appendix

C

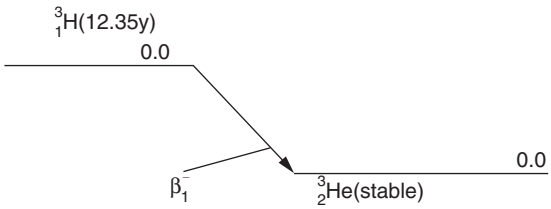
Decay Characteristics of Some Medically Important Radionuclides

The figures show nuclear decay scheme diagrams using the conventions described in Chapter 3. In the tables accompanying the decay diagrams, the first column is the type of radiation emitted, $y(i)$ is the frequency of the i^{th} emission per nuclear decay in $(Bq \bullet sec)^{-1}$, $E(i)$ is the corresponding transition energy for the emission in MeV (given as the average energy for beta decay), and $y(i) \times E(i)$ is the average energy emitted per decay. [Figures from ICRP Publication No. 38, Radionuclide Transformations: Energy and Intensity of Emissions. In Annals of the ICRP (International Commission on Radiological Protection). Oxford, Pergamon Press, 1983.]

Legend for radiation listed in decay tables:

γ	gamma ray
β^-	beta-minus particle
β^+	beta-plus particle
γ±	annihilation photons
ce-K, ce-L, etc....	internal conversion electrons ejected from the K, L, etc.... shell (Chapter 3, Section E)
Auger-XXX	Auger electrons (see Chapter 2, Section C.3 for explanation of notation)
K_α, K_β etc, ... X ray	characteristic x rays (see Chapter 2, Table 2-1 for notation)
ΔE	residual low-energy radiation (mainly Auger processes) not easily described by individual discrete transitions

HYDROGEN-3

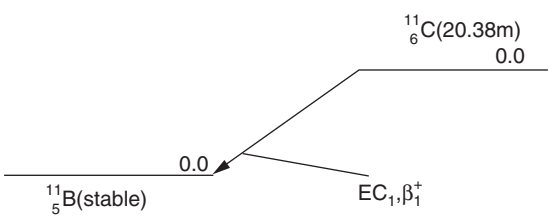


Half Life = 12.35 Years			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	1.00E 00	5.683E-03*	5.68E-03
LISTED β, ce AND Auger RADIATIONS			5.68E-03
LISTED RADIATIONS			5.68E-03

*AVERAGE ENERGY (MeV)

HELIUM-3 DAUGHTER IS STABLE.

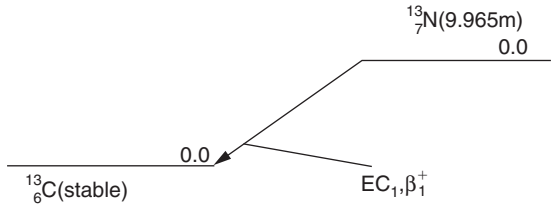
CARBON-11



Half Life = 20.38 Minutes			
Decay Mode(s): EC, β^+			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^+ 1	9.98E-01	3.855E-01*	3.85E-01
γ±	2.00E 00	5.110E-01	1.02E 00
Kα$_1$ X ray	1.62E-06	1.833E-04	2.97E-10
Kα$_2$ X ray	8.10E-07	1.833E-04	1.48E-10
LISTED X, γ AND γ± RADIATIONS			1.02E 00
LISTED β, ce AND Auger RADIATIONS			3.85E-01
LISTED RADIATIONS			1.40E 00

*AVERAGE ENERGY (MeV)
BORON-11 DAUGHTER IS STABLE.

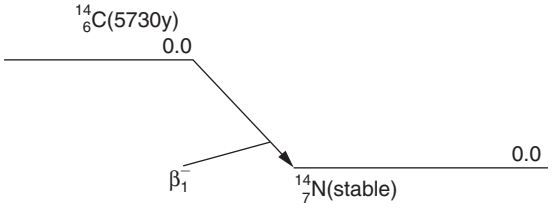
NITROGEN-13



Half Life = 9.965 Minutes			
Decay Mode(s): EC, β^+			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^+ 1	9.98E-01	4.918E-01*	4.91E-01
γ±	2.00E 00	5.110E-01	1.02E 00
Kα$_1$ X ray	2.38E-06	2.774E-04	6.59E-10
Kα$_2$ X ray	1.19E-06	2.774E-04	3.30E-10
Auger-KLL	1.80E-03	2.564E-04*	4.61E-07
LISTED X, γ AND γ± RADIATIONS			1.02E 00
LISTED β, ce AND Auger RADIATIONS			4.91E-01
LISTED RADIATIONS			1.51E 00

*AVERAGE ENERGY (MeV)
CARBON-13 DAUGHTER IS STABLE.

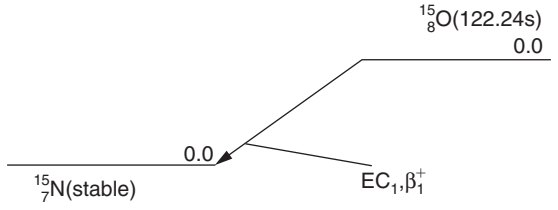
CARBON-14



Half Life = 5730 Years			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	1.00E 00	4.945E-02*	4.95E-02
LISTED β, ce AND Auger RADIATIONS			4.95E-02
LISTED RADIATIONS			4.95E-02

*AVERAGE ENERGY (MeV)
NITROGEN-14 DAUGHTER IS STABLE.

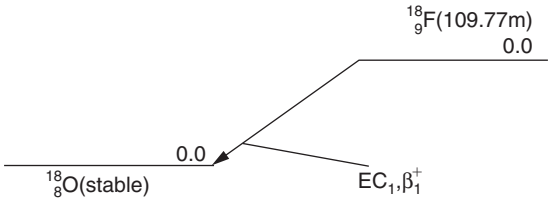
OXYGEN-15



Half Life = 122.24 Seconds			
Decay Mode(s): EC, β^+			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^+ 1	9.99E-01	7.353E-01*	7.34E-01
γ±	2.00E 00	5.110E-01	1.02E 00
Kα$_1$ X ray	2.65E-06	3.924E-04	1.04E-09
Kα$_2$ X ray	1.32E-06	3.924E-04	5.19E-10
Auger-KLL	1.13E-03	3.684E-04*	4.15E-07
LISTED X, γ AND γ± RADIATIONS			1.02E 00
LISTED β, ce AND Auger RADIATIONS			7.34E-01
LISTED RADIATIONS			1.76E 00

*AVERAGE ENERGY (MeV)
NITROGEN-15 DAUGHTER IS STABLE.

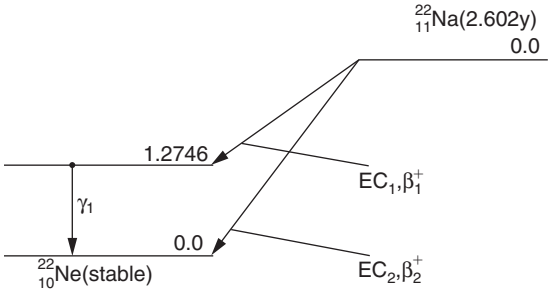
FLUORINE-18



Half Life = 109.77 Minutes			
Decay Mode(s): EC, β⁺			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β$^+$ 1	9.67E-01	2.498E-01*	2.42E-01
γ±	1.93E 00	5.110E-01	9.86E-01
LISTED X, γ AND γ± RADIATIONS			1.02E 00
LISTED β, ce AND Auger RADIATIONS			2.50E-01
LISTED RADIATIONS			1.27E 00

*AVERAGE ENERGY (MeV)
OXYGEN-18 DAUGHTER IS STABLE.

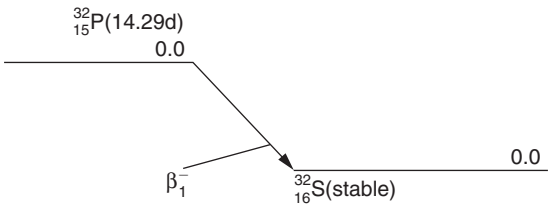
SODIUM-22



Half Life = 2.602 Years			
Decay Mode(s): EC, β⁺			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β$^+$ 1	8.98E-01	2.154E-01*	1.94E-01
β$^+$ 2	6.00E-04	8.350E-01*	5.01E-04
γ±	1.80E 00	5.110E-01	9.19E-01
γ 1	9.99E-01	1.275E 00	1.27E 00
ce-K, γ 1	6.43E-06	1.274E 00	8.19E-06
ce-L$_1$, γ 1	3.77E-07	1.274E 00	4.81E-07
ce-L$_2$, γ 1	2.07E-10	1.275E 00	2.64E-10
ce-L$_3$, γ 1	3.40E-10	1.275E 00	4.33E-10
Kα$_1$ X ray	9.42E-04	8.486E-04	7.99E-07
Kα$_2$ X ray	4.72E-04	8.486E-04	4.01E-07
Kα$_3$ X ray	1.19E-12	8.219E-04	9.76E-16
Auger-KLL	9.96E-02	8.006E-04*	7.97E-05
LISTED X, γ AND γ± RADIATIONS			2.19E 00
LISTED β, ce AND Auger RADIATIONS			1.94E-01
LISTED RADIATIONS			2.39E 00

*AVERAGE ENERGY (MeV)
NEON-22 DAUGHTER IS STABLE.

