

Table G.2 (Cont.)
Continuous-Energy and Discrete Neutron Data Libraries Maintained by X-5

| <u>Z</u> <u>A</u> <u>I</u> <u>D</u> | <u>A</u> <u>R</u> <u>R</u> | <u>L</u> <u>i</u> <u>b</u> <u>r</u> <u>a</u> <u>r</u> <u>y</u> <u>N</u> <u>a</u> <u>m</u> <u>e</u> | <u>S</u> <u>o</u> <u>u</u> <u>r</u> <u>c</u> <u>e</u> | <u>E</u> <u>v</u> <u>a</u> <u>l</u> <u>D</u> <u>a</u> <u>t</u> <u>e</u> | <u>T</u> <u>e</u> <u>m</u> <u>p</u> <u>(</u> <u>°</u> <u>K</u> <u>)</u> | <u>L</u> <u>e</u> <u>n</u> <u>g</u> <u>t</u> <u>h</u> <u>w</u> <u>o</u> <u>r</u> <u>d</u> <u>s</u> | <u>N</u> <u>E</u> | <u>E</u> _{max} <u>(</u> <u>M</u> <u>e</u> <u>V</u> <u>)</u> | <u>G</u> <u>P</u> <u>D</u> | <u>U</u> | <u>C</u> <u>P</u> | <u>D</u> <u>N</u> | <u>U</u> <u>R</u> |
|-------------------------------------|----------------------------|---|---|--|--|---|-------------------|---|----------------------------|----------|-------------------|-------------------|-------------------|
| ** As-75 ** | | | | | | | | | | | | | |
| 33075.35d | 74.2780 | drmccs | B-V.0 | 1974 | 0.0 | 8480 | 263 | 20.0 | yes | no | no | no | no |
| 33075.35c | 74.2780 | rmccsa | B-V.0 | 1974 | 0.0 | 50931 | 6421 | 20.0 | yes | no | no | no | no |
| 33075.42c | 74.2780 | endl92 | LLNL | <1992 | 300.0 | 56915 | 6840 | 30.0 | yes | no | no | no | no |
| Z = 35 ***** Bromine ***** | | | | | | | | | | | | | |
| ** Br-79 ** | | | | | | | | | | | | | |
| 35079.55c | 78.2404 | misc5xs[7,9] | LANL/T | 1982 | 293.6 | 10431 | 1589 | 20.0 | no | no | no | no | no |
| ** Br-81 ** | | | | | | | | | | | | | |
| 35081.55c | 80.2212 | misc5xs[7,9] | LANL/T | 1982 | 293.6 | 5342 | 831 | 20.0 | no | no | no | no | no |
| Z = 36 ***** Krypton ***** | | | | | | | | | | | | | |
| ** Kr-78 ** | | | | | | | | | | | | | |
| 36078.50c | 77.2510 | rmccsa | B-V.0 | 1978 | 293.6 | 9057 | 939 | 20.0 | no | no | no | no | no |
| 36078.50d | 77.2510 | drmccs | B-V.0 | 1978 | 293.6 | 4358 | 263 | 20.0 | no | no | no | no | no |
| 36078.66c | 77.2510 | endf66a | B-VI.0 | 1978 | 293.6 | 27045 | 2221 | 20.0 | no | no | no | no | no |
| ** Kr-80 ** | | | | | | | | | | | | | |
| 36080.50d | 79.2298 | drmccs | B-V.0 | 1978 | 293.6 | 4276 | 263 | 20.0 | no | no | no | no | no |
| 36080.50c | 79.2298 | rmccsa | B-V.0 | 1978 | 293.6 | 10165 | 1108 | 20.0 | no | no | no | no | no |
| 36080.66c | 79.2298 | endf66a | B-VI.0 | 1978 | 293.6 | 26039 | 2361 | 20.0 | no | no | no | no | no |
| ** Kr-82 ** | | | | | | | | | | | | | |
| 36082.50d | 81.2098 | drmccs | B-V.0 | 1978 | 293.6 | 4266 | 263 | 20.0 | no | no | no | no | no |
| 36082.50c | 81.2098 | rmccsa | B-V.0 | 1978 | 293.6 | 7220 | 586 | 20.0 | no | no | no | no | no |
| 36082.59c | 81.2098 | misc5xs[7,8] | LANL/T | 1982 | 293.6 | 7010 | 499 | 20.0 | yes | no | no | no | no |
| 36082.66c | 81.2098 | endf66a | B-VI.0 | 1978 | 293.6 | 19674 | 1296 | 20.0 | no | no | no | no | no |
| ** Kr-83 ** | | | | | | | | | | | | | |
| 36083.50c | 82.2018 | rmccsa | B-V.0 | 1978 | 293.6 | 8078 | 811 | 20.0 | no | no | no | no | no |
| 36083.50d | 82.2018 | drmccs | B-V.0 | 1978 | 293.6 | 4359 | 263 | 20.0 | no | no | no | no | no |
| 36083.59c | 82.2018 | misc5xs[7,8] | LANL/T | 1982 | 293.6 | 8069 | 704 | 20.0 | yes | no | no | no | no |
| 36083.66c | 82.2018 | endf66a | B-VI.0 | 1978 | 293.6 | 21271 | 1760 | 20.0 | no | no | no | no | no |
| ** Kr-84 ** | | | | | | | | | | | | | |
| 36084.50c | 83.1906 | rmccsa | B-V.0 | 1978 | 293.6 | 9364 | 944 | 20.0 | no | no | no | no | no |
| 36084.50d | 83.1906 | drmccs | B-V.0 | 1978 | 293.6 | 4463 | 263 | 20.0 | no | no | no | no | no |
