

Case Title: 12 mCi Ge/Ga-68 BMCY
Description: Stycast Source Matrix / HDPE Source Body - Most Compact
Geometry: 8 - Cylinder Volume - End Shields

Source Dimensions		
Height	5.97 cm	2.4 in
Radius	3.0 cm	1.2 in

Dose Points			
	X	Y	Z
# 1	0 cm 0.0 in	7.74 cm 3.0 in	0 cm 0.0 in
# 2	0 cm 0.0 in	12.24 cm 4.8 in	0 cm 0.0 in
# 3	0 cm 0.0 in	37.24 cm 1 ft 2.7 in	0 cm 0.0 in
# 4	0 cm 0.0 in	107.24 cm 3 ft 6.2 in	0 cm 0.0 in

Shields			
Shield Name	Dimension	Material	Density
Source	168.798 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
Ga-68	1.2000e-002	4.4400e+008	7.1091e+001	2.6304e+006
Ge-68	1.2000e-002	4.4400e+008	7.1091e+001	2.6304e+006



Buildup
The material reference is : Top Clad

Integration Parameters

Radial	20
Circumferential	10
Y Direction (axial)	10

Results - Dose Point # 1 - (0,7.74,0) cm

Energy MeV	Activity photons/sec	Fluence Rate MeV/cm ² /sec		Exposure Rate mR/hr	
		No Buildup	With Buildup	No Buildup	With Buildup
0.511	7.896e+08	1.161e+06	1.578e+06	2.278e+03	3.097e+03
1.0145	1.069e+06	3.392e+03	4.079e+03	6.237e+00	7.500e+00
1.0774	1.461e+07	4.958e+04	5.915e+04	9.017e+01	1.076e+02
1.8831	6.325e+05	3.972e+03	4.460e+03	6.258e+00	7.026e+00
TOTALS:	8.059e+08	1.218e+06	1.646e+06	2.380e+03	3.219e+03

Results - Dose Point # 2 - (0,12.24,0) cm

Energy MeV	Activity photons/sec	Fluence Rate MeV/cm ² /sec		Exposure Rate mR/hr	
		No Buildup	With Buildup	No Buildup	With Buildup
0.511	7.896e+08	2.803e+05	3.860e+05	5.501e+02	7.577e+02
1.0145	1.069e+06	8.218e+02	9.964e+02	1.511e+00	1.832e+00
1.0774	1.461e+07	1.202e+04	1.445e+04	2.185e+01	2.628e+01
1.8831	6.325e+05	9.649e+02	1.089e+03	1.520e+00	1.716e+00
TOTALS:	8.059e+08	2.941e+05	4.026e+05	5.749e+02	7.875e+02

Results - Dose Point # 3 - (0,37.24,0) cm

Energy MeV	Activity photons/sec	Fluence Rate MeV/cm ² /sec		Exposure Rate mR/hr	
		No Buildup	With Buildup	No Buildup	With Buildup
0.511	7.896e+08	1.908e+04	2.737e+04	3.745e+01	5.371e+01
1.0145	1.069e+06	5.658e+01	7.031e+01	1.040e-01	1.293e-01
1.0774	1.461e+07	8.281e+02	1.020e+03	1.506e+00	1.854e+00
1.8831	6.325e+05	6.700e+01	7.681e+01	1.056e-01	1.210e-01
TOTALS:	8.059e+08	2.003e+04	2.853e+04	3.917e+01	5.582e+01

Results - Dose Point # 4 - (0,107.24,0) cm

<u>Energy</u> <u>MeV</u>	<u>Activity</u> <u>photons/sec</u>	<u>Fluence Rate</u> <u>MeV/cm²/sec</u> <u>No Buildup</u>	<u>Fluence Rate</u> <u>MeV/cm²/sec</u> <u>With Buildup</u>	<u>Exposure Rate</u> <u>mR/hr</u> <u>No Buildup</u>	<u>Exposure Rate</u> <u>mR/hr</u> <u>With Buildup</u>
0.511	7.896e+08	2.001e+03	2.915e+03	3.928e+00	5.720e+00
1.0145	1.069e+06	5.960e+00	7.475e+00	1.096e-02	1.375e-02
1.0774	1.461e+07	8.726e+01	1.084e+02	1.587e-01	1.971e-01
1.8831	6.325e+05	7.081e+00	8.164e+00	1.116e-02	1.286e-02
TOTALS:	8.059e+08	2.102e+03	3.039e+03	4.109e+00	5.944e+00