

## Muons in magnesium carbonate $\text{MgCO}_3$

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.49814	2.958	118.0	0.09219	3.5003	0.0860	2.7997	3.4319	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	6.729				6.729	$8.251 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	5.261				5.261	$1.504 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	4.118				4.118	$2.808 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.202				3.202	$5.600 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.738				2.738	$9.000 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	2.056				2.056	$2.638 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.930				1.930	$3.644 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.801				1.801	$5.800 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.729				1.729	$9.213 \times 10^1$		
300. MeV	$3.917 \times 10^2$	1.704			0.000	1.704	$1.506 \times 10^2$		
303. MeV	$3.950 \times 10^2$	1.704			0.000	1.704	<i>Minimum ionization</i>		
400. MeV	$4.945 \times 10^2$	1.712			0.000	1.713	$2.091 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.784	0.000		0.000	1.785	$4.379 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.816	0.000		0.000	1.816	$5.490 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.867	0.000	0.000	0.001	1.868	$7.660 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.923	0.001	0.000	0.001	1.925	$1.082 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.986	0.001	0.001	0.001	1.990	$1.592 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.031	0.002	0.001	0.002	2.036	$2.089 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.131	0.004	0.004	0.004	2.144	$3.998 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.162	0.006	0.006	0.005	2.178	$4.923 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.206	0.009	0.009	0.006	2.231	$6.736 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.251	0.013	0.015	0.009	2.289	$9.390 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.299	0.022	0.027	0.013	2.361	$1.369 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.332	0.031	0.039	0.017	2.419	$1.787 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.407	0.070	0.094	0.034	2.605	$3.378 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.431	0.091	0.124	0.042	2.688	$4.133 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.466	0.134	0.186	0.058	2.844	$5.580 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.502	0.201	0.285	0.082	3.070	$7.609 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.543	0.317	0.452	0.123	3.435	$1.069 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.573	0.437	0.626	0.164	3.799	$1.345 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.644	0.935	1.348	0.331	5.258	$2.237 \times 10^5$		
809. GeV	$8.090 \times 10^5$	2.645	0.946	1.364	0.335	5.291	<i>Muon critical energy</i>		
1.00 TeV	$1.000 \times 10^6$	2.667	1.192	1.720	0.416	5.996	$2.593 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.703	1.710	2.461	0.590	7.463	$3.189 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.740	2.504	3.595	0.854	9.694	$3.893 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.784	3.834	5.483	1.308	13.409	$4.767 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.815	5.186	7.395	1.770	17.167	$5.424 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.893	10.655	15.097	3.692	32.336	$7.094 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.918	13.418	18.974	4.682	39.992	$7.650 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.957	18.932	26.701	6.719	55.310	$8.497 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.999	27.270	38.352	9.849	78.470	$9.403 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.047	41.144	57.743	15.277	117.211	$1.044 \times 10^6$		
40.0 TeV	$4.000 \times 10^7$	3.082	55.084	77.193	20.846	156.206	$1.118 \times 10^6$		
80.0 TeV	$8.000 \times 10^7$	3.168	110.984	155.059	44.194	313.405	$1.295 \times 10^6$		
100. TeV	$1.000 \times 10^8$	3.196	139.005	194.035	56.290	392.526	$1.352 \times 10^6$		