| 36084.59c | 83.1906 | misc5xs[7,8] | LANL/T | 1982 | 293.6 | 10370 | 954 | 20.0 | yes | no | no | no | no |
| 36084.66c | 83.1906 | endf66a | B-VI.0 | 1978 | 293.6 | 24427 | 2098 | 20.0 | no | no | no | no | no |
| ** Kr-86 ** | | | | | | | | | | | | | |
| 36086.50c | 85.1726 | rmccsa | B-V.0 | 1975 | 293.6 | 10416 | 741 | 20.0 | no | no | no | no | no |
| 36086.50d | 85.1726 | drmccs | B-V.0 | 1975 | 293.6 | 4301 | 263 | 20.0 | no | no | no | no | no |
| 36086.59c | 85.1726 | misc5xs[7,8] | LANL/T | 1982 | 293.6 | 8740 | 551 | 20.0 | yes | no | no | no | no |
| 36086.66c | 85.1726 | endf66a | B-VI.0 | 1978 | 293.6 | 22203 | 1425 | 20.0 | no | no | no | no | no |
| Z = 37 ***** Rubidium ***** | | | | | | | | | | | | | |
| ** Rb-85 ** | | | | | | | | | | | | | |
| 37085.55c | 84.1824 | misc5xs[7,9] | LANL/T | 1982 | 293.6 | 27304 | 4507 | 20.0 | no | no | no | no | no |
| 37085.66c | 84.1824 | endf66a | B-VI.0 | 1979 | 293.6 | 179843 | 15316 | 20.0 | no | no | no | no | no |
| ** Rb-87 ** | | | | | | | | | | | | | |
| 37087.55c | 86.1626 | misc5xs[7,9] | LANL/T | 1982 | 293.6 | 8409 | 1373 | 20.0 | no | no | no | no | no |
| 37087.66c | 86.1624 | endf66b | B-VI.0 | 1979 | 293.6 | 42718 | 3637 | 20.0 | no | no | no | no | no |
| Z = 39 ***** Yttrium ***** | | | | | | | | | | | | | |
| ** Y-88 ** | | | | | | | | | | | | | |
| 39088.42c | 87.1543 | endl92 | LLNL | <1992 | 300.0 | 11682 | 181 | 30.0 | yes | no | no | no | no |
| ** Y-89 ** | | | | | | | | | | | | | |
| 39089.35c | 88.1421 | misc5xs[7] | LLNL | <1985 | 0.0 | 49885 | 6154 | 20.0 | yes | no | no | no | no |
| 39089.42c | 88.1421 | endl92 | LLNL | <1992 | 300.0 | 69315 | 8771 | 30.0 | yes | no | no | no | no |
| 39089.50d | 88.1421 | dre5 | B-V.0[10] | 1985 | 293.6 | 2311 | 263 | 20.0 | no | no | no | no | no |
| 39089.50c | 88.1421 | endf5u | B-V.0[10] | 1985 | 293.6 | 18631 | 3029 | 20.0 | no | no | no | no | no |

Table G.2 (Cont.)
Continuous-Energy and Discrete Neutron Data Libraries Maintained by X-5

| <u>ZAID</u> | <u>AWR</u> | <u>Library Name</u> | <u>Source</u> | <u>Eval Date</u> | <u>Temp (°K)</u> | <u>Length words</u> | <u>NE</u> | <u>E_{max} (MeV)</u> | <u>GPD</u> | <u>U</u> | <u>CP</u> | <u>DN</u> | <u>UR</u> |
|-------------------------------|------------|---------------------|---------------|------------------|------------------|---------------------|-----------|------------------------------|------------|----------|-----------|-----------|-----------|
| 39089.60c | 88.1420 | endf60 | B-VI.0 | 1986 | 293.6 | 86556 | 9567 | 20.0 | yes | no | no | no | no |
| 39089.66c | 88.1420 | endf66b | B-VI.4 | 1986 | 293.6 | 144304 | 13207 | 20.0 | yes | no | no | no | no |
| Z = 40 ***** Zirconium ***** | | | | | | | | | | | | | |
| ** Zr-nat** | | | | | | | | | | | | | |
| 40000.42c | 90.4364 | endl92 | LLNL | <1992 | 300.0 | 131855 | 17909 | 30.0 | yes | no | no | no | no |
| 40000.56d | 90.4360 | misc5xs[7,11] | B-V:X | 1976 | 300.0 | 5400 | 263 | 20.0 | no | no | no | no | no |
| 40000.56c | 90.4360 | misc5xs[7,11] | B-V:X | 1976 | 300.0 | 52064 | 7944 | 20.0 | no | no | no | no | no |
| 40000.57d | 90.4360 | misc5xs[7,11] | B-V:X | 1976 | 300.0 | 5400 | 263 | 20.0 | no | no | no | no | no |
| 40000.57c | 90.4360 | misc5xs[7,11] | B-V:X | 1976 | 300.0 | 16816 | 2116 | 20.0 | no | no | no | no | no |
| 40000.58c | 90.4360 | misc5xs[7,11] | B-V:X | 1976 | 587.2 | 57528 | 8777 | 20.0 | no | no | no | no | no |
| 40000.60c | 90.4360 | endf60 | B-VI.1 | 1976[11] | 293.6 | 66035 | 10298 | 20.0 | no | no | no | no | no |
