

### Muons in carbon (gem diamond)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
6 (C)	12.0107 (8)	3.520	78.0	0.26142	2.8697	-0.1135	2.2458	2.4271	0.12
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	7.109				7.109	$7.776 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	5.542				5.542	$1.422 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	4.323				4.323	$2.662 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.345				3.345	$5.328 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.846				2.846	$8.590 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	2.110				2.110	$2.545 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.975				1.975	$3.527 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.836				1.837	$5.638 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.757				1.757	$8.991 \times 10^1$		
300. MeV	$3.917 \times 10^2$	1.725			0.000	1.726	$1.475 \times 10^2$		
318. MeV	$4.105 \times 10^2$	1.725			0.000	1.725	<i>Minimum ionization</i>		
400. MeV	$4.945 \times 10^2$	1.730			0.000	1.730	$2.054 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.795	0.000		0.000	1.795	$4.325 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.825	0.000		0.000	1.825	$5.430 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.873	0.000		0.001	1.874	$7.591 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.927	0.000	0.000	0.001	1.929	$1.074 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.988	0.001	0.001	0.001	1.991	$1.584 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.031	0.001	0.001	0.002	2.035	$2.081 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.128	0.003	0.003	0.004	2.138	$3.993 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.158	0.004	0.004	0.005	2.171	$4.921 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.201	0.006	0.007	0.007	2.220	$6.742 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.245	0.010	0.011	0.009	2.274	$9.410 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.292	0.016	0.019	0.013	2.341	$1.374 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.325	0.022	0.028	0.018	2.393	$1.797 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.400	0.050	0.068	0.034	2.553	$3.412 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.424	0.065	0.089	0.042	2.621	$4.185 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.459	0.097	0.134	0.059	2.749	$5.675 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.496	0.145	0.206	0.084	2.930	$7.788 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.537	0.230	0.327	0.125	3.219	$1.104 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.566	0.317	0.453	0.167	3.504	$1.402 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.638	0.681	0.981	0.338	4.637	$2.391 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.661	0.869	1.254	0.424	5.209	$2.798 \times 10^5$		
1.04 TeV	$1.044 \times 10^6$	2.666	0.910	1.313	0.443	5.332	<i>Muon critical energy</i>		
1.40 TeV	$1.400 \times 10^6$	2.697	1.248	1.797	0.602	6.343	$3.492 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.735	1.830	2.630	0.871	8.066	$4.330 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.778	2.806	4.016	1.335	10.936	$5.390 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.810	3.799	5.422	1.807	13.839	$6.202 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.887	7.821	11.088	3.773	25.569	$8.296 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.913	9.855	13.942	4.785	31.495	$9.000 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.952	13.913	19.628	6.871	43.364	$1.008 \times 10^6$		
20.0 TeV	$2.000 \times 10^7$	2.994	20.052	28.206	10.076	61.328	$1.124 \times 10^6$		
30.0 TeV	$3.000 \times 10^7$	3.042	30.273	42.478	15.640	91.433	$1.256 \times 10^6$		
40.0 TeV	$4.000 \times 10^7$	3.077	40.549	56.796	21.350	121.773	$1.351 \times 10^6$		
80.0 TeV	$8.000 \times 10^7$	3.163	81.720	114.122	45.316	244.322	$1.578 \times 10^6$		
100. TeV	$1.000 \times 10^8$	3.191	102.350	142.820	57.740	306.102	$1.651 \times 10^6$		