, and Al are precisely the Hansen and Roach values⁽³⁾. The H, H₂O, HZR, and BABS fast cross sections involve modifications to the Hansen and Roach values. The only cross sections based on other sources are Xe-135, Sm and Cr.

The fast absorption and transport cross sections for H and HZR were based on the fission spectrum weighted free hydrogen cross sections reported in Reference 3.

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The fast transfer cross sections were modified to account for scattering to the particular thermal group structure used. The modified cross sections were based on an elastic unbound scattering model assuming a $1/E$ flux and a constant free atom scattering cross section. The group transfer cross sections can then be formulated by Equation (1) which essentially expresses a conservation of reaction rate.

$$\sigma_{ij} = \frac{\int_i \int_j \sigma(E_0 \rightarrow E) \phi(E_0) dE_0 dE}{\int_i \phi(E_0) dE_0}$$

σ_{ij} = transfer cross section for neutrons scattering from group i to group j

E_0 = the initial neutron energy (in group i)

E = the final neutron energy (in group j)

$\sigma(E_0 \rightarrow E) = \sigma_s(E_0) P(E_0 \rightarrow E)$

$\sigma_s(E_0)$ = the scatter cross section at energy E_0

$P(E_0 \rightarrow E) dE$ = probability that, given a scattering interaction at energy E_0 , the neutron will emerge in dE about E

$\phi(E_0)$ = neutron flux at energy E_0

In the energy region where chemical binding effects are unimportant, the integrals of Equation (1) can be evaluated to yield Equations (2) through (4).

$$\sigma_{ij} = \frac{\sigma_s(E_C - E_D) \left(\frac{1}{E_A} - \frac{1}{E_B} \right)}{(1 - \alpha) \ln \frac{E_B}{E_A}} \quad \text{for } \alpha E_A < E_D \quad (2)$$

$$\sigma_{ij} = \frac{\sigma_s}{1 - \alpha} \left[\alpha \ln \frac{E_x}{E_D} + E_C \left(\frac{1}{E_x} - \frac{\alpha}{E_D} \right) + (E_C - E_D) \left(\frac{\alpha}{E_D} - \frac{1}{E_B} \right) \right] \quad (3)$$

$$\left(\ln \frac{E_B}{E_A} \right)^{-1} \quad \text{for } E_A > \frac{E_D}{\alpha} > E_B$$

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$$\sigma_{ij} = \frac{\sigma_s}{1 - \alpha} \left[E_C \left(\frac{1}{E_x} - \frac{1}{E_B} \right) + \alpha \ln \left(\frac{E_x}{E_B} \right) \right] \left(\ln \frac{E_B}{E_A} \right)^{-1}$$

for $\frac{E_D}{\alpha} < E_B$ (4)

E_A and E_B are the upper and lower energies respectively of the source group (group i) and E_C and E_D are the upper and lower energies, respectively of the group to which the neutron scatters (group j). E_x is the smaller of E_A or E_C/α , where α is the maximum possible fractional energy loss per collision.

It was necessary to modify the fast transfer cross sections for hydrogen only since for all other elements, transfer to the thermal groups (15 through 23) occurs only from group 14 to group 15. The energy group structure used here was such that only Equation (2) was required for the modification. The fast transfer cross sections for each modified group were normalized to the corresponding Hansen and Roach values.

The library contains macroscopic cross sections for H_2O . These were calculated from Equation (5).

$$\sum_{x,g}^{H_2O} = (2 \sigma_{x,g}^H + \sigma_{x,g}^\emptyset) (0.0334 \times 10^{24}) \quad (5)$$

where $\sigma_{x,g}$ = the microscopic cross section for group g for the particular interaction X (absorption, transfer or transport). The H superscript represents fission spectrum weighted hydrogen; the $\emptyset$ superscript represents oxygen gas, both from Reference 3.

$\Sigma_{x,g}$ = the macroscopic interaction cross section for water.

BABS (Boron Absorption) is a fictitious element that was added to the library in order to provide a pure $1/v$ absorber. The absorption cross sections are those of Boron from Reference 3. The transport and transfer cross sections for this element were set equal to zero.

The fast absorption, transport and transfer cross sections of XE-135 were taken as zero.

The fast CR cross sections were taken from the 16 group set of Hansen cross sections accompanying the DTK computer program (Reference 4).

The fast Sm cross sections are identical to those reported by Norman (Reference 5).

Thermal Cross Sections - General

In general, point values of the thermal cross sections as functions of energy were flux averaged over the thermal spectrum of the SNAP 2-10A core (Figure 3) to obtain the thermal group cross sections. The spectrum used for weighting the thermal cross sections was obtained from QUICKIE (1) using a previous 23 group cross section library and the core composition shown in Figure 4.

Thermal Fission Cross Sections

Pointwise data for the fission cross sections of U233 and U235 were taken from BNL-325 (References 6 and 7) and weighted over the SNAP 2-10A thermal spectrum. The number of neutrons emitted per fission, ν , was taken as 2.45 for U235 and 2.51 for U233 for the calculation of $\nu\sigma_f$.

The fission cross section for U238 was taken as zero in the thermal range.

Thermal Absorption Cross Sections

The U233 and U235 point absorption cross sections were determined from

$$\sigma_a = (1 + \alpha) \sigma_f \quad (6)$$

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where α (the ratio of the capture to fission cross sections) and σ_f , as functions of energy, were taken from BNL-325. The point values of σ_a were flux weighted with the SNAP 2-10A spectrum over the thermal group structure.

The thermal absorption cross sections of H(gas), HZR, Zr, Fe, Ni, Mo, Cr, ████, $\emptyset$ (gas), Be, C, Na, K, B, Li-7, Al, and BABS were assumed to vary as $1/v$. The cross sections were normalized to the 2200 m/sec absorption cross sections from BNL-325. The values of σ_a (2200) used for each of the elements in the library are tabulated in Figure 5.

The macroscopic cross sections for H₂O were determined as described above using microscopic point values for H and $\emptyset$ from BNL-325. Instead of weighting the point values over a SNAP 2-10A core spectrum, an experimental spectrum for water determined by Poole (Reference 8) was used. This spectrum is shown as Figure 6.

The XE-135 absorption cross sections were assumed to be equal to the total cross section reported in BNL-325. The point values of σ_{total} obtained from BNL-325 were weighted over the SNAP 2-10A spectrum.

For Li-6 and U238 the absorption cross section was calculated from Equation (6). Point values of σ_{total} were taken from BNL-325.

$$\sigma_a = \sigma_{total} - \sigma_s \quad (7)$$

The value of σ_s for U238 was assumed to be constant throughout the thermal energy range and was taken as 8.3 barns (Reference 9). The value of σ_s for Li-6 was estimated as 0.9 barns. *The Sm cross sections were taken from those presented by Norman in Reference 5.*
Thermal Transport Cross Sections

The thermal transport cross sections are all based on

$$\sigma_{tr} = \sigma_a + \sigma_s (1 - \bar{\mu}) \quad (8)$$

The cross sections for U233, U235, U238, Al, Fe, Zr, Ni, Nb, K, and Cr were determined by assuming that $\bar{\mu} \ll 1$. Point values of σ_{total} were taken from References 6 and 7, and weighted over the SNAP 2-10A spectrum to give group cross sections.

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The BABS, Xe-135, and Sm cross sections were calculated by assuming that $\sigma_s \ll \sigma_a$.

Equation (8) was used directly for the calculation of the HZR, H, Li-6, Li-7, Be, C, Na, $\emptyset$, and H₂O transport cross sections.

The graphs of σ_{total} versus energy for H₂O in BNL-325 were used as the source of point values of σ_{total} for water. Drozdov's data (Reference 10) was used as the source of $\bar{\mu}$. All water cross sections were weighted over the experimental spectrum of Figure 6 (Reference 8).

For HZR it was assumed that

$$\sigma_{\text{total}} (\text{HZR}) = \sigma_{\text{total}} (\text{H})$$

where point values of $\sigma_{\text{total}} (\text{H})$ were taken from BNL-325. It was further assumed that $\bar{\mu} (\text{H}_2\text{O})$, from Drozdov (Reference 10), could be used for the calculation of the thermal transport cross sections of HZR.

For the materials H, Li-6, Li-7, Be, C, Na and $\emptyset$, $\bar{\mu}$ was taken as 2/3A.

The value of σ_s for Boron was taken as the free atom cross section reported in Reference 6.

The specification of the thermal group transfer cross sections is complicated by the consideration of chemical binding effects. Consequently the calculation of the energy transfer cross sections $\sigma(E_0 \rightarrow E)$, for use in Equation (1) must take into account the distribution of energy states in the crystal and the relative populations of these energy states. Miller, Brehm, and Roberts (Reference 11) have described, in some detail, the calculation of the energy transfer cross sections particularly for hydrogen bound in zirconium hydride. Their techniques have been followed in the preparation of the thermal group transfer cross sections.

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The distribution of energy states in the crystal is described by a frequency distribution function. The relative population of the energy states is represented by a statistical occupation number. The equations using these functions are described by Miller et al and are programmed as DSDE (Reference 16), an IBM 7090-7094 computer code. DSDE will produce thermal group transfer cross sections, weighted over any desired spectrum, based upon either a Wigner-Wilkins free gas scattering model⁽¹³⁾ or a crystal scattering model. A Debye frequency distribution function (proportional to E^2) cut off at the Debye energy, was assumed for U233, U235, U238, Be, C, Al, Fe, Zr, B, Ni, Li-6, and Li-7 in formulating cross sections using a crystal phonon model. For all of these elements, a smooth transition from the thermal to the intermediate energy groups was achieved by normalizing the set of thermal energy transfer cross sections such that the group 15 cross sections corresponded to a value calculated by assuming elastic unbound collisions. The values of σ_g for normalization for U233 and U235 were the average scattering cross sections from BNL-325. For Be, C, Al, Fe, Zr, B, Ni, Nb, Cr, and Li-7, the free atom cross sections from BNL-325 were used. The scattering cross sections for Li-6 and U238 were taken as 0.9 barns and 8.3 barns, respectively.

For hydrogen bound in zirconium hydride, a frequency distribution function for proton states was obtained from the experimental data of Woods, et al (Reference 12). As pointed out by Miller, et al (Reference 11), the protons in zirconium hydride are "fairly well bound in the ground state and undergo a transition to a communicating band structure within a few excited states". An analogy to the problem of electronic states in a semiconductor, containing impurities, suggests the use of Fermi-Dirac statistics for a statistical occupation number for the protons. The cross sections for HZR, then, are based on an experimentally determined frequency distribution function and the use of Fermi-Dirac statistics to describe the population of proton states, and therefore is not a crystal phonon formulation.

The cross sections were normalized as described above using the free atom scattering cross section from BNL-325.

The transfer cross sections for H, ϕ , Na and K were calculated from a Wigner-Wilkins free gas scattering kernel (Reference 13) by DSDE. The cross sections were normalized to the total scattering cross section as calculated from Equation (7).

The thermal transfer cross sections for BABS, Xe-135, and Sm were taken as zero.

The group transfer cross sections for H₂O are based on the crystal phonon model using a frequency distribution function derived from the experimental data of Brockhouse (Reference 14).

All of the thermal transfer cross sections (except H₂O) were spectrum weighted with the SNAP 2-10A spectrum. The water cross sections were weighted with a water spectrum derived from Reference 8.

The only temperature dependent cross sections in the library are those for HZR and Zr at 68°F, 300°F, 700°F and 1000°F. The remainder are for room temperature.

Comparison of Calculated and Experimental Spectra - Zirconium Hydride

The neutron spectra for zirconium hydride, calculated by QUICKIE from the cross sections described in this document, are compared in Figures 7 and 8 to the experimental spectra of Beyster, et al (Reference 15). It is seen that agreement of the room temperature spectra are quite good, for both the poisoned and unpoisoned cases, except at the very low energies where the calculated spectra are somewhat high. This discrepancy is attributed to an error in the neutron conservation rather than to an inadequacy of the scattering model.

Comparison of the calculated water spectra with the experimental spectra of Poole shows agreement for both the unpoisoned and poisoned (2.9 barns/H atom) cases (Figures 9 and 10).

A complete listing of the cross sections determined by the methods described in this report is given in the Appendix.

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Group No.	Upper Energy ev	Lower Energy ev	ΔE	Upper Lethargy	Lower Lethargy	ΔU
1	10×10^6	3×10^6	7×10^6	0.000	1.204	1.204
2	3×10^6	1.4×10^6	1.6	1.204	1.966	0.762
3	1.4×10^6	0.9×10^6	0.5	1.966	2.408	0.442
4	0.9×10^6	0.4×10^6	0.5	2.408	3.219	0.811
5	0.4×10^6	0.1×10^6	0.3	3.219	4.605	1.386
6	0.1×10^6	17×10^3	0.083×10^6	4.605	6.377	1.772
7	17×10^3	3×10^3	14.0×10^3	6.377	8.112	1.735
8	3×10^3	0.55×10^3	2.45×10^3	8.112	9.808	1.696
9	0.55×10^3	100	0.45×10^3	9.808	11.513	1.705
10	100 ev	30	70.0	11.513	12.717	1.204
11	30	10	20.0	12.717	13.816	1.099
12	10	3	7.0	13.816	15.020	1.204
13	3	1	2.0	15.020	16.119	1.099
14	1	0.4	0.60	16.119	17.035	0.916
15	0.4	0.2	0.20	17.035	17.728	0.693
16	0.2	0.14	0.06	17.728	18.085	0.357
17	0.14	0.10	0.04	18.085	18.421	0.336
18	0.10	0.07	0.03	18.421	18.772	0.351
19	0.07	0.04	0.03	18.772	19.331	0.559
20	0.04	0.02	0.02	19.331	20.024	0.693
21	0.02	0.01	0.01	20.024	20.717	0.693
22	0.01	0.004	0.006	20.717	21.633	0.916
23	0.004	0.001	0.003	21.633	23.019	1.386

FIGURE 1

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<u>Element</u> <u>Symbol</u>	<u>Description</u>
Al	Aluminum
B	Natural Boron
BABS	Boron (Absorption Only) - A Fictitious Element
BE	Beryllium
C	Carbon
CR	Chromium
FE	Iron
H	Free Gas Hydrogen
H2Ø	Water (Molecular)
HZR	Hydrogen Bound By Zirconium In Zirconium Hydride At 68°F
HZR 3	Hydrogen Bound By Zirconium In Zirconium Hydride At 300°F
HZR 7	Hydrogen Bound By Zirconium In Zirconium Hydride At 700°F
HZR 10	Hydrogen Bound By Zirconium In Zirconium Hydride At 1000°F
K	Potassium As In NaK Alloy
LI6	Lithium 6
LI7	Lithium 7
MØ	Molybdenum
NA	Sodium As In NaK Alloy
NB	Niobium
NI	Nickel
Ø	Free Gas Oxygen
SM	Samarium
U233	Uranium 233
U235	Uranium 235
U238	Uranium 238
XEL35	Xenon 135

FIGURE 2

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ELEMENTS IN THE LIBRARY (Continued)

<u>Element</u> <u>Symbol</u>	<u>Description</u>
ZR	Zirconium As In Zirconium Hydride At 68°F
ZR 3	Zirconium As In Zirconium Hydride At 300°F
ZR 7	Zirconium As In Zirconium Hydride At 700°F
ZR 10	Zirconium As In Zirconium Hydride At 1000°F

FIGURE 2

SNAP 2-10A CORE THERMAL SPECTRUM

FIGURE 3

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The following atom densities were used in QUICKIE (Reference 1) to calculate a thermal neutron spectrum representative of the SNAP 2-10A core. (Figure 3)

<u>Element</u>	<u>Atom Density x 10²²</u>
U235	0.001166
U238	0.00008462
HZR	0.05454
ZR	0.02917
NI	0.003339
FE	0.0002820
NB	0.000708
CR	0.000379
NA	0.000528
K	0.0011420

FIGURE 4

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<u>Element Symbol</u>	<u>σ_a (2200 in/sec) barns</u>	<u>τ_s barns</u>
Al	0.241	1.40
B	755	3.69
BABS	755	0
Be	0.01	6.11
C	.00373	4.7
CR	3.1	3.95
FE	2.62	20.3
H2 $\emptyset$	-	-
HZR	0.332	20.3
HZR 3	0.332	20.3
HZR 7	0.332	20.3
HZR 10	0.332	20.3
K	2.07	-
LI6	-	0.9
LI7	0.036	1.04
M $\emptyset$	2.7	5.975
NA	0.525	-
NB	1.16	6.46
NI	4.6	17.44
$\emptyset$	0.0002	-
SM	-	-
U233	-	12.5
U235	-	10.0
U238	-	8.3
XEL35	-	0
ZR	0.185	6.1
ZR 3	0.185	6.1
ZR 7	0.185	6.1
ZR 10	0.185	6.1

FIGURE 5

THERMAL SPECTRUM FOR WATER*

*Reference 8

FIGURE 6

FIGURE 7
THERMAL NEUTRON SPECTRA
POISONED ZRH_x (4.95 b/H)

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FIGURE 8
THERMAL NEUTRON SPECTRA
UNPOISONED ZrH_x (0.49 b/H)

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FIGURE 9 WATER THERMAL NEUTRON SPECTRA

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FIGURE 10
BORIC ACID (2.9 b/H)
THERMAL NEUTRON SPECTRA

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A P P E N D I X

TAPE LIBRARY LIST

NUMBER OF GROUPS=23

NUMBER OF DOWNSCATTER GROUPS=14

NUMBER OF UPSCATTER GROUPS= 8

FIRST THERMAL GROUP=15

ENERGY INTERVAL FOR EACH GROUP

1	0.70000000E 07	2	0.16000000E 07	3	0.49999999E 06	4	0.49999999E 06	5	0.30000000E 06
6	0.82999999E 05	7	0.13999999E 05	8	0.24500000E 04	9	0.45000000E 03	10	0.70000000E 02
11	0.20000000E 02	12	0.70000000E 01	13	0.20000000E 01	14	0.59999999E 00	15	0.20000000E-00
16	0.59999999E-01	17	0.39999999E-01	18	0.30000000E-01	19	0.30000000E-01	20	0.20000000E-01
21	0.99999999E-02	22	0.59999999E-02	23	0.30000000E-02				

CHI FOR EACH GROUP

1	0.20400000E-00	2	0.34400000E-00	3	0.16800000E-00	4	0.18000000E-00	5	0.90000000E-01
6	0.13999999E-01	7	-0.	8	-0.	9	-0.	10	-0.
11	-0.	12	-0.	13	-0.	14	-0.	15	-0.
16	-0.	17	-0.	18	-0.	19	-0.	20	-0.
21	-0.	22	-0.	23	-0.				

