## Table 107: Muons in Amber ($C_{10}H_{16}O$)

| $\langle Z/A \rangle$ | $\rho$ [g/cm$^3$] | $I$ [eV] | $a$ | $k = m_s$ | $x_0$ | $x_1$ | $\overline{C}$ | $\delta_0$ |
|---|---|---|---|---|---|---|---|---|
| 0.55179 | 1.100 | 63.2 | 0.11934 | 3.4098 | 0.1335 | 2.5610 | 3.0701 | 0.00 |

| $T$ | $p$ [MeV/$c$] | Ionization | Brems | Pair prod | Photonucl | Total | CSDA range [g/cm$^2$] |
|---|---|---|---|---|---|---|---|
| | | [MeV cm$^2$/g] | | | | | |
| 10.0 MeV | $4.704 \times 10^1$ | 8.093 | | | | 8.093 | $6.818 \times 10^{-1}$ |
| 14.0 MeV | $5.616 \times 10^1$ | 6.308 | | | | 6.308 | $1.248 \times 10^0$ |
| 20.0 MeV | $6.802 \times 10^1$ | 4.922 | | | | 4.922 | $2.337 \times 10^0$ |
| 30.0 MeV | $8.509 \times 10^1$ | 3.816 | | | | 3.816 | $4.677 \times 10^0$ |
| 40.0 MeV | $1.003 \times 10^2$ | 3.256 | | | | 3.256 | $7.532 \times 10^0$ |
| 80.0 MeV | $1.527 \times 10^2$ | 2.438 | | | | 2.438 | $2.217 \times 10^1$ |
| 100. MeV | $1.764 \times 10^2$ | 2.282 | | | | 2.282 | $3.068 \times 10^1$ |
| 140. MeV | $2.218 \times 10^2$ | 2.123 | | | | 2.123 | $4.893 \times 10^1$ |
| 200. MeV | $2.868 \times 10^2$ | 2.030 | | | | 2.031 | $7.794 \times 10^1$ |
| 300. MeV | $3.917 \times 10^2$ | 1.993 | | | 0.000 | 1.994 | $1.278 \times 10^2$ |
| 324. MeV | $4.161 \times 10^2$ | 1.993 | | | 0.000 | 1.993 | *Minimum ionization* |
| 400. MeV | $4.945 \times 10^2$ | 1.998 | | | 0.000 | 1.998 | $1.779 \times 10^2$ |
| 800. MeV | $8.995 \times 10^2$ | 2.069 | 0.000 | | 0.000 | 2.069 | $3.748 \times 10^2$ |
| 1.00 GeV | $1.101 \times 10^3$ | 2.102 | 0.000 | | 0.000 | 2.103 | $4.706 \times 10^2$ |
| 1.40 GeV | $1.502 \times 10^3$ | 2.156 | 0.000 | | 0.001 | 2.157 | $6.583 \times 10^2$ |
| 2.00 GeV | $2.103 \times 10^3$ | 2.215 | 0.000 | 0.000 | 0.001 | 2.217 | $9.325 \times 10^2$ |
| 3.00 GeV | $3.104 \times 10^3$ | 2.283 | 0.001 | 0.001 | 0.001 | 2.286 | $1.376 \times 10^3$ |
| 4.00 GeV | $4.104 \times 10^3$ | 2.331 | 0.001 | 0.001 | 0.002 | 2.335 | $1.809 \times 10^3$ |
| 8.00 GeV | $8.105 \times 10^3$ | 2.439 | 0.003 | 0.003 | 0.004 | 2.449 | $3.477 \times 10^3$ |
| 10.0 GeV | $1.011 \times 10^4$ | 2.472 | 0.004 | 0.004 | 0.005 | 2.485 | $4.287 \times 10^3$ |
| 14.0 GeV | $1.411 \times 10^4$ | 2.521 | 0.006 | 0.006 | 0.007 | 2.540 | $5.878 \times 10^3$ |
