

Muons in standard rock

| | $\langle Z/A \rangle$ | ρ [g/cm ³] | I [eV] | a | $k = m_s$ | x_0 | x_1 | \bar{C} | δ_0 |
|----------|-----------------------|-----------------------------|----------|--------------------------|-----------|---------|------------------------------------|-----------------------------|------------|
| | 0.50000 | 2.650 | 136.4 | 0.08301 | 3.4120 | 0.0492 | 3.0549 | 3.7738 | 0.00 |
| T | p [MeV/c] | Ionization | Brems | Pair prod | Photonucl | Total | CSDA range [g/cm ²] | | |
| | | | | [MeV cm ² /g] | | | | | |
| 10.0 MeV | 4.704×10^1 | 6.619 | | | | 6.619 | | 8.400×10^{-1} | |
| 14.0 MeV | 5.616×10^1 | 5.180 | | | | 5.180 | | 1.530×10^0 | |
| 20.0 MeV | 6.802×10^1 | 4.057 | | | | 4.057 | | 2.854×10^0 | |
| 30.0 MeV | 8.509×10^1 | 3.157 | | | | 3.157 | | 5.687×10^0 | |
| 40.0 MeV | 1.003×10^2 | 2.701 | | | | 2.702 | | 9.133×10^0 | |
| 80.0 MeV | 1.527×10^2 | 2.028 | | | | 2.029 | | 2.675×10^1 | |
| 100. MeV | 1.764×10^2 | 1.904 | | | | 1.904 | | 3.695×10^1 | |
| 140. MeV | 2.218×10^2 | 1.779 | | | | 1.779 | | 5.878×10^1 | |
| 200. MeV | 2.868×10^2 | 1.710 | | | | 1.710 | | 9.331×10^1 | |
| 297. MeV | 3.884×10^2 | 1.688 | | | 0.000 | 1.688 | | <i>Minimum ionization</i> | |
| 300. MeV | 3.917×10^2 | 1.688 | | | 0.000 | 1.688 | | 1.523×10^2 | |
| 400. MeV | 4.945×10^2 | 1.698 | | | 0.000 | 1.698 | | 2.114×10^2 | |
| 800. MeV | 8.995×10^2 | 1.774 | 0.000 | | 0.000 | 1.775 | | 4.418×10^2 | |
| 1.00 GeV | 1.101×10^3 | 1.808 | 0.000 | | 0.000 | 1.808 | | 5.534×10^2 | |
| 1.40 GeV | 1.502×10^3 | 1.861 | 0.001 | 0.000 | 0.001 | 1.862 | | 7.712×10^2 | |
| 2.00 GeV | 2.103×10^3 | 1.920 | 0.001 | 0.000 | 0.001 | 1.922 | | 1.088×10^3 | |
| 3.00 GeV | 3.104×10^3 | 1.986 | 0.001 | 0.001 | 0.001 | 1.990 | | 1.599×10^3 | |
| 4.00 GeV | 4.104×10^3 | 2.033 | 0.002 | 0.002 | 0.002 | 2.038 | | 2.095×10^3 | |
| 8.00 GeV | 8.105×10^3 | 2.138 | 0.005 | 0.005 | 0.004 | 2.152 | | 3.998×10^3 | |
| 10.0 GeV | 1.011×10^4 | 2.170 | 0.007 | 0.007 | 0.005 | 2.188 | | 4.920×10^3 | |
| 14.0 GeV | 1.411×10^4 | 2.215 | 0.010 | 0.011 | 0.006 | 2.244 | | 6.724×10^3 | |
| 20.0 GeV | 2.011×10^4 | 2.262 | 0.016 | 0.019 | 0.009 | 2.306 | | 9.360×10^3 | |
| 30.0 GeV | 3.011×10^4 | 2.311 | 0.027 | 0.033 | 0.013 | 2.383 | | 1.362×10^4 | |
| 40.0 GeV | 4.011×10^4 | 2.344 | 0.038 | 0.048 | 0.017 | 2.447 | | 1.776×10^4 | |
| 80.0 GeV | 8.011×10^4 | 2.420 | 0.085 | 0.115 | 0.033 | 2.654 | | 3.343×10^4 | |
| 100. GeV | 1.001×10^5 | 2.444 | 0.110 | 0.152 | 0.041 | 2.747 | | 4.084×10^4 | |
| 140. GeV | 1.401×10^5 | 2.479 | 0.162 | 0.227 | 0.057 | 2.925 | | 5.495×10^4 | |
| 200. GeV | 2.001×10^5 | 2.515 | 0.244 | 0.347 | 0.081 | 3.187 | | 7.459×10^4 | |
| 300. GeV | 3.001×10^5 | 2.557 | 0.384 | 0.549 | 0.121 | 3.611 | | 1.040×10^5 | |
| 400. GeV | 4.001×10^5 | 2.586 | 0.529 | 0.759 | 0.162 | 4.037 | | 1.302×10^5 | |
| 693. GeV | 6.928×10^5 | 2.643 | 0.967 | 1.394 | 0.282 | 5.286 | | <i>Muon critical energy</i> | |
| 800. GeV | 8.001×10^5 | 2.658 | 1.131 | 1.632 | 0.327 | 5.748 | | 2.129×10^5 | |
| 1.00 TeV | 1.000×10^6 | 2.681 | 1.441 | 2.082 | 0.410 | 6.615 | | 2.453×10^5 | |
| 1.40 TeV | 1.400×10^6 | 2.717 | 2.065 | 2.976 | 0.582 | 8.340 | | 2.990×10^5 | |
| 2.00 TeV | 2.000×10^6 | 2.755 | 3.023 | 4.344 | 0.842 | 10.964 | | 3.616×10^5 | |
| 3.00 TeV | 3.000×10^6 | 2.798 | 4.625 | 6.621 | 1.290 | 15.335 | | 4.384×10^5 | |
| 4.00 TeV | 4.000×10^6 | 2.830 | 6.253 | 8.926 | 1.745 | 19.755 | | 4.957×10^5 | |
| 8.00 TeV | 8.000×10^6 | 2.908 | 12.836 | 18.207 | 3.639 | 37.590 | | 6.400×10^5 | |
| 10.0 TeV | 1.000×10^7 | 2.933 | 16.161 | 22.878 | 4.613 | 46.586 | | 6.877×10^5 | |
| 14.0 TeV | 1.400×10^7 | 2.972 | 22.799 | 32.188 | 6.619 | 64.579 | | 7.603×10^5 | |
| 20.0 TeV | 2.000×10^7 | 3.014 | 32.834 | 46.224 | 9.698 | 91.770 | | 8.379×10^5 | |
| 30.0 TeV | 3.000×10^7 | 3.062 | 49.519 | 69.586 | 15.037 | 137.204 | | 9.264×10^5 | |
| 40.0 TeV | 4.000×10^7 | 3.097 | 66.279 | 93.017 | 20.513 | 182.906 | | 9.894×10^5 | |
| 80.0 TeV | 8.000×10^7 | 3.184 | 133.489 | 186.823 | 43.458 | 366.954 | | 1.141×10^6 | |
| 100. TeV | 1.000×10^8 | 3.212 | 167.180 | 233.780 | 55.340 | 459.512 | | 1.189×10^6 | |