

**Table 035: Muons in Bromine gas (Br<sub>2</sub>)**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
35 (Br)	79.904 (1)	$7.072 \times 10^{-3}$	343.0	0.06335	3.4670	1.5262	4.9899	11.7307	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	$4.704 \times 10^1$	5.027				5.027	$1.125 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.963				3.963	$2.030 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.125				3.125	$3.753 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.448				2.448	$7.418 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.103				2.103	$1.185 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.601				1.601	$3.432 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.513				1.513	$4.720 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.429				1.429	$7.453 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.391				1.391	$1.172 \times 10^2$		
232. MeV	$3.210 \times 10^2$	1.388				1.388	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.396	0.000		0.000	1.396	$1.892 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.423	0.000		0.000	1.423	$2.601 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.537	0.001		0.000	1.538	$5.300 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.584	0.001		0.000	1.585	$6.580 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.660	0.001	0.000	0.001	1.662	$9.042 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.745	0.002	0.001	0.001	1.749	$1.256 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.844	0.004	0.002	0.001	1.852	$1.810 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.916	0.005	0.004	0.002	1.927	$2.339 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.077	0.013	0.013	0.003	2.106	$4.314 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.125	0.017	0.018	0.004	2.164	$5.250 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.193	0.026	0.029	0.006	2.254	$7.059 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.260	0.040	0.047	0.008	2.356	$9.661 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.329	0.066	0.082	0.012	2.490	$1.379 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.375	0.093	0.120	0.015	2.604	$1.771 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.475	0.211	0.287	0.030	3.003	$3.198 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.504	0.273	0.377	0.037	3.192	$3.844 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.545	0.401	0.563	0.052	3.562	$5.029 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.587	0.601	0.858	0.074	4.120	$6.594 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.632	0.943	1.351	0.111	5.037	$8.786 \times 10^4$		
327. GeV	$3.267 \times 10^5$	2.641	1.036	1.485	0.121	5.284	<i>Muon critical energy</i>		
400. GeV	$4.001 \times 10^5$	2.663	1.296	1.862	0.148	5.969	$1.061 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.733	2.758	3.959	0.299	9.751	$1.580 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.756	3.510	5.033	0.376	11.675	$1.767 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.788	5.018	7.176	0.532	15.516	$2.064 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.823	7.325	10.448	0.770	21.368	$2.392 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.862	11.181	15.886	1.178	31.108	$2.778 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.890	15.090	21.384	1.592	40.957	$3.057 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.958	30.860	43.490	3.310	80.619	$3.740 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.981	38.811	54.604	4.193	100.590	$3.962 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	3.015	54.670	76.779	6.006	140.471	$4.297 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	3.051	78.608	110.188	8.786	200.634	$4.652 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.094	118.459	165.776	13.592	300.922	$5.057 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	3.125	158.463	221.502	18.513	401.603	$5.343 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	3.200	318.748	444.574	39.070	805.593	$6.033 \times 10^5$		
100. TeV	$1.000 \times 10^8$	3.225	399.040	556.220	49.690	1008.176	$6.254 \times 10^5$		