AL

ATOMIC WEIGHT= 0.26979999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.15899999E-01	2	0.34999999E-03	3	0.38000000E-03	4	0.70000000E-03	5	0.20000000E-02
6	0.49999999E-02	7	0.20000000E-02	8	0.99999999E-03	9	0.30000000E-02	10	0.59999999E-02
11	0.99999999E-02	12	0.16999999E-01	13	0.30000000E-01	14	0.49999999E-01	15	0.72430000E-01
16	0.94350000E-01	17	0.11189999E-00	18	0.13185000E-00	19	0.16441000E-00	20	0.22289000E-00
21	0.31500000E-00	22	0.46393999E-00	23	0.78422000E 00				

SIGMA TRANSPORT

1	0.18059000E 01	2	0.20223499E 01	3	0.21403799E 01	4	0.27207000E 01	5	0.28320000E 01
6	0.14349999E 01	7	0.14630000E 01	8	0.13649999E 01	9	0.13660000E 01	10	0.13660000E 01
11	0.13660000E 01	12	0.13850000E 01	13	0.14100000E 01	14	0.14600000E 01	15	0.15499999E 01
16	0.15640999E 01	17	0.15974999E 01	18	0.15509000E 01	19	0.15463000E 01	20	0.15815999E 01
21	0.18821000E 01	22	0.16824000E 01	23	0.11787999E 01				

SIGMA DOWNSCATTER

1T0 2	0.55999999E 00					
1T0 3	0.09999999E-00	2T0 3	0.23000000E-00			
1T0 4	0.30000000E-01	2T0 4	0.11000000E-00	3T0 4	0.38000000E-00	
1T0 5	-0.	2T0 5	0.20000000E-01	3T0 5	0.13999999E-00	4T0 5 0.25000000E-00
1T0 6	-0.	2T0 6	0.90000000E-03	3T0 6	0.99999999E-02	4T0 6 -0.
5T0 6	0.13999999E-00					
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7 -0.
5T0 7	-0.	6T0 7	0.69999999E-01			
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8 -0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.62999999E-01	
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9 -0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9 0.59999999E-01
1T010	0.	2T010	0.	3T010	0.	4T010 0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010 -0.
9T010	0.59999999E-01					
1T011	0.	2T011	0.	3T011	0.	4T011 0.
5T011	0.	6T011	-0.	7T011	-0.	8T011 -0.
9T011	-0.	10T011	0.84000000E-01			
1T012	0.	2T012	0.	3T012	0.	4T012 0.
5T012	0.	6T012	0.	7T012	-0.	8T012 -0.
9T012	-0.	10T012	-0.	11T012	0.91999999E-01	

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.84000000E-01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.93999999E-01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.11499999E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.14569999E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.10365000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.76562999E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.17920999E-01	18T019	0.66016000E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.13996000E-01	19T020	0.30814999E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.12678999E-01	20T021	0.83170999E-02				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.54995000E-02
20T022	0.34183999E-02	21T022	0.23643000E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.14231999E-04	20T023	0.99851998E-03
21T023	0.62919999E-03	22T023	0.45090000E-03				

SIGMA UPSCATTER

16T015	0.18901999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.28400999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.35422999E-01	19T017	0.46901999E-02	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.31860000E-01	20T018	0.53357000E-02	21T018	0.	22T018	0.
23T018	0.						
20T019	0.31588999E-01	21T019	0.15791000E-01	22T019	0.66802999E-02	23T019	0.31363999E-04
21T020	0.18137000E-01	22T020	0.19429000E-01	23T020	0.27033000E-01		
22T021	0.61632999E-02	23T021	0.78179999E-02				
23T022	0.21515000E-02						

B

ATOMIC WEIGHT= 0.10820000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.39999999E-01	2	0.59999999E-01	3	0.39999999E-01	4	0.79999999E-01	5	0.27000000E-00
6	0.61000000E 00	7	0.15000000E 01	8	0.34000000E 01	9	0.80000000E 01	10	0.16400000E 02
11	0.29000000E 02	12	0.52000000E 02	13	0.91999999E 02	14	0.15100000E 03	15	0.22691999E 03
16	0.29558999E 03	17	0.35057000E 03	18	0.41305000E 03	19	0.51505999E 03	20	0.69826999E 03
21	0.98687000E 03	22	0.14534400E 04	23	0.24568000E 04				

SIGMA TRANSPORT

1	0.15200000E 01	2	0.17900000E 01	3	0.21399999E 01	4	0.22699999E 01	5	0.31599999E 01
6	0.40799999E 01	7	0.49699999E 01	8	0.68699999E 01	9	0.11470000E 02	10	0.19870000E 02
11	0.32470000E 02	12	0.55469999E 02	13	0.95469999E 02	14	0.15447000E 03	15	0.23038260E 03
16	0.29905260E 03	17	0.35403259E 03	18	0.41651260E 03	19	0.51852260E 03	20	0.70173260E 03
21	0.99033260E 03	22	0.14569025E 04	23	0.24602626E 04				

SIGMA DOWNSCATTER

1T0 2	0.66999999E 00				
1T0 3	-0.	2T0 3	0.41999999E-00		
1T0 4	-0.	2T0 4	-0.	3T0 4	0.88000000E 00
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	0.50000000E 00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.38000000E-00			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.36000000E-00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.37000000E-00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.38000000E-00
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.38000000E-00			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.52999999E 00	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.58000000E 00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.52999999E 00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.5800C000E C0						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.70000000E 00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.45647000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.35935000E-C0	16T017	0.13661999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.11037999E-00
16T018	0.12509999E-C0	17T018	0.70327000E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.12654000E-00
17T019	0.77862999E-01	18T019	0.49665999E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.45341999E-01	17T020	0.46359999E-01
18T020	0.30723000E-01	19T020	0.19250999E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.17830999E-01	18T021	0.11911999E-01
19T021	0.74106000E-02	20T021	0.44984999E-02				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.75430000E-02	18T022	0.50316999E-02	19T022	0.30854999E-02
20T022	0.17800999E-02	21T022	0.11730000E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.22731999E-02	18T023	0.15121000E-02	19T023	0.91599999E-03	20T023	0.50717999E-03
21T023	0.30512999E-03	22T023	0.21325999E-03				

SIGMA UPSCATTER

16T015	0.44392999E-01	17T015	0.97851998E-02	18T015	0.14764000E-02	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.43199000E-01	18T016	0.19812000E-01	19T016	0.81015000E-02	20T016	0.18728000E-02
21T016	0.	22T016	0.	23T016	0.		
18T017	0.34931999E-01	19T017	0.18613999E-01	20T017	0.11268000E-01	21T017	0.81532999E-02
22T017	0.68013000E-02	23T017	0.75162999E-02				
19T018	0.23979999E-01	20T018	0.15137000E-01	21T018	0.12822000E-01	22T018	0.14156999E-01
23T018	0.20305999E-01						
20T019	0.19662999E-01	21T019	0.16504999E-01	22T019	0.17928000E-01	23T019	0.25369000E-01
21T020	0.97905999E-02	22T020	0.10091999E-01	23T020	0.13693999E-01		
22T021	0.30558000E-02	23T021	0.37881000E-02				
23T022	0.10173000E-02						

BABS

TOMIC WEIGHT= 0.10820000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.39999999E-01	2	0.59999999E-01	3	0.39999999E-01	4	0.79999999E-01	5	0.27000000E-00
6	0.61000000E 00	7	0.15000000E 01	8	0.34000000E 01	9	0.80000000E 01	10	0.16400000E 02
11	0.29000000E 02	12	0.52000000E 02	13	0.91999999E 02	14	0.15100000E 03	15	0.22691999E 03
16	0.29558999E 03	17	0.35057000E 03	18	0.41305000E 03	19	0.51505999E 03	20	0.69826999E 03
21	0.98687000E 03	22	0.14534400E 04	23	0.24568000E 04				

SIGMA TRANSPORT

1	-0.	2	-0.	3	-0.	4	-0.	5	-0.
6	-0.	7	-0.	8	-0.	9	-0.	10	-0.
11	-0.	12	-0.	13	-0.	14	-0.	15	-0.
16	-0.	17	-0.	18	-0.	19	-0.	20	-0.
21	-0.	22	-0.	23	-0.				

SIGMA DOWNSCATTER

1T0 2	0.				
1T0 3	-0.	2T0 3	-0.		
1T0 4	-0.	2T0 4	-0.	3T0 4	-0.
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
					4T0 5
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	-0.				4T0 6
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	-0.		4T0 7
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	-0.
					4T0 8
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
					4T0 9
					8T0 9
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	-0.				4T010
					8T010
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	-0.		4T011
					8T011
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	-0.
					4T012
					8T012

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	-0.
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	-0.						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	-0.				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.	20T021	0.				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.	21T022	0.				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.
21T023	0.	22T023	0.				

SIGMA UPSCATTER

16T015	0.	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.	21T019	0.	22T019	0.	23T019	0.
21T020	0.	22T020	0.	23T020	0.		
22T021	0.	23T021	0.				
23T022	0.						

BE

ATOMIC WEIGHT= 0.90129998E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.30899999E-00	2 -0.88000000E-01	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 -0.	9 -0.	10 -0.
11 -0.	12 -0.	13 0.99999999E-03	14 0.20000000E-02	15 0.30049999E-02
16 0.39200000E-02	17 0.46499999E-02	18 0.54799999E-02	19 0.68299999E-02	20 0.92499998E-02
21 0.13070000E-01	22 0.19220000E-01	23 0.32609999E-01		

SIGMA TRANSPORT

1 0.12909999E 01	2 0.14749999E 01	3 0.23800000E 01	4 0.33099999E 01	5 0.39399999E 01
6 0.51799999E 01	7 0.52799999E 01	8 0.53699999E 01	9 0.54199999E 01	10 0.54599999E 01
11 0.54599999E 01	12 0.54599999E 01	13 0.54599999E 01	14 0.54599999E 01	15 0.54665999E 01
16 0.54674999E 01	17 0.54682999E 01	18 0.54691000E 01	19 0.54703999E 01	20 0.58277999E 01
21 0.54939999E 01	22 0.48980999E 01	23 0.48925000E-00		

SIGMA DOWNSCATTER

1T0 2	0.8180C000E 00				
1T0 3	0.34999999E-00	2T0 3	0.50900000E 00		
1T0 4	-0.	2T0 4	0.12000000E-00	3T0 4	0.12069999E 01
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	0.91300000E 00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.6340C000E 00			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.65499999E 00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.68000000E 00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.70999999E 00
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.70999999E 00			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.10100000E 01	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.11099999E 01
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.10100000E 01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.11099999E 01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.13299999E 01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.96654999E 00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.78955000E 00	16T017	0.32590999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.30726000E-00	17T018	0.17873000E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.31917000E-00
17T019	0.20333000E-00	18T019	0.13283999E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.12422000E-00
18T020	0.84214999E-01	19T020	0.53912999E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.48627999E-01	18T021	0.33223999E-01
19T021	0.21094000E-01	20T021	0.13045000E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.20782000E-01	18T022	0.14178000E-01	19T022	0.88706999E-02
20T022	0.52090000E-02	21T022	0.34722000E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.63011000E-02	18T023	0.42873999E-02	19T023	0.26498000E-02	20T023	0.14929999E-02
21T023	0.90811999E-03	22T023	0.63844999E-03				

SIGMA UPSCATTER

16T015	0.95864999E-01	17T015	0.19808999E-01	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.10332999E-00	18T016	0.48745000E-01	19T016	0.16711000E-01	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.88742999E-01	19T017	0.48587999E-01	20T017	0.30191000E-01	21T017	0.15593000E-01
22T017	0.95480999E-02	23T017	0.57941999E-02				
19T018	0.64131999E-01	20T018	0.41531000E-01	21T018	0.35816000E-01	22T018	0.39958999E-01
23T018	0.57675000E-01						
20T019	0.55117000E-01	21T019	0.47043999E-01	22T019	0.51619999E-01	23T019	0.73503000E-01
21T020	0.28404000E-01	22T020	0.29549000E-01	23T020	0.40338999E-01		
22T021	0.90470000E-02	23T021	0.11275999E-01				
23T022	0.30457000E-02						

C

ATOMIC WEIGHT= 0.12010000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 -0.	9 -0.	10 -0.
11 -0.	12 -0.	13 -0.	14 -0.	15 0.11200000E-02
16 0.14699999E-02	17 0.17299999E-02	18 0.20400000E-02	19 0.25399999E-02	20 0.34500000E-02
21 0.48760000E-02	22 0.71799999E-02	23 0.12140000E-01		

SIGMA TRANSPORT

1 0.12300000E 01	2 0.14200000E 01	3 0.22600000E 01	4 0.29299999E 01	5 0.35899999E 01
6 0.42500000E 01	7 0.44399999E 01	8 0.43399999E 01	9 0.43399999E 01	10 0.43399999E 01
11 0.43399999E 01	12 0.44399999E 01	13 0.44399999E 01	14 0.44399999E 01	15 0.45335999E 01
16 0.45336600E 01	17 0.45290999E 01	18 0.44378999E 01	19 0.45498999E 01	20 0.44889999E 01
21 0.39667999E 01	22 0.38350999E 01	23 0.43906999E 01		

SIGMA DOWNSCATTER

1T0 2	0.51499999E 00				
1T0 3	-0.	2T0 3	0.31400000E-00		
1T0 4	-0.	2T0 4	-0.	3T0 4	0.85600000E 00
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	0.60399999E 00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.43300000E-C0			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.40099999E-00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.42800000E-00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.42800000E-00
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.42800000E-C0			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.60299999E 00	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.66199999E 00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.61600000E 00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.67699999E 00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.81299999E 00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.52940000E 00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.41258000E-00	16T017	0.15366000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.12602000E-00
16T018	0.13969000E-00	17T018	0.77873000E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.14031000E-00
17T019	0.85648999E-01	18T019	0.54317000E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.50005999E-01	17T020	0.50678000E-01
18T020	0.33402000E-01	19T020	0.20823000E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.19408000E-01	18T021	0.12897000E-01
19T021	0.79846999E-02	20T021	0.48256999E-02				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.81899999E-02	18T022	0.54342999E-02	19T022	0.33166999E-02
20T022	0.19053999E-02	21T022	0.12521999E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.24646000E-02	18T023	0.16306999E-02	19T023	0.98314999E-03	20T023	0.54212999E-03
21T023	0.32531999E-03	22T023	0.22705000E-03				

SIGMA UPSCATTER

16T015	0.50958999E-01	17T015	0.11099999E-01	18T015	0.16589999E-02	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.48554999E-01	18T016	0.22110999E-01	19T016	0.89715999E-02	20T016	0.20562000E-02
21T016	0.	22T016	0.	23T016	0.		
18T017	0.38683999E-01	19T017	0.20478000E-01	20T017	0.12316000E-01	21T017	0.88674000E-02
22T017	0.73734999E-02	23T017	0.81331000E-02				
19T018	0.26226000E-01	20T018	0.16452999E-01	21T018	0.13877000E-01	22T018	0.15283000E-01
23T018	0.21889000E-01						
20T019	0.21264999E-01	21T019	0.17777000E-01	22T019	0.19263999E-01	23T019	0.27219000E-01
21T020	0.10501000E-01	22T020	0.10800999E-01	23T020	0.14636000E-01		
22T021	0.32619999E-02	23T021	0.40384999E-02				
23T022	0.10829999E-02						

CR

ATOMIC WEIGHT= 0.52010000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.99999999E-02	2	0.20000000E-01	3	0.20000000E-01	4	0.20000000E-01	5	0.39999999E-01
6	0.11000000E-00	7	0.69999999E-01	8	0.20000000E-01	9	0.30000000E-01	10	0.59999999E-01
11	0.11000000E-00	12	0.19000000E-00	13	0.34000000E-00	14	0.55000000E 00	15	0.91125000E 00
16	0.11870799E 01	17	0.14078999E 01	18	0.16587999E 01	19	0.20683999E 01	20	0.28042000E 01
21	0.39631999E 01	22	0.58369000E 01	23	0.98663998E 01				

SIGMA TRANSPORT

1	0.24400000E 01	2	0.23599999E 01	3	0.21699999E 01	4	0.26199999E 01	5	0.35500000E 01
6	0.31699999E 01	7	0.12920000E 02	8	0.46699999E 01	9	0.42399999E 01	10	0.42500000E 01
11	0.42999999E 01	12	0.43499999E 01	13	0.44699999E 01	14	0.46399999E 01	15	0.50406999E 01
16	0.53729999E 01	17	0.56027999E 01	18	0.58611999E 01	19	0.62752999E 01	20	0.69709999E 01
21	0.81290999E 01	22	0.98228998E 01	23	0.12538400E 02				

SIGMA DOWNSCATTER

1T0 2	0.56999999E 00						
1T0 3	0.26000000E-00	2T0 3	0.34999999E-00				
1T0 4	0.25000000E-00	2T0 4	0.36000000E-00	3T0 4	0.27999999E-00		
1T0 5	0.90000000E-01	2T0 5	0.15000000E-00	3T0 5	0.69999999E-01	4T0 5	0.15000000E-00
1T0 6	0.99999999E-02	2T0 6	0.99999999E-02	3T0 6	0.99999999E-02	4T0 6	0.99999999E-07
5T0 6	0.13000000E-00						
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7	-0.
5T0 7	-0.	6T0 7	0.59999999E-01				
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.16999999E-00		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9	0.90000000E-01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010	-0.
9T010	0.90000000E-01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	-0.	7T011	-0.	8T011	-0.
9T011	-0.	10T011	0.13000000E-00				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	-0.	8T012	-0.
9T012	-0.	10T012	-0.	11T012	0.13999999E-00		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.13000000E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.13999999E-00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.16999999E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.21716999E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.11985999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.79331999E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.13728999E-01	18T019	0.59937999E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.93827999E-02	19T020	0.24692000E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.97121999E-02	20T021	0.60432000E-02				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.33278000E-02
20T022	0.24202999E-02	21T022	0.16194999E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.69509999E-03
21T023	0.42432000E-03	22T023	0.29889999E-03				

