Table 028: Muons in Nickel

Z	A [g/mol]	ρ [g/cm^3]	I [eV]	a	$k = m_s$	x_0	x_1	$\overline{C}$	δ_0
28 (Ni)	58.6934 (2)	8.902	311.0	0.16496	2.8430	−0.0566	3.1851	4.3115	0.10

T	p [MeV/c]	Ionization	Brems	Pair prod [MeV cm^2/g]	Photonucl	Total	CSDA range [g/cm^2]
10.0 MeV	4.704×10^1	5.551				5.551	1.016×10^0
14.0 MeV	5.616×10^1	4.369				4.369	1.836×10^0
20.0 MeV	6.802×10^1	3.439				3.439	3.401×10^0
30.0 MeV	8.509×10^1	2.687				2.687	6.736×10^0
40.0 MeV	1.003×10^2	2.302				2.303	1.078×10^1
80.0 MeV	1.527×10^2	1.737				1.737	3.141×10^1
100. MeV	1.764×10^2	1.634				1.634	4.331×10^1
140. MeV	2.218×10^2	1.533				1.533	6.869×10^1
200. MeV	2.868×10^2	1.480				1.480	1.087×10^2
267. MeV	3.577×10^2	1.468			0.000	1.468	*Minimum ionization*
300. MeV	3.917×10^2	1.469			0.000	1.470	1.767×10^2
400. MeV	4.945×10^2	1.484	0.000		0.000	1.485	2.444×10^2
800. MeV	8.995×10^2	1.567	0.000		0.000	1.568	5.063×10^2
1.00 GeV	1.101×10^3	1.602	0.001		0.000	1.603	6.324×10^2
1.40 GeV	1.502×10^3	1.658	0.001	0.000	0.001	1.660	8.774×10^2
2.00 GeV	2.103×10^3	1.718	0.002	0.001	0.001	1.722	1.232×10^3
3.00 GeV	3.104×10^3	1.787	0.003	0.002	0.001	1.794	1.800×10^3
4.00 GeV	4.104×10^3	1.835	0.005	0.004	0.002	1.845	2.349×10^3
8.00 GeV	8.105×10^3	1.943	0.011	0.011	0.003	1.970	4.440×10^3
10.0 GeV	1.011×10^4	1.976	0.015	0.016	0.004	2.012	5.444×10^3
14.0 GeV	1.411×10^4	2.023	0.023	0.026	0.006	2.078	7.399×10^3
20.0 GeV	2.011×10^4	2.070	0.036	0.042	0.008	2.156	1.023×10^4
30.0 GeV	3.011×10^4	2.120	0.059	0.073	0.012	2.264	1.475×10^4
40.0 GeV	4.011×10^4	2.153	0.083	0.107	0.016	2.359	1.908×10^4
80.0 GeV	8.011×10^4	2.227	0.188	0.255	0.031	2.702	3.489×10^4
100. GeV	1.001×10^5	2.250	0.243	0.336	0.038	2.868	4.208×10^4
140. GeV	1.401×10^5	2.284	0.357	0.501	0.053	3.196	5.529×10^4
200. GeV	2.001×10^5	2.319	0.535	0.764	0.076	3.694	7.274×10^4
300. GeV	3.001×10^5	2.358	0.840	1.204	0.114	4.517	9.718×10^4
326. GeV	3.262×10^5	2.366	0.921	1.322	0.123	4.734	*Muon critical energy*
400. GeV	4.001×10^5	2.386	1.155	1.661	0.151	5.354	1.175×10^5
800. GeV	8.001×10^5	2.455	2.459	3.536	0.306	8.757	1.754×10^5
1.00 TeV	1.000×10^6	2.477	3.130	4.496	0.385	10.489	1.962×10^5
1.40 TeV	1.400×10^6	2.511	4.476	6.414	0.545	13.946	2.292×10^5
2.00 TeV	2.000×10^6	2.547	6.537	9.342	0.788	19.215	2.657×10^5
3.00 TeV	3.000×10^6	2.589	9.982	14.209	1.206	27.986	3.086×10^5
4.00 TeV	4.000×10^6	2.619	13.475	19.130	1.631	36.856	3.396×10^5
8.00 TeV	8.000×10^6	2.693	27.573	38.923	3.393	72.583	4.155×10^5
10.0 TeV	1.000×10^7	2.717	34.683	48.876	4.299	90.576	4.401×10^5
14.0 TeV	1.400×10^7	2.754	48.865	68.732	6.160	126.512	4.773×10^5
20.0 TeV	2.000×10^7	2.794	70.276	98.650	9.014	180.735	5.168×10^5
30.0 TeV	3.000×10^7	2.841	105.920	148.430	13.951	271.143	5.617×10^5
40.0 TeV	4.000×10^7	2.874	141.705	198.338	19.008	361.926	5.935×10^5
80.0 TeV	8.000×10^7	2.956	285.101	398.120	40.151	726.329	6.700×10^5
100. TeV	1.000×10^8	2.983	356.940	498.110	51.080	909.114	6.945×10^5