

## Muons in gadolinium silicate ( $\text{Gd}_2\text{SiO}_5$ )

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.43069	6.710	405.4	0.19614	3.0000	0.2039	3.0000	5.2267	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
				[MeV cm <sup>2</sup> /g]					
10.0 MeV	$4.704 \times 10^1$	4.831				4.831		$1.168 \times 10^0$	
14.0 MeV	$5.616 \times 10^1$	3.808				3.808		$2.110 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.003				3.003		$3.904 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	2.353				2.353		$7.716 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.023				2.023		$1.233 \times 10^1$	
80.0 MeV	$1.527 \times 10^2$	1.542				1.542		$3.567 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.458				1.458		$4.904 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.376				1.376		$7.740 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.336				1.336		$1.218 \times 10^2$	
247. MeV	$3.366 \times 10^2$	1.330				1.331			<i>Minimum ionization</i>
300. MeV	$3.917 \times 10^2$	1.334	0.000		0.000	1.334		$1.969 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.352	0.000		0.000	1.353		$2.713 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.436	0.001		0.000	1.437		$5.579 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.469	0.001		0.000	1.471		$6.954 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.522	0.002	0.000	0.001	1.525		$9.623 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.579	0.003	0.001	0.001	1.584		$1.348 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.643	0.005	0.003	0.001	1.652		$1.965 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.687	0.007	0.005	0.002	1.700		$2.562 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	1.785	0.016	0.016	0.003	1.821		$4.827 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	1.814	0.022	0.022	0.004	1.862		$5.913 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	1.856	0.033	0.035	0.006	1.931		$8.021 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	1.897	0.052	0.058	0.008	2.016		$1.106 \times 10^4$	
30.0 GeV	$3.011 \times 10^4$	1.941	0.085	0.102	0.012	2.140		$1.587 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	1.971	0.120	0.149	0.015	2.256		$2.042 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.037	0.271	0.359	0.030	2.697		$3.661 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.057	0.352	0.472	0.037	2.918		$4.373 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.087	0.516	0.704	0.051	3.360		$5.650 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.119	0.774	1.073	0.073	4.040		$7.277 \times 10^4$	
219. GeV	$2.194 \times 10^5$	2.127	0.857	1.190	0.080	4.255			<i>Muon critical energy</i>
300. GeV	$3.001 \times 10^5$	2.154	1.214	1.690	0.109	5.169		$9.461 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.180	1.669	2.329	0.146	6.324		$1.121 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.241	3.548	4.950	0.295	11.035		$1.594 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.262	4.513	6.292	0.370	13.438		$1.758 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.292	6.447	8.967	0.525	18.232		$2.012 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.325	9.406	13.051	0.759	25.542		$2.289 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.363	14.347	19.837	1.161	37.708		$2.610 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.390	19.353	26.696	1.569	50.009		$2.839 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.457	39.537	54.269	3.262	99.526		$3.395 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.478	49.708	68.130	4.132	124.450		$3.575 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.512	69.997	95.784	5.920	174.214		$3.845 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.548	100.610	137.444	8.660	249.264		$4.131 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	2.590	151.569	206.760	13.399	374.319		$4.457 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	2.620	202.712	276.241	18.251	499.826		$4.687 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	2.694	407.594	554.358	38.525	1003.172		$5.241 \times 10^5$	
100. TeV	$1.000 \times 10^8$	2.719	510.209	693.544	49.002	1255.474		$5.419 \times 10^5$	