

**Table 017: Muons in Chlorine gas (Cl<sub>2</sub>)**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
17 (Cl)	35.453 (2)	$2.980 \times 10^{-3}$	174.0	0.19849	2.9702	1.5566	4.3005	11.1470	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	$4.704 \times 10^1$	6.123				6.123	$9.124 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	4.800				4.800	$1.658 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.766				3.766	$3.085 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.936				2.936	$6.134 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.514				2.514	$9.838 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	1.901				1.901	$2.871 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.792				1.792	$3.957 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.687				1.687	$6.268 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.636				1.636	$9.892 \times 10^1$		
246. MeV	$3.356 \times 10^2$	1.630			0.000	1.630	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.636			0.000	1.636	$1.602 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.662	0.000		0.000	1.662	$2.209 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.784	0.000		0.000	1.785	$4.528 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.835	0.000		0.000	1.836	$5.632 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.917	0.001	0.000	0.001	1.919	$7.761 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	2.010	0.001	0.001	0.001	2.013	$1.081 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	2.119	0.002	0.001	0.001	2.124	$1.564 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.196	0.003	0.002	0.002	2.204	$2.026 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.367	0.007	0.007	0.004	2.385	$3.761 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.418	0.010	0.010	0.004	2.442	$4.590 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.489	0.015	0.016	0.006	2.527	$6.198 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.560	0.023	0.027	0.009	2.619	$8.528 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.634	0.038	0.046	0.013	2.731	$1.226 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.682	0.053	0.068	0.016	2.820	$1.586 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.787	0.120	0.163	0.032	3.102	$2.936 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.817	0.155	0.215	0.040	3.227	$3.568 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.860	0.228	0.321	0.055	3.466	$4.763 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.904	0.343	0.490	0.078	3.816	$6.412 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.950	0.539	0.775	0.118	4.382	$8.856 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.982	0.742	1.070	0.157	4.951	$1.100 \times 10^5$		
592. GeV	$5.920 \times 10^5$	3.024	1.142	1.649	0.233	6.048	<i>Muon critical energy</i>		
800. GeV	$8.001 \times 10^5$	3.055	1.583	2.285	0.317	7.241	$1.764 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	3.078	2.016	2.909	0.398	8.402	$2.021 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	3.112	2.887	4.154	0.565	10.718	$2.441 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	3.149	4.220	6.058	0.817	14.245	$2.925 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	3.191	6.451	9.223	1.251	20.116	$3.513 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	3.221	8.715	12.426	1.692	26.054	$3.949 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	3.295	17.860	25.311	3.524	49.991	$5.038 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	3.320	22.476	31.794	4.466	62.056	$5.397 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	3.357	31.691	44.718	6.403	86.171	$5.941 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	3.397	45.614	64.196	9.376	122.584	$6.522 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.444	68.764	96.622	14.525	183.355	$7.185 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	3.477	92.009	129.139	19.802	244.428	$7.656 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	3.560	185.203	259.302	41.886	489.952	$8.789 \times 10^5$		
100. TeV	$1.000 \times 10^8$	3.587	231.910	324.450	53.310	613.258	$9.153 \times 10^5$		