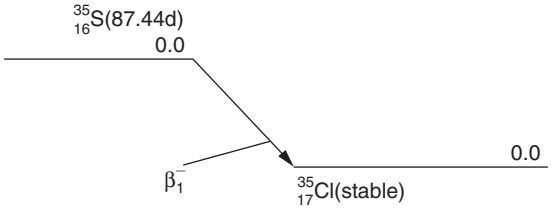
PHOSPHORUS-32



Half Life = 14.29 Days			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	1.00E 00	6.947E-01*	6.95E-01
LISTED β, ce AND Auger RADIATIONS			6.95E-01
LISTED RADIATIONS			6.95E-01

*AVERAGE ENERGY (MeV)
SULFUR-32 DAUGHTER IS STABLE.

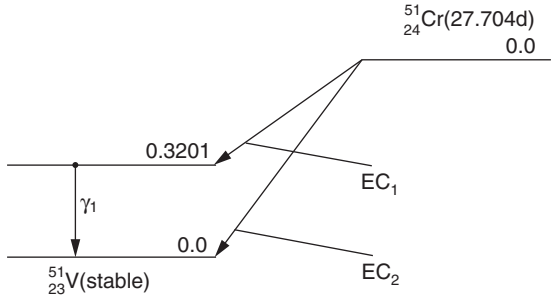
SULFUR-35



Half Life = 87.44 Days			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	1.00E 00	4.883E-02*	4.88E-02
LISTED β, ce AND Auger RADIATIONS			4.88E-02
LISTED RADIATIONS			4.88E-02

*AVERAGE ENERGY (MeV)
CHLORINE-35 DAUGHTER IS STABLE.

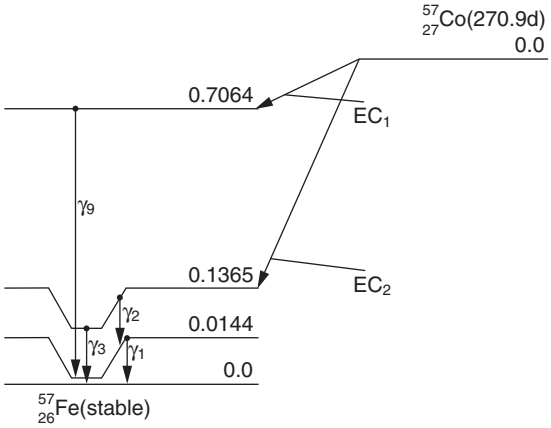
CHROMIUM-51



Half Life = 27.704 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 1	9.83E-02	3.201E-01	3.15E-02
ce-K, γ 1	1.52E-04	3.146E-01	4.78E-05
ce-L_1, γ 1	1.38E-05	3.194E-01	4.41E-06
Kα_1 X-ray	1.33E-01	4.952E-03	6.59E-04
Kα_2 X-ray	6.70E-02	4.945E-03	3.31E-04
Kβ_1 X-ray	1.76E-02	5.427E-03	9.53E-05
Kβ_3 X-ray	8.88E-03	5.427E-03	4.82E-05
Auger-KLL	5.58E-01	4.339E-03*	2.42E-03
Auger-KLX	1.13E-01	4.876E-03*	5.49E-04
Auger-KXY	8.59E-03	5.386E-03*	4.63E-05
Auger-LMM	1.51E 00	4.859E-04*	7.34E-04
Auger-LMX	1.05E-02	5.183E-04*	5.45E-06
Auger-MXY	3.19E 00	1.603E-05*	5.12E-05
LISTED X γ AND γ± RADIATIONS			3.26E-02
OMITTED X γ AND γ± RADIATIONS**			5.89E-07
LISTED β, ce AND Auger RADIATIONS			3.86E-03
OMITTED β, ce AND Auger RADIATIONS**			8.33E-08
LISTED RADIATIONS			3.65E-02
OMITTED RADIATIONS**			6.72E-07

*AVERAGE ENERGY (MeV)
**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.
VANADIUM-51 DAUGHTER IS STABLE.

COBALT-57



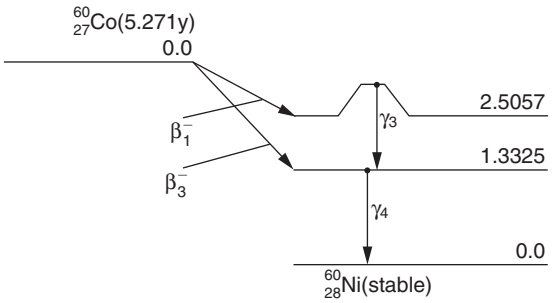
Half Life = 270.9 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 1	9.19E-02	1.441E-02	1.32E-03
ce-K, γ 1	7.13E-01	7.301E-03	5.20E-03
ce-L_1, γ 1	6.80E-02	1.357E-02	9.22E-04
ce-L_2, γ 1	4.20E-03	1.369E-02	5.75E-05
ce-L_3, γ 1	1.69E-03	1.370E-02	2.31E-05
γ 2	8.56E-01	1.221E-01	1.04E-01
ce-K, γ 2	1.84E-02	1.150E-01	2.12E-03
ce-L_1, γ 2	1.73E-03	1.212E-01	2.10E-04
γ 3	1.06E-01	1.365E-01	1.45E-02
ce-K, γ 3	1.43E-02	1.294E-01	1.84E-03
ce-L_1, γ 3	1.27E-03	1.356E-01	1.73E-04
γ 9	1.60E-03	6.920E-01	1.11E-03
Kα_1 X ray	3.34E-01	6.404E-03	2.14E-03
Kα_2 X ray	1.69E-01	6.391E-03	1.08E-03
Kβ_1 X ray	4.51E-02	7.058E-03	3.19E-04
Kβ_3 X ray	2.29E-02	7.058E-03	1.61E-04
Auger-KLL	8.54E-01	5.574E-03*	4.76E-03
Auger-KLX	2.04E-01	6.302E-03*	1.29E-03
Auger-KXY	1.79E-02	7.000E-03*	1.25E-04
Auger-LMM	2.43E 00	6.703E-04*	1.63E-03
Auger-LMX	1.54E-01	7.067E-04*	1.09E-04
Auger-MXY	5.33E 00	2.232E-05*	1.19E-04
LISTED X, γ AND γ± RADIATIONS			1.25E-01
OMITTED X, γ AND γ± RADIATIONS**			1.57E-04
LISTED β, ce AND Auger RADIATIONS			1.86E-02
OMITTED β, ce AND Auger RADIATIONS**			4.08E-05
LISTED RADIATIONS			1.44E-01
OMITTED RADIATIONS**			1.98E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

IRON-57 DAUGHTER IS STABLE.

COBALT-60



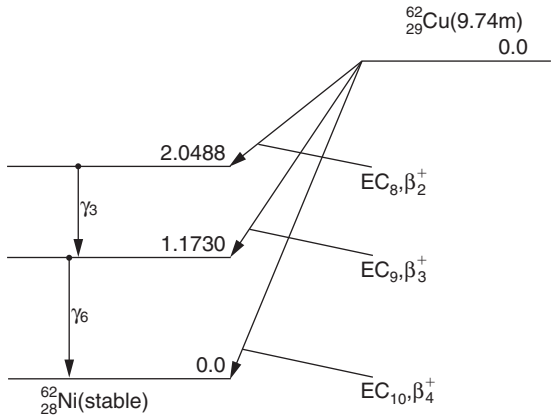
Half Life = 5.271 Years			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	9.99E-01	9.577E-02*	9.57E-02
β^- 3	8.00E-04	6.258E-01*	5.01E-04
γ 3	9.99E-01	1.173E 00	1.17E 00
ce-K, γ 3	1.50E-04	1.165E 00	1.75E-04
γ 4	1.00E 00	1.332E 00	1.33E 00
ce-K, γ 4	1.14E-04	1.324E 00	1.50E-04
LISTED X, γ AND γ± RADIATIONS			2.50E 00
OMITTED X, γ AND γ± RADIATIONS**			1.14E-04
LISTED β, ce AND Auger RADIATIONS			9.65E-02
OMITTED β, ce AND Auger RADIATIONS**			4.73E-05
LISTED RADIATIONS			2.60E 00
OMITTED RADIATIONS**			1.61E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

NICKEL-60 DAUGHTER IS STABLE.

COPPER-62



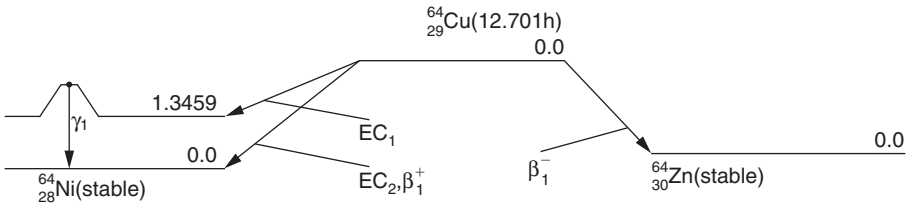
Half Life = 9.74 Minutes			
Decay Mode(s): EC, β^+			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^+ 4	9.76E-01	1.315E 00*	1.28E 00
γ±	1.96E 00	5.110E-01	1.00E 00
γ 3	1.47E-03	8.757E-01	1.29E-03
γ 6	3.35E-03	1.173E 00	3.93E-03
LISTED X, γ AND γ± RADIATIONS			1.00E 00
OMITTED X, γ AND γ± RADIATIONS**			1.92E-03
LISTED β, ce AND Auger RADIATIONS			1.28E 00
OMITTED β, ce AND Auger RADIATIONS**			1.48E-03
LISTED RADIATIONS			2.29E 00
OMITTED RADIATIONS**			3.40E-03

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

NICKEL-62 DAUGHTER IS STABLE.