| 40000.66c | 90.4360 | endf66b | B-VI.1 | 1976 | 293.6 | 165542 | 22226 | 20.0 | no | no | no | no | no |
| ** Zr-90 ** | | | | | | | | | | | | | |
| 40090.66c | 89.1320 | endf66b | B-VI.0:X | 1976 | 293.6 | 51841 | 6243 | 20.0 | no | no | no | no | no |
| ** Zr-91 ** | | | | | | | | | | | | | |
| 40091.65c | 90.1220 | endf66e | B-VI.0:X | 1976 | 3000.1 | 86834 | 10971 | 20.0 | no | no | no | no | yes |
| 40091.66c | 90.1220 | endf66b | B-VI.0:X | 1976 | 293.6 | 106833 | 13828 | 20.0 | no | no | no | no | yes |
| ** Zr-92 ** | | | | | | | | | | | | | |
| 40092.66c | 91.1120 | endf66b | B-VI.0:X | 1976 | 293.6 | 82986 | 10664 | 20.0 | no | no | no | no | no |
| ** Zr-93 ** | | | | | | | | | | | | | |
| 40093.50c | 92.1083 | kidman | B-V.0 | 1974 | 293.6 | 2579 | 236 | 20.0 | no | no | no | no | no |
| ** Zr-94 ** | | | | | | | | | | | | | |
| 40094.66c | 93.0960 | endf66b | B-VI.0:X | 1976 | 293.6 | 86543 | 11144 | 20.0 | no | no | no | no | no |
| ** Zr-96 ** | | | | | | | | | | | | | |
| 40096.66c | 95.0810 | endf66b | B-VI.0:X | 1976 | 293.6 | 47405 | 5652 | 20.0 | no | no | no | no | no |
| Z = 41 ***** Niobium ***** | | | | | | | | | | | | | |
| ** Nb-93 ** | | | | | | | | | | | | | |
| 41093.24c | 92.1051 | la150n | LANL | 1997 | 293.6 | 375888 | 23213 | 150.0 | yes | no | yes | no | no |
| 41093.42c | 92.1083 | endl92 | LLNL | <1992 | 300.0 | 73324 | 9277 | 30.0 | yes | no | no | no | no |
| 41093.50c | 92.1051 | endf5p | B-V.0 | 1974 | 293.6 | 128960 | 17279 | 20.0 | yes | no | no | no | no |
| 41093.50d | 92.1051 | dre5 | B-V.0 | 1974 | 293.6 | 10332 | 263 | 20.0 | yes | no | no | no | no |
| 41093.51c | 92.1051 | rmccs | B-V.0 | 1974 | 293.6 | 14675 | 963 | 20.0 | yes | no | no | no | no |
| 41093.51d | 92.1051 | drnccs | B-V.0 | 1974 | 293.6 | 10332 | 263 | 20.0 | yes | no | no | no | no |
| 41093.60c | 92.1051 | endf60 | B-VI.1 | 1990 | 293.6 | 110269 | 10678 | 20.0 | yes | no | no | no | no |
| 41093.66c | 92.1051 | endf66b | B-VI.6 | 1997 | 293.6 | 367638 | 23063 | 150.0 | yes | no | yes | no | no |
| Z = 42 ***** Molybdenum ***** | | | | | | | | | | | | | |
| ** Mo-nat** | | | | | | | | | | | | | |
| 42000.42c | 95.1158 | endl92 | LLNL | <1992 | 300.0 | 9293 | 442 | 30.0 | yes | no | no | no | no |
| 42000.50d | 95.1160 | dre5 | B-V.0 | 1979 | 293.6 | 7754 | 263 | 20.0 | yes | no | no | no | no |
| 42000.50c | 95.1160 | endf5u | B-V.0 | 1979 | 293.6 | 35634 | 4260 | 20.0 | yes | no | no | no | no |
| 42000.51c | 95.1160 | rmccs | B-V.0 | 1979 | 293.6 | 10139 | 618 | 20.0 | yes | no | no | no | no |
| 42000.51d | 95.1160 | drnccs | B-V.0 | 1979 | 293.6 | 7754 | 263 | 20.0 | yes | no | no | no | no |
| 42000.60c | 95.1160 | endf60 | B-VI.0 | 1979 | 293.6 | 45573 | 5466 | 20.0 | yes | no | no | no | no |
| 42000.66c | 95.1160 | endf66b | B-VI.0 | 1979 | 293.6 | 68710 | 7680 | 20.0 | yes | no | no | no | no |
| ** Mo-95 ** | | | | | | | | | | | | | |
| 42095.50c | 94.0906 | kidman | B-V.0 | 1980 | 293.6 | 15411 | 2256 | 20.0 | no | no | no | no | no |
| Z = 43 ***** Technetium ***** | | | | | | | | | | | | | |
| ** Tc-99 ** | | | | | | | | | | | | | |
| 43099.50c | 98.1500 | kidman | B-V.0 | 1978 | 293.6 | 12152 | 1640 | 20.0 | no | no | no | no | no |
| 43099.60c | 98.1500 | endf60 | B-VI.0 | 1978 | 293.6 | 54262 | 8565 | 20.0 | no | no | no | no | no |
| 43099.65c | 98.1500 | endf66e | B-VI.0 | 1978 | 3000.1 | 67583 | 8545 | 20.0 | no | no | no | no | yes |
| 43099.66c | 98.1500 | endf66b | B-VI.0 | 1978 | 293.6 | 90039 | 11753 | 20.0 | no | no | no | no | yes |

Table G.2 (Cont.)
