

## Muons in bromine liquid (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)	3.103	357.0	0.22114	3.0000	0.3669	3.0000	5.7268	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	$4.704 \times 10^1$	4.992				4.992	$1.134 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.937				3.937	$2.045 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.106				3.106	$3.779 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.434				2.434	$7.466 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.091				2.092	$1.193 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.593				1.593	$3.451 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.506				1.506	$4.745 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.422				1.422	$7.491 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.384				1.384	$1.178 \times 10^2$		
243. MeV	$3.325 \times 10^2$	1.380				1.380	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.385	0.000		0.000	1.386	$1.902 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.406	0.000		0.000	1.407	$2.618 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.497	0.001		0.000	1.498	$5.371 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.532	0.001		0.000	1.534	$6.690 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.588	0.001	0.000	0.001	1.591	$9.248 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.649	0.002	0.001	0.001	1.653	$1.294 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.716	0.004	0.002	0.001	1.723	$1.886 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.761	0.005	0.004	0.002	1.773	$2.458 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.864	0.013	0.013	0.003	1.893	$4.633 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.894	0.017	0.018	0.004	1.933	$5.678 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.937	0.026	0.029	0.006	1.998	$7.712 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.980	0.040	0.047	0.008	2.076	$1.066 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	2.025	0.066	0.082	0.012	2.185	$1.535 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.055	0.093	0.120	0.015	2.284	$1.982 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.122	0.211	0.287	0.030	2.651	$3.605 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.143	0.273	0.377	0.037	2.831	$4.335 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.173	0.401	0.563	0.052	3.190	$5.666 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.206	0.601	0.858	0.074	3.739	$7.402 \times 10^4$		
281. GeV	$2.811 \times 10^5$	2.236	0.877	1.256	0.104	4.473	<i>Muon critical energy</i>		
300. GeV	$3.001 \times 10^5$	2.242	0.943	1.351	0.111	4.647	$9.797 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.268	1.296	1.862	0.148	5.574	$1.176 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.330	2.758	3.959	0.299	9.348	$1.724 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.351	3.510	5.033	0.376	11.270	$1.919 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.382	5.018	7.176	0.532	15.109	$2.224 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.415	7.325	10.448	0.770	20.960	$2.560 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.454	11.181	15.886	1.178	30.699	$2.952 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.481	15.090	21.384	1.592	40.548	$3.235 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.549	30.860	43.490	3.310	80.210	$3.923 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.571	38.811	54.604	4.193	100.181	$4.146 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.606	54.670	76.779	6.006	140.062	$4.482 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.642	78.608	110.188	8.786	200.225	$4.838 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.685	118.459	165.776	13.592	300.512	$5.243 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.715	158.463	221.502	18.513	401.194	$5.530 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.791	318.748	444.574	39.070	805.184	$6.220 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.816	399.040	556.220	49.690	1007.767	$6.442 \times 10^5$		