SIGMA UPSCATTER

16T015	0.25788999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.32745999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.35634000E-01	19T017	0.34486999E-02	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.28935000E-01	20T018	0.34413999E-02	21T018	0.	22T018	0.
23T018	0.						
20T019	0.25250000E-01	21T019	0.10876000E-01	22T019	0.37208000E-02	23T019	0.
21T020	0.13161000E-01	22T020	0.13733000E-01	23T020	0.17283999E-01		
22T021	0.42197999E-02	23T021	0.52690999E-02				
23T022	0.14258999E-02						

FE

ATOMIC WEIGHT= 0.55850000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.70000000E-02	2	0.49999999E-02	3	0.99999999E-02	4	0.99999999E-02	5	0.99999999E-02
6	0.99999999E-02	7	0.99999999E-02	8	0.11000000E-01	9	0.27000000E-01	10	0.55000000E-01
11	0.97999999E-01	12	0.16999999E-00	13	0.30999999E-00	14	0.51000000E 00	15	0.78747000E 00
16	0.10257600E 01	17	0.12165000E 01	18	0.14333999E 01	19	0.17873999E 01	20	0.24231999E 01
21	0.34247000E 01	22	0.50438000E 01	23	0.85255999E 01				

SIGMA TRANSPORT

1	0.22470000E 01	2	0.21999999E 01	3	0.19599999E 01	4	0.22899999E 01	5	0.24400000E 01
6	0.22300000E 01	7	0.56499999E 01	8	0.71139999E 01	9	0.10968000E 02	10	0.11364000E 02
11	0.11364000E 02	12	0.11369999E 02	13	0.11369999E 02	14	0.11369999E 02	15	0.11665499E 02
16	0.11825600E 02	17	0.11947700E 02	18	0.12098400E 02	19	0.12409700E 02	20	0.13057599E 02
21	0.14477199E 02	22	0.15389000E 02	23	0.91339999E 01				

SIGMA DOWNSCATTER

1T0 2	0.50000000E 00					
1T0 3	0.20000000E-00	2T0 3	0.40000000E-00			
1T0 4	0.09999999E-00	2T0 4	0.20000000E-00	3T0 4	0.23000000E-00	
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.23000000E-00	4T0 5 0.12300000E-00
1T0 6	-0.	2T0 6	-0.	3T0 6	0.20000000E-01	4T0 6 0.99999999E-08
5T0 6	0.70999999E-01					
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7 -0.
5T0 7	-0.	6T0 7	0.49999999E-01			
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8 -0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.12000000E-00	
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9 -0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9 0.15099999E-00
1T010	0.	2T010	0.	3T010	0.	4T010 0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010 -0.
9T010	0.23300000E-00					
1T011	0.	2T011	0.	3T011	0.	4T011 0.
5T011	0.	6T011	-0.	7T011	-0.	8T011 -0.
9T011	-0.	10T011	0.33199999E-00			
1T012	0.	2T012	0.	3T012	0.	4T012 0.
5T012	0.	6T012	0.	7T012	-0.	8T012 -0.
9T012	-0.	10T012	-0.	11T012	0.36499999E-00	

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.32900000E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.35800000E-00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.42900000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.58470000E 00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.28205000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.19582999E-02	17T018	0.14735000E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.55791999E-01	18T019	0.10529000E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.35109999E-01	19T020	0.41239999E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.15933999E-01	20T021	0.97132999E-02				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.66493999E-02
20T022	0.38513999E-02	21T022	0.25445999E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.19768000E-02	20T023	0.10988999E-02
21T023	0.66271999E-03	22T023	0.46381000E-03				

SIGMA UPSCATTER

16T015	0.60735999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.71310999E-01	18T016	0.29944000E-03	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.73179999E-01	19T017	0.12965000E-01	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.50832999E-01	20T018	0.12473000E-01	21T018	0.	22T018	0.
23T018	0.						
20T019	0.42132000E-01	21T019	0.24392000E-01	22T019	0.13328999E-01	23T019	0.76233000E-02
21T020	0.21141999E-01	22T020	0.21838000E-01	23T020	0.29674000E-01		
22T021	0.66291999E-02	23T021	0.82277998E-02				
23T022	0.22124000E-02						

H

ATOMIC WEIGHT= 0.09999999E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 0.99999999E-03	9 0.39999999E-02	10 0.79999999E-02
11 0.13999999E-01	12 0.24999999E-01	13 0.45000000E-01	14 0.69999999E-01	15 0.99789999E-01
16 0.12998000E-00	17 0.15415999E-00	18 0.18162999E-00	19 0.22649000E-00	20 0.30705000E-00
21 0.43396000E-00	22 0.63913000E 00	23 0.10803399E 01		

SIGMA TRANSPORT

1 0.61000000E 00	2 0.95000000E 00	3 0.13199999E 01	4 0.18200000E 01	5 0.29299999E 01
6 0.52000000E 01	7 0.63299999E 01	8 0.66659999E 01	9 0.66689999E 01	10 0.66719999E 01
11 0.66759999E 01	12 0.68169999E 01	13 0.68299999E 01	14 0.68469999E 01	15 0.15480600E 02
16 0.16472799E 02	17 0.17162599E 02	18 0.18035299E 02	19 0.19423500E 02	20 0.22622400E 02
21 0.28316300E 02	22 0.38017000E 02	23 0.60797499E 02		

SIGMA DOWNSCATTER

1T0 2	0.73899999E 00						
1T0 3	0.23100000E-00	2T0 3	0.73100000E 00				
1T0 4	0.23100000E-00	2T0 4	0.73100000E 00	3T0 4	0.17670000E 01		
1T0 5	0.13900000E-00	2T0 5	0.43900000E-00	3T0 5	0.10599999E 01	4T0 5	0.27180000E 01
1T0 6	0.45999999E-01	2T0 6	0.12100000E-00	3T0 6	0.29400000E-00	4T0 6	0.75200000E 00
5T0 6	0.33870000E 01						
1T0 7	0.	2T0 7	0.24999999E-01	3T0 7	0.48999999E-01	4T0 7	0.12700000E-00
5T0 7	0.57099999E 00	6T0 7	0.60219999E 01				
1T0 8	0.	2T0 8	0.	3T0 8	0.11000000E-01	4T0 8	0.22000000E-01
5T0 8	0.09999999E-00	6T0 8	0.10450000E 01	7T0 8	0.73719999E 01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	0.49999999E-02
5T0 9	0.17999999E-01	6T0 9	0.18700000E-00	7T0 9	0.13490000E 01	8T0 9	0.78800000E 01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	0.39999999E-02	6T010	0.29600000E-01	7T010	0.20900000E-00	8T010	0.12199999E 01
9T010	0.67189999E 01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	0.12499999E-01	7T011	0.60800000E-01	8T011	0.36000000E-00
9T011	0.19199999E 01	10T011	0.77569999E 01				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	0.30400000E-01	8T012	0.12199999E-00
9T012	0.68000000E 00	10T012	0.27189999E 01	11T012	0.84939999E 01		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	0.52000000E-01
9T013	0.19199999E-00	10T013	0.77999999E 00	11T013	0.24180000E 01	12T013	0.79059999E 01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	0.95999999E-01	10T014	0.23190000E-00	11T014	0.71900000E 00	12T014	0.23639999E 01
13T014	0.74089999E 01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	0.10399999E-00	11T015	0.23999999E-00	12T015	0.78800000E 00
13T015	0.24558999E 01	14T015	0.66546999E 01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.31199999E-01	11T016	0.71999999E-01	12T016	0.23639999E-00	13T016	0.73689999E 00
14T016	0.19965000E 01	15T016	0.46839999E 01				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.20699999E-01
11T017	0.48000000E-01	12T017	0.15759999E-00	13T017	0.49119999E-00	14T017	0.13308000E 01
15T017	0.31163000E 01	16T017	0.54827999E 01				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.36300000E-01
12T018	0.11719999E-00	13T018	0.37630000E-00	14T018	0.10102999E 01	15T018	0.23186000E 01
16T018	0.40793999E 01	17T018	0.58068999E 01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.36300000E-01	12T019	0.11719999E-00
13T019	0.37630000E-00	14T019	0.10102999E 01	15T019	0.22482999E 01	16T019	0.39556000E 01
17T019	0.56306999E 01	18T019	0.79220999E 01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.24200000E-01	12T020	0.78299999E-01	13T020	0.25099999E-00

14T020	0.67349999E 00	15T020	0.13593999E 01	16T020	0.23916999E 01	17T020	0.34045999E 01
18T020	0.47899999E 01	19T020	0.75034999E 01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.12199999E-01	12T021	0.39100000E-01	13T021	0.12549999E-00	14T021	0.33679999E-00
15T021	0.56135999E 00	16T021	0.98763999E 00	17T021	0.14059000E 01	18T021	0.19780000E 01
19T021	0.30984999E 01	20T021	0.58072999E 01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.73000000E-02
12T022	0.23499999E-01	13T022	0.75299999E-01	14T022	0.20209999E-00	15T022	0.25184999E-00
16T022	0.44310000E-00	17T022	0.63074999E 00	18T022	0.88742000E 00	19T022	0.13901000E 01
20T022	0.26053999E 01	21T022	0.52643000E 01				
9T023	0.	10T023	0.	11T023	0.36000000E-02	12T023	0.11700000E-01
13T023	0.37599999E-01	14T023	0.10100000E-00	15T023	0.78986999E-01	16T023	0.13897000E-00
17T023	0.19781999E-00	18T023	0.27832000E-00	19T023	0.43598000E-00	20T023	0.81711999E 00
21T023	0.16509999E 01	22T023	0.35833000E 01				

SIGMA UPSCATTER

16T015	0.10890000E 01	17T015	0.20502999E-00	18T015	0.75482000E-01	19T015	0.34726000E-01
20T015	0.21523000E-01	21T015	0.19664999E-01	22T015	0.23015000E-01	23T015	0.34612999E-01
17T016	0.19925000E 01	18T016	0.73355000E 00	19T016	0.33747999E-00	20T016	0.20917000E-00
21T016	0.19110999E-00	22T016	0.22367000E-00	23T016	0.33637000E-00		
18T017	0.31228999E 01	19T017	0.14367999E 01	20T017	0.89049000E 00	21T017	0.81361999E 00
22T017	0.95223000E 00	23T017	0.14320999E 01				
19T018	0.41121999E 01	20T018	0.25486999E 01	21T018	0.23286999E 01	22T018	0.27254000E 01
23T018	0.40986999E 01						
20T019	0.83423999E 01	21T019	0.76222999E 01	22T019	0.89207999E 01	23T019	0.13416000E 02
21T020	0.13220000E 02	22T020	0.15471999E 02	23T020	0.23268999E 02		
22T021	0.13727000E 02	23T021	0.20643999E 02				
23T022	0.16922999E 02						

H2O

ATOMIC WEIGHT= 0.18000000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.13360000E-02	2	-0.	3	-0.	4	-0.	5	-0.
6	-0.	7	-0.	8	0.69999999E-04	9	0.26700000E-03	10	0.53399999E-03
11	0.93499999E-03	12	0.16700000E-02	13	0.30059999E-02	14	0.46760000E-02	15	0.57799999E-02
16	0.86999998E-02	17	0.10460000E-01	18	0.12249999E-01	19	0.15459999E-01	20	0.20769999E-01
21	0.28980000E-01	22	0.42259999E-01	23	0.70299999E-01				

SIGMA TRANSPORT

1	0.84170000E-01	2	0.10286999E-00	3	0.19605999E-00	4	0.24280000E-00	5	0.31959999E-00
6	0.45620000E-00	7	0.54139999E 00	8	0.56686000E 00	9	0.56707000E 00	10	0.56727000E 00
11	0.56750000E 00	12	0.57700000E 00	13	0.57780000E 00	14	0.57900000E 00	15	0.10168999E 01
16	0.13322999E 01	17	0.16185000E 01	18	0.18781000E 01	19	0.23010000E 01	20	0.31548999E 01
21	0.45719999E 01	22	0.57332999E 01	23	0.68383999E 01				

SIGMA DOWNSCATTER

1T0 2	0.63499999E-01						
1T0 3	0.15400000E-01	2T0 3	0.55199999E-01				
1T0 4	0.15400000E-01	2T0 4	0.48830000E-01	3T0 4	0.14816000E-00		
1T0 5	0.92899999E-02	2T0 5	0.29319999E-01	3T0 5	0.70809999E-01	4T0 5	0.20012999E-00
1T0 6	0.30700000E-02	2T0 6	0.80799999E-02	3T0 6	0.19639999E-01	4T0 6	0.50229999E-01
5T0 6	0.23750000E-00						
1T0 7	0.	2T0 7	0.16700000E-02	3T0 7	0.32699999E-02	4T0 7	0.84799999E-02
5T0 7	0.38099999E-01	6T0 7	0.40999000E-00				
1T0 8	0.	2T0 8	0.	3T0 8	0.73499999E-03	4T0 8	0.14699999E-02
5T0 8	0.66800000E-02	6T0 8	0.69799999E-01	7T0 8	0.50097000E 00		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	0.33399999E-03
5T0 9	0.12000000E-02	6T0 9	0.12490000E-01	7T0 9	0.90109999E-01	8T0 9	0.53540000E 00
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	0.27000000E-03	6T010	0.19799999E-02	7T010	0.13959999E-01	8T010	0.81499999E-01
9T010	0.45779999E-00						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	0.83999999E-03	7T011	0.40599999E-02	8T011	0.24050000E-01
9T011	0.12830000E-00	10T011	0.53086000E 00				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	0.20299999E-02	8T012	0.81499998E-02
9T012	0.45400000E-01	10T012	0.18162999E-00	11T012	0.58120000E 00		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	0.34700000E-02
9T013	0.12830000E-01	10T013	0.52100000E-01	11T013	0.16152000E-00	12T013	0.54080000E 00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	0.64100000E-02	10T014	0.15489999E-01	11T014	0.48029999E-01	12T014	0.15790000E-00
13T014	0.50875000E 00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	0.69000000E-02	11T015	0.16000000E-01	12T015	0.52599999E-01
13T015	0.16410000E-00	14T015	0.46120000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.20999999E-02	11T016	0.48000000E-02	12T016	0.15799999E-01	13T016	0.49199999E-01
14T016	0.13339999E-00	15T016	0.39546999E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.13999999E-02
11T017	0.31999999E-02	12T017	0.10500000E-01	13T017	0.32799999E-01	14T017	0.88900000E-01
15T017	0.27265000E-00	16T017	0.34125999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.23999999E-02
12T018	0.77999999E-02	13T018	0.25099999E-01	14T018	0.67500000E-01	15T018	0.14636999E-00
16T018	0.38135999E-00	17T018	0.27192000E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.23999999E-02	12T019	0.77999999E-02
13T019	0.25099999E-01	14T019	0.67500000E-01	15T019	0.97202999E-01	16T019	0.38880999E-00
17T019	0.35918000E-00	18T019	0.28314999E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.16000000E-02	12T020	0.51999999E-02	13T020	0.16800000E-01

14T020	0.45000000E-01	15T020	0.52669000E-01	16T020	0.17360000E-00	17T020	0.26488999E-00
18T020	0.19982000E-00	19T020	0.17242000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.79999999E-03	12T021	0.25999999E-02	13T021	0.83999999E-02	14T021	0.22499999E-01
15T021	0.19935000E-01	16T021	0.49610999E-01	17T021	0.10956000E-00	18T021	0.96984999E-01
19T021	0.58086000E-01	20T021	0.72355999E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.49999999E-03
12T022	0.16000000E-02	13T022	0.49999999E-02	14T022	0.13500000E-01	15T022	0.84410999E-02
16T022	0.17025000E-01	17T022	0.46315999E-01	18T022	0.43638999E-01	19T022	0.28462999E-01
20T022	0.21117999E-01	21T022	0.33264000E-01				
9T023	0.	10T023	0.	11T023	0.20000000E-03	12T023	0.79999999E-03
13T023	0.24999999E-02	14T023	0.66999999E-02	15T023	0.25523999E-02	16T023	0.47972000E-02
17T023	0.13744999E-01	18T023	0.13851000E-01	19T023	0.92251999E-02	20T023	0.55444999E-02
21T023	0.65765999E-02	22T023	0.81206999E-02				

SIGMA UPSCATTER

16T015	0.69612999E-01	17T015	0.19455999E-01	18T015	0.53399999E-02	19T015	0.13066000E-02
20T015	0.74858999E-03	21T015	0.63659000E-03	22T015	0.70815999E-03	23T015	0.10117000E-02
17T016	0.10805000E-00	18T016	0.60290000E-01	19T016	0.30282000E-01	20T016	0.14346000E-01
21T016	0.89906999E-02	22T016	0.79208998E-02	23T016	0.10456999E-01		
18T017	0.13223000E-00	19T017	0.84735999E-01	20T017	0.65293999E-01	21T017	0.59465999E-01
22T017	0.65307999E-01	23T017	0.90934999E-01				
19T018	0.13508999E-00	20T018	0.10095000E-00	21T018	0.10783000E-00	22T018	0.12638000E-00
23T018	0.18848000E-00						
20T019	0.17863999E-00	21T019	0.13454000E-00	22T019	0.17194000E-00	23T019	0.26169000E-00
21T020	0.15882999E-00	22T020	0.12086999E-00	23T020	0.14940999E-00		
22T021	0.86538999E-01	23T021	0.80185999E-01				
23T022	0.38242999E-01						

