Muons in thulium (Tm)

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
69 (Tm)	168.93422(2)	9.321	674.0	0.24889	2.5469	0.0812	3.5085	5.9677	0.14

T	p [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm^2]
		[MeV cm^2/g]					
10.0 MeV	4.704×10^1	4.123				4.123	1.398×10^0
14.0 MeV	5.616×10^1	3.277				3.277	2.497×10^0
20.0 MeV	6.802×10^1	2.602				2.603	4.572×10^0
30.0 MeV	8.509×10^1	2.050				2.050	8.957×10^0
40.0 MeV	1.003×10^2	1.767				1.767	1.424×10^1
80.0 MeV	1.527×10^2	1.351				1.351	4.092×10^1
100. MeV	1.764×10^2	1.277				1.277	5.619×10^1
140. MeV	2.218×10^2	1.206				1.207	8.855×10^1
200. MeV	2.868×10^2	1.174				1.174	1.391×10^2
237. MeV	3.260×10^2	1.170	0.000			1.170	*Minimum ionization*
300. MeV	3.917×10^2	1.175	0.000		0.000	1.175	2.245×10^2
400. MeV	4.945×10^2	1.194	0.000		0.000	1.195	3.089×10^2
800. MeV	8.995×10^2	1.278	0.001		0.000	1.280	6.319×10^2
1.00 GeV	1.101×10^3	1.312	0.001		0.000	1.314	7.862×10^2
1.40 GeV	1.502×10^3	1.365	0.002	0.000	0.001	1.368	1.084×10^3
2.00 GeV	2.103×10^3	1.423	0.004	0.001	0.001	1.429	1.513×10^3
3.00 GeV	3.104×10^3	1.489	0.006	0.003	0.001	1.500	2.195×10^3
4.00 GeV	4.104×10^3	1.535	0.009	0.006	0.002	1.552	2.850×10^3
8.00 GeV	8.105×10^3	1.639	0.022	0.020	0.003	1.685	5.313×10^3
10.0 GeV	1.011×10^4	1.670	0.029	0.029	0.004	1.733	6.483×10^3
14.0 GeV	1.411×10^4	1.715	0.045	0.047	0.005	1.813	8.738×10^3
20.0 GeV	2.011×10^4	1.760	0.070	0.077	0.007	1.915	1.196×10^4
30.0 GeV	3.011×10^4	1.808	0.114	0.135	0.011	2.069	1.698×10^4
40.0 GeV	4.011×10^4	1.840	0.161	0.198	0.014	2.214	2.165×10^4
80.0 GeV	8.011×10^4	1.909	0.365	0.477	0.028	2.780	3.773×10^4
100. GeV	1.001×10^5	1.930	0.472	0.627	0.035	3.066	4.458×10^4
140. GeV	1.401×10^5	1.961	0.693	0.936	0.049	3.640	5.654×10^4
161. GeV	1.611×10^5	1.973	0.813	1.104	0.056	3.947	*Muon critical energy*
200. GeV	2.001×10^5	1.992	1.039	1.426	0.069	4.528	7.130×10^4
300. GeV	3.001×10^5	2.026	1.629	2.245	0.104	6.006	9.043×10^4
400. GeV	4.001×10^5	2.050	2.239	3.092	0.139	7.522	1.053×10^5
800. GeV	8.001×10^5	2.108	4.756	6.568	0.281	13.715	1.441×10^5
1.00 TeV	1.000×10^6	2.127	6.048	8.346	0.353	16.876	1.572×10^5
1.40 TeV	1.400×10^6	2.156	8.638	11.891	0.500	23.187	1.774×10^5
2.00 TeV	2.000×10^6	2.187	12.597	17.301	0.723	32.810	1.990×10^5
3.00 TeV	3.000×10^6	2.223	19.205	26.290	1.105	48.825	2.239×10^5
4.00 TeV	4.000×10^6	2.249	25.900	35.373	1.493	65.016	2.416×10^5
8.00 TeV	8.000×10^6	2.312	52.880	71.882	3.099	130.175	2.842×10^5
10.0 TeV	1.000×10^7	2.333	66.472	90.232	3.924	162.963	2.979×10^5
14.0 TeV	1.400×10^7	2.365	93.583	126.847	5.617	228.413	3.185×10^5
20.0 TeV	2.000×10^7	2.399	134.480	182.002	8.210	327.093	3.404×10^5
30.0 TeV	3.000×10^7	2.439	202.563	273.766	12.688	491.458	3.651×10^5
40.0 TeV	4.000×10^7	2.467	270.881	365.744	17.270	656.365	3.827×10^5
80.0 TeV	8.000×10^7	2.538	544.541	733.910	36.395	1317.385	4.248×10^5
100. TeV	1.000×10^8	2.561	681.590	918.160	46.270	1648.583	4.384×10^5