COPPER-64



Half Life = 12.701 Hours			
Decay Mode(s): β^-, EC, β^+			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	3.72E-01	1.902E-01*	7.08E-02
β^+ 1	1.79E-01	2.781E-01*	4.97E-02
γ±	3.58E-01	5.110E-01	1.83E-01
γ 1	4.90E-03	1.346E 00	6.59E-03
Kα_1 X ray	9.78E-02	7.478E-03	7.31E-04
Kα_2 X ray	4.97E-02	7.461E-03	3.71E-04
Auger-KLL	1.84E-01	6.489E-03*	1.20E-03
Auger-KLX	4.83E-02	7.356E-03*	3.55E-04
Auger-LMM	5.66E-01	8.103E-04*	4.59E-04
LISTED X, γ AND γ± RADIATIONS			1.90E-01
OMITTED X, γ AND γ± RADIATIONS**			1.68E-04
LISTED β, ce AND Auger RADIATIONS			1.23E-01
OMITTED β, ce AND Auger RADIATIONS**			1.06E-04
LISTED RADIATIONS			3.13E-01
OMITTED RADIATIONS**			2.74E-04

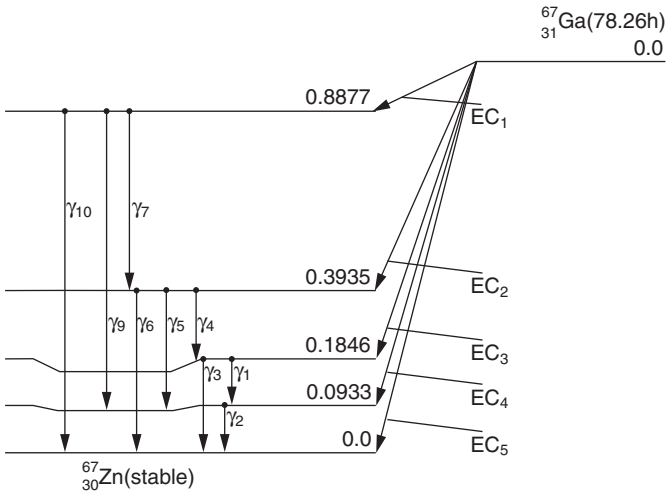
*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

ZINC-64 DAUGHTER, YIELD 3.72E-01, IS STABLE.

NICKEL-64 DAUGHTER, YIELD 6.28E-01, IS STABLE.

GALLIUM-67



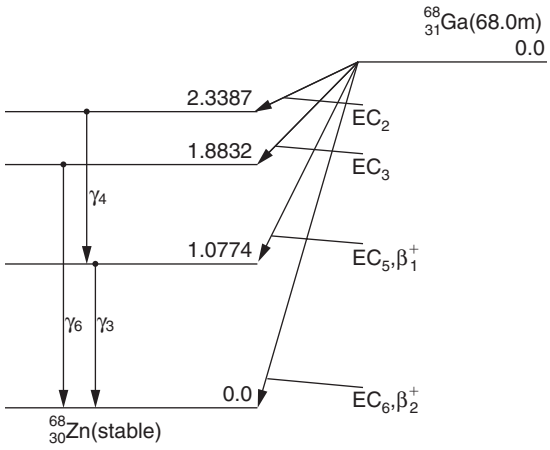
Half Life = 78.26 Hours							
Decay Mode(s): EC							
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***	**Radiation**	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 1	3.07E-02	9.127E-02	2.80E-03	γ 10	1.45E-03	8.877E-01	1.29E-03
ce-K, γ 1	2.23E-03	8.161E-02	1.82E-04	Kα$_1$ X ray	3.28E-01	8.639E-03	2.83E-03
γ 2	3.83E-01	9.331E-02	3.57E-02	Kα$_2$ X ray	1.67E-01	8.616E-03	1.44E-03
ce-K, γ 2	2.87E-01	8.365E-02	2.40E-02	Kβ$_1$ X ray	4.49E-02	9.572E-03	4.30E-04
ce-L$_1$, γ 2	2.54E-02	9.212E-02	2.34E-03	Kβ$_3$ X ray	2.30E-02	9.572E-03	2.20E-04
ce-L$_2$, γ 2	3.98E-03	9.227E-02	3.67E-04	Auger-KLL	4.67E-01	7.466E-03*	3.49E-03
ce-L$_3$, γ 2	5.81E-03	9.229E-02	5.36E-04	Auger-KLX	1.33E-01	8.482E-03*	1.12E-03
ce-M, γ 2	5.17E-03	9.322E-02*	4.82E-04	Auger-KXY	1.31E-02	9.473E-03*	1.24E-04
γ 3	2.09E-01	1.846E-01	3.87E-02	Auger-LMM	1.55E 00	9.444E-04*	1.46E-03
ce-K, γ 3	4.07E-03	1.749E-01	7.11E-04	Auger-LMX	1.43E-01	1.020E-03*	1.46E-04
ce-L$_1$, γ 3	3.87E-04	1.834E-01	7.11E-05	Auger-MXY	3.49E 00	4.566E-05*	1.60E-04
γ 4	2.37E-02	2.090E-01	4.94E-03	LISTED X, γ AND γ± RADIATIONS			1.58E-01
ce-K, γ 4	1.90E-04	1.993E-01	3.79E-05	OMITTED X, γ AND γ± RADIATIONS**			8.52E-05
γ 5	1.68E-01	3.002E-01	5.04E-02	LISTED β, ce AND Auger RADIATIONS			3.54E-02
ce-K, γ 5	5.83E-04	2.906E-01	1.69E-04	OMITTED β, ce AND Auger RADIATIONS**			1.04E-04
γ 6	4.70E-02	3.935E-01	1.85E-02				
γ 7	6.86E-04	4.942E-01	3.39E-04	LISTED RADIATIONS			1.93E-01
γ 9	5.13E-04	7.944E-01	4.08E-04	OMITTED RADIATIONS**			1.89E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

ZINC-67 DAUGHTER IS STABLE.

GALLIUM-68



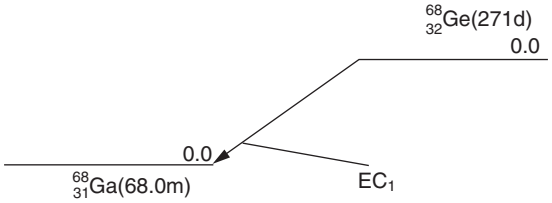
Half Life = 68 Minutes			
Decay Mode(s): EC, β⁺			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β⁺ 1	1.08E-02	3.526E-01*	3.80E-03
β⁺ 2	8.79E-01	8.358E-01*	7.35E-01
γ±	1.78E 00	5.110E-01	9.10E-01
γ 3	3.30E-02	1.077E 00	3.56E-02
γ 4	9.90E-04	1.261E 00	1.25E-03
γ 6	1.43E-03	1.883E 00	2.69E-03
LISTED X, γ AND γ± RADIATIONS			9.49E-01
OMITTED X, γ AND γ± RADIATIONS**			1.61E-03
LISTED β, ce AND Auger RADIATIONS			7.39E-01
OMITTED β, ce AND Auger RADIATIONS**			5.45E-04
LISTED RADIATIONS			1.69E 00
OMITTED RADIATIONS**			2.15E-03

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

ZINC-68 DAUGHTER IS STABLE.

GERMANIUM-68

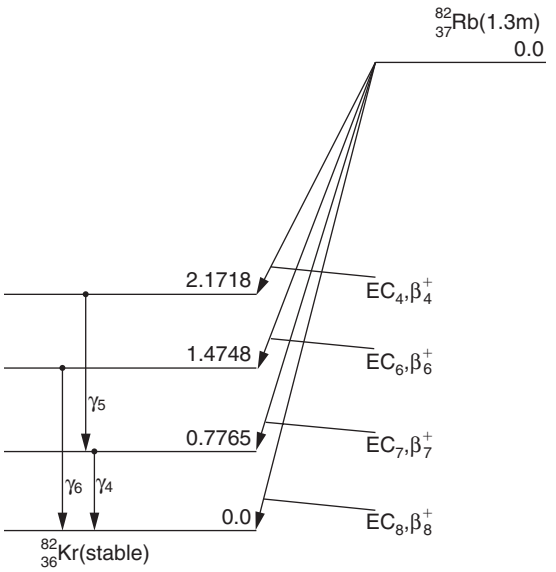


Half Life = 271 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
Kα$_1$ X ray	2.55E-01	9.252E-03	2.36E-03
Kα$_2$ X ray	1.31E-01	9.225E-03	1.20E-03
Kα$_3$ X ray	3.93E-07	9.069E-03	3.56E-09
Kβ$_1$ X ray	3.59E-02	1.026E-02	3.68E-04
Kβ$_3$ X ray	1.83E-02	1.026E-02	1.88E-04
Kβ$_5$ X ray	6.43E-05	1.035E-02	6.66E-07
Lα X ray	4.55E-03	1.098E-03*	5.00E-06
Lβ X ray	1.91E-03	1.131E-03*	2.16E-06
Lη X ray	1.13E-04	9.842E-04	1.11E-07
L*l* X ray	2.29E-04	9.573E-04	2.20E-07
Auger-KLL	3.19E-01	7.976E-03*	2.55E-03
Auger-KLX	9.39E-02	9.074E-03*	8.52E-04
Auger-KXY	9.49E-03	1.015E-02*	9.63E-05
Auger-LMM	1.11E 00	1.017E-03*	1.13E-03
Auger-LMX	1.18E-01	1.108E-03*	1.31E-04
Auger-MXY	2.53E 00	5.928E-05*	1.50E-04
LISTED X, γ AND γ± RADIATIONS			4.13E-03
LISTED β, ce AND Auger RADIATIONS			4.90E-03
LISTED RADIATIONS			9.03E-03

*AVERAGE ENERGY (MeV)

GALLIUM-68 DAUGHTER IS RADIOACTIVE.

