## Muons in rubidium (Rb)

| Z | $A$ [g/mol] | $\rho$ [g/cm$^3$] | $I$ [eV] | $a$ | $k = m_s$ | $x_0$ | $x_1$ | $\overline{C}$ | $\delta_0$ |
|---|---|---|---|---|---|---|---|---|---|
| 37 (Rb) | 85.4678(3) | 1.532 | 363.0 | 0.07261 | 3.4177 | 0.5737 | 3.7995 | 6.4776 | 0.14 |

| $T$ | $p$ [MeV/$c$] | Ionization | Brems | Pair prod | Photonucl | Total | CSDA range [g/cm$^2$] |
|---|---|---|---|---|---|---|---|
| | | [MeV cm$^2$/g] | | | | | |
| 10.0 MeV | $4.704 \times 10^1$ | 4.920 | | | | 4.920 | $1.150 \times 10^0$ |
| 14.0 MeV | $5.616 \times 10^1$ | 3.880 | | | | 3.880 | $2.075 \times 10^0$ |
| 20.0 MeV | $6.802 \times 10^1$ | 3.061 | | | | 3.061 | $3.835 \times 10^0$ |
| 30.0 MeV | $8.509 \times 10^1$ | 2.398 | | | | 2.398 | $7.575 \times 10^0$ |
| 40.0 MeV | $1.003 \times 10^2$ | 2.061 | | | | 2.061 | $1.210 \times 10^1$ |
| 80.0 MeV | $1.527 \times 10^2$ | 1.569 | | | | 1.569 | $3.502 \times 10^1$ |
| 100. MeV | $1.764 \times 10^2$ | 1.482 | | | | 1.483 | $4.817 \times 10^1$ |
| 140. MeV | $2.218 \times 10^2$ | 1.399 | | | | 1.399 | $7.606 \times 10^1$ |
| 200. MeV | $2.868 \times 10^2$ | 1.361 | | | | 1.361 | $1.197 \times 10^2$ |
| 239. MeV | $3.285 \times 10^2$ | 1.356 | | | | 1.356 | *Minimum ionization* |
| 300. MeV | $3.917 \times 10^2$ | 1.362 | 0.000 | | 0.000 | 1.362 | $1.933 \times 10^2$ |
| 400. MeV | $4.945 \times 10^2$ | 1.385 | 0.000 | | 0.000 | 1.385 | $2.661 \times 10^2$ |
| 800. MeV | $8.995 \times 10^2$ | 1.480 | 0.001 | | 0.000 | 1.481 | $5.449 \times 10^2$ |
| 1.00 GeV | $1.101 \times 10^3$ | 1.517 | 0.001 | | 0.000 | 1.519 | $6.782 \times 10^2$ |
| 1.40 GeV | $1.502 \times 10^3$ | 1.576 | 0.001 | 0.000 | 0.001 | 1.578 | $9.363 \times 10^2$ |
| 2.00 GeV | $2.103 \times 10^3$ | 1.639 | 0.002 | 0.001 | 0.001 | 1.643 | $1.308 \times 10^3$ |
| 3.00 GeV | $3.104 \times 10^3$ | 1.709 | 0.004 | 0.003 | 0.001 | 1.717 | $1.903 \times 10^3$ |
| 4.00 GeV | $4.104 \times 10^3$ | 1.757 | 0.005 | 0.004 | 0.002 | 1.769 | $2.476 \times 10^3$ |
| 8.00 GeV | $8.105 \times 10^3$ | 1.865 | 0.013 | 0.013 | 0.003 | 1.896 | $4.652 \times 10^3$ |
| 10.0 GeV | $1.011 \times 10^4$ | 1.898 | 0.018 | 0.019 | 0.004 | 1.938 | $5.695 \times 10^3$ |
| 14.0 GeV | $1.411 \times 10^4$ | 1.944 | 0.027 | 0.030 | 0.006 | 2.007 | $7.721 \times 10^3$ |
| 20.0 GeV | $2.011 \times 10^4$ | 1.990 | 0.042 | 0.049 | 0.008 | 2.089 | $1.065 \times 10^4$ |
