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(*Nuclear Species Experimental Data*)
isotopeName = "Pu-242";
databaseName = "JENDL-5";

atomicNumber = 94; (*Atomic number*)
neutronNumber = 149; (*Compound nucleus neutron number*)

(*End atomic number for fitting data*)
energyPattern = 3; (*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*)

(*Average Number of Prompt Neutrons*)
promptNeutrons1 = 2.936; (*0.0253 eV*)
promptNeutrons2 = 3.276; (*500 keV*)
promptNeutrons3 = 4.921; (*14 MeV*)

(*Neutron Separation Energy*)
neutronSeparationEnergy = 5033.6 / 1000;

(*Charge Distribution Experimental Data JENDL-5*)
yieldData0253eV = { {23, 4.5455800 * 10^(-18)}, {24, 5.3554935 * 10^(-14)},
    {25, 1.5269770 * 10^(-11)}, {26, 6.8561111 * 10^(-10)},
    {27, 6.9335229 * 10^(-09)}, {28, 1.1569122 * 10^(-07)}, {29, 1.5706859 * 10^(-06)},
    {30, 2.7853943 * 10^(-05)}, {31, 1.7646125 * 10^(-04)}, {32, 1.1754091 * 10^(-03)},
    {33, 4.2099705 * 10^(-03)}, {34, 1.2647377 * 10^(-02)}, {35, 1.9440376 * 10^(-02)},
    {36, 4.1946415 * 10^(-02)}, {37, 5.9991629 * 10^(-02)}, {38, 1.1008773 * 10^(-01)},
    {39, 1.2277087 * 10^(-01)}, {40, 1.7101989 * 10^(-01)}, {41, 1.4461422 * 10^(-01)},
    {42, 1.5905377 * 10^(-01)}, {43, 9.0313294 * 10^(-02)}, {44, 5.6129259 * 10^(-02)},
    {45, 4.5106272 * 10^(-03)}, {46, 1.2222513 * 10^(-03)}, {47, 7.2596537 * 10^(-04)},
    {48, 6.9823030 * 10^(-04)}, {49, 4.2494667 * 10^(-03)}, {50, 5.2518402 * 10^(-02)},
    {51, 9.0182761 * 10^(-02)}, {52, 1.6990483 * 10^(-01)}, {53, 1.4955913 * 10^(-01)},
    {54, 1.7149048 * 10^(-01)}, {55, 1.1740237 * 10^(-01)}, {56, 1.0404828 * 10^(-01)},
    {57, 5.7861190 * 10^(-02)}, {58, 4.2142233 * 10^(-02)}, {59, 2.0652247 * 10^(-02)},
    {60, 1.2166503 * 10^(-02)}, {61, 4.5915368 * 10^(-03)}, {62, 2.0151028 * 10^(-03)},
    {63, 3.9992221 * 10^(-04)}, {64, 4.9168358 * 10^(-05)}, {65, 2.9402990 * 10^(-06)},
    {66, 1.4930565 * 10^(-07)}, {67, 1.0115916 * 10^(-08)}, {68, 4.1014649 * 10^(-10)},
    {69, 1.2322438 * 10^(-12)}, {70, 2.9748400 * 10^(-16)}, {71, 0} };

yieldData500keV = { {23, 7.130110^(-16)}, {24, 4.3650627 * 10^(-12)},
    {25, 1.1036756 * 10^(-09)}, {26, 3.2365398 * 10^(-08)},
    {27, 1.8847041 * 10^(-07)}, {28, 1.4443746 * 10^(-06)}, {29, 9.6334031 * 10^(-06)},
    {30, 8.4964644 * 10^(-05)}, {31, 4.9760115 * 10^(-04)}, {32, 2.3021639 * 10^(-03)},
    {33, 5.4491200 * 10^(-03)}, {34, 1.2822278 * 10^(-02)}, {35, 1.9998153 * 10^(-02)},
    {36, 4.2626391 * 10^(-02)}, {37, 6.2166798 * 10^(-02)}, {38, 1.0388825 * 10^(-01)},
    {39, 1.1540369 * 10^(-01)}, {40, 1.6346897 * 10^(-01)}, {41, 1.5197710 * 10^(-01)},
    {42, 1.6363350 * 10^(-01)}, {43, 9.0709033 * 10^(-02)}, {44, 5.5800530 * 10^(-02)},
    {45, 5.5501381 * 10^(-03)}, {46, 2.1330988 * 10^(-03)}, {47, 1.6879406 * 10^(-03)},
    {48, 1.9834872 * 10^(-03)}, {49, 6.5872927 * 10^(-03)}, {50, 6.2455693 * 10^(-02)},
    {51, 9.7075817 * 10^(-02)}, {52, 1.5948120 * 10^(-01)}, {53, 1.3819754 * 10^(-01)},