RUBIDIUM-82



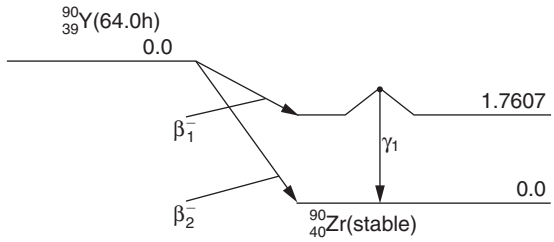
Half Life = 1.3 Minutes			
Decay Mode(s): EC, β⁺			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β⁺ 4	2.76E-03	5.174E-01*	1.43E-03
β⁺ 6	1.72E-03	8.325E-01*	1.44E-03
β⁺ 7	1.16E-01	1.157E 00*	1.34E-01
β⁺ 8	8.33E-01	1.523E 00*	1.27E 00
γ±	1.91E 00	5.110E-01	9.75E-01
γ 4	1.34E-01	7.765E-01	1.04E-01
γ 5	5.05E-03	1.395E 00	7.05E-03
γ 6	9.38E-04	1.475E 00	1.38E-03
LISTED X, γ AND γ± RADIATIONS			1.09E 00
OMITTED X, γ AND γ± RADIATIONS**			5.36E-03
LISTED β, ce AND Auger RADIATIONS			1.41E 00
OMITTED β, ce AND Auger RADIATIONS**			7.03E-04
LISTED RADIATIONS			2.49E 00
OMITTED RADIATIONS**			6.06E-03

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

KRYPTON-82 DAUGHTER IS STABLE.

YTTRIUM-90



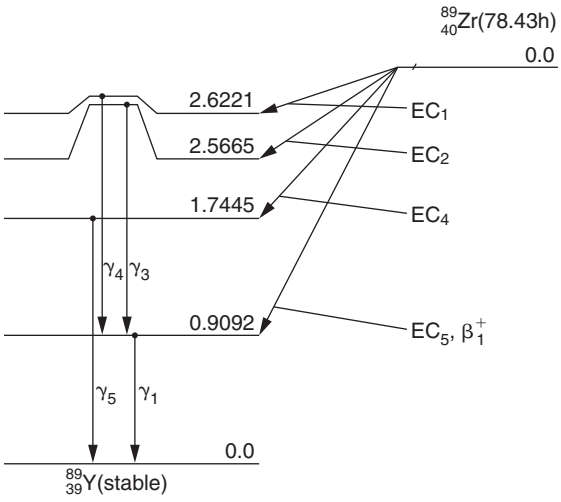
Half Life = 64 Hours			
Decay Mode(s): β⁻			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β⁻ 2	1.00E 00	9.348E-01*	9.35E-01
Kα$_1$ X ray	5.79E-05	1.578E-02	9.13E-07
Kα$_2$ X ray	3.03E-05	1.569E-02	4.75E-07
Kβ$_1$ X ray	9.55E-06	1.767E-02	1.69E-07
Kβ$_2$ X ray	2.14E-06	1.797E-02	3.85E-08
Kβ$_3$ X ray	4.89E-06	1.765E-02	8.63E-08
Lα X ray	2.29E-06	2.042E-03*	4.67E-09
Lβ X ray	1.61E-06	2.130E-03*	3.43E-09
LISTED X, γ AND γ± RADIATIONS			1.69E-06
OMITTED X, γ AND γ± RADIATIONS**			1.25E-09
LISTED β, ce AND Auger RADIATIONS			9.35E-01
OMITTED β, ce AND Auger RADIATIONS**			3.10E-04
LISTED RADIATIONS			9.35E-01
OMITTED RADIATIONS**			3.10E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

ZIRCONIUM-90 DAUGHTER IS STABLE.

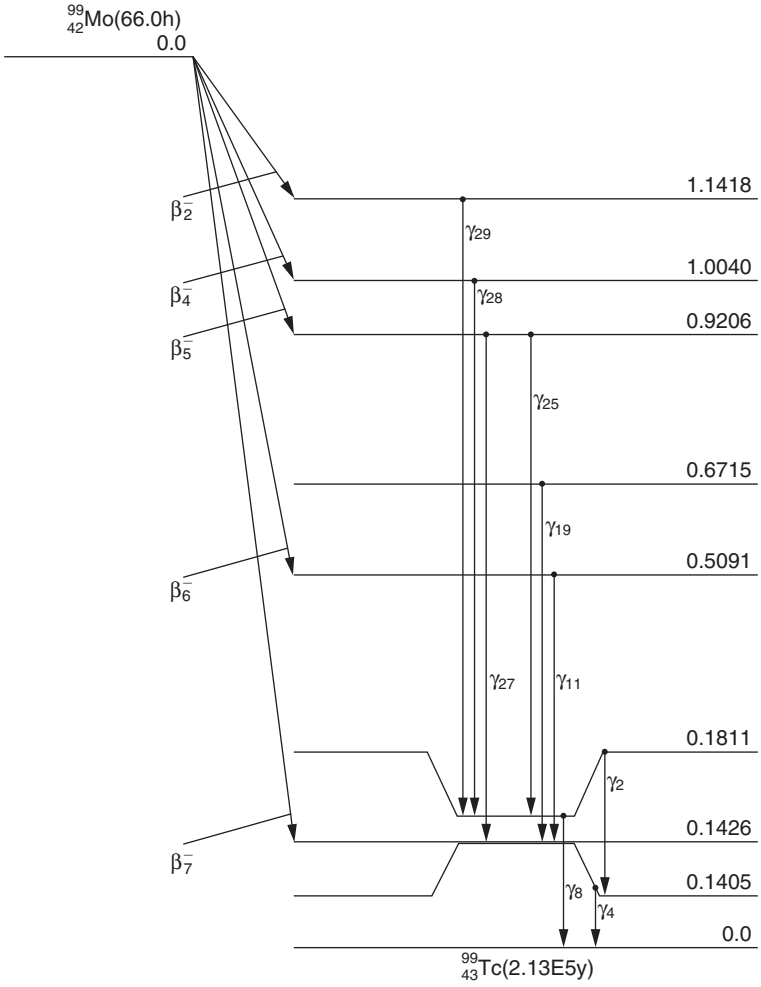
ZIRCONIUM-89



Half Life = 78.43 Hours			
Decay Mode(s): EC, β^+			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^+ 1	2.26E-01	3.949E-01*	8.94E-02
γ±	4.53E-01	5.110E-01	2.31E-01
γ 1	9.99E-01	9.092E-01	9.08E-01
ce-K_2, γ 1	7.44E-03	8.922E-01	6.63E-03
ce-L_1, γ 1	8.26E-04	9.068E-01	7.49E-04
γ 3	9.99E-04	1.657E 00	1.66E-03
γ 4	7.69E-03	1.713E 00	1.32E-02
γ 5	1.30E-03	1.744E 00	2.26E-03
Kα_1 X ray	2.69E-01	1.496E-02	4.03E-03
Kα_2 X ray	1.40E-01	1.488E-02	2.09E-03
Auger-KLL	1.40E-01	1.262E-02*	1.76E-03
Auger-KLX	5.14E-02	1.453E-02*	7.47E-04
Auger-LMM	5.58E-01	1.664E-03*	9.28E-04
Auger-LMX	2.21E-01	1.960E-03*	4.34E-04
Auger-MXY	1.50E 00	2.250E 04	3.38E-04
LISTED X, γ AND γ± RADIATIONS			1.16E 00
OMITTED X, γ AND γ± RADIATIONS**			2.45E-03
LISTED β, ce AND Auger RADIATIONS			1.01E-01
OMITTED β, ce AND Auger RADIATIONS**			3.45E-04
LISTED RADIATIONS			1.26E 00
OMITTED RADIATIONS**			2.79E-03

Yttrium-89 DAUGHTER IS STABLE.
*AVERAGE ENERGY (MeV)
**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

MOLYBDENUM-99



Half Life = 66 Hours			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 5	1.66E-01	1.330E-01*	2.20E-02
β^- 6	1.17E-02	2.895E-01*	3.39E-03
β^- 7	8.20E-01	4.426E-01*	3.63E-01
γ 2	1.16E-02	4.059E-02	4.69E-04
ce-K, γ 2	3.77E-02	1.954E-02	7.38E-04
γ 4	4.95E-02	1.405E-01	6.95E-03
ce-K, γ 4	4.89E-03	1.194E-01	5.84E-04
γ 8	6.06E-02	1.811E-01	1.10E-02
ce-K, γ 8	7.62E-03	1.600E-01	1.22E-03
γ 11	1.19E-02	3.664E-01	4.37E-03
γ 19	5.45E-04	5.288E-01	2.88E-04
γ 24	2.60E-04	6.218E-01	1.61E-04
γ 25	1.22E-01	7.395E-01	9.02E-02
γ 27	4.32E-02	7.779E-01	3.36E-02
γ 28	1.33E-03	8.230E-01	1.09E-03
γ 29	9.76E-04	9.608E-01	9.37E-04
$K\alpha_1$ X ray	2.15E-02	1.837E-02	3.95E-04
$K\alpha_2$ X ray	1.13E-02	1.825E-02	2.06E-04
LISTED X, γ AND γ± RADIATIONS			1.50E-01
OMITTED X, γ AND γ± RADIATIONS**			4.87E-04
LISTED β, ce AND Auger RADIATIONS			3.91E-01
OMITTED β, ce AND Auger RADIATIONS**			1.33E-03
LISTED RADIATIONS			5.41E-01
OMITTED RADIATIONS**			1.82E-03

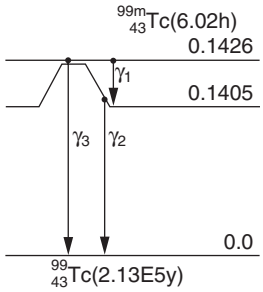
*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

TECHNETIUM-99M DAUGHTER, YIELD 8.76E-01, IS RADIOACTIVE.

