

## Muons in baksan rock, std rock density

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.49228	2.650	175.6	0.15614	3.0000	0.2073	3.0073	4.3821	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	$4.704 \times 10^1$	6.286				6.286		$8.871 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	4.926				4.926		$1.613 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.864				3.864		$3.004 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.011				3.011		$5.976 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.579				2.579		$9.587 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	1.950				1.950		$2.798 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.837				1.837		$3.857 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.719				1.719		$6.119 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.655				1.655		$9.690 \times 10^1$	
283. MeV	$3.738 \times 10^2$	1.637			0.000	1.637			<i>Minimum ionization</i>
300. MeV	$3.917 \times 10^2$	1.637			0.000	1.637		$1.578 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.650			0.000	1.650		$2.187 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.731	0.000		0.000	1.732		$4.553 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.765	0.000		0.000	1.766		$5.696 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.821	0.001	0.000	0.001	1.823		$7.924 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.882	0.001	0.000	0.001	1.884		$1.116 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.951	0.002	0.001	0.001	1.955		$1.636 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.998	0.002	0.002	0.002	2.004		$2.141 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.107	0.005	0.005	0.004	2.121		$4.074 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.139	0.007	0.007	0.005	2.158		$5.009 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.186	0.011	0.012	0.006	2.215		$6.836 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.232	0.017	0.020	0.009	2.278		$9.505 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.282	0.028	0.034	0.013	2.358		$1.382 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.315	0.040	0.050	0.017	2.423		$1.800 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.391	0.090	0.121	0.033	2.635		$3.380 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.414	0.116	0.160	0.041	2.731		$4.126 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.448	0.171	0.239	0.057	2.916		$5.543 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.484	0.257	0.365	0.080	3.188		$7.510 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.525	0.405	0.578	0.121	3.629		$1.045 \times 10^5$	
400. GeV	$4.001 \times 10^5$	2.554	0.557	0.800	0.161	4.072		$1.305 \times 10^5$	
655. GeV	$6.554 \times 10^5$	2.604	0.959	1.381	0.265	5.209			<i>Muon critical energy</i>
800. GeV	$8.001 \times 10^5$	2.625	1.191	1.717	0.325	5.858		$2.120 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.648	1.518	2.191	0.408	6.764		$2.437 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.682	2.175	3.131	0.579	8.567		$2.961 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.720	3.182	4.568	0.837	11.308		$3.569 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.763	4.868	6.961	1.282	15.875		$4.312 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.794	6.581	9.384	1.735	20.494		$4.865 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.870	13.504	19.135	3.616	39.127		$6.254 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.896	17.001	24.043	4.585	48.524		$6.712 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.934	23.981	33.825	6.577	67.318		$7.409 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.975	34.533	48.572	9.635	95.715		$8.153 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	3.023	52.077	73.118	14.937	143.155		$9.002 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	3.057	69.699	97.737	20.373	190.867		$9.605 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	3.142	140.364	196.287	43.149	382.944		$1.106 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.170	175.788	245.614	54.942	479.514		$1.152 \times 10^6$	