

Case Title: 12 mCi Co-57 BMNT
Description: Stycast Source Matrix / HDPE Source Body
Geometry: 8 - Cylinder Volume - End Shields

Source Dimensions

Height	10.16 cm	4.0 in
Radius	5.08 cm	2.0 in

Dose Points

	<u>X</u>	<u>Y</u>	<u>Z</u>
# 1	0 cm 0.0 in	11.93 cm 4.7 in	0 cm 0.0 in
# 2	0 cm 0.0 in	16.43 cm 6.5 in	0 cm 0.0 in
# 3	0 cm 0.0 in	41.43 cm 1 ft 4.3 in	0 cm 0.0 in
# 4	0 cm 0.0 in	111.43 cm 3 ft 7.9 in	0 cm 0.0 in

Shields

Shield Name	Dimension	Material	Density
Source	823.704 cm ³	Stycast 1264 A/B	1.1
Air Gap		Air	0.00122
Wall Clad	1.27 cm	HDPE	0.95
Top Clad	1.27 cm	HDPE	0.95

Source Input

Grouping Method : Actual Photon Energies

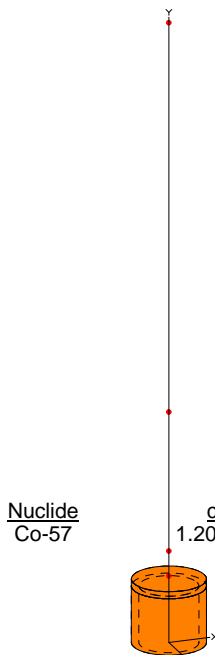
Nuclide	curies	becquerels	µCi/cm ³	Bq/cm ³
Co-57	1.2000e-002	4.4400e+008	1.4568e+001	5.3903e+005

Buildup

The material reference is : Top Clad

Integration Parameters

Radial	20
Circumferential	10
Y Direction (axial)	10



Results - Dose Point # 1 - (0,11.93,0) cm

Energy MeV	Activity photons/sec	Fluence Rate		Exposure Rate	
		No Buildup	With Buildup	No Buildup	With Buildup
0.0007	3.443e+06	3.336e-02	4.929e-02	1.460e-01	2.157e-01
0.0064	7.383e+07	6.533e+00	9.651e+00	3.132e+00	4.627e+00
0.0064	1.456e+08	1.291e+01	1.907e+01	6.177e+00	9.126e+00
0.0071	2.941e+07	2.874e+00	4.246e+00	1.247e+00	1.843e+00
0.0144	4.237e+07	8.455e+00	1.249e+01	8.223e-01	1.215e+00
0.1221	3.797e+08	4.375e+04	1.431e+05	6.859e+01	2.244e+02
0.1365	4.708e+07	6.208e+03	1.823e+04	9.982e+00	2.932e+01
0.536	1.273e+05	8.581e+01	1.302e+02	1.683e-01	2.554e-01
0.692	7.100e+05	6.465e+02	9.137e+02	1.249e+00	1.765e+00
TOTALS:	7.223e+08	5.072e+04	1.624e+05	9.151e+01	2.728e+02

Results - Dose Point # 2 - (0,16.43,0) cm

Energy MeV	Activity photons/sec	Fluence Rate		Exposure Rate	
		No Buildup	With Buildup	No Buildup	With Buildup
0.0007	3.443e+06	1.766e-02	2.552e-02	7.730e-02	1.117e-01
0.0064	7.383e+07	3.458e+00	4.996e+00	1.658e+00	2.395e+00
0.0064	1.456e+08	6.834e+00	9.875e+00	3.270e+00	4.725e+00
0.0071	2.941e+07	1.522e+00	2.198e+00	6.603e-01	9.541e-01
0.0144	4.237e+07	4.475e+00	6.467e+00	4.353e-01	6.289e-01
0.1221	3.797e+08	1.497e+04	4.859e+04	2.348e+01	7.619e+01
0.1365	4.708e+07	2.124e+03	6.206e+03	3.415e+00	9.979e+00
0.536	1.273e+05	2.921e+01	4.443e+01	5.729e-02	8.714e-02
0.692	7.100e+05	2.200e+02	3.118e+02	4.249e-01	6.021e-01
TOTALS:	7.223e+08	1.736e+04	5.518e+04	3.348e+01	9.567e+01

Results - Dose Point # 3 - (0,41.43,0) cm

<u>Energy</u> MeV	<u>Activity</u> photons/sec	<u>Fluence Rate</u> MeV/cm ² /sec		<u>Exposure Rate</u> mR/hr	
		<u>No Buildup</u>	<u>With Buildup</u>	<u>No Buildup</u>	<u>With Buildup</u>
0.0007	3.443e+06	1.184e-03	1.700e-03	5.185e-03	7.443e-03
0.0064	7.383e+07	2.319e-01	3.329e-01	1.112e-01	1.596e-01
0.0064	1.456e+08	4.584e-01	6.580e-01	2.193e-01	3.148e-01
0.0071	2.941e+07	1.020e-01	1.465e-01	4.429e-02	6.358e-02
0.0144	4.237e+07	3.002e-01	4.309e-01	2.919e-02	4.191e-02
0.1221	3.797e+08	1.212e+03	4.502e+03	1.900e+00	7.059e+00
0.1365	4.708e+07	1.724e+02	5.730e+02	2.773e-01	9.214e-01
0.536	1.273e+05	2.462e+00	3.967e+00	4.828e-03	7.780e-03
0.692	7.100e+05	1.866e+01	2.776e+01	3.604e-02	5.361e-02
TOTALS:	7.223e+08	1.406e+03	5.108e+03	2.627e+00	8.629e+00

Results - Dose Point # 4 - (0,111.43,0) cm

<u>Energy</u> MeV	<u>Activity</u> photons/sec	<u>Fluence Rate</u> MeV/cm ² /sec		<u>Exposure Rate</u> mR/hr	
		<u>No Buildup</u>	<u>With Buildup</u>	<u>No Buildup</u>	<u>With Buildup</u>
0.0007	3.443e+06	1.031e-04	1.495e-04	4.513e-04	6.542e-04
0.0064	7.383e+07	2.019e-02	2.926e-02	9.680e-03	1.403e-02
0.0064	1.456e+08	3.990e-02	5.784e-02	1.909e-02	2.767e-02
0.0071	2.941e+07	8.884e-03	1.288e-02	3.856e-03	5.588e-03
0.0144	4.237e+07	2.613e-02	3.787e-02	2.541e-03	3.684e-03
0.1221	3.797e+08	1.326e+02	5.281e+02	2.079e-01	8.280e-01
0.1365	4.708e+07	1.891e+01	6.712e+01	3.040e-02	1.079e-01
0.536	1.273e+05	2.756e-01	4.574e-01	5.405e-04	8.970e-04
0.692	7.100e+05	2.096e+00	3.196e+00	4.048e-03	6.172e-03
TOTALS:	7.223e+08	1.540e+02	5.990e+02	2.785e-01	9.946e-01