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FISSION CROSS SECTIONS

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
U-233	10 ev to 1 Mev.	ORNL	
U-233	0.1 to 10 Mev.	BNL (CVR)	
U-235	.025 ev to 1 Mev.	SR	1%
Pu-239	0.025 to 20 ev.	SR	5%; high resol.
Pu-240	0.1 to 5 Mev	CR&D (FBR)	50-100 kev
Pu-240	0.025 to 20 ev.	SR	5%
Pu-240	.05 to 5 Mev.	CR&D	
<u>MEDIUM PRIORITY</u>			
Th-232	0.1 to 5 Mev	CR&D (FBR)	50-100 kev
U-233	0.1 to 5 Mev	CR&D (FBR)	50-100 kev.
U-233	.025 to 20 ev	SR	5%
<u>LOW PRIORITY</u>			
U-238	Threshold to 8 Mev	SR	
Pu-240	10 kev to 3 Mev	ANL	
Pu-240	fast and 10 kev to 5 Mev	MIT and NDA	
Pu-241	10 kev to 3 Mev	ANL	

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DECLASSIFIED**20472**SPECIAL NUCLEAR INFORMATION

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
U-233	Completion of info. for comparison to U-235	W. Kidde	
U-233 & 235	Fission and capture cross section in thermal range to determine variation of alpha and eta with temperature	BNL (LMFR)	
U-233 & 235	More info on variation of eta in resonance energy range	BNL (LMFR)	
U-233 & 235	Info. about fission and capture resonances in intermed. region	BNL (LMFR)	
U-235 & 238	as a function of energy from 0.1 to 10 Mev.	BNL (CVR)	
Pu-239	Eta as a function of energy through resonance region	W. Kidde	
Fe, Pb U, W, Ni	Gammas emitted in inelastic scattering for 2-4 Mev neutrons	Shield (NDA)	
D, B, O, C, N, Pb	Angular distribution of elastically scattered neutrons. Energies greater than 3 Mev.	Shield (NDA)	
D, B, O, C, N, Pb	Gamma ray spectrum for prompt, delayed, fission product, neutron capture and inelastic scattering.	Shield (NDA)	
Nitrogen*	up to 2.42 Mev.	Convair	
Oxygen*	up to 8 Mev.	Convair	
Silicon*	up to 8 Mev.	Convair	
Aluminum*	up to 8 Mev.	Convair	
Magnesium*	up to 8 Mev.	Convair	
Uranium*	up to 8 Mev.	Convair	

*Differential Angular Scattering Cross Sections (Particularly (1) General Shapes of curves and (2) if decided differences in angular distribution occur at resonance.)

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SPECIAL NUCLEAR INFORMATION (Cont'd)

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>MEDIUM PRIORITY</u>			
U-235 & 238	.05 to 5 Mev	CR&D	
Pu-239	0.5 to 5 Mev	CR&D	
Pu-239	0.5 to 5 Mev	CR&D	
Pu-240	0.5 to 5 Mev	CR&D	
Pu-240	0.5 to 5 Mev	CR&D	
Pu-241	0.5 to 5 Mev	CR&D	
Np-239	0.5 to 5 Mev	CR&D	
<u>LOW PRIORITY</u>			
U-233	Fission product distribution	NAA	
U-233	as a function of energy	ORNL (Shield)	
U-235 & 238	as a function of energy	ORNL (Shield)	

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TOTAL CROSS SECTION

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
Thorium	5 kev to 150 kev	BNL (LMFR)	
Thorium	3 Mev to 15	BNL (LMFR)	
Fluorine	200 ev to 10 kev	BNL (LMFR)	
Fluorine	2.5 Mev to 15 Mev	BNL (LMFR)	
Bismuth	200 ev to 10 kev.	BNL (LMFR)	
Beryllium	1 kev to 20 kev	BNL (LMFR)	
Titanium	.025 to 10 ⁴ ev	GE-ANP Lockland	
Zirconium	.025 to 10 ev	GE-ANP Lockland	
Zirconium	3 to 10 Mev.	GE-ANP Lockland	
Water	.025 to 10 ev	GE-ANP Lockland	
Silicon	2 to 10 Mev	GE-ANP Lockland	
Aluminum	3 to 10 Mev	GE-ANP Lockland	
Xenon	below .04 ev and above 0.2 ev	NAA	
<u>LOW PRIORITY</u>			
Aluminum	up to 12 Mev.	Shield (ORNL)	
Chromium	above .01 Mev.	ANP Pratt Whit.	
Nickel	above 3 Mev.	ANP Pratt Whit.	
Lead	up to 12 mev.	Shield (ORNL)	
Iron	up to 12 Mev	Shield (ORNL)	
Boron	up to 12 Mev	Shield (ORNL)	
Carbon	up to 12 Mev	Shield (ORNL)	
Nitrogen	up to 12 Mev.	Shield (ORNL)	
Oxygen	up to 12 Mev.	Shield (ORNL)	
Tungsten	up to 12 Mev.	Shield (ORNL)	

