## Table 135: Muons in Carbon tetrachloride $CCl_4$

| $\langle Z/A \rangle$ | $\rho$ [g/cm$^3$] | $I$ [eV] | $a$ | $k = m_s$ | $x_0$ | $x_1$ | $\overline{C}$ | $\delta_0$ |
|---|---|---|---|---|---|---|---|---|
| 0.49107 | 1.594 | 166.3 | 0.19018 | 3.0116 | 0.1773 | 2.9165 | 4.7712 | 0.00 |

| $T$ | $p$ [MeV/$c$] | Ionization | Brems | Pair prod | Photonucl | Total | CSDA range [g/cm$^2$] |
|---|---|---|---|---|---|---|---|
| | | [MeV cm$^2$/g] | | | | | |
| 10.0 MeV | $4.704 \times 10^1$ | 6.320 | | | | 6.320 | $8.817 \times 10^{-1}$ |
| 14.0 MeV | $5.616 \times 10^1$ | 4.951 | | | | 4.951 | $1.604 \times 10^0$ |
| 20.0 MeV | $6.802 \times 10^1$ | 3.883 | | | | 3.883 | $2.988 \times 10^0$ |
| 30.0 MeV | $8.509 \times 10^1$ | 3.025 | | | | 3.025 | $5.946 \times 10^0$ |
| 40.0 MeV | $1.003 \times 10^2$ | 2.590 | | | | 2.590 | $9.542 \times 10^0$ |
| 80.0 MeV | $1.527 \times 10^2$ | 1.957 | | | | 1.957 | $2.786 \times 10^1$ |
| 100. MeV | $1.764 \times 10^2$ | 1.843 | | | | 1.843 | $3.842 \times 10^1$ |
| 140. MeV | $2.218 \times 10^2$ | 1.729 | | | | 1.730 | $6.092 \times 10^1$ |
| 200. MeV | $2.868 \times 10^2$ | 1.669 | | | | 1.669 | $9.636 \times 10^1$ |
| 277. MeV | $3.673 \times 10^2$ | 1.654 | | | 0.000 | 1.655 | *Minimum ionization* |
| 300. MeV | $3.917 \times 10^2$ | 1.655 | | | 0.000 | 1.656 | $1.567 \times 10^2$ |
| 400. MeV | $4.945 \times 10^2$ | 1.671 | 0.000 | | 0.000 | 1.671 | $2.168 \times 10^2$ |
| 800. MeV | $8.995 \times 10^2$ | 1.757 | 0.000 | | 0.000 | 1.757 | $4.501 \times 10^2$ |
| 1.00 GeV | $1.101 \times 10^3$ | 1.793 | 0.000 | | 0.000 | 1.794 | $5.627 \times 10^2$ |
| 1.40 GeV | $1.502 \times 10^3$ | 1.850 | 0.001 | 0.000 | 0.001 | 1.852 | $7.820 \times 10^2$ |
| 2.00 GeV | $2.103 \times 10^3$ | 1.913 | 0.001 | 0.001 | 0.001 | 1.915 | $1.100 \times 10^3$ |
| 3.00 GeV | $3.104 \times 10^3$ | 1.983 | 0.002 | 0.001 | 0.001 | 1.988 | $1.612 \times 10^3$ |
| 4.00 GeV | $4.104 \times 10^3$ | 2.031 | 0.003 | 0.002 | 0.002 | 2.038 | $2.109 \times 10^3$ |
| 8.00 GeV | $8.105 \times 10^3$ | 2.140 | 0.007 | 0.007 | 0.004 | 2.158 | $4.010 \times 10^3$ |
| 10.0 GeV | $1.011 \times 10^4$ | 2.172 | 0.009 | 0.010 | 0.004 | 2.196 | $4.928 \times 10^3$ |
| 14.0 GeV | $1.411 \times 10^4$ | 2.219 | 0.014 | 0.016 | 0.006 | 2.255 | $6.724 \times 10^3$ |