TECHNETIUM-99 DAUGHTER, YIELD 1.24E-01, IS RADIOACTIVE.

TECHNETIUM-99M



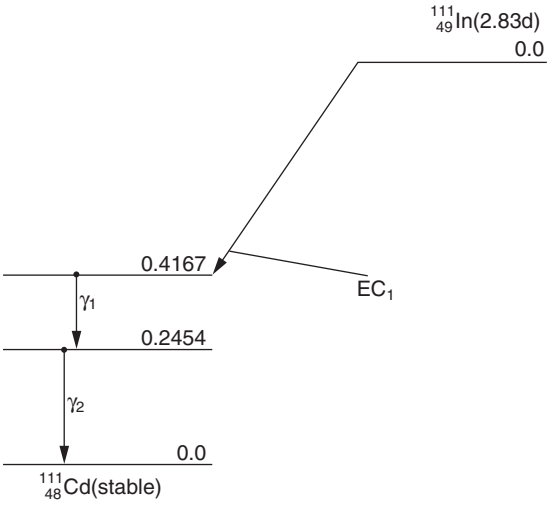
Half Life = 6.02 Hours			
Decay Mode(s): IT			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
ce-M, γ 1	9.14E-01	1.749E-03*	1.60E-03
ce-N^{+}, γ 1	7.57E-02	2.174E-03*	1.65E-04
γ 2	8.89E-01	1.405E-01	1.25E-01
ce-K, γ 2	8.79E-02	1.194E-01	1.05E-02
ce-L_1, γ 2	9.67E-03	1.374E-01	1.33E-03
ce-L_2, γ 2	6.10E-04	1.377E-01	8.40E-05
ce-L_3, γ 2	3.01E-04	1.378E-01	4.15E-05
ce-M, γ 2	1.92E-03	1.400E-01*	2.70E-04
ce-N^{+}, γ 2	3.71E-04	1.405E-01*	5.21E-05
ce-K, γ 3	6.91E-03	1.216E-01	8.41E-04
ce-L_1, γ 3	1.17E-03	1.396E-01	1.63E-04
ce-L_2, γ 3	2.43E-04	1.399E-01	3.39E-05
ce-L_3, γ 3	7.40E-04	1.400E-01	1.04E-04
ce-M, γ 3	4.19E-04	1.422E-01*	5.97E-05
Kα_1 X ray	4.03E-02	1.837E-02	7.39E-04
Kα_2 X ray	2.12E-02	1.825E-02	3.86E-04
Kβ_1 X ray	6.88E-03	2.062E-02	1.42E-04
Auger-KLL	1.45E-02	1.535E-02*	2.23E-04
Auger-KLX	5.76E-03	1.777E-02*	1.02E-04
Auger-LMM	7.10E-02	2.053E-03*	1.46E-04
Auger-LMX	3.05E-02	2.468E-03*	7.53E-05
Auger-MXY	1.11E 00	4.090E-04*	4.54E-04
LISTED X, γ AND γ± RADIATIONS			1.26E-01
OMITTED X, γ AND γ± RADIATIONS**			1.58E-04
LISTED β, ce AND Auger RADIATIONS			1.62E-02
OMITTED β, ce AND Auger RADIATIONS**			3.88E-05
LISTED RADIATIONS			1.42E-01
OMITTED RADIATIONS**			1.96E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

TECHNETIUM-99 DAUGHTER IS RADIOACTIVE.

INDIUM-111



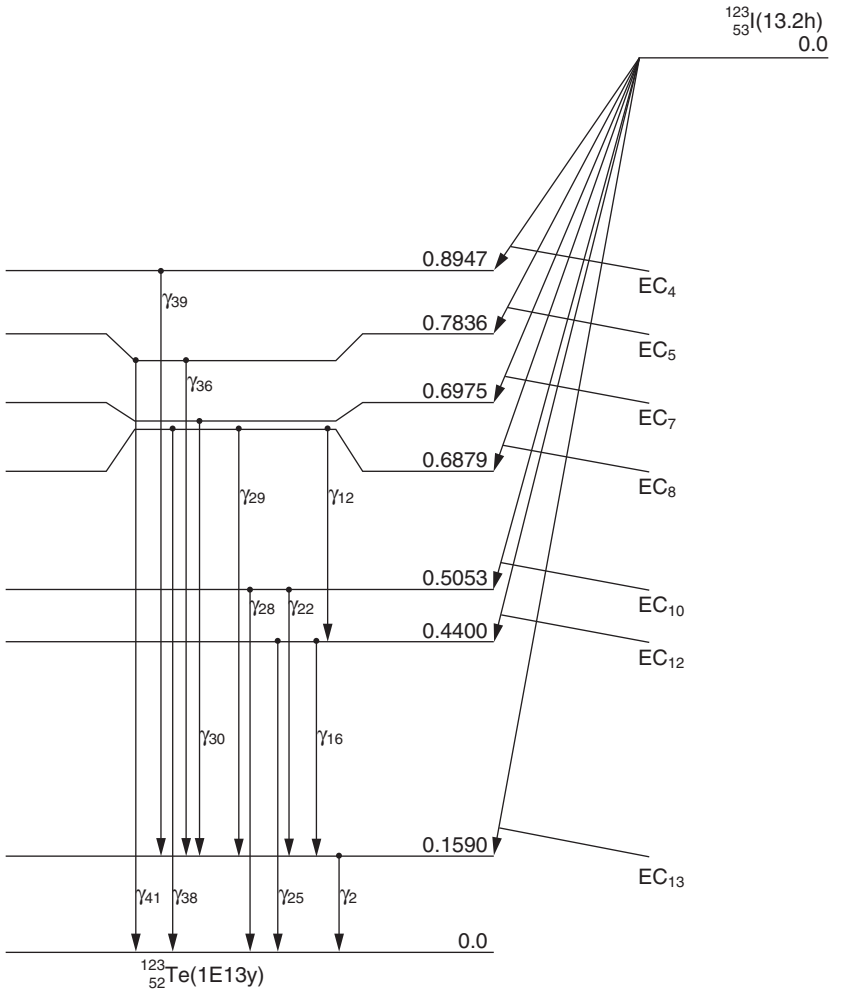
Half Life = 2.83 Days							
Decay Mode(s): EC							
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***	**Radiation**	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 1	9.05E-01	1.713E-01	1.55E-01	Kβ$_2$ X ray	2.35E-02	2.664E-02	6.26E-04
ce-K, γ 1	8.27E-02	1.446E-01	1.19E-02	Kβ$_3$ X ray	4.14E-02	2.606E-02	1.08E-03
ce-L$_1$, γ 1	9.51E-03	1.673E-01	1.59E-03	Auger-KLL	1.06E-01	1.917E-02*	2.03E-03
ce-L$_2$, γ 1	5.32E-04	1.676E-01	8.91E-05	Auger-KLX	4.55E-02	2.232E-02*	1.02E-03
ce-M, γ 1	1.95E-03	1.707E-01*	3.33E-04	Auger-KXY	5.85E-03	2.544E-02*	1.49E-04
ce-N$^+$, γ 1	4.08E-04	1.713E-01*	6.99E-05	Auger-LMM	6.73E-01	2.590E-03*	1.74E-03
γ 2	9.40E-01	2.454E-01	2.31E-01	Auger-LMX	3.06E-01	3.187E-03*	9.75E-04
ce-K, γ 2	5.03E-02	2.187E-01	1.10E-02	Auger-LXY	3.86E-02	3.583E-03*	1.38E-04
ce-L$_1$, γ 2	5.15E-03	2.414E-01	1.24E-03	Auger-MXY	1.91E 00	5.104E-04*	9.75E-04
ce-L$_2$, γ 2	1.38E-03	2.417E-01	3.32E-04	LISTED X, γ AND γ± RADIATIONS			4.05E-01
ce-L$_3$, γ 2	1.32E-03	2.419E-01	3.19E-04	OMITTED X, γ AND γ± RADIATIONS**			2.00E-04
ce-M, γ 2	1.52E-03	2.448E-01*	3.71E-04	LISTED β, ce AND Auger RADIATIONS			3.44E-02
ce-N$^+$, γ 2	3.01E-04	2.454E-01*	7.39E-05	OMITTED β, ce AND Auger RADIATIONS**			3.14E-05
Kα$_1$ X ray	4.43E-01	2.317E-02	1.03E-02	LISTED RADIATIONS			4.40E-01
Kα$_2$ X ray	2.36E-01	2.298E-02	5.42E-03	OMITTED RADIATIONS**			2.31E-04
Kβ$_1$ X ray	8.07E-02	2.609E-02	2.10E-03				

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

CADMIUM-111 DAUGHTER IS STABLE.

