

**Table 119: Muons in Compact bone (ICRU)**

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.53010	1.850	91.9	0.05822	3.6419	0.0944	3.0201	3.3390	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	$4.704 \times 10^1$	7.406				7.406	$7.477 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	5.783				5.783	$1.365 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	4.521				4.521	$2.552 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.511				3.511	$5.097 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	3.000				3.000	$8.199 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	2.247				2.247	$2.408 \times 10^1$	
100. MeV	$1.764 \times 10^2$	2.106				2.106	$3.330 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.962				1.962	$5.307 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.880				1.880	$8.444 \times 10^1$	
300. MeV	$3.917 \times 10^2$	1.849			0.000	1.850	$1.382 \times 10^2$	
314. MeV	$4.065 \times 10^2$	1.849			0.000	1.849	<i>Minimum ionization</i>	
400. MeV	$4.945 \times 10^2$	1.856			0.000	1.857	$1.922 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.930	0.000		0.000	1.930	$4.036 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.963	0.000		0.000	1.964	$5.063 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	2.017	0.000	0.000	0.001	2.018	$7.071 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.076	0.001	0.000	0.001	2.078	$9.998 \times 10^2$	
3.00 GeV	$3.104 \times 10^3$	2.144	0.001	0.001	0.001	2.148	$1.473 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.191	0.002	0.001	0.002	2.196	$1.933 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.299	0.004	0.004	0.004	2.312	$3.702 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.332	0.006	0.006	0.005	2.349	$4.560 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.380	0.009	0.010	0.006	2.405	$6.242 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.428	0.014	0.016	0.009	2.467	$8.704 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.480	0.023	0.028	0.013	2.544	$1.269 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.515	0.032	0.041	0.017	2.605	$1.658 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.595	0.073	0.099	0.034	2.801	$3.136 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.620	0.095	0.130	0.042	2.887	$3.839 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.657	0.140	0.195	0.058	3.050	$5.187 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.696	0.210	0.298	0.083	3.286	$7.081 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.740	0.331	0.472	0.124	3.667	$9.960 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.771	0.456	0.654	0.165	4.046	$1.256 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.847	0.977	1.407	0.333	5.564	$2.095 \times 10^5$	
837. GeV	$8.367 \times 10^5$	2.852	1.026	1.477	0.349	5.704	<i>Muon critical energy</i>	
1.00 TeV	$1.000 \times 10^6$	2.871	1.246	1.795	0.418	6.331	$2.432 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.909	1.787	2.568	0.593	7.857	$2.998 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.949	2.617	3.751	0.859	10.177	$3.667 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.996	4.007	5.720	1.316	14.040	$4.501 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.029	5.421	7.716	1.781	17.947	$5.129 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.112	11.138	15.749	3.716	33.714	$6.729 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.139	14.027	19.793	4.712	41.671	$7.262 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.180	19.794	27.854	6.764	57.592	$8.075 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.224	28.514	40.008	9.916	81.663	$8.946 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	3.276	43.026	60.233	15.385	121.920	$9.941 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	3.313	57.608	80.519	20.997	162.437	$1.065 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.404	116.078	161.730	44.538	325.750	$1.235 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.434	145.387	202.381	56.736	407.939	$1.290 \times 10^6$	