HZR

ATOMIC WEIGHT= 0.09999999E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 0.99999999E-03	9 0.39999999E-02	10 0.79999999E-02
11 0.13999999E-01	12 0.24999999E-01	13 0.45000000E-01	14 0.69999999E-01	15 0.99789999E-01
16 0.12998000E-00	17 0.15415999E-00	18 0.18162999E-00	19 0.22649000E-00	20 0.30705000E-00
21 0.43396000E-00	22 0.63913000E 00	23 0.10803399E 01		

SIGMA TRANSPORT

1 0.61000000E 00	2 0.95000000E 00	3 0.13199999E 01	4 0.18200000E 01	5 0.29299999E 01
6 0.52000000E 01	7 0.63299999E 01	8 0.66659999E 01	9 0.66689999E 01	10 0.66719999E 01
11 0.66759999E 01	12 0.68169999E 01	13 0.68299999E 01	14 0.68469999E 01	15 0.12593800E 02
16 0.15984999E 02	17 0.18158100E 02	18 0.20517100E 02	19 0.24047799E 02	20 0.31485400E 02
21 0.44821200E 02	22 0.63441200E 02	23 0.96840499E 02		

SIGMA DOWNSCATTER

1T0 2	0.73899999E 00						
1T0 3	0.23100000E-00	2T0 3	0.73100000E 00				
1T0 4	0.23100000E-00	2T0 4	0.73100000E 00	3T0 4	0.17670000E 01		
1T0 5	0.13900000E-00	2T0 5	0.43900000E-00	3T0 5	0.10599999E 01	4T0 5	0.27180000E 01
1T0 6	0.45999999E-01	2T0 6	0.12100000E-00	3T0 6	0.29400000E-00	4T0 6	0.75200000E 00
5T0 6	0.33870000E 01						
1T0 7	0.	2T0 7	0.24999999E-01	3T0 7	0.48999999E-01	4T0 7	0.12700000E-00
5T0 7	0.57099999E 00	6T0 7	0.60219999E 01				
1T0 8	0.	2T0 8	0.	3T0 8	0.11000000E-01	4T0 8	0.22000000E-01
5T0 8	0.09999999E-00	6T0 8	0.10450000E 01	7T0 8	0.73719999E 01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	0.49999999E-02
5T0 9	0.17999999E-01	6T0 9	0.18700000E-00	7T0 9	0.13490000E 01	8T0 9	0.78800000E 01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	0.39999999E-02	6T010	0.29600000E-01	7T010	0.20900000E-00	8T010	0.12199999E 01
9T010	0.67189999E 01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	0.12499999E-01	7T011	0.60800000E-01	8T011	0.36000000E-00
9T011	0.19199999E 01	10T011	0.77569999E 01				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	0.30400000E-01	8T012	0.12199999E-00
9T012	0.68000000E 00	10T012	0.27189999E 01	11T012	0.84939999E 01		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	0.52000000E-01
9T013	0.19199999E-00	10T013	0.77999999E 00	11T013	0.24180000E 01	12T013	0.79059999E 01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	0.95999999E-01	10T014	0.23190000E-00	11T014	0.71900000E 00	12T014	0.23639999E 01
13T014	0.74089999E 01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	0.10399999E-00	11T015	0.23999999E-00	12T015	0.78800000E 00
13T015	0.24558999E 01	14T015	0.66546999E 01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.31199999E-01	11T016	0.71999999E-01	12T016	0.23639999E-00	13T016	0.73689999E 00
14T016	0.19965000E 01	15T016	0.36178999E 01				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.20699999E-01
11T017	0.48000000E-01	12T017	0.15759999E-00	13T017	0.49119999E-00	14T017	0.13308000E 01
15T017	0.36339999E 01	16T017	0.				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.36300000E-01
12T018	0.11719999E-00	13T018	0.37630000E-00	14T018	0.10102999E 01	15T018	0.35407999E 01
16T018	0.21765999E-00	17T018	0.				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.36300000E-01	12T019	0.11719999E-00
13T019	0.37630000E-00	14T019	0.10102999E 01	15T019	0.24874000E 01	16T019	0.40260999E 01
17T019	0.	18T019	0.				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.24200000E-01	12T020	0.78299999E-01	13T020	0.25099999E-00

14T020	0.67349999E 00	15T020	0.83256000E 00	16T020	0.50828999E 01	17T020	0.88602999E-01
18T020	0.	19T020	0.				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.12199999E-01	12T021	0.39100000E-01	13T021	0.12549999E-00	14T021	0.33679999E-00
15T021	0.29850999E-00	16T021	0.24857000E 01	17T021	0.21523999E-00	18T021	0.
19T021	0.	20T021	0.				
8T022	0.	9T022	0.	10T022	0.	11T022	0.73000000E-02
12T022	0.23499999E-01	13T022	0.75299999E-01	14T022	0.20209999E-00	15T022	0.12317999E-00
16T022	0.10349999E 01	17T022	0.27398000E-00	18T022	0.	19T022	0.
20T022	0.	21T022	0.				
9T023	0.	10T023	0.	11T023	0.36000000E-02	12T023	0.11700000E-01
13T023	0.37599999E-01	14T023	0.10100000E-00	15T023	0.35770000E-01	16T023	0.27286000E-00
17T023	0.14884999E-00	18T023	0.	19T023	0.	20T023	0.
21T023	0.	22T023	0.				

SIGMA UPSCATTER

16T015	0.74515999E-01	17T015	0.11144999E-00	18T015	0.10375000E-00	19T015	0.58882999E-01
20T015	0.51715999E-02	21T015	0.28117999E-02	22T015	0.35062999E-02	23T015	0.58160999E-02
17T016	0.	18T016	0.11470000E-01	19T016	0.13923000E-00	20T016	0.29318000E-00
21T016	0.40684000E-00	22T016	0.47764000E-00	23T016	0.61413000E 00		
18T017	0.	19T017	0.	20T017	0.12964000E-01	21T017	0.76429999E-01
22T017	0.26733000E-00	23T017	0.68512999E 00				
19T018	0.	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.	21T019	0.	22T019	0.	23T019	0.
21T020	0.	22T020	0.	23T020	0.		
22T021	0.	23T021	0.				
23T022	0.						

HZR 3

ATOMIC WEIGHT= 0.09999999E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 0.99999999E-03	9 0.39999999E-02	10 0.79999999E-02
11 0.13999999E-01	12 0.24999999E-01	13 0.45000000E-01	14 0.69999999E-01	15 0.99789999E-01
16 0.12998000E-00	17 0.15415999E-00	18 0.18162999E-00	19 0.22649000E-00	20 0.30705000E-00
21 0.43396000E-00	22 0.63913000E 00	23 0.10803399E 01		

SIGMA TRANSPORT

1 0.61000000E 00	2 0.95000000E 00	3 0.13199999E 01	4 0.18200000E 01	5 0.29299999E 01
6 0.52000000E 01	7 0.63299999E 01	8 0.66659999E 01	9 0.66689999E 01	10 0.66719999E 01
11 0.66759999E 01	12 0.68169999E 01	13 0.68299999E 01	14 0.68469999E 01	15 0.12593800E 02
16 0.15984999E 02	17 0.18158100E 02	18 0.20517100E 02	19 0.24047799E 02	20 0.31485400E 02
21 0.44821200E 02	22 0.63441200E 02	23 0.96840499E 02		

SIGMA DOWNSCATTER

1T0 2	0.73899999E 00						
1T0 3	0.23100000E-00	2T0 3	0.73100000E 00				
1T0 4	0.23100000E-00	2T0 4	0.73100000E 00	3T0 4	0.17670000E 01		
1T0 5	0.13900000E-00	2T0 5	0.43900000E-00	3T0 5	0.10599999E 01	4T0 5	0.27180000E 01
1T0 6	0.45999999E-01	2T0 6	0.12100000E-00	3T0 6	0.29400000E-00	4T0 6	0.75200000E 00
5T0 6	0.33870000E 01						
1T0 7	0.	2T0 7	0.24999999E-01	3T0 7	0.48999999E-01	4T0 7	0.12700000E-00
5T0 7	0.57099999E 00	6T0 7	0.60219999E 01				
1T0 8	0.	2T0 8	0.	3T0 8	0.11000000E-01	4T0 8	0.22000000E-01
5T0 8	0.09999999E-00	6T0 8	0.10450000E 01	7T0 8	0.73719999E 01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	0.49999999E-02
5T0 9	0.17999999E-01	6T0 9	0.18700000E-00	7T0 9	0.13490000E 01	8T0 9	0.78800000E 01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	0.39999999E-02	6T010	0.29600000E-01	7T010	0.20900000E-00	8T010	0.12199999E 01
9T010	0.67189999E 01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	0.12499999E-01	7T011	0.60800000E-01	8T011	0.36000000E-00
9T011	0.19199999E 01	10T011	0.77569999E 01				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	0.30400000E-01	8T012	0.12199999E-00
9T012	0.68000000E 00	10T012	0.27189999E 01	11T012	0.84939999E 01		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	0.52000000E-01
9T013	0.19199999E-00	10T013	0.77999999E 00	11T013	0.24180000E 01	12T013	0.79059999E 01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	0.95999999E-01	10T014	0.23190000E-00	11T014	0.71900000E 00	12T014	0.23639999E 01
13T014	0.74089999E 01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	0.10399999E-00	11T015	0.23999999E-00	12T015	0.78800000E 00
13T015	0.24558999E 01	14T015	0.66546999E 01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.31199999E-01	11T016	0.71999999E-01	12T016	0.23639999E-00	13T016	0.73689999E 00
14T016	0.19965000E 01	15T016	0.36482000E 01				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.20699999E-01
11T017	0.48000000E-01	12T017	0.15759999E-00	13T017	0.49119999E-00	14T017	0.13308000E 01
15T017	0.36541999E 01	16T017	0.				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.36300000E-01
12T018	0.11719999E-00	13T018	0.37630000E-00	14T018	0.10102999E 01	15T018	0.35439999E 01
16T018	0.22234999E-00	17T018	0.				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.36300000E-01	12T019	0.11719999E-00
13T019	0.37630000E-00	14T019	0.10102999E 01	15T019	0.24755999E 01	16T019	0.40881999E 01
17T019	0.	18T019	0.				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.24200000E-01	12T020	0.78299999E-01	13T020	0.25099999E-00

14T020	0.67349999E 00	15T020	0.80915999E 00	16T020	0.51713999E 01	17T020	0.92143999E-01
18T020	0.	19T020	0.				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.12199999E-01	12T021	0.39100000E-01	13T021	0.12549999E-00	14T021	0.33679999E-00
15T021	0.28703000E-00	16T021	0.25376000E 01	17T021	0.22372000E-00	18T021	0.
19T021	0.	20T021	0.				
8T022	0.	9T022	0.	10T022	0.	11T022	0.73000000E-02
12T022	0.23499999E-01	13T022	0.75299999E-01	14T022	0.20209999E-00	15T022	0.11791000E-00
16T022	0.10580999E 01	17T022	0.28432000E-00	18T022	0.	19T022	0.
20T022	0.	21T022	0.				
9T023	0.	10T023	0.	11T023	0.36000000E-02	12T023	0.11700000E-01
13T023	0.37599999E-01	14T023	0.10100000E-00	15T023	0.34187000E-01	16T023	0.27898999E-00
17T023	0.15439000E-00	18T023	0.	19T023	0.	20T023	0.
21T023	0.	22T023	0.				

SIGMA UPSCATTER

16T015	0.34057000E-00	17T015	0.49290000E-00	18T015	0.49739999E-00	19T015	0.31962000E-00
20T015	0.57415999E-01	21T015	0.45429999E-01	22T015	0.59780999E-01	23T015	0.99133000E-01
17T016	0.	18T016	0.38636000E-01	19T016	0.59299000E 00	20T016	0.13394000E 01
21T016	0.19334999E 01	22T016	0.23707999E 01	23T016	0.31707999E 01		
18T017	0.	19T017	0.	20T017	0.40958999E-01	21T017	0.27152000E-00
22T017	0.10439999E 01	23T017	0.28056999E 01				
19T018	0.	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.	21T019	0.	22T019	0.	23T019	0.
21T020	0.	22T020	0.	23T020	0.		
22T021	0.	23T021	0.				
23T022	0.						

HZR 7

ATOMIC WEIGHT= 0.09999999E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 0.99999999E-03	9 0.39999999E-02	10 0.79999999E-02
11 0.13999999E-01	12 0.24999999E-01	13 0.45000000E-01	14 0.69999999E-01	15 0.99789999E-01
16 0.12998000E-00	17 0.15415999E-00	18 0.18162999E-00	19 0.22649000E-00	20 0.30705000E-00
21 0.43396000E-00	22 0.63913000E 00	23 0.10803399E 01		

SIGMA TRANSPORT

1 0.61000000E 00	2 0.95000000E 00	3 0.13199999E 01	4 0.18200000E 01	5 0.29299999E 01
6 0.52000000E 01	7 0.63299999E 01	8 0.66659999E 01	9 0.66689999E 01	10 0.66719999E 01
11 0.66759999E 01	12 0.68169999E 01	13 0.68299999E 01	14 0.68469999E 01	15 0.12593800E 02
16 0.15984999E 02	17 0.18158100E 02	18 0.20517100E 02	19 0.24047799E 02	20 0.31485400E 02
21 0.44821200E 02	22 0.63441200E 02	23 0.96840499E 02		

SIGMA DOWNSCATTER

1T0 2	0.73899999E C0						
1T0 3	0.23100000E-C0	2T0 3	0.73100000E 00				
1T0 4	0.23100000E-C0	2T0 4	0.73100000E 00	3T0 4	0.17670000E 01		
1T0 5	0.13900000E-C0	2T0 5	0.43900000E-00	3T0 5	0.10599999E 01	4T0 5	0.27180000E 01
1T0 6	0.45999999E-01	2T0 6	0.12100000E-00	3T0 6	0.29400000E-00	4T0 6	0.75200000E 00
5T0 6	0.33870000E 01						
1T0 7	0.	2T0 7	0.24999999E-01	3T0 7	0.48999999E-01	4T0 7	0.12700000E-00
5T0 7	0.57099999E C0	6T0 7	0.60219999E 01				
1T0 8	0.	2T0 8	0.	3T0 8	0.11000000E-01	4T0 8	0.22000000E-01
5T0 8	0.09999999E-C0	6T0 8	0.10450000E 01	7T0 8	0.73719999E 01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	0.49999999E-02
5T0 9	0.17999999E-01	6T0 9	0.18700000E-00	7T0 9	0.13490000E 01	8T0 9	0.78800000E 01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	0.39999999E-02	6T010	0.29600000E-01	7T010	0.20900000E-00	8T010	0.12199999E 01
9T010	0.67189999E 01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	0.12499999E-01	7T011	0.60800000E-01	8T011	0.36000000E-00
9T011	0.19199999E 01	10T011	0.77569999E 01				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	0.30400000E-01	8T012	0.12199999E-00
9T012	0.68000000E C0	10T012	0.27189999E 01	11T012	0.84939999E 01		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	0.52000000E-01
9T013	0.19199999E-00	10T013	0.77999999E 00	11T013	0.24180000E 01	12T013	0.79059999E 01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	0.95999999E-01	10T014	0.23190000E-00	11T014	0.71900000E 00	12T014	0.23639999E 01
13T014	0.74089999E 01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	0.10399999E-00	11T015	0.23999999E-00	12T015	0.78800000E 00
13T015	0.24558999E 01	14T015	0.66546999E 01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.31199999E-01	11T016	0.71999999E-01	12T016	0.23639999E-00	13T016	0.73689999E 00
14T016	0.19965000E 01	15T016	0.37183999E 01				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.20699999E-01
11T017	0.48000000E-01	12T017	0.15759999E-00	13T017	0.49119999E-00	14T017	0.13308000E 01
15T017	0.36969999E 01	16T017	0.				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.36300000E-01
12T018	0.11719999E-00	13T018	0.37630000E-00	14T018	0.10102999E 01	15T018	0.35517000E 01
16T018	0.22945999E-00	17T018	0.				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.36300000E-01	12T019	0.11719999E-00
13T019	0.37630000E-00	14T019	0.10102999E 01	15T019	0.24500000E 01	16T019	0.42024999E 01
17T019	0.	18T019	0.				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.24200000E-01	12T020	0.78299999E-01	13T020	0.25099999E-00

14T020	0.67349999E 00	15T020	0.75624999E 00	16T020	0.53415999E 01	17T020	0.98084000E-01
18T020	0.	19T020	0.				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.12195999E-01	12T021	0.39100000E-01	13T021	0.12549999E-00	14T021	0.33679999E-00
15T021	0.26064000E-00	16T021	0.26406000E 01	17T021	0.23935000E-00	18T021	0.
19T021	0.	20T021	0.				
8T022	0.	9T022	0.	10T022	0.	11T022	0.73000000E-02
12T022	0.23499999E-01	13T022	0.75299999E-01	14T022	0.20209999E-00	15T022	0.10573000E-00
16T022	0.11048999E 01	17T022	0.30451000E-00	18T022	0.	19T022	0.
20T022	0.	21T022	0.				
9T023	0.	10T023	0.	11T023	0.36000000E-02	12T023	0.11700000E-01
13T023	0.37599999E-01	14T023	0.10100000E-00	15T023	0.30513000E-01	16T023	0.29156999E-00
17T023	0.16551000E-00	18T023	0.	19T023	0.	20T023	0.
21T023	0.	22T023	0.				

SIGMA UPSCATTER

16T015	0.84735999E 00	17T015	0.12102000E 01	18T015	0.13281000E 01	19T015	0.94941000E 00
20T015	0.33113000E-00	21T015	0.32895999E-00	22T015	0.43966000E-00	23T015	0.71456999E 00
17T016	0.	18T016	0.74718999E-01	19T016	0.13816000E 01	20T016	0.33122999E 01
21T016	0.49439000E 01	22T016	0.62797000E 01	23T016	0.86636999E 01		
18T017	0.	19T017	0.	20T017	0.76440000E-01	21T017	0.55858999E 00
22T017	0.23172999E 01	23T017	0.64661999E 01				
19T018	0.	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.	21T019	0.	22T019	0.	23T019	0.
21T020	0.	22T020	0.	23T020	0.		
22T021	0.	23T021	0.				
23T022	0.						

