

Table 104: Muons in Air (dry, 1 atm)

| $\langle Z/A \rangle$ | ρ [g/cm ³] | I [eV] | a | $k = m_s$ | x_0 | x_1 | \bar{C} | δ_0 |
|-----------------------|-----------------------------|------------|---------|---------------------------------------|-----------|---------|------------------------------------|------------|
| 0.49919 | 1.205×10^{-3} | 85.7 | 0.10914 | 3.3994 | 1.7418 | 4.2759 | 10.5961 | 0.00 |
| 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 | 7.039 | | | | 7.039 | 7.862×10^{-1} | |
| 14.0 MeV | 5.616×10^1 | 5.494 | | | | 5.495 | 1.436×10^0 | |
| 20.0 MeV | 6.802×10^1 | 4.294 | | | | 4.294 | 2.686×10^0 | |
| 30.0 MeV | 8.509×10^1 | 3.333 | | | | 3.333 | 5.366×10^0 | |
| 40.0 MeV | 1.003×10^2 | 2.847 | | | | 2.847 | 8.633×10^0 | |
| 80.0 MeV | 1.527×10^2 | 2.140 | | | | 2.140 | 2.535×10^1 | |
| 100. MeV | 1.764×10^2 | 2.013 | | | | 2.014 | 3.501×10^1 | |
| 140. MeV | 2.218×10^2 | 1.889 | | | | 1.889 | 5.562×10^1 | |
| 200. MeV | 2.868×10^2 | 1.827 | | | | 1.827 | 8.803×10^1 | |
| 257. MeV | 3.471×10^2 | 1.815 | | | 0.000 | 1.816 | <i>Minimum ionization</i> | |
| 300. MeV | 3.917×10^2 | 1.819 | | | 0.000 | 1.819 | 1.430×10^2 | |
| 400. MeV | 4.945×10^2 | 1.844 | | | 0.000 | 1.844 | 1.977×10^2 | |
| 800. MeV | 8.995×10^2 | 1.968 | 0.000 | | 0.000 | 1.968 | 4.074×10^2 | |
| 1.00 GeV | 1.101×10^3 | 2.020 | 0.000 | | 0.000 | 2.021 | 5.077×10^2 | |
| 1.40 GeV | 1.502×10^3 | 2.105 | 0.000 | | 0.001 | 2.106 | 7.014×10^2 | |
| 2.00 GeV | 2.103×10^3 | 2.201 | 0.001 | 0.000 | 0.001 | 2.203 | 9.796×10^2 | |
| 3.00 GeV | 3.104×10^3 | 2.314 | 0.001 | 0.001 | 0.001 | 2.318 | 1.421×10^3 | |
| 4.00 GeV | 4.104×10^3 | 2.396 | 0.001 | 0.001 | 0.002 | 2.401 | 1.845×10^3 | |
| 8.00 GeV | 8.105×10^3 | 2.577 | 0.004 | 0.003 | 0.004 | 2.588 | 3.440×10^3 | |
| 10.0 GeV | 1.011×10^4 | 2.627 | 0.005 | 0.005 | 0.005 | 2.642 | 4.204×10^3 | |
| 14.0 GeV | 1.411×10^4 | 2.698 | 0.007 | 0.008 | 0.007 | 2.720 | 5.695×10^3 | |
| 20.0 GeV | 2.011×10^4 | 2.767 | 0.011 | 0.013 | 0.009 | 2.800 | 7.867×10^3 | |
| 30.0 GeV | 3.011×10^4 | 2.838 | 0.019 | 0.023 | 0.013 | 2.893 | 1.138×10^4 | |
| 40.0 GeV | 4.011×10^4 | 2.885 | 0.026 | 0.033 | 0.017 | 2.962 | 1.479×10^4 | |
| 80.0 GeV | 8.011×10^4 | 2.984 | 0.060 | 0.080 | 0.034 | 3.159 | 2.784×10^4 | |
| 100. GeV | 1.001×10^5 | 3.014 | 0.078 | 0.106 | 0.042 | 3.239 | 3.409×10^4 | |
| 140. GeV | 1.401×10^5 | 3.055 | 0.114 | 0.159 | 0.058 | 3.388 | 4.616×10^4 | |
| 200. GeV | 2.001×10^5 | 3.097 | 0.172 | 0.244 | 0.083 | 3.596 | 6.335×10^4 | |
| 300. GeV | 3.001×10^5 | 3.143 | 0.272 | 0.387 | 0.124 | 3.926 | 8.995×10^4 | |
| 400. GeV | 4.001×10^5 | 3.174 | 0.375 | 0.536 | 0.165 | 4.250 | 1.144×10^5 | |
| 800. GeV | 8.001×10^5 | 3.247 | 0.803 | 1.158 | 0.334 | 5.543 | 1.966×10^5 | |
| 1.00 TeV | 1.000×10^6 | 3.271 | 1.025 | 1.479 | 0.420 | 6.195 | 2.307×10^5 | |
| 1.11 TeV | 1.115×10^6 | 3.282 | 1.152 | 1.661 | 0.470 | 6.565 | <i>Muon critical energy</i> | |
| 1.40 TeV | 1.400×10^6 | 3.306 | 1.471 | 2.117 | 0.595 | 7.490 | 2.893×10^5 | |
| 2.00 TeV | 2.000×10^6 | 3.344 | 2.155 | 3.095 | 0.862 | 9.457 | 3.605×10^5 | |
| 3.00 TeV | 3.000×10^6 | 3.388 | 3.302 | 4.723 | 1.321 | 12.735 | 4.513×10^5 | |
| 4.00 TeV | 4.000×10^6 | 3.420 | 4.469 | 6.374 | 1.787 | 16.050 | 5.211×10^5 | |
| 8.00 TeV | 8.000×10^6 | 3.497 | 9.189 | 13.021 | 3.730 | 29.437 | 7.024×10^5 | |
| 10.0 TeV | 1.000×10^7 | 3.522 | 11.574 | 16.369 | 4.730 | 36.197 | 7.636×10^5 | |
| 14.0 TeV | 1.400×10^7 | 3.561 | 16.335 | 23.040 | 6.790 | 49.727 | 8.575×10^5 | |
| 20.0 TeV | 2.000×10^7 | 3.603 | 23.534 | 33.100 | 9.955 | 70.192 | 9.586×10^5 | |
| 30.0 TeV | 3.000×10^7 | 3.652 | 35.519 | 49.841 | 15.447 | 104.458 | 1.075×10^6 | |
| 40.0 TeV | 4.000×10^7 | 3.686 | 47.564 | 66.634 | 21.083 | 138.968 | 1.157×10^6 | |
| 80.0 TeV | 8.000×10^7 | 3.773 | 95.872 | 133.867 | 44.722 | 278.233 | 1.357×10^6 | |
| 100. TeV | 1.000×10^8 | 3.801 | 120.091 | 167.522 | 56.971 | 348.385 | 1.421×10^6 | |