

## Muons in bismuth silicate (BSO) $[(\text{Bi}_2\text{O}_3)_2(\text{SiO}_2)_3]$

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.42260	7.120	519.2	0.21867	3.0000	0.4077	3.0557	5.9374	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
				[MeV cm <sup>2</sup> /g]					
10.0 MeV	$4.704 \times 10^1$	4.546				4.546		$1.246 \times 10^0$	
14.0 MeV	$5.616 \times 10^1$	3.590				3.590		$2.246 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	2.837				2.837		$4.147 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	2.228				2.228		$8.177 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	1.917				1.917		$1.305 \times 10^1$	
80.0 MeV	$1.527 \times 10^2$	1.466				1.466		$3.763 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.387				1.387		$5.169 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.313				1.313		$8.147 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.281				1.281		$1.279 \times 10^2$	
229. MeV	$3.179 \times 10^2$	1.279				1.279			<i>Minimum ionization</i>
300. MeV	$3.917 \times 10^2$	1.286	0.000		0.000	1.287		$2.060 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.308	0.000		0.000	1.309		$2.830 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.399	0.001		0.000	1.401		$5.779 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.435	0.001		0.000	1.436		$7.189 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.490	0.002		0.001	1.493		$9.918 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.549	0.003	0.001	0.001	1.554		$1.385 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.615	0.006	0.003	0.001	1.625		$2.013 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.660	0.008	0.005	0.002	1.675		$2.619 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	1.760	0.020	0.018	0.003	1.802		$4.912 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	1.790	0.027	0.025	0.004	1.847		$6.009 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	1.832	0.041	0.041	0.006	1.921		$8.131 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	1.874	0.064	0.068	0.008	2.014		$1.118 \times 10^4$	
30.0 GeV	$3.011 \times 10^4$	1.918	0.105	0.120	0.011	2.155		$1.598 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	1.947	0.148	0.176	0.015	2.287		$2.048 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.012	0.335	0.427	0.029	2.804		$3.624 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.032	0.434	0.562	0.036	3.066		$4.306 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.062	0.636	0.841	0.050	3.591		$5.511 \times 10^4$	
183. GeV	$1.833 \times 10^5$	2.085	0.864	1.156	0.066	4.172			<i>Muon critical energy</i>
200. GeV	$2.001 \times 10^5$	2.093	0.954	1.282	0.071	4.402		$7.018 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.128	1.496	2.020	0.107	5.753		$9.001 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.153	2.056	2.785	0.143	7.138		$1.056 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.213	4.366	5.922	0.289	12.792		$1.469 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.233	5.553	7.527	0.363	15.677		$1.610 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.263	7.930	10.728	0.514	21.436		$1.827 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.295	11.564	15.612	0.744	30.217		$2.062 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.332	17.630	23.729	1.137	44.830		$2.332 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.359	23.774	31.932	1.537	59.604		$2.525 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.424	48.539	64.905	3.196	119.066		$2.991 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.446	61.015	81.478	4.048	148.989		$3.140 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.479	85.900	114.546	5.797	208.724		$3.366 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.514	123.439	164.360	8.478	298.793		$3.605 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	2.555	185.930	247.239	13.114	448.840		$3.876 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	2.585	248.637	330.313	17.861	599.397		$4.069 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	2.658	499.816	662.835	37.691	1203.001		$4.530 \times 10^5$	
100. TeV	$1.000 \times 10^8$	2.682	625.606	829.246	47.937	1505.472		$4.679 \times 10^5$	