

## Muons in actinium (Ac)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
89 (Ac)	[227.02775(2)]	10.070	841.0	0.08567	3.2683	0.4559	3.7966	6.3742	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	$4.704 \times 10^1$	3.774				3.774	$1.544 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.015				3.015	$2.740 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.405				2.405	$4.991 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	1.904				1.904	$9.723 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.646				1.646	$1.541 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.268				1.268	$4.390 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.202				1.202	$6.014 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.140				1.140	$9.445 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.113				1.113	$1.479 \times 10^2$		
219. MeV	$3.074 \times 10^2$	1.112	0.000			1.112	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.121	0.000		0.000	1.122	$2.376 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.144	0.000		0.000	1.144	$3.259 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.231	0.001		0.000	1.232	$6.621 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.264	0.002		0.000	1.266	$8.221 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.317	0.003		0.001	1.320	$1.131 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.374	0.004	0.001	0.001	1.380	$1.575 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.437	0.007	0.003	0.001	1.450	$2.281 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.481	0.011	0.006	0.002	1.500	$2.959 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.579	0.027	0.023	0.003	1.632	$5.504 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.609	0.035	0.032	0.004	1.681	$6.711 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.651	0.054	0.053	0.005	1.764	$9.033 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.693	0.084	0.088	0.007	1.873	$1.233 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.737	0.138	0.155	0.011	2.041	$1.744 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.766	0.195	0.229	0.014	2.205	$2.215 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.831	0.442	0.555	0.027	2.856	$3.805 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.851	0.572	0.731	0.034	3.189	$4.467 \times 10^4$		
134. GeV	$1.337 \times 10^5$	1.876	0.796	1.034	0.045	3.753	<i>Muon critical energy</i>		
140. GeV	$1.401 \times 10^5$	1.880	0.840	1.093	0.048	3.862	$5.606 \times 10^4$		
200. GeV	$2.001 \times 10^5$	1.909	1.259	1.668	0.068	4.905	$6.982 \times 10^4$		
300. GeV	$3.001 \times 10^5$	1.942	1.973	2.627	0.101	6.645	$8.729 \times 10^4$		
400. GeV	$4.001 \times 10^5$	1.965	2.710	3.621	0.135	8.434	$1.006 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.021	5.753	7.697	0.273	15.747	$1.348 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.040	7.315	9.781	0.344	19.481	$1.462 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.067	10.443	13.937	0.486	26.936	$1.636 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.097	15.225	20.279	0.703	38.307	$1.822 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.132	23.203	30.816	1.075	57.227	$2.034 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.156	31.282	41.464	1.452	76.356	$2.185 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.217	63.835	84.258	3.015	153.327	$2.547 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.237	80.230	105.766	3.817	192.052	$2.664 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.268	112.930	148.684	5.461	269.345	$2.839 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.301	162.250	213.332	7.980	385.865	$3.024 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.339	244.356	320.882	12.330	579.909	$3.234 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.366	326.736	428.679	16.780	774.563	$3.382 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.434	656.686	860.159	35.347	1554.627	$3.740 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.456	821.910	1076.090	44.930	1945.388	$3.854 \times 10^5$		