

(*Nuclear Species Experimental Data*)

isotopeName = "Th-232";

databaseName = "JENDL-5";

atomicNumber = 90; (*Atomic number*)

neutronNumber = 143; (*Compound nucleus neutron number*)

(*Calculation Data Range*)

energyPattern = 5; (*Input required*) (*energyPattern=1;

Data at 0.0253eV*) (*energyPattern=2;

Data at 0.0253eV,500keV*) (*energyPattern=3;

Data at 0.0253eV,500keV,14MeV*) (*energyPattern=4;

Data at 500keV*) (*energyPattern=5;

Data at 500keV,14MeV*)

(*Average Number of Prompt Neutrons*)

promptNeutrons2 = 2.198; (*500 keV*)

promptNeutrons3 = 4.402; (*14 MeV*)

(*Neutron Separation Energy*)

neutronSeparationEnergy = 4786.3 / 1000;

(*Charge Distribution Experimental Data JENDL-5*)

yieldData500keV =

{ {23, 5.1302800 * 10⁻¹⁶ }, {24, 6.0705548 * 10⁻¹² }, {25, 1.5080662 * 10⁻⁰⁹ },
 {26, 6.3856791 * 10⁻⁰⁸ }, {27, 6.3868551 * 10⁻⁰⁷ }, {28, 6.3164035 * 10⁻⁰⁶ },
 {29, 3.5692153 * 10⁻⁰⁵ }, {30, 3.3146509 * 10⁻⁰⁴ }, {31, 2.5408921 * 10⁻⁰³ },
 {32, 2.1800240 * 10⁻⁰² }, {33, 6.6833890 * 10⁻⁰² }, {34, 1.5471604 * 10⁻⁰¹ },
 {35, 1.2633852 * 10⁻⁰¹ }, {36, 2.1625081 * 10⁻⁰¹ }, {37, 1.3732660 * 10⁻⁰¹ },
 {38, 1.6151289 * 10⁻⁰¹ }, {39, 7.2307462 * 10⁻⁰² }, {40, 3.1597801 * 10⁻⁰² },
 {41, 2.0299494 * 10⁻⁰³ }, {42, 1.3958368 * 10⁻⁰³ }, {43, 1.3476724 * 10⁻⁰³ },
 {44, 1.8625504 * 10⁻⁰³ }, {45, 1.6812567 * 10⁻⁰³ }, {46, 1.9331696 * 10⁻⁰³ },
 {47, 1.2461939 * 10⁻⁰³ }, {48, 9.9382289 * 10⁻⁰⁴ }, {49, 4.5028509 * 10⁻⁰³ },
 {50, 4.1083818 * 10⁻⁰² }, {51, 6.0725389 * 10⁻⁰² }, {52, 1.5290921 * 10⁻⁰¹ },
 {53, 1.1013894 * 10⁻⁰¹ }, {54, 1.8718456 * 10⁻⁰¹ }, {55, 1.9654861 * 10⁻⁰¹ },
 {56, 1.2999431 * 10⁻⁰¹ }, {57, 7.9457878 * 10⁻⁰² }, {58, 2.8819421 * 10⁻⁰² },
 {59, 4.2793777 * 10⁻⁰³ }, {60, 2.3967502 * 10⁻⁰⁴ }, {61, 2.3383145 * 10⁻⁰⁵ },
 {62, 2.5881603 * 10⁻⁰⁶ }, {63, 1.9879379 * 10⁻⁰⁷ }, {64, 2.0513354 * 10⁻⁰⁸ },
 {65, 1.5432526 * 10⁻⁰⁹ }, {66, 2.4546986 * 10⁻¹⁰ }, {67, 1.7741767 * 10⁻¹¹ },
 {68, 2.9095201 * 10⁻¹³ }, {69, 1.8348930 * 10⁻¹⁶ }, {70, 0}, {71, 0} };

yieldData14MeV = { {23, 6.6277800 * 10⁻¹² }, {24, 4.1587948 * 10⁻⁰⁹ },

{25, 3.3531745 * 10⁻⁰⁷ }, {26, 5.7199381 * 10⁻⁰⁶ },
 {27, 3.7641318 * 10⁻⁰⁵ }, {28, 1.8899321 * 10⁻⁰⁴ }, {29, 7.4538013 * 10⁻⁰⁴ },
 {30, 2.6520471 * 10⁻⁰³ }, {31, 9.3669098 * 10⁻⁰³ }, {32, 2.4974863 * 10⁻⁰² },
 {33, 6.0675274 * 10⁻⁰² }, {34, 1.0632529 * 10⁻⁰¹ }, {35, 1.3011511 * 10⁻⁰¹ },
 {36, 1.4665132 * 10⁻⁰¹ }, {37, 1.4683643 * 10⁻⁰¹ }, {38, 1.0883794 * 10⁻⁰¹ },
 {39, 6.6401896 * 10⁻⁰² }, {40, 3.9178324 * 10⁻⁰² }, {41, 3.0545063 * 10⁻⁰² },
 {42, 3.2603332 * 10⁻⁰² }, {43, 3.6503612 * 10⁻⁰² }, {44, 3.5604441 * 10⁻⁰² },
 {45, 3.4384958 * 10⁻⁰² }, {46, 3.1908760 * 10⁻⁰² }, {47, 2.9006468 * 10⁻⁰² },
 {48, 2.4761801 * 10⁻⁰² }, {49, 3.1308203 * 10⁻⁰² }, {50, 5.2131255 * 10⁻⁰² },
 {51, 8.2946875 * 10⁻⁰² }, {52, 1.1616048 * 10⁻⁰¹ }, {53, 1.4958369 * 10⁻⁰¹ },

```

{54, 1.5333004 * 10^(-01)}, {55, 1.4324329 * 10^(-01)}, {56, 9.5816240 * 10^(-02)},
{57, 4.8019316 * 10^(-02)}, {58, 2.0223687 * 10^(-02)}, {59, 6.5123875 * 10^(-03)},
{60, 1.7872346 * 10^(-03)}, {61, 4.7894759 * 10^(-04)}, {62, 1.1738239 * 10^(-04)},
{63, 2.4149526 * 10^(-05)}, {64, 4.0971656 * 10^(-06)}, {65, 6.5094001 * 10^(-07)},
{66, 9.7128664 * 10^(-08)}, {67, 1.1676663 * 10^(-08)}, {68, 6.4298412 * 10^(-10)},
{69, 6.2134269 * 10^(-12)}, {70, 5.8500419 * 10^(-15)}, {71, 0}];

```