

**Half Value Layers (in cm) for Gamma and X-Ray Radiations
at Varying Energies for Various Materials**

ENERGY MeV	LEAD (Density= 11.35g/cm ³)	IRON (Density= 7.86g/cm ³)	ALUMINUM (Density= 2.82g/cm ³)	WATER (Density= 1g/cm ³)	AIR (Density= .0013g/cm ³)	STONE CONCRETE (Density= 2.35g/cm ³)
	HVL	HVL	HVL	HVL	HVL	HVL
0.3	0.160	0.845	2.457	5.823	5.133x10 ³	2.76
0.5	0.396	1.062	2.936	7.532	6.243x10 ³	3.39
1.0	0.816	1.471	4.225	9.760	8.451x10 ³	4.65
1.5	1.174	1.833	5.058	12.157	10.343x10 ³	5.72
2.0	1.358	2.074	6.187	13.860	12.375x10 ³	6.66
2.5	1.443	2.294	6.794	15.750	13.860x10 ³	
3.0	1.474	2.483	7.372	17.769	15.065x10 ³	8.15
3.5	* 1.506	2.585	7.965	19.250	16.500x10 ³	
4.0	-	2.760	8.349	20.382	17.769x10 ³	9.36
5.0	-	2.851	9.625	23.100	20.382x10 ³	10.34
10.0	-	* 2.948	11.745	30.130	24.750x10 ³	13.86
20.0	-	-	* 12.157	38.500	33.000x10 ³	* 14.14
30.0	-	-	-	40.764	33.640x10 ³	
40.0	-	-	-	* 43.312	* 34.650x10 ³	

* Value beyond which the Half Value Layer (HVL) will not increase regardless of increase in energy