HZR 10

ATOMIC WEIGHT= 0.09999999E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 0.99999999E-03	9 0.39999999E-02	10 0.79999999E-02
11 0.13999999E-01	12 0.24999999E-01	13 0.45000000E-01	14 0.69999999E-01	15 0.99789999E-01
16 0.12998000E-00	17 0.15415999E-00	18 0.18162999E-00	19 0.22649000E-00	20 0.30705000E-00
21 0.43396000E-00	22 0.63913000E 00	23 0.10803399E 01		

SIGMA TRANSPORT

1 0.61000000E 00	2 0.95000000E 00	3 0.13199999E 01	4 0.18200000E 01	5 0.29299999E 01
6 0.52000000E 01	7 0.63299999E 01	8 0.66659999E 01	9 0.66689999E 01	10 0.66719999E 01
11 0.66759999E 01	12 0.68169999E 01	13 0.68299999E 01	14 0.68469999E 01	15 0.12593800E 02
16 0.15984999E 02	17 0.18158100E 02	18 0.20517100E 02	19 0.24047799E 02	20 0.31485400E 02
21 0.44821200E 02	22 0.63441200E 02	23 0.96840499E 02		

SIGMA DOWNSCATTER

1T0 2	0.73899999E 00						
1T0 3	0.23100000E-00	2T0 3	0.73100000E 00				
1T0 4	0.23100000E-00	2T0 4	0.73100000E 00	3T0 4	0.17670000E 01		
1T0 5	0.13900000E-00	2T0 5	0.43900000E-00	3T0 5	0.10599999E 01	4T0 5	0.27180000E 01
1T0 6	0.45999999E-01	2T0 6	0.12100000E-00	3T0 6	0.29400000E-00	4T0 6	0.75200000E 00
5T0 6	0.33870000E 01						
1T0 7	0.	2T0 7	0.24999999E-01	3T0 7	0.48999999E-01	4T0 7	0.12700000E-00
5T0 7	0.57099999E 00	6T0 7	0.60219999E 01				
1T0 8	0.	2T0 8	0.	3T0 8	0.11000000E-01	4T0 8	0.22000000E-01
5T0 8	0.09999999E-00	6T0 8	0.10450000E 01	7T0 8	0.73719999E 01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	0.49999999E-02
5T0 9	0.17999999E-01	6T0 9	0.18700000E-00	7T0 9	0.13490000E 01	8T0 9	0.78800000E 01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	0.39999999E-02	6T010	0.29600000E-01	7T010	0.20900000E-00	8T010	0.12199999E 01
9T010	0.67189999E 01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	0.12499999E-01	7T011	0.60800000E-01	8T011	0.36000000E-00
9T011	0.19199999E 01	10T011	0.77569999E 01				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	0.30400000E-01	8T012	0.12199999E-00
9T012	0.68000000E 00	10T012	0.27189999E 01	11T012	0.84939999E 01		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	0.52000000E-01
9T013	0.19199999E-C0	10T013	0.77999999E 00	11T013	0.24180000E 01	12T013	0.79059999E 01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	0.95999999E-01	10T014	0.23190000E-00	11T014	0.71900000E 00	12T014	0.23639999E 01
13T014	0.74089999E 01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	0.10399999E-00	11T015	0.23999999E-00	12T015	0.78800000E 00
13T015	0.24558999E 01	14T015	0.66546999E 01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.31199999E-01	11T016	0.71999999E-01	12T016	0.23639999E-00	13T016	0.73689999E 00
14T016	0.19965000E 01	15T016	0.37553000E 01				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.20699999E-01
11T017	0.48000000E-01	12T017	0.15759999E-00	13T017	0.49119999E-00	14T017	0.13308000E 01
15T017	0.37184999E 01	16T017	0.				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.36300000E-01
12T018	0.11719999E-C0	13T018	0.37630000E-00	14T018	0.10102999E 01	15T018	0.35557000E 01
16T018	0.23197000E-C0	17T018	0.				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.36300000E-01	12T019	0.11719999E-00
13T019	0.37630000E-C0	14T019	0.10102999E 01	15T019	0.24365000E 01	16T019	0.42486999E 01
17T019	0.	18T019	0.				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.24200000E-01	12T020	0.78299999E-01	13T020	0.25099999E-00

14T020	0.67349999E 00	15T020	0.72917999E 00	16T020	0.54112999E 01	17T020	0.10043000E-00
18T020	0.	19T020	0.				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.12199999E-01	12T021	0.39100000E-01	13T021	0.12549999E-00	14T021	0.33679999E-00
15T021	0.24697000E-00	16T021	0.26837000E 01	17T021	0.24596000E-00	18T021	0.
19T021	0.	20T021	0.				
8T022	0.	9T022	0.	10T022	0.	11T022	0.73000000E-02
12T022	0.23499999E-01	13T022	0.75299999E-01	14T022	0.20209999E-00	15T022	0.99388999E-01
16T022	0.11247999E 01	17T022	0.31338000E-00	18T022	0.	19T022	0.
20T022	0.	21T022	0.				
9T023	0.	10T023	0.	11T023	0.36000000E-02	12T023	0.11700000E-01
13T023	0.37599999E-01	14T023	0.10100000E-00	15T023	0.28591999E-01	16T023	0.29696000E-00
17T023	0.17047000E-00	18T023	0.	19T023	0.	20T023	0.
21T023	0.	22T023	0.				

SIGMA UPSCATTER

16T015	0.10484000E 01	17T015	0.15038999E 01	18T015	0.17186999E 01	19T015	0.12857000E 01
20T015	0.58000000E 00	21T015	0.61689000E 00	22T015	0.82630000E 00	23T015	0.13291000E 01
17T016	0.	18T016	0.83724000E-01	19T016	0.16586000E 01	20T016	0.40664999E 01
21T016	0.61454000E 01	22T016	0.79082999E 01	23T016	0.11036000E 02		
18T017	0.	19T017	0.	20T017	0.84663999E-01	21T017	0.64184000E 00
22T017	0.27385999E 01	23T017	0.77487999E 01				
19T018	0.	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.	21T019	0.	22T019	0.	23T019	0.
21T020	0.	22T020	0.	23T020	0.		
22T021	0.	23T021	0.				
23T022	0.						

K

ATOMIC WEIGHT= 0.39100000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 0.99999999E-03	7 0.30000000E-02	8 0.79999999E-02	9 0.16999999E-01	10 0.38000000E-01
11 0.68000000E-01	12 0.12000000E-00	13 0.20999999E-00	14 0.36000000E-00	15 0.62220000E 00
16 0.81039999E 00	17 0.96120000E 00	18 0.11324999E 01	19 0.14122000E 01	20 0.19144999E 01
21 0.27057000E 01	22 0.39849000E 01	23 0.67358999E 01		

SIGMA TRANSPORT

1 0.21100000E 01	2 0.22200000E 01	3 0.16899999E 01	4 0.18399999E 01	5 0.19700000E 01
6 0.18669999E 01	7 0.14250000E 01	8 0.15229999E 01	9 0.16999999E 01	10 0.18680000E 01
11 0.19660000E 01	12 0.21100000E 01	13 0.22600000E 01	14 0.23599999E 01	15 0.27063999E 01
16 0.29151999E 01	17 0.30840000E 01	18 0.32792000E 01	19 0.35686000E 01	20 0.40828999E 01
21 0.48999999E 01	22 0.61719999E 01	23 0.88052999E 01		

SIGMA DOWNSCATTER

1T0 2	0.31500000E-00					
1T0 3	-0.	2T0 3	0.14900000E-00			
1T0 4	-0.	2T0 4	-0.	3T0 4	0.19499999E-00	
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.	
				4T0 5	0.11600000E-00	
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.	
5T0 6	0.71999999E-01			4T0 6	-0.	
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	
5T0 7	-0.	6T0 7	0.52999999E-01		4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.	
5T0 8	-0.	6T0 8	-0.	7T0 8	0.41999999E-01	
1T0 9	0.	2T0 9	0.	3T0 9	0.	
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	
				4T0 9	-0.	
				8T0 9	0.45000000E-01	
1T010	0.	2T010	0.	3T010	0.	
5T010	-0.	6T010	-0.	7T010	-0.	
9T010	0.49999999E-01			4T010	0.	
				8T010	-0.	
1T011	0.	2T011	0.	3T011	0.	
5T011	0.	6T011	-0.	7T011	-0.	
9T011	-0.	10T011	0.77999999E-01		4T011	0.
				8T011	-0.	
1T012	0.	2T012	0.	3T012	0.	
5T012	0.	6T012	0.	7T012	-0.	
9T012	-0.	10T012	-0.	11T012	0.88999999E-01	
				4T012	0.	
				8T012	-0.	

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.84999999E-01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.95999999E-01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.11200000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.15841000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.19362999E-02	16T017	0.41404000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.60254999E-05
16T018	0.14563999E-01	17T018	0.43296999E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.14211000E-03
17T019	0.21066999E-01	18T019	0.41185000E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.49464999E-04
18T020	0.59104999E-02	19T020	0.27789000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.13274000E-04
19T021	0.48599999E-02	20T021	0.24082000E-00				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.75648999E-04
20T022	0.13598000E-01	21T022	0.29590999E-00				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.38894000E-03
21T023	0.18821000E-01	22T023	0.22593000E-00				

SIGMA UPSCATTER

16T015	0.13646000E-C0	17T015	0.46134999E-03	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.20065000E-C0	18T016	0.42142999E-02	19T016	0.20831999E-04	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.30333000E-C0	19T017	0.79194000E-02	20T017	0.18329000E-04	21T017	0.
22T017	0.	23T017	0.				
19T018	0.28529000E-C0	20T018	0.42411999E-02	21T018	0.21043999E-04	22T018	0.
23T018	0.						
20T019	0.38219000E-C0	21T019	0.15359999E-01	22T019	0.56701999E-03	23T019	0.18963999E-04
21T020	0.61587000E C0	22T020	0.83126999E-01	23T020	0.99538998E-02		
22T021	0.70108999E C0	23T021	0.18629000E-00				
23T022	0.89035000E C0						

LI6

ATOMIC WEIGHT= 0.60168999E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.11000000E-00	2	0.23000000E-00	3	0.26000000E-00	4	0.50000000E 00	5	0.19499999E 01
6	0.84999999E 00	7	0.13999999E 01	8	0.42999999E 01	9	0.96999998E 01	10	0.19899999E 02
11	0.34599999E 02	12	0.60100000E 02	13	0.10910000E 03	14	0.17110000E 03	15	0.26032000E 03
16	0.33925000E 03	17	0.39810000E 03	18	0.46616000E 03	19	0.58631000E 03	20	0.78637999E 03
21	0.11456899E 04	22	0.16389500E 04	23	0.27944499E 04				

SIGMA TRANSPORT

1	0.12400000E 01	2	0.10299999E 01	3	0.11200000E 01	4	0.16999999E 01	5	0.44699999E 01
6	0.16499999E 01	7	0.21999999E 01	8	0.50999999E 01	9	0.10500000E 02	10	0.20699999E 02
11	0.35399999E 02	12	0.60899999E 02	13	0.10990000E 03	14	0.17190000E 03	15	0.26112399E 03
16	0.34005000E 03	17	0.39889999E 03	18	0.46696000E 03	19	0.58710999E 03	20	0.78717999E 03
21	0.11464900E 04	22	0.16397499E 04	23	0.27952500E 04				

SIGMA DOWNSCATTER

1T0 2	0.52599999E 00				
1T0 3	-0.	2T0 3	0.29799999E-00		
1T0 4	-0.	2T0 4	0.34000000E-01	3T0 4	0.59000000E 00
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	0.49800000E-00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.61099999E 00			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.15200000E-00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.15499999E-00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.15800000E-00
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.15800000E-00			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.22300000E-00	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.24500000E-00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.22300000E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.24500000E-C0						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.29300000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.31230000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.29753999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.28473999E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.86049999E-C1	18T019	0.36578999E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.10755000E-00	19T020	0.29533000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.15264000E-00	20T021	0.13864999E-00				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.76488999E-01
20T022	0.66903000E-01	21T022	0.57875999E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.10444000E-01	20T023	0.21722999E-01
21T023	0.17129000E-01	22T023	0.13873000E-01				

SIGMA UPSCATTER

16T015	0.45321000E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.82846999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.13469999E-00	19T017	0.26120000E-01	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.17649999E-00	20T018	0.49029999E-01	21T018	0.	22T018	0.
23T018	0.						
20T019	0.30681000E-00	21T019	0.22216000E-00	22T019	0.12937000E-00	23T019	0.31501999E-01
21T020	0.30491000E-00	22T020	0.38467000E-00	23T020	0.59548000E 00		
22T021	0.15132999E-00	23T021	0.21369000E-00				
23T022	0.66304999E-01						

L17

ATOMIC WEIGHT= 0.70181799E 01

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.39999999E-01	2	-0.	3	-0.	4	-0.	5	-0.
6	-0.	7	-0.	8	0.20000000E-03	9	0.30000000E-03	10	0.70000000E-03
11	0.12000000E-02	12	0.22000000E-02	13	0.38000000E-02	14	0.62999999E-02	15	0.10800000E-01
16	0.14139999E-01	17	0.16700000E-01	18	0.19700000E-01	19	0.24599999E-01	20	0.33300000E-01
21	0.47099999E-01	22	0.69199999E-01	23	0.11719999E-00				

SIGMA TRANSPORT

1	0.12099999E 01	2	0.11399999E 01	3	0.12400000E 01	4	0.11099999E 01	5	0.29899999E 01
6	0.94000000E 00	7	0.96799999E 00	8	0.96820000E 00	9	0.96820000E 00	10	0.96820000E 00
11	0.96830000E 00	12	0.96830000E 00	13	0.96850000E 00	14	0.96870000E 00	15	0.97840000E 00
16	0.97880000E 00	17	0.97899999E 00	18	0.97930000E 00	19	0.97970000E 00	20	0.98060000E 00
21	0.98190000E 00	22	0.98400000E 00	23	0.98850000E 00				

SIGMA DOWNSCATTER

1T0 2	0.61510000E 00						
1T0 3	-0.	2T0 3	0.44549999E-00				
1T0 4	-0.	2T0 4	0.17999999E-01	3T0 4	0.82560000E 00		
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.		
				4T0 5	0.41639999E-00		
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.		
5T0 6	0.62100000E 00			4T0 6	0.23000000E-02		
1T0 7	0.	2T0 7	-0.	3T0 7	-0.		
5T0 7	-0.	6T0 7	0.15300000E-00		4T0 7	-0.	
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.16050000E-00		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9	0.16370000E-00
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010	-0.
9T010	0.16270000E-C0						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	-0.	7T011	-0.	8T011	-0.
9T011	-0.	10T011	0.23100000E-00				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	-0.	8T012	-0.
9T012	-0.	10T012	-0.	11T012	0.25330000E-00		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.23060000E-00

1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.25269999E-00						

1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.30210000E-00				

2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.34020000E-00				

3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.31941999E-00				

4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.30373000E-00				

5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.91619999E-01	18T019	0.38144000E-00				

6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.11076999E-00	19T020	0.29042999E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.14579999E-00	20T021	0.12568000E-00				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.71687000E-01
20T022	0.59096000E-01	21T022	0.49163999E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.96961999E-02	20T023	0.18860999E-01
21T023	0.14280999E-01	22T023	0.11312000E-01				

SIGMA UPSCATTER

16T015	0.48647000E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.88836999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.14364000E-00	19T017	0.27564000E-01	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.18401000E-00	20T018	0.49487999E-01	21T018	0.	22T018	0.
23T018	0.						
20T019	0.30114000E-00	21T019	0.20908000E-00	22T019	0.11776999E-00	23T019	0.28036000E-01
21T020	0.27599999E-00	22T020	0.33910999E-00	23T020	0.51591000E 00		
22T021	0.12847999E-00	23T021	0.17805000E-00				
23T022	0.54048000E-01						

MO

ATOMIC WEIGHT= 0.95949999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.99999999E-02	2	0.20000000E-01	3	0.39999999E-01	4	0.69999999E-01	5	0.90000000E-01
6	0.16999999E-00	7	0.40000000E-00	8	0.15000000E 01	9	0.28999999E 01	10	0.13400000E 02
11	0.49999999E-01	12	0.79999999E-01	13	0.15000000E-00	14	0.25000000E-00	15	0.81151000E 00
16	0.10570999E 01	17	0.12537000E 01	18	0.14771000E 01	19	0.18419500E 01	20	0.24970999E 01
21	0.35292000E 01	22	0.51976999E 01	23	0.87859998E 01				

SIGMA TRANSPORT

1	0.23999999E 01	2	0.28999999E 01	3	0.38999999E 01	4	0.61999999E 01	5	0.81999999E 01
6	0.78999999E 01	7	0.70999999E 01	8	0.80499998E 01	9	0.91599999E 01	10	0.19360000E 02
11	0.55599999E 01	12	0.56599999E 01	13	0.59599999E 01	14	0.64599999E 01	15	0.66516999E 01
16	0.68248999E 01	17	0.69600999E 01	18	0.70741999E 01	19	0.72407999E 01	20	0.75095999E 01
21	0.77907999E 01	22	0.10636099E 02	23	0.83424999E 01				