IODINE-123


$^{123}_{53}$I(13.2h)
0.0
0.8947
0.7836
0.6975
0.6879
0.5053
0.4400
0.1590
0.0
EC4
EC5
EC7
EC8
EC10
EC12
EC13
γ39
γ36
γ29
γ12
γ28
γ22
γ30
γ16
γ41
γ38
γ25
γ2
$^{123}_{52}$Te(1E13y)

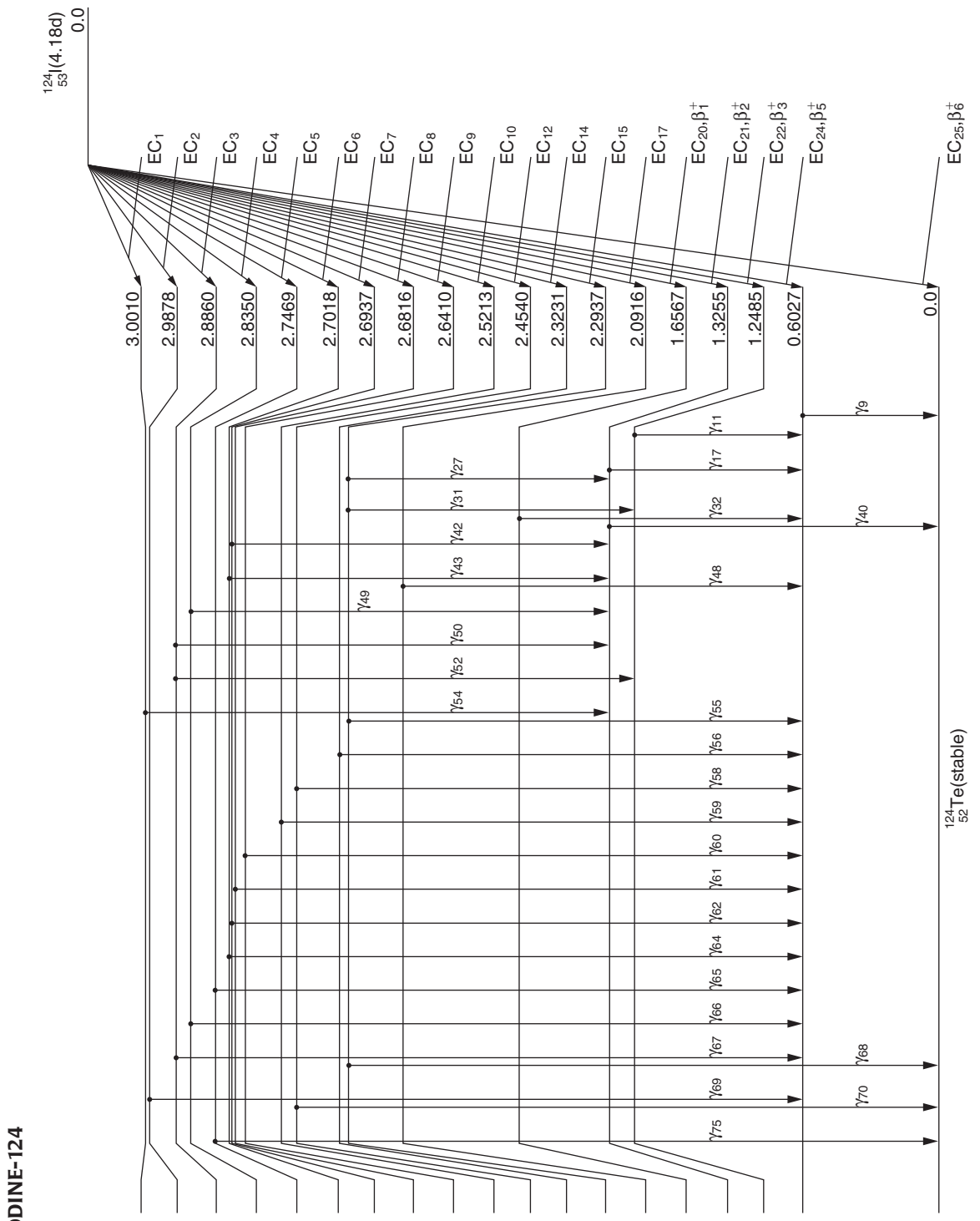
Half Life = 13.2 Hours			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 2	8.28E-01	1.590E-01	1.32E-01
ce-K, γ 2	1.35E-01	1.272E-01	1.72E-02
ce-L_1, γ 2	1.60E-02	1.540E-01	2.47E-03
ce-L_2, γ 2	1.09E-03	1.544E-01	1.69E-04
ce-L_3, γ 2	3.46E-04	1.546E-01	5.35E-05
ce-M, γ 2	3.46E-03	1.582E-01*	5.48E-04
ce-N^+, γ 2	8.27E-04	1.590E-01*	1.32E-04
γ 12	7.07E-04	2.480E-01	1.75E-04
γ 16	7.86E-04	2.810E-01	2.21E-04
γ 22	1.25E-03	3.463E-01	4.33E-04
γ 25	4.25E-03	4.400E-01	1.87E-03
γ 28	3.14E-03	5.053E-01	1.59E-03
γ 29	1.38E-02	5.290E-01	7.31E-03
ce-K, γ 29	9.90E-05	4.971E-01	4.92E-05
γ 30	3.79E-03	5.385E-01	2.04E-03
γ 36	8.28E-04	6.246E-01	5.17E-04
γ 38	2.66E-04	6.879E-01	1.83E-04
γ 39	6.12E-04	7.358E-01	4.50E-04
γ 41	5.90E-04	7.836E-01	4.62E-04
Kα_1 X ray	4.58E-01	2.747E-02	1.26E-02
Kα_2 X ray	2.46E-01	2.720E-02	6.70E-03
Kβ_1 X ray	8.66E-02	3.100E-02	2.69E-03
Kβ_2 X ray	2.66E-02	3.171E-02	8.43E-04
Kβ_3 X ray	4.46E-02	3.094E-02	1.38E-03
Auger-KLL	8.15E-02	2.254E-02*	1.84E-03
Auger-KLX	3.69E-02	2.635E-02*	9.73E-04
Auger-KXY	4.92E-03	3.013E-02*	1.48E-04
Auger-LMM	6.06E-01	3.080E-03*	1.87E-03
Auger-LMX	3.11E-01	3.849E-03*	1.20E-03
Auger-LXY	4.40E-02	4.380E-03*	1.93E-04
Auger-MXY	1.80E 00	6.991E-04*	1.26E-03
LISTED X, γ AND γ± RADIATIONS			1.71E-01
OMITTED X, γ AND γ± RADIATIONS**			6.76E-04
LISTED β, ce AND Auger RADIATIONS			2.80E-02
OMITTED β, ce AND Auger RADIATIONS**			1.21E-04
LISTED RADIATIONS			1.99E-01
OMITTED RADIATIONS**			7.97E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

TELLURIUM-123M DAUGHTER, YIELD 5.00E-05, IS RADIOACTIVE.

TELLURIUM-123 DAUGHTER, YIELD 9.999E-01, IS RADIOACTIVE.

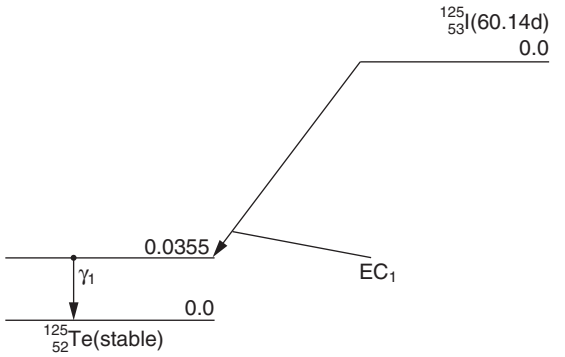

IODINE-124
$^{124}_{53}$I(4.18d)
0.0
EC1
EC2
EC3
EC4
EC5
EC6
EC7
EC8
EC9
EC10
EC12
EC14
EC15
EC17
EC20,β1+
EC21,β2+
EC22,β3+
EC24,β5+
EC25,β6+
3.0010
2.9878
2.8860
2.8350
2.7469
2.7018
2.6937
2.6816
2.6410
2.5213
2.4540
2.3231
2.2937
2.0916
1.6567
1.3255
1.2485
0.6027
0.0
γ9
γ11
γ17
γ27
γ31
γ32
γ40
γ42
γ43
γ48
γ49
γ50
γ52
γ54
γ55
γ56
γ58
γ59
γ60
γ61
γ62
γ64
γ65
γ66
γ67
γ68
γ69
γ70
γ75
$^{124}_{52}$Te(stable)

