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FTR SET 300, MULTIGROUP CROSS SECTIONS

FOR FTR DESIGN

October 1971

HANFORD ENGINEERING DEVELOPMENT LABORATORY

UNITED STATES ATOMIC ENERGY COMMISSION

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HANFORD ENGINEERING DEVELOPMENT LABORATORY

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R. E. Schenter
R. B. Kidman
J. V. Nelson

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ABSTRACT

This report presents a 30-group cross section library, called FTR Set 300, which will be used in the Fast Test Reactor (FTR) design calculations. The library consists of tables of infinitely dilute cross sections and resonance self-shielding factors for 25 materials (isotopes or elements). These group constants were generated using the ETOX code with ENDF/B-II data as input. The resulting infinitely dilute cross sections were modified for several isotopes to give calculational agreements with measured fast reactor integral experiments.

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FTR SET 300, MULTIGROUP CROSS SECTIONS FOR FTR DESIGN

INTRODUCTION

This report documents FTR Set 300, a 30-group cross section library for 25 materials (isotopes or elements). This set is to be used in design calculations for the Fast Test Reactor (FTR). It replaces FTR Set 200¹ which was used for preliminary design of the FTR*. The 300 set consists of tables of infinitely dilute cross sections and self-shielding factors which can be used to construct effective flux weighted cross sections for arbitrary reactor material composition and temperature.

The set is based on a 29-group cross section library³ previously generated by the ETOX code⁴ using ENDF/B-II data as input. Infinitely dilute cross sections for several materials were modified by the Westinghouse Advanced Reactors Division's LMFBR Nuclear Development group in order to obtain calculational agreement with experimental data on a number of fast reactor critical assemblies.^{5,6,7} The most important modifications were made in the isotopes Pu-239, U-235, and U-238. These modifications arose mainly from the fact that the ENDF/B-II data resulted in calculation of criticality about 2% low for typical fast reactor assemblies. In addition to these modifications to the infinitely dilute cross sections, the following additions and changes were incorporated in FTR Set 300:

1. A 30th thermal group was added for all 25 materials.
2. A "pseudo fission product isotope pair" was included as one of the materials.

* FTR Set 200 is based on a modified version of the Bondarenko multigroup cross section set (Reference 2).

3. Self-shielding factors for the materials Mo, Pu-240, and U-238 were recalculated. The results are more accurate than those given in the original 29 group set³.

The Westinghouse Advanced Reactors Division's FFTF Nuclear Design and Shielding group has made a study⁸ to test FTR Set 300 for calculations on FTR criticals. The results were compared to previous calculations using the FTR Set 200. It was concluded from this work that Set 300, for most parameters studied, predicts experiments better than Set 200.

In this report, Table 1 presents the 25 materials of Set 300 giving their ENDF/B-II mat numbers and a brief description of modifications (if any) to the ENDF/B-II results. The generation of the "pseudo fission product pair" cross section set is discussed in Section II. A complete listing of the 30-group FTR Set 300 library is given in Section III.

Table 1. Materials In FTR Set 300 and Their Cross Section Modifications From ENDF/B-II Results

	<u>Material</u>	<u>Title in FTR Set 300</u>	<u>ENDF/B-II MAT No.</u>	<u>Modifications*</u>
1.	Pu-239	PU49MH	1104	σ_f increased, σ_γ decreased
2.	Pu-240	P240M3	1105	minor change in σ_f
3.	Pu-241	PU1II4	1106	none
4.	Pu-242	PU2II3	1055	none
5.	U -235	U235M1	1102	σ_f changed
6.	U -238	U238MH	1103	σ_f , σ_γ , σ_{in} , $\bar{\nu}$ and σ_e changed
7.	Cr	CR II4	1121	none
8.	Fe	FE-M1	1122	σ_γ decreased
9.	Ni	NI-M1	1123	σ_γ decreased
10.	Na-23	NAM1	1059	σ_e , σ_{in} and σ_γ changed
11.	B -10	B-10M1	1009	$\sigma_{n,\alpha}$ decreased
12.	B -11	B11	--	This isotope was not on the ENDF/B-II file. Its cross sections were calculated using the data given in Reference 9 and was later modified.
13.	O -16	O16II4	1013	none
14.	C -12	C-12M1	1140	minor change in σ_t
15.	Al-27	AL7II4	1015	none
16.	Mn-55	MN5II4	1019	none
17.	Mo	MO II4	1111	none
18.	PU-FP	FP-PR	--	see Section II
19.	Ta-181	TA1II3	1035	none
20.	W -182	W2 II3	1060	none
21.	Li-6	LI6	1005**	none
22.	Cu	Cu II4	1087	none
23.	U -233	U3 II3	1041	none
24.	U -234	U4 II3	1043	none
25.	U -236	U6 II3	1046	none

* The modifications represent changes in the group constants made by the Westinghouse Advanced Reactors Division's LMFBR Nuclear Development group as described in References 5, 6, and 7. The original unmodified cross section group constants are given in Reference 3.

** ENDF/B-I.

II. PSEUDO FISSION PRODUCT CROSS SECTIONS

Group constant sets were generated for a "pseudo" fission product pair representing 770 fission product isotopes formed from fissions in an irradiation of an FTR-like fuel (90% fissions occur in Pu-239 and 10% in U-238). Emphasis was placed on including recent capture cross section calculations^{10,11} of important fission product isotopes. Microscopic "pseudo" fission product pair cross sections for capture were produced by weighting the capture cross section of individual isotopes with concentration versus time values obtained from previous calculations¹² for the FTR with irradiations of 1, 100, 300 days at 400 megawatts of power. Results of these calculations are given in Fig. 1. As can be seen, the cross section change after 100 days is very small. A comparison of the capture group values with those of Reference 2 are shown in Fig. 2. For Set 300, capture cross sections representing 200 days (found by interpolation on the 100 and 300 day results) irradiation were used. Cross sections, other than capture, were obtained by interpolating on those given in Reference 2.

Figure 1. Time Dependence of Pseudo Fission Product Capture Cross Sections

Figure 2. Comparison of Pseudo Fission Product Capture Cross Sections

III. FTR SET 300 LISTING

The following computer listing gives the complete FTR Set 300 library. Table 2 contains a notation guide to define the headings which appear on the listing. The 30-group energy structure for Set 300 is given in Table 3.

Table 2. Notation Guide

<u>Table Notation</u>	<u>Name or Description</u>
SIGT	Infinitely dilute total cross section (in barns).
SIGF	Infinitely dilute fission cross section (in barns).
NU	Infinitely dilute number of neutrons released per fission (neutrons per fission).
SIGC	Infinitely dilute capture cross section (in barns).
SIGIN	Infinitely dilute inelastic cross section (in barns).
SIGEL	Infinitely dilute elastic cross section (in barns).
MUEL	Infinitely dilute average cosine of elastic scattering angle.
XI	Infinitely dilute average logarithmic energy decrement.
SIGDEL	Elastic downscattering cross section (in barns).
GxG	Infinitely dilute inelastic in-group transfer cross section (in barns).
GxG+1	Infinitely dilute inelastic transfer from group G to group G+1 (in barns).
. . .	Infinitely dilute inelastic transfer from group G to group G+N (in barns).
TEMP	Temperature
SIGO	σ_0 , the total cross section of all other materials referred to this material (in barns).

Table 3. 30-Group Energy Structure

<u>Group</u>	<u>Energy Boundaries (ev)</u>	<u>Lethargy Interval</u>
1	6.065+06 to 1.000+07	.500
2	3.679+06 to 6.065+06	.500
3	2.231+06 to 3.679+06	.500
4	1.353+06 to 2.231+06	.500
5	8.209+05 to 1.353+06	.500
6	4.979+05 to 8.209+05	.500
7	3.877+05 to 4.979+05	.250
8	3.020+05 to 3.877+05	.250
9	1.832+05 to 3.020+05	.500
10	1.111+05 to 1.832+05	.500
11	6.738+04 to 1.111+05	.500
12	4.087+04 to 6.738+04	.500
13	2.554+04 to 4.087+04	.470
14	1.989+04 to 2.554+04	.250
15	1.503+04 to 1.989+04	.280
16	9.119+03 to 1.503+04	.500
17	5.531+03 to 9.119+03	.500
18	3.355+03 to 5.531+03	.500
19	2.840+03 to 3.355+03	.167
20	2.404+03 to 2.840+03	.167
21	2.035+03 to 2.404+03	.167
22	1.234+03 to 2.035+03	.500
23	7.485+02 to 1.234+03	.500
24	4.540+02 to 7.485+02	.500
25	2.754+02 to 4.540+02	.500
26	1.301+02 to 2.754+02	.750
27	6.144+01 to 1.301+02	.750
28	1.371+01 to 6.144+01	1.500
29	6.826-01 to 1.371+01	3.000
30	2.520-2	--

PLUTONIUM-239

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	AI	SIGDIL
1	6.6870	2.0888	3.965	.0013	1.4399	3.1069	.9130	.0009	.0120
2	7.8098	1.7082	3.537	.0018	2.1726	3.9280	.8912	.0010	.0078
3	7.8019	1.9435	3.269	.0039	2.3941	3.4596	.8364	.0014	.0097
4	7.1894	2.0055	3.112	.0103	2.3835	2.7902	.7370	.0022	.0123
5	7.2503	1.7536	3.017	.0247	2.0984	3.3736	.6127	.0033	.0223
6	8.1277	1.6303	2.963	.0760	1.6643	4.7572	.4956	.0043	.0410
7	8.9349	1.5714	2.937	.1233	1.3139	5.9273	.4078	.0050	.1185
8	9.4478	1.5395	2.925	.1582	1.1024	6.6473	.3375	.0056	.1890
9	10.2051	1.4997	2.911	.1967	.8553	7.6536	.2615	.0062	.0949
10	11.2047	1.5481	2.899	.2285	.6739	8.7534	.1941	.0068	.1190
11	12.1555	1.6313	2.891	.2690	.5396	9.7157	.1428	.0072	.1399
12	12.9609	1.7037	2.887	.3636	.4335	10.4597	.0915	.0077	.1611
13	13.5567	1.7500	2.884	.5527	.3794	10.8753	.0511	.0080	.1851
14	13.4336	1.7633	2.883	.7285	.2384	10.7032	.0297	.0082	.3511
15	13.6800	1.7713	2.882	.8146	.1151	10.9801	.0185	.0083	.3255
16	14.3640	1.9241	2.882	1.0939	.0383	11.3080	.0069	.0084	.1900
17	15.8426	2.2032	2.881	1.6588	.0013	11.9790	.0028	.0084	.2012
18	17.2587	2.6508	2.881	2.4431	.0000	12.1651	.0028	.0084	.2144
19	18.3204	3.3917	2.880	3.0022	.0000	11.9271	.0028	.0084	.6010
20	18.9381	3.6925	2.880	3.4380	.0000	11.8075	.0028	.0084	.5950
21	19.8158	2.6720	2.880	4.0488	.0000	13.0952	.0028	.0084	.6590
22	20.8882	4.4759	2.880	3.7187	.0000	12.6934	.0028	.0084	.2132
23	23.8561	6.2208	2.880	4.7661	.0000	12.8681	.0028	.0084	.2162
24	30.4502	9.8773	2.880	7.5803	.0000	12.9914	.0028	.0084	.2183
25	34.5197	10.8114	2.880	8.9018	.0000	14.8064	.0028	.0084	.2492
26	46.9625	18.6151	2.880	11.3783	.0000	16.9690	.0028	.0084	.1974
27	71.9666	38.6214	2.880	15.3795	.0000	17.9657	.0028	.0084	.2016
28	112.1076	50.3267	2.880	45.8166	.0000	15.9643	.0028	.0084	.0896
29	78.1710	42.8774	2.880	22.4617	.0000	12.8319	.0028	.0084	.0360
30	19.5629	7.2613	2.880	.6272	.0000	11.6743	.0028	.0084	.1965

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INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .								
1	.5291	.0472	.0787	.2081	.2651	.2109	.0723	.0525	.0614	.0269	.0100	
2	.6568	.0984	.2271	.3781	.3574	.1340	.1014	.1238	.0567	.0238	.0154	
3	.8759	.2718	.3248	.3689	.1522	.1204	.1539	.0736	.0317	.0129	.0081	
4	1.1449	.4872	.2810	.1236	.1007	.1328	.0654	.0287	.0118	.0045	.0030	
5	1.1267	.5152	.1798	.0999	.0892	.0536	.0222	.0074	.0027	.0007	.0011	
6	.9375	.2543	.1197	.2184	.0801	.0341	.0122	.0048	.0010	.0007	.0008	
7	.6033	.4071	.0485	.1130	.0325	.0115	.0040	.0015	.0010	.0009	.0006	
8	.5596	.4485	.0058	.0381	.0292	.0139	.0039	.0026	.0004	.0001	.0001	
9	.5028	.2554	.0048	.0003	.0001	.0000	.0000	.0011	.0004	.0002	.0001	
10	.3990	.2166	.0548	.0034	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
11	.3310	.1391	.0395	.0128	.0092	.0072	.0005	.0002	.0000	.0000	.0000	
12	.2725	.1565	.0000	.0000	.0008	.0024	.0009	.0001	.0001	.0001	.0002	
13	.1636	.1490	.0668	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
14	.0000	.1096	.1288	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
15	.0000	.0700	.0451	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
16	.0000	.0129	.0153	.0028	.0022	.0016	.0029	.0005	.0000	.0000	.0000	
17	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0004	.0001	.0000	.0000	

PLUTONIUM-239

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	.993	.993	.993	.992	.978	.931
	900.	.993	.993	.993	.993	.989	.945
	2100.	.993	.993	.993	.993	.993	.954
15	300.	1.000	1.000	.999	.997	.978	.926
	900.	1.000	1.000	1.000	1.000	.993	.946
	2100.	1.000	1.000	1.000	1.000	1.000	.959
16	300.	1.000	.990	.996	.991	.962	.901
	900.	1.000	1.000	1.000	1.000	.984	.929
	2100.	1.000	1.000	1.000	1.000	.998	.947
17	300.	1.000	.997	.989	.979	.930	.851
	900.	1.000	.990	.997	.993	.961	.886
	2100.	1.000	1.000	1.000	1.000	.983	.911
18	300.	.999	.995	.977	.959	.887	.795
	900.	1.000	.998	.990	.981	.930	.839
	2100.	1.000	.999	.998	.994	.961	.873
19	300.	.999	.991	.962	.936	.843	.742
	900.	.999	.996	.982	.967	.900	.798
	2100.	1.000	.999	.994	.988	.944	.844
20	300.	.999	.989	.955	.924	.823	.721
	900.	.999	.995	.977	.960	.884	.780
	2100.	1.000	.998	.991	.983	.933	.831
21	300.	.999	.990	.960	.933	.838	.741
	900.	.999	.994	.975	.955	.872	.762
	2100.	1.000	.997	.985	.972	.902	.791
22	300.	.998	.982	.929	.887	.765	.662
	900.	.999	.990	.958	.930	.830	.720
	2100.	.999	.995	.978	.961	.886	.774

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FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.996	.966	.883	.824	.679	.573
	900.	.998	.981	.925	.881	.750	.631
	2100.	.999	.989	.956	.926	.817	.669
24	300.	.993	.942	.828	.759	.603	.494
	900.	.995	.962	.874	.813	.650	.517
	2100.	.997	.976	.912	.862	.700	.540
25	300.	.991	.929	.801	.731	.594	.515
	900.	.996	.958	.853	.789	.646	.551
	2100.	.997	.977	.898	.843	.703	.593
26	300.	.983	.881	.712	.635	.509	.456
	900.	.986	.913	.766	.692	.562	.504
	2100.	.987	.935	.815	.747	.622	.563
27	300.	.922	.680	.492	.428	.336	.299
	900.	.944	.728	.531	.462	.361	.321
	2100.	.959	.771	.574	.502	.395	.351
28	300.	.919	.640	.395	.313	.202	.161
	900.	.938	.685	.426	.337	.215	.170
	2100.	.952	.729	.466	.370	.236	.185
29	300.	.929	.727	.597	.558	.504	.484
	900.	.941	.744	.604	.563	.507	.486
	2100.	.951	.766	.617	.572	.512	.490

PLUTONIUM-239

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	.999	.999
	900.	1.000	1.000	1.000	1.000	.999	.999
	2100.	1.000	1.000	1.000	1.000	.999	.999
14	300.	.993	.993	.993	.993	.993	.972
	900.	.993	.993	.993	.993	.993	.993
	2100.	.993	.993	.993	.993	.993	.993
15	300.	1.000	1.000	1.000	1.000	.997	.967
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	.998	.995	.978	.937
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
17	300.	1.000	.997	.987	.977	.933	.870
	900.	1.000	1.000	1.000	1.000	1.000	.988
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
18	300.	.999	.992	.967	.943	.962	.775
	900.	1.000	.999	.996	.993	.971	.922
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
19	300.	.998	.986	.945	.909	.798	.695
	900.	1.000	.996	.985	.974	.927	.856
	2100.	1.000	1.000	1.000	1.000	1.000	.985
20	300.	.998	.983	.933	.891	.766	.659
	900.	.999	.995	.977	.961	.900	.821
	2100.	1.000	1.000	1.000	1.000	1.000	.955
21	300.	.998	.980	.921	.874	.737	.627
	900.	.999	.993	.970	.950	.877	.792
	2100.	1.000	1.000	.998	.997	.982	.932
22	300.	.997	.970	.888	.827	.669	.555
	900.	.999	.987	.948	.915	.811	.711
	2100.	1.000	.996	.983	.972	.926	.852

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CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.994	.947	.822	.740	.555	.440
	900.	.997	.973	.901	.845	.697	.578
	2100.	.999	.988	.951	.921	.822	.713
24	300.	.987	.901	.720	.622	.428	.319
	900.	.993	.943	.818	.738	.550	.419
	2100.	.996	.960	.890	.834	.700	.523
25	300.	.981	.858	.641	.530	.365	.253
	900.	.990	.913	.746	.653	.472	.371
	2100.	.995	.948	.827	.752	.584	.470
26	300.	.963	.773	.524	.430	.299	.251
	900.	.977	.844	.626	.530	.382	.324
	2100.	.985	.891	.711	.622	.470	.405
27	300.	.911	.619	.382	.304	.217	.125
	900.	.936	.683	.441	.361	.255	.217
	2100.	.952	.734	.497	.414	.299	.257
28	300.	.876	.514	.278	.214	.137	.109
	900.	.912	.586	.324	.248	.155	.122
	2100.	.935	.655	.381	.295	.184	.144
29	300.	.808	.647	.488	.443	.384	.363
	900.	.926	.676	.501	.452	.389	.367
	2100.	.941	.710	.521	.466	.396	.372

PLUTONIUM-239

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	1.000	.998	.993	.985	.935	.842
	900.	1.000	.999	.995	.990	.945	.845
	2100.	1.000	.999	.997	.992	.950	.845
15	300.	1.000	.998	.991	.982	.926	.829
	900.	1.000	.999	.994	.980	.939	.834
	2100.	1.000	.999	.996	.991	.946	.836
16	300.	1.000	.997	.986	.973	.905	.801
	900.	1.000	.998	.992	.984	.925	.809
	2100.	1.000	.999	.996	.990	.937	.813
17	300.	.999	.994	.972	.950	.854	.737
	900.	1.000	.997	.985	.971	.886	.746
	2100.	1.000	.999	.993	.984	.908	.750
18	300.	.999	.988	.951	.917	.796	.679
	900.	.999	.994	.973	.950	.836	.687
	2100.	1.000	.997	.986	.971	.867	.699
19	300.	.998	.982	.927	.882	.742	.625
	900.	.999	.990	.958	.925	.785	.628
	2100.	.999	.995	.976	.954	.821	.629
20	300.	.998	.978	.917	.867	.724	.611
	900.	.999	.988	.950	.913	.767	.614
	2100.	.999	.994	.971	.946	.804	.615
21	300.	.997	.975	.906	.853	.711	.605
	900.	.999	.986	.943	.903	.754	.609
	2100.	.999	.993	.966	.937	.792	.610
22	300.	.996	.966	.880	.820	.671	.570
	900.	.998	.981	.922	.872	.710	.570
	2100.	.999	.989	.951	.913	.747	.570

PLUTONIUM-239

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.993	.940	.816	.744	.592	.503
	900.	.996	.963	.869	.801	.620	.503
	2100.	.998	.977	.910	.851	.650	.503
24	300.	.983	.878	.701	.616	.458	.378
	900.	.990	.918	.759	.667	.466	.378
	2100.	.993	.944	.812	.717	.473	.378
25	300.	.978	.853	.674	.602	.484	.425
	900.	.989	.900	.734	.652	.500	.425
	2100.	.994	.933	.790	.705	.520	.425
26	300.	.961	.787	.601	.540	.459	.430
	900.	.974	.841	.657	.587	.487	.450
	2100.	.982	.882	.714	.640	.525	.481
27	300.	.874	.590	.433	.388	.326	.303
	900.	.906	.634	.458	.407	.337	.311
	2100.	.929	.678	.490	.432	.354	.325
28	300.	.830	.450	.260	.215	.163	.146
	900.	.872	.497	.275	.223	.165	.147
	2100.	.903	.554	.301	.238	.170	.149
29	300.	.880	.648	.549	.510	.474	.457
	900.	.899	.661	.550	.518	.474	.457
	2100.	.917	.679	.554	.520	.474	.457

PLUTONIUM-239

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	.992	.992	.992	.991	.988	.982
	900.	.992	.992	.992	.992	.992	.990
	2100.	.992	.992	.992	.992	.992	.992
15	300.	1.000	1.000	.999	.998	.993	.986
	900.	1.000	1.000	1.000	1.000	1.000	.997
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	.999	.997	.995	.987	.975
	900.	1.000	1.000	1.000	1.000	.998	.992
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
17	300.	1.000	.998	.993	.987	.969	.950
	900.	1.000	1.000	.998	.996	.989	.977
	2100.	1.000	1.000	1.000	1.000	1.000	.996
18	300.	1.000	.996	.985	.975	.945	.921
	900.	1.000	.999	.994	.989	.973	.954
	2100.	1.000	1.000	.999	.998	.992	.981
19	300.	.999	.994	.977	.963	.925	.897
	900.	1.000	.997	.989	.982	.957	.933
	2100.	1.000	.999	.996	.993	.982	.964
20	300.	.999	.993	.974	.958	.918	.891
	900.	1.000	.997	.987	.978	.951	.926
	2100.	1.000	.999	.995	.991	.976	.957
21	300.	.999	.992	.968	.950	.905	.876
	900.	1.000	.996	.983	.972	.940	.913
	2100.	1.000	.998	.993	.987	.968	.946
22	300.	.999	.990	.964	.946	.905	.881
	900.	.999	.995	.980	.968	.935	.910
	2100.	1.000	.997	.989	.982	.960	.938

PLUTONIUM-239

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.998	.982	.944	.921	.878	.855
	900.	.999	.990	.964	.946	.905	.878
	2100.	.999	.994	.978	.965	.931	.903
24	300.	.993	.953	.882	.849	.796	.770
	900.	.996	.970	.913	.882	.822	.788
	2100.	.998	.981	.939	.912	.851	.808
25	300.	.993	.953	.892	.867	.830	.815
	900.	.996	.969	.917	.891	.849	.830
	2100.	.997	.979	.936	.914	.871	.848
26	300.	.988	.931	.869	.847	.818	.807
	900.	.993	.950	.891	.868	.834	.821
	2100.	.996	.964	.911	.888	.852	.837
27	300.	.966	.869	.808	.791	.769	.760
	900.	.975	.887	.820	.801	.776	.767
	2100.	.981	.903	.833	.812	.785	.775
28	300.	.959	.843	.770	.749	.720	.707
	900.	.972	.868	.785	.760	.726	.712
	2100.	.980	.892	.803	.775	.736	.720
29	300.	.995	.982	.972	.968	.960	.957
	900.	.996	.983	.972	.968	.961	.957
	2100.	.996	.985	.974	.969	.961	.958

PLUTONIUM-240

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUFL	KI	SIGDEL
1	6.6868	1.8375	3.611	.0074	1.1395	3.7025	.8406	.0015	.0238
2	7.8032	1.5576	3.345	.0152	1.8333	4.3972	.8014	.0017	.0225
3	7.6525	1.6508	3.173	.0331	2.0487	3.9199	.7293	.0023	.0202
4	7.2207	1.5462	3.065	.0621	2.0687	3.5438	.6651	.0028	.0202
5	7.2088	1.4353	2.995	.1031	2.0293	3.6411	.5865	.0035	.0255
6	7.9323	.7373	2.954	.1440	1.6313	5.4197	.4552	.0046	.0497
7	8.7310	.2667	2.934	.1611	1.4350	6.8682	.3741	.0053	.1445
8	9.3476	.1601	2.924	.1651	1.3318	7.6906	.3299	.0056	.1732
9	10.1873	.1129	2.914	.1849	1.1678	8.7216	.2688	.0061	.1072
10	11.2365	.0929	2.904	.2239	.9543	9.9653	.1921	.0068	.1353
11	12.1477	.0797	2.899	.2858	.6617	11.1206	.1284	.0073	.1629
12	12.9169	.0873	2.895	.3711	.2173	12.2412	.0815	.0077	.1890
13	13.2186	.0771	2.893	.4800	.0000	12.6415	.0520	.0080	.2143
14	13.7099	.0979	2.892	.5800	.0000	13.0319	.0377	.0081	.4215
15	14.1302	.0965	2.892	.6594	.0000	13.3743	.0299	.0082	.3824
16	14.8454	.0952	2.891	.7872	.0000	13.9631	.0212	.0082	.2227
17	15.9665	.1098	2.891	.9826	.0000	14.8740	.0096	.0083	.2476
18	16.8028	.1283	2.890	1.2391	.0000	15.4354	.0030	.0084	.2587
19	17.8830	.1073	2.890	1.7153	.0000	16.0604	.0028	.0084	.8075
20	19.5446	.3424	2.890	1.6503	.0000	17.5519	.0028	.0084	.8225
21	19.2102	.0836	2.890	1.7781	.0000	17.3484	.0028	.0084	.8723
22	22.4698	.2188	2.890	2.4608	.0000	19.7902	.0028	.0084	.3317
23	26.5667	.3615	2.890	3.9923	.0000	22.2129	.0028	.0084	.3723
24	20.3525	.0693	2.890	4.2118	.0000	16.0714	.0028	.0084	.2694
25	36.8630	.0806	2.890	7.8884	.0000	28.8940	.0028	.0084	.4843
26	28.6545	.1041	2.890	11.0348	.0000	17.5157	.0028	.0084	.1957
27	136.7782	.4428	2.890	47.7811	.0000	88.5543	.0028	.0084	.9895
28	83.6585	.3507	2.890	45.5865	.0000	37.7214	.0028	.0084	.2107
29	2972.4047	.5235	2.890	2737.9655	.0000	233.9157	.0028	.0084	.6534
30	10.4472	.0001	2.890	.0130	.0000	10.4340	.0028	.0084	.1749