SIGMA DOWNSCATTER

1T0 2	0.50000000E 00						
1T0 3	0.30000000E-00	2T0 3	0.40000000E-00				
1T0 4	0.20000000E-00	2T0 4	0.25000000E-00	3T0 4	0.30000000E-00		
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.09999999E-00		
				4T0 5	0.20000000E-00		
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.		
5T0 6	0.13000000E-00				4T0 6	-0.	
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7	-0.
5T0 7	-0.	6T0 7	0.09999999E-00				
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.79999999E-01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9	0.79999999E-01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010	-0.
9T010	0.79999999E-01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	-0.	7T011	-0.	8T011	-0.
9T011	-0.	10T011	0.09999999E-00				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	-0.	8T012	-0.
9T012	-0.	10T012	-0.	11T012	0.09999999E-00		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.09999999E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.11000000E-C0						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.13999999E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.17744999E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.76768000E-01				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.42061000E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.10116000E-01	18T019	0.28822000E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.61977000E-02	19T020	0.10877000E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.41480000E-02	20T021	0.24913000E-02				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.17172000E-02
20T022	0.98066999E-03	21T022	0.64201000E-03				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.12975000E-03	20T023	0.27846999E-03
21T023	0.16649000E-03	22T023	0.11598000E-03				

SIGMA UPSCATTER

16T015	0.18303999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.20039999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.19633000E-01	19T017	0.23914000E-02	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.13917000E-01	20T018	0.21922000E-02	21T018	0.	22T018	0.
23T018	0.						
20T019	0.11104999E-01	21T019	0.52059999E-02	22T019	0.21941999E-02	23T019	0.27959999E-03
21T020	0.54205999E-02	22T020	0.55578999E-02	23T020	0.75160999E-02		
22T021	0.16723999E-02	23T021	0.20666999E-02				
23T022	0.55317999E-03						

NA

ATOMIC WEIGHT= 0.22990000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.30000000E-01	2	0.	3	0.20000000E-03	4	0.49999999E-03	5	0.90000000E-03
6	0.99999999E-03	7	0.99999999E-03	8	0.99999999E-03	9	0.49999999E-02	10	0.11000000E-01
11	0.17999999E-01	12	0.31999999E-01	13	0.56999999E-01	14	0.09999999E-00	15	0.15780000E-00
16	0.20550000E-00	17	0.24380000E-00	18	0.28720000E-00	19	0.35820000E-00	20	0.48559999E-00
21	0.68619999E 00	22	0.10106999E 01	23	0.17084000E 01				

SIGMA TRANSPORT

1	0.16069999E 01	2	0.22600000E 01	3	0.29901999E 01	4	0.31193999E 01	5	0.31072000E 01
6	0.38840000E 01	7	0.60890000E 01	8	0.45449999E 01	9	0.30099999E 01	10	0.30099999E 01
11	0.30300000E 01	12	0.30689999E 01	13	0.30989999E 01	14	0.32099999E 01	15	0.33151999E 01
16	0.33915000E 01	17	0.34385999E 01	18	0.34964000E 01	19	0.35676999E 01	20	0.37007000E 01
21	0.38726000E 01	22	0.40453999E 01	23	0.43153999E 01				

SIGMA DOWNSCATTER

1T0 2	0.44000000E-00				
1T0 3	-0.	2T0 3	0.55599999E 00		
1T0 4	-0.	2T0 4	-0.	3T0 4	0.11910000E 01
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	0.60399999E 00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.19499999E-00			4T0 6	0.35999999E-01
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	0.99999999E-08	6T0 7	0.18799999E-00	4T0 7	0.79999999E-02
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.30100000E-00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.23400000E-00
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.15499999E-00			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.21600000E-00	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.23599999E-00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.21900000E-00

1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.23800000E-00						

1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.29400000E-00				

2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.37385000E-00				

3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.18762000E-01	16T017	0.81606000E 00				

4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.48785000E-03
16T018	0.82225999E-01	17T018	0.82177000E 00				

5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.60183000E-05	16T019	0.40640999E-02
17T019	0.10475000E-00	18T019	0.80091000E 00				

6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.19990999E-04	17T020	0.18691000E-02
18T020	0.40081999E-01	19T020	0.54691999E 00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.10530999E-04	18T021	0.65096999E-03
19T021	0.27592999E-01	20T021	0.44064000E-00				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.13963000E-04	19T022	0.14816000E-02
20T022	0.49479000E-01	21T022	0.46082000E-00				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.52328999E-04	20T023	0.35258000E-02
21T023	0.52322999E-01	22T023	0.33072000E-00				

SIGMA UPSCATTER

16T015	0.24076000E-00	17T015	0.36871000E-02	18T015	0.57238000E-04	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.36368000E-00	18T016	0.20863999E-01	19T016	0.52819999E-03	20T016	0.24625999E-05
21T016	0.	22T016	0.	23T016	0.		
18T017	0.52604999E 00	19T017	0.34836999E-01	20T017	0.61614999E-03	21T017	0.70560999E-05
22T017	0.	23T017	0.				
19T018	0.50714999E 00	20T018	0.25945000E-01	21T018	0.87706999E-03	22T018	0.44144999E-04
23T018	0.23907000E-05						
20T019	0.70068000E 00	21T019	0.75452999E-01	22T019	0.96469000E-02	23T019	0.12486000E-02
21T020	0.10185999E 01	22T020	0.27183000E-00	23T020	0.71207999E-01		
22T021	0.10866000E 01	23T021	0.45170999E-00				
23T022	0.11565000E 01						

NB

ATOMIC WEIGHT= 0.92909999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.99999999E-02	2	0.20000000E-01	3	0.39999999E-01	4	0.49999999E-01	5	0.79999999E-01
6	0.40000000E-00	7	0.12000000E 01	8	0.26000000E 01	9	0.27999999E 01	10	0.40000000E-00
11	0.20000000E-01	12	0.39999999E-01	13	0.59999999E-01	14	0.09999999E-00	15	0.34850000E-00
16	0.45410000E-00	17	0.53850000E 00	18	0.63450000E 00	19	0.79120000E 00	20	0.10726000E 01
21	0.15158000E 01	22	0.22324999E 01	23	0.37736999E 01				

SIGMA TRANSPORT

1	0.23999999E 01	2	0.28999999E 01	3	0.38999999E 01	4	0.51999999E 01	5	0.81999999E 01
6	0.80000000E 01	7	0.71999999E 01	8	0.85999998E 01	9	0.87999999E 01	10	0.63999999E 01
11	0.59999999E 01	12	0.59999999E 01	13	0.60999999E 01	14	0.60999999E 01	15	0.63999999E 01
16	0.63999999E 01	17	0.63999999E 01	18	0.63999999E 01	19	0.63999999E 01	20	0.63999999E 01
21	0.63999999E 01	22	0.63999999E 01	23	0.63999999E 01				

SIGMA DOWNSCATTER

1T0 2	0.50000000E 00						
1T0 3	0.30000000E-00	2T0 3	0.40000000E-00				
1T0 4	0.20000000E-00	2T0 4	0.25000000E-00	3T0 4	0.30000000E-00		
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.09999999E-00	4T0 5	0.20000000E-00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.	4T0 6	-0.
5T0 6	0.13000000E-00						
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7	-0.
5T0 7	-0.	6T0 7	0.09999999E-00				
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.79999999E-01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9	0.79999999E-01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010	-0.
9T010	0.79999999E-01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	-0.	7T011	-0.	8T011	-0.
9T011	-0.	10T011	0.09999999E-00				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	-0.	8T012	-0.
9T012	-0.	10T012	-0.	11T012	0.09999999E-00		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.09999999E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.11000000E-00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.13999999E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.19920000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.12361000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.10602999E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.87555999E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.53834999E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.40920999E-02	20T021	0.13824999E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.56074999E-02	21T022	0.38129999E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.16237999E-02
21T023	0.10066000E-02	22T023	0.71503999E-03				

SIGMA UPSCATTER

16T015	0.30276000E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.41572999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.47792000E-01	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.45417000E-01	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.40972000E-01	21T019	0.28522000E-02	22T019	0.	23T019	0.
21T020	0.30125999E-01	22T020	0.17322999E-01	23T020	0.10495000E-01		
22T021	0.99375000E-02	23T021	0.12503999E-01				
23T022	0.34114999E-02						

NI

ATOMIC WEIGHT= 0.58709999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.27000000E-00	2	0.09999999E-00	3	0.99999999E-02	4	0.99999999E-02	5	0.99999999E-02
6	0.20000000E-01	7	0.38000000E-00	8	0.39999999E-01	9	0.49999999E-01	10	0.09999999E-00
11	0.18000000E-00	12	0.30999999E-00	13	0.55999999E 00	14	0.94000000E 00	15	0.13825999E 01
16	0.18009999E 01	17	0.21359999E 01	18	0.25167000E 01	19	0.31383000E 01	20	0.42544999E 01
21	0.60129999E 01	22	0.88556998E 01	23	0.14969099E 02				

SIGMA TRANSPORT

1	0.22899999E 01	2	0.23399999E 01	3	0.25299999E 01	4	0.24500000E 01	5	0.33799999E 01
6	0.51699999E 01	7	0.14579999E 02	8	0.15679999E 02	9	0.16679999E 02	10	0.16729999E 02
11	0.17299999E 02	12	0.17309999E 02	13	0.17510000E 02	14	0.18200000E 02	15	0.18895300E 02
16	0.19346800E 02	17	0.19643100E 02	18	0.19935299E 02	19	0.20381399E 02	20	0.21260399E 02
21	0.20496900E 02	22	0.24271599E 02	23	0.20237800E 02				

SIGMA DOWNSCATTER

1T0 2	0.50000000E 00				
1T0 3	0.20000000E-00	2T0 3	0.30000000E-00		
1T0 4	0.09999999E-00	2T0 4	0.20000000E-00	3T0 4	0.25000000E-00
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.49999999E-01
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.79999999E-01			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.09999999E-00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.29000000E-00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.33000000E-00			4T010	0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.47000000E-00	4T011	0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.52999999E 00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.48000000E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.52999999E 00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.63999999E 00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.85140000E 00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.41233999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.21972000E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.75377999E-01	18T019	0.15689000E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.47612000E-01	19T020	0.61415000E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.23723999E-01	20T021	0.14458000E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.98989999E-02
20T022	0.57323000E-02	21T022	0.37865999E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.29426000E-02	20T023	0.16353000E-02
21T023	0.98613998E-03	22T023	0.69008999E-03				

SIGMA UPSCATTER

16T015	0.89427999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.10479999E-00	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.10778999E-00	19T017	0.17669000E-01	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.75749999E-01	20T018	0.16944999E-01	21T018	0.	22T018	0.
23T018	0.						
20T019	0.62742999E-01	21T019	0.34646999E-01	22T019	0.17974000E-01	23T019	0.87729000E-02
21T020	0.31469999E-01	22T020	0.32501999E-01	23T020	0.44160999E-01		
22T021	0.98649999E-02	23T021	0.12243000E-01				
23T022	0.32917999E-02						

0

ATOMIC WEIGHT= 0.16000000E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.39999999E-01	2	-0.	3	-0.	4	-0.	5	-0.
6	-0.	7	-0.	8	-0.	9	-0.	10	-0.
11	-0.	12	-0.	13	-0.	14	-0.	15	0.59999999E-04
16	0.69999999E-04	17	0.89999999E-04	18	0.11000000E-03	19	0.13999999E-03	20	0.18499999E-03
21	0.25999999E-03	22	0.38000000E-03	23	0.64999999E-03				

SIGMA TRANSPORT

1	0.13299999E 01	2	0.11799999E 01	3	0.32299999E 01	4	0.36300000E 01	5	0.37099999E 01
6	0.32600000E 01	7	0.35500000E 01	8	0.36399999E 01	9	0.36399999E 01	10	0.36399999E 01
11	0.36399999E 01	12	0.36399999E 01	13	0.36399999E 01	14	0.36399999E 01	15	0.35495000E 01
16	0.35828000E 01	17	0.36307999E 01	18	0.36875000E 01	19	0.37838999E 01	20	0.39764000E 01
21	0.42723999E 01	22	0.51537000E 01	23	0.75997999E 01				

SIGMA DOWNSCATTER

1T0 2	0.42399999E-00				
1T0 3	-0.	2T0 3	0.19100000E-00		
1T0 4	-0.	2T0 4	-0.	3T0 4	0.90200000E 00
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	0.55599999E 00
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	0.33700000E-00			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.23100000E-00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.25500000E-00
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.27000000E-00
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.27000000E-00			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.38000000E-00	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.41400000E-00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.38000000E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.4140C000E-C0						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.49800000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.54696999E 00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.54798000E-01	16T017	0.10445999E 01				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.36960000E-02
16T018	0.18026999E-C0	17T018	0.10342000E 01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.15430000E-03	16T019	0.19520000E-01
17T019	0.21893000E-C0	18T019	0.10458999E 01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.37930000E-03	17T020	0.10222000E-01
18T020	0.98663999E-01	19T020	0.74518999E 00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.32556000E-05	17T021	0.20508999E-03	18T021	0.40117999E-02
19T021	0.64173999E-01	20T021	0.60172000E 00				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.62772000E-05	18T022	0.21100999E-03	19T022	0.62010999E-02
20T022	0.96217999E-01	21T022	0.64850999E 00				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.82875999E-05	19T023	0.42846999E-03	20T023	0.10640000E-01
21T023	0.98328000E-01	22T023	0.55679999E 00				

SIGMA UPSCATTER

16T015	0.28769000E-C0	17T015	0.92622999E-02	18T015	0.37448999E-03	19T015	0.82710999E-05
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.44540000E-C0	18T016	0.42846999E-01	19T016	0.24310999E-02	20T016	0.48008999E-04
21T016	0.	22T016	0.	23T016	0.		
18T017	0.63747000E C0	19T017	0.70299999E-01	20T017	0.34182999E-02	21T017	0.15337999E-03
22T017	0.13587999E-04	23T017	0.19419000E-05				
19T018	0.64528999E 00	20T018	0.64763999E-01	21T018	0.59978999E-02	22T018	0.92280000E-03
23T018	0.21793000E-03						
20T019	0.96212000E C0	21T019	0.19205999E-00	22T019	0.54872999E-01	23T019	0.23039000E-01
21T020	0.14920999E 01	22T020	0.70187999E 00	23T020	0.47085000E-00		
22T021	0.18957999E 01	23T021	0.17365000E 01				
23T022	0.32348000E 01						

SM

ATOMIC WEIGHT= 0.15035000E 03

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 0.20000000E 01	8 0.09999999E 02	9 0.55000000E 02	10 0.68000000E 02
11 0.91999999E 02	12 0.83500000E 03	13 0.33000000E 02	14 0.33899999E 03	15 0.38200000E 03
16 0.26769999E 04	17 0.10010999E 05	18 0.14072999E 05	19 0.79090000E 04	20 0.55880000E 04
21 0.59220000E 04	22 0.77190000E 04	23 0.13271999E 05		

SIGMA TRANSPORT

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 0.20000000E 01	8 0.09999999E 02	9 0.55000000E 02	10 0.68000000E 02
11 0.91999999E 02	12 0.83500000E 03	13 0.33000000E 02	14 0.33899999E 03	15 0.38200000E 03
16 0.26769999E 04	17 0.10010999E 05	18 0.14072999E 05	19 0.79090000E 04	20 0.55880000E 04
21 0.59220000E 04	22 0.77190000E 04	23 0.13271999E 05		

SIGMA DOWNSCATTER

1T0 2	-0.				
1T0 3	-0.	2T0 3	-0.		
1T0 4	-0.	2T0 4	-0.	3T0 4	-0.
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
				4T0 5	-0.
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	-0.			4T0 6	-0.
1T0 7	-0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	-0.	4T0 7	-0.
1T0 8	-0.	2T0 8	-0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	-0.
1T0 9	-0.	2T0 9	-0.	3T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	-0.
1T010	-0.	2T010	-0.	3T010	-0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	-0.			4T010	-0.
				8T010	-0.
1T011	-0.	2T011	-0.	3T011	-0.
5T011	-0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	-0.	4T011	-0.
				8T011	-0.
1T012	-0.	2T012	-0.	3T012	-0.
5T012	-0.	6T012	-0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	-0.
				4T012	-0.
				8T012	-0.

1T013	-0.	2T013	-0.	3T013	-0.	4T013	-0.
5T013	-0.	6T013	-0.	7T013	-0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	-0.
1T014	-0.	2T014	-0.	3T014	-0.	4T014	-0.
5T014	-0.	6T014	-0.	7T014	-0.	8T014	-0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	-0.						
1T015	-0.	2T015	-0.	3T015	-0.	4T015	-0.
5T015	-0.	6T015	-0.	7T015	-0.	8T015	-0.
9T015	-0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	-0.				
2T016	-0.	3T016	-0.	4T016	-0.	5T016	-0.
6T016	-0.	7T016	-0.	8T016	-0.	9T016	-0.
10T016	-0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	-0.				
3T017	-0.	4T017	-0.	5T017	-0.	6T017	-0.
7T017	-0.	8T017	-0.	9T017	-0.	10T017	-0.
11T017	-0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	-0.	16T017	-0.				
4T018	-0.	5T018	-0.	6T018	-0.	7T018	-0.
8T018	-0.	9T018	-0.	10T018	-0.	11T018	-0.
12T018	-0.	13T018	-0.	14T018	-0.	15T018	-0.
16T018	-0.	17T018	-0.				
5T019	-0.	6T019	-0.	7T019	-0.	8T019	-0.
9T019	-0.	10T019	-0.	11T019	-0.	12T019	-0.
13T019	-0.	14T019	-0.	15T019	-0.	16T019	-0.
17T019	-0.	18T019	-0.				
6T020	-0.	7T020	-0.	8T020	-0.	9T020	-0.
10T020	-0.	11T020	-0.	12T020	-0.	13T020	-0.

14T020 -0.
18T020 -0.

15T020 -0.
19T020 -0.

16T020 -0.

17T020 -0.

7T021 -0.
11T021 -0.
15T021 -0.
19T021 -0.

8T021 -0.
12T021 -0.
16T021 -0.
20T021 -0.

9T021 -0.
13T021 -0.
17T021 -0.

10T021 -0.
14T021 -0.
18T021 -0.

8T022 -0.
12T022 -0.
16T022 -0.
20T022 -0.

9T022 -0.
13T022 -0.
17T022 -0.
21T022 -0.

10T022 -0.
14T022 -0.
18T022 -0.

11T022 -0.
15T022 -0.
19T022 -0.

9T023 -0.
13T023 -0.
17T023 -0.
21T023 -0.

