

**Table 009: Muons in Fluorine gas (F<sub>2</sub>)**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
9 (F)	18.9984032 (5)	$1.580 \times 10^{-3}$	115.0	0.11083	3.2962	1.8433	4.4096	10.9653	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	$4.704 \times 10^1$	6.415				6.415	$8.663 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	5.017				5.017	$1.579 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.927				3.927	$2.946 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.054				3.054	$5.874 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.611				2.611	$9.438 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	1.967				1.967	$2.764 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.852				1.853	$3.815 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.740				1.741	$6.052 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.685				1.685	$9.569 \times 10^1$		
252. MeV	$3.421 \times 10^2$	1.676			0.000	1.676	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.680			0.000	1.681	$1.553 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.705			0.000	1.705	$2.144 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.824	0.000		0.000	1.825	$4.409 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.874	0.000		0.000	1.874	$5.490 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.955	0.000	0.000	0.001	1.956	$7.577 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	2.046	0.001	0.000	0.001	2.048	$1.057 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	2.154	0.001	0.001	0.001	2.157	$1.532 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.231	0.002	0.001	0.002	2.236	$1.987 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.413	0.004	0.004	0.004	2.425	$3.695 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.461	0.005	0.005	0.005	2.477	$4.511 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.529	0.008	0.009	0.006	2.553	$6.100 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.596	0.013	0.015	0.009	2.632	$8.413 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.665	0.021	0.026	0.013	2.725	$1.214 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.710	0.030	0.038	0.017	2.795	$1.576 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.808	0.067	0.091	0.033	3.000	$2.955 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.837	0.087	0.120	0.041	3.086	$3.612 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.878	0.129	0.180	0.057	3.244	$4.875 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.919	0.194	0.275	0.082	3.470	$6.663 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.963	0.305	0.436	0.122	3.828	$9.406 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.994	0.421	0.604	0.163	4.182	$1.190 \times 10^5$		
800. GeV	$8.001 \times 10^5$	3.065	0.901	1.301	0.329	5.597	$2.014 \times 10^5$		
960. GeV	$9.600 \times 10^5$	3.084	1.099	1.588	0.397	6.167	<i>Muon critical energy</i>		
1.00 TeV	$1.000 \times 10^6$	3.088	1.149	1.661	0.414	6.311	$2.351 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	3.122	1.648	2.375	0.587	7.732	$2.922 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	3.158	2.413	3.470	0.850	9.891	$3.607 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	3.199	3.695	5.292	1.301	13.488	$4.470 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	3.229	4.998	7.138	1.761	17.126	$5.126 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	3.303	10.269	14.569	3.672	31.813	$6.813 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	3.327	12.932	18.311	4.656	39.226	$7.379 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	3.364	18.245	25.768	6.682	54.058	$8.244 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	3.403	26.276	37.012	9.792	76.484	$9.172 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.449	39.648	55.724	15.187	114.008	$1.024 \times 10^6$		
40.0 TeV	$4.000 \times 10^7$	3.482	53.085	74.493	20.722	151.782	$1.099 \times 10^6$		
80.0 TeV	$8.000 \times 10^7$	3.564	106.962	149.635	43.923	304.085	$1.282 \times 10^6$		
100. TeV	$1.000 \times 10^8$	3.591	133.970	187.250	55.940	380.751	$1.341 \times 10^6$		