

## Muons in carbon tetrafluoride (CF<sub>4</sub>)

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.47721	$3.780 \times 10^{-3}$	115.0	0.18551	3.0000	1.7000	4.0000	10.0858	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]	
10.0 MeV	$4.704 \times 10^1$	6.469				6.469	$8.580 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	5.057				5.057	$1.565 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.958				3.958	$2.921 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.077				3.077	$5.827 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.631				2.631	$9.364 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	1.982				1.982	$2.743 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.866				1.866	$3.786 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.753				1.753	$6.007 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.697				1.698	$9.498 \times 10^1$	
252. MeV	$3.421 \times 10^2$	1.688			0.000	1.689	<i>Minimum ionization</i>	
300. MeV	$3.917 \times 10^2$	1.693			0.000	1.693	$1.541 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.718			0.000	1.718	$2.128 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.837	0.000		0.000	1.838	$4.377 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.887	0.000		0.000	1.888	$5.450 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.969	0.000	0.000	0.001	1.970	$7.522 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.061	0.001	0.000	0.001	2.063	$1.049 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	2.169	0.001	0.001	0.001	2.173	$1.521 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.247	0.002	0.001	0.002	2.252	$1.973 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.410	0.004	0.004	0.004	2.421	$3.675 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.454	0.005	0.005	0.005	2.469	$4.492 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.517	0.008	0.009	0.006	2.540	$6.088 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.579	0.012	0.014	0.009	2.615	$8.414 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.644	0.020	0.025	0.013	2.702	$1.217 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.686	0.029	0.036	0.017	2.769	$1.583 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.778	0.065	0.088	0.033	2.965	$2.976 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.805	0.084	0.116	0.041	3.047	$3.641 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.844	0.124	0.174	0.058	3.200	$4.921 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.883	0.187	0.266	0.082	3.418	$6.735 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.926	0.295	0.421	0.123	3.765	$9.521 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.955	0.407	0.583	0.163	4.109	$1.206 \times 10^5$	
800. GeV	$8.001 \times 10^5$	3.024	0.871	1.257	0.330	5.483	$2.046 \times 10^5$	
974. GeV	$9.744 \times 10^5$	3.044	1.080	1.560	0.404	6.088	<i>Muon critical energy</i>	
1.00 TeV	$1.000 \times 10^6$	3.046	1.111	1.605	0.415	6.178	$2.390 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	3.080	1.593	2.296	0.589	7.559	$2.974 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	3.117	2.334	3.355	0.853	9.658	$3.675 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	3.158	3.574	5.117	1.306	13.156	$4.559 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.188	4.835	6.903	1.767	16.694	$5.232 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.263	9.935	14.094	3.686	30.977	$6.964 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.287	12.512	17.714	4.674	38.187	$7.544 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.324	17.653	24.930	6.707	52.615	$8.433 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.364	25.426	35.809	9.831	74.431	$9.387 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	3.410	38.368	53.915	15.249	110.942	$1.048 \times 10^6$	
40.0 TeV	$4.000 \times 10^7$	3.444	51.373	72.076	20.808	147.701	$1.126 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.526	103.515	144.786	44.113	295.940	$1.314 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.553	129.652	181.183	56.186	370.574	$1.374 \times 10^6$	