

## Muons in calcium fluoride (CaF<sub>2</sub>)

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.49670	3.180	166.0	0.06942	3.5263	0.0676	3.1683	4.0653	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	6.395				6.395	$8.715 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	5.009				5.009	$1.586 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.928				3.928	$2.953 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.060				3.060	$5.877 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.620				2.620	$9.431 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	1.975				1.975	$2.756 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.857				1.857	$3.803 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.738				1.738	$6.039 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.673				1.674	$9.570 \times 10^1$		
288. MeV	$3.788 \times 10^2$	1.655			0.000	1.655	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.655			0.000	1.656	$1.559 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.667			0.000	1.668	$2.162 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.747	0.000		0.000	1.748	$4.504 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.781	0.000		0.000	1.782	$5.637 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.835	0.001	0.000	0.001	1.837	$7.847 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.895	0.001	0.001	0.001	1.897	$1.106 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.962	0.002	0.001	0.001	1.966	$1.623 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.008	0.003	0.002	0.002	2.015	$2.125 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.114	0.007	0.006	0.004	2.131	$4.049 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.146	0.009	0.009	0.005	2.168	$4.979 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.192	0.013	0.014	0.006	2.226	$6.799 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.238	0.020	0.024	0.009	2.291	$9.454 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.287	0.034	0.041	0.013	2.375	$1.374 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.321	0.047	0.060	0.017	2.446	$1.788 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.396	0.107	0.145	0.033	2.682	$3.348 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.420	0.139	0.191	0.040	2.791	$4.079 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.455	0.204	0.286	0.056	3.002	$5.460 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.491	0.307	0.437	0.080	3.315	$7.361 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.532	0.482	0.691	0.119	3.825	$1.017 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.562	0.664	0.955	0.159	4.339	$1.262 \times 10^5$		
565. GeV	$5.653 \times 10^5$	2.597	0.971	1.400	0.225	5.194	<i>Muon critical energy</i>		
800. GeV	$8.001 \times 10^5$	2.633	1.417	2.042	0.322	6.414	$2.016 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.656	1.805	2.602	0.404	7.467	$2.304 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.691	2.585	3.716	0.573	9.565	$2.777 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.729	3.780	5.420	0.829	12.759	$3.318 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.772	5.779	8.254	1.270	18.076	$3.973 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.804	7.809	11.123	1.718	23.454	$4.458 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.881	16.010	22.666	3.580	45.137	$5.666 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.906	20.150	28.474	4.538	56.068	$6.063 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.945	28.413	40.055	6.509	77.922	$6.665 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.986	40.898	57.512	9.534	110.931	$7.307 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.034	61.665	86.559	14.777	166.036	$8.039 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	3.069	82.521	115.688	20.152	221.431	$8.559 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	3.155	166.132	232.299	42.665	444.251	$9.810 \times 10^5$		
100. TeV	$1.000 \times 10^8$	3.183	208.035	290.668	54.318	556.204	$1.021 \times 10^6$		