

## Muons in samarium (Sm)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
62 (Sm)	150.36 (2)	7.520	574.0	0.24698	2.6403	0.1503	3.3443	5.8517	0.14
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	4.306				4.306	$1.330 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.414				3.414	$2.383 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.705				2.705	$4.379 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.127				2.127	$8.602 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.831				1.831	$1.370 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.397				1.397	$3.946 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.321				1.321	$5.422 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.248				1.248	$8.550 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.214				1.214	$1.344 \times 10^2$		
240. MeV	$3.294 \times 10^2$	1.210	0.000			1.211	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.215	0.000		0.000	1.216	$2.169 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.235	0.000		0.000	1.235	$2.985 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.319	0.001		0.000	1.321	$6.113 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.353	0.001		0.000	1.355	$7.607 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.407	0.002	0.000	0.001	1.410	$1.050 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.465	0.003	0.001	0.001	1.470	$1.466 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.531	0.006	0.003	0.001	1.541	$2.129 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.576	0.008	0.006	0.002	1.592	$2.767 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.679	0.020	0.019	0.003	1.722	$5.173 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.710	0.027	0.027	0.004	1.768	$6.319 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.754	0.041	0.044	0.005	1.845	$8.531 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.798	0.064	0.072	0.007	1.942	$1.170 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.845	0.105	0.125	0.011	2.086	$1.666 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.876	0.148	0.184	0.015	2.222	$2.131 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.943	0.334	0.441	0.029	2.748	$3.745 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.964	0.432	0.581	0.035	3.013	$4.440 \times 10^4$		
140. GeV	$1.401 \times 10^5$	1.993	0.635	0.867	0.049	3.545	$5.663 \times 10^4$		
175. GeV	$1.755 \times 10^5$	2.013	0.820	1.131	0.062	4.027	<i>Muon critical energy</i>		
200. GeV	$2.001 \times 10^5$	2.024	0.951	1.320	0.070	4.367	$7.186 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.058	1.492	2.077	0.105	5.733	$9.180 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.083	2.050	2.861	0.140	7.136	$1.074 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.142	4.356	6.077	0.284	12.859	$1.486 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.161	5.540	7.721	0.357	15.780	$1.626 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.190	7.913	11.002	0.505	21.611	$1.842 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.221	11.542	16.007	0.730	30.502	$2.075 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.257	17.599	24.325	1.116	45.299	$2.342 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.283	23.737	32.730	1.508	60.260	$2.533 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.347	48.476	66.516	3.133	120.474	$2.993 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.368	60.940	83.498	3.967	150.775	$3.141 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.401	85.801	117.383	5.678	211.265	$3.364 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.435	123.308	168.426	8.300	302.471	$3.600 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.475	185.749	253.353	12.830	454.409	$3.868 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.504	248.410	338.480	17.465	606.861	$4.058 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.575	499.414	679.212	36.812	1218.014	$4.514 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.598	625.120	849.730	46.800	1524.250	$4.661 \times 10^5$		