Half Life = 4.18 Days							
Decay Mode(s): EC, β^+							
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***	**Radiation**	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^+ 2	2.92E-03	3.657E-01*	1.07E-03	γ 61	3.50E-03	2.079E 00	7.27E-03
β^+ 5	1.12E-01	6.859E-01*	7.66E-02	γ 62	5.80E-03	2.091E 00	1.21E-02
β^+ 6	1.12E-01	9.736E-01*	1.09E-01	γ 64	1.40E-03	2.099E 00	2.94E-03
γ±	4.53E-01	5.110E-01	2.31E-01	γ 65	1.10E-03	2.144E 00	2.36E-03
γ 9	6.11E-01	6.027E-01	3.68E-01	γ 66	5.80E-03	2.232E 00	1.29E-02
ce-K, γ 9	2.57E-03	5.709E-01	1.47E-03	γ 67	6.70E-03	2.283E 00	1.53E-02
γ 11	9.56E-03	6.458E-01	6.17E-03	γ 68	1.00E-03	2.294E 00	2.29E-03
γ 17	1.01E-01	7.228E-01	7.27E-02	γ 69	2.00E-03	2.385E 00	4.77E-03
ce-K, γ 17	3.42E-04	6.910E-01	2.36E-04	γ 70	1.10E-03	2.454E 00	2.70E-03
γ 27	4.20E-03	9.682E-01	4.06E-03	γ 75	5.70E-03	2.747E 00	1.57E-02
γ 31	4.30E-03	1.045E 00	4.49E-03	Kα_1 X ray	3.08E-01	2.747E-02	8.45E-03
γ 32	1.20E-03	1.054E 00	1.26E-03	Kα_2 X ray	1.65E-01	2.720E-02	4.49E-03
γ 40	1.45E-02	1.325E 00	1.92E-02	Kβ_1 X ray	5.81E-02	3.100E-02	1.80E-03
γ 42	2.90E-03	1.368E 00	3.97E-03	Auger-KLL	5.47E-02	2.254E-02*	1.23E-03
γ 43	1.69E-02	1.376E 00	2.32E-02	Auger-KLX	2.48E-02	2.635E-02*	6.53E-04
γ 48	1.80E-03	1.489E 00	2.68E-03	Auger-LMM	4.07E-01	3.080E-03*	1.25E-03
γ 49	3.03E-02	1.509E 00	4.57E-02	Auger-LMX	2.09E-01	3.849E-03*	8.03E-04
γ 50	1.70E-03	1.560E 00	2.65E-03	Auger-MXY	1.21E 00	6.991E-04*	8.44E-04
γ 52	2.00E-03	1.638E 00	3.27E-03	LISTED X, γ AND γ± RADIATIONS			1.08E 00
γ 54	1.10E-03	1.676E 00	1.84E-03	OMITTED X, γ AND γ± RADIATIONS**			1.82E-02
γ 55	1.06E-01	1.691E 00	1.79E-01	LISTED β, ce AND Auger RADIATIONS			1.93E-01
γ 56	1.70E-03	1.720E 00	2.92E-03	OMITTED β, ce AND Auger RADIATIONS**			7.71E-04
γ 58	2.10E-03	1.851E 00	3.89E-03	LISTED RADIATIONS			1.27E 00
γ 59	1.60E-03	1.919E 00	3.07E-03	OMITTED RADIATIONS**			1.90E-02
γ 60	3.40E-03	2.038E 00	6.93E-03				

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

IODINE-125



Half Life = 60.14 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 1	6.67E-02	3.549E-02	2.37E-03
ce-K, γ 1	8.03E-01	3.678E-03	2.95E-03
ce-L$_1$, γ 1	9.52E-02	3.055E-02	2.91E-03
ce-L$_2$, γ 1	7.64E-03	3.088E-02	2.36E-04
ce-L$_3$, γ 1	1.91E-03	3.115E-02	5.96E-05
ce-M, γ 1	2.09E-02	3.467E-02*	7.25E-04
ce-N$^+$, γ 1	4.96E-03	3.549E-02*	1.76E-04
Kα$_1$ X ray	7.41E-01	2.747E-02	2.04E-02
Kα$_2$ X ray	3.98E-01	2.720E-02	1.08E-02
Kβ$_1$ X ray	1.40E-01	3.100E-02	4.34E-03
Kβ$_2$ X ray	4.30E-02	3.171E-02	1.36E-03
Kβ$_3$ X ray	7.20E-02	3.094E-02	2.23E-03
Kβ$_5$ X ray	1.44E-03	3.124E-02	4.51E-05
Lα X ray	6.14E-02	3.768E-03*	2.31E-04
Lβ X ray	5.93E-02	4.092E-03*	2.43E-04
Auger-KLL	1.32E-01	2.254E-02*	2.97E-03
Auger-KLX	5.97E-02	2.635E-02*	1.57E-03

IODINE-125—cont'd

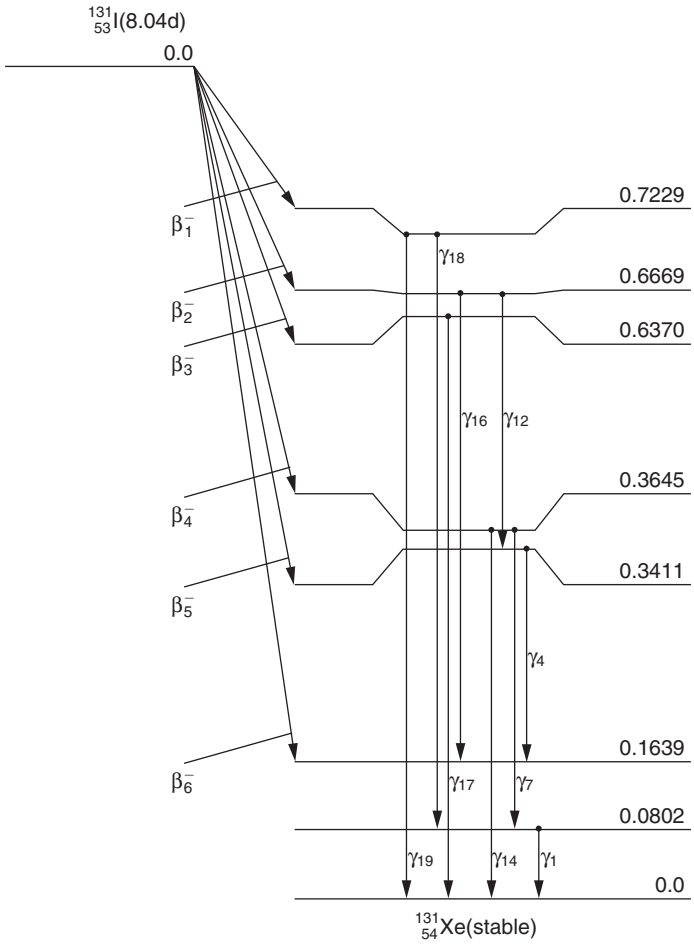
Half Life = 60.14 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
Auger-KXY	7.95E-03	3.013E-02*	2.40E-04
Auger-LMM	1.01E 00	3.086E-03*	3.11E-03
Auger-LMX	5.17E-01	3.855E-03*	1.99E-03
Auger-LXY	7.33E-02	4.386E-03*	3.21E-04
Auger-MXY	2.99E 00	6.989E-04*	2.09E-03
ΔE	6.22E-01	5.577E-05*	3.47E-05
LISTED X, γ AND γ± RADIATIONS			4.20E-02
OMITTED X, γ AND γ± RADIATIONS**			4.58E-05
LISTED β, ce AND Auger RADIATIONS			1.94E-02
LISTED RADIATIONS			6.14E-02
OMITTED RADIATIONS**			4.58E-05

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

TELLURIUM-125 DAUGHTER IS STABLE.

IODINE-131


$^{131}_{53}$I(8.04d)
0.0
0.7229
0.6669
0.6370
0.3645
0.3411
0.1639
0.0802
0.0
β_1^-
β_2^-
β_3^-
β_4^-
β_5^-
β_6^-
γ_{18}
γ_{16}
γ_{12}
γ_4
γ_{17}
γ_7
γ_{19}
γ_{14}
γ_1
$^{131}_{54}$Xe(stable)

Half Life = 8.04 Days			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	2.13E-02	6.935E-02*	1.48E-03
β^- 2	6.20E-03	8.693E-02*	5.39E-04
β^- 3	7.36E-02	9.660E-02*	7.11E-03
β^- 4	8.94E-01	1.915E-01*	1.71E-01
β^- 6	4.20E-03	2.832E-01*	1.19E-03
γ 1	2.62E-02	8.018E-02	2.10E-03
ce-K, γ 1	3.63E-02	4.562E-02	1.66E-03
ce-L_1, γ 1	4.30E-03	7.473E-02	3.21E-04
γ 4	2.65E-03	1.772E-01	4.70E-04
γ 7	6.06E-02	2.843E-01	1.72E-02
ce-K, γ 7	2.48E-03	2.497E-01	6.20E-04
γ 12	2.51E-03	3.258E-01	8.18E-04
γ 14	8.12E-01	3.645E-01	2.96E-01
ce-K, γ 14	1.55E-02	3.299E-01	5.10E-03
ce-L_1, γ 14	1.71E-03	3.590E-01	6.13E-04
γ 16	3.61E-03	5.030E-01	1.82E-03
γ 17	7.27E-02	6.370E-01	4.63E-02
γ 18	2.20E-03	6.427E-01	1.41E-03
γ 19	1.80E-02	7.229E-01	1.30E-02
$K\alpha_1$ X ray	2.59E-02	2.978E-02	7.72E-04
$K\alpha_2$ X ray	1.40E-02	2.946E-02	4.12E-04
LISTED X, γ AND γ± RADIATIONS			3.80E-01
OMITTED X, γ AND γ± RADIATIONS**			1.09E-03
LISTED β, ce AND Auger RADIATIONS			1.90E-01
OMITTED β, ce AND Auger RADIATIONS**			1.86E-03
LISTED RADIATIONS			5.70E-01
OMITTED RADIATIONS**			2.95E-03

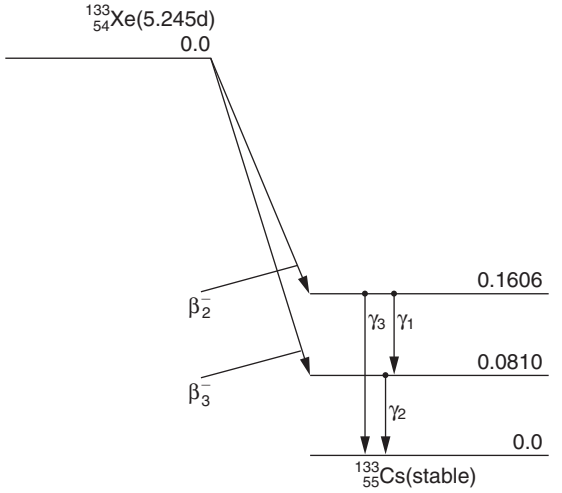
*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

XENON-131M DAUGHTER, YIELD 1.11E-02, IS RADIOACTIVE.