Continuous-Energy and Discrete Neutron Data Libraries Maintained by X-5

| <u>Z</u> <u>A</u> <u>I</u> <u>D</u> | <u>A</u> <u>R</u> <u>R</u> | <u>L</u> <u>i</u> <u>b</u> <u>r</u> <u>a</u> <u>r</u> <u>y</u> <u>N</u> <u>a</u> <u>m</u> <u>e</u> | <u>S</u> <u>o</u> <u>u</u> <u>r</u> <u>c</u> <u>e</u> | <u>E</u> <u>v</u> <u>a</u> <u>l</u> <u>D</u> <u>a</u> <u>t</u> <u>e</u> | <u>T</u> <u>e</u> <u>m</u> <u>p</u> <u>(</u> <u>°</u> <u>K</u> <u>)</u> | <u>L</u> <u>e</u> <u>n</u> <u>g</u> <u>t</u> <u>h</u> <u>w</u> <u>o</u> <u>r</u> <u>d</u> <u>s</u> | <u>N</u> <u>E</u> | <u>E</u> _{<u>m</u><u>a</u><u>x</u>} <u>(</u> <u>M</u> <u>e</u> <u>V</u> <u>)</u> | <u>G</u> <u>P</u> <u>D</u> | <u>U</u> | <u>C</u> <u>P</u> | <u>D</u> <u>N</u> | <u>U</u> <u>R</u> |
|-------------------------------------|----------------------------|---|---|--|--|---|-------------------|--|----------------------------|----------|-------------------|-------------------|-------------------|
| Z = 44 | ***** | Ruthenium | ***** | | | | | | | | | | |
| ** Ru-101 ** | | | | | | | | | | | | | |
| 44101.50c | 100.0390 | kidman | B-V.0 | 1980 | 293.6 | 5299 | 543 | 20.0 | no | no | no | no | no |
| ** Ru-103 ** | | | | | | | | | | | | | |
| 44103.50c | 102.0220 | kidman | B-V.0 | 1974 | 293.6 | 3052 | 235 | 20.0 | no | no | no | no | no |
| Z = 45 | ***** | Rhodium | ***** | | | | | | | | | | |
| ** Rh-103 ** | | | | | | | | | | | | | |
| 45103.50d | 102.0210 | drmccs | B-V.0 | 1974 | 293.6 | 4663 | 263 | 20.0 | no | no | no | no | no |
| 45103.50c | 102.0210 | rmccsa | B-V.0 | 1978 | 293.6 | 18870 | 2608 | 20.0 | no | no | no | no | no |
| 45103.65c | 102.0210 | endf66c | B-VI.0 | 1978 | 3000.1 | 83883 | 10715 | 20.0 | no | no | no | no | yes |
| 45103.66c | 102.0210 | endf66b | B-VI.0 | 1978 | 293.6 | 116685 | 15401 | 20.0 | no | no | no | no | yes |
| ** Rh-105 ** | | | | | | | | | | | | | |
| 45105.50c | 104.0050 | kidman | B-V.0 | 1974 | 293.6 | 1591 | 213 | 20.0 | no | no | no | no | no |
| Z = 45 | ***** | Average fission product from Uranium-235 | ***** | | | | | | | | | | |
| ** U-235 fp ** | | | | | | | | | | | | | |
| 45117.90d | 115.5446 | drmccs | LANL/T | 1982 | 293.6 | 9507 | 263 | 20.0 | yes | no | no | no | no |
| 45117.90c | 115.5446 | rmccs | LANL/T | 1982 | 293.6 | 10314 | 399 | 20.0 | yes | no | no | no | no |
| Z = 46 | ***** | Palladium | ***** | | | | | | | | | | |
| ** Pd-102 ** | | | | | | | | | | | | | |
| 46102.66c | 101.0302 | endf66b | B-VI.5 | 1996 | 293.6 | 148683 | 659 | 30.0 | yes | no | yes | no | no |
| ** Pd-104 ** | | | | | | | | | | | | | |
| 46104.66c | 103.0114 | endf66b | B-VI.5 | 1996 | 293.6 | 155873 | 1197 | 30.0 | yes | no | yes | no | no |
| ** Pd-105 ** | | | | | | | | | | | | | |
| 46105.50c | 104.0040 | kidman | B-V.0 | 1980 | 293.6 | 4647 | 505 | 20.0 | no | no | no | no | no |
| 46105.66c | 104.0039 | endf66b | B-VI.5 | 1996 | 293.6 | 634077 | 13480 | 30.0 | yes | no | yes | no | no |
| ** Pd-106 ** | | | | | | | | | | | | | |
| 46106.66c | 104.9937 | endf66b | B-VI.5 | 1996 | 293.6 | 150930 | 1154 | 30.0 | yes | no | yes | no | no |
| ** Pd-108 ** | | | | | | | | | | | | | |
| 46108.50c | 106.9770 | kidman | B-V.0 | 1980 | 293.6 | 4549 | 555 | 20.0 | no | no | no | no | no |
| 46108.66c | 106.9769 | endf66b | B-VI.5 | 1996 | 293.6 | 168900 | 1981 | 30.0 | yes | no | yes | no | no |
| ** Pd-110 ** | | | | | | | | | | | | | |
| 46110.66c | 108.9610 | endf66b | B-VI.5 | 1996 | 293.6 | 127359 | 862 | 30.0 | yes | no | yes | no | no |
| Z = 46 | ***** | Average fission product from Plutonium-239 | ***** | | | | | | | | | | |
| ** Pu-239 fp ** | | | | | | | | | | | | | |
| 46119.90d | 117.5255 | drmccs | LANL/T | 1982 | 293.6 | 9542 | 263 | 20.0 | yes | no | no | no | no |
| 46119.90c | 117.5255 | rmccs | LANL/T | 1982 | 293.6 | 10444 | 407 | 20.0 | yes | no | no | no | no |
| Z = 47 | ***** | Silver | ***** | | | | | | | | | | |
| ** Ag-nat** | | | | | | | | | | | | | |
| 47000.55c | 106.9420 | rmccsa | LANL/T | 1984 | 293.6 | 29092 | 2350 | 20.0 | yes | no | no | no | no |
| 47000.55d | 106.9420 | drmccs | LANL/T | 1984 | 293.6 | 12409 | 263 | 20.0 | yes | no | no | no | no |
| ** Ag-107 ** | | | | | | | | | | | | | |
| 47107.42c | 105.9867 | endl92 | LLNL | <1992 | 300.0 | 27108 | 2885 | 30.0 | yes | no | no | no | no |
| 47107.50c | 105.9870 | rmccsa | B-V.0 | 1978 | 293.6 | 12111 | 1669 | 20.0 | no | no | no | no | no |
| 47107.50d | 105.9870 | drmccs | B-V.0 | 1978 | 293.6 | 4083 | 263 | 20.0 | no | no | no | no | no |
| 47107.60c | 105.9870 | endf60 | B-VI.0 | 1983 | 293.6 | 64008 | 10101 | 20.0 | no | no | no | no | no |
| 47107.66c | 105.9870 | endf66b | B-VI.0 | 1983 | 293.6 | 104321 | 13835 | 20.0 | no | no | no | no | no |

Table G.2 (Cont.)