10T023 -0.
14T023 -0.
18T023 -0.
22T023 -0.

11T023 -0.
15T023 -0.
19T023 -0.

12T023 -0.
16T023 -0.
20T023 -0.

SIGMA UPSCATTER

16T015 -0.	17T015 -0.	18T015 -0.	19T015 -0.
20T015 -0.	21T015 -0.	22T015 -0.	23T015 -0.
17T016 -0.	18T016 -0.	19T016 -0.	20T016 -0.
21T016 -0.	22T016 -0.	23T016 -0.	
18T017 -0.	19T017 -0.	20T017 -0.	21T017 -0.
22T017 -0.	23T017 -0.		
19T018 -0.	20T018 -0.	21T018 -0.	22T018 -0.
23T018 -0.			
20T019 -0.	21T019 -0.	22T019 -0.	23T019 -0.
21T020 -0.	22T020 -0.	23T020 -0.	
22T021 -0.	23T021 -0.		
23T022 -0.			

U233

ATOMIC WEIGHT= 0.23300000E 03

V ZERO= 0.09999999E 01

B= 0.

SIGMA FISSION

1	0.52849999E 01	2	0.49409999E 01	3	0.49329999E 01	4	0.49859999E 01	5	0.56670000E 01
6	0.87849999E 01	7	0.15059999E 02	8	0.22589999E 02	9	0.47689999E 02	10	0.75299999E 02
11	0.28609999E 03	12	0.25601999E 03	13	0.79316000E 03	14	0.33383000E 03	15	0.43521000E 03
16	0.51767999E 03	17	0.60565999E 03	18	0.72031000E 03	19	0.89892999E 03	20	0.12267499E 04
21	0.18379950E 04	22	0.25470500E 04	23	0.43074900E 04				

SIGMA ABSORPTION

1	0.17900000E 01	2	0.18900000E 01	3	0.19700000E 01	4	0.20499999E 01	5	0.23899999E 01
6	0.39200000E 01	7	0.68399999E 01	8	0.12000000E 02	9	0.32000000E 02	10	0.51000000E 02
11	0.13600000E 03	12	0.12100000E 03	13	0.41000000E 03	14	0.14799999E 03	15	0.17635199E 04
16	0.21710300E 04	17	0.23701599E 04	18	0.26559000E 04	19	0.34104899E 04	20	0.51928300E 04
21	0.79371200E 04	22	0.10896470E 05	23	0.18448430E 05				

SIGMA TRANSPORT

1	0.42500000E 01	2	0.45000000E 01	3	0.45999999E 01	4	0.52999999E 01	5	0.80999998E 01
6	0.12500000E 02	7	0.16500000E 02	8	0.23000000E 02	9	0.44000000E 02	10	0.63000000E 02
11	0.14799999E 03	12	0.13299999E 03	13	0.42200000E 03	14	0.16000000E 03	15	0.17760199E 04
16	0.21835300E 04	17	0.23826599E 04	18	0.26684000E 04	19	0.34229900E 04	20	0.52053300E 04
21	0.79496200E 04	22	0.10908969E 04	23	0.18460929E 04				

SIGMA DOWNSCATTER

1T0 2	0.20000000E-00						
1T0 3	0.27000000E-00	2T0 3	0.18000000E-00				
1T0 4	0.45000000E-00	2T0 4	0.50000000E 00	3T0 4	0.45000000E-00		
1T0 5	0.30999999E-00	2T0 5	0.34999999E-00	3T0 5	0.30000000E-00	4T0 5	0.29000000E-00
1T0 6	0.39999999E-01	2T0 6	0.49999999E-01	3T0 6	0.59999999E-01	4T0 6	0.49999999E-01
5T0 6	0.49999999E-01						
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7	-0.
5T0 7	-0.	6T0 7	0.39999999E-01				
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.49999999E-01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9	0.59999999E-01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010	-0.
9T010	0.59999999E-01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	-0.	7T011	-0.	8T011	-0.
9T011	-0.	10T011	0.90000000E-01				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	-0.	8T012	-0.
9T012	-0.	10T012	-0.	11T012	0.90000000E-01		

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.90000000E-01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.90000000E-01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.11000000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.14833999E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.11974999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.13497999E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.14821000E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.14475000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.	20T021	0.95941000E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.	21T022	0.34936000E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.
21T023	0.87740000E-02	22T023	0.71260999E-02				

SIGMA UPSCATTER

16T015	0.31727999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.54804999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.79251999E-01	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.95936999E-01	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.11000000E-00	21T019	0.	22T019	0.	23T019	0.
21T020	0.97840999E-01	22T020	0.	23T020	0.		
22T021	0.76065999E-01	23T021	0.24126999E-01				
23T022	0.34018999E-01						

U235

ATOMIC WEIGHT= 0.23500000E 03

V ZERO= 0.09999999E 01

B= 0.

SIGMA FISSION

1	0.35569999E 01	2	0.31959999E 01	3	0.30870000E 01	4	0.29879999E 01	5	0.35179999E 01
6	0.61250000E 01	7	0.10290000E 02	8	0.19360000E 02	9	0.45814999E 02	10	0.93099999E 02
11	0.13474999E 03	12	0.10780000E 03	13	0.73500000E 02	14	0.17150000E 03	15	0.41265280E 03
16	0.46017540E 03	17	0.54618879E 03	18	0.68513490E 03	19	0.89524360E 03	20	0.12701461E 04
21	0.18741056E 04	22	0.28411502E 04	23	0.49825414E 04				

SIGMA ABSORPTION

1	0.12599999E 01	2	0.13000000E 01	3	0.13299999E 01	4	0.13500000E 01	5	0.16599999E 01
6	0.31499999E 01	7	0.55000000E 01	8	0.11099999E 02	9	0.71999999E 02	10	0.58000000E 02
11	0.90000000E 02	12	0.84000000E 02	13	0.38999999E 02	14	0.30000000E 02	15	0.20763160E 03
16	0.22608510E 03	17	0.26257980E 03	18	0.32774640E 03	19	0.42861979E 03	20	0.60835360E 03
21	0.89784499E 03	22	0.13624545E 04	23	0.23895872E 04				

SIGMA TRANSPORT

1	0.42500000E 01	2	0.45000000E 01	3	0.46499999E 01	4	0.52000000E 01	5	0.78999999E 01
6	0.12400000E 02	7	0.15099999E 02	8	0.21100000E 02	9	0.37199999E 02	10	0.68000000E 02
11	0.09999999E 03	12	0.94000000E 02	13	0.48999999E 02	14	0.90000000E 02	15	0.21763159E 03
16	0.23608520E 03	17	0.27258000E 03	18	0.33774630E 03	19	0.43861999E 03	20	0.61835360E 03
21	0.90784499E 03	22	0.13724545E 04	23	0.23995873E 04				

SIGMA DOWNSCATTER

1T0 2	0.27000000E-C0					
1T0 3	0.37000000E-C0	2T0 3	0.23999999E-00			
1T0 4	0.65000000E 00	2T0 4	0.66999999E 00	3T0 4	0.55000000E 00	
1T0 5	0.44000000E-C0	2T0 5	0.45000000E-00	3T0 5	0.40000000E-00	4T0 5 0.34999999E-00
1T0 6	0.59999999E-01	2T0 6	0.69999999E-01	3T0 6	0.69999999E-01	4T0 6 0.79999999E-01
5T0 6	0.79999999E-01					
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7 -0.
5T0 7	-0.	6T0 7	0.49999999E-01			
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8 -0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.49999999E-01	
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9 -0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9 0.49999999E-01
1T010	0.	2T010	0.	3T010	0.	4T010 0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010 -0.
9T010	0.49999999E-01					
1T011	0.	2T011	0.	3T011	0.	4T011 0.
5T011	0.	6T011	-0.	7T011	-0.	8T011 -0.
9T011	-0.	10T011	0.49999999E-01			
1T012	0.	2T012	0.	3T012	0.	4T012 0.
5T012	0.	6T012	0.	7T012	-0.	8T012 -0.
9T012	-0.	10T012	-0.	11T012	0.49999999E-01	

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.49999999E-01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.49999999E-01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.49999999E-01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.12805000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.10323000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.11612999E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.12718999E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.12378000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.	20T021	0.81754000E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.	21T022	0.29707000E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.
21T023	0.74569000E-02	22T023	0.60524999E-02				

SIGMA UPSCATTER

16T015	0.27372999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.47215000E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.68131000E-01	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.82240999E-01	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.93950000E-01	21T019	0.	22T019	0.	23T019	0.
21T020	0.83326999E-01	22T020	0.	23T020	0.		
22T021	0.64676999E-01	23T021	0.20497999E-01				
23T022	0.28893000E-01						

U238

ATOMIC WEIGHT= 0.23800000E 03

ZERO= 0.09999999E 01

B= 0.

SIGMA FISSION

1	0.17249999E 01	2	0.12130000E 01	3	0.10800000E-00	4	-0.	5	-0.
6	-0.	7	-0.	8	-0.	9	-0.	10	-0.
11	-0.	12	-0.	13	-0.	14	-0.	15	-0.
16	-0.	17	-0.	18	-0.	19	-0.	20	-0.
21	-0.	22	-0.	23	-0.				

SIGMA ABSORPTION

1	0.63600000E 00	2	0.53500000E 00	3	0.14399999E-00	4	0.13999999E-00	5	0.16000000E-00
6	0.45000000E-00	7	0.70000000E 00	8	0.20000000E 01	9	0.11000000E 02	10	0.50000000E 02
11	0.55999999E 02	12	0.11000000E 03	13	0.40000000E-00	14	0.55000000E 00	15	0.12345999E 01
16	0.13340999E 01	17	0.14736000E 01	18	0.16187000E 01	19	0.18499999E 01	20	0.23612999E 01
21	0.25080999E 01	22	0.31946000E 01	23	0.24999999E 01				

SIGMA TRANSPORT

1	0.40000000E 01	2	0.43999999E 01	3	0.45000000E 01	4	0.52499999E 01	5	0.81999999E 01
6	0.12000000E 02	7	0.13999999E 02	8	0.15000000E 02	9	0.22000000E 02	10	0.59000000E 02
11	0.65000000E 02	12	0.11900000E 03	13	0.93999999E 01	14	0.95499999E 01	15	0.95345999E 01
16	0.96340999E 01	17	0.97735999E 01	18	0.99186999E 01	19	0.10150000E 02	20	0.10661300E 02
21	0.10808100E 02	22	0.11494599E 02	23	0.10799300E 02				

SIGMA DOWNSCATTER

1T0 2	0.33000000E-00					
1T0 3	0.45999999E-00	2T0 3	0.34999999E-00			
1T0 4	0.79000000E 00	2T0 4	0.95999999E 00	3T0 4	0.80000000E 00	
1T0 5	0.52999999E 00	2T0 5	0.63999999E 00	3T0 5	0.55000000E 00	4T0 5 0.50000000E 00
1T0 6	0.69999999E-01	2T0 6	0.90000000E-01	3T0 6	0.09999999E-00	4T0 6 0.79999999E-01
5T0 6	0.79999999E-01					
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7 -0.
5T0 7	-0.	6T0 7	0.09999999E-00			
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8 -0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.59999999E-01	
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9 -0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9 0.59999999E-01
1T010	0.	2T010	0.	3T010	0.	4T010 0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010 -0.
9T010	0.49999999E-01					
1T011	0.	2T011	0.	3T011	0.	4T011 0.
5T011	0.	6T011	-0.	7T011	-0.	8T011 -0.
9T011	-0.	10T011	0.59999999E-01			
1T012	0.	2T012	0.	3T012	0.	4T012 0.
5T012	0.	6T012	0.	7T012	-0.	8T012 -0.
9T012	-0.	10T012	-0.	11T012	0.59999999E-01	

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.59999999E-01
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.59999999E-01						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.59999999E-01				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.10755000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.86537000E-01				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.97064000E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.10590000E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.10251000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.	20T021	0.67357000E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.	21T022	0.24400999E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.
21T023	0.61200999E-02	22T023	0.49626999E-02				

SIGMA UPSCATTER

16T015	0.22969999E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.39536999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.56870999E-01	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.68358999E-01	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.77669999E-01	21T019	0.	22T019	0.	23T019	0.
21T020	0.68596999E-01	22T020	0.	23T020	0.		
22T021	0.53117999E-01	23T021	0.16814999E-01				
23T022	0.23690999E-01						

XE135

ATOMIC WEIGHT= 0.1350000E 03

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 -0.	9 -0.	10 -0.
11 -0.	12 -0.	13 -0.	14 -0.	15 0.23382000E 06
16 0.10219999E 07	17 0.22578000E 07	18 0.32703000E 07	19 0.34027000E 07	20 0.30946000E 07
21 0.30900000E 07	22 0.30900000E 07	23 0.30900000E 07		

SIGMA TRANSPORT

1 -0.	2 -0.	3 -0.	4 -0.	5 -0.
6 -0.	7 -0.	8 -0.	9 -0.	10 -0.
11 -0.	12 -0.	13 -0.	14 -0.	15 0.23382000E 06
16 0.10219999E 07	17 0.22578000E 07	18 0.32703000E 07	19 0.34027000E 07	20 0.30946000E 07
21 0.30900000E 07	22 0.30900000E 07	23 0.30900000E 07		

SIGMA DOWNSCATTER

1T0 2	-0.				
1T0 3	-0.	2T0 3	-0.		
1T0 4	-0.	2T0 4	-0.	3T0 4	-0.
1T0 5	-0.	2T0 5	-0.	3T0 5	-0.
1T0 6	-0.	2T0 6	-0.	3T0 6	-0.
5T0 6	-0.				4T0 6
1T0 7	-0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	-0.		4T0 7
1T0 8	-0.	2T0 8	-0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	-0.
1T0 9	-0.	2T0 9	-0.	3T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
1T010	-0.	2T010	-0.	3T010	-0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	-0.				4T010
1T011	-0.	2T011	-0.	3T011	-0.
5T011	-0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	-0.		4T011
1T012	-0.	2T012	-0.	3T012	-0.
5T012	-0.	6T012	-0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	-0.
					4T012
					8T012

1T013	-0.	2T013	-0.	3T013	-0.	4T013	-0.
5T013	-0.	6T013	-0.	7T013	-0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	-0.
1T014	-0.	2T014	-0.	3T014	-0.	4T014	-0.
5T014	-0.	6T014	-0.	7T014	-0.	8T014	-0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	-0.						
1T015	-0.	2T015	-0.	3T015	-0.	4T015	-0.
5T015	-0.	6T015	-0.	7T015	-0.	8T015	-0.
9T015	-0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	-0.				
2T016	-0.	3T016	-0.	4T016	-0.	5T016	-0.
6T016	-0.	7T016	-0.	8T016	-0.	9T016	-0.
10T016	-0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	-0.				
3T017	-0.	4T017	-0.	5T017	-0.	6T017	-0.
7T017	-0.	8T017	-0.	9T017	-0.	10T017	-0.
11T017	-0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	-0.	16T017	-0.				
4T018	-0.	5T018	-0.	6T018	-0.	7T018	-0.
8T018	-0.	9T018	-0.	10T018	-0.	11T018	-0.
12T018	-0.	13T018	-0.	14T018	-0.	15T018	-0.
16T018	-0.	17T018	-0.				
5T019	-0.	6T019	-0.	7T019	-0.	8T019	-0.
9T019	-0.	10T019	-0.	11T019	-0.	12T019	-0.
13T019	-0.	14T019	-0.	15T019	-0.	16T019	-0.
17T019	-0.	18T019	-0.				
6T020	-0.	7T020	-0.	8T020	-0.	9T020	-0.
10T020	-0.	11T020	-0.	12T020	-0.	13T020	-0.

14T020	-0.	15T020	-0.	16T020	-0.	17T020	-0.
18T020	-0.	19T020	-0.				
7T021	-0.	8T021	-0.	9T021	-0.	10T021	-0.
11T021	-0.	12T021	-0.	13T021	-0.	14T021	-0.
15T021	-0.	16T021	-0.	17T021	-0.	18T021	-0.
19T021	-0.	20T021	-0.				
8T022	-0.	9T022	-0.	10T022	-0.	11T022	-0.
12T022	-0.	13T022	-0.	14T022	-0.	15T022	-0.
16T022	-0.	17T022	-0.	18T022	-0.	19T022	-0.
20T022	-0.	21T022	-0.				
9T023	-0.	10T023	-0.	11T023	-0.	12T023	-0.
13T023	-0.	14T023	-0.	15T023	-0.	16T023	-0.
17T023	-0.	18T023	-0.	19T023	-0.	20T023	-0.
21T023	-0.	22T023	-0.				

SIGMA UPSCATTER

16T015	-0.	17T015	-0.	18T015	-0.	19T015	-0.
20T015	-0.	21T015	-0.	22T015	-0.	23T015	-0.
17T016	-0.	18T016	-0.	19T016	-0.	20T016	-0.
21T016	-0.	22T016	-0.	23T016	-0.		
18T017	-0.	19T017	-0.	20T017	-0.	21T017	-0.
22T017	-0.	23T017	-0.				
19T018	-0.	20T018	-0.	21T018	-0.	22T018	-0.
23T018	-0.						
20T019	-0.	21T019	-0.	22T019	-0.	23T019	-0.
21T020	-0.	22T020	-0.	23T020	-0.		
22T021	-0.	23T021	-0.				
23T022	-0.						

