

## Muons in yttrium aluminum oxide (1) (YAlO<sub>3</sub>)

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.46374	5.500	239.3	0.15380	3.0000	0.2000	3.0000	4.2973	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]	
10.0 MeV	$4.704 \times 10^1$	5.655				5.655	$9.900 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	4.441				4.441	$1.796 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	3.490				3.490	$3.337 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	2.725				2.725	$6.625 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	2.337				2.337	$1.061 \times 10^1$	
80.0 MeV	$1.527 \times 10^2$	1.772				1.772	$3.088 \times 10^1$	
100. MeV	$1.764 \times 10^2$	1.670				1.670	$4.254 \times 10^1$	
140. MeV	$2.218 \times 10^2$	1.564				1.564	$6.741 \times 10^1$	
200. MeV	$2.868 \times 10^2$	1.507				1.507	$1.066 \times 10^2$	
277. MeV	$3.683 \times 10^2$	1.492			0.000	1.492	<i>Minimum ionization</i>	
300. MeV	$3.917 \times 10^2$	1.492			0.000	1.493	$1.735 \times 10^2$	
400. MeV	$4.945 \times 10^2$	1.505	0.000		0.000	1.506	$2.402 \times 10^2$	
800. MeV	$8.995 \times 10^2$	1.582	0.000		0.000	1.583	$4.992 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	1.615	0.001		0.000	1.616	$6.242 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	1.667	0.001	0.000	0.001	1.669	$8.676 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	1.724	0.002	0.001	0.001	1.727	$1.221 \times 10^3$	
3.00 GeV	$3.104 \times 10^3$	1.789	0.003	0.002	0.001	1.795	$1.788 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	1.833	0.004	0.003	0.002	1.842	$2.337 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	1.935	0.010	0.010	0.003	1.958	$4.436 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	1.965	0.013	0.013	0.004	1.996	$5.447 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.009	0.020	0.022	0.006	2.057	$7.419 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.053	0.031	0.036	0.008	2.128	$1.028 \times 10^4$	
30.0 GeV	$3.011 \times 10^4$	2.100	0.050	0.062	0.012	2.225	$1.488 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.131	0.071	0.091	0.016	2.310	$1.929 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.202	0.161	0.218	0.031	2.613	$3.554 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.224	0.208	0.287	0.039	2.758	$4.299 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.256	0.306	0.428	0.054	3.045	$5.679 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.290	0.459	0.652	0.077	3.479	$7.521 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.329	0.720	1.029	0.116	4.194	$1.014 \times 10^5$	
369. GeV	$3.696 \times 10^5$	2.348	0.908	1.299	0.142	4.698	<i>Muon critical energy</i>	
400. GeV	$4.001 \times 10^5$	2.356	0.991	1.419	0.154	4.921	$1.234 \times 10^5$	
800. GeV	$8.001 \times 10^5$	2.422	2.111	3.025	0.311	7.870	$1.871 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	2.444	2.687	3.848	0.391	9.371	$2.103 \times 10^5$	
1.40 TeV	$1.400 \times 10^6$	2.477	3.843	5.490	0.554	12.365	$2.474 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	2.512	5.613	7.997	0.802	16.926	$2.887 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	2.553	8.572	12.165	1.228	24.519	$3.375 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	2.582	11.573	16.381	1.661	32.197	$3.730 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	2.654	23.684	33.335	3.458	63.131	$4.601 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	2.678	29.792	41.861	4.382	78.713	$4.884 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	2.714	41.977	58.868	6.281	109.841	$5.313 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	2.753	60.374	84.494	9.196	156.818	$5.767 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	2.798	90.998	127.135	14.242	235.173	$6.285 \times 10^5$	
40.0 TeV	$4.000 \times 10^7$	2.830	121.743	169.886	19.413	313.874	$6.652 \times 10^5$	
80.0 TeV	$8.000 \times 10^7$	2.910	244.950	341.021	41.050	629.932	$7.533 \times 10^5$	
100. TeV	$1.000 \times 10^8$	2.936	306.675	426.675	52.242	788.529	$7.817 \times 10^5$	