

**Table 028: Muons in Nickel**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	a	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
28 (Ni)	58.6934 (4)	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 <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	5.551				5.551	$1.016 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	4.369				4.369	$1.836 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	3.439				3.439	$3.401 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.687				2.687	$6.736 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.302				2.303	$1.078 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.737				1.737	$3.141 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.634				1.634	$4.331 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.533				1.533	$6.869 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.480				1.480	$1.087 \times 10^2$		
267. MeV	$3.577 \times 10^2$	1.468			0.000	1.468	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.469			0.000	1.470	$1.767 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.484	0.000		0.000	1.485	$2.444 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.567	0.000		0.000	1.568	$5.063 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.602	0.001		0.000	1.603	$6.324 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.658	0.001	0.000	0.001	1.660	$8.774 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.718	0.002	0.001	0.001	1.722	$1.232 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.787	0.003	0.002	0.001	1.794	$1.800 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.835	0.005	0.004	0.002	1.845	$2.349 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.943	0.011	0.011	0.003	1.970	$4.440 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.976	0.015	0.016	0.004	2.012	$5.444 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	2.023	0.023	0.026	0.006	2.078	$7.399 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	2.070	0.036	0.042	0.008	2.156	$1.023 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	2.120	0.059	0.073	0.012	2.264	$1.475 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	2.153	0.083	0.107	0.016	2.359	$1.908 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.227	0.188	0.255	0.031	2.702	$3.489 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.250	0.243	0.336	0.038	2.868	$4.208 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.284	0.357	0.501	0.053	3.196	$5.529 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.319	0.535	0.764	0.076	3.694	$7.274 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.358	0.840	1.204	0.114	4.517	$9.718 \times 10^4$		
326. GeV	$3.262 \times 10^5$	2.366	0.921	1.322	0.123	4.734	<i>Muon critical energy</i>		
400. GeV	$4.001 \times 10^5$	2.386	1.155	1.661	0.151	5.354	$1.175 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.455	2.459	3.536	0.306	8.757	$1.754 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.477	3.130	4.496	0.385	10.489	$1.962 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.511	4.476	6.414	0.545	13.946	$2.292 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.547	6.537	9.342	0.788	19.215	$2.657 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.589	9.982	14.209	1.206	27.986	$3.086 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.619	13.475	19.130	1.631	36.856	$3.396 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.693	27.573	38.923	3.393	72.583	$4.155 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.717	34.683	48.876	4.299	90.576	$4.401 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.754	48.865	68.732	6.160	126.512	$4.773 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.794	70.276	98.650	9.014	180.735	$5.168 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.841	105.920	148.430	13.951	271.143	$5.617 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.874	141.705	198.338	19.008	361.926	$5.935 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.956	285.101	398.120	40.151	726.329	$6.700 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.983	356.940	498.110	51.080	909.114	$6.945 \times 10^5$		