Muons in hafnium (Hf)

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
72 (Hf)	178.49(2)	13.310	705.0	0.22918	2.6155	0.1965	3.4337	5.7139	0.14

T	p [MeV/c]	Ionization	Brems	Pair prod [MeV cm^2/g]	Photonucl	Total	CSDA range [g/cm^2]
10.0 MeV	4.704×10^1	4.035				4.035	1.432×10^0
14.0 MeV	5.616×10^1	3.212				3.212	2.553×10^0
20.0 MeV	6.802×10^1	2.553				2.553	4.670×10^0
30.0 MeV	8.509×10^1	2.014				2.014	9.137×10^0
40.0 MeV	1.003×10^2	1.737				1.737	1.452×10^1
80.0 MeV	1.527×10^2	1.330				1.331	4.161×10^1
100. MeV	1.764×10^2	1.258				1.258	5.711×10^1
140. MeV	2.218×10^2	1.188				1.188	8.997×10^1
200. MeV	2.868×10^2	1.155				1.156	1.413×10^2
243. MeV	3.325×10^2	1.152	0.000			1.152	*Minimum ionization*
300. MeV	3.917×10^2	1.156	0.000		0.000	1.157	2.280×10^2
400. MeV	4.945×10^2	1.175	0.000		0.000	1.176	3.138×10^2
800. MeV	8.995×10^2	1.256	0.001		0.000	1.258	6.423×10^2
1.00 GeV	1.101×10^3	1.289	0.001		0.000	1.291	7.992×10^2
1.40 GeV	1.502×10^3	1.341	0.002		0.001	1.344	1.103×10^3
2.00 GeV	2.103×10^3	1.397	0.004	0.001	0.001	1.403	1.539×10^3
3.00 GeV	3.104×10^3	1.461	0.006	0.003	0.001	1.472	2.234×10^3
4.00 GeV	4.104×10^3	1.505	0.009	0.006	0.002	1.522	2.901×10^3
8.00 GeV	8.105×10^3	1.606	0.023	0.021	0.003	1.653	5.413×10^3
10.0 GeV	1.011×10^4	1.636	0.030	0.029	0.004	1.700	6.606×10^3
14.0 GeV	1.411×10^4	1.679	0.046	0.048	0.005	1.779	8.904×10^3
20.0 GeV	2.011×10^4	1.723	0.072	0.078	0.007	1.881	1.218×10^4
30.0 GeV	3.011×10^4	1.769	0.117	0.137	0.011	2.035	1.729×10^4
40.0 GeV	4.011×10^4	1.799	0.166	0.202	0.014	2.182	2.204×10^4
80.0 GeV	8.011×10^4	1.866	0.374	0.487	0.028	2.756	3.831×10^4
100. GeV	1.001×10^5	1.886	0.485	0.640	0.035	3.048	4.521×10^4
140. GeV	1.401×10^5	1.916	0.712	0.956	0.049	3.634	5.721×10^4
154. GeV	1.546×10^5	1.924	0.796	1.075	0.054	3.850	*Muon critical energy*
200. GeV	2.001×10^5	1.946	1.067	1.457	0.069	4.540	7.196×10^4
300. GeV	3.001×10^5	1.980	1.672	2.294	0.104	6.051	9.099×10^4
400. GeV	4.001×10^5	2.003	2.298	3.160	0.138	7.602	1.057×10^5
800. GeV	8.001×10^5	2.061	4.881	6.713	0.279	13.936	1.440×10^5
1.00 TeV	1.000×10^6	2.080	6.207	8.529	0.351	17.169	1.569×10^5
1.40 TeV	1.400×10^6	2.108	8.864	12.153	0.497	23.624	1.767×10^5
2.00 TeV	2.000×10^6	2.139	12.927	17.681	0.719	33.468	1.980×10^5
3.00 TeV	3.000×10^6	2.174	19.707	26.868	1.099	49.850	2.223×10^5
4.00 TeV	4.000×10^6	2.200	26.574	36.150	1.485	66.411	2.396×10^5
8.00 TeV	8.000×10^6	2.262	54.253	73.461	3.084	133.062	2.813×10^5
10.0 TeV	1.000×10^7	2.283	68.197	92.214	3.904	166.600	2.947×10^5
14.0 TeV	1.400×10^7	2.314	96.008	129.633	5.587	233.544	3.149×10^5
20.0 TeV	2.000×10^7	2.348	137.960	185.998	8.166	334.474	3.363×10^5
30.0 TeV	3.000×10^7	2.387	207.800	279.776	12.621	502.586	3.605×10^5
40.0 TeV	4.000×10^7	2.415	277.881	373.772	17.179	671.249	3.776×10^5
80.0 TeV	8.000×10^7	2.485	558.592	750.012	36.195	1347.285	4.189×10^5
100. TeV	1.000×10^8	2.508	699.170	938.300	46.010	1685.990	4.321×10^5