Table 020: Muons in Calcium

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
20 (Ca)	40.078 (4)	1.550	191.0	0.15643	3.0745	0.3228	3.1191	5.0396	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	6.282				6.282	8.902×10^{-1}
14.0 MeV	5.616×10^1	4.927				4.927	1.617×10^0
20.0 MeV	6.802×10^1	3.867				3.867	3.007×10^0
30.0 MeV	8.509×10^1	3.015				3.015	5.975×10^0
40.0 MeV	1.003×10^2	2.582				2.582	9.583×10^0
80.0 MeV	1.527×10^2	1.950				1.950	2.797×10^1
100. MeV	1.764×10^2	1.837				1.837	3.856×10^1
140. MeV	2.218×10^2	1.725				1.725	6.114×10^1
200. MeV	2.868×10^2	1.668				1.668	9.664×10^1
267. MeV	3.577×10^2	1.655			0.000	1.656	*Minimum ionization*
300. MeV	3.917×10^2	1.657			0.000	1.657	1.569×10^2
400. MeV	4.945×10^2	1.674	0.000		0.000	1.675	2.170×10^2
800. MeV	8.995×10^2	1.766	0.000		0.000	1.767	4.494×10^2
1.00 GeV	1.101×10^3	1.804	0.001		0.000	1.805	5.613×10^2
1.40 GeV	1.502×10^3	1.864	0.001	0.000	0.001	1.866	7.791×10^2
2.00 GeV	2.103×10^3	1.929	0.001	0.001	0.001	1.933	1.095×10^3
3.00 GeV	3.104×10^3	2.003	0.002	0.002	0.001	2.008	1.602×10^3
4.00 GeV	4.104×10^3	2.053	0.004	0.003	0.002	2.062	2.093×10^3
8.00 GeV	8.105×10^3	2.167	0.009	0.009	0.004	2.188	3.969×10^3
10.0 GeV	1.011×10^4	2.201	0.012	0.012	0.004	2.230	4.874×10^3
14.0 GeV	1.411×10^4	2.250	0.018	0.020	0.006	2.294	6.642×10^3
20.0 GeV	2.011×10^4	2.298	0.028	0.032	0.008	2.367	9.215×10^3
30.0 GeV	3.011×10^4	2.350	0.045	0.056	0.012	2.464	1.335×10^4
40.0 GeV	4.011×10^4	2.384	0.064	0.082	0.016	2.547	1.734×10^4
80.0 GeV	8.011×10^4	2.461	0.145	0.197	0.032	2.835	3.221×10^4
100. GeV	1.001×10^5	2.484	0.188	0.259	0.039	2.971	3.910×10^4
140. GeV	1.401×10^5	2.519	0.276	0.387	0.055	3.237	5.199×10^4
200. GeV	2.001×10^5	2.556	0.414	0.591	0.078	3.638	6.946×10^4
300. GeV	3.001×10^5	2.597	0.650	0.932	0.117	4.297	9.473×10^4
400. GeV	4.001×10^5	2.627	0.894	1.287	0.156	4.964	1.164×10^5
446. GeV	4.465×10^5	2.638	1.010	1.455	0.174	5.277	*Muon critical energy*
800. GeV	8.001×10^5	2.698	1.906	2.745	0.314	7.665	1.807×10^5
1.00 TeV	1.000×10^6	2.721	2.427	3.493	0.395	9.037	2.047×10^5
1.40 TeV	1.400×10^6	2.757	3.473	4.987	0.560	11.777	2.434×10^5
2.00 TeV	2.000×10^6	2.795	5.076	7.269	0.810	15.951	2.870×10^5
3.00 TeV	3.000×10^6	2.838	7.755	11.063	1.240	22.897	3.391×10^5
4.00 TeV	4.000×10^6	2.870	10.474	14.901	1.677	29.923	3.772×10^5
8.00 TeV	8.000×10^6	2.947	21.453	30.341	3.493	58.235	4.713×10^5
10.0 TeV	1.000×10^7	2.973	26.993	38.108	4.426	72.501	5.020×10^5
14.0 TeV	1.400×10^7	3.012	38.053	53.599	6.345	101.010	5.486×10^5
20.0 TeV	2.000×10^7	3.053	54.760	76.946	9.290	144.050	5.980×10^5
30.0 TeV	3.000×10^7	3.102	82.538	115.792	14.388	215.821	6.544×10^5
40.0 TeV	4.000×10^7	3.137	110.428	154.742	19.612	287.919	6.944×10^5
80.0 TeV	8.000×10^7	3.223	222.227	310.667	41.472	577.589	7.905×10^5
100. TeV	1.000×10^8	3.251	278.250	388.710	52.780	722.992	8.214×10^5