

### Electrolysis Basics

**Electrolysis:** Non-spontaneous reaction converting electrical energy into chemical

#### Electrode Charges

**Anode:** Positive (+)

**Cathode:** Negative (-)

☞ Anode still oxidises

☞ Cathode still reduces

### Faraday's Law

#### 1st Electrolysis Law

☞ Amount of substance made/used is directly proportional to electrical charge through cell

#### 2nd Electrolysis Law

☞ To make 1 mole of a substance, electrons must be consumed (dependent on substance's charge)

### Electrolytes

#### Aqueous Solution

☞ Assume H<sub>2</sub>O is also present

☞ H<sub>2</sub>O may 'interfere' with reaction

#### Molten Electrolyte

☞ Pure substance

☞ No H<sub>2</sub>O present

### Electrochemical Series

☞ Strongest oxidant at cathode reacts with strongest reductant at anode

☞ Unwanted reactions may occur if other substances are present

#### Shape

☞ 'Z' - shaped on series

☞ Flatter 'Z' for stronger reaction

### Associated Formulas

#### Electrical Charge Formula

$$Q = I \times t$$

#### Mole No. Of Electrons Formula

$$n(e^-) = Q \div F$$

#### Mole Ratio

$$\text{Unknown} \div \text{Known}$$

#### Molar Formula

$$n = m \div M_r$$



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