PLUTONIUM-240

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0001	.0084	.0740	.2190	.3168	.2902	.1120	.0880	.1155	.0607	.0619
2	.0034	.0651	.2703	.4645	.4482	.1700	.1293	.1567	.0730	.0309	.0199
3	.4876	.5043	.3934	.2862	.1030	.0819	.1053	.0506	.0219	.0039	.0056
4	1.0210	.5312	.3325	.1028	.0360	.0266	.0121	.0047	.0015	.0004	.0001
5	1.2181	.3664	.0779	.1096	.1584	.0611	.0252	.0086	.0025	.0006	.0010
6	1.2307	.3096	.0179	.0156	.0306	.0160	.0076	.0027	.0004	.0002	.0001
7	.7405	.6501	.0443	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
8	.5715	.7505	.0097	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
9	.6717	.4895	.0050	.0017	.0000	.0000	.0000	.0000	.0000	.0000	.0000
10	.3402	.6133	.0005	.0002	.0000	.0000	.0000	.0000	.0000	.0000	.0000
11	.0000	.4113	.2285	.0219	.0000	.0000	.0000	.0000	.0000	.0000	.0000
12	.0000	.0000	.0553	.0594	.0632	.0236	.0093	.0017	.0013	.0009	.0026

PLUTONIUM-240

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
13	300.	.996	.996	.995	.990	.958	.920
	900.	.996	.996	.996	.995	.982	.957
	2100.	.996	.996	.996	.996	.996	.978
14	300.	1.000	1.000	.998	.991	.949	.906
	900.	1.000	1.000	.999	.997	.977	.948
	2100.	1.000	1.000	1.000	1.000	.992	.970
15	300.	1.000	1.000	.998	.989	.942	.897
	900.	1.000	1.000	.999	.996	.971	.940
	2100.	1.000	1.000	1.000	.999	.987	.963
16	300.	1.000	1.000	.997	.985	.928	.879
	900.	1.000	1.000	.999	.993	.961	.926
	2100.	1.000	1.000	1.000	.997	.979	.953
17	300.	1.000	.999	.990	.961	.865	.805
	900.	1.000	1.000	.995	.979	.918	.873
	2100.	1.000	1.000	.998	.990	.954	.921
18	300.	1.000	.998	.983	.938	.814	.751
	900.	1.000	.999	.991	.965	.879	.828
	2100.	1.000	1.000	.996	.981	.927	.889
19	300.	1.000	.997	.976	.919	.820	.791
	900.	.999	.998	.986	.948	.858	.826
	2100.	.999	.998	.991	.965	.892	.860
20	300.	.998	.981	.856	.635	.413	.369
	900.	.999	.988	.900	.709	.459	.390
	2100.	.998	.991	.929	.771	.515	.444
21	300.	1.000	.998	.979	.936	.864	.841
	900.	1.000	1.000	1.000	.988	.907	.876
	2100.	1.000	1.000	1.000	1.000	.953	.917
22	300.	.999	.988	.911	.759	.537	.464
	900.	.994	.988	.938	.821	.611	.531
	2100.	.990	.986	.953	.865	.678	.598

PLUTONIUM-240

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
23	300.	.996	.959	.767	.544	.347	.307
	900.	.993	.970	.827	.621	.403	.350
	2100.	.980	.965	.859	.680	.462	.400
24	300.	.998	.985	.904	.778	.645	.619
	900.	1.000	1.000	.956	.850	.702	.661
	2100.	1.000	1.000	1.000	.950	.777	.718
25	300.	.991	.926	.699	.490	.315	.271
	900.	.994	.950	.763	.562	.357	.297
	2100.	.996	.965	.811	.623	.401	.329
26	300.	.990	.915	.563	.265	.095	.067
	900.	.994	.947	.673	.354	.126	.085
	2100.	.996	.965	.754	.442	.166	.111
27	300.	.942	.673	.266	.115	.048	.037
	900.	.962	.752	.334	.145	.054	.039
	2100.	.974	.811	.404	.181	.064	.043
28	300.	.939	.642	.219	.087	.033	.023
	900.	.961	.732	.279	.106	.035	.023
	2100.	.973	.797	.346	.132	.039	.025
29	300.	.494	.166	.047	.018	.006	.005
	900.	.533	.173	.047	.018	.006	.005
	2100.	.582	.187	.048	.018	.006	.005

PLUTONIUM-240

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
13	300.	.997	.996	.995	.989	.955	.919
	900.	.997	.997	.997	.996	.987	.968
	2100.	.997	.997	.997	.997	.997	.997
14	300.	1.000	1.000	.997	.987	.936	.890
	900.	1.000	1.000	.999	.997	.977	.952
	2100.	1.000	1.000	1.000	1.000	1.000	.991
15	300.	1.000	1.000	.995	.980	.914	.863
	900.	1.000	1.000	.999	.993	.964	.933
	2100.	1.000	1.000	1.000	1.000	.995	.980
16	300.	1.000	.999	.992	.966	.871	.809
	900.	1.000	1.000	.997	.985	.934	.893
	2100.	1.000	1.000	.999	.996	.977	.955
17	300.	1.000	.998	.982	.933	.791	.715
	900.	1.000	.999	.991	.965	.873	.816
	2100.	1.000	1.000	.996	.983	.934	.897
18	300.	1.000	.997	.970	.896	.728	.657
	900.	.999	.997	.982	.936	.809	.746
	2100.	.999	.998	.989	.961	.872	.823
19	300.	1.000	.996	.964	.878	.712	.656
	900.	.997	.995	.977	.920	.781	.725
	2100.	.995	.994	.983	.946	.837	.786
20	300.	.999	.993	.940	.823	.632	.571
	900.	.995	.991	.958	.873	.700	.634
	2100.	.993	.990	.969	.908	.761	.697
21	300.	.999	.991	.930	.800	.601	.539
	900.	1.000	1.000	.963	.866	.678	.609
	2100.	1.000	1.000	.989	.917	.752	.693
22	300.	.998	.985	.888	.714	.475	.406
	900.	.997	.989	.925	.789	.556	.476
	2100.	.996	.990	.948	.843	.632	.549

PLUTONIUM-240

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
23	300.	.997	.970	.801	.552	.304	.245
	900.	.997	.981	.865	.649	.374	.295
	2100.	.994	.984	.904	.726	.448	.357
24	300.	.997	.970	.805	.556	.289	.226
	900.	.999	.982	.868	.656	.365	.232
	2100.	1.000	.992	.910	.736	.444	.348
25	300.	.988	.906	.623	.370	.163	.122
	900.	.992	.936	.701	.454	.211	.152
	2100.	.995	.955	.760	.527	.263	.137
26	300.	.990	.914	.561	.265	.095	.067
	900.	.994	.947	.671	.353	.126	.085
	2100.	.996	.964	.753	.440	.166	.111
27	300.	.940	.665	.261	.114	.047	.037
	900.	.961	.744	.326	.142	.054	.039
	2100.	.973	.804	.395	.177	.063	.043
28	300.	.935	.627	.210	.085	.033	.024
	900.	.958	.718	.268	.102	.035	.024
	2100.	.971	.785	.333	.126	.039	.026
29	300.	.493	.164	.045	.017	.005	.003
	900.	.533	.172	.046	.017	.005	.003
	2100.	.581	.185	.047	.017	.005	.003

PLUTONIUM-240

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
13	300.	1.000	.999	.995	.979	.914	.869
	900.	1.000	1.000	.997	.988	.938	.890
	2100.	1.000	1.000	.998	.993	.955	.906
14	300.	1.000	.999	.992	.968	.889	.843
	900.	1.000	1.000	.996	.981	.919	.870
	2100.	1.000	1.000	.998	.989	.943	.894
15	300.	1.000	.999	.989	.958	.868	.824
	900.	1.000	.999	.994	.975	.902	.854
	2100.	1.000	1.000	.997	.985	.930	.882
16	300.	1.000	.998	.982	.935	.830	.789
	900.	1.000	.999	.990	.959	.868	.821
	2100.	1.000	.999	.994	.974	.903	.855
17	300.	1.000	.996	.966	.892	.771	.733
	900.	1.000	.998	.980	.927	.811	.766
	2100.	1.000	.999	.987	.951	.852	.803
18	300.	.999	.994	.949	.857	.740	.708
	900.	.999	.996	.967	.896	.776	.738
	2100.	.999	.997	.979	.925	.813	.769
19	300.	.999	.994	.948	.856	.741	.706
	900.	.998	.995	.967	.897	.781	.745
	2100.	.998	.995	.977	.925	.818	.780
20	300.	.998	.985	.893	.760	.627	.567
	900.	.998	.989	.925	.805	.662	.613
	2100.	.998	.992	.947	.845	.698	.651
21	300.	.998	.983	.882	.745	.613	.540
	900.	1.000	.992	.921	.795	.650	.596
	2100.	1.000	1.000	.948	.839	.687	.639
22	300.	.996	.965	.806	.640	.497	.417
	900.	.997	.976	.854	.692	.532	.472
	2100.	.997	.983	.889	.741	.570	.515

PLUTONIUM-240

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
23	300.	.994	.948	.721	.520	.386	.292
	900.	.996	.967	.792	.572	.412	.326
	2100.	.995	.975	.843	.637	.443	.374
24	300.	.994	.944	.751	.593	.482	.413
	900.	.997	.964	.805	.640	.504	.443
	2100.	1.000	.978	.849	.688	.532	.481
25	300.	.973	.808	.491	.354	.263	.188
	900.	.982	.860	.545	.384	.273	.196
	2100.	.988	.897	.598	.417	.288	.216
26	300.	.987	.891	.561	.405	.345	.328
	900.	.992	.931	.644	.438	.353	.336
	2100.	.995	.953	.717	.481	.364	.344
27	300.	.880	.475	.168	.106	.069	.041
	900.	.919	.567	.194	.110	.069	.041
	2100.	.943	.649	.230	.119	.070	.041
28	300.	.876	.445	.152	.107	.081	.063
	900.	.918	.546	.171	.102	.081	.063
	2100.	.943	.635	.200	.111	.081	.063
29	300.	.295	.078	.019	.008	.004	.004
	900.	.323	.078	.019	.008	.004	.004
	2100.	.367	.078	.019	.008	.004	.004

PLUTONIUM-240

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
13	300.	.996	.996	.994	.987	.960	.940
	900.	.996	.996	.995	.992	.977	.963
	2100.	.996	.996	.996	.995	.988	.980
14	300.	1.000	1.000	.997	.985	.946	.922
	900.	1.000	1.000	.998	.992	.968	.950
	2100.	1.000	1.000	.999	.996	.983	.972
15	300.	1.000	.999	.995	.979	.929	.903
	900.	1.000	1.000	.997	.989	.955	.935
	2100.	1.000	1.000	.999	.994	.974	.960
16	300.	1.000	.999	.991	.966	.899	.869
	900.	1.000	.999	.995	.980	.930	.904
	2100.	1.000	1.000	.997	.988	.955	.935
17	300.	1.000	.998	.983	.939	.849	.816
	900.	1.000	.999	.990	.961	.886	.854
	2100.	1.000	.999	.994	.975	.918	.890
18	300.	1.000	.997	.973	.915	.817	.786
	900.	.999	.998	.983	.942	.853	.820
	2100.	1.000	.998	.989	.960	.885	.853
19	300.	1.000	.997	.973	.916	.820	.788
	900.	.999	.997	.983	.942	.857	.826
	2100.	.998	.997	.988	.959	.888	.858
20	300.	.999	.992	.942	.846	.722	.677
	900.	.999	.994	.960	.882	.759	.716
	2100.	.999	.996	.972	.911	.795	.753
21	300.	.999	.991	.933	.831	.703	.656
	900.	1.000	.997	.957	.872	.742	.698
	2100.	1.000	1.000	.974	.905	.780	.736
22	300.	.998	.982	.883	.746	.601	.547
	900.	.998	.987	.914	.792	.640	.589
	2100.	.998	.990	.936	.831	.680	.629

PLUTONIUM-240

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	50000.0	5000.0	500.0	100.0	10.0	1.0
23	300.	.997	.974	.836	.662	.505	.445
	900.	.998	.983	.883	.722	.543	.452
	2100.	.996	.987	.914	.772	.583	.522
24	300.	.997	.971	.849	.726	.519	.578
	900.	.998	.981	.885	.764	.543	.602
	2100.	1.000	.990	.913	.800	.671	.630
25	300.	.985	.887	.621	.471	.369	.321
	900.	.990	.920	.673	.504	.384	.334
	2100.	.993	.942	.722	.539	.403	.353
26	300.	.996	.960	.799	.663	.577	.555
	900.	.997	.975	.848	.703	.595	.570
	2100.	.998	.984	.885	.742	.614	.535
27	300.	.935	.653	.299	.187	.125	.097
	900.	.957	.728	.346	.204	.130	.100
	2100.	.970	.788	.399	.227	.137	.104
28	300.	.936	.650	.321	.231	.182	.159
	900.	.958	.730	.360	.242	.184	.159
	2100.	.970	.790	.406	.257	.187	.161
29	300.	.517	.206	.099	.071	.054	.050
	900.	.554	.214	.099	.071	.054	.050
	2100.	.601	.227	.100	.071	.054	.050

PLUTONIUM-241

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUCL	XI	SIGDEL
1	6.6924	1.8953	3.977	.0293	1.5695	3.1983	.8778	.0012	.0157
2	7.6609	1.4453	3.593	.0466	2.0332	4.1358	.8403	.0014	.0167
3	7.7296	1.5767	3.345	.0698	2.0579	4.0252	.7632	.0020	.0178
4	7.3202	1.7496	3.188	.0985	1.5764	3.8958	.6960	.0026	.0199
5	7.9213	1.5948	3.088	.1063	1.8202	4.4000	.6258	.0031	.0276
6	9.0874	1.5012	3.028	.1006	2.1094	5.3762	.5566	.0037	.0399
7	9.9230	1.5346	2.999	.1081	2.0901	6.1902	.4856	.0043	.1066
8	10.4668	1.6347	2.985	.1213	1.8095	6.9014	.4296	.0048	.1318
9	11.2680	1.8041	2.970	.1617	1.2784	8.0238	.3451	.0055	.0880
10	12.2701	2.0439	2.957	.2802	.7231	9.2228	.2455	.0063	.1165
11	13.1508	2.2984	2.949	.4601	.4255	9.9669	.1702	.0069	.1334
12	13.7169	2.4490	2.944	.5767	.1633	10.5280	.1128	.0074	.1557
13	14.0445	2.6115	2.941	.5640	.0002	10.8687	.0708	.0076	.1767
14	15.0446	3.1155	2.939	.6855	.0000	11.2435	.0461	.0079	.3552
15	15.1214	3.1694	2.938	.7035	.0000	11.2484	.0332	.0080	.3226
16	15.3712	3.3456	2.938	.7477	.0000	11.2779	.0196	.0082	.1843
17	16.3653	3.9985	2.937	.9052	.0000	11.4616	.0081	.0083	.1900
18	18.2218	5.2516	2.937	1.2091	.0000	11.7610	.0029	.0083	.1963
19	20.4955	6.7687	2.936	1.5780	.0000	12.1488	.0028	.0083	.6083
20	20.3026	6.7507	2.936	1.5802	.0000	11.9717	.0028	.0083	.5995
21	19.9943	6.6500	2.936	1.5614	.0000	11.7828	.0028	.0083	.5900
22	21.9220	8.0823	2.936	1.9226	.0000	11.9172	.0028	.0083	.1989
23	25.1368	10.3753	2.936	2.6562	.0000	12.1052	.0028	.0083	.2021
24	33.5685	15.5708	2.936	4.8441	.0000	13.1535	.0028	.0083	.2196
25	45.2911	25.1357	2.936	6.4163	.0000	13.7391	.0028	.0083	.2293
26	49.5260	30.4743	2.936	6.3860	.0000	12.6657	.0028	.0083	.1409
27	56.7100	37.5656	2.936	7.1157	.0000	12.0288	.0028	.0083	.1339
28	119.9995	88.3569	2.936	17.9797	.0000	13.6629	.0028	.0083	.0760
29	142.8008	111.9990	2.936	20.8329	.0000	9.9690	.0028	.0083	.0277
30	239.4702	162.8245	2.936	66.4624	.0000	10.1833	.0028	.0083	.1700

PLUTONIUM-241

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0001	.0048	.0551	.1889	.3045	.3510	.1885	.1939	.3659	.2738	.3039
2	.0013	.0388	.2198	.4646	.5132	.2100	.1673	.2234	.1220	.0635	.0542
3	.3636	.3033	.2867	.3895	.1802	.1506	.2040	.1030	.0459	.0190	.0121
4	.7571	.4716	.1671	.0548	.0325	.0474	.0256	.0119	.0051	.0020	.0013
5	.9809	.6745	.0640	.0375	.0362	.0164	.0069	.0024	.0008	.0002	.0003
6	.8674	.6175	.3734	.1971	.0366	.0125	.0046	.0001	.0000	.0000	.0000
7	.3365	.6255	.8849	.1920	.0336	.0099	.0041	.0011	.0007	.0006	.0003
8	.2654	.8600	.5215	.1262	.0264	.0060	.0015	.0010	.0009	.0003	.0002
9	.4034	.4980	.2170	.0959	.0424	.0110	.0063	.0036	.0006	.0002	.0001
10	.2273	.3991	.0570	.0248	.0069	.0051	.0021	.0008	.0000	.0000	.0000
11	.0278	.2594	.1319	.0000	.0004	.0039	.0013	.0004	.0001	.0000	.0001
12	.0000	.0129	.0478	.0359	.0348	.0177	.0089	.0015	.0011	.0008	.0018
13	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0002

PLUTONIUM-241

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	.995	.931
	900.	1.000	1.000	1.000	1.000	1.000	.942
	2100.	1.000	1.000	1.000	1.000	1.000	.947
14	300.	1.000	1.000	1.000	1.000	.992	.910
	900.	1.000	1.000	1.000	1.000	1.000	.926
	2100.	1.000	1.000	1.000	1.000	1.000	.934
15	300.	1.000	1.000	1.000	1.000	.992	.924
	900.	1.000	1.000	1.000	1.000	1.000	.943
	2100.	1.000	1.000	1.000	1.000	1.000	.954
16	300.	1.000	1.000	1.000	1.000	.989	.930
	900.	1.000	1.000	1.000	1.000	1.000	.957
	2100.	1.000	1.000	1.000	1.000	1.000	.972
17	300.	1.000	1.000	1.000	1.000	.976	.909
	900.	1.000	1.000	1.000	1.000	1.000	.949
	2100.	1.000	1.000	1.000	1.000	1.000	.973
18	300.	1.000	1.000	.999	.994	.946	.854
	900.	1.000	1.000	1.000	1.000	.993	.907
	2100.	1.000	1.000	1.000	1.000	1.000	.941
19	300.	1.000	.999	.998	.987	.907	.784
	900.	1.000	1.000	1.000	1.000	.969	.841
	2100.	1.000	1.000	1.000	1.000	1.000	.876
20	300.	1.000	.999	.998	.984	.899	.784
	900.	1.000	1.000	1.000	1.000	.963	.846
	2100.	1.000	1.000	1.000	1.000	1.000	.886
21	300.	1.000	.999	.997	.981	.893	.786
	900.	1.000	1.000	.999	.999	.957	.852
	2100.	1.000	1.000	1.000	1.000	1.000	.897
22	300.	1.000	.999	.996	.968	.847	.725
	900.	1.000	.999	.999	.992	.921	.790
	2100.	1.000	1.000	1.000	1.000	.974	.833

PLUTONIUM-241

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	.990	.992	.940	.768	.630
	900.	1.000	.990	.997	.975	.849	.687
	2100.	1.000	.990	.999	.997	.912	.723
24	300.	1.000	.998	.982	.871	.630	.476
	900.	1.000	.990	.991	.932	.705	.502
	2100.	1.000	.999	.996	.970	.763	.500
25	300.	.999	.996	.969	.820	.519	.342
	900.	.999	.998	.982	.881	.561	.327
	2100.	1.000	.999	.991	.931	.588	.289
26	300.	.999	.995	.960	.790	.489	.309
	900.	.999	.997	.974	.843	.513	.293
	2100.	.999	.998	.984	.891	.531	.262
27	300.	.999	.993	.945	.750	.442	.257
	900.	.999	.995	.960	.792	.452	.243
	2100.	.999	.997	.972	.836	.460	.219
28	300.	.996	.961	.797	.527	.348	.300
	900.	.997	.968	.818	.548	.363	.313
	2100.	1.000	.977	.844	.570	.386	.333
29	300.	.997	.977	.854	.598	.460	.436
	900.	.997	.979	.863	.605	.463	.439
	2100.	.997	.981	.873	.613	.468	.443

PLUTONIUM-241

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	.997	.935
	900.	1.000	1.000	1.000	1.000	1.000	.944
	2100.	1.000	1.000	1.000	1.000	1.000	.949
14	300.	1.000	1.000	1.000	1.000	.994	.914
	900.	1.000	1.000	1.000	1.000	1.000	.929
	2100.	1.000	1.000	1.000	1.000	1.000	.936
15	300.	1.000	1.000	1.000	1.000	.995	.927
	900.	1.000	1.000	1.000	1.000	1.000	.946
	2100.	1.000	1.000	1.000	1.000	1.000	.956
16	300.	1.000	1.000	1.000	1.000	.992	.933
	900.	1.000	1.000	1.000	1.000	1.000	.960
	2100.	1.000	1.000	1.000	1.000	1.000	.974
17	300.	1.000	1.000	1.000	1.000	.979	.912
	900.	1.000	1.000	1.000	1.000	1.000	.954
	2100.	1.000	1.000	1.000	1.000	1.000	.978
18	300.	1.000	1.000	.999	.995	.946	.854
	900.	1.000	1.000	1.000	1.000	.998	.915
	2100.	1.000	1.000	1.000	1.000	1.000	.951
19	300.	1.000	1.000	.998	.986	.904	.782
	900.	1.000	1.000	1.000	1.000	.975	.851
	2100.	1.000	1.000	1.000	1.000	1.000	.891
20	300.	1.000	1.000	.998	.982	.894	.778
	900.	1.000	1.000	1.000	1.000	.968	.853
	2100.	1.000	1.000	1.000	1.000	1.000	.900
21	300.	1.000	.999	.997	.978	.884	.775
	900.	1.000	1.000	1.000	.999	.960	.857
	2100.	1.000	1.000	1.000	1.000	1.000	.909
22	300.	1.000	.999	.995	.962	.830	.706
	900.	1.000	1.000	.999	.991	.920	.791
	2100.	1.000	1.000	1.000	1.000	.980	.844

PLUTONIUM-241

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP X SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	.999	.990	.926	.739	.500
	900.	1.000	.990	.997	.972	.842	.642
	2100.	1.000	1.000	1.000	.990	.817	.733
24	300.	.999	.997	.976	.850	.695	.442
	900.	1.000	.990	.990	.926	.795	.495
	2100.	1.000	.999	.997	.971	.770	.511
25	300.	.999	.995	.959	.776	.458	.213
	900.	.999	.997	.979	.861	.630	.305
	2100.	1.000	.999	.990	.927	.580	.238
26	300.	.999	.992	.940	.714	.396	.230
	900.	.999	.995	.964	.797	.450	.248
	2100.	1.000	.997	.979	.865	.494	.240
27	300.	.998	.988	.910	.640	.329	.181
	900.	.999	.992	.940	.713	.363	.155
	2100.	.999	.995	.960	.761	.395	.161
28	300.	.993	.942	.706	.400	.263	.228
	900.	.997	.958	.752	.443	.283	.245
	2100.	1.000	.978	.804	.492	.314	.271
29	300.	.994	.946	.713	.415	.297	.278
	900.	.994	.954	.740	.429	.303	.283
	2100.	.991	.959	.768	.448	.313	.271

PLUTONIUM-241

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
13	300.	1.000	1.000	.999	.990	.891	.730
	900.	1.000	1.000	.999	.993	.896	.721
	2100.	1.000	1.000	1.000	.994	.898	.716
14	300.	1.000	1.000	.999	.990	.899	.757
	900.	1.000	1.000	.999	.993	.906	.750
	2100.	1.000	1.000	1.000	.994	.909	.745
15	300.	1.000	1.000	.999	.986	.875	.724
	900.	1.000	1.000	.999	.991	.885	.712
	2100.	1.000	1.000	1.000	.994	.891	.702
16	300.	1.000	1.000	.997	.975	.813	.638
	900.	1.000	1.000	.999	.985	.824	.610
	2100.	1.000	1.000	.999	.990	.829	.587
17	300.	1.000	.999	.995	.958	.728	.532
	900.	1.000	1.000	.998	.975	.732	.486
	2100.	1.000	1.000	.999	.984	.730	.447
18	300.	1.000	.999	.995	.957	.741	.558
	900.	1.000	1.000	.997	.974	.748	.517
	2100.	1.000	1.000	.999	.984	.749	.479
19	300.	1.000	.999	.995	.957	.757	.580
	900.	1.000	1.000	.997	.973	.765	.553
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	.999	.999
	2100.	1.000	1.000	1.000	1.000	.999	.999
21	300.	1.000	1.000	1.000	1.000	.999	.999
	900.	1.000	1.000	1.000	1.000	.999	.999
	2100.	1.000	1.000	.999	.983	.772	.518
22	300.	1.000	.999	.992	.935	.693	.525
	900.	1.000	.999	.996	.959	.697	.430
	2100.	1.000	1.000	.998	.973	.693	.436

PLUTONIUM-241

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	.998	.986	.891	.598	.443
	900.	1.000	.999	.992	.926	.589	.392
	2100.	1.000	.999	.995	.949	.570	.340
24	300.	.999	.996	.965	.782	.427	.308
	900.	1.000	.997	.979	.834	.392	.257
	2100.	1.000	.999	.986	.873	.343	.209
25	300.	.999	.993	.937	.665	.259	.177
	900.	.999	.995	.958	.717	.211	.145
	2100.	1.000	.997	.972	.761	.156	.117
26	300.	.999	.990	.920	.626	.221	.148
	900.	.999	.993	.942	.666	.186	.129
	2100.	.999	.995	.959	.703	.143	.109
27	300.	.998	.986	.892	.572	.169	.114
	900.	.999	.990	.916	.597	.146	.105
	2100.	.999	.993	.935	.624	.118	.094
28	300.	.991	.926	.689	.399	.245	.218
	900.	.994	.940	.715	.413	.249	.222
	2100.	.999	.956	.750	.436	.258	.230
29	300.	.994	.949	.734	.438	.338	.324
	900.	.995	.956	.748	.440	.338	.324
	2100.	.994	.961	.763	.443	.338	.325