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CAPTURE CROSS SECTIONS

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy</u> <u>Resolution</u>
<u>HIGH PRIORITY</u>			
U-233	0.025 to 20 ev	SR	
U-233	0.1 to 10 Mev	BNL	
U-233	0.1 to 10 Mev	Convair	
U-235	0.1 to 10 Mev	BNL	
U-235	0.1 to 10 Mev	Convair	
U-235	0.1 to 5 Mev	SR	
U-235	0.025 to 20 ev	SR	
U-236	Thermal and intermediate	SAR	
U-236	10 kev to 5 Mev	NAA	
U-236	Fast	MIT	
U-238	0.1 to 10 Mev	BNL	
U-238	0.1 to 10 Mev	Convair	
U-238	0.05 to 5 Mev	CR&D	
Pu-239	0.025 to 20 ev	SR	
Pu-239	0.05 to 5 Mev	(CR&D)(BNL)	
Pu-240	0.025 to 20 ev	(SR)	
Pu-240	0.01 to 5 Mev	(CR&D)(BNL)(ANL)	
Pu-241	0.025 to 20 ev	SR	
Pu-241	0.01 to 5 Mev	(BNL)(ANL)	
Lead	0.05 to 5 Mev	CR&D	
Bismuth	0.05 to 5 Mev	CR&D	
Maj. Fission Prods.	0.01 to 3 Mev	ANL	
Maj. Fission Prods.	0.05 to 5 Mev	CR&D	
Maj. Fission Prods.	Thermal & intermediate	SAR	
Vanadium	0.05 to 5 Mev	CR&D	
Iron	0.05 to 5 Mev	CR&D	
Nickel	0.05 to 5 Mev	CR&D	
Sodium	0.05 to 5 Mev	CR&D	
Potassium	0.05 to 5 Mev	CR&D	
Mercury, natural	0.01 to 2 Mev	P&W, Kidde	
Mercury 200	Thermal, 0.01 to 1 Mev	P&W, Kidde	
Mercury 201	thermal, 0.01 to 1 Mev	P&W, Kidde	
Mercury 202	thermal, 0.01 to 1 Mev	P&W, Kidde	
Mercury 204	thermal, 0.01 to 1 Mev	P&W, Kidde	
H-1	0.025 to 20 ev	SR	High res.
H-2	0.025 to 20 ev	SR	High res.
Magnesium	0.025 to 20 ev	SR	5%
Zirconium	0.025 to 20 ev	SR	5% high resol.
Zirconium	0.05 to 5 Mev	CR&D	

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CAPTURE CROSS SECTIONS (Cont'd)

