

## Muons in magnesium (Mg)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
12 (Mg)	24.305 (6)	1.740	156.0	0.08163	3.6166	0.1499	3.0668	4.5297	0.08

  

T	p	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range
	[MeV/c]			[MeV cm <sup>2</sup> /g]			[g/cm <sup>2</sup> ]
10.0 MeV	$4.704 \times 10^1$	6.400				6.400	$8.717 \times 10^{-1}$
14.0 MeV	$5.616 \times 10^1$	5.013				5.013	$1.585 \times 10^0$
20.0 MeV	$6.802 \times 10^1$	3.930				3.930	$2.952 \times 10^0$
30.0 MeV	$8.509 \times 10^1$	3.060				3.060	$5.876 \times 10^0$
40.0 MeV	$1.003 \times 10^2$	2.618				2.618	$9.432 \times 10^0$
80.0 MeV	$1.527 \times 10^2$	1.973				1.973	$2.759 \times 10^1$
100. MeV	$1.764 \times 10^2$	1.860				1.860	$3.805 \times 10^1$
140. MeV	$2.218 \times 10^2$	1.748				1.748	$6.033 \times 10^1$
200. MeV	$2.868 \times 10^2$	1.689				1.689	$9.537 \times 10^1$
274. MeV	$3.642 \times 10^2$	1.674			0.000	1.674	<i>Minimum ionization</i>
300. MeV	$3.917 \times 10^2$	1.675			0.000	1.675	$1.550 \times 10^2$
400. MeV	$4.945 \times 10^2$	1.690			0.000	1.691	$2.144 \times 10^2$
800. MeV	$8.995 \times 10^2$	1.775	0.000		0.000	1.776	$4.451 \times 10^2$
1.00 GeV	$1.101 \times 10^3$	1.811	0.000		0.000	1.811	$5.566 \times 10^2$
1.40 GeV	$1.502 \times 10^3$	1.867	0.001	0.000	0.001	1.868	$7.739 \times 10^2$
2.00 GeV	$2.103 \times 10^3$	1.927	0.001	0.000	0.001	1.929	$1.090 \times 10^3$
3.00 GeV	$3.104 \times 10^3$	1.995	0.002	0.001	0.001	1.999	$1.598 \times 10^3$
4.00 GeV	$4.104 \times 10^3$	2.042	0.002	0.002	0.002	2.048	$2.092 \times 10^3$
8.00 GeV	$8.105 \times 10^3$	2.147	0.006	0.005	0.004	2.162	$3.987 \times 10^3$
10.0 GeV	$1.011 \times 10^4$	2.179	0.007	0.007	0.005	2.198	$4.904 \times 10^3$
14.0 GeV	$1.411 \times 10^4$	2.225	0.011	0.012	0.006	2.254	$6.699 \times 10^3$
20.0 GeV	$2.011 \times 10^4$	2.270	0.017	0.020	0.009	2.316	$9.323 \times 10^3$
30.0 GeV	$3.011 \times 10^4$	2.319	0.028	0.035	0.013	2.395	$1.357 \times 10^4$
40.0 GeV	$4.011 \times 10^4$	2.352	0.040	0.051	0.017	2.460	$1.768 \times 10^4$
80.0 GeV	$8.011 \times 10^4$	2.427	0.091	0.123	0.033	2.673	$3.326 \times 10^4$
100. GeV	$1.001 \times 10^5$	2.450	0.117	0.161	0.041	2.770	$4.060 \times 10^4$
140. GeV	$1.401 \times 10^5$	2.485	0.173	0.242	0.057	2.956	$5.458 \times 10^4$
200. GeV	$2.001 \times 10^5$	2.521	0.260	0.369	0.080	3.230	$7.399 \times 10^4$
300. GeV	$3.001 \times 10^5$	2.562	0.409	0.584	0.121	3.675	$1.030 \times 10^5$
400. GeV	$4.001 \times 10^5$	2.591	0.563	0.807	0.161	4.122	$1.287 \times 10^5$
659. GeV	$6.587 \times 10^5$	2.642	0.973	1.402	0.266	5.284	<i>Muon critical energy</i>
800. GeV	$8.001 \times 10^5$	2.662	1.203	1.734	0.325	5.923	$2.092 \times 10^5$
1.00 TeV	$1.000 \times 10^6$	2.685	1.532	2.212	0.408	6.837	$2.406 \times 10^5$
1.40 TeV	$1.400 \times 10^6$	2.719	2.196	3.161	0.578	8.655	$2.925 \times 10^5$
2.00 TeV	$2.000 \times 10^6$	2.757	3.213	4.612	0.837	11.420	$3.527 \times 10^5$
3.00 TeV	$3.000 \times 10^6$	2.800	4.915	7.028	1.282	16.026	$4.263 \times 10^5$
4.00 TeV	$4.000 \times 10^6$	2.831	6.645	9.473	1.734	20.684	$4.811 \times 10^5$
8.00 TeV	$8.000 \times 10^6$	2.908	13.634	19.318	3.615	39.476	$6.187 \times 10^5$
10.0 TeV	$1.000 \times 10^7$	2.933	17.164	24.272	4.583	48.953	$6.641 \times 10^5$
14.0 TeV	$1.400 \times 10^7$	2.972	24.212	34.147	6.575	67.906	$7.332 \times 10^5$
20.0 TeV	$2.000 \times 10^7$	3.013	34.864	49.034	9.632	96.544	$8.069 \times 10^5$
30.0 TeV	$3.000 \times 10^7$	3.061	52.576	73.814	14.931	144.383	$8.911 \times 10^5$
40.0 TeV	$4.000 \times 10^7$	3.095	70.366	98.667	20.365	192.495	$9.509 \times 10^5$
80.0 TeV	$8.000 \times 10^7$	3.181	141.708	198.154	43.132	386.176	$1.095 \times 10^6$
100. TeV	$1.000 \times 10^8$	3.209	177.470	247.950	54.920	483.549	$1.141 \times 10^6$