PLUTONIUM-241

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	.999	.993
	900.	1.000	1.000	1.000	1.000	1.000	.995
	2100.	1.000	1.000	1.000	1.000	1.000	.996
14	300.	1.000	1.000	1.000	1.000	.998	.999
	900.	1.000	1.000	1.000	1.000	1.000	.993
	2100.	1.000	1.000	1.000	1.000	1.000	.995
15	300.	1.000	1.000	1.000	1.000	.998	.992
	900.	1.000	1.000	1.000	1.000	1.000	.995
	2100.	1.000	1.000	1.000	1.000	1.000	.997
16	300.	1.000	1.000	1.000	1.000	.998	.993
	900.	1.000	1.000	1.000	1.000	1.000	.997
	2100.	1.000	1.000	1.000	1.000	1.000	.999
17	300.	1.000	1.000	1.000	.999	.995	.989
	900.	1.000	1.000	1.000	1.000	.999	.994
	2100.	1.000	1.000	1.000	1.000	1.000	.998
18	300.	1.000	1.000	1.000	.996	.988	.978
	900.	1.000	1.000	1.000	1.000	.996	.987
	2100.	1.000	1.000	1.000	1.000	1.000	.992
19	300.	1.000	1.000	.999	.995	.978	.960
	900.	1.000	1.000	1.000	.999	.989	.972
	2100.	1.000	1.000	1.000	1.000	.997	.990
20	300.	1.000	1.000	.999	.995	.979	.965
	900.	1.000	1.000	1.000	.999	.990	.976
	2100.	1.000	1.000	1.000	1.000	.997	.983
21	300.	1.000	1.000	.999	.996	.982	.970
	900.	1.000	1.000	1.000	.996	.991	.980
	2100.	1.000	1.000	1.000	1.000	.996	.996
22	300.	1.000	1.000	.999	.993	.973	.960
	900.	1.000	1.000	1.000	.997	.984	.970
	2100.	1.000	1.000	1.000	.999	.992	.977

PLUTONIUM-241

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	1.000	.998	.987	.459	.944
	900.	1.000	1.000	.999	.993	.972	.953
	2100.	1.000	1.000	1.000	.997	.981	.960
24	300.	1.000	.999	.993	.960	.404	.880
	900.	1.000	1.000	.996	.975	.921	.898
	2100.	1.000	1.000	.998	.986	.935	.892
25	300.	1.000	.998	.987	.933	.862	.834
	900.	1.000	.999	.992	.953	.875	.836
	2100.	1.000	.999	.996	.969	.886	.834
26	300.	1.000	.998	.988	.946	.901	.884
	900.	1.000	.999	.992	.958	.907	.885
	2100.	1.000	.999	.995	.969	.913	.884
27	300.	1.000	.998	.988	.957	.930	.920
	900.	1.000	.999	.992	.964	.932	.919
	2100.	1.000	.999	.994	.971	.935	.919
28	300.	.999	.989	.948	.900	.879	.874
	900.	.999	.992	.955	.905	.882	.876
	2100.	1.000	.995	.963	.911	.886	.880
29	300.	.999	.996	.981	.953	.940	.938
	900.	.999	.996	.982	.954	.941	.939
	2100.	.998	.996	.984	.956	.941	.939

PLUTONIUM-242

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUFL	AI	SIGDEL
1	6.6233	1.9664	3.832	.0048	1.4630	3.1892	.8865	.0009	.0127
2	7.4297	1.7670	3.461	.0087	1.9344	3.6696	.8586	.0012	.0125
3	7.4395	1.5970	3.214	.0273	2.0609	3.7542	.7691	.0019	.0158
4	6.9760	1.3586	3.059	.0416	1.6528	3.9230	.6605	.0028	.0222
5	7.2059	1.3581	2.959	.0589	1.2366	4.5524	.5395	.0038	.0349
6	7.7100	.5353	2.900	.1061	1.2249	5.8437	.4042	.0050	.0580
7	8.3154	.1708	2.871	.1177	1.1722	6.8547	.3321	.0056	.1525
8	8.7787	.0934	2.857	.1187	1.0827	7.4840	.2941	.0059	.1760
9	9.5463	.0498	2.842	.1236	.9261	8.4469	.2403	.0063	.1069
10	10.6645	.0320	2.828	.1411	.6759	9.8155	.1735	.0069	.1351
11	11.8590	.0294	2.820	.1848	.4334	11.2114	.1160	.0074	.1649
12	13.1260	.0374	2.816	.3015	.0964	12.6916	.0756	.0077	.1954
13	14.4324	.0454	2.813	.4120	.0000	13.9751	.0473	.0079	.2357
14	15.4811	.0510	2.811	.4748	.0000	14.9552	.0335	.0080	.4815
15	16.2059	.0561	2.810	.5250	.0000	15.6248	.0238	.0081	.4537
16	17.6368	.0533	2.810	.6327	.0000	16.9508	.0091	.0083	.2798
17	19.6569	.0000	2.809	.8551	.0000	18.8018	.0028	.0083	.3123
18	22.0741	.0000	2.809	1.1337	.0000	20.9404	.0028	.0083	.3478
19	24.0330	.0000	2.808	1.3985	.0000	22.6346	.0028	.0083	1.1270
20	25.1595	.0000	2.808	1.5701	.0000	23.5894	.0028	.0083	1.1755
21	26.3855	.0000	2.808	1.7710	.0000	24.6145	.0028	.0083	1.2266
22	29.2177	.0000	2.808	2.2956	.0000	26.9221	.0028	.0083	.4472
23	34.3986	.0000	2.808	3.4195	.0000	30.9791	.0028	.0083	.5146
24	41.0610	.0000	2.808	5.1517	.0000	35.9102	.0028	.0083	.5965
25	53.3192	.0000	2.808	8.5072	.0000	44.8119	.0028	.0083	.7443
26	30.8350	.0000	2.808	7.8534	.0000	22.9816	.0028	.0083	.2545
27	24.2396	.0000	2.808	8.8102	.0000	15.4294	.0028	.0083	.1709
28	64.2871	.0000	2.808	18.6686	.0000	45.6184	.0028	.0083	.2526
29	388.3128	.0000	2.808	353.3051	.0000	35.0077	.0028	.0083	.0960
30	29.7933	.0000	2.808	12.1252	.0000	17.6681	.0028	.0083	.2935

PLUTONIUM-242

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.6995	.0566	.0356	.1216	.2030	.2137	.0905	.0746	.1021	.0538	.0438
2	.8370	.1012	.1531	.2717	.2677	.1026	.0784	.0968	.0447	.0189	.0123
3	.9551	.3066	.2108	.2229	.0968	.0785	.1029	.0504	.0221	.0090	.0057
4	.7545	.2717	.2463	.1882	.1006	.0516	.0236	.0099	.0040	.0015	.0009
5	.8282	.1911	.0360	.0396	.0767	.0447	.0122	.0052	.0018	.0004	.0007
6	.9413	.2546	.0152	.0002	.0022	.0082	.0020	.0007	.0002	.0001	.0002
7	.5923	.5446	.0352	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
8	.4450	.6282	.0095	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
9	.5290	.3928	.0032	.0010	.0002	.0000	.0000	.0000	.0000	.0000	.0000
10	.2352	.4212	.0193	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
11	.0000	.2521	.1504	.0309	.0000	.0000	.0000	.0000	.0000	.0000	.0000
12	.0000	.0000	.0192	.0382	.0338	.0045	.0005	.0000	.0000	.0000	.0001

PLUTONIUM-242

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	.995	.994	.992	.979	.950	.936
17	300.	.999	.998	.983	.894	.729	.658
18	300.	.999	.996	.966	.816	.602	.525
19	300.	.999	.994	.948	.751	.512	.435
20	300.	.999	.992	.937	.714	.467	.392
21	300.	.999	.990	.924	.676	.424	.352
22	300.	.998	.985	.891	.598	.347	.281
23	300.	.997	.975	.829	.481	.249	.196
24	300.	.995	.958	.749	.375	.176	.136
25	300.	.992	.932	.663	.285	.117	.087
26	300.	.991	.922	.632	.256	.100	.076
27	300.	.992	.931	.636	.255	.104	.077
28	300.	.941	.666	.313	.138	.060	.046
29	300.	.841	.416	.134	.049	.025	.020

PLUTONIUM-242

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	.999	.994	.969	.942	.935
17	300.	.999	.995	.955	.796	.658	.626
18	300.	.999	.990	.921	.710	.578	.553
19	300.	.998	.985	.889	.647	.526	.504
20	300.	.998	.982	.869	.616	.500	.480
21	300.	.997	.979	.846	.584	.475	.457
22	300.	.996	.967	.793	.521	.427	.412
23	300.	.993	.943	.700	.434	.359	.348
24	300.	.988	.905	.596	.356	.300	.291
25	300.	.980	.845	.481	.269	.197	.142
26	300.	.982	.858	.548	.373	.316	.270
27	300.	.991	.921	.677	.512	.466	.453
28	300.	.890	.498	.239	.162	.129	.111
29	300.	.720	.243	.087	.048	.037	.034

PLUTONIUM-242

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	.995	.994	.992	.976	.954	.946
17	300.	.999	.997	.977	.873	.744	.707
18	300.	.999	.995	.957	.807	.665	.629
19	300.	.999	.992	.939	.756	.610	.577
20	300.	.999	.991	.927	.728	.583	.552
21	300.	.998	.988	.913	.699	.557	.527
22	300.	.998	.983	.879	.639	.505	.478
23	300.	.996	.970	.814	.550	.433	.411
24	300.	.994	.949	.734	.466	.368	.351
25	300.	.990	.912	.630	.373	.275	.235
26	300.	.991	.922	.693	.512	.444	.414
27	300.	.997	.974	.869	.764	.726	.714
28	300.	.943	.675	.344	.227	.188	.172
29	300.	.878	.554	.340	.277	.264	.263

URANIUM-235

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	AI	SIGDEL
1	6.5445	1.4681	3.445	.0097	1.3741	3.6932	.8006	.0018	.0275
2	7.3256	1.0802	2.976	.0185	1.8200	4.4072	.7676	.0020	.0176
3	7.4735	1.2348	2.710	.0324	1.7840	4.4219	.6813	.0027	.0239
4	6.9155	1.2838	2.615	.0564	1.6687	3.9068	.5065	.0042	.0328
5	6.7185	1.2190	2.539	.0989	1.4074	3.9932	.4265	.0049	.0394
6	7.2192	1.1457	2.493	.1352	1.2174	4.7209	.3861	.0053	.0497
7	8.0259	1.1994	2.471	.1652	1.0154	5.6459	.3243	.0058	.1310
8	8.6965	1.2340	2.460	.1957	.8731	6.3937	.2990	.0060	.1533
9	9.8123	1.3363	2.449	.2641	.6946	7.5172	.2420	.0065	.0975
10	11.0727	1.5188	2.439	.3958	.4880	8.6693	.1346	.0074	.1263
11	11.9906	1.7344	2.433	.5334	.2491	9.4741	.0714	.0080	.1516
12	12.8442	1.9895	2.429	.6939	.0604	10.0998	.0418	.0082	.1656
13	13.7221	2.2544	2.427	.8354	.0212	10.6105	.0280	.0083	.1874
14	13.8799	2.3232	2.425	.8550	.0104	10.6940	.0203	.0084	.3593
15	14.2341	2.5367	2.425	.9219	.0047	10.7712	.0146	.0085	.3270
16	14.8762	2.9679	2.424	1.0522	.0003	10.8555	.0064	.0085	.1845
17	15.7961	3.4332	2.424	1.2589	.0000	11.1040	.0029	.0086	.1910
18	17.5080	4.5608	2.423	1.6646	.0000	11.2826	.0029	.0086	.1941
19	18.4516	5.0866	2.423	1.9042	.0000	11.4611	.0029	.0086	.5821
20	18.9657	5.4349	2.423	2.0376	.0000	11.4931	.0029	.0086	.5929
21	19.6865	5.9123	2.423	2.2557	.0000	11.5175	.0029	.0086	.5942
22	21.4980	7.3133	2.423	2.9497	.0000	11.2349	.0029	.0086	.1932
23	25.3370	8.6458	2.423	4.4702	.0000	12.2212	.0029	.0086	.2102
24	29.7715	13.3235	2.423	4.9230	.0000	11.5255	.0029	.0086	.1982
25	32.1448	14.6927	2.423	5.9472	.0000	11.5049	.0029	.0086	.1970
26	43.9388	21.4700	2.423	10.5591	.0000	11.9097	.0029	.0086	.1359
27	45.9642	22.8896	2.423	11.5357	.0000	11.5389	.0029	.0086	.1317
28	86.7273	48.0172	2.423	27.7360	.0000	10.9741	.0029	.0086	.0626
29	70.0886	37.4534	2.423	21.7776	.0000	10.8576	.0029	.0086	.0310
30	39.1270	11.8698	2.423	17.2865	.0000	9.9706	.0029	.0086	.1797

URANIUM-235

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0058	.0114	.0893	.2649	.4004	.3869	.1529	.1201	.1540	.0744	.0542
2	.0871	.1895	.2506	.4112	.3871	.1459	.1113	.1380	.0649	.0281	.0190
3	.4364	.5455	.2020	.2360	.0090	.0789	.1018	.0491	.0213	.0087	.0055
4	.4820	.7408	.2056	.0579	.0497	.0693	.0359	.0163	.0068	.0026	.0018
5	.3103	.6173	.2149	.1339	.1161	.0083	.0039	.0017	.0007	.0002	.0003
6	.4780	.3069	.1597	.1414	.0877	.0293	.0090	.0032	.0009	.0005	.0007
7	.2209	.3951	.2874	.0745	.0174	.0122	.0047	.0012	.0008	.0007	.0004
8	.1538	.5113	.1402	.0549	.0104	.0025	.0000	.0000	.0000	.0000	.0000
9	.2556	.3239	.0741	.0259	.0092	.0021	.0016	.0015	.0006	.0002	.0001
10	.1197	.2595	.0797	.0225	.0026	.0018	.0016	.0004	.0001	.0000	.0000
11	.0304	.1247	.0581	.0213	.0098	.0028	.0013	.0005	.0001	.0001	.0002
12	.0181	.0206	.0000	.0052	.0102	.0040	.0015	.0003	.0002	.0001	.0003
13	.0033	.0084	.0065	.0031	.0000	.0000	.0000	.0000	.0000	.0000	.0000
14	.0000	.0000	.0066	.0038	.0000	.0000	.0000	.0000	.0000	.0000	.0000
15	.0000	.0000	.0016	.0022	.0004	.0003	.0002	.0000	.0000	.0000	.0000
16	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0001	.0000	.0000	.0000

URANIUM-235

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	.999
	900.	1.000	1.000	1.000	1.000	1.000	.999
	2100.	1.000	1.000	1.000	1.000	1.000	.999
14	300.	.990	.990	.990	.990	.990	.975
	900.	.990	.990	.990	.990	.990	.984
	2100.	.990	.990	.990	.990	.990	.988
15	300.	1.000	1.000	1.000	1.000	1.000	.987
	900.	1.000	1.000	1.000	1.000	1.000	.999
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	1.000	1.000	.990
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
17	300.	1.000	1.000	1.000	1.000	1.000	.987
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
18	300.	1.000	1.000	1.000	1.000	1.000	.958
	900.	1.000	1.000	1.000	1.000	1.000	.987
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
19	300.	1.000	1.000	1.000	1.000	1.000	.935
	900.	1.000	1.000	1.000	1.000	1.000	.981
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	.921
	900.	1.000	1.000	1.000	1.000	1.000	.968
	2100.	1.000	1.000	1.000	1.000	1.000	.998
21	300.	1.000	1.000	1.000	1.000	.991	.898
	900.	1.000	1.000	1.000	1.000	1.000	.947
	2100.	1.000	1.000	1.000	1.000	1.000	.978
22	300.	.999	1.000	1.000	.999	.959	.836
	900.	1.000	1.000	1.000	1.000	1.000	.883
	2100.	1.000	1.000	1.000	1.000	1.000	.910

URANIUM-235

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.999	.997	.986	.973	.983	.709
	900.	1.000	1.000	1.000	1.000	.955	.736
	2100.	1.000	1.000	1.000	1.000	1.000	.740
24	300.	.999	.994	.975	.954	.922	.598
	900.	1.000	1.000	1.000	1.000	.882	.586
	2100.	1.000	1.000	1.000	1.000	.925	.557
25	300.	.998	.988	.951	.918	.763	.551
	900.	.999	.997	.987	.971	.819	.539
	2100.	1.000	1.000	1.000	1.000	.861	.507
26	300.	.996	.968	.887	.824	.695	.360
	900.	.998	.985	.939	.891	.821	.314
	2100.	.999	.997	.981	.948	.829	.249
27	300.	.994	.953	.850	.780	.667	.370
	900.	.997	.972	.899	.837	.689	.340
	2100.	.998	.986	.942	.891	.801	.295
28	300.	.973	.847	.688	.622	.520	.478
	900.	.979	.874	.731	.671	.574	.533
	2100.	.983	.898	.773	.719	.633	.598
29	300.	.974	.863	.735	.684	.605	.573
	900.	.978	.877	.751	.699	.619	.586
	2100.	.982	.893	.771	.719	.638	.604

URANIUM-235

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	.999
	900.	1.000	1.000	1.000	1.000	1.000	.999
	2100.	1.000	1.000	1.000	1.000	1.000	.999
14	300.	.990	.990	.990	.990	.990	.970
	900.	.990	.990	.990	.990	.990	.978
	2100.	.990	.990	.990	.990	.990	.982
15	300.	1.000	1.000	1.000	1.000	1.000	.981
	900.	1.000	1.000	1.000	1.000	1.000	.994
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	1.000	1.000	.985
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
17	300.	1.000	1.000	1.000	1.000	1.000	.981
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
18	300.	1.000	1.000	1.000	1.000	1.000	.948
	900.	1.000	1.000	1.000	1.000	1.000	.998
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
19	300.	1.000	1.000	1.000	1.000	.997	.919
	900.	1.000	1.000	1.000	1.000	1.000	.981
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	.987	.900
	900.	1.000	1.000	1.000	1.000	1.000	.967
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	.973	.874
	900.	1.000	1.000	1.000	1.000	1.000	.945
	2100.	1.000	1.000	1.000	1.000	1.000	.936
22	300.	1.000	.999	.994	.988	.935	.806
	900.	1.000	1.000	1.000	1.000	1.000	.879
	2100.	1.000	1.000	1.000	1.000	1.000	.921

URANIUM-235

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.999	.994	.975	.955	.849	.672
	900.	1.000	1.000	1.000	1.000	.946	.730
	2100.	1.000	1.000	1.000	1.000	1.000	.753
24	300.	.998	.986	.946	.910	.749	.526
	900.	1.000	.999	.992	.981	.847	.557
	2100.	1.000	1.000	1.000	1.000	.915	.555
25	300.	.997	.976	.910	.857	.671	.465
	900.	.999	.992	.967	.940	.768	.496
	2100.	1.000	1.000	1.000	.996	.838	.493
26	300.	.993	.945	.821	.738	.494	.285
	900.	.997	.974	.903	.840	.559	.275
	2100.	.999	.992	.961	.919	.598	.237
27	300.	.989	.916	.759	.667	.445	.277
	900.	.994	.953	.841	.761	.502	.279
	2100.	.997	.975	.906	.842	.544	.260
28	300.	.969	.819	.634	.564	.463	.425
	900.	.977	.856	.690	.623	.524	.485
	2100.	.983	.886	.742	.682	.590	.554
29	300.	.959	.776	.578	.509	.416	.332
	900.	.969	.811	.617	.545	.443	.406
	2100.	.976	.847	.663	.590	.482	.441

URANIUM-235

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	1.000	.999	.996	.991	.948	.849
	900.	1.000	.999	.997	.992	.950	.848
	2100.	1.000	1.000	.997	.993	.951	.848
15	300.	1.000	.999	.995	.990	.937	.817
	900.	1.000	.999	.996	.991	.940	.815
	2100.	1.000	1.000	.997	.992	.942	.815
16	300.	1.000	.999	.995	.989	.929	.795
	900.	1.000	1.000	.997	.991	.934	.793
	2100.	1.000	1.000	.997	.993	.936	.791
17	300.	1.000	.999	.994	.986	.913	.760
	900.	1.000	1.000	.997	.991	.921	.753
	2100.	1.000	1.000	.998	.993	.925	.749
18	300.	1.000	.998	.990	.977	.861	.657
	900.	1.000	.999	.995	.988	.871	.636
	2100.	1.000	1.000	.998	.991	.876	.620
19	300.	1.000	.998	.986	.970	.831	.611
	900.	1.000	.999	.994	.982	.841	.580
	2100.	1.000	1.000	.998	.989	.845	.558
20	300.	1.000	.997	.984	.964	.813	.587
	900.	1.000	.999	.993	.979	.821	.552
	2100.	1.000	1.000	.997	.987	.826	.526
21	300.	.999	.996	.980	.957	.785	.551
	900.	1.000	.999	.991	.974	.791	.510
	2100.	1.000	1.000	.996	.984	.793	.479
22	300.	.999	.994	.967	.933	.713	.476
	900.	1.000	.998	.983	.957	.707	.421
	2100.	1.000	1.000	.992	.971	.702	.320

URANIUM-235

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	.998	.986	.933	.871	.572	.357
	900.	.999	.994	.961	.908	.539	.291
	2100.	1.000	.998	.978	.931	.504	.242
24	300.	.997	.977	.895	.804	.431	.254
	900.	.999	.988	.930	.842	.376	.201
	2100.	.999	.994	.953	.868	.322	.162
25	300.	.996	.965	.855	.752	.401	.246
	900.	.998	.979	.896	.790	.347	.197
	2100.	.999	.989	.925	.818	.290	.159
26	300.	.990	.918	.721	.573	.227	.140
	900.	.994	.947	.772	.594	.166	.119
	2100.	.996	.966	.812	.606	.106	.095
27	300.	.986	.892	.682	.549	.258	.133
	900.	.991	.924	.726	.565	.214	.161
	2100.	.994	.947	.765	.576	.166	.141
28	300.	.951	.759	.567	.498	.401	.364
	900.	.963	.799	.616	.546	.442	.402
	2100.	.971	.835	.667	.601	.499	.457
29	300.	.950	.771	.619	.569	.500	.473
	900.	.960	.795	.637	.583	.508	.479
	2100.	.968	.822	.661	.604	.523	.491

URANIUM-235

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	.990	.990	.990	.990	.990	.939
	900.	.990	.990	.990	.990	.990	.990
	2100.	.990	.990	.990	.990	.990	.990
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	1.000	1.000	.999
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
17	300.	1.000	1.000	1.000	1.000	1.000	.998
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
18	300.	1.000	1.000	1.000	1.000	.999	.934
	900.	1.000	1.000	1.000	1.000	1.000	.939
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
19	300.	1.000	1.000	1.000	.999	.997	.992
	900.	1.000	1.000	1.000	1.000	1.000	.997
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	.999	.996	.990
	900.	1.000	1.000	1.000	1.000	1.000	.996
	2100.	1.000	1.000	1.000	1.000	1.000	.999
21	300.	1.000	1.000	.999	.999	.995	.989
	900.	1.000	1.000	1.000	1.000	1.000	.994
	2100.	1.000	1.000	1.000	1.000	1.000	.998
22	300.	1.000	1.000	.998	.997	.990	.990
	900.	1.000	1.000	1.000	1.000	.997	.937
	2100.	1.000	1.000	1.000	1.000	1.000	.991

URANIUM-235

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	5000.0	500.0	100.0	50.0	10.0	1.0
23	300.	1.000	.999	.995	.991	.977	.960
	900.	1.000	1.000	.999	.998	.988	.968
	2100.	1.000	1.000	1.000	1.000	.996	.972
24	300.	1.000	.998	.992	.987	.970	.953
	900.	1.000	.999	.997	.994	.980	.957
	2100.	1.000	1.000	1.000	.999	.987	.958
25	300.	1.000	.997	.990	.984	.969	.956
	900.	1.000	.999	.995	.991	.976	.959
	2100.	1.000	1.000	.998	.996	.982	.959
26	300.	.999	.992	.974	.963	.939	.921
	900.	.999	.995	.984	.975	.945	.921
	2100.	1.000	.998	.991	.984	.950	.919
27	300.	.999	.993	.980	.973	.960	.952
	900.	.999	.996	.986	.979	.963	.952
	2100.	1.000	.997	.990	.985	.966	.951
28	300.	.996	.977	.956	.948	.935	.930
	900.	.997	.981	.961	.953	.941	.935
	2100.	.997	.984	.966	.956	.948	.943
29	300.	.998	.992	.985	.981	.975	.972
	900.	.998	.993	.986	.983	.977	.973
	2100.	.998	.994	.988	.985	.979	.976

URANIUM-238

CROSS SECTION DATA

I	SIGT	SIGF	TP	SIGC	SIGIN	SIGEL	MUCL	AI	SIGDEL
1	6.6680	.8959	3.461	.0070	2.1427	3.6224	.8240	.0015	.0223
2	7.7864	.5527	3.051	.0128	2.5304	4.6405	.7649	.0020	.0260
3	7.7415	.5500	2.786	.0284	2.6455	4.5176	.6845	.0027	.0262
4	7.1405	.4247	2.610	.0656	2.8777	3.7725	.5826	.0035	.0265
5	7.1804	.0278	2.511	.1220	2.5170	4.5136	.4702	.0045	.0406
6	5.1032	.0014	2.447	.1260	1.8643	6.1171	.3667	.0054	.0661
7	9.0059	.0002	2.404	.1144	1.6064	7.2840	.2925	.0059	.1687
8	9.6171	.0001	2.362	.1181	1.3956	8.1033	.2560	.0063	.1994
9	10.5293	.0101	2.373	.1349	1.1317	9.2626	.1977	.0062	.1234
10	11.5120	.0001	2.350	.1706	.7383	10.5430	.1223	.0074	.1534
11	12.3834	.0000	2.350	.2157	.3327	11.8350	.0736	.0079	.1829
12	12.8869	.0000	2.345	.3414	.0610	12.4845	.0403	.0061	.2031
13	13.1377	.0000	2.342	.4495	.0000	12.6262	.0234	.0083	.2234
14	13.5607	.0000	2.340	.5303	.0000	13.0304	.0145	.0054	.4353
15	13.9649	.0000	2.340	.6069	.0000	13.3580	.0093	.0054	.4005
16	14.5399	.0000	2.339	.7056	.0000	13.6343	.0045	.0054	.2334
17	15.5628	.0000	2.330	.8532	.0000	14.7096	.0028	.0054	.2456
18	17.6128	.0000	2.338	1.0701	.0000	16.5427	.0028	.0034	.2796
19	17.5791	.0000	2.337	1.3696	.0000	16.2095	.0028	.0054	.5218
20	22.0516	.0000	2.337	1.4634	.0000	20.5832	.0028	.0054	1.0438
21	20.1167	.0000	2.337	1.5525	.0000	18.5642	.0029	.0054	.9412
22	22.4835	.0000	2.337	1.7846	.0000	20.6939	.0028	.0054	.3498
23	22.9864	.0000	2.337	2.8820	.0000	20.1044	.0029	.0054	.3392
24	20.4616	.0000	2.337	3.6395	.0000	16.8221	.0028	.0054	.2843
25	19.3676	.0000	2.337	3.6147	.0000	15.7528	.0028	.0054	.2652
26	47.8717	.0000	2.337	8.4970	.0000	39.3748	.0028	.0054	.4456
27	89.8132	.0000	2.337	32.1644	.0000	57.6428	.0028	.0054	.6495
28	125.8803	.0000	2.337	70.6452	.0000	55.2351	.0028	.0054	.3112
29	54.5299	.0000	2.337	44.1140	.0000	10.4159	.0028	.0054	.0203
30	16.5300	.0000	2.337	2.7300	.0000	13.8000	.0028	.0084	.0000

