

**Table 051: Muons in Antimony**

| Z        | A [g/mol]           | $\rho$ [g/cm <sup>3</sup> ] | I [eV]  | a                                     | $k = m_s$ | $x_0$    | $x_1$                              | $\bar{C}$ | $\delta_0$ |
|----------|---------------------|-----------------------------|---------|---------------------------------------|-----------|----------|------------------------------------|-----------|------------|
| 51 (Sb)  | 121.760 (1)         | 6.691                       | 487.0   | 0.16652                               | 2.9319    | 0.3189   | 3.3489                             | 5.6241    | 0.14       |
| T        | p<br>[MeV/c]        | Ionization                  | Brems   | Pair prod<br>[MeV cm <sup>2</sup> /g] | Photonucl | Total    | CSDA range<br>[g/cm <sup>2</sup> ] |           |            |
| 10.0 MeV | $4.704 \times 10^1$ | 4.516                       |         |                                       |           | 4.516    | $1.262 \times 10^0$                |           |            |
| 14.0 MeV | $5.616 \times 10^1$ | 3.573                       |         |                                       |           | 3.573    | $2.268 \times 10^0$                |           |            |
| 20.0 MeV | $6.802 \times 10^1$ | 2.826                       |         |                                       |           | 2.826    | $4.176 \times 10^0$                |           |            |
| 30.0 MeV | $8.509 \times 10^1$ | 2.220                       |         |                                       |           | 2.220    | $8.221 \times 10^0$                |           |            |
| 40.0 MeV | $1.003 \times 10^2$ | 1.910                       |         |                                       |           | 1.911    | $1.311 \times 10^1$                |           |            |
| 80.0 MeV | $1.527 \times 10^2$ | 1.458                       |         |                                       |           | 1.458    | $3.780 \times 10^1$                |           |            |
| 100. MeV | $1.764 \times 10^2$ | 1.377                       |         |                                       |           | 1.377    | $5.195 \times 10^1$                |           |            |
| 140. MeV | $2.218 \times 10^2$ | 1.300                       |         |                                       |           | 1.300    | $8.198 \times 10^1$                |           |            |
| 200. MeV | $2.868 \times 10^2$ | 1.264                       |         |                                       |           | 1.264    | $1.290 \times 10^2$                |           |            |
| 242. MeV | $3.316 \times 10^2$ | 1.259                       |         |                                       |           | 1.259    | <i>Minimum ionization</i>          |           |            |
| 300. MeV | $3.917 \times 10^2$ | 1.264                       | 0.000   |                                       | 0.000     | 1.264    | $2.083 \times 10^2$                |           |            |
| 400. MeV | $4.945 \times 10^2$ | 1.283                       | 0.000   |                                       | 0.000     | 1.283    | $2.868 \times 10^2$                |           |            |
| 800. MeV | $8.995 \times 10^2$ | 1.367                       | 0.001   |                                       | 0.000     | 1.368    | $5.883 \times 10^2$                |           |            |
| 1.00 GeV | $1.101 \times 10^3$ | 1.401                       | 0.001   |                                       | 0.000     | 1.402    | $7.326 \times 10^2$                |           |            |
| 1.40 GeV | $1.502 \times 10^3$ | 1.454                       | 0.002   | 0.000                                 | 0.001     | 1.457    | $1.012 \times 10^3$                |           |            |
| 2.00 GeV | $2.103 \times 10^3$ | 1.512                       | 0.003   | 0.001                                 | 0.001     | 1.517    | $1.415 \times 10^3$                |           |            |
| 3.00 GeV | $3.104 \times 10^3$ | 1.577                       | 0.005   | 0.003                                 | 0.001     | 1.586    | $2.059 \times 10^3$                |           |            |
| 4.00 GeV | $4.104 \times 10^3$ | 1.621                       | 0.007   | 0.005                                 | 0.002     | 1.636    | $2.679 \times 10^3$                |           |            |
| 8.00 GeV | $8.105 \times 10^3$ | 1.722                       | 0.017   | 0.017                                 | 0.003     | 1.760    | $5.027 \times 10^3$                |           |            |
| 10.0 GeV | $1.011 \times 10^4$ | 1.753                       | 0.023   | 0.024                                 | 0.004     | 1.804    | $6.149 \times 10^3$                |           |            |
