

**Table 262: Muons in Soft tissue (ICRU four-component)**

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.54975	1.000	74.9	0.09629	3.4371	0.2377	2.7908	3.5087	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	$4.704 \times 10^1$	7.890				7.890	$7.005 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	6.154				6.154	$1.281 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	4.806				4.806	$2.397 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.729				3.729	$4.792 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	3.184				3.184	$7.713 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	2.390				2.390	$2.268 \times 10^1$	
100. MeV	$1.764 \times 10^2$	2.248				2.248	$3.132 \times 10^1$	
140. MeV	$2.218 \times 10^2$	2.096				2.096	$4.983 \times 10^1$	
200. MeV	$2.868 \times 10^2$	2.007				2.007	$7.920 \times 10^1$	
300. MeV	$3.917 \times 10^2$	1.973			0.000	1.973	$1.296 \times 10^2$	
318. MeV	$4.105 \times 10^2$	1.972			0.000	1.973	<i>Minimum ionization</i>	
400. MeV	$4.945 \times 10^2$	1.979			0.000	1.979	$1.803 \times 10^2$	
800. MeV	$8.995 \times 10^2$	2.054	0.000		0.000	2.055	$3.787 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	2.088	0.000		0.000	2.089	$4.752 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	2.144	0.000		0.001	2.145	$6.640 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.206	0.001	0.000	0.001	2.207	$9.395 \times 10^2$	
3.00 GeV	$3.104 \times 10^3$	2.276	0.001	0.001	0.001	2.279	$1.385 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.324	0.001	0.001	0.002	2.329	$1.819 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.435	0.004	0.003	0.004	2.446	$3.489 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.469	0.005	0.005	0.005	2.484	$4.301 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.518	0.007	0.008	0.007	2.540	$5.892 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.567	0.011	0.013	0.009	2.601	$8.225 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.621	0.018	0.022	0.013	2.675	$1.201 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.657	0.026	0.033	0.018	2.733	$1.571 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.740	0.059	0.079	0.034	2.913	$2.986 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.766	0.077	0.105	0.042	2.990	$3.664 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.804	0.113	0.157	0.059	3.134	$4.970 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.845	0.170	0.241	0.084	3.339	$6.824 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.890	0.269	0.382	0.125	3.667	$9.681 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.923	0.371	0.530	0.167	3.991	$1.229 \times 10^5$	
800. GeV	$8.001 \times 10^5$	3.001	0.796	1.145	0.337	5.280	$2.098 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	3.027	1.016	1.463	0.424	5.930	$2.455 \times 10^5$	
1.04 TeV	$1.042 \times 10^6$	3.031	1.061	1.528	0.442	6.063	<i>Muon critical energy</i>	
1.40 TeV	$1.400 \times 10^6$	3.066	1.458	2.095	0.601	7.221	$3.066 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	3.108	2.138	3.065	0.870	9.181	$3.801 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	3.156	3.279	4.678	1.333	12.446	$4.733 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.190	4.439	6.314	1.804	15.747	$5.446 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.276	9.136	12.903	3.766	29.081	$7.287 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.304	11.511	16.221	4.777	35.813	$7.906 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.347	16.253	22.833	6.859	49.292	$8.854 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.393	23.425	32.807	10.058	69.683	$9.873 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	3.446	35.368	49.401	15.612	103.827	$1.104 \times 10^6$	
40.0 TeV	$4.000 \times 10^7$	3.484	47.376	66.048	21.312	138.221	$1.187 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.579	95.539	132.694	45.234	277.046	$1.388 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.610	119.690	166.055	57.635	346.992	$1.452 \times 10^6$	