| 20.0 GeV | $2.011 \times 10^4$ | 2.265 | 0.022 | 0.025 | 0.009 | 2.322 | $9.345 \times 10^3$ |
| 30.0 GeV | $3.011 \times 10^4$ | 2.315 | 0.036 | 0.044 | 0.013 | 2.408 | $1.357 \times 10^4$ |
| 40.0 GeV | $4.011 \times 10^4$ | 2.348 | 0.051 | 0.065 | 0.017 | 2.480 | $1.766 \times 10^4$ |
| 80.0 GeV | $8.011 \times 10^4$ | 2.422 | 0.115 | 0.156 | 0.032 | 2.725 | $3.302 \times 10^4$ |
| 100. GeV | $1.001 \times 10^5$ | 2.445 | 0.148 | 0.205 | 0.040 | 2.839 | $4.021 \times 10^4$ |
| 140. GeV | $1.401 \times 10^5$ | 2.480 | 0.218 | 0.307 | 0.056 | 3.061 | $5.378 \times 10^4$ |
| 200. GeV | $2.001 \times 10^5$ | 2.516 | 0.327 | 0.468 | 0.079 | 3.391 | $7.240 \times 10^4$ |
| 300. GeV | $3.001 \times 10^5$ | 2.557 | 0.515 | 0.740 | 0.118 | 3.930 | $9.977 \times 10^4$ |
| 400. GeV | $4.001 \times 10^5$ | 2.585 | 0.709 | 1.022 | 0.158 | 4.474 | $1.236 \times 10^5$ |
| 538. GeV | $5.381 \times 10^5$ | 2.615 | 0.983 | 1.420 | 0.212 | 5.231 | *Muon critical energy* |
| 800. GeV | $8.001 \times 10^5$ | 2.656 | 1.513 | 2.183 | 0.319 | 6.671 | $1.964 \times 10^5$ |
| 1.00 TeV | $1.000 \times 10^6$ | 2.679 | 1.927 | 2.780 | 0.400 | 7.786 | $2.241 \times 10^5$ |
| 1.40 TeV | $1.400 \times 10^6$ | 2.713 | 2.759 | 3.970 | 0.568 | 10.010 | $2.693 \times 10^5$ |
| 2.00 TeV | $2.000 \times 10^6$ | 2.751 | 4.034 | 5.790 | 0.821 | 13.397 | $3.209 \times 10^5$ |
| 3.00 TeV | $3.000 \times 10^6$ | 2.794 | 6.166 | 8.816 | 1.257 | 19.034 | $3.833 \times 10^5$ |
| 4.00 TeV | $4.000 \times 10^6$ | 2.825 | 8.331 | 11.879 | 1.701 | 24.736 | $4.292 \times 10^5$ |
| 8.00 TeV | $8.000 \times 10^6$ | 2.901 | 17.076 | 24.201 | 3.543 | 47.722 | $5.436 \times 10^5$ |
| 10.0 TeV | $1.000 \times 10^7$ | 2.926 | 21.491 | 30.400 | 4.491 | 59.308 | $5.811 \times 10^5$ |
| 14.0 TeV | $1.400 \times 10^7$ | 2.964 | 30.303 | 42.759 | 6.440 | 82.467 | $6.381 \times 10^5$ |
| 20.0 TeV | $2.000 \times 10^7$ | 3.005 | 43.618 | 61.386 | 9.431 | 117.440 | $6.987 \times 10^5$ |
| 30.0 TeV | $3.000 \times 10^7$ | 3.053 | 65.758 | 92.394 | 14.612 | 175.818 | $7.679 \times 10^5$ |
| 40.0 TeV | $4.000 \times 10^7$ | 3.087 | 87.991 | 123.491 | 19.923 | 234.492 | $8.170 \times 10^5$ |
| 80.0 TeV | $8.000 \times 10^7$ | 3.172 | 177.123 | 247.966 | 42.154 | 470.416 | $9.350 \times 10^5$ |
| 100. TeV | $1.000 \times 10^8$ | 3.200 | 221.794 | 310.268 | 53.656 | 588.918 | $9.730 \times 10^5$ |