

# RESISTIVITY OF ALUMINIUM

A. French, Winchester College P5, 20/10/2020

Aluminium foil strip (measured round a 30cm ruler)

total length /cm	30.00
width /cm	3.18

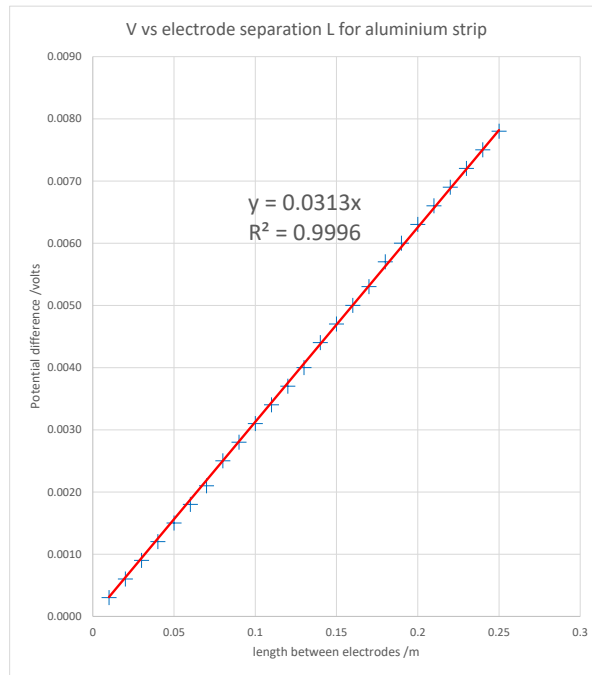
thickness of six folds /mm	0.59
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cross sectional area A /m <sup>2</sup>	2.93E-07
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voltage /mV	V /volts	L/cm	L/m
0.3	0.0003	1	0.01
0.6	0.0006	2	0.02
0.9	0.0009	3	0.03
1.2	0.0012	4	0.04
1.5	0.0015	5	0.05
1.8	0.0018	6	0.06
2.1	0.0021	7	0.07
2.5	0.0025	8	0.08
2.8	0.0028	9	0.09
3.1	0.0031	10	0.1
3.4	0.0034	11	0.11
3.7	0.0037	12	0.12
4	0.0040	13	0.13
4.4	0.0044	14	0.14
4.7	0.0047	15	0.15
5	0.0050	16	0.16
5.3	0.0053	17	0.17
5.7	0.0057	18	0.18
6	0.0060	19	0.19
6.3	0.0063	20	0.2
6.6	0.0066	21	0.21
6.9	0.0069	22	0.22
7.2	0.0072	23	0.23
7.5	0.0075	24	0.24
7.8	0.0078	25	0.25

Current I /A

0.314



$$V = IR$$

$$R = \frac{\rho L}{A}$$

$$V = I \frac{\rho L}{A}$$



$$\frac{I\rho}{A} = 0.0313$$

$$\therefore \rho = \frac{0.0313 \times 2.93 \times 10^{-7}}{0.314}$$

$$\rho = 2.92 \times 10^{-8} \text{ } \Omega \text{m}$$

[Pure Aluminium:

$$\rho = 2.82 \times 10^{-8} \text{ } \Omega \text{m}]$$

Note Al foil is an Alloy