Continuous-Energy and Discrete Neutron Data Libraries Maintained by X-5

| <u>Z</u> <u>A</u> <u>I</u> <u>D</u> | <u>A</u> <u>R</u> <u>R</u> | <u>L</u> <u>i</u> <u>b</u> <u>r</u> <u>a</u> <u>r</u> <u>y</u> <u>N</u> <u>a</u> <u>m</u> <u>e</u> | <u>S</u> <u>o</u> <u>u</u> <u>r</u> <u>c</u> <u>e</u> | <u>E</u> <u>v</u> <u>a</u> <u>l</u> <u>D</u> <u>a</u> <u>t</u> <u>e</u> | <u>T</u> <u>e</u> <u>m</u> <u>p</u> <u>(</u> <u>°</u> <u>K</u> <u>)</u> | <u>L</u> <u>e</u> <u>n</u> <u>g</u> <u>t</u> <u>h</u> <u>w</u> <u>o</u> <u>r</u> <u>d</u> <u>s</u> | <u>N</u> <u>E</u> | <u>E</u> _{max} <u>(</u> <u>M</u> <u>e</u> <u>V</u> <u>)</u> | <u>G</u> <u>P</u> <u>D</u> | <u>U</u> | <u>C</u> <u>P</u> | <u>D</u> <u>N</u> | <u>U</u> <u>R</u> |
|--|----------------------------|---|---|--|--|---|-------------------|---|----------------------------|----------|-------------------|-------------------|-------------------|
| ** Ag-109 ** | | | | | | | | | | | | | |
| 47109.42c | 107.9692 | endl92 | LLNL | <1992 | 300.0 | 33603 | 3796 | 30.0 | yes | no | no | no | no |
| 47109.50c | 107.9690 | rmccsa | B-V.0 | 1978 | 293.6 | 14585 | 2120 | 20.0 | no | no | no | no | no |
| 47109.50d | 107.9690 | drmccs | B-V.0 | 1978 | 293.6 | 3823 | 263 | 20.0 | no | no | no | no | no |
| 47109.60c | 107.9690 | endf60 | B-VI.0 | 1983 | 293.6 | 76181 | 11903 | 20.0 | no | no | no | no | no |
| 47109.66c | 107.9690 | endf66b | B-VI.0 | 1983 | 293.6 | 121474 | 16086 | 20.0 | no | no | no | no | no |
| Z = 48 ***** Cadmium ***** | | | | | | | | | | | | | |
| ** Cd-nat** | | | | | | | | | | | | | |
| 48000.42c | 111.4443 | endl92 | LLNL | <1992 | 300.0 | 211537 | 29369 | 30.0 | yes | no | no | no | no |
| 48000.50d | 111.4600 | dre5 | B-V.0 | 1974 | 293.6 | 3026 | 263 | 20.0 | no | no | no | no | no |
| 48000.50c | 111.4600 | endf5u | B-V.0 | 1974 | 293.6 | 19714 | 2981 | 20.0 | no | no | no | no | no |
| 48000.51c | 111.4600 | rmccs | B-V.0 | 1974 | 293.6 | 6734 | 818 | 20.0 | no | no | no | no | no |
| 48000.51d | 111.4600 | drmccs | B-V.0 | 1974 | 293.6 | 3026 | 263 | 20.0 | no | no | no | no | no |
| ** Cd-106 ** | | | | | | | | | | | | | |
| 48106.65c | 105.0000 | endf66e | B-VI.4 | 1996 | 3000.1 | 121059 | 10194 | 20.0 | no | no | no | no | yes |
| 48106.66c | 105.0000 | endf66b | B-VI.4 | 1996 | 293.6 | 151365 | 12949 | 20.0 | no | no | no | no | yes |
| ** Cd-108 ** | | | | | | | | | | | | | |
| 48108.65c | 106.9770 | endf66e | B-VI.4 | 1996 | 3000.1 | 112404 | 11496 | 20.0 | no | no | no | no | yes |
| 48108.66c | 106.9770 | endf66b | B-VI.4 | 1996 | 293.6 | 141658 | 14744 | 20.0 | no | no | no | no | yes |
| ** Cd-110 ** | | | | | | | | | | | | | |
| 48110.65c | 108.9590 | endf66e | B-VI.4:X | 1996 | 3000.1 | 105350 | 10737 | 20.0 | no | no | no | no | yes |
| 48110.66c | 108.9590 | endf66b | B-VI.4:X | 1996 | 293.6 | 133785 | 13902 | 20.0 | no | no | no | no | yes |
| ** Cd-111 ** | | | | | | | | | | | | | |
| 48111.66c | 109.9520 | endf66b | B-VI.3 | 1995 | 293.6 | 153808 | 16016 | 20.0 | no | no | no | no | no |
| ** Cd-112 ** | | | | | | | | | | | | | |
| 48112.65c | 110.9420 | endf66e | B-VI.4 | 1996 | 3000.1 | 101915 | 11153 | 20.0 | no | no | no | no | yes |
| 48112.66c | 110.9420 | endf66b | B-VI.4 | 1996 | 293.6 | 130334 | 14515 | 20.0 | no | no | no | no | yes |
| ** Cd-113 ** | | | | | | | | | | | | | |
| 48113.66c | 111.9300 | endf66b | B-VI.3 | 1995 | 293.6 | 97047 | 9799 | 20.0 | no | no | no | no | no |
| ** Cd-114 ** | | | | | | | | | | | | | |
| 48114.65c | 112.9250 | endf66e | B-VI.4 | 1996 | 3000.1 | 83882 | 10534 | 20.0 | no | no | no | no | yes |