URANIUM-238

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0002	.0144	.1316	.4103	.6360	.6255	.2530	.2037	.2730	.1422	.1172
2	.0072	.1180	.4284	.6708	.6087	.2234	.1674	.2022	.6916	.0393	.0246
3	.0747	.3317	.6306	.6712	.2673	.2038	.2576	.1218	.0522	.0211	.0132
4	.2869	.5660	.9020	.4464	.3030	.2677	.0755	.0210	.0061	.0020	.0012
5	1.0070	.4702	.1367	.1950	.3761	.2072	.0753	.0288	.0113	.0032	.0050
6	1.3254	.4093	.0564	.0087	.0152	.0260	.0146	.0053	.0014	.0009	.0012
7	.7295	.7188	.1472	.0080	.0030	.0000	.0000	.0000	.0000	.0000	.0000
8	.5226	.8092	.0606	.0006	.0015	.0006	.0002	.0001	.0001	.0000	.0000
9	.5988	.4837	.0325	.0140	.0027	.0000	.0000	.0000	.0000	.0000	.0000
10	.2829	.4906	.0175	.0030	.0016	.0011	.0010	.0004	.0001	.0000	.0000
11	.0000	.2172	.0991	.0164	.0000	.0000	.0000	.0000	.0000	.0000	.0000
12	.0000	.0000	.0112	.0198	.0182	.0073	.0028	.0005	.0003	.0003	.0006

URANIUM-238

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
11	300.	1.000	1.000	.999	.999	.999	.998
	900.	1.000	1.000	.999	.999	.999	.998
	2100.	1.000	1.000	.999	.999	.999	.998
12	300.	.994	.993	.989	.982	.977	.976
	900.	.995	.995	.993	.990	.987	.986
	2100.	.995	.995	.995	.994	.993	.992
13	300.	.998	.989	.962	.926	.902	.893
	900.	.999	.997	.987	.969	.953	.947
	2100.	1.000	1.000	1.000	.994	.984	.979
14	300.	.996	.982	.942	.897	.868	.858
	900.	.998	.993	.974	.948	.928	.922
	2100.	1.000	.999	.993	.979	.966	.962
15	300.	.994	.975	.924	.870	.837	.827
	900.	.997	.989	.962	.928	.905	.897
	2100.	.999	.996	.984	.965	.949	.944
16	300.	.990	.959	.888	.822	.785	.774
	900.	.995	.979	.936	.891	.863	.854
	2100.	.998	.990	.966	.938	.918	.911
17	300.	.979	.924	.819	.737	.695	.693
	900.	.989	.955	.882	.819	.785	.774
	2100.	.994	.974	.927	.881	.854	.846
18	300.	.956	.857	.715	.630	.592	.582
	900.	.973	.906	.791	.713	.677	.666
	2100.	.983	.938	.850	.784	.751	.741
19	300.	.953	.853	.710	.628	.593	.584
	900.	.974	.905	.789	.712	.677	.667
	2100.	.986	.939	.850	.784	.752	.743
20	300.	.910	.762	.604	.525	.490	.479
	900.	.942	.824	.675	.591	.550	.535
	2100.	.962	.872	.739	.657	.616	.604

URANIUM-238

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
21	300.	.914	.769	.604	.519	.484	.475
	900.	.942	.828	.676	.590	.552	.541
	2100.	.960	.871	.737	.653	.615	.604
22	300.	.852	.657	.474	.388	.352	.340
	900.	.897	.731	.548	.452	.407	.390
	2100.	.926	.788	.615	.514	.464	.446
23	300.	.787	.546	.353	.271	.239	.231
	900.	.850	.634	.427	.330	.289	.278
	2100.	.892	.707	.499	.393	.346	.335
24	300.	.737	.461	.267	.195	.171	.165
	900.	.816	.557	.336	.245	.210	.201
	2100.	.868	.640	.407	.300	.258	.247
25	300.	.674	.411	.235	.172	.152	.148
	900.	.752	.496	.294	.214	.185	.178
	2100.	.810	.571	.356	.262	.226	.217
26	300.	.425	.219	.118	.086	.077	.075
	900.	.496	.266	.142	.100	.087	.084
	2100.	.560	.314	.169	.118	.099	.095
27	300.	.262	.117	.061	.046	.041	.041
	900.	.324	.141	.069	.050	.044	.043
	2100.	.391	.172	.081	.055	.047	.045
28	300.	.147	.064	.034	.025	.022	.022
	900.	.176	.070	.035	.025	.022	.022
	2100.	.215	.080	.037	.026	.023	.022
29	300.	.187	.087	.050	.038	.033	.032
	900.	.220	.095	.051	.038	.034	.032
	2100.	.265	.107	.054	.039	.034	.033

URANIUM-238

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	.999	.996	.988	.979	.974	.973
	900.	.999	.998	.992	.983	.978	.976
	2100.	1.000	.998	.994	.986	.980	.977
13	300.	.994	.974	.926	.882	.858	.851
	900.	.996	.984	.947	.905	.878	.869
	2100.	.998	.990	.962	.923	.893	.883
14	300.	.991	.963	.906	.862	.840	.833
	900.	.994	.976	.931	.888	.862	.855
	2100.	.997	.985	.950	.909	.882	.873
15	300.	.987	.951	.885	.840	.820	.814
	900.	.992	.968	.914	.868	.843	.836
	2100.	.995	.979	.936	.892	.865	.857
16	300.	.978	.926	.850	.807	.788	.783
	900.	.986	.950	.882	.835	.813	.807
	2100.	.991	.966	.909	.863	.838	.830
17	300.	.959	.879	.791	.751	.736	.732
	900.	.973	.912	.825	.776	.759	.754
	2100.	.983	.936	.858	.808	.785	.779
18	300.	.929	.815	.714	.671	.650	.643
	900.	.953	.858	.752	.702	.682	.676
	2100.	.968	.893	.790	.736	.713	.707
19	300.	.924	.821	.728	.679	.651	.641
	900.	.949	.861	.767	.719	.696	.690
	2100.	.965	.894	.805	.757	.735	.729
20	300.	.832	.668	.555	.473	.442	.428
	900.	.875	.715	.586	.505	.491	.476
	2100.	.907	.761	.623	.547	.489	.459

URANIUM-238

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
21	300.	.847	.707	.607	.546	.481	.439
	900.	.884	.747	.638	.581	.539	.518
	2100.	.912	.784	.668	.612	.582	.572
22	300.	.742	.568	.463	.384	.262	.149
	900.	.794	.608	.487	.410	.296	.169
	2100.	.834	.647	.514	.436	.323	.190
23	300.	.700	.524	.431	.373	.300	.242
	900.	.761	.568	.456	.402	.360	.339
	2100.	.811	.615	.484	.430	.401	.390
24	300.	.719	.557	.482	.443	.405	.382
	900.	.784	.599	.503	.464	.441	.431
	2100.	.835	.644	.526	.484	.465	.459
25	300.	.705	.595	.542	.513	.484	.467
	900.	.751	.621	.555	.526	.504	.494
	2100.	.792	.649	.571	.540	.523	.517
26	300.	.328	.242	.199	.162	.111	.077
	900.	.358	.251	.202	.164	.112	.077
	2100.	.392	.263	.206	.166	.113	.078
27	300.	.191	.131	.102	.083	.066	.057
	900.	.215	.134	.103	.083	.066	.058
	2100.	.250	.141	.105	.084	.068	.059
28	300.	.113	.080	.064	.056	.051	.049
	900.	.116	.080	.064	.056	.051	.049
	2100.	.126	.080	.064	.056	.051	.049
29	300.	.224	.188	.173	.168	.165	.165
	900.	.229	.188	.173	.168	.165	.165
	2100.	.242	.188	.173	.168	.165	.165

URANIUM-238

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
	900.	1.000	1.000	1.000	1.000	1.000	1.000
	2100.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	.994	.993	.990	.987	.984	.984
	900.	.995	.994	.992	.990	.988	.988
	2100.	.995	.995	.994	.992	.991	.991
13	300.	.997	.989	.966	.945	.933	.929
	900.	.998	.994	.980	.965	.956	.952
	2100.	.999	.997	.989	.979	.972	.970
14	300.	.996	.982	.952	.926	.913	.909
	900.	.997	.990	.969	.949	.938	.935
	2100.	.999	.994	.981	.967	.953	.956
15	300.	.994	.975	.937	.908	.894	.890
	900.	.996	.985	.958	.934	.921	.917
	2100.	.998	.991	.973	.954	.944	.941
16	300.	.989	.960	.909	.876	.861	.857
	900.	.993	.974	.935	.905	.890	.886
	2100.	.996	.983	.954	.930	.917	.913
17	300.	.978	.929	.861	.823	.808	.804
	900.	.986	.951	.892	.854	.838	.833
	2100.	.991	.966	.918	.883	.867	.863
18	300.	.962	.886	.797	.753	.734	.729
	900.	.975	.918	.835	.789	.769	.764
	2100.	.983	.941	.869	.824	.804	.798
19	300.	.958	.886	.807	.764	.744	.738
	900.	.973	.916	.842	.801	.782	.776
	2100.	.982	.938	.873	.834	.816	.811
20	300.	.902	.769	.651	.589	.543	.516
	900.	.930	.812	.690	.624	.581	.559
	2100.	.949	.850	.729	.663	.628	.616

URANIUM-238

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
21	300.	.909	.795	.696	.644	.614	.601
	900.	.934	.831	.729	.677	.651	.642
	2100.	.951	.862	.760	.707	.683	.676
22	300.	.840	.678	.559	.496	.448	.420
	900.	.877	.721	.590	.524	.480	.456
	2100.	.904	.759	.622	.553	.511	.490
23	300.	.812	.647	.535	.482	.446	.427
	900.	.857	.695	.568	.511	.482	.471
	2100.	.891	.739	.603	.542	.514	.506
24	300.	.843	.701	.611	.572	.549	.540
	900.	.885	.745	.639	.595	.576	.569
	2100.	.915	.785	.669	.620	.599	.594
25	300.	.824	.726	.673	.649	.633	.627
	900.	.858	.751	.687	.661	.647	.642
	2100.	.887	.777	.703	.674	.661	.657
26	300.	.454	.328	.268	.237	.210	.193
	900.	.493	.345	.275	.241	.213	.196
	2100.	.536	.366	.284	.246	.217	.200
27	300.	.339	.223	.172	.147	.130	.123
	900.	.387	.239	.178	.150	.133	.125
	2100.	.441	.260	.186	.155	.137	.129
28	300.	.247	.175	.142	.126	.117	.114
	900.	.270	.180	.143	.127	.117	.114
	2100.	.300	.188	.145	.128	.118	.115
29	300.	.804	.779	.767	.762	.759	.759
	900.	.812	.780	.767	.762	.760	.759
	2100.	.822	.783	.768	.762	.760	.759

CHROMIUM

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	3.3816	.0000	.000	.0267	1.1951	2.1598	.5819	.0132	.1201
2	3.7069	.0000	.000	.0046	1.2727	2.4296	.4938	.0164	.1145
3	3.5819	.0000	.000	.0035	.9169	2.6616	.4368	.0184	.1077
4	3.0962	.0000	.000	.0035	.4785	2.6141	.3117	.0259	.1355
5	2.8207	.0000	.000	.0037	.0247	2.7924	.1985	.0304	.1700
6	3.3452	.0000	.000	.0041	.0023	3.3388	.2004	.0296	.1974
7	3.8028	.0000	.000	.0040	.0000	3.7988	.1621	.0239	.4397
8	2.7920	.0000	.000	.0040	.0000	2.7880	.1213	.0244	.3279
9	3.9043	.0000	.000	.0040	.0000	3.9003	.0771	.0299	.2333
10	6.2594	.0000	.000	.0068	.0000	6.2526	.0380	.0303	.3795
11	6.3780	.0000	.000	.0098	.0000	6.3682	.0191	.0316	.4028
12	6.6073	.0000	.000	.0154	.0000	6.5918	.0164	.0342	.4513
13	3.3985	.0000	.000	.0322	.0000	3.3663	.0150	.0358	.2566
14	2.8335	.0000	.000	.0400	.0000	2.7935	.0143	.0366	.4091
15	3.2380	.0000	.000	.0272	.0000	3.2109	.0140	.0370	.4246
16	6.3187	.0000	.000	.0323	.0000	6.2864	.0136	.0375	.4709
17	24.6629	.0000	.000	.0854	.0000	24.5775	.0133	.0378	1.8590
18	25.9136	.0000	.000	.0641	.0000	25.8495	.0131	.0380	1.9666
19	13.0052	.0000	.000	.0313	.0000	12.9739	.0130	.0381	2.9688
20	9.1434	.0000	.000	.0240	.0000	9.1193	.0130	.0382	2.0838
21	7.3165	.0000	.000	.0208	.0000	7.2957	.0130	.0382	1.6725
22	6.0220	.0000	.000	.2244	.0000	5.7976	.0129	.0383	.4436
23	4.9446	.0000	.000	.0199	.0000	4.9247	.0129	.0383	.3772
24	4.6476	.0000	.000	.0232	.0000	4.6244	.0129	.0383	.3542
25	4.5205	.0000	.000	.0283	.0000	4.4922	.0129	.0383	.3441
26	4.4540	.0000	.000	.0375	.0000	4.4164	.0129	.0383	.2255
27	4.4287	.0000	.000	.0535	.0000	4.3751	.0129	.0383	.2234
28	4.4478	.0000	.000	.0947	.0000	4.3531	.0129	.0383	.1112
29	4.6540	.0000	.000	.3106	.0000	4.3434	.0129	.0383	.0555
30	4.5930	.0000	.000	.2500	.0000	4.3430	.0129	.0383	.3330

CHROMIUM

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0000	.0016	.0327	.1581	.2961	.3004	.1163	.0898	.1115	.0518	.0363
2	.0012	.0348	.1684	.3155	.3200	.1244	.0957	.1188	.0552	.0234	.0152
3	.0097	.2513	.3980	.1276	.0322	.0250	.0383	.0199	.0093	.0036	.0021
4	.0059	.0329	.1790	.0757	.0502	.0690	.0397	.0165	.0062	.0021	.0013
5	.0000	.0084	.0032	.0025	.0066	.0023	.0009	.0003	.0002	.0001	.0001
6	.0000	.0000	.0000	.0009	.0009	.0004	.0001	.0001	.0000	.0000	.0000

CHROMIUM

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
1	300.	1.000	1.000	1.004	1.015	1.032	1.041
2	300.	1.000	.997	.997	.998	.998	.999
3	300.	1.000	.997	.997	.997	.997	.997
4	300.	1.000	.979	.975	.976	.977	.978
5	300.	1.000	1.000	1.000	.999	.998	.998
6	300.	.999	.998	.991	.981	.971	.967
7	300.	1.000	.998	.994	.984	.987	.986
8	300.	.997	.987	.952	.899	.848	.823
9	300.	.992	.963	.877	.774	.703	.683
10	300.	.996	.982	.941	.889	.845	.823
11	300.	.995	.979	.923	.863	.805	.777
12	300.	.991	.964	.895	.819	.755	.726
13	300.	.997	.985	.950	.905	.867	.851
14	300.	.994	.972	.903	.814	.748	.724
15	300.	1.000	.998	.994	.987	.981	.979
16	300.	1.000	.998	.992	.983	.975	.972
17	300.	.994	.976	.941	.918	.908	.906
18	300.	.999	.994	.982	.972	.967	.966
19	300.	1.000	.999	.995	.991	.989	.988
20	300.	1.000	1.000	.999	.997	.996	.996
21	300.	1.000	1.000	1.000	.999	.999	.999
22	300.	.952	.815	.556	.390	.319	.300
23	300.	1.000	1.000	1.000	1.000	1.000	1.000
24	300.	1.000	1.000	1.000	1.000	1.000	1.000
25	300.	1.000	1.000	1.000	1.000	1.000	1.000
26	300.	1.000	1.000	1.000	1.000	1.000	1.000
27	300.	1.000	1.000	1.000	1.000	1.000	1.000
28	300.	1.000	1.000	1.000	1.000	.999	.999
29	300.	1.000	.999	.998	.994	.990	.988

CHROMIUM

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
1	300.	1.000	1.000	.999	.997	.994	.992
2	300.	1.000	1.000	1.000	1.000	.999	.999
3	300.	1.000	1.000	.999	.997	.994	.992
4	300.	1.000	1.004	1.002	.997	.989	.984
5	300.	1.000	.998	.991	.975	.952	.939
6	300.	.998	.990	.960	.892	.782	.701
7	300.	.997	.983	.927	.797	.602	.494
8	300.	.993	.970	.886	.748	.596	.509
9	300.	.993	.971	.905	.820	.727	.666
10	300.	.990	.956	.847	.685	.499	.393
11	300.	.972	.879	.639	.420	.293	.244
12	300.	.952	.818	.582	.417	.303	.252
13	300.	.998	.989	.956	.898	.834	.804
14	300.	.999	.995	.980	.952	.915	.895
15	300.	.999	.995	.982	.963	.945	.937
16	300.	.996	.982	.935	.871	.821	.803
17	300.	.992	.970	.932	.907	.896	.893
18	300.	.998	.990	.969	.951	.942	.939
19	300.	.999	.996	.988	.978	.972	.971
20	300.	1.000	.999	.996	.992	.989	.988
21	300.	1.000	1.000	.999	.997	.996	.995
22	300.	.996	.986	.972	.964	.959	.957
23	300.	1.000	1.000	1.000	.999	.999	.999
24	300.	1.000	1.000	1.000	1.000	1.000	1.000
25	300.	1.000	1.000	1.000	1.000	1.000	1.000
26	300.	1.000	1.000	1.000	1.000	1.000	1.000
27	300.	1.000	1.000	1.000	1.000	1.000	1.000
28	300.	1.000	1.000	1.000	1.000	1.000	1.000
29	300.	1.000	1.000	1.000	.999	.999	.998

CHROMIUM

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIG0	500.0	100.0	20.0	5.0	1.0	.1
1	300.	1.000	.998	.997	.996	.994	.992
2	300.	1.000	.997	.996	.996	.996	.996
3	300.	1.000	.997	.996	.995	.993	.992
4	300.	1.000	.979	.974	.973	.972	.972
5	300.	1.000	.999	.995	.987	.974	.967
6	300.	.996	.992	.976	.941	.887	.848
7	300.	.998	.992	.963	.898	.791	.719
8	300.	.997	.985	.938	.852	.742	.674
9	300.	.997	.985	.946	.890	.831	.799
10	300.	.995	.978	.918	.824	.716	.651
11	300.	.986	.937	.790	.608	.461	.396
12	300.	.975	.900	.729	.570	.450	.394
13	300.	.999	.994	.977	.944	.904	.884
14	300.	1.000	.998	.991	.976	.955	.943
15	300.	.999	.998	.991	.978	.966	.961
16	300.	.998	.991	.966	.928	.895	.883
17	300.	.996	.984	.962	.947	.940	.939
18	300.	.999	.995	.985	.977	.973	.972
19	300.	1.000	.998	.994	.989	.986	.985
20	300.	1.000	.999	.998	.996	.994	.994
21	300.	1.000	1.000	.999	.998	.998	.998
22	300.	1.000	.999	.998	.996	.994	.993
23	300.	1.000	1.000	1.000	1.000	.999	.999
24	300.	1.000	1.000	1.000	1.000	1.000	1.000
25	300.	1.000	1.000	1.000	1.000	1.000	1.000
26	300.	1.000	1.000	1.000	1.000	1.000	1.000
27	300.	1.000	1.000	1.000	1.000	1.000	1.000
28	300.	1.000	1.000	1.000	1.000	1.000	1.000
29	300.	1.000	1.000	1.000	1.000	1.000	1.000

IRON

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUFL	AI	SIGDEL
1	3.4828	.0000	.000	.0716	1.3162	2.0951	.7963	.0073	.0644
2	3.6538	.0000	.000	.0246	1.3534	2.2759	.6451	.0128	.0841
3	3.4406	.0000	.000	.0089	.9889	2.4428	.4317	.0205	.1101
4	3.0899	.0000	.000	.0027	.6775	2.4098	.2570	.0268	.1294
5	2.5289	.0000	.000	.0031	.4200	2.1059	.2298	.0278	.1172
6	2.5932	.0000	.000	.0050	.0000	2.5881	.1864	.0294	.1522
7	4.0334	.0000	.000	.0049	.0000	4.0285	.1340	.0313	.5042
8	2.9695	.0000	.000	.0051	.0000	2.9644	.0960	.0327	.3873
9	3.7270	.0000	.000	.0061	.0000	3.7209	.1011	.0325	.2417
10	3.3890	.0000	.000	.0063	.0000	3.3827	.0752	.0334	.2260
11	4.9024	.0000	.000	.0110	.0000	4.8914	.0371	.0348	.3397
12	4.3921	.0000	.000	.0140	.0000	4.3781	.0154	.0356	.3109
13	20.2396	.0000	.000	.0300	.0000	20.2095	.0120	.0357	1.5346
14	1.0142	.0000	.000	.0140	.0000	1.0002	.0120	.0357	.1417
15	2.5379	.0000	.000	.0080	.0000	2.5298	.0120	.0357	.3215
16	4.6105	.0000	.000	.0130	.0000	4.5975	.0120	.0357	.3271
17	10.8293	.0000	.000	.0330	.0000	10.7963	.0120	.0357	.7685
18	6.1062	.0000	.000	.0080	.0000	6.0962	.0120	.0357	.4345
19	6.3819	.0000	.000	.0040	.0000	6.3779	.0120	.0357	1.3657
20	6.8259	.0000	.000	.0039	.0000	6.8221	.0120	.0357	1.4610
21	7.2707	.0000	.000	.0060	.0000	7.2647	.0120	.0357	1.5543
22	8.0890	.0000	.000	.0080	.0000	8.0810	.0120	.0357	.5767
23	9.4046	.0000	.000	.2800	.0000	9.1246	.0120	.0357	.6549
24	10.0199	.0000	.000	.0132	.0000	10.0067	.0120	.0357	.7143
25	10.6379	.0000	.000	.0185	.0000	10.6194	.0120	.0357	.7531
26	11.1375	.0000	.000	.0273	.0000	11.1102	.0120	.0357	.5287
27	11.4850	.0000	.000	.0415	.0000	11.4435	.0120	.0357	.5446
28	11.7271	.0000	.000	.0772	.0000	11.6499	.0120	.0357	.2772
29	12.0073	.0000	.000	.2595	.0000	11.7478	.0120	.0357	.1398
30	12.1821	.0000	.000	.2053	.0000	11.9768	.0120	.0357	.8551

IRON

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0256	.1890	.3354	.3302	.2232	.1193	.0332	.0219	.0233	.0093	.0058
2	.0538	.4183	.2966	.3115	.1673	.0367	.0254	.0333	.0064	.0025	.0015
3	.1395	.5970	.1102	.0442	.0242	.0177	.0215	.0196	.0084	.0035	.0031
4	.0000	.3618	.2796	.0246	.0037	.0039	.0016	.0013	.0006	.0002	.0001
5	.0000	.0000	.0805	.0835	.1218	.0768	.0275	.0112	.0067	.0033	.0087

IRON

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
1	300.	1.000	1.000	1.001	1.004	1.009	1.011
2	300.	1.000	.999	.999	.999	.998	.998
3	300.	1.000	.999	.999	.997	.995	.993
4	300.	1.000	.999	.997	.993	.986	.981
5	300.	1.000	.999	.996	.989	.982	.979
6	300.	.999	.997	.988	.970	.952	.943
7	300.	.999	.996	.985	.970	.960	.958
8	300.	.999	.997	.987	.972	.958	.952
9	300.	.999	.997	.990	.980	.973	.971
10	300.	.997	.986	.951	.907	.869	.852
11	300.	.997	.988	.966	.942	.922	.911
12	300.	.998	.990	.964	.924	.889	.875
13	300.	.979	.923	.834	.777	.747	.738
14	300.	.999	.997	.987	.963	.926	.905
15	300.	1.000	1.000	.999	.997	.994	.992
16	300.	.998	.990	.964	.925	.890	.876
17	300.	.997	.987	.960	.931	.913	.907
18	300.	1.000	.998	.994	.989	.985	.983
19	300.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	.999	.999
21	300.	1.000	.998	.993	.984	.976	.974
22	300.	1.000	.998	.992	.984	.977	.975
23	300.	.955	.827	.589	.440	.378	.362

IRON

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
1	300.	1.000	1.000	.999	.997	.995	.993
2	300.	1.000	1.000	.999	.997	.994	.993
3	300.	1.000	.999	.996	.988	.977	.971
4	300.	.999	.997	.986	.960	.918	.801
5	300.	.998	.991	.962	.899	.807	.741
6	300.	.996	.983	.932	.835	.706	.614
7	300.	.997	.985	.941	.854	.724	.623
8	300.	.994	.970	.878	.702	.497	.374
9	300.	.993	.967	.877	.737	.585	.489
10	300.	.987	.944	.815	.656	.498	.361
11	300.	.980	.920	.784	.656	.536	.440
12	300.	.999	.995	.981	.952	.915	.896
13	300.	.921	.745	.534	.430	.379	.361
14	300.	.999	.998	.988	.961	.889	.797
15	300.	1.000	.999	.994	.982	.960	.945
16	300.	.999	.995	.980	.954	.926	.915
17	300.	.990	.956	.870	.789	.743	.729
18	300.	.999	.997	.989	.977	.967	.963
19	300.	1.000	1.000	1.000	1.000	.999	.999
20	300.	1.000	1.000	1.000	1.000	.999	.999
21	300.	1.000	1.000	1.000	1.000	.999	.999
22	300.	1.000	1.000	.999	.998	.997	.996
23	300.	.998	.992	.983	.979	.978	.978

IRON

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
1	300.	1.000	.999	.998	.997	.995	.994
2	300.	1.000	.999	.998	.997	.995	.994
3	300.	1.000	.999	.996	.991	.984	.980
4	300.	1.000	.997	.990	.974	.950	.934
5	300.	.998	.995	.980	.947	.900	.871
6	300.	.998	.992	.967	.916	.852	.817
7	300.	.998	.993	.970	.926	.870	.838
8	300.	.997	.986	.942	.852	.741	.685
9	300.	.996	.983	.935	.854	.765	.721
10	300.	.994	.972	.898	.793	.696	.652
11	300.	.990	.957	.869	.771	.692	.657
12	300.	1.000	.998	.991	.976	.957	.948
13	300.	.959	.854	.686	.578	.525	.509
14	300.	1.000	1.000	.999	.998	.994	.992
15	300.	1.000	.999	.997	.991	.980	.973
16	300.	.999	.998	.990	.976	.960	.954
17	300.	.995	.978	.926	.875	.842	.831
18	300.	1.000	.999	.994	.987	.982	.979
19	300.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	1.000	1.000
22	300.	1.000	1.000	.999	.999	.998	.998
23	300.	1.000	1.000	.999	.999	.998	.998

