

**Table 032: Muons in Germanium**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
32 (Ge)	72.64 (1)	5.323	350.0	0.07188	3.3306	0.3376	3.6096	5.1411	0.14
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	5.033				5.033	$1.124 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.968				3.968	$2.028 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.129				3.129	$3.749 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.451				2.451	$7.408 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.105				2.105	$1.184 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.600				1.600	$3.430 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.510				1.510	$4.720 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.423				1.423	$7.461 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.378				1.378	$1.176 \times 10^2$		
257. MeV	$3.471 \times 10^2$	1.370			0.000	1.370	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.372	0.000		0.000	1.373	$1.905 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.389	0.000		0.000	1.389	$2.629 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.471	0.001		0.000	1.472	$5.424 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.504	0.001		0.000	1.506	$6.767 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.558	0.001	0.000	0.001	1.560	$9.375 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.615	0.002	0.001	0.001	1.619	$1.315 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.681	0.003	0.002	0.001	1.688	$1.919 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.726	0.005	0.004	0.002	1.737	$2.502 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.828	0.012	0.012	0.003	1.856	$4.722 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.859	0.016	0.017	0.004	1.896	$5.788 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.903	0.024	0.027	0.006	1.960	$7.861 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.947	0.037	0.044	0.008	2.037	$1.086 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.994	0.061	0.076	0.012	2.144	$1.564 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.026	0.086	0.111	0.016	2.239	$2.021 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.096	0.195	0.266	0.030	2.588	$3.679 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.117	0.253	0.350	0.038	2.758	$4.428 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.148	0.371	0.523	0.052	3.095	$5.796 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.181	0.556	0.796	0.075	3.609	$7.590 \times 10^4$		
297. GeV	$2.975 \times 10^5$	2.217	0.865	1.242	0.111	4.435	<i>Muon critical energy</i>		
300. GeV	$3.001 \times 10^5$	2.218	0.873	1.254	0.112	4.458	$1.008 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.244	1.201	1.729	0.149	5.323	$1.213 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.307	2.557	3.678	0.301	8.844	$1.790 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.327	3.254	4.676	0.378	10.637	$1.996 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.358	4.653	6.668	0.536	14.216	$2.320 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.392	6.794	9.710	0.776	19.672	$2.678 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.431	10.371	14.765	1.187	28.754	$3.096 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.458	13.998	19.877	1.604	37.938	$3.398 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.527	28.635	40.432	3.336	74.930	$4.134 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.549	36.015	50.767	4.226	93.558	$4.372 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.583	50.736	71.386	6.054	130.761	$4.732 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.620	72.958	102.454	8.856	186.889	$5.114 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.663	109.952	154.146	13.702	280.464	$5.548 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.694	147.090	205.967	18.665	374.417	$5.855 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.770	295.896	413.408	39.403	751.478	$6.595 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.795	370.440	517.230	50.120	940.586	$6.832 \times 10^5$		