

**Table 058: Muons in Cerium**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	a	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
58 (Ce)	140.116 (1)	6.657	523.0	0.18885	2.8592	0.2713	3.3432	5.7837	0.14
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	$4.704 \times 10^1$	4.405				4.405	$1.296 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.488				3.488	$2.327 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.761				2.761	$4.281 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.170				2.170	$8.420 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.868				1.868	$1.342 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.426				1.426	$3.867 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.347				1.347	$5.314 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.272				1.272	$8.384 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.238				1.238	$1.318 \times 10^2$		
239. MeV	$3.285 \times 10^2$	1.234				1.234	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.239	0.000		0.000	1.240	$2.127 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.259	0.000		0.000	1.259	$2.928 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.344	0.001		0.000	1.345	$5.996 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.378	0.001		0.000	1.380	$7.464 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.431	0.002	0.000	0.001	1.434	$1.030 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.489	0.003	0.001	0.001	1.495	$1.440 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.554	0.005	0.003	0.001	1.564	$2.093 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.599	0.008	0.006	0.002	1.615	$2.721 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.700	0.019	0.018	0.003	1.742	$5.097 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.731	0.025	0.026	0.004	1.786	$6.231 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.774	0.039	0.042	0.005	1.861	$8.423 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.817	0.060	0.068	0.008	1.954	$1.157 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.862	0.099	0.119	0.011	2.092	$1.651 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.893	0.139	0.175	0.015	2.222	$2.115 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.959	0.315	0.420	0.029	2.724	$3.737 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.979	0.408	0.552	0.036	2.976	$4.440 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.009	0.599	0.823	0.050	3.482	$5.681 \times 10^4$		
185. GeV	$1.852 \times 10^5$	2.033	0.823	1.145	0.065	4.067	<i>Muon critical energy</i>		
200. GeV	$2.001 \times 10^5$	2.039	0.898	1.254	0.071	4.263	$7.237 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.074	1.409	1.973	0.106	5.562	$9.286 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.098	1.936	2.717	0.141	6.894	$1.090 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.157	4.114	5.771	0.285	12.330	$1.518 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.177	5.233	7.333	0.359	15.103	$1.664 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.206	7.475	10.449	0.508	20.640	$1.890 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.237	10.905	15.204	0.735	29.083	$2.134 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.274	16.630	23.106	1.123	43.134	$2.414 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.300	22.431	31.090	1.518	57.340	$2.615 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.364	45.816	63.187	3.153	114.521	$3.099 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.385	57.599	79.320	3.992	143.298	$3.255 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.417	81.101	111.511	5.715	200.746	$3.489 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.452	116.560	160.002	8.354	287.370	$3.738 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.492	175.591	240.683	12.915	431.682	$4.020 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.521	234.833	321.553	17.582	576.491	$4.220 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.592	472.146	645.259	37.062	1157.062	$4.700 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.616	591.000	807.260	47.120	1447.998	$4.854 \times 10^5$		