

LAMPIRAN A DATA PENGAMATAN

Data Hasil Analisis

Tabel A.1 Hasil Analisis Kandungan Gas Hidrogen

No	Perlakuan Sampel		Hasil Pemeriksaan
	Konsentrasi KOH(M)	Berat Aluminium (gr)	H ₂ (ppm)
1	1	2	2,29
2	1	2,5	3,41
3	1	3	4,76
4	1,5	2	2,76
5	1,5	2,5	3,94
6	1,5	3	5,47
7	2	2	3,05
8	2	2,5	4,52
9	2	3	5,88
10	2,5	2	4,11
11	2,5	2,5	5,58
12	2,5	3	5,88

Sumber : Gas Detector Analyzer Laboratorium Teknik Kimia POLSRI, 2022

Tabel A.2 Hasil Volume Gas Hidrogen

Konsentrasi KOH (M)	Berat Aluminium (gr)	Diameter Penampung (cm)	Volume H ₂ (m ³)	Volume H ₂ (liter)
1	2	12	$0,90 \times 10^{-3}$	0,9
	2,5	13,7	$1,34 \times 10^{-3}$	1,34
	3	15,4	$1,91 \times 10^{-3}$	1,91
1,5	2	14,2	$1,47 \times 10^{-3}$	1,47
	2,5	15	$1,76 \times 10^{-3}$	1,76
	3	16,8	$2,4 \times 10^{-3}$	2,4
2	2	15,7	$2,02 \times 10^{-3}$	2,02
	2,5	17,1	$2,61 \times 10^{-3}$	2,61
	3	18,2	$3,15 \times 10^{-3}$	3,15
2,5	2	17	$2,57 \times 10^{-3}$	2,57
	2,5	19,5	$3,88 \times 10^{-3}$	3,88
	3	20,8	$4,70 \times 10^{-3}$	4,70

Tabel A.3 Suhu Reaksi

Konsentrasi KOH (M)	Berat Aluminium (gr)	Waktu (menit)					
		10	20	30	40	50	60
1	2	76,9°C	67,7°C	62°C	57,2°C	48,9°C	41°C
	2,5	75,7°C	66,9°C	57°C	52,2°C	44,4°C	40,2°C
	3	70°C	60,6°C	55,7°C	50,1°C	43°C	37,8°C
1,5	2	73,5°C	63,3°C	57,3°C	52°C	43,8°C	39,9°C
	2,5	72,1°C	62°C	55,5°C	49,4°C	43,1°C	38°C
	3	68,8°C	60,1°C	52,7°C	46,6°C	41,5°C	35,2°C
2	2	71,4°C	62°C	54,1°C	48,7°C	42,2°C	35,8°C
	2,5	65,2°C	58,2°C	51,2°C	45,3°C	37,7°C	33,5°C
	3	62,9°C	54,3°C	47,5°C	42,1°C	36,7°C	32,1°C
2,5	2	67°C	58,7°C	52°C	45,9°C	38°C	34,2°C
	2,5	59,9°C	51,5°C	41,6°C	35°C	34,3°C	31,1°C
	3	56,3°C	44°C	37,5°C	33,6°C	33°C	30,7°C

LAMPIRAN B PERHITUNGAN

Menghitung Volume Gas Hidrogen

$$V = \frac{4}{3}\pi r^3$$

Dimana :

$$V = \text{Volume (cm}^3\text{)}$$

$$\Pi = 22/7 \text{ atau } 3,14$$

$$R = \text{jari-jari (cm)}$$

Sampel 1 : Berat Aluminium 2 gr; Konsentrasi KOH 1 M

$$\begin{aligned} V &= \frac{4}{3} \times 3,14 \text{ cm} \times 6^3 \text{ cm} \\ &= 904,319 \text{ cm}^3 \\ &= 0,90 \times 10^{-3} \text{ m}^3 \\ &= 0,90 \text{ liter} \end{aligned}$$

Sampel 2 : Berat Aluminium 2,5 gr; Konsentrasi KOH 1 M

$$\begin{aligned} V &= \frac{4}{3} \times 3,14 \text{ cm} \times 6,85^3 \text{ cm} \\ &= 1.345,674 \text{ cm}^3 \\ &= 1,34 \times 10^{-3} \text{ m}^3 \\ &= 1,34 \text{ liter} \end{aligned}$$