| 48114.66c | 112.9250 | endf66b | B-VI.4 | 1996 | 293.6 | 102222 | 13154 | 20.0 | no | no | no | no | yes |
| ** Cd-116 ** | | | | | | | | | | | | | |
| 48116.65c | 114.9090 | endf66e | B-VI.4 | 1996 | 3000.1 | 55903 | 6607 | 20.0 | no | no | no | no | yes |
| 48116.66c | 114.9090 | endf66b | B-VI.4 | 1996 | 293.6 | 66642 | 8141 | 20.0 | no | no | no | no | yes |
| Z = 49 ***** Indium ***** | | | | | | | | | | | | | |
| ** In-nat** | | | | | | | | | | | | | |
| 49000.42c | 113.8336 | endl92 | LLNL | <1992 | 300.0 | 65498 | 7870 | 30.0 | yes | no | no | no | no |
| 49000.60c | 113.8340 | endf60 | B-VI.0 | 1990 | 293.6 | 93662 | 10116 | 20.0 | yes | no | no | no | no |
| 49000.66c | 113.8340 | endf66b | B-VI.0 | 1990 | 293.6 | 269821 | 30337 | 20.0 | yes | no | no | no | no |
| Z = 49-50 ***** Fission Products ***** | | | | | | | | | | | | | |
| ** Avg fp ** | | | | | | | | | | | | | |
| 49120.42c | 116.4906 | endl92fp[12] | LLNL | <1992 | 300.0 | 12755 | 164 | 30.0 | yes | no | no | no | no |
| 49125.42c | 116.4906 | endl92fp[12] | LLNL | <1992 | 300.0 | 9142 | 119 | 30.0 | yes | no | no | no | no |
| 50120.35c | 116.4906 | rmccs | LLNL | <1985 | yes | 8366 | 232 | 20.0 | yes | no | no | no | no |
| 50120.35d | 116.4906 | drmccs | LLNL | <1985 | yes | 8963 | 263 | 20.0 | yes | no | no | no | no |
| Z = 50 ***** Tin ***** | | | | | | | | | | | | | |
| ** Sn-nat** | | | | | | | | | | | | | |
| 50000.40c | 117.6704 | endl92 | LLNL | <1992 | 300.0 | 248212 | 34612 | 30.0 | yes | no | no | no | no |
| 50000.42c | 117.6704 | endl92 | LLNL:X | <1992 | 300.0 | 248212 | 34612 | 30.0 | yes | no | no | no | no |

Table G.2 (Cont.)
Continuous-Energy and Discrete Neutron Data Libraries Maintained by X-5

| <u>Z</u> <u>A</u> <u>I</u> <u>D</u> | <u>A</u> <u>R</u> <u>R</u> | <u>L</u> <u>i</u> <u>b</u> <u>r</u> <u>a</u> <u>r</u> <u>y</u> <u>N</u> <u>a</u> <u>m</u> <u>e</u> | <u>S</u> <u>o</u> <u>u</u> <u>r</u> <u>c</u> <u>e</u> | <u>E</u> <u>v</u> <u>a</u> <u>l</u> <u>D</u> <u>a</u> <u>t</u> <u>e</u> | <u>T</u> <u>e</u> <u>m</u> <u>p</u> <u>(</u> <u>°</u> <u>K</u> <u>)</u> | <u>L</u> <u>e</u> <u>n</u> <u>g</u> <u>t</u> <u>h</u> <u>w</u> <u>o</u> <u>r</u> <u>d</u> <u>s</u> | <u>N</u> <u>E</u> | <u>E</u> _{max} <u>(</u> <u>M</u> <u>e</u> <u>V</u> <u>)</u> | <u>G</u> <u>P</u> <u>D</u> | <u>U</u> | <u>C</u> <u>P</u> | <u>D</u> <u>N</u> | <u>U</u> <u>R</u> |
|-------------------------------------|----------------------------|---|---|--|--|---|-------------------|---|----------------------------|----------|-------------------|-------------------|-------------------|
| Z = 51 ***** Antimony ***** | | | | | | | | | | | | | |
| ** Sb-nat** | | | | | | | | | | | | | |
| 51000.42c | 120.7041 | endl92 | LLNL | <1992 | 300.0 | 95953 | 10721 | 30.0 | yes | no | no | no | no |
| Z = 53 ***** Iodine ***** | | | | | | | | | | | | | |
| ** I-127 ** | | | | | | | | | | | | | |
| 53127.42c | 125.8143 | endl92 | LLNL | <1992 | 300.0 | 76321 | 10 | 30.0 | yes | no | no | no | no |
| 53127.55c | 125.8140 | misc5xs[7,9] | LANL/T | 1982 | 293.6 | 59725 | 9423 | 20.0 | no | no | no | no | no |
| 53127.60c | 125.8143 | endf60[13] | LANL/T | 1991 | 293.6 | 399760 | 7888 | 30.0 | yes | no | no | no | no |
| 53127.66c | 125.8143 | endf66b | B-VI.2 | 1991 | 293.6 | 373991 | 11519 | 30.0 | yes | no | yes | no | no |
| ** I-129 ** | | | | | | | | | | | | | |
| 53129.60c | 127.7980 | endf60 | B-VI.0 | 1980 | 293.6 | 8792 | 1237 | 20.0 | no | no | no | no | no |
| ** I-135 ** | | | | | | | | | | | | | |
