

## Muons in liquid xenon (Xe)

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
54 (Xe)	131.293 (6)	2.953	482.0	0.26595	3.0000	0.5993	3.0000	6.4396	0.00

  

T	p	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range
	[MeV/c]			[MeV cm <sup>2</sup> /g]			[g/cm <sup>2</sup> ]
10.0 MeV	$4.704 \times 10^1$	4.447				4.447	$1.281 \times 10^0$
14.0 MeV	$5.616 \times 10^1$	3.518				3.519	$2.302 \times 10^0$
20.0 MeV	$6.802 \times 10^1$	2.783				2.784	$4.240 \times 10^0$
30.0 MeV	$8.509 \times 10^1$	2.187				2.187	$8.346 \times 10^0$
40.0 MeV	$1.003 \times 10^2$	1.883				1.883	$1.330 \times 10^1$
80.0 MeV	$1.527 \times 10^2$	1.440				1.440	$3.834 \times 10^1$
100. MeV	$1.764 \times 10^2$	1.362				1.362	$5.265 \times 10^1$
140. MeV	$2.218 \times 10^2$	1.289				1.289	$8.298 \times 10^1$
200. MeV	$2.868 \times 10^2$	1.257				1.257	$1.303 \times 10^2$
226. MeV	$3.145 \times 10^2$	1.255				1.255	<i>Minimum ionization</i>
300. MeV	$3.917 \times 10^2$	1.265	0.000		0.000	1.265	$2.097 \times 10^2$
400. MeV	$4.945 \times 10^2$	1.290	0.000		0.000	1.291	$2.880 \times 10^2$
800. MeV	$8.995 \times 10^2$	1.387	0.001		0.000	1.388	$5.862 \times 10^2$
1.00 GeV	$1.101 \times 10^3$	1.424	0.001		0.000	1.425	$7.283 \times 10^2$
1.40 GeV	$1.502 \times 10^3$	1.481	0.002	0.000	0.001	1.483	$1.003 \times 10^3$
2.00 GeV	$2.103 \times 10^3$	1.541	0.003	0.001	0.001	1.546	$1.399 \times 10^3$
3.00 GeV	$3.104 \times 10^3$	1.608	0.005	0.003	0.001	1.617	$2.030 \times 10^3$
4.00 GeV	$4.104 \times 10^3$	1.653	0.007	0.005	0.002	1.668	$2.639 \times 10^3$
8.00 GeV	$8.105 \times 10^3$	1.753	0.018	0.017	0.003	1.792	$4.943 \times 10^3$
10.0 GeV	$1.011 \times 10^4$	1.782	0.024	0.024	0.004	1.835	$6.046 \times 10^3$
14.0 GeV	$1.411 \times 10^4$	1.824	0.036	0.039	0.005	1.905	$8.184 \times 10^3$
20.0 GeV	$2.011 \times 10^4$	1.865	0.056	0.064	0.008	1.993	$1.126 \times 10^4$
30.0 GeV	$3.011 \times 10^4$	1.908	0.092	0.112	0.011	2.123	$1.612 \times 10^4$
40.0 GeV	$4.011 \times 10^4$	1.936	0.130	0.164	0.015	2.245	$2.070 \times 10^4$
80.0 GeV	$8.011 \times 10^4$	2.000	0.293	0.393	0.029	2.715	$3.687 \times 10^4$
100. GeV	$1.001 \times 10^5$	2.019	0.380	0.516	0.036	2.952	$4.393 \times 10^4$
140. GeV	$1.401 \times 10^5$	2.048	0.557	0.770	0.050	3.427	$5.650 \times 10^4$
200. GeV	$2.000 \times 10^5$	2.078	0.835	1.172	0.071	4.157	<i>Muon critical energy</i>
200. GeV	$2.001 \times 10^5$	2.078	0.836	1.173	0.071	4.158	$7.238 \times 10^4$
300. GeV	$3.001 \times 10^5$	2.112	1.310	1.846	0.106	5.376	$9.348 \times 10^4$
400. GeV	$4.001 \times 10^5$	2.136	1.801	2.543	0.142	6.624	$1.102 \times 10^5$
800. GeV	$8.001 \times 10^5$	2.195	3.829	5.401	0.287	11.713	$1.551 \times 10^5$
1.00 TeV	$1.000 \times 10^6$	2.214	4.870	6.863	0.361	14.309	$1.705 \times 10^5$
1.40 TeV	$1.400 \times 10^6$	2.244	6.958	9.779	0.511	19.492	$1.943 \times 10^5$
2.00 TeV	$2.000 \times 10^6$	2.275	10.151	14.229	0.739	27.395	$2.202 \times 10^5$
3.00 TeV	$3.000 \times 10^6$	2.311	15.481	21.625	1.130	40.548	$2.500 \times 10^5$
4.00 TeV	$4.000 \times 10^6$	2.337	20.883	29.099	1.526	53.847	$2.714 \times 10^5$
8.00 TeV	$8.000 \times 10^6$	2.401	42.663	59.144	3.171	107.381	$3.229 \times 10^5$
10.0 TeV	$1.000 \times 10^7$	2.422	53.639	74.247	4.016	134.325	$3.396 \times 10^5$
14.0 TeV	$1.400 \times 10^7$	2.454	75.530	104.381	5.749	188.115	$3.646 \times 10^5$
20.0 TeV	$2.000 \times 10^7$	2.488	108.560	149.776	8.404	269.229	$3.911 \times 10^5$
30.0 TeV	$3.000 \times 10^7$	2.528	163.548	225.304	12.992	404.373	$4.212 \times 10^5$
40.0 TeV	$4.000 \times 10^7$	2.557	218.733	301.010	17.689	539.990	$4.426 \times 10^5$
80.0 TeV	$8.000 \times 10^7$	2.628	439.800	604.039	37.295	1083.764	$4.938 \times 10^5$
100. TeV	$1.000 \times 10^8$	2.651	550.520	755.690	47.420	1356.282	$5.103 \times 10^5$