| 20.0 GeV | $2.011 \times 10^4$ | 2.569 | 0.009 | 0.011 | 0.009 | 2.599 | $8.212 \times 10^3$ |
| 30.0 GeV | $3.011 \times 10^4$ | 2.622 | 0.015 | 0.019 | 0.014 | 2.670 | $1.201 \times 10^4$ |
| 40.0 GeV | $4.011 \times 10^4$ | 2.658 | 0.022 | 0.027 | 0.018 | 2.725 | $1.571 \times 10^4$ |
| 80.0 GeV | $8.011 \times 10^4$ | 2.742 | 0.049 | 0.066 | 0.035 | 2.892 | $2.993 \times 10^4$ |
| 100. GeV | $1.001 \times 10^5$ | 2.768 | 0.064 | 0.088 | 0.043 | 2.963 | $3.676 \times 10^4$ |
| 140. GeV | $1.401 \times 10^5$ | 2.806 | 0.095 | 0.132 | 0.060 | 3.093 | $4.997 \times 10^4$ |
| 200. GeV | $2.001 \times 10^5$ | 2.847 | 0.143 | 0.202 | 0.084 | 3.277 | $6.881 \times 10^4$ |
| 300. GeV | $3.001 \times 10^5$ | 2.892 | 0.226 | 0.322 | 0.127 | 3.567 | $9.805 \times 10^4$ |
| 400. GeV | $4.001 \times 10^5$ | 2.925 | 0.313 | 0.447 | 0.169 | 3.853 | $1.250 \times 10^5$ |
| 800. GeV | $8.001 \times 10^5$ | 3.004 | 0.673 | 0.967 | 0.341 | 4.985 | $2.160 \times 10^5$ |
| 1.00 TeV | $1.000 \times 10^6$ | 3.030 | 0.859 | 1.237 | 0.428 | 5.554 | $2.540 \times 10^5$ |
| 1.19 TeV | $1.194 \times 10^6$ | 3.050 | 1.040 | 1.496 | 0.515 | 6.101 | *Muon critical energy* |
| 1.40 TeV | $1.400 \times 10^6$ | 3.069 | 1.234 | 1.773 | 0.607 | 6.684 | $3.196 \times 10^5$ |
| 2.00 TeV | $2.000 \times 10^6$ | 3.111 | 1.811 | 2.596 | 0.879 | 8.398 | $3.995 \times 10^5$ |
| 3.00 TeV | $3.000 \times 10^6$ | 3.159 | 2.780 | 3.966 | 1.348 | 11.253 | $5.020 \times 10^5$ |
| 4.00 TeV | $4.000 \times 10^6$ | 3.194 | 3.766 | 5.357 | 1.824 | 14.141 | $5.812 \times 10^5$ |
| 8.00 TeV | $8.000 \times 10^6$ | 3.279 | 7.761 | 10.958 | 3.809 | 25.809 | $7.875 \times 10^5$ |
| 10.0 TeV | $1.000 \times 10^7$ | 3.308 | 9.783 | 13.780 | 4.832 | 31.704 | $8.573 \times 10^5$ |
| 14.0 TeV | $1.400 \times 10^7$ | 3.351 | 13.819 | 19.403 | 6.940 | 43.513 | $9.646 \times 10^5$ |
| 20.0 TeV | $2.000 \times 10^7$ | 3.397 | 19.927 | 27.884 | 10.181 | 61.389 | $1.080 \times 10^6$ |
| 30.0 TeV | $3.000 \times 10^7$ | 3.450 | 30.098 | 41.995 | 15.807 | 91.351 | $1.213 \times 10^6$ |
| 40.0 TeV | $4.000 \times 10^7$ | 3.489 | 40.328 | 56.153 | 21.584 | 121.554 | $1.307 \times 10^6$ |
| 80.0 TeV | $8.000 \times 10^7$ | 3.584 | 81.338 | 112.834 | 45.842 | 243.598 | $1.535 \times 10^6$ |
| 100. TeV | $1.000 \times 10^8$ | 3.615 | 101.896 | 141.209 | 58.422 | 305.142 | $1.609 \times 10^6$ |