Table 090: Muons in Thorium

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
90 (Th)	[232.03806 (2)]	11.720	847.0	0.08655	3.2610	0.4202	3.7681	6.2473	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	3.727				3.727	1.563×10^0
14.0 MeV	5.616×10^1	2.979				2.979	2.774×10^0
20.0 MeV	6.802×10^1	2.376				2.376	5.052×10^0
30.0 MeV	8.509×10^1	1.881				1.881	9.842×10^0
40.0 MeV	1.003×10^2	1.626				1.626	1.559×10^1
80.0 MeV	1.527×10^2	1.253				1.253	4.444×10^1
100. MeV	1.764×10^2	1.187				1.188	6.087×10^1
140. MeV	2.218×10^2	1.126				1.126	9.561×10^1
200. MeV	2.868×10^2	1.099				1.099	1.497×10^2
223. MeV	3.114×10^2	1.098	0.000			1.098	*Minimum ionization*
300. MeV	3.917×10^2	1.107	0.000		0.000	1.107	2.405×10^2
400. MeV	4.945×10^2	1.129	0.000		0.000	1.129	3.300×10^2
800. MeV	8.995×10^2	1.214	0.001		0.000	1.216	6.707×10^2
1.00 GeV	1.101×10^3	1.247	0.002		0.000	1.249	8.330×10^2
1.40 GeV	1.502×10^3	1.299	0.003		0.001	1.302	1.146×10^3
2.00 GeV	2.103×10^3	1.354	0.004	0.001	0.001	1.360	1.597×10^3
3.00 GeV	3.104×10^3	1.417	0.007	0.003	0.001	1.429	2.313×10^3
4.00 GeV	4.104×10^3	1.459	0.011	0.006	0.002	1.478	3.000×10^3
8.00 GeV	8.105×10^3	1.556	0.027	0.023	0.003	1.609	5.583×10^3
10.0 GeV	1.011×10^4	1.585	0.035	0.032	0.004	1.657	6.808×10^3
14.0 GeV	1.411×10^4	1.626	0.054	0.053	0.005	1.739	9.163×10^3
20.0 GeV	2.011×10^4	1.667	0.084	0.087	0.007	1.847	1.251×10^4
30.0 GeV	3.011×10^4	1.711	0.138	0.154	0.011	2.015	1.769×10^4
40.0 GeV	4.011×10^4	1.740	0.195	0.228	0.014	2.178	2.246×10^4
80.0 GeV	8.011×10^4	1.804	0.441	0.553	0.027	2.827	3.854×10^4
100. GeV	1.001×10^5	1.823	0.572	0.729	0.034	3.159	4.523×10^4
132. GeV	1.321×10^5	1.847	0.785	1.017	0.045	3.695	*Muon critical energy*
140. GeV	1.401×10^5	1.851	0.839	1.091	0.047	3.830	5.672×10^4
200. GeV	2.001×10^5	1.881	1.257	1.664	0.067	4.871	7.058×10^4
300. GeV	3.001×10^5	1.913	1.971	2.621	0.101	6.608	8.815×10^4
400. GeV	4.001×10^5	1.936	2.708	3.613	0.135	8.394	1.016×10^5
800. GeV	8.001×10^5	1.992	5.748	7.680	0.273	15.695	1.359×10^5
1.00 TeV	1.000×10^6	2.010	7.309	9.760	0.343	19.423	1.473×10^5
1.40 TeV	1.400×10^6	2.037	10.434	13.907	0.485	26.866	1.648×10^5
2.00 TeV	2.000×10^6	2.067	15.212	20.235	0.702	38.218	1.834×10^5
3.00 TeV	3.000×10^6	2.101	23.182	30.750	1.073	57.107	2.047×10^5
4.00 TeV	4.000×10^6	2.125	31.254	41.375	1.449	76.205	2.198×10^5
8.00 TeV	8.000×10^6	2.185	63.776	84.077	3.009	153.049	2.561×10^5
10.0 TeV	1.000×10^7	2.205	80.155	105.539	3.809	191.710	2.677×10^5
14.0 TeV	1.400×10^7	2.235	112.825	148.365	5.450	268.877	2.853×10^5
20.0 TeV	2.000×10^7	2.268	162.098	212.874	7.964	385.206	3.038×10^5
30.0 TeV	3.000×10^7	2.305	244.125	320.193	12.304	578.930	3.248×10^5
40.0 TeV	4.000×10^7	2.333	326.426	427.757	16.745	773.263	3.397×10^5
80.0 TeV	8.000×10^7	2.399	656.056	858.311	35.269	1552.038	3.755×10^5
100. TeV	1.000×10^8	2.421	821.120	1073.780	44.830	1942.153	3.870×10^5