ZR

ATOMIC WEIGHT= 0.91219999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.30000000E-02	2	0.49999999E-02	3	0.70000000E-02	4	0.12000000E-01	5	0.15000000E-01
6	0.15000000E-01	7	0.15000000E-01	8	0.15000000E-01	9	0.15000000E-01	10	0.15000000E-01
11	0.15000000E-01	12	0.15000000E-01	13	0.22000000E-01	14	0.35999999E-01	15	0.55599999E-01
16	0.72430000E-01	17	0.85899999E-01	18	0.10120000E-00	19	0.12620000E-00	20	0.17110000E-00
21	0.24180000E-00	22	0.35614000E-00	23	0.60200000E 00				

SIGMA TRANSPORT

1	0.26000000E 01	2	0.30999999E 01	3	0.38400000E 01	4	0.62099999E 01	5	0.72099999E 01
6	0.79099999E 01	7	0.76439999E 01	8	0.65519999E 01	9	0.63530000E 01	10	0.61549999E 01
11	0.61549999E 01	12	0.61549999E 01	13	0.61549999E 01	14	0.61549999E 01	15	0.62999999E 01
16	0.62999999E 01	17	0.62999999E 01	18	0.62999999E 01	19	0.62999999E 01	20	0.62999999E 01
21	0.62999999E 01	22	0.62841999E 01	23	0.39929999E 01				

SIGMA DOWNSCATTER

1T0 2	0.59999999E 00					
1T0 3	0.30000000E-00	2T0 3	0.40000000E-00			
1T0 4	0.20000000E-00	2T0 4	0.20000000E-00	3T0 4	0.30000000E-00	
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.15000000E-00	
				4T0 5	0.22000000E-00	
1T0 6	-0.	2T0 6	-0.	3T0 6	0.39999999E-01	
5T0 6	0.13500000E-00			4T0 6	-0.	
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	
5T0 7	-0.	6T0 7	0.10699999E-00		4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.	
5T0 8	-0.	6T0 8	-0.	7T0 8	0.95999999E-01	
1T0 9	0.	2T0 9	0.	3T0 9	0.	
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	
				4T0 9	-0.	
				8T0 9	0.84000000E-01	
1T010	0.	2T010	0.	3T010	0.	
5T010	-0.	6T010	-0.	7T010	-0.	
9T010	0.80999999E-01			4T010	0.	
				8T010	-0.	
1T011	0.	2T011	0.	3T011	0.	
5T011	0.	6T011	-0.	7T011	-0.	
9T011	-0.	10T011	0.11200000E-00	4T011	0.	
				8T011	-0.	
1T012	0.	2T012	0.	3T012	0.	
5T012	0.	6T012	0.	7T012	-0.	
9T012	-0.	10T012	-0.	11T012	0.12199999E-00	
				4T012	0.	
				8T012	-0.	

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.11099999E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.12199999E-00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.14600000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.19283000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.11409000E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.94640999E-01				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.75862999E-01				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.42273000E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.59920000E-02	20T021	0.10652000E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.42987999E-02	21T022	0.29045000E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.12407999E-02
21T023	0.76447999E-03	22T023	0.54122999E-03				

SIGMA UPSCATTER

16T015	0.27948000E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.37148999E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.41646999E-01	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.38702999E-01	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.34256999E-01	21T019	0.42168000E-02	22T019	0.	23T019	0.
21T020	0.23204999E-01	22T020	0.15256000E-01	23T020	0.10427999E-01		
22T021	0.75689999E-02	23T021	0.94948999E-02				
23T022	0.25821000E-02						

ZR 3

ATOMIC WEIGHT= 0.91219999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.30000000E-02	2	0.49999999E-02	3	0.70000000E-02	4	0.12000000E-01	5	0.15000000E-01
6	0.15000000E-01	7	0.15000000E-01	8	0.15000000E-01	9	0.15000000E-01	10	0.15000000E-01
11	0.15000000E-01	12	0.15000000E-01	13	0.22000000E-01	14	0.35999999E-01	15	0.55599999E-01
16	0.72430000E-01	17	0.85899999E-01	18	0.10120000E-00	19	0.12620000E-00	20	0.17110000E-00
21	0.24180000E-00	22	0.35614000E-00	23	0.60200000E 00				

SIGMA TRANSPORT

1	0.26000000E 01	2	0.30999999E 01	3	0.38400000E 01	4	0.62099999E 01	5	0.72099999E 01
6	0.79099999E 01	7	0.76439999E 01	8	0.65519999E 01	9	0.63530000E 01	10	0.61549999E 01
11	0.61549999E 01	12	0.61549999E 01	13	0.61549999E 01	14	0.61549999E 01	15	0.62999999E 01
16	0.62999999E 01	17	0.62999999E 01	18	0.62999999E 01	19	0.62999999E 01	20	0.62999999E 01
21	0.62999999E 01	22	0.62841999E 01	23	0.39929999E 01				

SIGMA DOWNSCATTER

1T0 2	0.59999999E C0				
1T0 3	0.30000000E-C0	2T0 3	0.40000000E-00		
1T0 4	0.20000000E-C0	2T0 4	0.20000000E-00	3T0 4	0.30000000E-00
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.15000000E-00
				4T0 5	0.22000000E-00
1T0 6	-0.	2T0 6	-0.	3T0 6	0.39999999E-01
5T0 6	0.13500000E-C0			4T0 6	-0.
1T0 7	0.	2T0 7	-0.	3T0 7	-0.
5T0 7	-0.	6T0 7	0.10699999E-00	4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.95999999E-01
1T0 9	0.	2T0 9	0.	3T0 9	0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.
				4T0 9	-0.
				8T0 9	0.84000000E-01
1T010	0.	2T010	0.	3T010	0.
5T010	-0.	6T010	-0.	7T010	-0.
9T010	0.80999999E-01			4T010	0.
				8T010	-0.
1T011	0.	2T011	0.	3T011	0.
5T011	0.	6T011	-0.	7T011	-0.
9T011	-0.	10T011	0.11200000E-00	4T011	0.
				8T011	-0.
1T012	0.	2T012	0.	3T012	0.
5T012	0.	6T012	0.	7T012	-0.
9T012	-0.	10T012	-0.	11T012	0.12199999E-00
				4T012	0.
				8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.11099999E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.12199999E-00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.14600000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.19283000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.14929999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.14154000E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.12509999E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.76575999E-01				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.10577000E-01	20T021	0.21540999E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.85046999E-02	21T022	0.63440999E-02				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.24322999E-02
21T023	0.16452000E-02	22T023	0.12317999E-02				

SIGMA UPSCATTER

16T015	0.54792000E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.75037000E-01	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.87297999E-01	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.88056999E-01	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.82085999E-01	21T019	0.10980999E-01	22T019	0.	23T019	0.
21T020	0.56585000E-01	22T020	0.39283999E-01	23T020	0.27534000E-01		
22T021	0.18266000E-01	23T021	0.23894999E-01				
23T022	0.62241999E-02						

ZR 7

ATOMIC WEIGHT= 0.91219999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.30000000E-02	2	0.49999999E-02	3	0.70000000E-02	4	0.12000000E-01	5	0.15000000E-01
6	0.15000000E-01	7	0.15000000E-01	8	0.15000000E-01	9	0.15000000E-01	10	0.15000000E-01
11	0.15000000E-01	12	0.15000000E-01	13	0.22000000E-01	14	0.35999999E-01	15	0.55599999E-01
16	0.72430000E-01	17	0.85899999E-01	18	0.10120000E-00	19	0.12620000E-00	20	0.17110000E-00
21	0.24180000E-00	22	0.35614000E-00	23	0.60200000E 00				

SIGMA TRANSPORT

1	0.26000000E 01	2	0.30999999E 01	3	0.38400000E 01	4	0.62099999E 01	5	0.72099999E 01
6	0.79099999E 01	7	0.76439999E 01	8	0.65519999E 01	9	0.63530000E 01	10	0.61549999E 01
11	0.61549999E 01	12	0.61549999E 01	13	0.61549999E 01	14	0.61549999E 01	15	0.62999999E 01
16	0.62999999E 01	17	0.62999999E 01	18	0.62999999E 01	19	0.62999999E 01	20	0.62999999E 01
21	0.62999999E 01	22	0.62841999E 01	23	0.39929999E 01				

SIGMA DOWNSCATTER

1T0 2	0.59999999E 00					
1T0 3	0.30000000E-00	2T0 3	0.40000000E-00			
1T0 4	0.20000000E-00	2T0 4	0.20000000E-00	3T0 4	0.30000000E-00	
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.15000000E-00	
				4T0 5	0.22000000E-00	
1T0 6	-0.	2T0 6	-0.	3T0 6	0.39999999E-01	
5T0 6	0.13500000E-00			4T0 6	-0.	
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	
5T0 7	-0.	6T0 7	0.10699999E-00		4T0 7	-0.
1T0 8	0.	2T0 8	0.	3T0 8	-0.	
5T0 8	-0.	6T0 8	-0.	7T0 8	0.95999999E-01	
					4T0 8	-0.
1T0 9	0.	2T0 9	0.	3T0 9	0.	
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	
					4T0 9	-0.
					8T0 9	0.84000000E-01
1T010	0.	2T010	0.	3T010	0.	
5T010	-0.	6T010	-0.	7T010	-0.	
9T010	0.80999999E-01				4T010	0.
					8T010	-0.
1T011	0.	2T011	0.	3T011	0.	
5T011	0.	6T011	-0.	7T011	-0.	
9T011	-0.	10T011	0.11200000E-00		4T011	0.
					8T011	-0.
1T012	0.	2T012	0.	3T012	0.	
5T012	0.	6T012	0.	7T012	-0.	
9T012	-0.	10T012	-0.	11T012	0.12199999E-00	
					4T012	0.
					8T012	-0.

1T013	0.	2T013	0.	3T013	0.	4T013	0.
5T013	0.	6T013	0.	7T013	0.	8T013	-0.
9T013	-0.	10T013	-0.	11T013	-0.	12T013	0.11099999E-00
1T014	0.	2T014	0.	3T014	0.	4T014	0.
5T014	0.	6T014	0.	7T014	0.	8T014	0.
9T014	-0.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	0.12199999E-00						
1T015	0.	2T015	0.	3T015	0.	4T015	0.
5T015	0.	6T015	0.	7T015	0.	8T015	0.
9T015	0.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-0.	14T015	0.14600000E-00				
2T016	0.	3T016	0.	4T016	0.	5T016	0.
6T016	0.	7T016	0.	8T016	0.	9T016	0.
10T016	0.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-0.	15T016	0.19283000E-00				
3T017	0.	4T017	0.	5T017	0.	6T017	0.
7T017	0.	8T017	0.	9T017	0.	10T017	0.
11T017	0.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	0.	16T017	0.19887999E-00				
4T018	0.	5T018	0.	6T018	0.	7T018	0.
8T018	0.	9T018	0.	10T018	0.	11T018	0.
12T018	0.	13T018	-0.	14T018	-0.	15T018	0.
16T018	0.	17T018	0.22098000E-00				
5T019	0.	6T019	0.	7T019	0.	8T019	0.
9T019	0.	10T019	0.	11T019	0.	12T019	0.
13T019	0.	14T019	-0.	15T019	0.	16T019	0.
17T019	0.	18T019	0.22345000E-00				
6T020	0.	7T020	0.	8T020	0.	9T020	0.
10T020	0.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.15791000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.21647000E-01	20T021	0.51360999E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.20180999E-01	21T022	0.16664000E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.57759000E-02
21T023	0.43082999E-02	22T023	0.34106000E-02				

SIGMA UPSCATTER

16T015	0.99552000E-01	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.14347000E-00	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.18007000E-00	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.20500000E-00	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.21253999E-00	21T019	0.31391999E-01	22T019	0.	23T019	0.
21T020	0.15637000E-00	22T020	0.11542000E-00	23T020	0.83634999E-01		
22T021	0.51900999E-01	23T021	0.70784999E-01				
23T022	0.18031999E-01						

ZR 10

ATOMIC WEIGHT= 0.91219999E 02

V ZERO= 0.

B= 0.

SIGMA ABSORPTION

1	0.30000000E-02	2	0.49999999E-02	3	0.70000000E-02	4	0.12000000E-01	5	0.15000000E-01
6	0.15000000E-01	7	0.15000000E-01	8	0.15000000E-01	9	0.15000000E-01	10	0.15000000E-01
11	0.15000000E-01	12	0.15000000E-01	13	0.22000000E-01	14	0.35999999E-01	15	0.55599999E-01
16	0.72430000E-01	17	0.85899999E-01	18	0.10120000E-00	19	0.12620000E-00	20	0.17110000E-00
21	0.24180000E-00	22	0.35614000E-00	23	0.60200000E 00				

SIGMA TRANSPORT

1	0.26000000E 01	2	0.30999999E 01	3	0.38400000E 01	4	0.62099999E 01	5	0.72099999E 01
6	0.79099999E 01	7	0.76439999E 01	8	0.65519999E 01	9	0.63530000E 01	10	0.61549999E 01
11	0.61549999E 01	12	0.61549999E 01	13	0.61549999E 01	14	0.61549999E 01	15	0.62999999E 01
16	0.62999999E 01	17	0.62999999E 01	18	0.62999999E 01	19	0.62999999E 01	20	0.62999999E 01
21	0.62999999E 01	22	0.62841999E 01	23	0.39929999E 01				

SIGMA DOWNSCATTER

1T0 2	0.59999999E 00						
1T0 3	0.30000000E-00	2T0 3	0.40000000E-00				
1T0 4	0.20000000E-00	2T0 4	0.20000000E-00	3T0 4	0.30000000E-00		
1T0 5	-0.	2T0 5	0.09999999E-00	3T0 5	0.15000000E-00	4T0 5	0.22000000E-00
1T0 6	-0.	2T0 6	-0.	3T0 6	0.39999999E-01	4T0 6	-0.
5T0 6	0.13500000E-00						
1T0 7	0.	2T0 7	-0.	3T0 7	-0.	4T0 7	-0.
5T0 7	-0.	6T0 7	0.10699999E-00				
1T0 8	0.	2T0 8	0.	3T0 8	-0.	4T0 8	-0.
5T0 8	-0.	6T0 8	-0.	7T0 8	0.95999999E-01		
1T0 9	0.	2T0 9	0.	3T0 9	0.	4T0 9	-0.
5T0 9	-0.	6T0 9	-0.	7T0 9	-0.	8T0 9	0.84000000E-01
1T010	0.	2T010	0.	3T010	0.	4T010	0.
5T010	-0.	6T010	-0.	7T010	-0.	8T010	-0.
9T010	0.80999999E-01						
1T011	0.	2T011	0.	3T011	0.	4T011	0.
5T011	0.	6T011	-0.	7T011	-0.	8T011	-0.
9T011	-0.	10T011	0.11200000E-00				
1T012	0.	2T012	0.	3T012	0.	4T012	0.
5T012	0.	6T012	0.	7T012	-0.	8T012	-0.
9T012	-0.	10T012	-0.	11T012	0.12199999E-00		

1T013	C.	2T013	C.	3T013	0.	4T013	0.
5T013	C.	6T013	C.	7T013	0.	8T013	-0.
9T013	-C.	10T013	-0.	11T013	-0.	12T013	0.11099999E-00
1T014	C.	2T014	0.	3T014	0.	4T014	0.
5T014	C.	6T014	C.	7T014	0.	8T014	0.
9T014	-C.	10T014	-0.	11T014	-0.	12T014	-0.
13T014	C.12199999E-C0						
1T015	C.	2T015	0.	3T015	0.	4T015	0.
5T015	C.	6T015	0.	7T015	0.	8T015	0.
9T015	C.	10T015	-0.	11T015	-0.	12T015	-0.
13T015	-C.	14T015	0.14600000E-CC				
2T016	C.	3T016	0.	4T016	0.	5T016	0.
6T016	C.	7T016	0.	8T016	0.	9T016	0.
10T016	C.	11T016	-0.	12T016	-0.	13T016	-0.
14T016	-C.	15T016	0.19283000E-CC				
3T017	C.	4T017	0.	5T017	0.	6T017	0.
7T017	C.	8T017	0.	9T017	0.	10T017	0.
11T017	C.	12T017	-0.	13T017	-0.	14T017	-0.
15T017	C.	16T017	0.22420000E-CC				
4T018	C.	5T018	0.	6T018	0.	7T018	0.
9T018	C.	9T018	0.	10T018	0.	11T018	0.
12T018	C.	13T018	-0.	14T018	-0.	15T018	0.
16T018	C.	17T018	0.26880000E-CC				
5T019	C.	6T019	C.	7T019	0.	8T019	0.
9T019	C.	10T019	0.	11T019	0.	12T019	0.
15T019	C.	14T019	-0.	15T019	0.	16T019	0.
17T019	C.	18T019	0.29372000E-CC				
6T020	C.	7T020	0.	8T020	0.	9T020	0.
10T020	C.	11T020	0.	12T020	0.	13T020	0.

14T020	0.	15T020	0.	16T020	0.	17T020	0.
18T020	0.	19T020	0.22798000E-00				
7T021	0.	8T021	0.	9T021	0.	10T021	0.
11T021	0.	12T021	0.	13T021	0.	14T021	0.
15T021	0.	16T021	0.	17T021	0.	18T021	0.
19T021	0.31462999E-01	20T021	0.81187999E-01				
8T022	0.	9T022	0.	10T022	0.	11T022	0.
12T022	0.	13T022	0.	14T022	0.	15T022	0.
16T022	0.	17T022	0.	18T022	0.	19T022	0.
20T022	0.32123999E-01	21T022	0.27970999E-01				
9T023	0.	10T023	0.	11T023	0.	12T023	0.
13T023	0.	14T023	0.	15T023	0.	16T023	0.
17T023	0.	18T023	0.	19T023	0.	20T023	0.92497998E-02
21T023	0.72659999E-02	22T023	0.59204999E-02				

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16T015	0.12695999E-C0	17T015	0.	18T015	0.	19T015	0.
20T015	0.	21T015	0.	22T015	0.	23T015	0.
17T016	0.18674999E-C0	18T016	0.	19T016	0.	20T016	0.
21T016	0.	22T016	0.	23T016	0.		
18T017	0.24501999E-C0	19T017	0.	20T017	0.	21T017	0.
22T017	0.	23T017	0.				
19T018	0.30011000E-C0	20T018	0.	21T018	0.	22T018	0.
23T018	0.						
20T019	0.33628000E-C0	21T019	0.52741999E-01	22T019	0.	23T019	0.
21T020	0.26176000E-C0	22T020	0.20031000E-00	23T020	0.14834999E-00		
22T021	0.89826000E-01	23T021	0.12525000E-00				
23T022	0.31858999E-01						

THEEND