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>MEDIUM PRIORITY</u>			
Thorium 232	0.1 to 5 Mev	BNL	50-100 kev
Thorium 232	0.025 to 20 ev	SR	Improved
Pa-233	0.025 to 20 ev	SR	Improved
Silicon	0.05 to 5 Mev	(CR&D)(Convair)	
Chlorine	10 kev to 5 mev	(NAA)(MIT)	
Cobalt	10 kev to 5 mev	(NAA)(MIT)(CR&D)	
Lead	10 kev to 5 Mev	(NAA)(MIT)	
Bismuth	10 Kev to 5 Mev	(NAA)(MIT)	
Hydrogen	thermal to 20 Mev	P&W	
Oxygen	thermal to 20 Mev	(P&W)(CR&D)(Convair)	
Boron	0.05 to 5 Mev	CR&D	
Iron	thermal to 20 Mev	(P&W)(MIT)(NAA)	
Chromium	thermal to 20 Mev	(P&W)(CR&D)	
Nickel	thermal to 20 Mev	(P&W)(MIT)(NAA)	
Sodium	thermal to 20 Mev	P&W	
Potassium	thermal to 20 Mev	P&W	
Water	thermal to 20 Mev	P&W	
Plexiglass	thermal to 20 Mev	P&W	
Fluorine	thermal to 20 Mev	P&W	
Lithium 6 and 7	thermal to 20 Mev	P&W	
Molybdenum	0.05 to 5 Mev	CR&D	
<u>LOW PRIORITY</u>			
Np-239	0.025 to 20 ev	SR	
Columbium	0.05 to 5 Mev	CR&D	
Nitrogen	fast	Convair	
Aluminum	fast	Convair	
Magnesium	0.05 to 5 Mev	(CR&D)(Convair)	
Carbon	0.05 to 5 Mev	CR&D	
Iodine	0.05 to 5 Mev	CR&D	
Calcium	0.05 to 5 Mev	CR&D	
Manganese	0.05 to 5 Mev	CR&D	
Beryllium	0.05 to 5 Mev	CR&D	

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ABSORPTION CROSS SECTION

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
Hafnium	intermediate	SIR	
Xenon	entire range	Nav. Reac. Br.	
Titanium	above thermal	ANP-Lockland	
Zirconium	above thermal	ANP-Lockland	
Gadolinium	0.1 to 10 ⁷ ev	ANP-Lockland	
Gadolinium	intermediate	SIR	
Sodium	intermediate	SIR (KAPL)	
Sodium	thermal to 1 Mev	HTB (ORNL)	
Stainless Steel			
(by constituents)	intermediate	SIR (KAPL)	
Iron	"	"	
Chromium	"	"	
Nickel	"	"	
Manganese	intermediate	SIR (KAPL)	
Lithium	intermediate	SIR (KAPL)	
Cobalt	intermediate	SIR (KAPL)	
Samarium	intermediate	SIR (KAPL)	
<u>MEDIUM PRIORITY</u>			
Boron	intermediate	NAA	
Pu-240	entire range	NAA	
Pu-241	entire range	NAA	
Pu-242	entire range	NAA	
Europium-151	thermal	NAA	
Europium-153	thermal	NAA	
Beryllium	(resonances) epithermal and intermediate	BNL (LMFR)	
Bismuth	(resonances) epithermal and intermediate	BNL (LMFR)	
Protactinium	at 0.025 ev	BNL (LMFR)	
Lead 206 & 208	0.025	BNL (LMFR)	
Lead fr. U ores	0.025 ev. and resonances in epithermal & intermed.	BNL (LMFR)	
Gold	intermediate	BNL	
Gold	intermediate	SIR	
Iridium	intermediate	NAA	
Xenon	intermediate	SIR	
Samarium 149	intermediate	SIR	

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ABSORPTION CROSS SECTION (Cont'd)

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>MEDIUM PRIORITY (Cont'd)</u>			
Fission Product Poisons (SAR)	thermal & intermediate	SAR	
U-235	All energies (resonance integrals)	HTB (ORNL) & NAA	
Thorium 232	Resonance integral	SAR	
Thorium oxide	Resonance integral	HTB (ORNL) & NAA	
Thorium	0.025 ev to 15 kev	HTB (ORNL) & NAA	
Aluminum	intermediate	BNL (LMFR)	
Magnesium	intermediate	SIR (KAPL)	
Cadmium	intermediate	SIR (KAPL)	
Cadmium	above 1 ev.	SIR (KAPL)	
Cadmium	epithermal	SIR	
Mercury	intermediate	NAA	
Copper	intermediate	SIR (KAPL)	
Silicon	intermediate	SIR	
Tantalum	intermediate	SIR	
Molybdenum	intermediate	SIR	
Potassium	intermediate	SIR	
Chlorine	intermediate	SIR	

