

HP6

Ettingshausen Effect

$$\Delta T = \frac{\text{PHI}}{t}$$

$$\text{Cu; } P = -1.6 \times 10^{-10} \frac{\text{ }^\circ\text{C-cm}}{\text{amp-gauss}}$$

Nernst Effect

$$V = QHb \frac{dT}{dx}$$

$$\text{Li; } Q = 1.6 \times 10^{-2} \frac{\text{volts}}{\text{gauss} \cdot \text{ }^\circ\text{C}}$$

Righi-Leduc Effect

$$\Delta T = SHb \frac{dT}{dx}$$

$$\text{Cu; } S = -2.3 \times 10^{-7} (\text{gauss})^{-1}$$

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For  $I = 3$  amperes,  $B = 6000$  gauss,  $t = .05$  cm,  $b = 1$  cm,  $d = 4$  cm,  $\frac{dT}{dx} = \frac{1^\circ\text{C}}{\text{cm}}$

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$$\Delta T = -5 \times 10^{-5} \text{ }^\circ\text{C}$$

$$V = 10^{-9} \text{ volts}$$

$$\Delta T = -1.4 \times 10^{-3} \text{ }^\circ\text{C}$$

Table 2-1

The Ettingshausen, Nernst and Righi-Leduc Effects