

## Muons in ferric oxide ( $\text{Fe}_2\text{O}_3$ )

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.47592	5.200	227.3	0.10478	3.1313	-0.0074	3.2573	4.2245	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	$4.704 \times 10^1$	5.849				5.849		$9.565 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	4.591				4.591		$1.736 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.607				3.607		$3.227 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	2.815				2.815		$6.408 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.414				2.414		$1.027 \times 10^1$	
80.0 MeV	$1.527 \times 10^2$	1.816				1.816		$2.997 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.707				1.707		$4.135 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.599				1.599		$6.568 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.540				1.540		$1.041 \times 10^2$	
277. MeV	$3.683 \times 10^2$	1.525			0.000	1.525		<i>Minimum ionization</i>	
300. MeV	$3.917 \times 10^2$	1.526			0.000	1.526		$1.695 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.539	0.000		0.000	1.539		$2.348 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.618	0.000		0.000	1.619		$4.881 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.651	0.001		0.000	1.652		$6.104 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.705	0.001	0.000	0.001	1.707		$8.484 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.764	0.001	0.001	0.001	1.767		$1.193 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.831	0.002	0.002	0.001	1.836		$1.748 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.877	0.003	0.003	0.002	1.885		$2.285 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	1.983	0.008	0.008	0.004	2.004		$4.336 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.015	0.011	0.012	0.004	2.042		$5.324 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.060	0.017	0.019	0.006	2.103		$7.253 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.106	0.027	0.031	0.008	2.173		$1.006 \times 10^4$	
30.0 GeV	$3.011 \times 10^4$	2.155	0.044	0.054	0.012	2.265		$1.456 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.188	0.061	0.079	0.016	2.345		$1.890 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.262	0.139	0.189	0.032	2.622		$3.500 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.284	0.180	0.249	0.039	2.753		$4.245 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.318	0.264	0.372	0.055	3.009		$5.634 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.353	0.397	0.567	0.078	3.395		$7.510 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.392	0.623	0.895	0.117	4.027		$1.021 \times 10^5$	
400. GeV	$4.001 \times 10^5$	2.420	0.858	1.235	0.156	4.669		$1.252 \times 10^5$	
429. GeV	$4.288 \times 10^5$	2.427	0.926	1.334	0.167	4.854		<i>Muon critical energy</i>	
800. GeV	$8.001 \times 10^5$	2.488	1.829	2.634	0.315	7.267		$1.933 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.510	2.328	3.353	0.396	8.587		$2.186 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.544	3.332	4.785	0.561	11.222		$2.592 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.580	4.869	6.974	0.811	15.235		$3.050 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.622	7.438	10.613	1.242	21.916		$3.594 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.652	10.046	14.294	1.680	28.672		$3.992 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.726	20.573	29.102	3.498	55.900		$4.973 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.750	25.884	36.551	4.433	69.619		$5.293 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.787	36.479	51.407	6.356	97.030		$5.778 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.827	52.479	73.797	9.306	138.409		$6.293 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	2.873	79.115	111.050	14.416	207.454		$6.879 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	2.906	105.861	148.403	19.653	276.824		$7.295 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	2.989	213.054	297.929	41.568	555.540		$8.295 \times 10^5$	
100. TeV	$1.000 \times 10^8$	3.016	266.761	372.768	52.906	695.452		$8.616 \times 10^5$	