

**Table 299: Muons in Liquid deuterium (D<sub>2</sub>)**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
1 (D)	2.014101764 (13)	0.169	21.8	0.13483	5.6249	0.4399	1.8855	3.0975	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	$4.704 \times 10^1$	8.261				8.261	$6.627 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	6.412				6.412	$1.218 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	4.983				4.983	$2.292 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.846				3.846	$4.610 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	3.272				3.273	$7.447 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	2.437				2.437	$2.207 \times 10^1$		
100. MeV	$1.764 \times 10^2$	2.286				2.286	$3.057 \times 10^1$		
140. MeV	$2.218 \times 10^2$	2.135				2.135	$4.876 \times 10^1$		
200. MeV	$2.868 \times 10^2$	2.054			0.000	2.054	$7.752 \times 10^1$		
300. MeV	$3.917 \times 10^2$	2.021			0.000	2.021	$1.267 \times 10^2$		
345. MeV	$4.382 \times 10^2$	2.019			0.000	2.019	<i>Minimum ionization</i>		
400. MeV	$4.945 \times 10^2$	2.021			0.000	2.021	$1.762 \times 10^2$		
800. MeV	$8.995 \times 10^2$	2.069			0.000	2.070	$3.719 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	2.093			0.001	2.093	$4.680 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	2.132	0.000		0.001	2.133	$6.572 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	2.178	0.000		0.001	2.179	$9.353 \times 10^2$		
3.00 GeV	$3.104 \times 10^3$	2.231	0.000	0.000	0.002	2.234	$1.388 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.270	0.001	0.000	0.002	2.273	$1.832 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.362	0.001	0.001	0.005	2.369	$3.551 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.390	0.002	0.002	0.006	2.400	$4.390 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.433	0.003	0.003	0.008	2.447	$6.040 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.476	0.005	0.006	0.011	2.497	$8.465 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.524	0.008	0.010	0.015	2.558	$1.242 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.556	0.012	0.015	0.020	2.603	$1.629 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.631	0.028	0.038	0.038	2.736	$3.126 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.655	0.037	0.050	0.047	2.789	$3.850 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.689	0.055	0.076	0.066	2.887	$5.259 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.726	0.085	0.118	0.093	3.022	$7.289 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.767	0.137	0.191	0.139	3.234	$1.049 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.796	0.191	0.268	0.185	3.440	$1.348 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.867	0.423	0.592	0.373	4.255	$2.392 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.890	0.544	0.761	0.468	4.664	$2.841 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.926	0.791	1.101	0.663	5.482	$3.631 \times 10^5$		
1.59 TeV	$1.592 \times 10^6$	2.939	0.913	1.268	0.758	5.879	<i>Muon critical energy</i>		
2.00 TeV	$2.000 \times 10^6$	2.963	1.175	1.627	0.961	6.726	$4.618 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	3.007	1.827	2.504	1.474	8.812	$5.913 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	3.038	2.496	3.399	1.996	10.929	$6.930 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	3.115	5.240	7.012	4.180	19.548	$9.631 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	3.141	6.642	8.837	5.308	23.928	$1.055 \times 10^6$		
14.0 TeV	$1.400 \times 10^7$	3.179	9.452	12.466	7.642	32.739	$1.198 \times 10^6$		
20.0 TeV	$2.000 \times 10^7$	3.221	13.734	17.952	11.236	46.143	$1.352 \times 10^6$		
30.0 TeV	$3.000 \times 10^7$	3.269	20.884	27.062	17.498	68.713	$1.528 \times 10^6$		
40.0 TeV	$4.000 \times 10^7$	3.304	28.113	36.210	23.940	91.566	$1.654 \times 10^6$		
80.0 TeV	$8.000 \times 10^7$	3.389	57.248	72.833	51.135	184.605	$1.956 \times 10^6$		
100. TeV	$1.000 \times 10^8$	3.417	71.920	91.170	65.290	231.798	$2.052 \times 10^6$		