Table 087: Muons in Carbon (graphite)

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
6 (C)	12.0107 (8)	2.210	78.0	0.20762	2.9532	-0.0090	2.4817	2.8926	0.14

T	p [MeV/c]	Ionization	Brems	Pair prod [MeV cm^2/g]	Photonucl	Total	CSDA range [g/cm^2]
10.0 MeV	4.704×10^1	7.114				7.114	7.773×10^{-1}
14.0 MeV	5.616×10^1	5.548				5.548	1.421×10^0
20.0 MeV	6.802×10^1	4.329				4.329	2.659×10^0
30.0 MeV	8.509×10^1	3.353				3.353	5.320×10^0
40.0 MeV	1.003×10^2	2.858				2.858	8.571×10^0
80.0 MeV	1.527×10^2	2.124				2.124	2.533×10^1
100. MeV	1.764×10^2	1.989				1.989	3.508×10^1
140. MeV	2.218×10^2	1.851				1.851	5.603×10^1
200. MeV	2.868×10^2	1.772				1.772	8.928×10^1
300. MeV	3.917×10^2	1.742			0.000	1.743	1.464×10^2
317. MeV	4.096×10^2	1.742			0.000	1.742	*Minimum ionization*
400. MeV	4.945×10^2	1.748			0.000	1.749	2.037×10^2
800. MeV	8.995×10^2	1.817	0.000		0.000	1.817	4.282×10^2
1.00 GeV	1.101×10^3	1.848	0.000		0.000	1.848	5.373×10^2
1.40 GeV	1.502×10^3	1.898	0.000		0.001	1.899	7.506×10^2
2.00 GeV	2.103×10^3	1.954	0.000	0.000	0.001	1.955	1.062×10^3
3.00 GeV	3.104×10^3	2.017	0.001	0.001	0.001	2.020	1.564×10^3
4.00 GeV	4.104×10^3	2.061	0.001	0.001	0.002	2.065	2.054×10^3
8.00 GeV	8.105×10^3	2.161	0.003	0.003	0.004	2.171	3.937×10^3
10.0 GeV	1.011×10^4	2.192	0.004	0.004	0.005	2.205	4.851×10^3
14.0 GeV	1.411×10^4	2.236	0.006	0.007	0.007	2.255	6.643×10^3
20.0 GeV	2.011×10^4	2.280	0.010	0.011	0.009	2.310	9.270×10^3
30.0 GeV	3.011×10^4	2.328	0.016	0.019	0.013	2.376	1.354×10^4
40.0 GeV	4.011×10^4	2.361	0.022	0.028	0.018	2.429	1.770×10^4
80.0 GeV	8.011×10^4	2.436	0.050	0.068	0.034	2.589	3.362×10^4
100. GeV	1.001×10^5	2.460	0.065	0.089	0.042	2.657	4.125×10^4
140. GeV	1.401×10^5	2.495	0.097	0.134	0.059	2.785	5.595×10^4
200. GeV	2.001×10^5	2.531	0.145	0.206	0.084	2.966	7.682×10^4
300. GeV	3.001×10^5	2.573	0.230	0.327	0.125	3.255	1.090×10^5
400. GeV	4.001×10^5	2.602	0.317	0.453	0.167	3.540	1.384×10^5
800. GeV	8.001×10^5	2.674	0.681	0.981	0.338	4.673	2.365×10^5
1.00 TeV	1.000×10^6	2.697	0.869	1.254	0.424	5.244	2.768×10^5
1.06 TeV	1.057×10^6	2.703	0.923	1.331	0.449	5.406	*Muon critical energy*
1.40 TeV	1.400×10^6	2.732	1.248	1.797	0.602	6.379	3.459×10^5
2.00 TeV	2.000×10^6	2.770	1.830	2.630	0.871	8.102	4.292×10^5
3.00 TeV	3.000×10^6	2.814	2.806	4.016	1.335	10.972	5.349×10^5
4.00 TeV	4.000×10^6	2.846	3.799	5.422	1.807	13.875	6.158×10^5
8.00 TeV	8.000×10^6	2.923	7.821	11.088	3.773	25.605	8.248×10^5
10.0 TeV	1.000×10^7	2.949	9.855	13.942	4.785	31.531	8.951×10^5
14.0 TeV	1.400×10^7	2.987	13.913	19.628	6.871	43.400	1.003×10^6
20.0 TeV	2.000×10^7	3.029	20.052	28.206	10.076	61.364	1.118×10^6
30.0 TeV	3.000×10^7	3.078	30.273	42.478	15.640	91.469	1.251×10^6
40.0 TeV	4.000×10^7	3.113	40.549	56.796	21.350	121.808	1.346×10^6
80.0 TeV	8.000×10^7	3.199	81.720	114.122	45.316	244.358	1.573×10^6
100. TeV	1.000×10^8	3.227	102.350	142.820	57.740	306.137	1.646×10^6