| 30.0 GeV | $3.011 \times 10^4$ | 2.038 | 0.069 | 0.085 | 0.012 | 2.204 | $1.531 \times 10^4$ |
| 40.0 GeV | $4.011 \times 10^4$ | 2.070 | 0.097 | 0.124 | 0.015 | 2.307 | $1.974 \times 10^4$ |
| 80.0 GeV | $8.011 \times 10^4$ | 2.141 | 0.219 | 0.298 | 0.030 | 2.688 | $3.577 \times 10^4$ |
| 100. GeV | $1.001 \times 10^5$ | 2.163 | 0.283 | 0.391 | 0.037 | 2.875 | $4.296 \times 10^4$ |
| 140. GeV | $1.401 \times 10^5$ | 2.194 | 0.416 | 0.584 | 0.052 | 3.247 | $5.605 \times 10^4$ |
| 200. GeV | $2.001 \times 10^5$ | 2.227 | 0.623 | 0.889 | 0.074 | 3.814 | $7.308 \times 10^4$ |
| 275. GeV | $2.746 \times 10^5$ | 2.255 | 0.886 | 1.268 | 0.101 | 4.512 | *Muon critical energy* |
| 300. GeV | $3.001 \times 10^5$ | 2.263 | 0.978 | 1.400 | 0.110 | 4.753 | $9.653 \times 10^4$ |
| 400. GeV | $4.001 \times 10^5$ | 2.289 | 1.345 | 1.930 | 0.147 | 5.712 | $1.157 \times 10^5$ |
| 800. GeV | $8.001 \times 10^5$ | 2.351 | 2.862 | 4.104 | 0.297 | 9.615 | $1.691 \times 10^5$ |
| 1.00 TeV | $1.000 \times 10^6$ | 2.371 | 3.642 | 5.216 | 0.374 | 11.604 | $1.880 \times 10^5$ |
| 1.40 TeV | $1.400 \times 10^6$ | 2.402 | 5.206 | 7.437 | 0.529 | 15.574 | $2.177 \times 10^5$ |
| 2.00 TeV | $2.000 \times 10^6$ | 2.435 | 7.599 | 10.826 | 0.766 | 21.627 | $2.502 \times 10^5$ |
| 3.00 TeV | $3.000 \times 10^6$ | 2.473 | 11.598 | 16.460 | 1.171 | 31.702 | $2.882 \times 10^5$ |
| 4.00 TeV | $4.000 \times 10^6$ | 2.500 | 15.651 | 22.155 | 1.583 | 41.890 | $3.156 \times 10^5$ |
| 8.00 TeV | $8.000 \times 10^6$ | 2.567 | 32.004 | 45.053 | 3.291 | 82.917 | $3.822 \times 10^5$ |
| 10.0 TeV | $1.000 \times 10^7$ | 2.589 | 40.248 | 56.566 | 4.169 | 103.573 | $4.037 \times 10^5$ |
| 14.0 TeV | $1.400 \times 10^7$ | 2.623 | 56.692 | 79.535 | 5.971 | 144.822 | $4.362 \times 10^5$ |
| 20.0 TeV | $2.000 \times 10^7$ | 2.659 | 81.512 | 114.140 | 8.734 | 207.046 | $4.707 \times 10^5$ |
| 30.0 TeV | $3.000 \times 10^7$ | 2.701 | 122.831 | 171.718 | 13.510 | 310.761 | $5.098 \times 10^5$ |
| 40.0 TeV | $4.000 \times 10^7$ | 2.731 | 164.307 | 229.439 | 18.400 | 414.878 | $5.376 \times 10^5$ |
| 80.0 TeV | $8.000 \times 10^7$ | 2.806 | 330.487 | 460.492 | 38.827 | 832.613 | $6.043 \times 10^5$ |
| 100. TeV | $1.000 \times 10^8$ | 2.831 | 413.730 | 576.130 | 49.380 | 1042.072 | $6.257 \times 10^5$ |