

**Table 139: Muons in Ceric sulfate dosimeter solution**

$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
0.55279	1.030	76.7	0.07666	3.5607	0.2363	2.8769	3.5212	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	$4.704 \times 10^1$	7.909				7.909	$6.989 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	6.170				6.170	$1.278 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	4.819				4.819	$2.391 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.739				3.739	$4.779 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	3.193				3.193	$7.693 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	2.398				2.398	$2.261 \times 10^1$	
100. MeV	$1.764 \times 10^2$	2.255				2.255	$3.123 \times 10^1$	
140. MeV	$2.218 \times 10^2$	2.102				2.102	$4.968 \times 10^1$	
200. MeV	$2.868 \times 10^2$	2.013				2.014	$7.896 \times 10^1$	
300. MeV	$3.917 \times 10^2$	1.980			0.000	1.980	$1.292 \times 10^2$	
317. MeV	$4.096 \times 10^2$	1.979			0.000	1.979	<i>Minimum ionization</i>	
400. MeV	$4.945 \times 10^2$	1.986			0.000	1.986	$1.797 \times 10^2$	
800. MeV	$8.995 \times 10^2$	2.062	0.000		0.000	2.062	$3.774 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	2.096	0.000		0.000	2.097	$4.735 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	2.152	0.000		0.001	2.153	$6.616 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.214	0.001	0.000	0.001	2.216	$9.361 \times 10^2$	
3.00 GeV	$3.104 \times 10^3$	2.284	0.001	0.001	0.001	2.288	$1.380 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.333	0.002	0.001	0.002	2.338	$1.812 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.445	0.004	0.004	0.004	2.457	$3.476 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.479	0.005	0.005	0.005	2.494	$4.283 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.529	0.008	0.008	0.007	2.551	$5.868 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.578	0.012	0.013	0.009	2.613	$8.190 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.632	0.019	0.023	0.013	2.688	$1.196 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.669	0.027	0.034	0.018	2.748	$1.564 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.752	0.062	0.083	0.034	2.931	$2.971 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.778	0.080	0.110	0.042	3.010	$3.644 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.817	0.118	0.165	0.059	3.159	$4.941 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.857	0.178	0.252	0.083	3.371	$6.779 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.903	0.281	0.400	0.125	3.710	$9.605 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.936	0.388	0.555	0.167	4.045	$1.219 \times 10^5$	
800. GeV	$8.001 \times 10^5$	3.015	0.832	1.197	0.337	5.381	$2.073 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	3.041	1.062	1.529	0.423	6.055	$2.423 \times 10^5$	
1.01 TeV	$1.009 \times 10^6$	3.042	1.072	1.543	0.427	6.083	<i>Muon critical energy</i>	
1.40 TeV	$1.400 \times 10^6$	3.080	1.525	2.190	0.600	7.394	$3.020 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	3.122	2.235	3.202	0.868	9.427	$3.737 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	3.170	3.426	4.886	1.330	12.814	$4.644 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.205	4.638	6.594	1.800	16.238	$5.336 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.291	9.543	13.473	3.758	30.066	$7.118 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.319	12.024	16.937	4.766	37.047	$7.716 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.362	16.975	23.840	6.844	51.021	$8.633 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.408	24.464	34.250	10.036	72.159	$9.617 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	3.462	36.935	51.573	15.576	107.546	$1.074 \times 10^6$	
40.0 TeV	$4.000 \times 10^7$	3.501	49.471	68.950	21.262	143.185	$1.155 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.596	99.760	138.518	45.123	286.998	$1.348 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.627	124.977	173.343	57.492	359.440	$1.410 \times 10^6$	