

**Table 044: Muons in Ruthenium**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	a	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
44 (Ru)	101.07 (2)	12.410	441.0	0.19342	2.8707	0.0599	3.0834	4.7694	0.14
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	$4.704 \times 10^1$	4.772				4.772	$1.191 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.770				3.770	$2.143 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.977				2.977	$3.954 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.334				2.334	$7.798 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	2.005				2.005	$1.245 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.524				1.524	$3.604 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.439				1.439	$4.958 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.355				1.355	$7.835 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.314				1.314	$1.235 \times 10^2$		
253. MeV	$3.431 \times 10^2$	1.307				1.307	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.310	0.000		0.000	1.310	$1.999 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.327	0.000		0.000	1.327	$2.757 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.408	0.001		0.000	1.409	$5.679 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.441	0.001		0.000	1.443	$7.081 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.494	0.002	0.000	0.001	1.496	$9.800 \times 10^2$		
2.00 GeV	$2.103 \times 10^3$	1.551	0.003	0.001	0.001	1.555	$1.373 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.615	0.004	0.003	0.001	1.623	$2.001 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.659	0.006	0.005	0.002	1.672	$2.608 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.759	0.016	0.016	0.003	1.794	$4.909 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.789	0.021	0.022	0.004	1.836	$6.011 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.831	0.032	0.035	0.005	1.904	$8.149 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.874	0.049	0.057	0.008	1.989	$1.123 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.919	0.081	0.099	0.011	2.112	$1.611 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.949	0.114	0.146	0.015	2.225	$2.072 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	2.017	0.258	0.349	0.030	2.654	$3.715 \times 10^4$		
100. GeV	$1.001 \times 10^5$	2.037	0.334	0.458	0.037	2.867	$4.440 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.068	0.490	0.684	0.051	3.294	$5.741 \times 10^4$		
200. GeV	$2.001 \times 10^5$	2.100	0.735	1.041	0.073	3.949	$7.402 \times 10^4$		
225. GeV	$2.254 \times 10^5$	2.110	0.839	1.190	0.082	4.222	<i>Muon critical energy</i>		
300. GeV	$3.001 \times 10^5$	2.136	1.153	1.639	0.109	5.038	$9.640 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.162	1.585	2.258	0.145	6.151	$1.143 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.224	3.370	4.799	0.293	10.687	$1.631 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.244	4.287	6.099	0.369	13.000	$1.800 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.275	6.127	8.692	0.522	17.618	$2.064 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.308	8.941	12.651	0.755	24.657	$2.350 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.346	13.642	19.231	1.155	36.375	$2.682 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.374	18.406	25.880	1.561	48.222	$2.920 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.441	37.618	52.615	3.245	95.921	$3.497 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.463	47.302	66.055	4.110	119.932	$3.683 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.497	66.618	92.871	5.885	167.873	$3.964 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.534	95.768	133.268	8.606	240.177	$4.261 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.576	144.295	200.482	13.309	360.663	$4.599 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.606	193.001	267.858	18.123	481.589	$4.838 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.682	388.132	537.566	38.226	966.607	$5.412 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.706	485.870	672.550	48.610	1209.737	$5.597 \times 10^5$		