LOW PRIORITY

Fluorine	thermal to 1 Mev	ANP (ORNL)
Fluorine	absorption resonance	
	epithermal & interned.	BNL (LMFR)
Potassium	thermal to 1 Mev.	ANP (ORNL)
Rubidium	thermal to 1 Mev.	ANP (ORNL)
Iron	thermal to 1 Mev	ANP (ORNL)
Nickel	thermal to 1 Mev	ANP (ORNL)
Chromium	thermal to 1 Mev	ANP (ORNL)
Barium	intermediate	SIR
Cesium	thermal to 1 Mev	SIR, HTB (ORNL)
Lead	intermediate	SIR
Rare earths	intermediate	SIR
Indium	above 10 ev.	SIR
Fission Products Poisons	intermediate (SIR spectrum)	
Lithium 6 & 7	thermal to 1 Mev	SIR
Cobalt	thermal to 1 Mev	ANP (ORNL)
		HTB (ORNL)

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ABSORPTION CROSS SECTION (Cont'd)

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>LOW PRIORITY (Cont'd)</u>			
Calcium	intermediate	SIR	
Vanadium	intermediate	SIR	
Titanium	intermediate	SIR	
Phosphorus	intermediate	SIR	
Sulphur	intermediate	SIR	
Niobium	intermediate	SIR	
Tin	intermediate	SIR	
Antimony	intermediate	SIR	

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REACTION CROSS SECTIONS

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy</u> <u>Resolution</u>
<u>HIGH PRIORITY</u>			
Lithium 6	(n, 2n)	UCRL-Whitney	
Lead	10 kev to 3 Mev		
	(, n) and (, 2n) 5 to 14 Mev	ANL, CR&D	
Bismuth	10 kev to 3 mev		
	(, n) and (, 2n) 5 to 14 Mev	ANL, CR&D	
Sodium	10 kev to 3 mev	ANL	
Iron	10 kev to 3 mev	ANL	
Potassium	10 kev to 3 mev	ANL	
Nickel	10 kev to 3 mev	ANL	
Chromium	10 kev to 3 mev	ANL	
Columbium	10 kev to 3 mev	ANL	
Thorium	(fast effect)	NAA	
<u>MEDIUM PRIORITY</u>			
Beryllium	(n, 2n) vs. energy	SAR, CR&D	
Fe 56	(n, p)	NDA	
Thorium 232	(n, 2n)	NAA	
Oxygen 17	(n, p)	NAA	
Sulfur	S^{32} (n, p)	NDA (reactor)	
Tellurium	Te^{48} (n, p)	NDA (reactor)	
Tin	Sn^{116} (n, p)	NDA (reactor)	
Barium	Ba^{138} (n, p)	NDA (reactor)	
Rubidium	Rb^{87} (n, p)	NDA (reactor)	
Magnesium	Mg^{24} (n, p)	NDA (reactor)	
Tantalum	Ta^{181} (n, p)	NDA (reactor)	
<u>LOW PRIORITY</u>			
Lithium 7	(n, 2n)	UCRL-Whitney	
Deuterium	(n, 2n)	UCRL-Whitney	
Uranium 235	thermal to 8 mev	SR	
Uranium 238	thermal to 8 mev	SR	
Copper	10 kev to 3 Mev	ANL	
Nickel	10 kev to 3 mev	ANL	
Zirconium	10 kev to 3 mev	ANL	
Vanadium	10 kev to 3 mev	ANL	
Silver	10 kev to 3 mev	ANL	
Cobalt	10 kev to 3 mev	ANL, NDA (Shield)	
Boron 10	10 kev to 3 Nev	ANL	

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ACTIVATION CROSS SECTION

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>MEDIUM PRIORITY</u>			
Hydrogen	thermal to 20 mev	(P&W)	
Oxygen	thermal to 20 mev	(P&W)	
Iron	thermal to 20 Mev	(P&W)	
Iron	fast	Convair	
Chromium	thermal to 20 Mev	(I&W)	
Chromium	fast	Convair	
Nickel	thermal to 20 mev	(I&W)	
Nickel	fast	Convair	
Sodium	thermal to 20 mev	(I&W)	
Potassium	thermal to 20 mev	(P&W)	
Water	thermal to 20 mev	(P&W)	
Plexiglass	thermal to 20 mev	(P&W)	
Fluorine	thermal to 20 mev	(P&W)	
Lithium			
(Li 6 & 7)	thermal to 20 mev	(I&W)	
Aluminum	Al (n,) Na ²⁴ fast to 8 Mev	Convair	
Magnesium	Mg (n,p) Na ²⁴ ; fast to 8 mev	Convair	
Chlorine	Cl (n,) F ³² ; fast to 8 mev	Convair	
Silver	fast	Convair	
Cobalt	fast	Convair	
Copper	fast	Convair	
Zinc	fast	Convair	
Sulfur	fast	Convair	
Molybdenum	fast	Convair	
Manganese	fast	Convair	

