

**Table 284: Muons in Liquid nitrogen (N<sub>2</sub>)**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
7 (N)	14.0067 (2)	0.807	82.0	0.53289	3.0000	0.3039	2.0000	3.9996	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	$4.704 \times 10^1$	7.084				7.084	$7.814 \times 10^{-1}$		
14.0 MeV	$5.616 \times 10^1$	5.530				5.530	$1.427 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	4.321				4.321	$2.669 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	3.354				3.354	$5.332 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.865				2.865	$8.580 \times 10^0$		
80.0 MeV	$1.527 \times 10^2$	2.152				2.152	$2.520 \times 10^1$		
100. MeV	$1.764 \times 10^2$	2.025				2.025	$3.481 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.900				1.900	$5.529 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.833				1.833	$8.756 \times 10^1$		
288. MeV	$3.788 \times 10^2$	1.813			0.000	1.814	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.814			0.000	1.814	$1.426 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.826			0.000	1.826	$1.975 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.904	0.000		0.000	1.905	$4.120 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.937	0.000		0.000	1.937	$5.161 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.989	0.000		0.001	1.990	$7.196 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	2.044	0.001	0.000	0.001	2.046	$1.017 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	2.106	0.001	0.001	0.001	2.109	$1.498 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	2.148	0.001	0.001	0.002	2.152	$1.967 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	2.243	0.003	0.003	0.004	2.254	$3.778 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	2.272	0.005	0.005	0.005	2.286	$4.659 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.315	0.007	0.007	0.007	2.336	$6.389 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.359	0.011	0.012	0.009	2.391	$8.926 \times 10^3$		
30.0 GeV	$3.011 \times 10^4$	2.406	0.018	0.022	0.013	2.459	$1.305 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.439	0.025	0.032	0.018	2.514	$1.707 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.514	0.057	0.077	0.034	2.683	$3.244 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.538	0.074	0.102	0.042	2.757	$3.980 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.573	0.110	0.153	0.059	2.894	$5.395 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.610	0.165	0.234	0.083	3.092	$7.400 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.651	0.261	0.372	0.124	3.408	$1.048 \times 10^5$		
400. GeV	$4.001 \times 10^5$	2.681	0.360	0.515	0.166	3.722	$1.329 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.752	0.772	1.113	0.335	4.972	$2.255 \times 10^5$		
982. GeV	$9.824 \times 10^5$	2.773	0.966	1.394	0.413	5.547	<i>Muon critical energy</i>		
1.00 TeV	$1.000 \times 10^6$	2.775	0.985	1.422	0.421	5.603	$2.634 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.811	1.414	2.036	0.597	6.858	$3.278 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.849	2.073	2.977	0.864	8.763	$4.050 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.893	3.176	4.543	1.324	11.937	$5.025 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.924	4.299	6.132	1.792	15.147	$5.767 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	3.002	8.841	12.530	3.740	28.113	$7.675 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	3.027	11.138	15.752	4.743	34.660	$8.315 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	3.066	15.720	22.172	6.809	47.768	$9.294 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	3.108	22.650	31.856	9.982	67.596	$1.035 \times 10^6$		
30.0 TeV	$3.000 \times 10^7$	3.156	34.187	47.969	15.491	100.803	$1.155 \times 10^6$		
40.0 TeV	$4.000 \times 10^7$	3.191	45.784	64.133	21.144	134.252	$1.241 \times 10^6$		
80.0 TeV	$8.000 \times 10^7$	3.277	92.292	128.845	44.860	269.275	$1.447 \times 10^6$		
100. TeV	$1.000 \times 10^8$	3.306	115.610	161.240	57.150	337.306	$1.513 \times 10^6$		