| 53135.50c | 133.7510 | kidman | B-V.0 | 1974 | 293.6 | 1232 | 194 | 20.0 | no | no | no | no | no |
| Z = 54 ***** :Xenon ***** | | | | | | | | | | | | | |
| ** :Xe-nat** | | | | | | | | | | | | | |
| 54000.42c | 130.1721 | endl92 | LLNL | <1992 | 300.0 | 43411 | 5173 | 30.0 | yes | no | no | no | no |
| ** :Xe-124 ** | | | | | | | | | | | | | |
| 54124.66c | 122.8420 | endf66b | B-VI.0 | 1978 | 293.6 | 21034 | 1979 | 20.0 | no | no | no | no | no |
| ** :Xe-126 ** | | | | | | | | | | | | | |
| 54126.66c | 124.8230 | endf66b | B-VI.0 | 1978 | 293.6 | 21388 | 2133 | 20.0 | no | no | no | no | no |
| ** :Xe-128 ** | | | | | | | | | | | | | |
| 54128.66c | 126.8050 | endf66b | B-VI.0 | 1978 | 293.6 | 32739 | 3817 | 20.0 | no | no | no | no | no |
| ** :Xe-129 ** | | | | | | | | | | | | | |
| 54129.66c | 127.7970 | endf66b | B-VI.0 | 1978 | 293.6 | 118721 | 15971 | 20.0 | no | no | no | no | no |
| ** :Xe-130 ** | | | | | | | | | | | | | |
| 54130.66c | 128.7880 | endf66b | B-VI.0 | 1978 | 293.6 | 34346 | 3984 | 20.0 | no | no | no | no | no |
| ** :Xe-131 ** | | | | | | | | | | | | | |
| 54131.50c | 129.7810 | kidman | B-V.0 | 1978 | 293.6 | 22572 | 3376 | 20.0 | no | no | no | no | no |
| 54131.66c | 129.7810 | endf66b | B-VI.0 | 1978 | 293.6 | 79510 | 10434 | 20.0 | no | no | no | no | no |
| ** :Xe-132 ** | | | | | | | | | | | | | |
| 54132.66c | 130.7710 | endf66b | B-VI.0 | 1978 | 293.6 | 17947 | 1709 | 20.0 | no | no | no | no | no |
| ** :Xe-134 ** | | | | | | | | | | | | | |
| 54134.42c | 132.7551 | endl92 | LLNL | <1992 | 300.0 | 8033 | 192 | 30.0 | yes | no | no | no | no |
| 54134.66c | 132.7550 | endf66b | B-VI.0 | 1978 | 293.6 | 15028 | 1349 | 20.0 | no | no | no | no | no |
| ** :Xe-135 ** | | | | | | | | | | | | | |
| 54135.50c | 133.7480 | endf5mt[1] | B-V | 1975 | 293.6 | 5529 | 704 | 20.0 | no | no | no | no | no |
| 54135.53c | 133.7480 | endf5mt[1] | B-V | 1975 | 587.2 | 5541 | 706 | 20.0 | no | no | no | no | no |
| 54135.54c | 133.7480 | endf5mt[1] | B-V | 1975 | 880.8 | 5577 | 712 | 20.0 | no | no | no | no | no |
| ** :Xe-136 ** | | | | | | | | | | | | | |
| 54136.66c | 134.7400 | endf66b | B-VI.0 | 1978 | 293.6 | 10700 | 764 | 20.0 | no | no | no | no | no |
| Z = 55 ***** Cesium ***** | | | | | | | | | | | | | |
| ** Cs-133 ** | | | | | | | | | | | | | |
| 55133.50c | 131.7640 | kidman | B-V.0 | 1978 | 293.6 | 26713 | 4142 | 20.0 | no | no | no | no | no |
| 55133.55c | 131.7640 | misc5xs[7,9] | LANL/T | 1982 | 293.6 | 67893 | 11025 | 20.0 | no | no | no | no | no |
| 55133.60c | 131.7640 | endf60 | B-VI.0 | 1978 | 293.6 | 54723 | 8788 | 20.0 | no | no | no | no | no |
| 55133.66c | 131.7640 | endf66b | B-VI.0 | 1978 | 293.6 | 141927 | 19648 | 20.0 | no | no | no | no | no |
| ** Cs-134 ** | | | | | | | | | | | | | |
| 55134.60c | 132.7570 | endf60 | B-VI.0 | 1988 | 293.6 | 10227 | 1602 | 20.0 | no | no | no | no | no |
| ** Cs-135 ** | | | | | | | | | | | | | |
| 55135.50c | 133.7470 | kidman | B-V.0 | 1974 | 293.6 | 1903 | 199 | 20.0 | no | no | no | no | no |
| 55135.60c | 133.7470 | endf60 | B-VI.0 | 1974 | 293.6 | 3120 | 388 | 20.0 | no | no | no | no | no |
| ** Cs-136 ** | | | | | | | | | | | | | |
| 55136.60c | 134.7400 | endf60 | B-VI.0 | 1974 | 293.6 | 10574 | 1748 | 20.0 | no | no | no | no | no |
| ** Cs-137 ** | | | | | | | | | | | | | |
| 55137.60c | 135.7310 | endf60 | B-VI.0 | 1974 | 293.6 | 2925 | 369 | 20.0 | no | no | no | no | no |

APPENDIX G - MCNP DATA LIBRARIES
NEUTRON CROSS-SECTION LIBRARIES

Table G.2 (Cont.)
