

## Muons in dysprosium (Dy)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
66 (Dy)	162.500(1)	8.551	628.0	0.24665	2.5849	0.0822	3.4474	5.9182	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	$4.704 \times 10^1$	4.162				4.162	$1.381 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.304				3.304	$2.469 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.621				2.621	$4.530 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.063				2.063	$8.887 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.776				1.776	$1.414 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.357				1.357	$4.069 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.283				1.283	$5.589 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.212				1.212	$8.810 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.179				1.179	$1.384 \times 10^2$		
239. MeV	$3.285 \times 10^2$	1.175	0.000			1.176	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.180	0.000		0.000	1.181	$2.234 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.199	0.000		0.000	1.200	$3.074 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.283	0.001		0.000	1.284	$6.292 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.316	0.001		0.000	1.318	$7.829 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.369	0.002	0.000	0.001	1.372	$1.080 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.427	0.003	0.001	0.001	1.432	$1.508 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.492	0.006	0.003	0.001	1.503	$2.188 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.537	0.009	0.006	0.002	1.554	$2.842 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.640	0.021	0.020	0.003	1.684	$5.305 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.671	0.028	0.028	0.004	1.731	$6.475 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.715	0.043	0.045	0.005	1.809	$8.734 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.760	0.067	0.074	0.007	1.908	$1.196 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.806	0.109	0.129	0.011	2.056	$1.701 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.837	0.154	0.190	0.014	2.197	$2.171 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.906	0.348	0.457	0.028	2.740	$3.797 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.926	0.451	0.602	0.035	3.015	$4.493 \times 10^4$		
140. GeV	$1.401 \times 10^5$	1.956	0.662	0.898	0.049	3.566	$5.712 \times 10^4$		
167. GeV	$1.669 \times 10^5$	1.971	0.808	1.105	0.058	3.943	<i>Muon critical energy</i>		
200. GeV	$2.001 \times 10^5$	1.986	0.992	1.368	0.070	4.417	$7.222 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.020	1.555	2.153	0.105	5.834	$9.186 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.044	2.137	2.966	0.139	7.288	$1.072 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.102	4.540	6.300	0.282	13.225	$1.474 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.121	5.774	8.005	0.354	16.255	$1.610 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.150	8.246	11.406	0.501	22.305	$1.819 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.181	12.027	16.594	0.725	31.529	$2.044 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.216	18.337	25.217	1.109	46.880	$2.303 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.242	24.730	33.930	1.498	62.401	$2.487 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.305	50.497	68.951	3.111	124.866	$2.931 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.326	63.479	86.553	3.939	156.298	$3.074 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.357	89.372	121.677	5.638	219.046	$3.289 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.391	128.434	174.586	8.240	313.653	$3.517 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.431	193.462	262.612	12.736	471.242	$3.775 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.459	258.717	350.842	17.336	629.356	$3.958 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.529	520.105	704.008	36.531	1263.175	$4.398 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.552	651.010	880.750	46.440	1580.754	$4.539 \times 10^5$		