

## Muons in barium sulfate BaSO<sub>4</sub>

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.44561	4.500	285.7	0.11747	3.0427	-0.0128	3.4069	4.8923	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	5.288				5.288		$1.061 \times 10^0$	
14.0 MeV	$5.616 \times 10^1$	4.157				4.157		$1.923 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.270				3.271		$3.569 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	2.557				2.557		$7.074 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.194				2.194		$1.132 \times 10^1$	
80.0 MeV	$1.527 \times 10^2$	1.659				1.659		$3.293 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.563				1.563		$4.538 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.467				1.467		$7.193 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.417				1.417		$1.137 \times 10^2$	
267. MeV	$3.577 \times 10^2$	1.406			0.000	1.407		<i>Minimum ionization</i>	
300. MeV	$3.917 \times 10^2$	1.408	0.000		0.000	1.408		$1.847 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.423	0.000		0.000	1.423		$2.553 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.503	0.001		0.000	1.504		$5.285 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.536	0.001		0.000	1.537		$6.600 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.589	0.001	0.000	0.001	1.591		$9.155 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.647	0.002	0.001	0.001	1.651		$1.285 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.713	0.004	0.002	0.001	1.720		$1.878 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.758	0.005	0.004	0.002	1.769		$2.451 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	1.861	0.013	0.012	0.003	1.890		$4.630 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	1.892	0.017	0.017	0.004	1.931		$5.676 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	1.937	0.026	0.028	0.006	1.997		$7.711 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	1.982	0.040	0.046	0.008	2.076		$1.066 \times 10^4$	
30.0 GeV	$3.011 \times 10^4$	2.029	0.066	0.080	0.012	2.187		$1.534 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.061	0.093	0.117	0.016	2.287		$1.981 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.131	0.211	0.282	0.031	2.655		$3.601 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.153	0.273	0.371	0.038	2.835		$4.330 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.184	0.401	0.554	0.053	3.192		$5.659 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.217	0.601	0.843	0.075	3.737		$7.395 \times 10^4$	
285. GeV	$2.847 \times 10^5$	2.249	0.890	1.253	0.107	4.500		<i>Muon critical energy</i>	
300. GeV	$3.001 \times 10^5$	2.254	0.943	1.329	0.113	4.640		$9.793 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.280	1.297	1.832	0.150	5.561		$1.176 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.344	2.760	3.899	0.303	9.307		$1.726 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.365	3.511	4.957	0.381	11.216		$1.922 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.396	5.019	7.068	0.540	15.024		$2.229 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.430	7.326	10.291	0.781	20.829		$2.567 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.469	11.179	15.646	1.196	30.491		$2.961 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.497	15.085	21.061	1.616	40.261		$3.246 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.567	30.840	42.832	3.363	79.603		$3.939 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.589	38.782	53.777	4.261	99.411		$4.163 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.624	54.625	75.614	6.107	138.970		$4.502 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.661	78.535	108.513	8.938	198.648		$4.861 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	2.705	118.337	163.251	13.836	298.129		$5.270 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	2.736	158.287	218.124	18.854	398.002		$5.559 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	2.813	318.350	437.779	39.839	798.781		$6.254 \times 10^5$	
100. TeV	$1.000 \times 10^8$	2.838	398.526	547.713	50.689	999.767		$6.478 \times 10^5$	