

## Muons in einsteinium (Es)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	a	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
99 (Es)	[252.0830 (4)]	??	980.0	0.25952	3.0000	0.5697	3.0000	6.3488	0.00
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	$4.704 \times 10^1$	3.635				3.635	$1.620 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	2.918				2.918	$2.858 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.338				2.338	$5.178 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	1.857				1.857	$1.004 \times 10^1$		
40.0 MeV	$1.003 \times 10^2$	1.609				1.609	$1.586 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.246				1.246	$4.493 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.182				1.183	$6.145 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.125				1.125	$9.629 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.103				1.103	$1.503 \times 10^2$		
213. MeV	$3.008 \times 10^2$	1.102	0.000			1.103	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.116	0.000		0.000	1.116	$2.407 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.142	0.000		0.000	1.142	$3.292 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.236	0.001		0.000	1.237	$6.648 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.271	0.002		0.000	1.273	$8.241 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.325	0.003		0.000	1.328	$1.131 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.382	0.005	0.001	0.001	1.389	$1.573 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.445	0.008	0.003	0.001	1.458	$2.274 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.488	0.012	0.006	0.001	1.509	$2.948 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.583	0.029	0.024	0.003	1.640	$5.480 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.611	0.039	0.034	0.004	1.689	$6.681 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.651	0.060	0.056	0.005	1.773	$8.991 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.690	0.093	0.093	0.007	1.885	$1.227 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.731	0.153	0.166	0.011	2.061	$1.734 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.758	0.216	0.246	0.014	2.235	$2.200 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.818	0.488	0.599	0.027	2.934	$3.758 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.837	0.632	0.790	0.034	3.295	$4.401 \times 10^4$		
123. GeV	$1.230 \times 10^5$	1.854	0.800	1.012	0.041	3.709	<i>Muon critical energy</i>		
140. GeV	$1.401 \times 10^5$	1.864	0.928	1.183	0.047	4.025	$5.498 \times 10^4$		
200. GeV	$2.001 \times 10^5$	1.893	1.391	1.807	0.067	5.160	$6.812 \times 10^4$		
300. GeV	$3.001 \times 10^5$	1.926	2.180	2.847	0.100	7.055	$8.465 \times 10^4$		
400. GeV	$4.001 \times 10^5$	1.949	2.995	3.926	0.134	9.006	$9.717 \times 10^4$		
800. GeV	$8.001 \times 10^5$	2.005	6.355	8.349	0.271	16.982	$1.290 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.023	8.079	10.612	0.340	21.057	$1.396 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.051	11.533	15.122	0.482	29.190	$1.556 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.081	16.811	22.006	0.697	41.596	$1.728 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.116	25.615	33.441	1.065	62.238	$1.923 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.140	34.530	44.998	1.438	83.108	$2.062 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.201	70.446	91.444	2.985	167.078	$2.394 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.221	88.533	114.787	3.778	209.321	$2.501 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.252	124.607	161.367	5.406	293.635	$2.662 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.285	179.012	231.532	7.900	420.731	$2.831 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.323	269.672	348.258	12.204	632.459	$3.024 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.350	360.654	465.252	16.608	844.866	$3.160 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.418	724.557	933.539	34.978	1695.495	$3.488 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.440	906.620	1167.890	44.460	2121.412	$3.593 \times 10^5$		