

Priesty Anastasia E. Wiwaron XII MIPA 3

Tugas Hukum Faraday

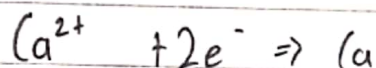
1. Berapa gram kalsium yang dapat dihasilkan dari elektrolisis  $\text{CaCl}_2$  dengan elektroda grafit selama satu jam jika digunakan arus 10 A? (Ar Ca = 40)

⇒ dik: elektrolit = lelehan  $\text{CaCl}_2$

$$I = 10 \text{ A}$$

$$t = 1 \text{ jam} = 3600 \text{ detik}$$

$$\text{Ar Ca} = 40 \text{ gram/mol}$$



$$ME = \frac{\text{Ar}}{\text{PBO}} = \frac{40}{2} = 20$$

$$w = \frac{(ME \cdot I \cdot t)}{96500} = \frac{20 \cdot 10 \cdot 3600}{96500} = \frac{36000}{96500} = \frac{40 \cdot 36}{193}$$

$$w = \frac{1440}{193} = \underline{\underline{7,46}} \text{ gram}$$

2. Sejumlah arus dapat mengendapkan 1,56 gram perak dari larutan  $\text{AgNO}_3$ . Jika arus yang sama selama selang waktu yang sama ke dalam lelehan  $\text{AlCl}_3$ , berapa gram aluminium yang dapat diendapkan? (Ar Ag = 108; Al = 27)

$$\Rightarrow W_1 : W_2 = e_1 : e_2$$

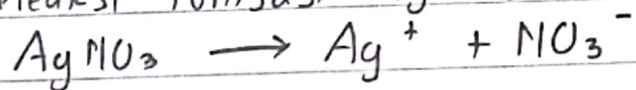
$$\text{Diket: } W_{\text{Ag}} = 1,56 \text{ gram}$$

$$\text{Ar Ag} = 108$$

$$\text{Ar Al} = 27$$

massa aluminium ?

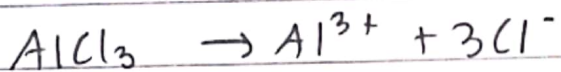
Reaksi ionisasi  $\text{AgNO}_3$  adalah



ion  $\text{Ag} = 1$

$$e_{\text{Ag}} = \frac{108}{1} \rightarrow 108$$

Reaksi mas ionisasi  $\text{AlCl}_3$  adalah



ion  $\text{Al} = 3$

$$e_{\text{Al}} = \frac{27}{3} = 9$$

$$W_{\text{Ag}} : W_{\text{Al}} = e_{\text{Ag}} : e_{\text{Al}}$$

$$1,56 : W_{\text{Al}} = 108 : 9$$

$$W_{\text{Al}} = \frac{1,56 \cdot 9}{108}$$

$$W_{\text{Al}} = 0,13 \text{ gram}$$

Massa aluminium adalah 0,13 gram