XENON-131 DAUGHTER, YIELD 9.889E-01, IS STABLE.

XENON-133



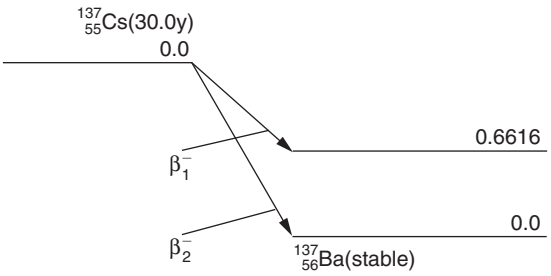
Half Life = 5.245 Days			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 2	6.60E-03	7.502E-02*	4.95E-04
β^- 3	9.93E-01	1.005E-01*	9.98E-02
γ 1	2.11E-03	7.962E-02	1.68E-04
ce-K, γ 1	3.17E-03	4.364E-02	1.38E-04
γ 2	3.74E-01	8.100E-02	3.03E-02
ce-K, γ 2	5.35E-01	4.501E-02	2.41E-02
ce-L_1, γ 2	6.52E-02	7.528E-02	4.91E-03
ce-L_2, γ 2	4.91E-03	7.564E-02	3.72E-04
ce-M, γ 2	1.45E-02	8.000E-02*	1.16E-03
ce-N^+, γ 2	3.80E-03	8.100E-02*	3.08E-04
γ 3	6.20E-04	1.606E-01	9.96E-05
Kα_1 X ray	2.53E-01	3.097E-02	7.85E-03
Kα_2 X ray	1.37E-01	3.063E-02	4.20E-03
Kβ_1 X ray	4.89E-02	3.499E-02	1.71E-03
Kβ_2 X ray	1.70E-02	3.584E-02	6.08E-04
Kβ_3 X ray	2.52E-02	3.492E-02	8.80E-04
Lα X ray	2.44E-02	4.285E-03*	1.04E-04
Lα X ray	2.32E-02	4.694E-03*	1.09E-04
Auger-KLL	3.69E-02	2.524E-02*	9.31E-04
Auger-KLX	1.73E-02	2.961E-02*	5.12E-04
Auger-LMM	3.03E-01	3.441E-03*	1.04E-03
Auger-LMX	1.72E-01	4.344E-03*	7.45E-04
Auger-MXY	9.33E-01	8.695E-04*	8.11E-04
LISTED X, γ AND γ± RADIATIONS			4.60E-02
OMITTED X, γ AND γ± RADIATIONS**			6.66E-05
LISTED β, ce AND Auger RADIATIONS			1.35E-01
OMITTED β, ce AND Auger RADIATIONS**			3.82E-04
LISTED RADIATIONS			1.81E-01
OMITTED RADIATIONS**			4.49E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO $\Sigma y(i) \times E(i)$ IN ITS CATEGORY.

CESIUM-133 DAUGHTER IS STABLE.

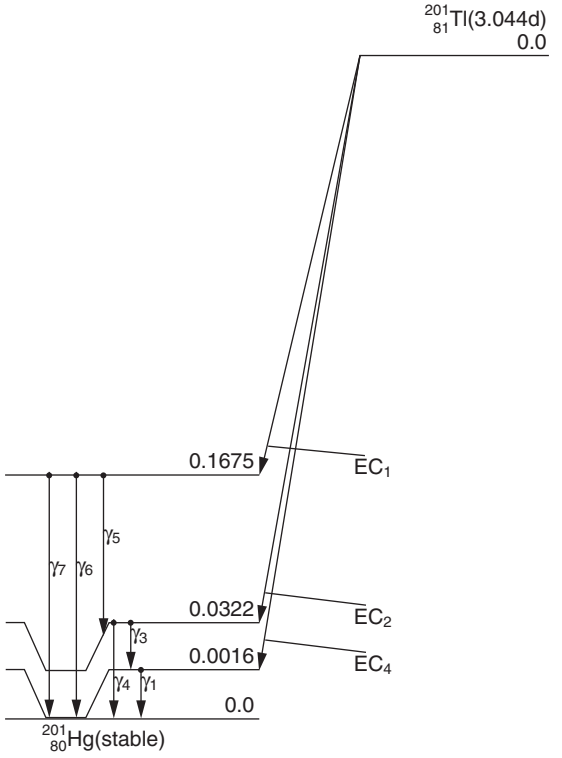
CESIUM-137



Half Life = 30 Years			
Decay Mode(s): β^-			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
β^- 1	9.46E-01	1.734E-01*	1.64E-01
β^- 2	5.40E-02	4.246E-01*	2.29E-02
LISTED β, ce AND Auger RADIATIONS			1.87E-01
LISTED RADIATIONS			1.87E-01

*AVERAGE ENERGY (MeV)
BARIUM-137M DAUGHTER, YIELD 9.46E-01, IS RADIOACTIVE.
BARIUM-137 DAUGHTER, YIELD 5.40E-02, IS STABLE.

THALLIUM-201



Half Life = 3.044 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
ce-N^{+}, γ 1	6.10E-01	1.570E-03*	9.58E-04
ce-L$_1$, γ 3	7.30E-02	1.576E-02	1.15E-03
ce-L$_2$, γ 3	7.55E-03	1.639E-02	1.24E-04
ce-M, γ 3	1.90E-02	2.775E-02*	5.27E-04
ce-N^{+}, γ 3	6.78E-03	3.060E-02*	2.07E-04
ce-L$_1$, γ 4	6.28E-02	1.735E-02	1.09E-03
ce-L$_2$, γ 4	6.53E-03	1.798E-02	1.17E-04
ce-M, γ 4	1.63E-02	2.934E-02*	4.80E-04
ce-N^{+}, γ 4	5.74E-03	3.219E-02*	1.85E-04
γ 5	2.65E-02	1.353E-01	3.59E-03
ce-K, γ 5	7.47E-02	5.224E-02	3.90E-03
ce-L$_1$, γ5	1.14E-02	1.205E-01	1.37E-03
ce-L$_2$, γ 5	1.20E-03	1.211E-01	1.45E-04
ce-M, γ 5	2.97E-03	1.325E-01*	3.93E-04
ce-N^{+}, γ 5	9.58E-04	1.353E-01*	1.30E-04
γ 6	1.60E-03	1.659E-01	2.65E-04
ce-K, γ 6	2.26E-03	8.278E-02	1.87E-04
ce-L$_1$, γ 6	3.42E-04	1.510E-01	5.16E-05

THALLIUM-201—cont'd

Half Life = 3.044 Days			
Decay Mode(s): EC			
Radiation	***y(i)* (Bq•s)$^{-1}$**	***E(i)* (MeV)**	***y(i)* × *E(i)***
γ 7	1.00E-01	1.674E-01	1.67E-02
ce-K, γ 7	1.54E-01	8.433E-02	1.30E-02
ce-L_1, γ 7	2.35E-02	1.526E-01	3.58E-03
ce-L_2, γ 7	2.48E-03	1.532E-01	3.80E-04
ce-L_3, γ 7	2.80E-04	1.551E-01	4.35E-05
ce-M, γ 7	6.10E-03	1.646E-01*	1.00E-03
ce-N^+, γ 7	1.96E-03	1.674E-01*	3.29E-04
$K\alpha_1$ X ray	4.62E-01	7.082E-02	3.27E-02
$K\alpha_2$ X ray	2.72E-01	6.889E-02	1.87E-02
$K\beta_1$ X ray	1.05E-01	8.026E-02	8.45E-03
$K\beta_2$ X ray	4.43E-02	8.258E-02	3.66E-03
$K\beta_3$ X ray	5.48E-02	7.982E-02	4.37E-03
$K\beta_5$ X ray	2.88E-03	8.077E-02	2.33E-04
Lα X ray	1.90E-01	9.980E-03*	1.90E-03
Lβ X ray	1.82E-01	1.185E-02*	2.15E-03
Lγ X ray	3.40E-02	1.397E-02*	4.75E-04
Auger-KLL	2.01E-02	5.526E-02*	1.11E-03
Auger-KLX	1.12E-02	6.652E-02*	7.45E-04
Auger-KXY	1.80E-03	7.733E-02*	1.39E-04
Auger-LMM	4.30E-01	7.753E-03*	3.34E-03
Auger-LMX	2.78E-01	1.022E-02*	2.84E-03
Auger-LXY	4.63E-02	1.214E-02*	5.62E-04
Auger-MXY	1.74E 00	2.673E-03*	4.66E-03
ΔE	1.05E 00	5.204E-04*	5.45E-04
LISTED X, γ AND γ± RADIATIONS			9.32E-02
OMITTED X, γ AND γ± RADIATIONS**			2.52E-04
LISTED β, ce AND Auger RADIATIONS			4.33E-02
OMITTED β, ce AND Auger RADIATIONS**			1.16E-04
LISTED RADIATIONS			1.37E-01
OMITTED RADIATIONS**			3.68E-04

*AVERAGE ENERGY (MeV)

**EACH OMITTED TRANSITION CONTRIBUTES <0.100% TO Σ*y(i)* × *E(i)* IN ITS CATEGORY.

MERCURY-201 DAUGHTER IS STABLE.