Continuous-Energy and Discrete Neutron Data Libraries Maintained by X-5

| <u>Z</u> <u>A</u> <u>I</u> <u>D</u> | <u>A</u> <u>R</u> <u>R</u> | <u>L</u> <u>i</u> <u>b</u> <u>r</u> <u>a</u> <u>r</u> <u>y</u> <u>N</u> <u>a</u> <u>m</u> <u>e</u> | <u>S</u> <u>o</u> <u>u</u> <u>r</u> <u>c</u> <u>e</u> | <u>E</u> <u>v</u> <u>a</u> <u>l</u> <u>D</u> <u>a</u> <u>t</u> <u>e</u> | <u>T</u> <u>e</u> <u>m</u> <u>p</u> <u>(</u> <u>°</u> <u>K</u> <u>)</u> | <u>L</u> <u>e</u> <u>n</u> <u>g</u> <u>t</u> <u>h</u> <u>w</u> <u>o</u> <u>r</u> <u>d</u> <u>s</u> | <u>N</u> <u>E</u> | <u>E</u> _{max} <u>(</u> <u>M</u> <u>e</u> <u>V</u> <u>)</u> | <u>G</u> <u>P</u> <u>D</u> | <u>U</u> | <u>C</u> <u>P</u> | <u>D</u> <u>N</u> | <u>U</u> <u>R</u> |
|-------------------------------------|----------------------------|---|---|--|--|---|-------------------|---|----------------------------|----------|-------------------|-------------------|-------------------|
| Z = 56 | ***** | Barium | ***** | | | | | | | | | | |
| ** Ba-138 | ** | | | | | | | | | | | | |
| 56138.50c | 136.7150 | rmccs | B-V.0 | 1978 | 293.6 | 6018 | 292 | 20.0 | yes | no | no | no | no |
| 56138.50d | 136.7150 | drmccs | B-V.0 | 1978 | 293.6 | 6320 | 263 | 20.0 | yes | no | no | no | no |
| 56138.60c | 136.7150 | endf60 | B-VI.0 | 1978 | 293.6 | 7347 | 267 | 20.0 | yes | no | no | no | no |
| 56138.66c | 136.7150 | endf66b | B-VI.3 | 1994 | 293.6 | 79268 | 8920 | 20.0 | yes | no | no | no | no |
| Z = 59 | ***** | Praseodymium | ***** | | | | | | | | | | |
| ** Pr-141 | ** | | | | | | | | | | | | |
| 59141.50c | 139.6970 | kidman | B-V.0 | 1980 | 293.6 | 15620 | 1354 | 20.0 | no | no | no | no | no |
| Z = 60 | ***** | Neodymium | ***** | | | | | | | | | | |
| ** Nd-143 | ** | | | | | | | | | | | | |
| 60143.50c | 141.6820 | kidman | B-V.0 | 1980 | 293.6 | 17216 | 1701 | 20.0 | no | no | no | no | no |
| ** Nd-145 | ** | | | | | | | | | | | | |
| 60145.50c | 143.6680 | kidman | B-V.0 | 1980 | 293.6 | 38473 | 3985 | 20.0 | no | no | no | no | no |
| ** Nd-147 | ** | | | | | | | | | | | | |
| 60147.50c | 145.6540 | kidman | B-V.0 | 1979 | 293.6 | 1816 | 251 | 20.0 | no | no | no | no | no |
| ** Nd-148 | ** | | | | | | | | | | | | |
| 60148.50c | 146.6460 | kidman | B-V.0 | 1980 | 293.6 | 10867 | 1054 | 20.0 | no | no | no | no | no |
| Z = 61 | ***** | Promethium | ***** | | | | | | | | | | |
| ** Pm-147 | ** | | | | | | | | | | | | |
| 61147.50c | 145.6530 | kidman | B-V.0 | 1980 | 293.6 | 9152 | 825 | 20.0 | no | no | no | no | no |
| ** Pm-148 | ** | | | | | | | | | | | | |
| 61148.50c | 146.6470 | kidman | B-V.0 | 1979 | 293.6 | 1643 | 257 | 20.0 | no | no | no | no | no |
| ** Pm-149 | ** | | | | | | | | | | | | |
| 61149.50c | 147.6390 | kidman | B-V.0 | 1979 | 293.6 | 2069 | 238 | 20.0 | no | no | no | no | no |
| Z = 62 | ***** | Samarium | ***** | | | | | | | | | | |
| ** Sm-147 | ** | | | | | | | | | | | | |
| 62147.50c | 145.6530 | kidman | B-V.0 | 1980 | 293.6 | 33773 | 2885 | 20.0 | no | no | no | no | no |
| 62147.65c | 145.6530 | endf66e | B-VI.0 | 1980 | 3000.1 | 186194 | 15025 | 20.0 | no | no | no | no | yes |
| 62147.66c | 145.6530 | endf66b | B-VI.0 | 1980 | 293.6 | 315674 | 25815 | 20.0 | no | no | no | no | yes |
| ** Sm-149 | ** | | | | | | | | | | | | |
| 62149.49c | 147.6380 | uresa | B-VI.0 | 1978 | 300.0 | 57787 | 7392 | 20.0 | no | no | no | no | yes |
| 62149.50c | 147.6380 | endf5u | B-V.0 | 1978 | 293.6 | 15662 | 2008 | 20.0 | no | no | no | no | no |
| 62149.50d | 147.6380 | dre5 | B-V.0 | 1978 | 293.6 | 4429 | 263 | 20.0 | no | no | no | no | no |
| 62149.65c | 147.6380 | endf66e | B-VI.0 | 1978 | 3000.1 | 47902 | 5399 | 20.0 | no | no | no | no | yes |
| 62149.66c | 147.6380 | endf66b | B-VI.0 | 1978 | 293.6 | 64240 | 7733 | 20.0 | no | no | no | no | yes |
| ** Sm-150 | ** | | | | | | | | | | | | |
| 62150.49c | 148.6290 | uresa | B-VI.2 | 1992 | 300.0 | 60992 | 8183 | 20.0 | no | no | no | no | yes |
| 62150.50c | 148.6290 | kidman | B-V.0 | 1974 | 293.6 | 9345 | 1329 | 20.0 | no | no | no | no | no |
| ** Sm-151 | ** | | | | | | | | | | | | |
| 62151.50c | 149.6230 | kidman | B-V.0 | 1980 | 293.6 | 7303 | 605 | 20.0 | no | no | no | no | no |
| ** Sm-152 | ** | | | | | | | | | | | | |
| 62152.49c | 150.6150 | uresa | B-VI.2 | 1992 | 300.0 | 203407 | 19737 | 20.0 | no | no | no | no | yes |
| 62152.50c | 150.6150 | kidman | B-V.0 | 1980 | 293.6 | 41252 | 4298 | 20.0 | no | no | no | no | no |