

## Muons in titanium (Ti)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
22 (Ti)	47.867(1)	4.540	233.0	0.15662	3.0302	0.0957	3.0386	4.4450	0.12
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	5.608				5.608	$1.000 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	4.404				4.404	$1.813 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.460				3.460	$3.368 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.699				2.699	$6.684 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.312				2.312	$1.071 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.746				1.746	$3.124 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.644				1.644	$4.308 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.543				1.543	$6.832 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.489				1.490	$1.080 \times 10^2$		
274. MeV	$3.642 \times 10^2$	1.477			0.000	1.477	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.478			0.000	1.478	$1.756 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.493	0.000		0.000	1.493	$2.430 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.573	0.000		0.000	1.573	$5.038 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.606	0.001		0.000	1.607	$6.295 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.659	0.001	0.000	0.001	1.661	$8.741 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.717	0.001	0.001	0.001	1.720	$1.229 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.783	0.002	0.002	0.001	1.788	$1.798 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.828	0.004	0.003	0.002	1.836	$2.350 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.930	0.009	0.009	0.004	1.951	$4.455 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.960	0.012	0.012	0.004	1.989	$5.470 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.004	0.018	0.020	0.006	2.048	$7.450 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.048	0.028	0.032	0.008	2.117	$1.033 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	2.095	0.045	0.056	0.012	2.209	$1.495 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.126	0.064	0.082	0.016	2.289	$1.939 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.196	0.145	0.198	0.031	2.571	$3.586 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.218	0.188	0.260	0.039	2.705	$4.344 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.250	0.276	0.388	0.054	2.969	$5.755 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.284	0.413	0.592	0.077	3.367	$7.652 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.322	0.649	0.935	0.115	4.022	$1.037 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.349	0.893	1.290	0.154	4.686	$1.267 \times 10^5$		
402. GeV	$4.021 \times 10^5$	2.350	0.898	1.297	0.154	4.700	<i>Muon critical energy</i>		
800. GeV	$8.001 \times 10^5$	2.415	1.904	2.750	0.311	7.380	$1.941 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.436	2.425	3.498	0.390	8.750	$2.190 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.469	3.469	4.992	0.553	11.484	$2.588 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.504	5.069	7.275	0.800	15.649	$3.034 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.544	7.744	11.070	1.225	22.584	$3.563 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.573	10.458	14.909	1.656	29.597	$3.949 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.644	21.415	30.350	3.446	57.857	$4.898 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.668	26.943	38.117	4.367	72.096	$5.207 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.704	37.980	53.610	6.259	100.553	$5.675 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.742	54.650	76.958	9.162	143.513	$6.172 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.787	82.367	115.805	14.185	215.144	$6.737 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.819	110.193	154.754	19.332	287.098	$7.138 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.898	221.736	310.672	40.858	576.164	$8.102 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.924	277.630	388.710	51.990	721.255	$8.412 \times 10^5$		