Muons in gadolinium (Gd)

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
64 (Gd)	157.25(3)	7.901	591.0	0.25109	2.5977	0.1058	3.3932	5.8737	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	4.225				4.225	1.357×10^0
14.0 MeV	5.616×10^1	3.350				3.350	2.430×10^0
20.0 MeV	6.802×10^1	2.655				2.655	4.463×10^0
30.0 MeV	8.509×10^1	2.088				2.088	8.765×10^0
40.0 MeV	1.003×10^2	1.798				1.798	1.396×10^1
80.0 MeV	1.527×10^2	1.372				1.372	4.020×10^1
100. MeV	1.764×10^2	1.297				1.297	5.523×10^1
140. MeV	2.218×10^2	1.225				1.226	8.709×10^1
200. MeV	2.868×10^2	1.192				1.192	1.369×10^2
243. MeV	3.325×10^2	1.188	0.000			1.188	*Minimum ionization*
300. MeV	3.917×10^2	1.193	0.000		0.000	1.193	2.210×10^2
400. MeV	4.945×10^2	1.212	0.000		0.000	1.212	3.042×10^2
800. MeV	8.995×10^2	1.295	0.001		0.000	1.296	6.228×10^2
1.00 GeV	1.101×10^3	1.328	0.001		0.000	1.330	7.751×10^2
1.40 GeV	1.502×10^3	1.381	0.002	0.000	0.001	1.384	1.070×10^3
2.00 GeV	2.103×10^3	1.439	0.003	0.001	0.001	1.444	1.493×10^3
3.00 GeV	3.104×10^3	1.504	0.006	0.003	0.001	1.514	2.169×10^3
4.00 GeV	4.104×10^3	1.549	0.008	0.006	0.002	1.565	2.818×10^3
8.00 GeV	8.105×10^3	1.651	0.021	0.019	0.003	1.695	5.264×10^3
10.0 GeV	1.011×10^4	1.682	0.027	0.027	0.004	1.741	6.427×10^3
14.0 GeV	1.411×10^4	1.726	0.042	0.044	0.005	1.818	8.674×10^3
20.0 GeV	2.011×10^4	1.770	0.065	0.072	0.007	1.916	1.189×10^4
30.0 GeV	3.011×10^4	1.817	0.106	0.127	0.011	2.061	1.691×10^4
40.0 GeV	4.011×10^4	1.847	0.150	0.186	0.015	2.199	2.161×10^4
80.0 GeV	8.011×10^4	1.915	0.339	0.447	0.028	2.731	3.790×10^4
100. GeV	1.001×10^5	1.936	0.439	0.588	0.035	2.999	4.488×10^4
140. GeV	1.401×10^5	1.965	0.645	0.878	0.049	3.538	5.715×10^4
171. GeV	1.712×10^5	1.982	0.810	1.113	0.060	3.966	*Muon critical energy*
200. GeV	2.001×10^5	1.995	0.966	1.337	0.070	4.370	7.239×10^4
300. GeV	3.001×10^5	2.029	1.515	2.104	0.105	5.754	9.229×10^4
400. GeV	4.001×10^5	2.053	2.082	2.899	0.140	7.175	1.078×10^5
800. GeV	8.001×10^5	2.112	4.423	6.156	0.283	12.975	1.487×10^5
1.00 TeV	1.000×10^6	2.130	5.626	7.822	0.355	15.935	1.626×10^5
1.40 TeV	1.400×10^6	2.159	8.035	11.145	0.503	21.844	1.840×10^5
2.00 TeV	2.000×10^6	2.190	11.720	16.216	0.727	30.855	2.070×10^5
3.00 TeV	3.000×10^6	2.226	17.869	24.642	1.112	45.851	2.334×10^5
4.00 TeV	4.000×10^6	2.252	24.100	33.156	1.502	61.012	2.522×10^5
8.00 TeV	8.000×10^6	2.315	49.215	67.381	3.120	122.032	2.977×10^5
10.0 TeV	1.000×10^7	2.335	61.868	84.583	3.950	152.738	3.123×10^5
14.0 TeV	1.400×10^7	2.367	87.107	118.908	5.654	214.037	3.343×10^5
20.0 TeV	2.000×10^7	2.401	125.182	170.612	8.266	306.463	3.576×10^5
30.0 TeV	3.000×10^7	2.441	188.567	256.638	12.776	460.423	3.841×10^5
40.0 TeV	4.000×10^7	2.469	252.173	342.864	17.391	614.900	4.028×10^5
80.0 TeV	8.000×10^7	2.539	506.966	688.005	36.649	1234.160	4.478×10^5
100. TeV	1.000×10^8	2.562	634.570	860.730	46.590	1544.454	4.623×10^5