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TRANSPORT CROSS SECTIONS

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
Uranium 235	10 kev to 3 mev	ANL	
Uranium 238	10 kev to 3 mev	ANL	
Uranium 238	(entire range)	Nav. React. Brn.	
Uranium 238	0.1 to 10 mev	BNL	
Uranium 238	.05 to 5 mev	CR&D	
Pu-239	10 kev to 3 mev	ANL	
Pu-239	fast	MIT	
Pu-239	10 kev to 5 mev	NAA	
Pu-239	.05 to 5 mev	CR&D	
Lead	10 kev to 3 Mev	ANL	
Lead	.05 to 5 Mev	CR&D	
Bismuth	10 kev to 5 mev	ANL, MIT, NAA, CR&D	
Sodium	10 kev to 5 mev	ANL, CR&D	
Iron	10 kev to 5 Mev	ANL, CR&D	
Potassium	10 kev to 5 mev	ANL, CR&D	
Nickel	10 kev to 5 mev	ANL, CR&D	
Chromium	10 kev to 5 mev	ANL, CR&D	
Columbium	10 kev to 3 mev	ANL, CR&D	
Columbium	.05 to 5 mev	ANL, CR&D	
Zirconium	10 kev to 5 mev	ANL	
	entire range	Nav. Rea. Brn.	
		CR&D	
Vanadium	10 kev to 5 Mev	ANL, CR&D	
Hafnium	entire range	Nav. Rea. Brn.	
Oxygen	entire range	Nav. Rea. Brn.	
		CR&D	
<u>MEDIUM PRIORITY</u>			
Chlorine	10 kev to 5 mev	MIT, NAA	
Boron	.05 to 5 mev	CR&D	
Molybdenum	.05 to 5 mev	CR&D	
Silicon	.05 to 5 mev	CR&D	
<u>LOW PRIORITY</u>			
Beryllium vs. crystal size		SIR (KAPL)	
Copper	10 kev to 3 mev	ANL	
Carbon	above 2 mev	(NAA)Shield	
Carbon	.05 to 5 mev	CR&D	
Iodine	.05 to 5 mev	CR&D	

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TRANSIENT CROSS SECTIONS (Cont'd)

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>LOW PRIORITY (Cont'd)</u>			
Calcium	.05 to 5 mev	CR&D	
Magnesium	.05 to 5 mev	CR&D	
Cobalt	.05 to 5 mev	CR&D	
Manganese	.05 to 5 mev	CR&D	
Beryllium	.05 to 5 mev	CR&D	

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ELASTIC SCATTERING CROSS SECTION

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
Hydrogen	0.025 to 20 ev	SIR	
Oxygen	0.025 to 20 ev	SIR	
Beryllium	0.025 to 20 ev	SIR	
Magnesium	0.025 to 20 ev	SIR	
<u>MEDIUM PRIORITY</u>			
Zirconium	0.025 to 20 ev	SIR	
<u>LOW PRIORITY</u>			
Hafnium	intermediate	SIR	
Cadmium	intermediate	SIR	
Gadolinium	intermediate	SIR	
Samarium	intermediate	SIR	
Gold	intermediate	SIR	
Silver	intermediate	SIR	
Iridium	intermediate	SIR	
Indium	intermediate	SIR	
Xenon	intermediate	SIR	
Fission Products	Intermediate (SIR spectrum)	SIR	

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INELASTIC SCATTERING CROSS SECTION

