

## Muons in radium (Ra)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
88 (Ra)	[226.02541(2)]	5.000	826.0	0.08804	3.2454	0.5991	3.9428	7.0452	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	$4.704 \times 10^1$	3.765				3.765	$1.546 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.007				3.007	$2.745 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.398				2.398	$5.002 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	1.898				1.898	$9.749 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.641				1.641	$1.545 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.264				1.264	$4.404 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.199				1.199	$6.032 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.137				1.138	$9.472 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.112				1.112	$1.482 \times 10^2$		
222. MeV	$3.104 \times 10^2$	1.111	0.000			1.111	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.120	0.000		0.000	1.121	$2.380 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.144	0.000		0.000	1.145	$3.263 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.236	0.001		0.000	1.238	$6.616 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.271	0.002		0.000	1.273	$8.209 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.326	0.003		0.001	1.330	$1.128 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.385	0.004	0.001	0.001	1.391	$1.569 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.451	0.007	0.003	0.001	1.463	$2.268 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.497	0.011	0.006	0.002	1.516	$2.939 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.599	0.026	0.022	0.003	1.651	$5.457 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.629	0.035	0.032	0.004	1.700	$6.651 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.673	0.053	0.052	0.005	1.784	$8.946 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.716	0.083	0.086	0.007	1.893	$1.221 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.761	0.136	0.153	0.011	2.061	$1.727 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.792	0.192	0.225	0.014	2.224	$2.193 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.858	0.434	0.546	0.027	2.868	$3.773 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.878	0.562	0.720	0.034	3.196	$4.434 \times 10^4$		
137. GeV	$1.374 \times 10^5$	1.906	0.807	1.052	0.047	3.814	<i>Muon critical energy</i>		
140. GeV	$1.401 \times 10^5$	1.908	0.825	1.077	0.048	3.859	$5.572 \times 10^4$		
200. GeV	$2.001 \times 10^5$	1.938	1.237	1.643	0.068	4.886	$6.951 \times 10^4$		
300. GeV	$3.001 \times 10^5$	1.971	1.938	2.587	0.101	6.599	$8.707 \times 10^4$		
400. GeV	$4.001 \times 10^5$	1.994	2.663	3.566	0.135	8.360	$1.005 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.050	5.653	7.579	0.274	15.557	$1.351 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.068	7.188	9.631	0.344	19.233	$1.466 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.096	10.262	13.723	0.487	26.570	$1.642 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.125	14.962	19.968	0.704	37.760	$1.831 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.159	22.802	30.342	1.076	56.381	$2.046 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.184	30.742	40.826	1.453	75.207	$2.199 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.244	62.734	82.963	3.016	150.959	$2.567 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.264	78.847	104.140	3.818	189.071	$2.685 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.294	110.985	146.397	5.463	265.143	$2.863 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.327	159.458	210.050	7.984	379.821	$3.051 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.365	240.152	315.949	12.336	570.803	$3.265 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.392	321.116	422.091	16.788	762.389	$3.416 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.459	645.395	846.939	35.363	1530.158	$3.779 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.481	807.780	1059.550	44.950	1914.763	$3.895 \times 10^5$		