Table 063: Muons in Europium

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
63 (Eu)	151.964 (1)	5.243	580.0	0.24448	2.6245	0.1888	3.4633	6.2278	0.14

T	p [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm^2]
		[MeV cm^2/g]					
10.0 MeV	4.704×10^1	4.322				4.322	1.326×10^0
14.0 MeV	5.616×10^1	3.427				3.427	2.375×10^0
20.0 MeV	6.802×10^1	2.716				2.716	4.363×10^0
30.0 MeV	8.509×10^1	2.136				2.136	8.568×10^0
40.0 MeV	1.003×10^2	1.840				1.840	1.364×10^1
80.0 MeV	1.527×10^2	1.404				1.404	3.928×10^1
100. MeV	1.764×10^2	1.328				1.328	5.396×10^1
140. MeV	2.218×10^2	1.255				1.256	8.508×10^1
200. MeV	2.868×10^2	1.222				1.222	1.337×10^2
237. MeV	3.260×10^2	1.219	0.000			1.219	*Minimum ionization*
300. MeV	3.917×10^2	1.224	0.000		0.000	1.225	2.156×10^2
400. MeV	4.945×10^2	1.245	0.000		0.000	1.245	2.966×10^2
800. MeV	8.995×10^2	1.332	0.001		0.000	1.333	6.066×10^2
1.00 GeV	1.101×10^3	1.367	0.001		0.000	1.368	7.546×10^2
1.40 GeV	1.502×10^3	1.422	0.002	0.000	0.001	1.425	1.041×10^3
2.00 GeV	2.103×10^3	1.481	0.003	0.001	0.001	1.487	1.453×10^3
3.00 GeV	3.104×10^3	1.549	0.006	0.003	0.001	1.560	2.108×10^3
4.00 GeV	4.104×10^3	1.596	0.008	0.006	0.002	1.612	2.738×10^3
8.00 GeV	8.105×10^3	1.702	0.021	0.019	0.003	1.746	5.113×10^3
10.0 GeV	1.011×10^4	1.734	0.027	0.027	0.004	1.793	6.243×10^3
14.0 GeV	1.411×10^4	1.780	0.042	0.044	0.005	1.872	8.424×10^3
20.0 GeV	2.011×10^4	1.825	0.065	0.073	0.007	1.971	1.155×10^4
30.0 GeV	3.011×10^4	1.873	0.107	0.127	0.011	2.119	1.643×10^4
40.0 GeV	4.011×10^4	1.905	0.151	0.187	0.015	2.258	2.100×10^4
80.0 GeV	8.011×10^4	1.975	0.341	0.450	0.029	2.795	3.689×10^4
100. GeV	1.001×10^5	1.996	0.441	0.591	0.035	3.065	4.372×10^4
140. GeV	1.401×10^5	2.026	0.648	0.883	0.049	3.607	5.574×10^4
175. GeV	1.752×10^5	2.046	0.835	1.150	0.061	4.093	*Muon critical energy*
200. GeV	2.001×10^5	2.057	0.971	1.344	0.070	4.444	7.071×10^4
300. GeV	3.001×10^5	2.092	1.522	2.115	0.105	5.836	9.030×10^4
400. GeV	4.001×10^5	2.116	2.092	2.914	0.140	7.264	1.056×10^5
800. GeV	8.001×10^5	2.176	4.444	6.189	0.283	13.094	1.461×10^5
1.00 TeV	1.000×10^6	2.195	5.652	7.865	0.356	16.069	1.599×10^5
1.40 TeV	1.400×10^6	2.224	8.073	11.206	0.504	22.009	1.810×10^5
2.00 TeV	2.000×10^6	2.256	11.775	16.304	0.730	31.066	2.039×10^5
3.00 TeV	3.000×10^6	2.292	17.954	24.776	1.115	46.139	2.301×10^5
4.00 TeV	4.000×10^6	2.318	24.215	33.337	1.507	61.379	2.489×10^5
8.00 TeV	8.000×10^6	2.383	49.450	67.749	3.130	122.713	2.941×10^5
10.0 TeV	1.000×10^7	2.404	62.164	85.045	3.963	153.577	3.086×10^5
14.0 TeV	1.400×10^7	2.436	87.524	119.558	5.673	215.192	3.305×10^5
20.0 TeV	2.000×10^7	2.471	125.782	171.546	8.292	308.092	3.537×10^5
30.0 TeV	3.000×10^7	2.511	189.472	258.043	12.816	462.844	3.800×10^5
40.0 TeV	4.000×10^7	2.540	253.386	344.741	17.446	618.115	3.986×10^5
80.0 TeV	8.000×10^7	2.612	509.409	691.770	36.772	1240.563	4.434×10^5
100. TeV	1.000×10^8	2.635	637.630	865.440	46.750	1552.457	4.578×10^5