

**Table 250: Muons in Skin (ICRP)**

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.54932	1.100	72.7	0.09459	3.4643	0.2019	2.7526	3.3546	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	$4.704 \times 10^1$	7.914				7.914	$6.982 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	6.172				6.172	$1.277 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	4.820				4.820	$2.389 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.738				3.739	$4.778 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	3.192				3.192	$7.692 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	2.396				2.396	$2.262 \times 10^1$	
100. MeV	$1.764 \times 10^2$	2.250				2.250	$3.125 \times 10^1$	
140. MeV	$2.218 \times 10^2$	2.095				2.095	$4.976 \times 10^1$	
200. MeV	$2.868 \times 10^2$	2.005				2.005	$7.916 \times 10^1$	
300. MeV	$3.917 \times 10^2$	1.970			0.000	1.970	$1.296 \times 10^2$	
318. MeV	$4.105 \times 10^2$	1.969			0.000	1.970	<i>Minimum ionization</i>	
400. MeV	$4.945 \times 10^2$	1.976			0.000	1.976	$1.803 \times 10^2$	
800. MeV	$8.995 \times 10^2$	2.049	0.000		0.000	2.050	$3.792 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	2.083	0.000		0.000	2.084	$4.759 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	2.138	0.000		0.001	2.139	$6.653 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.199	0.001	0.000	0.001	2.201	$9.416 \times 10^2$	
3.00 GeV	$3.104 \times 10^3$	2.268	0.001	0.001	0.001	2.271	$1.388 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.316	0.001	0.001	0.002	2.321	$1.824 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.426	0.003	0.003	0.004	2.437	$3.500 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.460	0.005	0.005	0.005	2.474	$4.315 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.509	0.007	0.008	0.007	2.530	$5.913 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.558	0.011	0.012	0.009	2.590	$8.255 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.611	0.018	0.022	0.014	2.664	$1.206 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.647	0.025	0.032	0.018	2.722	$1.577 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.730	0.058	0.077	0.034	2.899	$2.999 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.756	0.075	0.102	0.042	2.975	$3.679 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.794	0.110	0.153	0.059	3.117	$4.992 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.834	0.166	0.235	0.084	3.319	$6.857 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.880	0.262	0.373	0.125	3.641	$9.732 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.912	0.362	0.518	0.167	3.959	$1.237 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.991	0.777	1.118	0.338	5.224	$2.113 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	3.016	0.992	1.429	0.424	5.862	$2.474 \times 10^5$	
1.06 TeV	$1.059 \times 10^6$	3.023	1.054	1.518	0.450	6.046	<i>Muon critical energy</i>	
1.40 TeV	$1.400 \times 10^6$	3.055	1.424	2.046	0.602	7.128	$3.092 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	3.097	2.089	2.993	0.871	9.051	$3.838 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	3.145	3.203	4.570	1.335	12.253	$4.784 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.180	4.336	6.168	1.807	15.492	$5.508 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.265	8.926	12.607	3.773	28.571	$7.381 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.293	11.248	15.850	4.785	35.176	$8.011 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.336	15.881	22.312	6.871	48.400	$8.976 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.382	22.891	32.058	10.077	68.408	$1.001 \times 10^6$	
30.0 TeV	$3.000 \times 10^7$	3.435	34.564	48.274	15.641	101.915	$1.120 \times 10^6$	
40.0 TeV	$4.000 \times 10^7$	3.474	46.300	64.543	21.353	135.670	$1.205 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.568	93.370	129.672	45.326	271.936	$1.409 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.600	116.972	162.275	57.754	340.600	$1.475 \times 10^6$	