

## Muons in water (liquid) (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	1.000	79.7	0.09116	3.4773	0.2400	2.8004	3.5017	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
				[MeV cm <sup>2</sup> /g]					
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	$2.218 \times 10^2$	2.103				2.104			$4.968 \times 10^1$
200. MeV	$2.868 \times 10^2$	2.015				2.015			$7.894 \times 10^1$
300. MeV	$3.917 \times 10^2$	1.981			0.000	1.981			$1.291 \times 10^2$
317. MeV	$4.096 \times 10^2$	1.981			0.000	1.981			<i>Minimum ionization</i>
400. MeV	$4.945 \times 10^2$	1.987			0.000	1.988			$1.796 \times 10^2$
800. MeV	$8.995 \times 10^2$	2.064	0.000		0.000	2.064			$3.771 \times 10^2$
1.00 GeV	$1.101 \times 10^3$	2.098	0.000		0.000	2.099			$4.732 \times 10^2$
1.40 GeV	$1.502 \times 10^3$	2.154	0.000		0.001	2.156			$6.611 \times 10^2$
2.00 GeV	$2.103 \times 10^3$	2.216	0.001	0.000	0.001	2.218			$9.353 \times 10^2$
3.00 GeV	$3.104 \times 10^3$	2.287	0.001	0.001	0.001	2.290			$1.378 \times 10^3$
4.00 GeV	$4.104 \times 10^3$	2.336	0.001	0.001	0.002	2.341			$1.810 \times 10^3$
8.00 GeV	$8.105 \times 10^3$	2.448	0.004	0.003	0.004	2.459			$3.472 \times 10^3$
10.0 GeV	$1.011 \times 10^4$	2.482	0.005	0.005	0.005	2.497			$4.279 \times 10^3$
14.0 GeV	$1.411 \times 10^4$	2.531	0.007	0.008	0.007	2.553			$5.862 \times 10^3$
20.0 GeV	$2.011 \times 10^4$	2.581	0.011	0.013	0.009	2.615			$8.183 \times 10^3$
30.0 GeV	$3.011 \times 10^4$	2.635	0.019	0.023	0.013	2.690			$1.195 \times 10^4$
40.0 GeV	$4.011 \times 10^4$	2.671	0.027	0.034	0.018	2.749			$1.563 \times 10^4$
80.0 GeV	$8.011 \times 10^4$	2.755	0.060	0.081	0.034	2.931			$2.969 \times 10^4$
100. GeV	$1.001 \times 10^5$	2.781	0.078	0.107	0.042	3.009			$3.642 \times 10^4$
140. GeV	$1.401 \times 10^5$	2.820	0.116	0.161	0.059	3.156			$4.940 \times 10^4$
200. GeV	$2.001 \times 10^5$	2.861	0.174	0.246	0.084	3.365			$6.780 \times 10^4$
300. GeV	$3.001 \times 10^5$	2.907	0.275	0.391	0.125	3.698			$9.614 \times 10^4$
400. GeV	$4.001 \times 10^5$	2.940	0.379	0.542	0.167	4.028			$1.220 \times 10^5$
800. GeV	$8.001 \times 10^5$	3.019	0.814	1.171	0.337	5.341			$2.080 \times 10^5$
1.00 TeV	$1.000 \times 10^6$	3.045	1.038	1.496	0.423	6.003			$2.433 \times 10^5$
1.03 TeV	$1.029 \times 10^6$	3.048	1.071	1.542	0.436	6.097			<i>Muon critical energy</i>
1.40 TeV	$1.400 \times 10^6$	3.084	1.491	2.142	0.601	7.318			$3.036 \times 10^5$
2.00 TeV	$2.000 \times 10^6$	3.127	2.186	3.132	0.870	9.315			$3.761 \times 10^5$
3.00 TeV	$3.000 \times 10^6$	3.175	3.352	4.781	1.332	12.640			$4.679 \times 10^5$
4.00 TeV	$4.000 \times 10^6$	3.210	4.537	6.452	1.803	16.003			$5.381 \times 10^5$
8.00 TeV	$8.000 \times 10^6$	3.296	9.338	13.185	3.763	29.583			$7.191 \times 10^5$
10.0 TeV	$1.000 \times 10^7$	3.325	11.766	16.575	4.773	36.440			$7.799 \times 10^5$
14.0 TeV	$1.400 \times 10^7$	3.368	16.613	23.331	6.854	50.166			$8.731 \times 10^5$
20.0 TeV	$2.000 \times 10^7$	3.414	23.944	33.521	10.051	70.930			$9.732 \times 10^5$
30.0 TeV	$3.000 \times 10^7$	3.468	36.151	50.475	15.600	105.695			$1.088 \times 10^6$
40.0 TeV	$4.000 \times 10^7$	3.507	48.424	67.484	21.296	140.711			$1.170 \times 10^6$
80.0 TeV	$8.000 \times 10^7$	3.603	97.657	135.575	45.199	282.035			$1.367 \times 10^6$
100. TeV	$1.000 \times 10^8$	3.634	122.347	169.661	57.590	353.232			$1.430 \times 10^6$