NICKEL

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	3.5756	.0000	.000	.4618	1.0322	2.0816	.7568	.0030	.0785
2	3.5326	.0000	.000	.3116	1.1578	2.0631	.6414	.0135	.0802
3	3.2017	.0000	.000	.1268	.8995	2.1755	.3698	.0229	.1092
4	3.2977	.0000	.000	.0316	.3737	2.8925	.2612	.0252	.1460
5	3.3882	.0000	.000	.0098	.0000	3.3784	.1169	.0302	.2037
6	3.2369	.0000	.000	.0076	.0000	3.2293	.1246	.0299	.1929
7	3.8404	.0000	.000	.0078	.0000	3.8325	.0841	.0312	.4790
8	4.7479	.0000	.000	.0082	.0000	4.7398	.0582	.0322	.6097
9	6.2686	.0000	.000	.0096	.0000	6.2590	.0579	.0321	.4024
10	5.6512	.0000	.000	.0140	.0000	5.6372	.0502	.0324	.3653
11	7.0610	.0000	.000	.0150	.0000	7.0460	.0397	.0328	.4616
12	7.8048	.0000	.000	.0229	.0000	7.7818	.0257	.0332	.5172
13	11.2876	.0000	.000	.0400	.0000	11.2476	.0113	.0337	.8063
14	16.2547	.0000	.000	.0340	.0000	16.2207	.0113	.0337	2.1842
15	61.5146	.0000	.000	.0810	.0000	61.4336	.0113	.0337	7.3936
16	31.7450	.0000	.000	.1250	.0000	31.6201	.0113	.0337	2.1255
17	11.9391	.0000	.000	.0190	.0000	11.9201	.0113	.0337	.8032
18	26.5736	.0000	.000	.0290	.0000	26.5446	.0113	.0337	1.7887
19	17.3130	.0000	.000	.0240	.0000	17.2890	.0113	.0337	3.4962
20	16.0804	.0000	.000	.0140	.0000	16.0664	.0113	.0337	3.2474
21	15.8871	.0000	.000	.1000	.0000	15.7870	.0113	.0337	3.1913
22	16.0210	.0000	.000	.0314	.0000	15.9886	.0113	.0337	1.0783
23	16.6023	.0000	.000	.0230	.0000	16.5793	.0113	.0337	1.1173
24	17.0743	.0000	.000	.0314	.0000	17.0429	.0113	.0337	1.1487
25	17.3931	.0000	.000	.0397	.0000	17.3534	.0113	.0337	1.1626
26	17.6369	.0000	.000	.0539	.0000	17.5830	.0113	.0337	.7901
27	17.8082	.0000	.000	.0780	.0000	17.7301	.0113	.0337	.7967
28	17.9565	.0000	.000	.1392	.0000	17.8174	.0113	.0337	.4003
29	18.3164	.0000	.000	.4585	.0000	17.8579	.0113	.0337	.2006
30	18.2280	.0000	.000	.3690	.0000	17.8590	.0113	.0337	1.2040

NICKEL

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0177	.1396	.2587	.2618	.1801	.0973	.0272	.0180	.0192	.0077	.0048
2	.0500	.2833	.3508	.2571	.1267	.0333	.0208	.0216	.0090	.0033	.0020
3	.0010	.3212	.3554	.1140	.0294	.0228	.0296	.0147	.0068	.0029	.0017
4	.0000	.0050	.1411	.0512	.0412	.0579	.0368	.0224	.0096	.0046	.0040

NICKEL

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
2	300.	1.000	.997	.996	.994	.992	.991
3	300.	1.000	.997	.996	.993	.989	.986
4	300.	1.000	.983	.980	.982	.984	.985
5	300.	1.000	.999	.994	.985	.973	.966
6	300.	1.000	1.000	.999	.997	.995	.995
7	300.	1.000	1.000	.999	.998	.998	.998
8	300.	1.000	.999	.998	.997	.997	.997
9	300.	1.000	.998	.994	.991	.990	.991
10	300.	.999	.995	.983	.967	.957	.953
11	300.	.998	.993	.976	.954	.937	.931
12	300.	.993	.969	.901	.831	.787	.772
13	300.	.988	.950	.855	.769	.724	.711
14	300.	.982	.933	.849	.796	.773	.766
15	300.	.958	.866	.759	.713	.697	.693
16	300.	.991	.966	.912	.871	.851	.845
17	300.	.999	.994	.981	.969	.964	.962
18	300.	.999	.997	.991	.987	.985	.984
19	300.	1.000	1.000	.999	.999	.999	.998
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	.992	.965	.899	.843	.816	.809

NICKEL

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
2	300.	1.000	1.000	1.000	.999	.999	.998
3	300.	1.000	1.000	.999	.998	.996	.995
4	300.	1.000	.999	.997	.994	.989	.987
5	300.	1.000	.998	.991	.975	.953	.940
6	300.	.999	.996	.982	.951	.877	.626
7	300.	.998	.992	.967	.913	.835	.786
8	300.	.998	.991	.962	.909	.847	.813
9	300.	.996	.982	.929	.835	.731	.679
10	300.	.991	.958	.849	.695	.560	.498
11	300.	.994	.971	.900	.800	.701	.652
12	300.	.973	.890	.708	.562	.467	.426
13	300.	.992	.969	.918	.877	.855	.840
14	300.	.996	.985	.960	.938	.927	.923
15	300.	.928	.784	.637	.582	.564	.560
16	300.	.960	.842	.611	.472	.420	.407
17	300.	.996	.982	.941	.898	.874	.866
18	300.	.997	.986	.962	.944	.936	.934
19	300.	1.000	1.000	.999	.998	.998	.997
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	.999	.998	.998	.998

NICKEL

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	20.0	5.0	1.0	.1
2	300.	1.000	.997	.996	.996	.996	.995
3	300.	1.000	.998	.997	.997	.997	.997
4	300.	1.000	.982	.977	.974	.970	.968
5	300.	1.000	.999	.995	.987	.976	.970
6	300.	.996	.995	.989	.977	.956	.888
7	300.	.999	.997	.987	.967	.944	.933
8	300.	.999	.996	.982	.957	.931	.919
9	300.	.998	.991	.966	.922	.878	.859
10	300.	.996	.980	.926	.844	.773	.746
11	300.	.997	.986	.948	.894	.847	.828
12	300.	.987	.943	.828	.715	.643	.619
13	300.	.996	.984	.953	.925	.909	.904
14	300.	.998	.992	.979	.967	.960	.958
15	300.	.963	.882	.781	.736	.720	.716
16	300.	.980	.920	.788	.684	.634	.619
17	300.	.998	.991	.969	.945	.930	.925
18	300.	.998	.993	.981	.972	.968	.967
19	300.	1.000	1.000	.999	.999	.999	.999
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	1.000	1.000

SODIUM-23

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	AI	SIGDEL
1	1.7125	.0000	.000	.0624	.9054	.7447	.5668	.0360	.1192
2	2.0558	.0000	.000	.0040	.8776	1.1743	.4876	.0450	.1522
3	2.5441	.0000	.000	.0002	.7025	1.8414	.4834	.0454	.1835
4	2.7693	.0000	.000	.0002	.5177	2.2515	.3678	.0555	.2500
5	3.7498	.0000	.000	.0002	.5105	3.2390	.3483	.0572	.3707
6	4.8872	.0000	.000	.0003	.2406	4.6462	.1492	.0747	.6942
7	3.6945	.0000	.000	.0003	.0037	3.6905	.1111	.0741	1.1520
8	3.4244	.0000	.000	.0005	.0000	3.4239	.0650	.0820	1.1230
9	4.1217	.0000	.000	.0007	.0000	4.1210	.0771	.0811	.6680
10	3.3839	.0000	.000	.0017	.0000	3.3821	.0291	.0853	.5757
11	3.5613	.0000	.000	.0002	.0000	3.5611	.0283	.0854	.6079
12	5.8037	.0000	.000	.0029	.0000	5.8008	.0258	.0855	.9921
13	3.8204	.0000	.000	.0029	.0000	3.8175	.0180	.0862	.7003
14	3.9926	.0000	.000	.0002	.0000	3.9926	.0207	.0861	1.3753
15	4.2031	.0000	.000	.0002	.0000	4.2029	.0240	.0858	1.2835
16	4.7632	.0000	.000	.0003	.0000	4.7629	.0277	.0854	.8138
17	6.7046	.0000	.000	.0014	.0000	6.7032	.0293	.0853	1.1430
18	22.5411	.0000	.000	.0120	.0000	22.5291	.0293	.0853	3.9417
19	202.8393	.0000	.000	.2054	.0000	202.6339	.0293	.0353	103.6537
20	175.2456	.0000	.000	.2267	.0000	175.0189	.0293	.0853	89.5316
21	28.4743	.0000	.000	.0497	.0000	28.4245	.0293	.0853	14.5400
22	7.4298	.0000	.000	.0165	.0000	7.4132	.0293	.0853	1.2641
23	3.7189	.0000	.000	.0088	.0000	3.7101	.0293	.0853	.6326
24	3.2762	.0000	.000	.0076	.0000	3.2686	.0293	.0853	.5574
25	3.2159	.0000	.000	.0080	.0000	3.2079	.0293	.0853	.5470
26	3.1707	.0000	.000	.0086	.0000	3.1621	.0293	.0853	.3525
27	3.1522	.0000	.000	.0102	.0000	3.1420	.0293	.0853	.3572
28	3.1536	.0000	.000	.0162	.0000	3.1374	.0293	.0853	.1783
29	3.2152	.0000	.000	.0531	.0000	3.1621	.0293	.0853	.0899
30	3.2152	.0000	.000	.0531	.0000	3.1621	.0293	.0853	.0899

SODIUM-23

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0713	.2931	.2514	.1564	.0821	.0335	.0081	.0044	.0035	.0011	.0005
2	.1363	.2646	.2435	.1437	.0565	.0095	.0072	.0089	.0042	.0018	.0015
3	.1819	.3189	.0449	.0479	.0288	.0195	.0275	.0185	.0090	.0034	.0021
4	.1786	.3375	.0000	.0000	.0000	.0000	.0000	.0000	.0008	.0005	.0003
5	.0013	.3800	.0913	.0379	.0000	.0000	.0000	.0000	.0000	.0000	.0000
6	.0000	.0000	.0335	.1507	.0471	.0077	.0014	.0003	.0000	.0000	.0000
7	.0000	.0000	.0000	.0000	.0000	.0000	.0032	.0003	.0001	.0000	.0000

SODIUM - 23

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	30.0	15.0	5.0	1.0
1	300.	1.000	1.000	1.000	1.001	1.004	1.012
2	300.	1.000	1.000	1.003	1.006	1.021	1.052
3	300.	1.000	.997	.996	.996	.995	.993
4	300.	1.000	.996	.995	.995	.996	.996
5	300.	1.000	1.000	1.000	.999	.998	.997
6	300.	1.000	1.000	.999	.999	.997	.993
7	300.	1.000	1.000	.999	.999	.993	.997
8	300.	1.000	1.000	1.000	1.000	1.001	1.002
9	300.	1.000	1.000	1.000	1.000	1.000	.999
10	300.	1.000	.991	.968	.944	.893	.832
11	300.	1.000	1.000	1.000	1.000	1.000	.999
12	300.	.974	.891	.754	.659	.530	.437
13	300.	.996	.979	.938	.895	.804	.700
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	.999	.999	.998
17	300.	1.000	.999	.997	.995	.991	.984
18	300.	.972	.895	.787	.723	.649	.603
19	300.	.915	.809	.750	.732	.717	.711
20	300.	.929	.833	.776	.757	.742	.735
21	300.	.994	.977	.952	.937	.919	.909
22	300.	.998	.991	.976	.962	.936	.909
23	300.	1.000	1.000	.999	.999	.998	.996
24	300.	1.005	1.005	1.005	1.005	1.005	1.005

SODIUM - 23

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ S160	500.0	100.0	30.0	15.0	5.0	1.0
1	300.	1.000	1.000	.999	.999	.998	.995
2	300.	1.000	.999	.998	.996	.992	.993
3	300.	1.000	.999	.996	.993	.985	.967
4	300.	1.000	.999	.995	.991	.979	.956
5	300.	1.000	.998	.993	.988	.976	.958
6	300.	.998	.989	.968	.944	.87	.800
7	300.	.999	.995	.985	.973	.945	.902
8	300.	1.000	.999	.997	.994	.987	.977
9	300.	.998	.992	.978	.961	.924	.872
10	300.	1.000	.999	.997	.994	.982	.875
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	.979	.920	.838	.792	.743	.713
13	300.	1.000	1.000	1.000	1.000	.999	.999
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	.999
16	300.	1.000	1.000	.999	.998	.997	.994
17	300.	.999	.997	.992	.986	.975	.963
18	300.	.966	.875	.763	.704	.642	.606
19	300.	.861	.704	.629	.607	.591	.594
20	300.	.843	.663	.574	.547	.527	.519
21	300.	.986	.946	.890	.858	.823	.802
22	300.	.996	.979	.945	.914	.861	.814
23	300.	1.000	1.000	.999	.996	.995	.992
24	300.	1.000	1.000	1.000	1.000	1.000	1.000

SODIUM-23

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIG0	500.0	100.0	30.0	15.0	5.0	1.0
1	300.	1.000	.999	.998	.998	.996	.992
2	300.	1.000	.998	.996	.994	.990	.982
3	300.	1.000	.996	.994	.992	.985	.973
4	300.	1.000	.995	.993	.990	.984	.973
5	300.	1.000	.999	.996	.993	.985	.974
6	300.	.999	.995	.985	.973	.945	.904
7	300.	.999	.997	.992	.986	.971	.948
8	300.	1.000	.999	.998	.997	.994	.998
9	300.	.999	.996	.989	.980	.960	.931
10	300.	1.005	1.005	1.005	1.004	1.002	.999
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	.990	.956	.901	.863	.812	.775
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	.999	.993	.997
17	300.	1.000	.999	.996	.993	.987	.991
18	300.	.982	.933	.863	.820	.771	.740
19	300.	.928	.836	.785	.769	.756	.751
20	300.	.918	.808	.743	.722	.705	.697
21	300.	.993	.972	.942	.923	.902	.899
22	300.	.998	.990	.971	.954	.923	.892
23	300.	1.000	1.000	.999	.999	.998	.996
24	300.	1.006	1.006	1.006	1.006	1.006	1.006

BORON-10

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	AI	SIGDEL
1	1.5184	.0000	.000	.3200	.2140	.9844	.4488	.1114	.4618
2	1.6383	.0000	.000	.3922	.0991	1.1469	.2771	.1462	.4832
3	2.0224	.0000	.000	.3555	.0409	1.6261	.1959	.1626	.5800
4	2.0703	.0000	.000	.4595	.0281	1.5826	.1661	.1686	.5336
5	2.5216	.0000	.000	.3165	.0001	2.2050	.1449	.1729	.7623
6	3.8408	.0000	.000	.5767	.0000	3.2641	.0910	.1838	1.1997
7	4.5268	.0000	.000	.8499	.0000	3.6769	.0673	.1886	2.7734
8	4.7090	.0000	.000	.9231	.0000	3.7859	.0673	.1886	2.8556
9	4.8418	.0000	.000	1.3000	.0000	3.5418	.0673	.1886	1.3358
10	4.8129	.0000	.000	1.7281	.0000	3.0848	.0673	.1886	1.1634
11	4.8268	.0000	.000	2.1127	.0000	2.7141	.0673	.1886	1.0236
12	5.0395	.0000	.000	2.6021	.0000	2.4374	.0673	.1886	.9193
13	5.5488	.0000	.000	3.2661	.0000	2.2827	.0673	.1886	.9159
14	6.0856	.0000	.000	3.8956	.0000	2.1900	.0673	.1886	1.6519
15	6.5967	.0000	.000	4.4537	.0000	2.1430	.0673	.1886	1.4432
16	7.5426	.0000	.000	5.4439	.0000	2.0987	.0673	.1886	.7915
17	9.0871	.0000	.000	7.0192	.0000	2.0679	.0673	.1886	.7799
18	11.1128	.0000	.000	9.0624	.0000	2.0504	.0673	.1886	.7733
19	12.7623	.0000	.000	10.7235	.0000	2.0388	.0673	.1886	2.3067
20	13.7072	.0000	.000	11.6742	.0000	2.0330	.0673	.1886	2.3002
21	14.7328	.0000	.000	12.7056	.0000	2.0272	.0673	.1886	2.2937
22	17.0801	.0000	.000	15.0644	.0000	2.0157	.0673	.1886	.7602
23	21.4293	.0000	.000	19.4278	.0000	2.0015	.0673	.1886	.7549
24	27.0949	.0000	.000	25.0949	.0000	2.0000	.0673	.1886	.7543
25	34.4012	.0000	.000	32.4012	.0000	2.0000	.0673	.1886	.7543
26	47.4881	.0000	.000	45.4881	.0000	2.0000	.0673	.1886	.5029
27	67.0498	.0000	.000	65.0498	.0000	2.0000	.0673	.1886	.5029
28	117.6380	.0000	.000	115.6380	.0000	2.0000	.0673	.1886	.2514
29	384.4000	.0000	.000	382.4000	.0000	2.0000	.0673	.1886	.1257
30	310.5918	.0000	.000	308.5918	.0000	2.0000	.0673	.1886	.7543

BORON-10

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0263	.0728	.0558	.0322	.0156	.0068	.0017	.0011	.0011	.0004	.0002
2	.0175	.0559	.0136	.0069	.0031	.0008	.0005	.0005	.0002	.0001	.0000
3	.0049	.0296	.0064	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
4	.0000	.0249	.0032	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
5	.0000	.0000	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

BORON-10

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
2	300.	1.000	.996	.995	.995	.995	.996
3	300.	1.000	.993	.992	.991	.990	.988
4	300.	1.000	.992	.991	.989	.988	.985
5	300.	1.000	1.000	1.000	.992	.997	.994
6	300.	1.000	.999	.996	.994	.990	.982
7	300.	1.000	1.000	1.000	1.000	1.000	1.000
8	300.	1.000	1.000	1.000	1.000	1.000	1.000
9	300.	1.000	1.000	1.000	1.000	1.000	1.000
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.000	1.000	1.000	1.000	1.000	.999
12	300.	1.000	1.000	1.000	.999	.999	.999
13	300.	1.000	1.000	1.000	.999	.999	.998
14	300.	1.000	1.000	1.000	1.000	1.000	.999
15	300.	1.000	1.000	1.000	1.000	.999	.999
16	300.	1.000	1.000	1.000	.998	.998	.997
17	300.	1.000	1.000	.999	.998	.997	.996
18	300.	1.000	1.000	.999	.997	.997	.996
19	300.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	1.000	1.000
22	300.	1.000	.999	.999	.997	.997	.996
23	300.	1.000	.999	.999	.997	.996	.996
24	300.	1.000	.999	.998	.996	.996	.995
25	300.	1.000	.999	.998	.996	.996	.995
26	300.	.999	.996	.995	.991	.990	.989
27	300.	.999	.995	.994	.990	.989	.989
28	300.	.991	.976	.969	.959	.957	.956
29	300.	.927	.868	.853	.837	.835	.833

BORON-10

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
2	300.	1.000	.999	.099	.998	.997	.994
3	300.	1.000	.998	.997	.993	.990	.979
4	300.	1.000	.999	.999	.998	.997	.995
5	300.	1.000	.999	.999	.994	.991	.980
6	300.	1.000	.999	.999	.994	.991	.984
7	300.	1.000	1.000	1.000	1.000	1.000	1.000
8	300.	1.000	1.000	1.000	1.000	1.000	1.000
9	300.	1.000	1.000	1.000	1.000	1.000	1.000
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	1.000	1.000	1.000	1.000	.999	.999
13	300.	1.000	1.000	1.000	.999	.999	.998
14	300.	1.000	1.000	1.000	1.000	1.000	.999
15	300.	1.000	1.000	1.000	.999	.999	.999
16	300.	1.000	1.000	.999	.998	.997	.996
17	300.	1.000	.999	.999	.997	.995	.994
18	300.	1.000	.999	.999	.996	.995	.993
19	300.	1.000	1.000	1.000	1.000	.999	.999
20	300.	1.000	1.000	1.000	1.000	.999	.999
21	300.	1.000	1.000	1.000	1.000	.999	.999
22	300.	1.000	.999	.998	.995	.994	.993
23	300.	1.000	.998	.997	.994	.993	.992
24	300.	1.000	.998	.997	.993	.992	.991
25	300.	.999	.998	.996	.993	.992	.991
26	300.	.998	.993	.990	.983	.981	.980
27	300.	.997	.991	.988	.981	.980	.979
28	300.	.983	.953	.940	.922	.919	.916
29	300.	.861	.762	.738	.714	.711	.706

BORON-10

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
2	300.	1.000	.995	.995	.993	.992	.989
3	300.	1.000	.993	.992	.989	.986	.979
4	300.	1.000	.992	.991	.980	.979	.978
5	300.	1.000	1.000	.999	.997	.995	.989
6	300.	1.000	1.000	.999	.997	.997	.994
7	300.	1.000	1.000	1.000	1.000	1.000	1.000
8	300.	1.000	1.000	1.000	1.000	1.000	1.000
9	300.	1.000	1.000	1.000	1.000	1.000	1.000
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	1.000	1.000	1.000	1.000	1.000	1.000
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	1.000	1.000	1.000
17	300.	1.000	1.000	1.000	1.000	1.000	1.000
18	300.	1.000	1.000	1.000	1.000	1.000	1.000
19	300.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	1.000	1.000
22	300.	1.000	1.000	1.000	1.000	1.000	1.000
23	300.	1.000	1.000	1.000	1.000	1.000	1.000
24	300.	1.000	1.000	1.000	1.000	1.000	1.000
25	300.	1.000	1.000	1.000	1.000	1.000	1.000
26	300.	1.000	1.000	1.000	1.000	1.000	1.000
27	300.	1.000	1.000	1.000	1.000	1.000	1.000
28	300.	1.000	1.000	1.000	1.000	1.000	1.000
29	300.	1.000	1.000	1.000	1.000	1.000	1.000

BORON-11

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	1.4610	.0000	.000	.0004	.1947	1.2660	.3837	.1124	.5989
2	1.5108	.0000	.000	.0000	.0551	1.4557	.2036	.1452	.6093
3	2.0266	.0000	.000	.0000	.0102	2.0164	.1302	.1586	.7016
4	2.5892	.0000	.000	.0000	.0000	2.5892	.0957	.1648	.8536
5	2.2438	.0000	.000	.0000	.0000	2.2438	.1467	.1552	.6903
6	2.3495	.0000	.000	.0000	.0000	2.3495	.2094	.1441	.6772
7	5.0226	.0000	.000	.0000	.0000	5.0226	.2093	.1442	2.8962
8	3.5927	.0000	.000	.0000	.0000	3.5927	.1920	.1473	2.1173
9	3.8783	.0000	.000	.0000	.0000	3.8783	.1610	.1530	1.1865
10	4.1886	.0000	.000	.0000	.0000	4.1886	.1198	.1605	1.3443
11	4.4716	.0000	.000	.0000	.0000	4.4716	.0914	.1656	1.4813
12	4.6936	.0000	.000	.0000	.0000	4.6936	.0905	.1658	1.5564
13	4.9127	.0000	.000	.0000	.0000	4.9127	.0905	.1658	1.7330
14	5.2206	.0000	.000	.0002	.0000	5.2204	.0905	.1658	3.4621
15	5.1104	.0000	.000	.0001	.0000	5.1103	.0905	.1658	3.0260
16	5.0258	.0000	.000	.0000	.0000	5.0258	.0905	.1658	1.6665
17	5.0141	.0000	.000	.0000	.0000	5.0141	.0905	.1658	1.6627
18	5.0221	.0000	.000	.0000	.0000	5.0221	.0905	.1658	1.6653
19	5.0273	.0000	.000	.0000	.0000	5.0272	.0905	.1658	5.0011
20	5.0285	.0000	.000	.0000	.0000	5.0285	.0905	.1658	5.0023
21	5.0293	.0000	.000	.0000	.0000	5.0293	.0905	.1658	5.0032
22	5.0310	.0000	.000	.0000	.0000	5.0310	.0905	.1658	1.6683
23	5.0332	.0000	.000	.0000	.0000	5.0332	.0905	.1658	1.6690
24	5.0342	.0000	.000	.0000	.0000	5.0342	.0905	.1658	1.6693
25	5.0351	.0000	.000	.0000	.0000	5.0350	.0905	.1658	1.6696
26	5.0356	.0000	.000	.0001	.0000	5.0355	.0905	.1658	1.1131
27	5.0359	.0000	.000	.0001	.0000	5.0358	.0905	.1658	1.1133
28	5.0361	.0000	.000	.0002	.0000	5.0360	.0905	.1658	.5567
29	5.0365	.0000	.000	.0005	.0000	5.0360	.0905	.1658	.2783
30	5.0365	.0000	.000	.0005	.0000	5.0360	.0905	.1658	.2783

BORON-11

INELASTIC PLUS TWO TIMES $n, 2n$ SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0374	.0602	.0479	.0178	.0228	.0065	.0003	.0005	.0005	.0002	.0001
2	.0000	.0145	.0204	.0080	.0050	.0020	.0015	.0021	.0011	.0004	.0001
3	.0000	.0000	.0042	.0033	.0010	.0007	.0003	.0003	.0003	.0000	.0000

OXYGEN-16

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	AI	SIGDEL
1	1.0554	.0000	.000	.0804	.1371	.8379	.1369	.1081	.3815
2	1.7480	.0000	.000	.0487	.0000	1.6993	.2895	.0890	.4359
3	1.5175	.0000	.000	.0000	.0000	1.5174	.1299	.1090	.3627
4	2.0304	.0000	.000	.0000	.0000	2.0304	.1190	.1103	.4480
5	4.2580	.0000	.000	.0000	.0000	4.2580	.0712	.1163	.9904
6	3.2062	.0000	.000	.0000	.0000	3.2062	.2721	.0912	.5846
7	9.6413	.0000	.000	.0000	.0000	9.6413	.1918	.1012	3.9033
8	3.7826	.0000	.000	.0000	.0000	3.7826	-.1814	.1478	2.2368
9	3.3147	.0000	.000	.0000	.0000	3.3147	-.0771	.1348	.8937
10	3.4022	.0000	.000	.0000	.0000	3.4022	-.0143	.1270	.8639
11	3.4916	.0000	.000	.0000	.0000	3.4916	.0117	.1237	.8639
12	3.5530	.0000	.000	.0000	.0000	3.5530	.0242	.1222	.8680
13	3.5901	.0000	.000	.0000	.0000	3.5901	.0313	.1213	.9263
14	3.6082	.0000	.000	.0000	.0000	3.6082	.0347	.1208	1.7439
15	3.6177	.0000	.000	.0000	.0000	3.6177	.0366	.1206	1.5583
16	3.6256	.0000	.000	.0000	.0000	3.6256	.0383	.1204	.8729
17	3.6329	.0000	.000	.0000	.0000	3.6329	.0397	.1202	.8735
18	3.6402	.0000	.000	.0000	.0000	3.6402	.0405	.1201	.8745
19	3.6451	.0000	.000	.0000	.0000	3.6451	.0409	.1201	2.6259
20	3.6476	.0000	.000	.0000	.0000	3.6476	.0410	.1200	2.6273
21	3.6500	.0000	.000	.0000	.0000	3.6500	.0411	.1200	2.6287
22	3.6549	.0000	.000	.0000	.0000	3.6549	.0413	.1200	.8773
23	3.6623	.0000	.000	.0000	.0000	3.6623	.0415	.1200	.8789
24	3.6697	.0000	.000	.0000	.0000	3.6697	.0416	.1200	.8805
25	3.6771	.0000	.000	.0000	.0000	3.6771	.0417	.1200	.8822
26	3.6864	.0000	.000	.0000	.0000	3.6863	.0417	.1200	.5896
27	3.6975	.0000	.000	.0000	.0000	3.6975	.0418	.1200	.5914
28	3.7143	.0000	.000	.0000	.0000	3.7143	.0418	.1200	.2970
29	3.7478	.0000	.000	.0000	.0000	3.7477	.0418	.1200	.1498
30	3.7443	.0000	.000	.0000	.0000	3.7443	.0418	.1200	.8983

OXYGEN-16

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I GXG GXG+1 GXG+2 . . .