| 14.0 GeV | $1.411 \times 10^4$ | 1.796                       | 0.035   | 0.038                                 | 0.005     | 1.875    | $8.323 \times 10^3$                |           |            |
| 20.0 GeV | $2.011 \times 10^4$ | 1.839                       | 0.054   | 0.062                                 | 0.008     | 1.964    | $1.145 \times 10^4$                |           |            |
| 30.0 GeV | $3.011 \times 10^4$ | 1.884                       | 0.089   | 0.108                                 | 0.011     | 2.094    | $1.638 \times 10^4$                |           |            |
| 40.0 GeV | $4.011 \times 10^4$ | 1.915                       | 0.125   | 0.159                                 | 0.015     | 2.215    | $2.102 \times 10^4$                |           |            |
| 80.0 GeV | $8.011 \times 10^4$ | 1.982                       | 0.284   | 0.381                                 | 0.029     | 2.676    | $3.742 \times 10^4$                |           |            |
| 100. GeV | $1.001 \times 10^5$ | 2.002                       | 0.367   | 0.501                                 | 0.036     | 2.907    | $4.458 \times 10^4$                |           |            |
| 140. GeV | $1.401 \times 10^5$ | 2.032                       | 0.539   | 0.747                                 | 0.050     | 3.370    | $5.736 \times 10^4$                |           |            |
| 200. GeV | $2.001 \times 10^5$ | 2.063                       | 0.808   | 1.138                                 | 0.071     | 4.081    | $7.352 \times 10^4$                |           |            |
| 204. GeV | $2.043 \times 10^5$ | 2.064                       | 0.827   | 1.165                                 | 0.073     | 4.130    | <i>Muon critical energy</i>        |           |            |
| 300. GeV | $3.001 \times 10^5$ | 2.097                       | 1.268   | 1.791                                 | 0.107     | 5.264    | $9.505 \times 10^4$                |           |            |
| 400. GeV | $4.001 \times 10^5$ | 2.122                       | 1.743   | 2.467                                 | 0.143     | 6.476    | $1.122 \times 10^5$                |           |            |
| 800. GeV | $8.001 \times 10^5$ | 2.182                       | 3.704   | 5.241                                 | 0.289     | 11.417   | $1.581 \times 10^5$                |           |            |
| 1.00 TeV | $1.000 \times 10^6$ | 2.201                       | 4.712   | 6.660                                 | 0.363     | 13.937   | $1.739 \times 10^5$                |           |            |
| 1.40 TeV | $1.400 \times 10^6$ | 2.231                       | 6.732   | 9.490                                 | 0.514     | 18.969   | $1.984 \times 10^5$                |           |            |
| 2.00 TeV | $2.000 \times 10^6$ | 2.263                       | 9.822   | 13.810                                | 0.744     | 26.640   | $2.250 \times 10^5$                |           |            |
| 3.00 TeV | $3.000 \times 10^6$ | 2.300                       | 14.982  | 20.989                                | 1.137     | 39.409   | $2.557 \times 10^5$                |           |            |
| 4.00 TeV | $4.000 \times 10^6$ | 2.326                       | 20.211  | 28.244                                | 1.537     | 52.319   | $2.776 \times 10^5$                |           |            |
| 8.00 TeV | $8.000 \times 10^6$ | 2.391                       | 41.295  | 57.409                                | 3.193     | 104.289  | $3.307 \times 10^5$                |           |            |
| 10.0 TeV | $1.000 \times 10^7$ | 2.412                       | 51.920  | 72.070                                | 4.043     | 130.447  | $3.479 \times 10^5$                |           |            |
| 14.0 TeV | $1.400 \times 10^7$ | 2.445                       | 73.113  | 101.322                               | 5.789     | 182.670  | $3.737 \times 10^5$                |           |            |
| 20.0 TeV | $2.000 \times 10^7$ | 2.480                       | 105.090 | 145.388                               | 8.464     | 261.423  | $4.010 \times 10^5$                |           |            |
| 30.0 TeV | $3.000 \times 10^7$ | 2.521                       | 158.325 | 218.706                               | 13.085    | 392.638  | $4.320 \times 10^5$                |           |            |
| 40.0 TeV | $4.000 \times 10^7$ | 2.550                       | 211.753 | 292.198                               | 17.815    | 524.318  | $4.539 \times 10^5$                |           |            |
| 80.0 TeV | $8.000 \times 10^7$ | 2.622                       | 425.795 | 586.386                               | 37.562    | 1052.366 | $5.067 \times 10^5$                |           |            |
| 100. TeV | $1.000 \times 10^8$ | 2.646                       | 533.000 | 733.620                               | 47.760    | 1317.027 | $5.237 \times 10^5$                |           |            |