

Attenuation of activity of a Sr-90 beta source with thickness of aluminium
4P1. Lab P6 Winchester College. 9th March 2020.

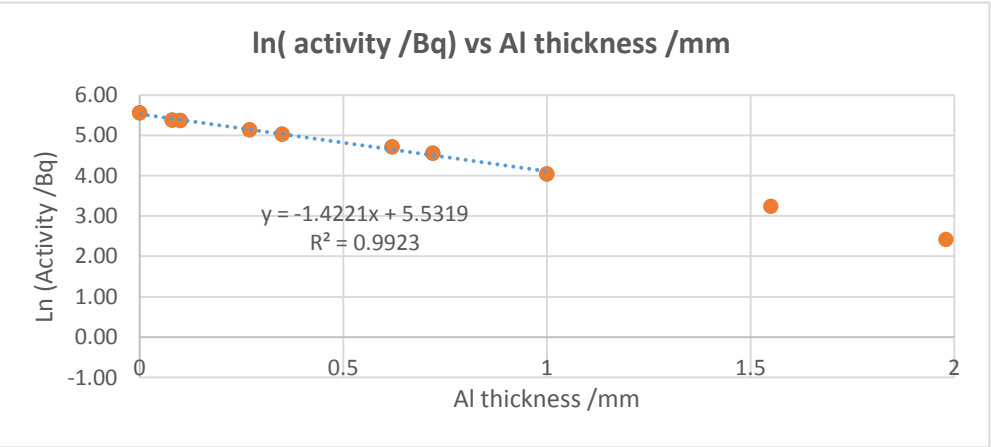
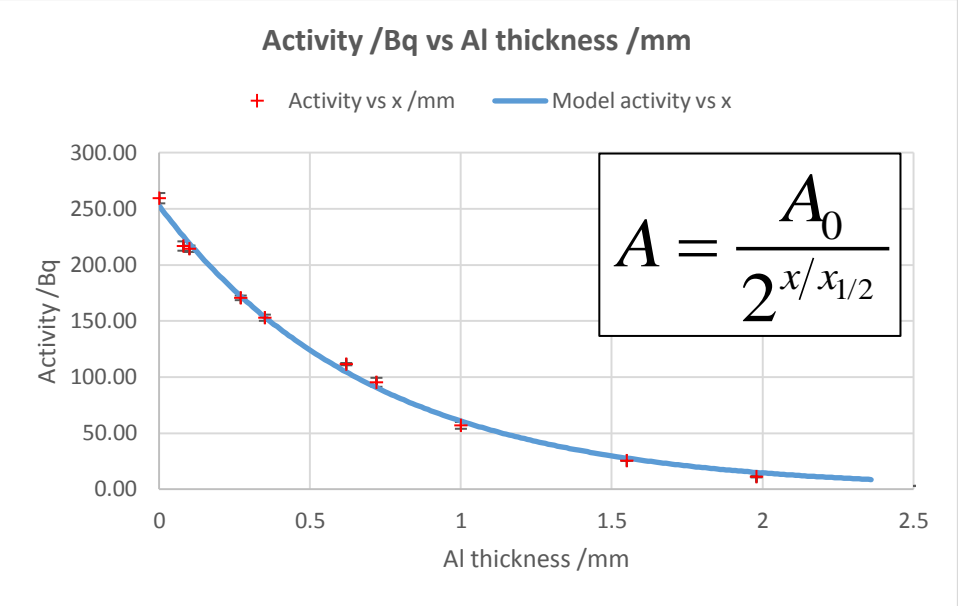
Counts /10s				Average activity /Bq	Activity standard deviation /Bq	ln(activity)	thickness of Al /mm
2565	2556	2672	2583	259.40	4.61	5.56	0
2182	2111	2225	2153	216.78	4.16	5.38	0.08
2130	2153	2107	2184	214.35	2.85	5.37	0.1
1741	1695	1699	1689	170.60	2.05	5.14	0.27
1484	1531	1554	1548	152.93	2.75	5.03	0.35
1116	1122	1125	1099	111.55	1.01	4.71	0.62
1015	963	914	923	95.38	3.99	4.56	0.72
589	532	550	609	57.00	3.05	4.04	1
259	252	258	254	25.58	0.29	3.24	1.55
102	115	118	115	11.25	0.62	2.42	1.98
33	30	29	31	3.08	0.15	1.12	2.52
4	8	11	5	0.70	0.27	-0.36	6.43

$$\ln A_0 = 5.5319 \quad \therefore A_0 = 252.6$$
$$-\frac{\ln 2}{x_{1/2}} = -1.4221 \quad \therefore x_{1/2} = 0.487\text{mm}$$

half thickness /mm
0.49

Model activity when thickness = 0
253

Sr-90 source placed 3cm from GM tube for all measurements (i.e. 3cm air gap)



MODEL ACTIVITY	
x /mm	A/Bq
0	252.60
0.01	249.03
0.02	245.51
0.03	242.04
0.04	238.62
0.05	235.25
0.06	231.92
0.07	228.65
0.08	225.42
0.09	222.23
0.1	219.09
0.11	215.99
0.12	212.94
0.13	209.93