1 .0000 .0000 .0225 .0456 .0380 .0186 .0031 .0040 .0042 .0007 .0003

OXYGEN-16

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.998	.998	.996	.995	.989
2	300.	1.000	1.000	1.002	1.010	1.017	1.031
3	300.	.997	.982	.968	.878	.798	.560
4	300.	1.000	1.000	1.000	1.000	1.000	1.000
5	300.	1.000	1.000	1.000	1.000	1.000	1.000
6	300.	1.000	1.000	1.000	1.000	1.000	1.000
7	300.	1.000	1.000	1.000	1.000	1.000	1.000
8	300.	1.000	1.000	1.000	1.000	1.000	1.000

OXYGEN-16

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.999	.999	.993	.988	.962
2	300.	.999	.993	.987	.949	.916	.822
3	300.	.998	.993	.984	.921	.865	.669
4	300.	.999	.990	.984	.954	.935	.891
5	300.	.998	.988	.978	.924	.891	.833
6	300.	1.000	.998	.996	.984	.976	.958
7	300.	.995	.975	.955	.874	.836	.783
8	300.	1.000	.999	.999	.995	.992	.987

OXYGEN-16

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.998	.998	.996	.994	.985
2	300.	.999	.996	.992	.971	.953	.896
3	300.	.999	.992	.986	.954	.924	.818
4	300.	.999	.989	.985	.966	.954	.924
5	300.	.999	.994	.989	.960	.941	.904
6	300.	1.000	.999	.998	.992	.987	.977
7	300.	.997	.988	.977	.934	.912	.880
8	300.	1.000	1.000	.999	.997	.996	.993

CARBON-12

CROSS SECTION DATA

I	SIGT	SIGF	III	SIGC	SIGIN	SIGEL	MUCL	AI	SIGDEL
1	1.2507	.0000	.000	.0250	.3126	.9131	.2908	.1195	.4533
2	1.6623	.0000	.000	.0000	.0314	1.6309	.1827	.1377	.6471
3	1.9960	.0000	.000	.0000	.0000	1.9960	.0276	.1637	.7176
4	1.9107	.0000	.000	.0000	.0000	1.9107	.1036	.1510	.5769
5	2.4916	.0000	.000	.0000	.0000	2.4916	.1265	.1471	.7330
6	3.1130	.0000	.000	.0000	.0000	3.1130	.1155	.1420	.9275
7	3.5178	.0000	.000	.0000	.0000	3.5178	.1031	.1510	2.1255
8	3.7460	.0000	.000	.0000	.0000	3.7461	.0952	.1524	2.2834
9	4.0240	.0000	.000	.0000	.0000	4.0240	.0851	.1541	1.2308
10	4.2576	.0000	.000	.0000	.0000	4.2576	.0749	.1558	1.3236
11	4.4200	.0000	.000	.0000	.0000	4.4200	.0680	.1570	1.3939
12	4.5360	.0000	.000	.0000	.0000	4.5360	.0635	.1577	1.4379
13	4.6100	.0000	.000	.0000	.0000	4.6100	.0608	.1582	1.5587
14	4.6260	.0000	.000	.0000	.0000	4.6260	.0594	.1584	2.9579
15	4.6250	.0000	.000	.0000	.0000	4.6250	.0587	.1585	2.6540
16	4.6860	.0000	.000	.0000	.0000	4.6860	.0579	.1586	1.4040
17	4.6790	.0000	.000	.0000	.0000	4.6790	.0576	.1587	1.5000
18	4.7133	.0000	.000	.0000	.0000	4.7133	.0576	.1587	1.5035
19	4.7183	.0000	.000	.0000	.0000	4.7183	.0575	.1587	4.5152
20	4.7203	.0000	.000	.0000	.0000	4.7203	.0575	.1587	4.5170
21	4.7213	.0000	.000	.0000	.0000	4.7213	.0575	.1587	4.5135
22	4.7233	.0000	.000	.0000	.0000	4.7233	.0575	.1587	1.5070
23	4.7260	.0000	.000	.0000	.0000	4.7260	.0574	.1587	1.5078
24	4.7270	.0000	.000	.0000	.0000	4.7270	.0573	.1587	1.5034
25	4.7280	.0000	.000	.0000	.0000	4.7280	.0573	.1587	1.5027
26	4.7290	.0000	.000	.0000	.0000	4.7290	.0572	.1588	1.0060
27	4.7290	.0000	.000	.0001	.0000	4.7290	.0571	.1588	1.0062
28	4.7290	.0000	.000	.0001	.0000	4.7290	.0570	.1588	.5032
29	4.7300	.0000	.000	.0003	.0000	4.7300	.0568	.1588	.2517
30	4.7536	.0000	.000	.0003	.0000	4.7534	.0568	.1588	1.5000

CARBON-12

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0000	.0271	.1192	.1098	.0565	.0000	.0000	.0000	.0000	.0000	.0000
2	.0000	.0000	.0000	.0136	.0108	.0024	.0011	.0020	.0011	.0003	.0001

CARBON-12

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.997	.995	.982	.968	.908
2	300.	1.000	1.000	1.000	1.000	1.000	1.000
3	300.	1.000	1.000	1.000	1.000	1.000	1.000
4	300.	1.000	1.000	1.000	1.000	1.000	1.000
5	300.	1.000	1.000	1.000	1.000	1.000	1.000

CARBON-12

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	.999	.997	.994	.972	.952	.882
2	300.	1.000	.997	.995	.978	.963	.910
3	300.	.999	.998	.996	.981	.968	.929
4	300.	1.000	.999	.998	.995	.992	.984
5	300.	1.000	1.000	.999	.998	.996	.992

CARBON-12

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.997	.995	.983	.971	.927
2	300.	1.000	.997	.996	.986	.978	.947
3	300.	1.000	.997	.995	.988	.981	.960
4	300.	1.000	.996	.995	.993	.992	.987
5	300.	1.000	1.000	1.000	.999	.998	.996

ALUMINUM-27

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	2.0078	.0000	.000	.0915	.8952	1.0211	.5253	.0357	.1536
2	2.2892	.0000	.000	.0187	.8342	1.4363	.5046	.0372	.1538
3	2.7423	.0000	.000	.0022	.4574	2.2827	.4000	.0449	.2250
4	3.0372	.0000	.000	.0002	.3011	2.7359	.3483	.0488	.2670
5	3.2808	.0000	.000	.0002	.1249	3.1557	.3100	.0516	.3260
6	3.8319	.0000	.000	.0009	.0000	3.8311	.2332	.0574	.4397
7	4.1011	.0000	.000	.0035	.0000	4.0975	.1575	.0630	1.0332
8	3.7892	.0000	.000	.0029	.0000	3.7863	.1087	.0667	1.0099
9	3.8603	.0000	.000	.0009	.0000	3.8595	.0854	.0684	.5281
10	5.5674	.0000	.000	.0027	.0000	5.5647	.0515	.0710	.7896
11	6.6144	.0000	.000	.0019	.0000	6.6125	.0268	.0725	.9587
12	2.4399	.0000	.000	.0042	.0000	2.4357	.0249	.0728	.3549
13	9.2695	.0000	.000	.0077	.0000	9.2618	.0249	.0729	1.4373
14	.5385	.0000	.000	.0020	.0000	.5365	.0249	.0729	.1565
15	.8067	.0000	.000	.0024	.0000	.8044	.0249	.0729	.2095
16	1.0419	.0000	.000	.0035	.0000	1.0385	.0249	.0729	.1515
17	2.8333	.0000	.000	.0073	.0000	2.8260	.0249	.0729	.4122
18	1.4169	.0000	.000	.0038	.0000	1.4131	.0249	.0729	.2061
19	1.4116	.0000	.000	.0016	.0000	1.4100	.0249	.0729	.6170
20	1.4113	.0000	.000	.0013	.0000	1.4100	.0249	.0729	.6170
21	1.4110	.0000	.000	.0010	.0000	1.4100	.0249	.0729	.6170
22	1.4110	.0000	.000	.0010	.0000	1.4100	.0249	.0729	.2057
23	1.4113	.0000	.000	.0013	.0000	1.4100	.0249	.0729	.2057
24	1.4117	.0000	.000	.0017	.0000	1.4100	.0249	.0729	.2057
25	1.4121	.0000	.000	.0021	.0000	1.4100	.0249	.0729	.2057
26	1.4127	.0000	.000	.0027	.0000	1.4100	.0249	.0729	.1371
27	1.4139	.0000	.000	.0039	.0000	1.4100	.0249	.0729	.1371
28	1.4170	.0000	.000	.0070	.0000	1.4100	.0249	.0729	.0686
29	1.4332	.0000	.000	.0232	.0000	1.4100	.0249	.0729	.0343
30	1.4287	.0000	.000	.0187	.0000	1.4100	.0249	.0729	.2057

ALUMINUM-27

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0489	.2216	.2504	.1847	.1042	.0498	.0131	.0084	.0087	.0034	.0021
2	.0529	.2308	.2455	.1763	.0878	.0123	.0095	.0115	.0046	.0018	.0011
3	.0314	.1619	.1029	.0691	.0311	.0208	.0231	.0095	.0041	.0019	.0015
4	.0000	.1116	.1259	.0375	.0213	.0049	.0000	.0000	.0000	.0000	.0000
5	.0000	.0000	.0107	.0126	.0474	.0306	.0140	.0060	.0022	.0006	.0008

ALUMINUM-27

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.998	.998	.999	1.000	1.005
2	300.	1.000	.996	.996	1.001	1.005	1.018
3	300.	1.000	.999	1.000	1.007	1.013	1.029
4	300.	1.000	.991	.990	.986	.983	.976
5	300.	1.000	.999	.999	.996	.994	.989
6	300.	1.000	1.000	.999	.996	.994	.989
7	300.	1.000	.999	.999	.995	.993	.990
8	300.	1.001	1.004	1.009	1.034	1.054	1.106
9	300.	1.000	.999	.999	.995	.994	.994
10	300.	1.000	1.001	1.002	1.010	1.018	1.047
11	300.	1.001	1.003	1.005	1.013	1.013	1.003
12	300.	.998	.992	.984	.939	.905	.820
13	300.	.002	.062	.931	.792	.710	.548
14	300.	1.000	1.000	1.000	1.000	.999	.998
15	300.	1.000	1.000	1.000	1.000	.999	.998
16	300.	1.000	1.000	1.000	.999	.999	.996
17	300.	.999	.995	.992	.981	.975	.962

ALUMINUM-27

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	1.000	1.000	.999	.999	.998
2	300.	1.000	1.000	.999	.998	.997	.995
3	300.	1.000	.099	.099	.095	.992	.984
4	300.	1.000	1.000	1.000	.997	.994	.938
5	300.	.999	.997	.994	.977	.965	.940
6	300.	.999	.997	.994	.979	.968	.944
7	300.	.999	.997	.993	.976	.964	.940
8	300.	.999	.994	.989	.960	.940	.897
9	300.	.998	.993	.986	.947	.919	.858
10	300.	.992	.963	.930	.773	.682	.518
11	300.	.984	.928	.871	.651	.553	.416
12	300.	.998	.989	.980	.925	.885	.800
13	300.	.959	.829	.714	.373	.256	.124
14	300.	1.000	1.000	1.000	.999	.998	.993
15	300.	1.000	1.000	1.000	.999	.997	.992
16	300.	1.000	1.000	1.000	1.000	.999	.997
17	300.	.945	.796	.697	.518	.482	.447

ALUMINUM-27

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.998	.997	.997	.996	.994
2	300.	1.000	.995	.995	.993	.992	.989
3	300.	1.000	.997	.996	.993	.990	.983
4	300.	1.000	.992	.990	.988	.987	.984
5	300.	1.000	.008	.997	.987	.981	.966
6	300.	1.000	.999	.997	.989	.983	.971
7	300.	1.000	.998	.997	.988	.981	.968
8	300.	.999	.997	.994	.979	.968	.945
9	300.	.999	.996	.993	.973	.958	.925
10	300.	.996	.981	.965	.879	.825	.713
11	300.	.992	.963	.933	.799	.727	.603
12	300.	.999	.995	.990	.960	.937	.882
13	300.	.979	.910	.844	.601	.487	.294
14	300.	1.000	1.000	1.000	.999	.999	.997
15	300.	1.000	1.000	1.000	.999	.999	.996
16	300.	1.000	1.000	1.000	1.000	1.000	.999
17	300.	.972	.885	.815	.629	.571	.499

MANAGNESE-55

CROSS SECTION DATA

I	SIGT	NU	SIGC	SIGIN	SIGEL	MUFL	7	SIGPEL
1	3.4982	.000	.0512	1.4152	2.0318	.7124	.0104	.0891
2	3.9060	.000	.0102	1.5382	2.3576	.6405	.0132	.0998
3	4.3534	.000	.0020	1.9770	2.3744	.5236	.0177	.0922
4	3.7496	.000	.0026	1.3353	2.4117	.3438	.0240	.1156
5	3.2115	.000	.0033	.7405	2.4671	.0975	.0329	.1623
6	3.2793	.000	.0040	.4315	2.7943	.0594	.0343	.1915
7	3.6641	.000	.0055	.4120	3.2465	.0643	.0340	.4420
8	4.1585	.000	.0071	.3883	3.7631	.0669	.0342	.5150
9	5.2238	.000	.0097	.3655	4.8486	.0508	.0345	.3346
10	7.3163	.000	.0144	.2067	7.0952	.0391	.0349	.4958
11	7.6413	.000	.0207	.0000	7.6206	.0339	.0352	.5357
12	8.8660	.000	.0299	.0000	8.8360	.0307	.0353	.6235
13	15.0164	.000	.0508	.0000	14.9657	.0275	.0353	1.1255
14	22.5017	.000	.0646	.0000	22.4371	.0252	.0344	3.1766
15	3.1046	.000	.0448	.0000	3.0198	.0235	.0354	.3821
16	10.2960	.000	.0823	.0000	10.2136	.0210	.0355	.7248
17	46.7165	.000	.0649	.0000	46.6517	.0118	.0356	3.3132
18	13.8482	.000	.0124	.0000	13.8358	.0172	.0357	.9974
19	65.3172	.000	.0609	.0000	65.2563	.0160	.0358	13.9935
20	12.7608	.000	.3600	.0000	312.4008	.0155	.0358	67.0977
21	437.1248	.000	.6082	.0000	436.5165	.0149	.0358	73.9362
22	42.2618	.000	.1200	.0000	42.1418	.0139	.0359	3.0258
23	73.4514	.000	2.0711	.0000	71.3603	.0124	.0360	5.1303
24	21.3953	.000	.2184	.0000	21.1769	.0127	.0361	1.5272
25	643.2252	.000	14.5195	.0000	628.7057	.0122	.0361	45.4037
26	22.1942	.000	.8891	.0000	21.3051	.0122	.0362	1.0278
27	4.3146	.000	.3815	.0000	3.9331	.0122	.0363	.1992
28	2.7424	.000	.4688	.0000	2.2736	.0122	.0364	.0551
29	3.1688	.000	1.3555	.0000	1.8133	.0122	.0366	.0221
30	1.3424	.000	.8231	.0000	.5194	.0122	.0366	.0320

MANGANESE-55

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0298	.2179	.3682	.3505	.2318	.1222	.0338	.0222	.0235	.0094	.0058
2	.0953	.3793	.4274	.3144	.1770	.0506	.0338	.0364	.0147	.0058	.0035
3	.2270	.6245	.5242	.3205	.0957	.0652	.0715	.0295	.0117	.0045	.0027
4	.4606	.3604	.2333	.0951	.0612	.0548	.0310	.0195	.0108	.0041	.0045
5	.3951	.2026	.0000	.0147	.0507	.0309	.0183	.0111	.0075	.0026	.0069
6	.2477	.1791	.0547	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
7	.0000	.2027	.2094	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
8	.0000	.3088	.0796	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
9	.0000	.1611	.1490	.0554	.0000	.0000	.0000	.0000	.0000	.0000	.0000
10	.0000	.0000	.0490	.0647	.0241	.0202	.0233	.0125	.0064	.0013	.0052

MANGANESE-55

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
11	300.	1.000	1.000	1.000	.997	.991	.989
12	300.	1.000	1.000	.998	.985	.944	.912
13	300.	1.000	1.000	.996	.966	.890	.846
14	300.	1.000	1.000	.996	.968	.899	.851
15	300.	1.000	.999	.991	.938	.824	.767
16	300.	1.000	1.000	.999	.994	.967	.937
17	300.	1.000	.995	.955	.749	.460	.342
18	300.	1.000	1.000	.996	.966	.863	.793
19	300.	1.000	.999	.992	.951	.896	.882
20	300.	.999	.992	.936	.809	.755	.747
21	300.	.999	.994	.959	.881	.852	.848
22	300.	1.000	.999	.988	.936	.898	.916
23	300.	.994	.942	.675	.325	.196	.177
24	300.	1.000	.999	.995	.961	.871	.830
25	300.	.989	.904	.601	.334	.251	.239
26	300.	1.000	.999	.988	.917	.775	.712
27	300.	1.000	1.000	1.000	1.000	.993	.995
28	300.	1.000	1.000	1.000	1.000	1.000	1.000
29	300.	1.000	1.000	1.000	.998	.984	.952

MANGANESE-55

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
11	300.	1.000	1.000	.996	.968	.826	.584
12	300.	1.000	.999	.986	.888	.586	.306
13	300.	1.000	.996	.959	.722	.289	.085
14	300.	1.000	.996	.966	.772	.426	.252
15	300.	1.000	.997	.970	.808	.563	.424
16	300.	1.000	.998	.980	.857	.579	.429
17	300.	.999	.989	.901	.529	.205	.132
18	300.	1.000	.999	.990	.918	.691	.557
19	300.	1.000	.998	.986	.916	.831	.812
20	300.	.998	.985	.890	.696	.627	.618
21	300.	.999	.987	.902	.733	.678	.671
22	300.	.999	.993	.936	.668	.370	.278
23	300.	.989	.905	.565	.289	.173	.112
24	300.	1.000	.999	.994	.953	.860	.824
25	300.	.978	.822	.411	.194	.142	.135
26	300.	1.000	.996	.967	.792	.533	.448
27	300.	1.000	1.000	1.000	.997	.979	.948
28	300.	1.000	1.000	1.000	1.000	.998	.994
29	300.	1.000	1.000	1.000	.998	.988	.963

MANGANESE-55

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
11	300.	.995	.994	.993	.984	.943	.909
12	300.	1.000	.990	.993	.941	.745	.540
13	300.	1.000	.998	.979	.846	.503	.245
14	300.	1.000	.998	.983	.875	.624	.471
15	300.	1.000	.998	.984	.887	.663	.513
16	300.	1.000	.999	.990	.921	.722	.582
17	300.	.999	.994	.949	.717	.399	.275
18	300.	1.000	.999	.995	.952	.723	.723
19	300.	1.000	.990	.993	.957	.708	.896
20	300.	.999	.992	.943	.828	.773	.771
21	300.	.999	.993	.950	.850	.725	.821
22	300.	1.000	.996	.967	.808	.566	.471
23	300.	.995	.951	.722	.412	.263	.208
24	300.	1.000	1.000	.997	.976	.920	.895
25	300.	.989	.905	.605	.344	.265	.254
26	300.	1.000	.998	.983	.882	.681	.503
27	300.	1.000	1.000	1.000	.998	.989	.970
28	300.	1.000	1.000	1.000	1.000	.998	.995
29	300.	1.000	1.000	1.000	1.000	1.000	1.000

MOLYBDENUM

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	3.9995	.0000	.000	.0044	1.8629	2.1322	.7015	.0064	.0571
2	3.8741	.0000	.000	.0071	2.1323	1.7347	.5508	.0095	.0473
3	4.3167	.0000	.000	.0113	2.0937	2.2117	.4191	.0122	.0593
4	5.4123	.0000	.000	.0184	1.3414	4.0525	.4284	.0120	.0975
5	6.6310	.0000	.000	.0289	.8564	5.7457	.4299	.0120	.1379
6	7.7064	.0000	.000	.0354	.3540	7.3170	.3382	.0139	.2038
7	8.3553	.0000	.000	.0399	.2638	8.0516	.2823	.0151	.4864
8	8.6859	.0000	.000	.0438	.1852	8.4569	.2339	.0161	.5453
9	9.0162	.0000	.000	.0501	.0548	8.9113	.1562	.0178	.3164
10	9.0640	.0000	.000	.0599	.0000	9.0040	.1023	.0189	.3401
11	8.5106	.0000	.000	.0746	.0000	8.4360	.0758	.0194	.3281
12	8.3410	.0000	.000	.1037	.0000	8.2373	.0559	.0199	.3272
13	8.2576	.0000	.000	.1555	.0000	8.1021	.0436	.0201	.3469
14	8.2839	.0000	.000	.2133	.0000	8.0706	.0329	.0203	.6569
15	8.3599	.0000	.000	.2609	.0000	8.0991	.0244	.0205	.5937
16	8.5719	.0000	.000	.3388	.0000	8.2331	.0123	.0208	.3422
17	9.0367	.0000	.000	.4612	.0000	8.5755	.0070	.0209	.3583
18	9.7583	.0000	.000	.6051	.0000	9.1532	.0070	.0209	.3824
19	10.3737	.0000	.000	.6942	.0000	9.6795	.0070	.0209	1.2133
20	10.7449	.0000	.000	.7463	.0000	9.9987	.0070	.0209	1.2533
21	11.1600	.0000	.000	.8060	.0000	10.3540	.0070	.0209	1.2978
22	12.1476	.0000	.000	.9537	.0000	11.1939	.0070	.0209	.4677
23	10.5065	.0000	.000	1.1205	.0000	9.3860	.0070	.0209	.3922
24	14.2937	.0000	.000	2.3686	.0000	11.9251	.0070	.0209	.4983
25	12.6741	.0000	.000	2.6942	.0000	9.9799	.0070	.0209	.4170
26	18.6234	.0000	.000	5.8938	.0000	12.7296	.0070	.0209	.3546
27	6.6941	.0000	.000	1.2875	.0000	5.4066	.0070	.0209	.1506
28	27.5481	.0000	.000	11.3753	.0000	16.1728	.0070	.0209	.2252
29	5.5267	.0000	.000	.5409	.0000	4.9858	.0070	.0209	.0347
30	5.3108	.0000	.000	.1517	.0000	5.1591	.0070	.0209	.2156

MOLYBDENUM

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0111	.1370	.3807	.5038	.4129	.2499	.0745	.0508	.0558	.0231	.0148
2	.0461	.3027	.5403	.5343	.3624	.1142	.0798	.0898	.0380	.0152	.0095
3	.1198	.4565	.5730	.4522	.1543	.1118	.1306	.0572	.0234	.0092	.0056
4	.2282	.3991	.4613	.0753	.0565	.0684	.0311	.0130	.0052	.0019	.0013
5	.2210	.1335	.1360	.1083	.1405	.0702	.0312	.0127	.0030	.0000	.0000
6	.1698	.0790	.0897	.0102	.0000	.0000	.0000	.0018	.0012	.0003	.0009
7	.0000	.0000	.2638	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
8	.0000	.0040	.1610	.0202	.0000	.0000	.0000	.0000	.0000	.0000	.0000
9	.0000	.0000	.0284	.0161	.0062	.0016	.0011	.0009	.0003	.0001	.0000

MOLYBDENUM

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	.995	.995	.994	.988	.952	.898
12	300.	1.000	1.000	.998	.986	.921	.833
13	300.	1.000	1.000	.997	.981	.894	.789
14	300.	1.000	1.000	.997	.976	.876	.764
15	300.	1.000	1.000	.996	.972	.859	.739
16	300.	1.000	.999	.995	.963	.827	.694
17	300.	1.000	.999	.993	.948	.780	.634
18	300.	1.000	.999	.990	.925	.721	.565
19	300.	1.000	.998	.986	.901	.663	.501
20	300.	1.000	.998	.983	.885	.632	.468
21	300.	1.000	.997	.980	.868	.601	.437
22	300.	1.000	.996	.971	.826	.535	.377
23	300.	1.000	.995	.961	.775	.483	.362
24	300.	.998	.979	.849	.525	.271	.189
25	300.	.999	.988	.902	.587	.285	.102
26	300.	.994	.940	.648	.240	.095	.062
27	300.	1.000	.997	.974	.820	.518	.302
28	300.	.990	.908	.558	.208	.086	.058
29	300.	1.000	.999	.993	.946	.793	.703

MOLYBDENUM

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	.999	1.000	.999	.985	.918	.839
12	300.	1.000	1.000	.999	.976	.877	.781
13	300.	1.000	1.000	.998	.968	.852	.751
14	300.	1.000	1.000	.996	.958	.828	.741
15	300.	1.000	1.000	.995	.948	.808	.723
16	300.	1.000	1.000	.992	.929	.773	.692
17	300.	1.000	1.000	.985	.891	.718	.645
18	300.	1.000	.998	.972	.836	.653	.538
19	300.	1.000	.998	.961	.792	.607	.548
20	300.	1.000	.998	.953	.767	.583	.528
21	300.	1.000	.997	.943	.740	.556	.506
22	300.	1.000	.993	.918	.683	.509	.463
23	300.	1.000	.998	.931	.741	.609	.575
24	300.	.997	.973	.824	.581	.465	.438
25	300.	.998	.982	.864	.593	.462	.434
26	300.	.991	.918	.608	.377	.323	.311
27	300.	1.000	.999	.988	.929	.848	.825
28	300.	.983	.858	.469	.262	.210	.198
29	300.	1.001	1.000	.999	.990	.970	.962

