

**Table 014: Muons in Silicon**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	a	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
14 (Si)	28.0855 (3)	2.329	173.0	0.14921	3.2546	0.2015	2.8716	4.4355	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	$4.704 \times 10^1$	6.363				6.363	$8.779 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	4.987				4.987	$1.595 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.912				3.912	$2.969 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.047				3.047	$5.905 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.608				2.608	$9.476 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	1.965				1.965	$2.770 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.849				1.849	$3.822 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.737				1.737	$6.064 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.678				1.678	$9.590 \times 10^1$		
273. MeV	$3.633 \times 10^2$	1.664			0.000	1.664	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.665			0.000	1.666	$1.559 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.681			0.000	1.681	$2.157 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.767	0.000		0.000	1.768	$4.475 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.803	0.000		0.000	1.804	$5.595 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.860	0.001	0.000	0.001	1.862	$7.776 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.922	0.001	0.001	0.001	1.924	$1.094 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.991	0.002	0.001	0.001	1.995	$1.604 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.038	0.003	0.002	0.002	2.045	$2.099 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.145	0.006	0.006	0.004	2.162	$3.994 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.177	0.009	0.009	0.005	2.199	$4.911 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.224	0.013	0.014	0.006	2.257	$6.705 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.270	0.020	0.023	0.009	2.322	$9.325 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.319	0.033	0.040	0.013	2.405	$1.355 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.352	0.046	0.059	0.017	2.474	$1.765 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.427	0.105	0.142	0.033	2.707	$3.308 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.451	0.136	0.187	0.040	2.814	$4.033 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.485	0.200	0.279	0.056	3.021	$5.404 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.522	0.300	0.425	0.080	3.328	$7.295 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.563	0.472	0.675	0.119	3.831	$1.009 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.593	0.651	0.935	0.159	4.338	$1.255 \times 10^5$		
582. GeV	$5.816 \times 10^5$	2.631	0.982	1.417	0.232	5.263	<i>Muon critical energy</i>		
800. GeV	$8.001 \times 10^5$	2.664	1.389	2.003	0.322	6.379	$2.010 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.687	1.770	2.551	0.404	7.413	$2.301 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.723	2.535	3.645	0.573	9.476	$2.777 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.760	3.708	5.319	0.830	12.617	$3.324 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.804	5.670	8.101	1.270	17.846	$3.988 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.836	7.662	10.917	1.718	23.134	$4.478 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.913	15.713	22.251	3.581	44.458	$5.704 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.938	19.777	27.954	4.539	55.209	$6.107 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.977	27.892	39.323	6.510	76.704	$6.719 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	3.019	40.156	56.460	9.536	109.172	$7.372 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.067	60.546	84.985	14.778	163.377	$8.116 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	3.102	81.023	113.592	20.152	217.870	$8.644 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	3.188	163.133	228.110	42.660	437.091	$9.915 \times 10^5$		
100. TeV	$1.000 \times 10^8$	3.216	204.290	285.430	54.310	547.247	$1.032 \times 10^6$		