

## Muons in water (ice) (H<sub>2</sub>O)

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.55509	0.918	79.7	0.09116	3.4773	0.2586	2.8190	3.5873	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	7.902				7.902	$6.998 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	6.166				6.166	$1.279 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	4.817				4.817	$2.392 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.738				3.738	$4.782 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	3.192				3.192	$7.696 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	2.398				2.398	$2.261 \times 10^1$		
100. MeV	$1.764 \times 10^2$	2.256				2.256	$3.124 \times 10^1$		
140. MeV	$2.218 \times 10^2$	2.106				2.107	$4.966 \times 10^1$		
200. MeV	$2.868 \times 10^2$	2.018				2.018	$7.887 \times 10^1$		
300. MeV	$3.917 \times 10^2$	1.985			0.000	1.985	$1.290 \times 10^2$		
314. MeV	$4.065 \times 10^2$	1.984			0.000	1.985	<i>Minimum ionization</i>		
400. MeV	$4.945 \times 10^2$	1.992			0.000	1.992	$1.793 \times 10^2$		
800. MeV	$8.995 \times 10^2$	2.069	0.000		0.000	2.069	$3.764 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	2.103	0.000		0.000	2.104	$4.722 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	2.160	0.000		0.001	2.161	$6.597 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	2.222	0.001	0.000	0.001	2.224	$9.331 \times 10^2$		
3.00 GeV	$3.104 \times 10^3$	2.293	0.001	0.001	0.001	2.296	$1.375 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.342	0.001	0.001	0.002	2.347	$1.806 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.455	0.004	0.003	0.004	2.466	$3.463 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.489	0.005	0.005	0.005	2.504	$4.268 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.539	0.007	0.008	0.007	2.561	$5.847 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.588	0.011	0.013	0.009	2.622	$8.161 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.642	0.019	0.023	0.013	2.697	$1.192 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.679	0.027	0.034	0.018	2.757	$1.558 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.763	0.060	0.081	0.034	2.939	$2.961 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.789	0.078	0.107	0.042	3.017	$3.633 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.828	0.116	0.161	0.059	3.163	$4.927 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.868	0.174	0.246	0.084	3.372	$6.764 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.914	0.275	0.391	0.125	3.706	$9.591 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.947	0.379	0.542	0.167	4.035	$1.218 \times 10^5$		
800. GeV	$8.001 \times 10^5$	3.026	0.814	1.171	0.337	5.348	$2.076 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	3.052	1.038	1.496	0.423	6.010	$2.428 \times 10^5$		
1.03 TeV	$1.031 \times 10^6$	3.056	1.073	1.545	0.437	6.112	<i>Muon critical energy</i>		
1.40 TeV	$1.400 \times 10^6$	3.092	1.491	2.142	0.601	7.325	$3.030 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	3.134	2.186	3.132	0.870	9.322	$3.755 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	3.182	3.352	4.781	1.332	12.647	$4.673 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	3.217	4.537	6.452	1.803	16.010	$5.374 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	3.304	9.338	13.185	3.763	29.590	$7.184 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	3.332	11.766	16.575	4.773	36.447	$7.792 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	3.375	16.613	23.331	6.854	50.173	$8.723 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	3.422	23.944	33.521	10.051	70.937	$9.724 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	3.475	36.151	50.475	15.600	105.702	$1.087 \times 10^6$		
40.0 TeV	$4.000 \times 10^7$	3.514	48.424	67.484	21.296	140.719	$1.169 \times 10^6$		
80.0 TeV	$8.000 \times 10^7$	3.610	97.657	135.575	45.199	282.042	$1.366 \times 10^6$		
100. TeV	$1.000 \times 10^8$	3.641	122.347	169.661	57.590	353.239	$1.429 \times 10^6$		