MOLYBDENUM

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	.995	.995	.994	.988	.955	.913
12	300.	1.000	1.000	.999	.988	.935	.876
13	300.	1.000	1.000	.998	.983	.916	.851
14	300.	1.000	1.000	.997	.978	.898	.830
15	300.	1.000	1.000	.997	.972	.882	.812
16	300.	1.000	.999	.995	.960	.852	.780
17	300.	1.000	.999	.991	.937	.803	.730
18	300.	1.000	.998	.985	.900	.742	.671
19	300.	1.000	.998	.977	.867	.696	.627
20	300.	1.000	.997	.973	.848	.671	.604
21	300.	1.000	.996	.967	.827	.646	.581
22	300.	.999	.994	.952	.779	.595	.535
23	300.	.999	.995	.958	.822	.688	.646
24	300.	.999	.988	.908	.713	.580	.544
25	300.	.999	.992	.932	.740	.598	.560
26	300.	.996	.966	.796	.566	.479	.460
27	300.	1.000	1.000	.999	.991	.975	.967
28	300.	.993	.936	.689	.442	.354	.333
29	300.	.999	.999	.999	.999	.999	.999

PSEUDO FISSION PRODUCT

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	KI	SIGDEL
1	9.1070	.0000	.000	.0100	4.1078	4.9892	.7924	.0032	.0316
2	9.4676	.0000	.000	.0200	4.1936	5.2540	.6823	.0053	.0553
3	10.8247	.0000	.000	.0379	4.0279	6.7589	.5798	.0071	.0962
4	12.5505	.0000	.000	.0556	3.2852	9.2097	.4855	.0083	.1526
5	13.7737	.0000	.000	.0741	2.2481	11.4514	.3982	.0100	.2293
6	14.2111	.0000	.000	.0945	1.2600	12.8366	.3176	.0116	.2971
7	14.1192	.0000	.000	.1184	.6927	13.3082	.2592	.0127	.6756
8	13.9916	.0000	.000	.1420	.4326	13.4170	.2238	.0134	.7203
9	14.0455	.0000	.000	.1817	.2296	13.6341	.1674	.0143	.3887
10	14.2768	.0000	.000	.2429	.0732	13.9606	.1018	.0150	.4134
11	14.3961	.0000	.000	.3279	.0001	14.0681	.0631	.0157	.4410
12	14.9755	.0000	.000	.4382	.0000	14.5373	.0421	.0160	.4652
13	15.8951	.0000	.000	.5714	.0000	15.3237	.0307	.0161	.5237
14	16.3936	.0000	.000	.6878	.0000	15.7058	.0251	.0164	1.0325
15	16.7328	.0000	.000	.7848	.0000	15.9480	.0218	.0168	.9558
16	17.1629	.0000	.000	.9468	.0000	16.2160	.0165	.0170	.5513
17	17.7286	.0000	.000	1.2050	.0000	16.5236	.0109	.0170	.5618
18	18.7942	.0000	.000	1.5354	.0000	17.2588	.0100	.0170	.5868
19	19.6260	.0000	.000	1.8080	.0000	17.8180	.0100	.0170	1.8138
20	20.0116	.0000	.000	1.9749	.0000	18.0367	.0100	.0170	1.8361
21	20.4130	.0000	.000	2.1613	.0000	18.2518	.0100	.0170	1.8520
22	21.3405	.0000	.000	2.6123	.0000	18.7282	.0100	.0170	.6368
23	23.5336	.0000	.000	3.5696	.0000	19.9640	.0100	.0170	.6788
24	26.2294	.0000	.000	4.8654	.0000	21.3640	.0100	.0170	.7264
25	29.2569	.0000	.000	6.5905	.0000	22.6664	.0100	.0170	.7707
26	34.1259	.0000	.000	9.8111	.0000	24.3148	.0100	.0170	.5511
27	43.7007	.0000	.000	15.7082	.0000	27.9925	.0100	.0170	.6345
28	77.8394	.0000	.000	29.8379	.0000	48.0015	.0100	.0170	.5440
29	87.3155	.0000	.000	53.3126	.0000	34.0029	.0100	.0170	.1926
30	87.3155	.0000	.000	53.3126	.0000	34.0029	.0100	.0170	.1926

PSEUDO FISSION PRODUCT

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0245	.3021	.8395	1.1109	.9105	.5510	.1643	.1120	.1230	.0509	.0326
2	.0907	.5953	1.0626	1.0508	.7127	.2246	.1569	.1766	.0747	.0299	.0187
3	.2305	.8782	1.1023	.8699	.2968	.2151	.2512	.1100	.0450	.0177	.0108
4	.5589	.9774	1.1298	.1844	.1384	.1675	.0762	.0318	.0127	.0047	.0032
5	.5801	.3505	.3570	.2843	.3688	.1843	.0819	.0333	.0079	.0000	.0000
6	.6140	.2856	.3243	.0391	.0000	.0000	.0000	.0065	.0043	.0029	.0033
7	.0000	.0000	.6927	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
8	.0000	.0093	.3761	.0472	.0000	.0000	.0000	.0000	.0000	.0000	.0000
9	.0000	.0000	.1190	.0675	.0260	.0067	.0046	.0038	.0013	.0004	.0000
10	.0400	.0332	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
11	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

TANTALUM-181

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	5.1812	.0000	.000	.0057	2.0906	3.0849	.6891	.0034	.0445
2	6.5611	.0000	.000	.0116	2.3022	4.2473	.7355	.0029	.0357
3	6.9149	.0000	.000	.0287	2.2993	4.5869	.6637	.0037	.0373
4	6.4345	.0000	.000	.0734	2.2042	4.1569	.5524	.0049	.0410
5	6.2528	.0000	.000	.1240	2.1262	4.0026	.4365	.0062	.0496
6	6.7966	.0000	.000	.1563	1.9515	4.6889	.3191	.0075	.0705
7	7.3579	.0000	.000	.2083	1.6712	5.4785	.2464	.0083	.1822
8	7.4107	.0000	.000	.2483	1.5639	5.5986	.2066	.0087	.1959
9	7.3098	.0000	.000	.2864	1.3987	5.6247	.1549	.0093	.1047
10	7.5252	.0000	.000	.3329	.9721	6.2202	.1053	.0099	.1225
11	9.2370	.0000	.000	.4057	.8094	8.0219	.0712	.0103	.1645
12	10.1392	.0000	.000	.5462	.6424	8.9505	.0435	.0106	.1890
13	10.9552	.0000	.000	.7582	.4727	9.7243	.0290	.0107	.2212
14	11.7091	.0000	.000	.9610	.3760	10.3721	.0221	.0108	.4465
15	12.3868	.0000	.000	1.1608	.3023	10.9236	.0181	.0108	.4219
16	13.5928	.0000	.000	1.5413	.2003	11.8512	.0136	.0109	.2581
17	15.6045	.0000	.000	2.2543	.0464	13.3038	.0098	.0109	.2910
18	18.1436	.0000	.000	3.2164	.0000	14.9272	.0091	.0109	.3269
19	20.1309	.0000	.000	4.0584	.0000	16.0724	.0088	.0110	1.0565
20	21.2757	.0000	.000	4.5820	.0000	16.6937	.0087	.0110	1.0977
21	22.5228	.0000	.000	5.1785	.0000	17.3443	.0086	.0110	1.1408
22	25.4061	.0000	.000	6.6627	.0000	18.7434	.0084	.0110	.4112
23	30.6846	.0000	.000	9.6442	.0000	21.0404	.0081	.0110	.4620
24	37.4767	.0000	.000	13.9000	.0000	23.5767	.0078	.0110	.5181
25	44.6670	.0000	.000	20.1944	.0000	24.4726	.0075	.0110	.5383
26	59.2562	.0000	.000	28.9262	.0000	30.3300	.0071	.0110	.4452
27	90.6089	.0000	.000	45.0949	.0000	45.5140	.0066	.0110	.6690
28	115.8188	.0000	.000	83.1841	.0000	32.6347	.0059	.0110	.2403
29	184.6954	.0000	.000	169.4780	.0000	15.2174	.0044	.0111	.0562
30	905.5894	.0000	.000	844.9531	.0000	60.6363	.0046	.0111	1.3442

TANTALUM-181

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0004	.0203	.1680	.4569	.5941	.4793	.1655	.1205	.1415	.0623	.0418
2	.0037	.0747	.3254	.5774	.5688	.2181	.1668	.2058	.0951	.0402	.0261
3	.0196	.1867	.4825	.6072	.2648	.2152	.2829	.1388	.0609	.0249	.0158
4	.1849	.6370	.4912	.2107	.1831	.2579	.1351	.0617	.0259	.0099	.0068
5	1.0433	.7801	.1450	.0938	.0531	.0107	.0003	.0000	.0000	.0000	.0000
6	.9630	.4198	.2050	.1877	.0797	.0500	.0266	.0122	.0034	.0022	.0017
7	.6315	.4189	.4753	.1058	.0385	.0000	.0000	.0000	.0000	.0009	.0003
8	.6568	.5971	.2390	.0217	.0315	.0122	.0028	.0016	.0010	.0001	.0000
9	.7259	.3083	.2331	.1179	.0121	.0014	.0000	.0000	.0000	.0000	.0000
10	.7363	.1134	.0189	.0530	.0187	.0143	.0126	.0039	.0009	.0000	.0001
11	.6590	.1504	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
12	.4649	.1776	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
13	.2584	.1838	.0304	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
14	.0000	.2626	.1134	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
15	.0000	.2700	.0323	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
16	.0000	.1072	.0749	.0158	.0024	.0000	.0000	.0000	.0000	.0000	.0000
17	.0000	.0000	.0000	.0093	.0086	.0147	.0076	.0039	.0015	.0007	.0002

TANTALUM-181

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
11	300.	.994	.994	.994	.976	.941	.831
12	300.	1.000	1.000	1.000	.966	.916	.771
13	300.	1.000	.998	.995	.947	.892	.750
14	300.	.999	.994	.987	.926	.867	.729
15	300.	.998	.989	.979	.904	.843	.712
16	300.	.995	.978	.960	.861	.797	.675
17	300.	.989	.955	.922	.789	.722	.614
18	300.	.978	.915	.861	.689	.619	.521
19	300.	.967	.878	.808	.612	.541	.449
20	300.	.960	.856	.778	.572	.502	.414
21	300.	.951	.831	.746	.533	.463	.380
22	300.	.930	.774	.676	.456	.392	.317
23	300.	.885	.678	.566	.352	.297	.237
24	300.	.823	.573	.459	.266	.221	.175
25	300.	.775	.494	.382	.217	.184	.151
26	300.	.645	.371	.281	.160	.137	.115
27	300.	.534	.288	.214	.117	.098	.080
28	300.	.367	.182	.135	.077	.066	.055
29	300.	.194	.099	.078	.053	.048	.044

TANTALUM-181

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
11	300.	.998	.990	.980	.893	.818	.682
12	300.	.997	.983	.967	.844	.747	.588
13	300.	.994	.974	.950	.804	.706	.559
14	300.	.992	.963	.931	.764	.668	.534
15	300.	.989	.951	.911	.730	.637	.515
16	300.	.982	.925	.872	.673	.588	.484
17	300.	.969	.878	.804	.596	.524	.444
18	300.	.945	.808	.717	.513	.457	.397
19	300.	.922	.751	.650	.457	.410	.361
20	300.	.907	.718	.615	.430	.387	.343
21	300.	.891	.685	.580	.404	.365	.326
22	300.	.850	.614	.510	.355	.323	.291
23	300.	.773	.507	.413	.289	.266	.243
24	300.	.678	.408	.328	.234	.217	.201
25	300.	.644	.384	.316	.242	.229	.216
26	300.	.487	.279	.231	.177	.166	.153
27	300.	.328	.176	.142	.101	.093	.084
28	300.	.229	.128	.106	.079	.073	.067
29	300.	.124	.079	.069	.057	.055	.053

TANTALUM-181

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
11	300.	.994	.994	.993	.983	.972	.941
12	300.	.999	.997	.995	.976	.958	.916
13	300.	.998	.993	.988	.956	.933	.887
14	300.	.997	.988	.979	.933	.905	.855
15	300.	.996	.982	.969	.910	.879	.826
16	300.	.993	.970	.948	.868	.831	.777
17	300.	.986	.945	.909	.801	.761	.707
18	300.	.974	.905	.853	.721	.680	.630
19	300.	.962	.869	.806	.663	.622	.576
20	300.	.954	.848	.779	.633	.593	.549
21	300.	.945	.824	.751	.604	.565	.524
22	300.	.922	.772	.692	.547	.512	.475
23	300.	.875	.686	.602	.468	.439	.411
24	300.	.811	.595	.515	.401	.378	.356
25	300.	.800	.604	.536	.445	.427	.410
26	300.	.668	.465	.408	.335	.319	.302
27	300.	.451	.286	.245	.191	.179	.166
28	300.	.389	.276	.250	.214	.205	.194
29	300.	.428	.360	.344	.324	.320	.317

TUNGSTEN-182

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	5.2995	.0000	.000	.0106	2.2959	2.9930	.7191	.0031	.0385
2	6.6346	.0000	.000	.0181	2.5183	4.0981	.7726	.0025	.0294
3	6.9192	.0000	.000	.0324	2.5175	4.3693	.6934	.0034	.0323
4	6.3867	.0000	.000	.0610	2.2937	4.0319	.5620	.0048	.0388
5	6.1445	.0000	.000	.1054	1.8924	4.1467	.4194	.0064	.0529
6	6.4786	.0000	.000	.1110	1.4709	4.8967	.3093	.0076	.0743
7	7.2978	.0000	.000	.1112	1.1168	6.0698	.2431	.0083	.2019
8	7.8472	.0000	.000	.1252	.8922	6.8297	.2067	.0087	.2381
9	8.3909	.0000	.000	.1432	.5895	7.6582	.1596	.0092	.1413
10	8.7670	.0000	.000	.2037	.1823	8.3810	.0947	.0096	.1611
11	10.7934	.0000	.000	.2743	.0041	10.5150	.0516	.0099	.2075
12	12.3006	.0000	.000	.3137	.0000	11.9869	.0281	.0101	.2428
13	13.6804	.0000	.000	.3737	.0000	13.3067	.0156	.0104	.2941
14	14.9380	.0000	.000	.4324	.0000	14.5056	.0099	.0106	.6143
15	16.0372	.0000	.000	.4841	.0000	15.5531	.0072	.0107	.5963
16	17.9714	.0000	.000	.5787	.0000	17.3927	.0046	.0110	.3810
17	21.0745	.0000	.000	.7488	.0000	20.3257	.0037	.0110	.4491
18	25.0813	.0000	.000	1.0180	.0000	24.0633	.0037	.0110	.5317
19	28.3295	.0000	.000	1.2787	.0000	27.0507	.0037	.0110	1.7930
20	30.1962	.0000	.000	1.4486	.0000	28.7476	.0037	.0110	1.9054
21	32.2272	.0000	.000	1.6483	.0000	30.5788	.0037	.0110	2.0268
22	36.9152	.0000	.000	2.1734	.0000	34.7419	.0037	.0110	.7676
23	45.4833	.0000	.000	3.3111	.0000	42.1722	.0037	.0110	.9318
24	56.4925	.0000	.000	5.0947	.0000	51.3978	.0037	.0110	1.1356
25	68.4664	.0000	.000	7.4813	.0000	60.9852	.0037	.0110	1.3474
26	99.5340	.0000	.000	5.6518	.0000	93.8822	.0037	.0110	1.3828
27	117.1653	.0000	.000	20.7652	.0000	96.4000	.0037	.0110	1.4199
28	245.3200	.0000	.000	142.7080	.0000	102.6120	.0037	.0110	.7557
29	123.1009	.0000	.000	115.8563	.0000	7.2446	.0037	.0110	.0267
30	2.2217	.0000	.000	.0429	.0000	2.1789	.0293	.0853	.3715

TUNGSTEN-182

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0004	.0214	.1779	.4848	.6311	.5096	.1760	.1282	.1505	.0663	.0445
2	.0040	.0816	.3557	.6315	.6223	.2387	.1825	.2252	.1041	.0440	.0286
3	.0323	.2459	.5861	.6350	.2708	.2184	.2864	.1402	.0614	.0251	.0159
4	.7332	.4911	.4504	.1825	.1416	.1797	.0792	.0242	.0076	.0025	.0017
5	1.2558	.5990	.0095	.0004	.0002	.0028	.0104	.0071	.0038	.0012	.0021
6	.8517	.5400	.0391	.0364	.0037	.0000	.0000	.0000	.0000	.0000	.0000
7	.0503	.8585	.1884	.0144	.0048	.0005	.0000	.0000	.0000	.0000	.0000
8	.0000	.8911	.0000	.0000	.0005	.0003	.0001	.0000	.0000	.0000	.0000
9	.0858	.3722	.1315	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
10	.0000	.0539	.0782	.0313	.0086	.0059	.0044	.0000	.0000	.0000	.0000
11	.0000	.0000	.0000	.0000	.0000	.0009	.0020	.0008	.0001	.0001	.0002

TUNGSTEN-182

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
1	300.	1.000	.998	.997	.997	.994	.989
2	300.	1.000	.995	.994	.994	.991	.988
3	300.	1.000	.992	.992	.992	.993	.994
4	300.	1.000	.991	.990	.990	.992	.994
5	300.	1.000	1.000	1.000	1.000	1.000	1.000
6	300.	1.000	1.000	1.000	1.000	1.000	1.000
7	300.	1.000	1.000	1.000	1.000	1.000	1.000
8	300.	1.000	1.000	1.000	1.000	1.000	.999
9	300.	1.000	1.000	1.000	1.000	1.000	.999
10	300.	1.000	1.000	1.000	1.000	.999	.999
11	300.	.997	.997	.996	.989	.954	.909
12	300.	1.000	1.000	.998	.981	.907	.833
13	300.	1.000	.999	.995	.962	.851	.759
14	300.	1.000	.999	.992	.941	.798	.698
15	300.	1.000	.999	.988	.918	.751	.648
16	300.	1.000	.998	.978	.870	.670	.565
17	300.	.999	.995	.956	.782	.549	.451
18	300.	.999	.990	.918	.669	.423	.338
19	300.	.998	.984	.883	.588	.345	.271
20	300.	.998	.981	.862	.547	.310	.241
21	300.	.997	.977	.839	.506	.277	.215
22	300.	.996	.967	.786	.431	.222	.171
23	300.	.993	.944	.695	.331	.159	.121
24	300.	.989	.910	.596	.252	.115	.087
25	300.	.982	.863	.499	.192	.086	.066
26	300.	.964	.762	.399	.176	.084	.068
27	300.	.940	.645	.243	.082	.038	.032
28	300.	.874	.470	.151	.051	.023	.019
29	300.	.945	.667	.262	.096	.049	.039

TUNGSTEN-182

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
1	300.	1.000	1.000	1.000	.999	.997	.993
2	300.	1.000	.999	.999	.999	.998	.995
3	300.	1.000	1.000	1.000	1.000	1.000	1.000
4	300.	1.000	1.000	1.000	1.000	1.000	.999
5	300.	1.000	1.000	1.000	1.000	1.000	1.000
6	300.	1.001	1.000	1.000	1.000	.999	.998
7	300.	1.000	1.000	1.000	1.000	.999	.999
8	300.	1.000	1.000	1.000	1.000	1.000	.999
9	300.	1.000	1.000	1.000	1.000	1.000	.999
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.000	.999	.994	.956	.839	.765
12	300.	1.000	.999	.988	.912	.744	.666
13	300.	1.000	.998	.977	.856	.669	.604
14	300.	1.000	.996	.965	.801	.609	.555
15	300.	.999	.995	.951	.754	.565	.518
16	300.	.999	.991	.923	.678	.501	.403
17	300.	.998	.984	.871	.576	.424	.395
18	300.	.997	.971	.797	.478	.354	.332
19	300.	.995	.958	.737	.417	.312	.294
20	300.	.994	.950	.704	.389	.292	.276
21	300.	.993	.941	.669	.363	.273	.259
22	300.	.990	.916	.597	.315	.239	.227
23	300.	.984	.866	.490	.253	.194	.185
24	300.	.973	.797	.392	.202	.157	.140
25	300.	.957	.714	.321	.174	.139	.134
26	300.	.925	.587	.234	.116	.072	.050
27	300.	.889	.468	.155	.070	.038	.024
28	300.	.774	.288	.097	.050	.033	.026
29	300.	.898	.490	.164	.085	.062	.055

TUNGSTEN-182

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
1	300.	1.000	.998	.997	.997	.995	.991
2	300.	1.000	.995	.994	.994	.993	.991
3	300.	1.000	.992	.992	.992	.992	.991
4	300.	1.000	.991	.990	.990	.990	.990
5	300.	1.000	1.000	1.000	1.000	1.000	1.000
6	300.	1.000	1.000	1.000	1.000	.999	.998
7	300.	1.000	1.000	1.000	1.000	1.000	.999
8	300.	1.000	1.000	1.000	1.000	1.000	1.000
9	300.	1.000	1.000	1.000	1.000	1.000	.999
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	.996	.995	.993	.974	.912	.869
12	300.	1.000	.999	.994	.954	.847	.789
13	300.	1.000	.999	.988	.919	.776	.716
14	300.	1.000	.998	.982	.883	.717	.657
15	300.	1.000	.997	.975	.850	.671	.612
16	300.	.999	.995	.959	.791	.601	.546
17	300.	.999	.992	.929	.704	.513	.465
18	300.	.998	.985	.884	.610	.432	.391
19	300.	.998	.978	.845	.547	.381	.346
20	300.	.997	.974	.822	.516	.358	.325
21	300.	.997	.969	.797	.486	.336	.305
22	300.	.995	.956	.742	.429	.295	.269
23	300.	.992	.927	.651	.351	.242	.221
24	300.	.986	.886	.555	.286	.197	.180
25	300.	.977	.832	.472	.245	.175	.162
26	300.	.961	.746	.366	.171	.102	.078
27	300.	.943	.662	.278	.117	.061	.041
28	300.	.882	.504	.205	.108	.074	.062
29	300.	.974	.843	.651	.567	.539	.530

LITHIUM-6

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	SI	SIGDEL
1	1.8317	.0000	.000	.0710	.6056	1.1550	.6101	.1307	.6354
2	2.0341	.0000	.000	.1107	.6324	1.2910	.4160	.1958	.7286
3	1.7748	.0000	.000	.1604	.2451	1.3693	.2517	.2510	.7539
4	1.3784	.0000	.000	.2237	.0128	1.1419	.2710	.2445	.5102
5	1.4537	.0000	.000	.2901	.0000	1.1636	.2863	.2393	.5570
6	1.8154	.0000	.000	.4056	.0000	1.4098	.2955	.2363	.6662
7	2.5969	.0000	.000	.8364	.0000	1.7606	.3000	.2347	1.6531
8	4.5300	.0000	.000	1.5419	.0000	2.9882	.3021	.2340	2.7973
9	7.3420	.0000	.000	2.1484	.0000	5.1936	.1072	.2935	3.1111
10	2.2530	.0000	.000	.9413	.0000	1.3117	.0703	.3119	.8182
11	1.6573	.0000	.000	.8236	.0000	.8337	.0874	.3061	.5104
12	1.6747	.0000	.000	.9334	.0000	.7413	.0978	.3026	.4487
13	1.7928	.0000	.000	1.1176	.0000	.6752	.1040	.3006	.4318
14	1.9260	.0000	.000	1.2713	.0000	.6547	.1070	.2995	.7845
15	2.0644	.0000	.000	1.3994	.0000	.6650	.1086	.2990	.7102
16	2.3313	.0000	.000	1.6417	.0000	.6897	.1102	.2985	.4117
17	2.7645	.0000	.000	1.9801	.0000	.7844	.1108	.2983	.4679
18	3.2690	.0000	.000	2.3869	.0000	.8821	.1108	.2983	.5262
19	3.6848	.0000	.000	2.7664	.0000	.9184	.1108	.2983	1.6435
20	3.9287	.0000	.000	2.9982	.0000	.9304	.1108	.2983	1.6650
21	4.1921	.0000	.000	3.2495	.0000	.9426	.1108	.2983	1.6868
22	4.7848	.0000	.000	3.8349	.0000	.9500	.1108	.2983	.5667
23	5.8675	.0000	.000	4.9175	.0000	.9500	.1108	.2983	.5667
24	7.3084	.0000	.000	6.3584	.0000	.9500	.1108	.2983	.5667
25	9.1368	.0000	.000	8.1868	.0000	.9500	.1108	.2983	.5667
26	12.0469	.0000	.000	11.0969	.0000	.9500	.1108	.2983	.3778
27	16.9350	.0000	.000	15.9850	.0000	.9500	.1108	.2983	.3778
28	29.6477	.0000	.000	28.6977	.0000	.9500	.1108	.2983	.1839
29	95.3902	.0000	.000	94.4402	.0000	.9500	.1108	.2983	.0944
30	77.3690	.0000	.000	76.4190	.0000	.9500	.1108	.2983	.5667

LITHIUM-6

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0056	.1021	.2155	.1336	.0864	.0385	.0106	.0027	.0041	.0027	.0040
2	.0003	.0758	.2463	.1990	.0674	.0177	.0085	.0067	.0043	.0027	.0036
3	.0000	.0294	.0586	.1157	.0221	.0151	.0042	.0000	.0000	.0000	.0000
4	.0000	.0000	.0000	.0054	.0031	.0027	.0009	.0004	.0002	.0001	.0001

LITHIUM-6

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.998	.997	.997	.996	.994
2	300.	1.000	.996	.995	.994	.994	.993
3	300.	1.000	.994	.993	.994	.996	1.001
4	300.	1.000	.992	.991	.990	.990	.991
5	300.	1.000	1.000	1.000	1.000	.999	.998
6	300.	1.000	1.000	.999	.998	.996	.990
7	300.	1.000	.999	.999	.996	.993	.985
8	300.	1.000	.998	.997	.989	.983	.971
9	300.	.999	.996	.992	.971	.953	.933
10	300.	1.000	1.000	.999	.996	.994	.987
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	1.000	1.000	1.000	1.000	1.000	1.000
13	300.	1.000	1.000	1.000	1.000	1.000	.999
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	.999
16	300.	1.000	1.000	1.000	.999	.999	.998
17	300.	1.000	1.000	1.000	.999	.999	.998
18	300.	1.000	1.000	1.000	.999	.999	.998
19	300.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	1.000	1.000
22	300.	1.000	1.000	1.000	.999	.998	.997
23	300.	1.000	1.000	1.000	.998	.998	.996
24	300.	1.000	1.000	.999	.998	.997	.996
25	300.	1.000	1.000	.999	.998	.997	.996
26	300.	1.000	.999	.998	.995	.993	.991
27	300.	1.000	.998	.997	.993	.991	.990
28	300.	.997	.990	.983	.966	.962	.957
29	300.	.973	.920	.893	.853	.845	.838

