

## Muons in thallium (Tl)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
81 (Tl)	204.38 (2)	11.720	810.0	0.09455	3.1450	0.3491	3.8044	6.1365	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	$4.704 \times 10^1$	3.843				3.843	$1.514 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.069				3.069	$2.690 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.447				2.447	$4.902 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	1.935				1.935	$9.555 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.672				1.673	$1.515 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.287				1.287	$4.322 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.219				1.219	$5.922 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.154				1.155	$9.308 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.127				1.127	$1.459 \times 10^2$		
227. MeV	$3.154 \times 10^2$	1.125	0.000			1.125	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.132	0.000		0.000	1.133	$2.346 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.153	0.000		0.000	1.154	$3.221 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.238	0.001		0.000	1.239	$6.560 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.271	0.001		0.000	1.273	$8.151 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.323	0.002		0.001	1.326	$1.123 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.379	0.004	0.001	0.001	1.385	$1.565 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.443	0.007	0.003	0.001	1.454	$2.268 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.486	0.010	0.006	0.002	1.505	$2.943 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.585	0.025	0.022	0.003	1.636	$5.483 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.615	0.033	0.031	0.004	1.683	$6.688 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.658	0.050	0.051	0.005	1.764	$9.007 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.700	0.078	0.083	0.007	1.870	$1.231 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.745	0.128	0.147	0.011	2.031	$1.744 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.775	0.181	0.216	0.014	2.187	$2.218 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.841	0.410	0.523	0.028	2.803	$3.829 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.861	0.531	0.689	0.034	3.116	$4.506 \times 10^4$		
140. GeV	$1.401 \times 10^5$	1.890	0.779	1.030	0.048	3.748	$5.675 \times 10^4$		
142. GeV	$1.424 \times 10^5$	1.891	0.793	1.050	0.049	3.784	<i>Muon critical energy</i>		
200. GeV	$2.001 \times 10^5$	1.920	1.167	1.570	0.068	4.727	$7.098 \times 10^4$		
300. GeV	$3.001 \times 10^5$	1.953	1.830	2.472	0.102	6.359	$8.917 \times 10^4$		
400. GeV	$4.001 \times 10^5$	1.977	2.514	3.407	0.137	8.036	$1.031 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.034	5.338	7.238	0.276	14.888	$1.392 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.052	6.788	9.198	0.347	18.386	$1.512 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.080	9.692	13.105	0.491	25.370	$1.697 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.110	14.131	19.067	0.710	36.021	$1.894 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.145	21.539	28.974	1.086	53.746	$2.120 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.170	29.042	38.985	1.467	71.665	$2.281 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.232	59.276	79.219	3.045	143.773	$2.667 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.252	74.504	99.440	3.855	180.053	$2.791 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.283	104.878	139.790	5.517	252.469	$2.978 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.316	150.692	200.570	8.062	361.642	$3.175 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.354	226.962	301.690	12.457	543.465	$3.399 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.382	303.490	403.043	16.953	725.870	$3.558 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.450	610.012	808.733	35.715	1456.912	$3.939 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.473	763.510	1011.760	45.400	1823.145	$4.062 \times 10^5$		