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{54, 1.6536868 * 10^(-01)}, {55, 1.1734323 * 10^(-01)}, {56, 1.0458272 * 10^(-01)},
{57, 6.1095250 * 10^(-02)}, {58, 4.3186074 * 10^(-02)}, {59, 2.2039104 * 10^(-02)},
{60, 1.2868152 * 10^(-02)}, {61, 4.9653940 * 10^(-03)}, {62, 2.0066201 * 10^(-03)},
{63, 4.6514117 * 10^(-04)}, {64, 7.7669334 * 10^(-05)}, {65, 8.6275108 * 10^(-06)},
{66, 1.1106910 * 10^(-06)}, {67, 1.5086777 * 10^(-07)}, {68, 7.3628875 * 10^(-09)},
{69, 3.6374465 * 10^(-11)}, {70, 1.2654800 * 10^(-14)}, {71, 0}};
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yieldData14MeV = {{23, 1.6536200 * 10^(-16)}, {24, 1.0022250 * 10^(-12)},
{25, 1.3832617 * 10^(-10)}, {26, 3.0474757 * 10^(-09)}, {27, 2.1760818 * 10^(-08)},
{28, 1.4936781 * 10^(-07)}, {29, 3.0197121 * 10^(-06)}, {30, 7.0903787 * 10^(-05)},
{31, 5.8286709 * 10^(-04)}, {32, 2.3012015 * 10^(-03)}, {33, 7.4306062 * 10^(-03)},
{34, 1.7756833 * 10^(-02)}, {35, 2.8481133 * 10^(-02)}, {36, 4.3020082 * 10^(-02)},
{37, 6.2441898 * 10^(-02)}, {38, 8.6705187 * 10^(-02)}, {39, 1.1263815 * 10^(-01)},
{40, 1.3081381 * 10^(-01)}, {41, 1.3815935 * 10^(-01)}, {42, 1.2648281 * 10^(-01)},
{43, 8.9873216 * 10^(-02)}, {44, 9.3353501 * 10^(-02)}, {45, 3.4021652 * 10^(-02)},
{46, 1.2424445 * 10^(-02)}, {47, 1.1771057 * 10^(-02)}, {48, 1.2937123 * 10^(-02)},
{49, 4.2912156 * 10^(-02)}, {50, 9.7584374 * 10^(-02)}, {51, 9.1665861 * 10^(-02)},
{52, 1.3370531 * 10^(-01)}, {53, 1.3857570 * 10^(-01)}, {54, 1.2648116 * 10^(-01)},
{55, 1.1659566 * 10^(-01)}, {56, 8.5522629 * 10^(-02)}, {57, 5.8734064 * 10^(-02)},
{58, 4.1210353 * 10^(-02)}, {59, 2.7174566 * 10^(-02)}, {60, 1.5987408 * 10^(-02)},
{61, 8.0714417 * 10^(-03)}, {62, 3.2528438 * 10^(-03)}, {63, 9.9304281 * 10^(-04)},
{64, 2.1913518 * 10^(-04)}, {65, 3.8428602 * 10^(-05)}, {66, 5.9626760 * 10^(-06)},
{67, 7.8778713 * 10^(-07)}, {68, 8.2417375 * 10^(-08)}, {69, 2.3941658 * 10^(-09)},
{70, 9.0660106 * 10^(-12)}, {71, 9.1556000 * 10^(-15)}}};
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