LITHIUM-6

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	1.000	1.000	.999	.999	.998
2	300.	1.000	1.000	1.000	1.000	.999	.999
3	300.	1.000	1.001	1.000	.999	.997	.991
4	300.	1.000	1.001	1.001	1.001	1.000	1.000
5	300.	1.000	1.000	1.000	1.000	.999	.998
6	300.	1.000	1.000	.999	.997	.995	.989
7	300.	1.000	.999	.999	.995	.991	.982
8	300.	.999	.996	.993	.975	.963	.938
9	300.	.997	.987	.976	.917	.881	.815
10	300.	1.000	.998	.997	.986	.978	.954
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	1.000	1.000	1.000	1.000	1.000	1.000
13	300.	1.000	1.000	1.000	1.000	1.000	.999
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	.999
16	300.	1.000	1.000	1.000	.999	.999	.997
17	300.	1.000	1.000	1.000	.999	.998	.996
18	300.	1.000	1.000	1.000	.999	.998	.996
19	300.	1.000	1.000	1.000	1.000	1.000	.999
20	300.	1.000	1.000	1.000	1.000	1.000	.999
21	300.	1.000	1.000	1.000	1.000	1.000	.999
22	300.	1.000	1.000	.999	.998	.997	.995
23	300.	1.000	1.000	.999	.997	.996	.994
24	300.	1.000	.999	.999	.997	.995	.993
25	300.	1.000	.999	.999	.996	.995	.993
26	300.	1.000	.998	.996	.990	.987	.983
27	300.	.999	.997	.995	.987	.984	.980
28	300.	.995	.980	.968	.937	.928	.919
29	300.	.947	.850	.804	.739	.727	.717

LITHIUM-6

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	500.0	100.0	50.0	10.0	5.0	1.0
1	300.	1.000	.998	.998	.997	.997	.997
2	300.	1.000	.996	.995	.994	.994	.994
3	300.	1.000	.993	.992	.991	.991	.990
4	300.	1.000	.992	.991	.990	.990	.990
5	300.	1.000	1.000	1.000	1.000	1.000	.999
6	300.	1.000	1.000	1.000	.999	.996	.996
7	300.	1.000	1.000	1.000	.998	.997	.994
8	300.	1.000	.998	.996	.987	.980	.966
9	300.	.998	.993	.986	.954	.934	.897
10	300.	1.000	.999	.998	.991	.985	.967
11	300.	1.000	1.000	1.000	1.000	1.000	1.000
12	300.	1.000	1.000	1.000	1.000	1.000	1.000
13	300.	1.000	1.000	1.000	1.000	1.000	1.000
14	300.	1.000	1.000	1.000	1.000	1.000	1.000
15	300.	1.000	1.000	1.000	1.000	1.000	1.000
16	300.	1.000	1.000	1.000	1.000	1.000	.999
17	300.	1.000	1.000	1.000	1.000	.999	.998
18	300.	1.000	1.000	1.000	1.000	1.000	.999
19	300.	1.000	1.000	1.000	1.000	1.000	1.000
20	300.	1.000	1.000	1.000	1.000	1.000	1.000
21	300.	1.000	1.000	1.000	1.000	1.000	1.000
22	300.	1.000	1.000	1.000	1.000	1.000	1.000
23	300.	1.000	1.000	1.000	1.000	1.000	1.000
24	300.	1.000	1.000	1.000	1.000	1.000	1.000
25	300.	1.000	1.000	1.000	1.000	1.000	1.000
26	300.	1.000	1.000	1.000	1.000	1.000	1.000
27	300.	1.000	1.000	1.000	1.000	1.000	1.000
28	300.	1.000	1.000	1.000	1.000	1.000	1.000
29	300.	1.000	1.000	1.000	1.000	1.000	1.000

COPPER

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	KI	SIGDEL
1	3.8267	.0000	.000	.0989	1.5602	2.1676	.7693	.0073	.0670
2	3.8257	.0000	.000	.0687	1.6639	2.0931	.6716	.0104	.0630
3	3.4921	.0000	.000	.0389	1.5750	1.8782	.4843	.0164	.0675
4	3.3134	.0000	.000	.0164	.9450	2.3519	.3229	.0215	.1012
5	3.4808	.0000	.000	.0122	.2755	3.1932	.1894	.0257	.1644
6	4.0189	.0000	.000	.0140	.0198	3.9851	.1504	.0270	.2150
7	4.5213	.0000	.000	.0153	.0000	4.5059	.1359	.0274	.4945
8	4.7844	.0000	.000	.0174	.0000	4.7670	.1328	.0275	.5251
9	4.8380	.0000	.000	.0230	.0000	4.8150	.0694	.0296	.2846
10	4.6481	.0000	.000	.0270	.0000	4.6210	.0440	.0304	.2805
11	6.5023	.0000	.000	.0301	.0000	6.4722	.0277	.0309	.3996
12	7.2709	.0000	.000	.0374	.0000	7.2334	.0185	.0312	.4508
13	11.2564	.0000	.000	.0517	.0000	11.2047	.0152	.0313	.7454
14	15.2956	.0000	.000	.0790	.0000	15.2166	.0138	.0313	1.9060
15	12.5845	.0000	.000	.0990	.0000	12.4854	.0127	.0313	1.3979
16	14.9518	.0000	.000	.1465	.0000	14.8053	.0112	.0314	.9297
17	14.8750	.0000	.000	.2093	.0000	14.6656	.0106	.0314	.9216
18	12.7709	.0000	.000	.2157	.0000	12.5552	.0106	.0314	.7890
19	6.6616	.0000	.000	.0564	.0000	6.6052	.0106	.0314	1.2452
20	26.6094	.0000	.000	.9677	.0000	25.6418	.0106	.0314	4.8340
21	59.7404	.0000	.000	.6676	.0000	59.0727	.0106	.0314	11.1364
22	6.7560	.0000	.000	.1114	.0000	6.6445	.0106	.0314	.4175
23	5.6249	.0000	.000	.0444	.0000	5.5806	.0106	.0314	.3507
24	15.6631	.0000	.000	3.6604	.0000	12.0028	.0106	.0314	.7543
25	6.9871	.0000	.000	.0428	.0000	6.9443	.0106	.0314	.4364
26	8.2902	.0000	.000	.3544	.0000	7.9358	.0106	.0314	.3325
27	8.7456	.0000	.000	.0570	.0000	8.6886	.0106	.0314	.3640
28	9.3810	.0000	.000	.1069	.0000	9.2741	.0106	.0314	.1943
29	8.2470	.0000	.000	.3706	.0000	7.8765	.0106	.0314	.0825
30	7.9980	.0000	.000	.2980	.0000	7.7000	.0106	.0314	.4839

COPPER

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0362	.2484	.4085	.3829	.2510	.1316	.0362	.0238	.0252	.0101	.0002
2	.0979	.3911	.4603	.3485	.1999	.0577	.0388	.0419	.0170	.0067	.0041
3	.1740	.4630	.4205	.2703	.0829	.0572	.0635	.0265	.0105	.0041	.0025
4	.1459	.2440	.2919	.0987	.0590	.0634	.0247	.0106	.0042	.0015	.0010
5	.0000	.0381	.0329	.0506	.0831	.0435	.0152	.0069	.0029	.0009	.0014
6	.0000	.0000	.0000	.0000	.0055	.0075	.0035	.0018	.0006	.0004	.0005

COPPER

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.000	1.000	1.000	.999	.997	.995
12	300.	1.000	1.000	1.000	1.000	1.000	1.000
13	300.	1.000	1.000	.998	.985	.954	.940
14	300.	1.000	.999	.994	.954	.863	.823
15	300.	1.000	.999	.990	.926	.782	.720
16	300.	1.000	.998	.978	.863	.678	.613
17	300.	.999	.995	.955	.761	.532	.455
18	300.	1.000	.995	.957	.767	.530	.457
19	300.	1.000	1.000	1.000	1.000	.998	.997
20	300.	.999	.988	.898	.579	.325	.260
21	300.	.999	.986	.885	.541	.295	.241
22	300.	1.000	.998	.981	.881	.712	.644
23	300.	1.000	1.000	1.000	1.000	1.000	1.000
24	300.	.996	.958	.720	.312	.137	.102
25	300.	1.000	1.000	1.000	1.000	1.000	1.000
26	300.	1.000	.998	.978	.837	.526	.406

COPPER

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.001	1.000	.998	.982	.906	.825
12	300.	1.000	1.000	.996	.964	.824	.680
13	300.	1.000	.999	.993	.944	.816	.747
14	300.	1.000	.998	.984	.887	.676	.571
15	300.	1.000	.997	.976	.835	.591	.483
16	300.	.999	.996	.959	.771	.530	.428
17	300.	.999	.990	.916	.645	.386	.141
18	300.	.999	.990	.917	.638	.413	.347
19	300.	1.000	1.000	1.000	.998	.990	.979
20	300.	.998	.985	.880	.568	.389	.346
21	300.	.998	.976	.810	.403	.229	.198
22	300.	1.000	.996	.963	.809	.657	.617
23	300.	1.000	1.000	1.000	.999	.996	.991
24	300.	.994	.950	.724	.496	.430	.410
25	300.	1.000	1.000	1.000	1.000	.998	.997
26	300.	1.000	1.000	.998	.987	.969	.964

COPPER

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
10	300.	1.000	1.000	1.000	1.000	1.000	1.000
11	300.	1.000	1.000	.999	.991	.949	.899
12	300.	1.000	1.000	.998	.982	.902	.811
13	300.	1.000	1.000	.996	.970	.889	.837
14	300.	1.000	.999	.992	.939	.797	.715
15	300.	1.000	.999	.988	.908	.719	.617
16	300.	1.000	.998	.979	.865	.659	.561
17	300.	.999	.995	.956	.771	.523	.352
18	300.	1.000	.995	.956	.767	.523	.432
19	300.	1.000	1.000	1.000	.999	.995	.989
20	300.	.999	.993	.937	.714	.504	.443
21	300.	.999	.988	.898	.589	.354	.298
22	300.	1.000	.998	.981	.883	.727	.668
23	300.	1.000	1.000	1.000	1.000	.998	.995
24	300.	.998	.980	.866	.667	.573	.546
25	300.	1.000	1.000	1.000	1.000	.999	.998
26	300.	1.000	1.000	1.000	.999	.998	.997

URANIUM-233

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	AI	SIGDEL
1	6.5470	2.1293	3.414	.0007	1.2126	3.2044	.8600	.0014	.0184
2	7.5521	1.6702	3.082	.0015	1.6921	4.1883	.7844	.0019	.0234
3	7.6824	1.9013	2.863	.0064	1.6965	4.0782	.6748	.0029	.0255
4	6.6403	1.9221	2.724	.0220	1.1904	3.5058	.6113	.0034	.0237
5	6.3931	1.8549	2.635	.0590	.8465	3.6327	.5851	.0036	.0261
6	7.2283	1.9187	2.532	.1182	.6871	4.5043	.5276	.0041	.0369
7	8.1417	2.0402	2.556	.1559	.6059	5.3396	.4821	.0045	.0958
8	8.7204	2.1078	2.543	.1772	.5910	5.8444	.4500	.0048	.1113
9	9.5348	2.1808	2.530	.2023	.5417	6.6101	.3879	.0053	.0701
10	10.5456	2.2463	2.518	.2256	.4416	7.6321	.2911	.0061	.0937
11	11.3827	2.3128	2.511	.2425	.2899	8.5374	.1938	.0070	.1192
12	12.4940	2.5669	2.507	.2754	.0856	9.5661	.1275	.0076	.1445
13	13.5709	3.0032	2.504	.3254	.0000	10.2422	.1191	.0076	.1662
14	14.4295	3.4336	2.503	.3731	.0000	10.6228	.0828	.0079	.3374
15	15.1421	3.7831	2.502	.4146	.0000	10.9444	.0636	.0081	.3168
16	16.1459	4.3691	2.501	.4928	.0000	11.2840	.0431	.0083	.1869
17	17.1680	5.2414	2.501	.6396	.0000	11.2869	.0176	.0085	.1920
18	18.2709	6.2394	2.501	.8908	.0000	11.1408	.0032	.0086	.1923
19	18.9217	7.1621	2.500	1.1782	.0000	10.5814	.0029	.0086	.5480
20	20.4363	7.8179	2.500	1.3896	.0000	11.2238	.0029	.0086	.5815
21	20.7188	8.6426	2.500	1.6398	.0000	10.4365	.0029	.0086	.5405
22	22.1208	10.0434	2.500	2.3204	.0000	9.7569	.0029	.0086	.1684
23	25.0458	11.3856	2.500	3.5362	.0000	10.1240	.0029	.0086	.1748
24	29.7143	14.2969	2.500	4.8478	.0000	10.5696	.0029	.0086	.1825
25	33.0548	18.0217	2.500	3.9892	.0000	11.0439	.0029	.0086	.1906
26	38.7058	22.0902	2.500	4.9170	.0000	11.6986	.0029	.0086	.1346
27	54.5922	34.8014	2.500	7.1115	.0000	12.6793	.0029	.0086	.1459
28	90.1586	67.1154	2.500	9.3986	.0000	13.6446	.0029	.0086	.0735
29	223.5784	176.5453	2.500	34.7564	.0000	12.2767	.0029	.0086	.0353
30	116.8692	93.3539	2.500	10.9778	.0000	12.5375	.0029	.0086	.2164

URANIUM-233

INELASTIC PLUS TWO TIMES N,N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0002	.0093	.0718	.1903	.2719	.2930	.1388	.1257	.1980	.1250	.1310
2	.0042	.0710	.2694	.4358	.4045	.1503	.1132	.1377	.0627	.0263	.0172
3	.0211	.1681	.3831	.4440	.1855	.1476	.1900	.0914	.0396	.0161	.0101
4	.0430	.2025	.3139	.1527	.1308	.1817	.0940	.0426	.0178	.0068	.0046
5	.0741	.2393	.1680	.1041	.1291	.0726	.0346	.0149	.0058	.0015	.0025
6	.1995	.1854	.0970	.1516	.0410	.0096	.0024	.0004	.0001	.0001	.0001
7	.1595	.3736	.0320	.0335	.0072	.0002	.0000	.0000	.0000	.0000	.0000
8	.1299	.4611	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
9	.2545	.2669	.0203	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
10	.1534	.2709	.0126	.0037	.0008	.0001	.0000	.0000	.0000	.0000	.0000
11	.0172	.1846	.0876	.0000	.0003	.0003	.0000	.0000	.0000	.0000	.0000
12	.0000	.0056	.0282	.0204	.0189	.0077	.0030	.0005	.0004	.0003	.0007

URANIUM-233

FISSION CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	1.000	1.000	.998	.994	.992
24	300.	1.000	1.000	1.000	.996	.986	.981
25	300.	1.000	.999	.993	.951	.873	.846
26	300.	1.000	.999	.993	.955	.887	.864
27	300.	1.000	.998	.983	.912	.827	.803
28	300.	.999	.994	.950	.800	.669	.638
29	300.	.998	.981	.872	.668	.576	.560

URANIUM-233

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	1.000	1.000	.999	.997	.997
24	300.	1.000	1.000	.999	.994	.980	.973
25	300.	1.000	1.000	.997	.976	.934	.918
26	300.	1.000	.999	.994	.956	.890	.868
27	300.	1.000	.997	.971	.856	.736	.707
28	300.	.999	.993	.941	.770	.641	.614
29	300.	.997	.970	.810	.545	.445	.430

URANIUM-233

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	1.000	1.000	.998	.993	.991
24	300.	1.000	1.000	.999	.994	.979	.971
25	300.	1.000	.999	.991	.945	.864	.837
26	300.	1.000	.999	.991	.941	.858	.830
27	300.	1.000	.997	.972	.870	.764	.735
28	300.	.999	.990	.920	.719	.564	.529
29	300.	.996	.961	.772	.519	.425	.409

URANIUM-233

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	1.000	1.000	1.000	1.000	.999	.999
24	300.	1.000	1.000	1.000	1.000	1.000	1.000
25	300.	1.000	1.000	1.000	1.000	.999	.999
26	300.	1.000	1.000	1.000	1.000	.999	.999
27	300.	1.000	1.000	1.000	1.000	1.000	1.000
28	300.	1.000	1.000	1.002	1.007	1.010	1.010
29	300.	1.000	1.000	1.001	1.008	1.015	1.017

URANIUM-234

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	6.7751	1.7523	3.272	.0199	1.4201	3.5828	.7269	.0025	.0372
2	8.0530	1.3109	2.944	.0326	2.1999	4.5096	.7518	.0022	.0286
3	8.1976	1.4124	2.728	.0570	2.1955	4.5327	.7026	.0026	.0258
4	8.0669	1.4150	2.591	.1278	2.0958	4.4283	.5428	.0040	.0350
5	7.9540	1.1650	2.503	.3231	1.5801	4.8859	.4385	.0048	.0474
6	8.7438	.8727	2.451	.2876	1.2256	6.3580	.3288	.0058	.0736
7	9.6221	.3717	2.425	.2732	1.4066	7.5706	.2534	.0064	.1949
8	10.2377	.1886	2.413	.2726	1.4202	8.3563	.2093	.0068	.2278
9	11.0228	.0670	2.400	.2843	1.2966	9.3749	.1526	.0073	.1370
10	11.8452	.0322	2.388	.3240	.9760	10.5130	.0987	.0078	.1634
11	12.4557	.0226	2.381	.3834	.4504	11.5993	.0611	.0081	.1878
12	12.9981	.0183	2.377	.4785	.0492	12.4521	.0390	.0083	.2063
13	13.6696	.0155	2.374	.6207	.0000	13.0333	.0275	.0084	.2325
14	14.2567	.0135	2.373	.7503	.0000	13.4928	.0195	.0085	.4561
15	14.6917	.0125	2.372	.8732	.0000	13.8060	.0142	.0085	.4190
16	15.1006	.0108	2.371	1.0622	.0000	14.0276	.0094	.0085	.2395
17	15.5822	.0100	2.371	1.3350	.0000	14.2373	.0048	.0086	.2443
18	15.8849	.0077	2.371	1.6823	.0000	14.1949	.0029	.0086	.2440
19	16.2005	.0052	2.370	1.9962	.0000	14.1991	.0029	.0086	.7322
20	16.5491	.0042	2.370	2.1842	.0000	14.3607	.0029	.0086	.7406
21	17.1080	.0034	2.370	2.4187	.0000	14.6859	.0029	.0086	.7573
22	18.5146	.0011	2.370	3.0378	.0000	15.4757	.0029	.0086	.2660
23	25.5385	.0000	2.370	3.8549	.0000	21.6835	.0029	.0086	.3727
24	33.2784	.0000	2.370	5.2956	.0000	27.9827	.0029	.0086	.4810
25	51.9091	.0000	2.370	8.2463	.0000	43.6627	.0029	.0086	.7506
26	56.4063	.0000	2.370	16.8634	.0000	39.5430	.0029	.0086	.4532
27	38.9584	.0000	2.370	18.2662	.0000	20.6922	.0029	.0086	.2371
28	42.9491	.0000	2.370	25.1591	.0000	17.7900	.0029	.0086	.1019
29	222.1824	.0000	2.370	182.6514	.0000	39.5310	.0029	.0086	.1133
30	43.5077	.0000	2.370	38.8059	.0000	4.7019	.0029	.0086	.0808

URANIUM-234

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0001	.0093	.0885	.2652	.3738	.3260	.1196	.0903	.1110	.0515	.0363
2	.0025	.0564	.2761	.5330	.5561	.2200	.1707	.2139	.1004	.0428	.0280
3	.0107	.1271	.4000	.5756	.2698	.2270	.3095	.1573	.0705	.0293	.0187
4	.0931	.3157	.6702	.2945	.1997	.2596	.1450	.0689	.0296	.0115	.0080
5	.5949	.2846	.0999	.1439	.2328	.1269	.0604	.0234	.0086	.0022	.0026
6	.8807	.2981	.0333	.0126	.0000	.0000	.0000	.0000	.0000	.0002	.0006
7	.6582	.6620	.0676	.0150	.0038	.0000	.0000	.0000	.0000	.0000	.0000
8	.5650	.8250	.0230	.0030	.0027	.0010	.0003	.0002	.0001	.0000	.0000
9	.7152	.5628	.0127	.0055	.0005	.0000	.0000	.0000	.0000	.0000	.0000
10	.3540	.6021	.0142	.0022	.0009	.0008	.0009	.0005	.0002	.0000	.0001
11	.0000	.3165	.1221	.0118	.0000	.0000	.0000	.0000	.0000	.0000	.0000
12	.0000	.0000	.0126	.0152	.0130	.0052	.0020	.0003	.0002	.0002	.0004

URANIUM-234

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	.993	.982	.906	.706	.562	.528
24	300.	.996	.967	.788	.415	.194	.146
25	300.	.991	.924	.614	.241	.103	.083
26	300.	.989	.907	.565	.185	.068	.052
27	300.	.989	.903	.557	.192	.071	.051
28	300.	.976	.810	.354	.098	.041	.032
29	300.	.859	.442	.145	.059	.037	.033

URANIUM-234

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	.997	.971	.831	.652	.597	.589
24	300.	.992	.932	.665	.407	.341	.331
25	300.	.983	.856	.468	.251	.191	.165
26	300.	.976	.818	.416	.213	.160	.114
27	300.	.980	.841	.464	.267	.222	.206
28	300.	.963	.734	.339	.238	.217	.210
29	300.	.754	.277	.115	.079	.068	.065

URANIUM-234

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	.994	.980	.892	.724	.644	.629
24	300.	.996	.964	.790	.531	.427	.408
25	300.	.991	.923	.639	.359	.260	.231
26	300.	.988	.897	.594	.344	.257	.220
27	300.	.991	.923	.682	.483	.418	.397
28	300.	.988	.907	.679	.546	.508	.496
29	300.	.893	.577	.351	.285	.266	.262

URANIUM-236

CROSS SECTION DATA

I	SIGT	SIGF	NU	SIGC	SIGIN	SIGEL	MUEL	XI	SIGDEL
1	6.7099	1.4259	3.344	.0199	1.6812	3.5828	.7269	.0024	.0369
2	7.5981	.8558	2.990	.0327	2.1999	4.5096	.7518	.0022	.0284
3	7.6444	.8592	2.756	.0570	2.1955	4.5327	.7025	.0026	.0256
4	7.4587	.7579	2.608	.1278	2.1448	4.4283	.5428	.0039	.0347
5	7.6454	.4389	2.514	.3231	2.0106	4.8728	.4385	.0048	.0468
6	8.4605	.0323	2.457	.2876	1.7829	6.3576	.3287	.0057	.0730
7	9.3688	.0000	2.429	.2732	1.5249	7.5706	.2533	.0064	.1233
8	10.0035	.0000	2.416	.2726	1.3746	8.3563	.2093	.0068	.2259
9	10.8498	.0000	2.402	.2843	1.1906	9.3749	.1526	.0072	.1358
10	11.7028	.0000	2.389	.3240	.8658	10.5130	.0986	.0077	.1620
11	12.4121	.0000	2.382	.3834	.4305	11.5982	.0610	.0080	.1862
12	12.9475	.0000	2.377	.4744	.0535	12.4196	.0390	.0082	.2040
13	13.6263	.0000	2.374	.6086	.0000	13.0177	.0275	.0083	.2302
14	14.1243	.0000	2.373	.7309	.0000	13.3934	.0195	.0084	.4490
15	14.5923	.0000	2.372	.8333	.0000	13.7590	.0142	.0084	.4140
16	14.9622	.0000	2.372	.9963	.0000	13.9658	.0094	.0085	.2365
17	15.3465	.0000	2.371	1.2053	.0000	14.1412	.0048	.0085	.2406
18	15.7593	.0000	2.371	1.4779	.0000	14.2815	.0029	.0085	.2434
19	16.0136	.0000	2.370	1.7546	.0000	14.2590	.0028	.0085	.7291
20	16.1322	.0000	2.370	1.9207	.0000	14.2116	.0028	.0085	.7267
21	16.2915	.0000	2.370	2.1201	.0000	14.1714	.0028	.0085	.7246
22	16.7201	.0000	2.370	2.6131	.0000	14.1069	.0028	.0085	.2404
23	27.2181	.0000	2.370	4.0862	.0000	23.1319	.0028	.0085	.3943
24	39.3565	.0000	2.370	6.3759	.0000	32.9806	.0028	.0085	.5621
25	54.0513	.0000	2.370	7.6567	.0000	46.3946	.0028	.0085	.7908
26	35.1030	.0000	2.370	6.3387	.0000	28.7643	.0028	.0085	.3268
27	106.2529	.0000	2.370	36.1475	.0000	70.1054	.0028	.0085	.7966
28	42.7896	.0000	2.370	22.2127	.0000	20.5769	.0028	.0085	.1169
29	91.7376	.0000	2.370	77.8193	.0000	13.9183	.0028	.0085	.0395
30	13.6818	.0000	2.370	5.6741	.0000	8.0077	.0028	.0085	.1365

URANIUM-236

INELASTIC PLUS TWO TIMES N,2N SCATTERING MATRIX

I	GXG	GXG+1	GXG+2	. . .							
1	.0004	.0180	.1471	.4011	.5251	.4263	.1473	.1078	.1268	.0560	.0377
2	.0025	.0564	.2761	.5330	.5561	.2200	.1707	.2139	.1004	.0428	.0230
3	.0107	.1271	.4000	.5756	.2698	.2270	.3095	.1573	.0705	.0293	.0197
4	.1918	.4114	.6051	.2747	.1995	.2334	.1265	.0599	.0257	.0100	.0069
5	.7992	.4871	.1098	.1459	.2677	.1321	.0440	.0169	.0055	.0012	.0013
6	1.2815	.3948	.0539	.0192	.0056	.0175	.0066	.0024	.0006	.0004	.0004
7	.7082	.7042	.0887	.0191	.0047	.0000	.0000	.0000	.0000	.0000	.0000
8	.5313	.8088	.0259	.0034	.0032	.0012	.0003	.0002	.0002	.0001	.0000
9	.6544	.5210	.0117	.0031	.0004	.0000	.0000	.0000	.0000	.0000	.0000
10	.2993	.5370	.0283	.0007	.0003	.0002	.0001	.0000	.0000	.0000	.0000
11	.0000	.2833	.1286	.0186	.0000	.0000	.0000	.0000	.0000	.0000	.0000
12	.0000	.0000	.0081	.0189	.0170	.0063	.0022	.0003	.0002	.0002	.0003

URANIUM-236

CAPTURE CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	.994	.981	.895	.669	.508	.471
24	300.	.996	.967	.788	.415	.196	.150
25	300.	.990	.910	.570	.219	.100	.086
26	300.	.986	.882	.510	.180	.076	.066
27	300.	.970	.777	.335	.101	.045	.037
28	300.	.973	.801	.394	.126	.050	.039
29	300.	.936	.627	.220	.074	.037	.030

URANIUM-236

TOTAL CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	.996	.966	.807	.603	.541	.532
24	300.	.992	.920	.655	.390	.322	.312
25	300.	.982	.850	.460	.264	.206	.171
26	300.	.978	.827	.478	.339	.288	.230
27	300.	.945	.645	.228	.121	.084	.065
28	300.	.953	.702	.352	.235	.208	.198
29	300.	.890	.477	.193	.134	.119	.116

URANIUM-236

ELASTIC CROSS SECTION SELF-SHIELDING FACTORS

I	TEMP \ SIGO	100000.0	10000.0	1000.0	100.0	10.0	1.0
23	300.	.995	.979	.878	.687	.596	.579
24	300.	.996	.962	.782	.515	.408	.390
25	300.	.991	.921	.635	.368	.276	.246
26	300.	.989	.910	.643	.447	.380	.347
27	300.	.973	.802	.411	.209	.146	.121
28	300.	.979	.851	.586	.460	.422	.408
29	300.	.978	.870	.729	.676	.660	.656

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