

## Muons in Freon-1311 (CF<sub>3</sub>I)

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.43997	1.800	293.5	0.09112	3.1658	0.2847	3.7280	5.8774	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	$4.704 \times 10^1$	5.199				5.199	$1.080 \times 10^0$	
14.0 MeV	$5.616 \times 10^1$	4.088				4.088	$1.956 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.217				3.217	$3.629 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	2.515				2.515	$7.193 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.159				2.159	$1.151 \times 10^1$	
80.0 MeV	$1.527 \times 10^2$	1.640				1.640	$3.343 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.549				1.549	$4.601 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.460				1.460	$7.272 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.414				1.414	$1.146 \times 10^2$	
257. MeV	$3.471 \times 10^2$	1.406			0.000	1.407	<i>Minimum ionization</i>	
300. MeV	$3.917 \times 10^2$	1.409	0.000		0.000	1.409	$1.856 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.427	0.000		0.000	1.427	$2.562 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.513	0.001		0.000	1.514	$5.281 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.548	0.001		0.000	1.549	$6.586 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.603	0.001	0.000	0.001	1.606	$9.120 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.664	0.002	0.001	0.001	1.668	$1.278 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.732	0.004	0.002	0.001	1.740	$1.865 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.779	0.005	0.004	0.002	1.791	$2.431 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	1.887	0.013	0.013	0.003	1.916	$4.582 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	1.919	0.017	0.018	0.004	1.958	$5.614 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	1.965	0.026	0.028	0.006	2.026	$7.621 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.011	0.041	0.046	0.008	2.107	$1.052 \times 10^4$	
30.0 GeV	$3.011 \times 10^4$	2.060	0.066	0.081	0.012	2.220	$1.514 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.092	0.094	0.119	0.016	2.321	$1.955 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.165	0.212	0.285	0.031	2.693	$3.552 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.186	0.275	0.375	0.038	2.875	$4.270 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.218	0.404	0.559	0.053	3.235	$5.581 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.251	0.606	0.852	0.075	3.785	$7.295 \times 10^4$	
286. GeV	$2.865 \times 10^5$	2.284	0.903	1.274	0.107	4.569	<i>Muon critical energy</i>	
300. GeV	$3.001 \times 10^5$	2.288	0.951	1.342	0.112	4.694	$9.663 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.314	1.307	1.850	0.150	5.622	$1.161 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.377	2.781	3.935	0.303	9.398	$1.705 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.398	3.539	5.003	0.381	11.322	$1.899 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.429	5.058	7.133	0.539	15.161	$2.203 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.462	7.383	10.384	0.781	21.011	$2.538 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.501	11.265	15.788	1.194	30.750	$2.929 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.529	15.201	21.252	1.615	40.597	$3.212 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.597	31.076	43.217	3.360	80.251	$3.899 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.619	39.078	54.260	4.257	100.216	$4.122 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.654	55.040	76.293	6.101	140.088	$4.458 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.691	79.129	109.486	8.928	200.235	$4.814 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	2.733	119.233	164.713	13.821	300.502	$5.219 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	2.764	159.487	220.076	18.834	401.163	$5.506 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	2.840	320.761	441.685	39.792	805.079	$6.196 \times 10^5$	
100. TeV	$1.000 \times 10^8$	2.865	401.541	552.594	50.629	1007.630	$6.418 \times 10^5$	