ANNEX I

Some Selected Parameters

Gold. The resonance integral of 1558 barns has been widely used, and was also used in this thesis. With regard to S_o, the value of 17.3 given by Westcott (12) was used although there has been some measurement resulting in the best value of 17.0 (11).

Indium. There has been two sources of information for σ_r which were determined by activation method.

$$\sigma_r = 2640 \quad (9)$$

$$\sigma_r = 2500 \quad (14)$$

The latter was adopted since it was published more recently. Concerning S_o, it is felt that Westcott's value (12) is too high

$$S_o = 19.87 \quad (12)$$

$$S_o = 18.8 \quad (11)$$

The latter value was adopted. It has not been verified whether the adopted values for σ_r and S_o are consistent although this may be done.

ANNEX II

G_{th} and G_r of gold

In all cases, G_{th} were calculated as the pure self-shielding correction.

G_r were determined using the curve in the published report by Roe.

mg/cm^2	G_{th}	G_r
11	.99	.62
16.7	.98	.53
33.8	.97	.40
47.9	.962	.34
53.7	.96	.325
70.5	.95	.29
113.7	.92	.24

ANNEX III

G_r of Manganese

Since the $\frac{1}{v}$ part contributes a large fraction of the resonance integral, G_r needs special consideration. G_r for different thicknesses have been given, defined as a correction for resonance fraction in some literatures.

gm/cm^2	G_r
.005	.958
.014	.903
.042	.820

From these data which are felt to be very good, one can extrapolate to obtain G_r for other thicknesses very conveniently.

ANNEX IV

Error Calculation

The error is defined as follows :

$$\text{error} = \sqrt{\frac{\sum(a_n - \bar{a})^2}{n(n-1)}}$$

Where n is the number of observations. For examples, n = 9 for gold, 4 for indium and 21 for manganese

Mn

a_n = CdR	$(a_n - \bar{a})$	$(a_n - \bar{a})^2$
102.63	0.21	0.044
103.97	1.55	2.402
100.25	2.17	4.709
102.49	0.07	0.005
101.52	0.9	0.810
103.48	1.06	1.124
101.92	0.50	0.250
102.49	0.07	0.005
102.36	0.06	0.004
102.63	0.21	0.044

Mn (cont.)

a_n = CdR	$(a_n - \bar{a})$	$(a_n - \bar{a})^2$
103.40	0.98	0.960
101.46	0.96	0.922
103.74	1.32	1.742
102.92	0.50	0.250
102.42	0.00	0.00
101.95	0.47	0.221
101.91	0.51	0.260
102.89	0.47	0.221
101.84	0.58	0.336
103.21	0.79	0.624
101.25	1.17	1.369
Σ=2150.73		Σ=16.302

$$\text{error} = \sqrt{\frac{\sum_{n=1} (a_n - \bar{a})^2}{n(n-1)}}$$

$$= \sqrt{\frac{16.302}{21 \times 20}}$$

$$= .197$$

Au

$a_n = r\sqrt{\frac{T}{T_o}}$ x 10^{-3}	$(a_n - \bar{a})$ x 10^{-3}	$(a_n - \bar{a})^2$ x 10^{-6}
8.97	.26	.068
9.59	.36	.129
9.32	.09	.008
9.14	.09	.008
9.04	.19	.036
9.31	.08	.006
9.08	.15	.022
9.51	.28	.078
9.07	.16	.026
Σ=83.03		Σ= .382

$$\text{error} = \sqrt{\frac{\sum_{n=1}^{9} (a_n - \bar{a})^2}{n(n-1)}}$$

$$= \sqrt{\frac{.382 \times 10^{-6}}{8 \times 9}}$$

$$= .729 \times 10^{-4}$$

In

a_n = CdR	$a_n - \bar{a}$	$(a_n - \bar{a})^2$
7.39	.06	.004
7.39	.06	.004
7.26	.07	.005
7.27	.06	.004
Σ = 29.31		Σ = .017

$$\text{error} = \sqrt{\frac{\sum_{n=1}^{4} (a_n - \bar{a})^2}{n(n-1)}}$$

$$= \sqrt{\frac{.017}{12}}$$

$$= .036$$

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