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>HIGH PRIORITY</u>			
Thorium 232	fission energies	Kidde	
Thorium 232	0.1 to 15 mev	BNL (LMFR)	
Uranium 235	10 kev to 3 mev	ANL, NDA	
Uranium 235	0.1 to 5 mev	FBR	
Uranium 238	.05 to 5 mev	CR&D	
Pu-239	0.1 to 5 mev	FBR, ANL	50-100 kev
Pu-239	fast	MIT	
Pu-239	.05 to 5 mev	CR&D	
Pu-239	10 kev to 5 mev	NAA	
Pu-240	0.1 to 5 mev	FBR, ANL	50-100 kev
Pu-240	.05 to 5 mev	CR&D	
Pu-241	0.1 to 5 mev	FBR, ANL	50-100 kev
Zirconium	.05 to 5 mev	CR&D	
Vanadium	.05 to 5 mev	CR&D	
Bismuth	10 kev to 3 mev	ANL, CR&D	
Bismuth	.05 to 5 mev	CR&D, ANL	
Columbium	10 kev to 3 mev	ANL	
Tungsten		NDA (Shield)	
Copper	10 kev to 3 mev	NDA	
Iron	10 kev to 5 mev	ANL, NAA	
Iron		NDA (Shield)	
Iron		CR&D	
Chromium	10 kev to 5 mev	ANL, CR&D	
Nickel	10 kev to 5 mev	ANL	
Nickel		NDA (Shield)	
Nickel		CR&D	
Sodium	10 kev to 5 mev	ANL, CR&D	
Potassium	10 kev to 5 mev	ANL, CR&D	
Mercury	thermal to high	MCR-P&W	
Lead	10 kev to 5 mev	ANL, NDA, CR&D	
Maj. Fission Prods.	.05 to 5 mev	CR&D	

MEDIUM PRIORITY

Uranium 233	Th to 8 mev	SR
Uranium 235	10 kev to 5 mev	MIT, NAA
Stainless Steel	intermediate to fast	SAR
Zirconium	intermediate to fast	SAR
Molybdenum	.01 to 5 mev	SAR, CR&D
Vanadium	10 kev to 3 mev	SAR, ANL
Bismuth	intermediate to fast	SAR
Mercury	(cross section & spectrum)	Kidde

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INELASTIC SCATTERING CROSS SECTION (Cont'd)ElementEnergy RangeRequirementAccuracy
ResolutionMEDIUM PRIORITY (Cont'd)

Iron
Chromium
Nickel
Potassium
Nitrogen
Oxygen
Silicon
Aluminum
Lead
Thorium 232
Xenon
Samarium
Boron

intermediate to fast
intermediate to fast
intermediate to fast
intermediate to fast
intermediate
.05 to 5 Mev
.05 to 5 mev
intermediate to fast
intermediate to fast
0.1 to 5 mev
intermediate
intermediate
.05 to 5 mev

SAR
SAR
SAR
SAR
NDA (Shield)
NDA (Shield), CR&D
Convair, CR&D
NDA (Shield), Convair
SAR
FBR (CR&D, NAA 50-100 kev
SIR
SIR
CR&D

LOW PRIORITY

Uranium 235
Columbium
Carbon
Chlorine
Copper
Zinc
Iron
Chromium
Nickel
Sodium
Potassium
Nitrogen
Oxygen
Magnesium
Lead
Cadmium
Fission Products

Hafnium
Gadolinium
Gold
Silver
Iridium
Indium
Iodine
Calcium

0.1 to 10 mev
0.5 to 5 mev
.05 to 5 mev
10 kev to 5 mev
10 kev to 3 mev
fast
threshold to 20 mev
threshold to 20 mev
threshold to 20 mev
threshold to 20 mev
threshold to 20 mev
fast
fast
.05 to 5 mev
fast
intermediate to fast
intermediate
(SIR spectrum)
intermediate
intermediate
intermediate
intermediate
intermediate
above 10 ev
.05 to 5 mev
.05 to 5 mev

Convair, BNL (CVR)
CR&D
NDA (Shield), CR&D
MIT, NAA
Convair, ANL
Convair
ANP-P&W
ANP-P&W, Convair
ANP-P&W
ANP-P&W
ANP-P&W
Convair
Convair
Convair, CR&D
Convair
Convair, SIR

SIR
SIR
SIR
SIR
SIR
SIR
SIR
CR&D
CR&D

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INELASTIC SCATTERING CROSS SECTION (Cont'd)

<u>Element</u>	<u>Energy Range</u>	<u>Requirement</u>	<u>Accuracy Resolution</u>
<u>LOW PRIORITY (Cont'd)</u>			
Cobalt	.05 to 5 mev	CR&D	
Manganese	.05 to 5 mev	CR&D	
Beryllium	.05 to 5 mev	CR&D	

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