

**Table 173: Muons in Glutamine (C<sub>5</sub>H<sub>10</sub>N<sub>2</sub>O<sub>3</sub>)**

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.53371	1.460	73.3	0.11931	3.3254	0.1347	2.6301	3.1167	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	$4.704 \times 10^1$	7.681				7.681	$7.194 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	5.991				5.991	$1.315 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	4.678				4.678	$2.462 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.629				3.629	$4.923 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	3.098				3.098	$7.925 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	2.322				2.322	$2.330 \times 10^1$	
100. MeV	$1.764 \times 10^2$	2.174				2.174	$3.223 \times 10^1$	
140. MeV	$2.218 \times 10^2$	2.022				2.022	$5.140 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.934				1.935	$8.186 \times 10^1$	
300. MeV	$3.917 \times 10^2$	1.900			0.000	1.900	$1.342 \times 10^2$	
325. MeV	$4.171 \times 10^2$	1.899			0.000	1.899	<i>Minimum ionization</i>	
400. MeV	$4.945 \times 10^2$	1.905			0.000	1.905	$1.868 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.975	0.000		0.000	1.976	$3.931 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	2.007	0.000		0.000	2.008	$4.934 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	2.060	0.000		0.001	2.061	$6.899 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.118	0.001	0.000	0.001	2.120	$9.767 \times 10^2$	
3.00 GeV	$3.104 \times 10^3$	2.185	0.001	0.001	0.001	2.188	$1.440 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.231	0.001	0.001	0.002	2.236	$1.892 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.338	0.003	0.003	0.004	2.348	$3.633 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.370	0.004	0.004	0.005	2.384	$4.478 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.417	0.007	0.007	0.007	2.438	$6.136 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.464	0.010	0.012	0.009	2.496	$8.567 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.516	0.017	0.021	0.014	2.567	$1.251 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.551	0.024	0.030	0.018	2.623	$1.637 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.631	0.055	0.074	0.034	2.794	$3.112 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.656	0.071	0.097	0.042	2.867	$3.818 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.694	0.105	0.146	0.059	3.004	$5.180 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.733	0.158	0.224	0.084	3.199	$7.115 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.777	0.250	0.355	0.125	3.508	$1.010 \times 10^5$	
400. GeV	$4.001 \times 10^5$	2.809	0.345	0.493	0.167	3.814	$1.283 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.885	0.740	1.066	0.338	5.029	$2.194 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.910	0.945	1.362	0.424	5.641	$2.569 \times 10^5$	
1.06 TeV	$1.064 \times 10^6$	2.917	1.010	1.455	0.453	5.834	<i>Muon critical energy</i>	
1.40 TeV	$1.400 \times 10^6$	2.948	1.357	1.951	0.602	6.858	$3.211 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.988	1.990	2.854	0.872	8.705	$3.986 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	3.035	3.052	4.358	1.336	11.781	$4.970 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.069	4.132	5.883	1.808	14.892	$5.723 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.152	8.506	12.027	3.774	27.460	$7.672 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.179	10.719	15.122	4.787	33.807	$8.327 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.220	15.135	21.288	6.874	46.517	$9.332 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.265	21.815	30.588	10.081	65.749	$1.041 \times 10^6$	
30.0 TeV	$3.000 \times 10^7$	3.317	32.938	46.062	15.648	97.965	$1.165 \times 10^6$	
40.0 TeV	$4.000 \times 10^7$	3.354	44.122	61.587	21.362	130.425	$1.253 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.446	88.965	123.739	45.346	261.496	$1.466 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.476	111.447	154.852	57.780	327.555	$1.534 \times 10^6$	