

Muons in cortical bone (ICRP)

| | $\langle Z/A \rangle$ | ρ [g/cm ³] | I [eV] | a | $k = m_s$ | x_0 | x_1 | \bar{C} | δ_0 |
|----------|-----------------------|-----------------------------|----------|--------------------------|-----------|---------|------------------------------------|-----------|-----------------------------|
| | 0.52130 | 1.850 | 106.4 | 0.06198 | 3.5919 | 0.1161 | 3.0919 | 3.6488 | 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 | 7.142 | | | | 7.142 | | | 7.765×10^{-1} |
| 14.0 MeV | 5.616×10^1 | 5.581 | | | | 5.581 | | | 1.417×10^0 |
| 20.0 MeV | 6.802×10^1 | 4.366 | | | | 4.366 | | | 2.646×10^0 |
| 30.0 MeV | 8.509×10^1 | 3.393 | | | | 3.393 | | | 5.281×10^0 |
| 40.0 MeV | 1.003×10^2 | 2.900 | | | | 2.901 | | | 8.489×10^0 |
| 80.0 MeV | 1.527×10^2 | 2.179 | | | | 2.179 | | | 2.489×10^1 |
| 100. MeV | 1.764×10^2 | 2.044 | | | | 2.044 | | | 3.440×10^1 |
| 140. MeV | 2.218×10^2 | 1.907 | | | | 1.907 | | | 5.475×10^1 |
| 200. MeV | 2.868×10^2 | 1.830 | | | | 1.830 | | | 8.700×10^1 |
| 300. MeV | 3.917×10^2 | 1.803 | | | 0.000 | 1.803 | | | 1.422×10^2 |
| 303. MeV | 3.950×10^2 | 1.803 | | | 0.000 | 1.803 | | | <i>Minimum ionization</i> |
| 400. MeV | 4.945×10^2 | 1.812 | | | 0.000 | 1.812 | | | 1.976×10^2 |
| 800. MeV | 8.995×10^2 | 1.888 | 0.000 | | 0.000 | 1.889 | | | 4.138×10^2 |
| 1.00 GeV | 1.101×10^3 | 1.922 | 0.000 | | 0.000 | 1.923 | | | 5.187×10^2 |
| 1.40 GeV | 1.502×10^3 | 1.976 | 0.000 | 0.000 | 0.001 | 1.978 | | | 7.237×10^2 |
| 2.00 GeV | 2.103×10^3 | 2.036 | 0.001 | 0.000 | 0.001 | 2.039 | | | 1.022×10^3 |
| 3.00 GeV | 3.104×10^3 | 2.105 | 0.001 | 0.001 | 0.001 | 2.108 | | | 1.504×10^3 |
| 4.00 GeV | 4.104×10^3 | 2.152 | 0.002 | 0.002 | 0.002 | 2.158 | | | 1.973×10^3 |
| 8.00 GeV | 8.105×10^3 | 2.260 | 0.005 | 0.005 | 0.004 | 2.274 | | | 3.773×10^3 |
| 10.0 GeV | 1.011×10^4 | 2.293 | 0.007 | 0.007 | 0.005 | 2.311 | | | 4.645×10^3 |
| 14.0 GeV | 1.411×10^4 | 2.340 | 0.010 | 0.011 | 0.006 | 2.368 | | | 6.354×10^3 |
| 20.0 GeV | 2.011×10^4 | 2.388 | 0.016 | 0.018 | 0.009 | 2.431 | | | 8.853×10^3 |
| 30.0 GeV | 3.011×10^4 | 2.439 | 0.026 | 0.031 | 0.013 | 2.510 | | | 1.290×10^4 |
| 40.0 GeV | 4.011×10^4 | 2.474 | 0.036 | 0.046 | 0.017 | 2.574 | | | 1.683×10^4 |
| 80.0 GeV | 8.011×10^4 | 2.553 | 0.082 | 0.111 | 0.033 | 2.780 | | | 3.176×10^4 |
| 100. GeV | 1.001×10^5 | 2.578 | 0.106 | 0.146 | 0.041 | 2.872 | | | 3.884×10^4 |
| 140. GeV | 1.401×10^5 | 2.614 | 0.157 | 0.219 | 0.058 | 3.048 | | | 5.235×10^4 |
| 200. GeV | 2.001×10^5 | 2.652 | 0.236 | 0.335 | 0.082 | 3.305 | | | 7.125×10^4 |
| 300. GeV | 3.001×10^5 | 2.696 | 0.371 | 0.530 | 0.123 | 3.720 | | | 9.975×10^4 |
| 400. GeV | 4.001×10^5 | 2.726 | 0.511 | 0.734 | 0.163 | 4.135 | | | 1.252×10^5 |
| 749. GeV | 7.492×10^5 | 2.794 | 1.018 | 1.467 | 0.309 | 5.588 | | | <i>Muon critical energy</i> |
| 800. GeV | 8.001×10^5 | 2.801 | 1.094 | 1.576 | 0.330 | 5.801 | | | 2.065×10^5 |
| 1.00 TeV | 1.000×10^6 | 2.825 | 1.394 | 2.009 | 0.415 | 6.644 | | | 2.387×10^5 |
| 1.40 TeV | 1.400×10^6 | 2.862 | 1.999 | 2.873 | 0.588 | 8.322 | | | 2.924×10^5 |
| 2.00 TeV | 2.000×10^6 | 2.902 | 2.926 | 4.195 | 0.851 | 10.875 | | | 3.553×10^5 |
| 3.00 TeV | 3.000×10^6 | 2.947 | 4.479 | 6.394 | 1.304 | 15.125 | | | 4.330×10^5 |
| 4.00 TeV | 4.000×10^6 | 2.980 | 6.056 | 8.622 | 1.765 | 19.423 | | | 4.912×10^5 |
| 8.00 TeV | 8.000×10^6 | 3.061 | 12.435 | 17.589 | 3.680 | 36.766 | | | 6.384×10^5 |
| 10.0 TeV | 1.000×10^7 | 3.088 | 15.657 | 22.103 | 4.667 | 45.515 | | | 6.872×10^5 |
| 14.0 TeV | 1.400×10^7 | 3.128 | 22.089 | 31.100 | 6.698 | 63.016 | | | 7.616×10^5 |
| 20.0 TeV | 2.000×10^7 | 3.172 | 31.812 | 44.665 | 9.817 | 89.467 | | | 8.411×10^5 |
| 30.0 TeV | 3.000×10^7 | 3.223 | 47.990 | 67.238 | 15.228 | 133.678 | | | 9.319×10^5 |
| 40.0 TeV | 4.000×10^7 | 3.259 | 64.243 | 89.878 | 20.778 | 178.159 | | | 9.965×10^5 |
| 80.0 TeV | 8.000×10^7 | 3.349 | 129.413 | 180.511 | 44.052 | 357.325 | | | 1.152×10^6 |
| 100. TeV | 1.000×10^8 | 3.378 | 162.080 | 225.877 | 56.108 | 447.445 | | | 1.202×10^6 |