Sampel 3 : Berat Aluminium 3 gr; Konsentrasi KOH 1 M

$$\begin{aligned} V &= \frac{4}{3} \times 3,14 \text{ cm} \times 7,7^3 \text{ cm} \\ &= 1.911,35 \text{ cm}^3 \\ &= 1,91 \times 10^{-3} \text{ m}^3 \\ &= 1,91 \text{ liter} \end{aligned}$$

Sampel 4 : Berat Aluminium 2 gr; Konsentrasi KOH 1,5 M

$$\begin{aligned} V &= \frac{4}{3} \times 3,14 \text{ cm} \times 7,1^3 \text{ cm} \\ &= 1.498,454 \text{ cm}^3 \\ &= 1,49 \times 10^{-3} \text{ m}^3 \\ &= 1,49 \text{ liter} \end{aligned}$$

Sampel 5 : Berat Aluminium 2,5 gr; Konsentrasi KOH 1,5 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 7,5^3 \text{ cm} \\ &= 1.766,25 \text{ cm}^3 \\ &= 1,76 \times 10^{-3} \text{ m}^3 \\ &= 1,76 \text{ liter}\end{aligned}$$

Sampel 6 : Berat Aluminium 3 gr; Konsentrasi KOH 1,5 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 8,4^3 \text{ cm} \\ &= 2.481,454 \text{ cm}^3 \\ &= 2,48 \times 10^{-3} \text{ m}^3 \\ &= 2,48 \text{ liter}\end{aligned}$$

Sampel 7 : Berat Aluminium 2 gr; Konsentrasi KOH 2 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 7,85^3 \text{ cm} \\ &= 2.025,244 \text{ cm}^3 \\ &= 2,02 \times 10^{-3} \text{ m}^3 \\ &= 2,02 \text{ liter}\end{aligned}$$

Sampel 8 : Berat Aluminium 2,5 gr; Konsentrasi KOH 2 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 8,55^3 \text{ cm} \\ &= 2.616,777 \text{ cm}^3 \\ &= 2,61 \times 10^{-3} \text{ m}^3 \\ &= 2,61 \text{ liter}\end{aligned}$$

Sampel 9 : Berat Aluminium 3 gr; Konsentrasi KOH 2 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 9,1^3 \text{ cm} \\ &= 3.154,95 \text{ cm}^3 \\ &= 3,15 \times 10^{-3} \text{ m}^3 \\ &= 3,15 \text{ liter}\end{aligned}$$

Sampel 10 : Berat Aluminium 2 gr; Konsentrasi KOH 2,5 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 8,5^3 \text{ cm} \\&= 2.571,136 \text{ cm}^3 \\&= 2,57 \times 10^{-3} \text{ m}^3 \\&= 2,57 \text{ liter}\end{aligned}$$

Sampel 11 : Berat Aluminium 2,5 gr; Konsentrasi KOH 2,5 M

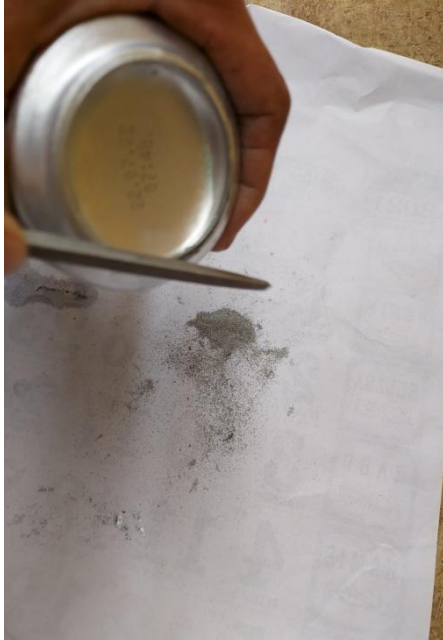
$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 9,75^3 \text{ cm} \\&= 3.880,45 \text{ cm}^3 \\&= 3,88 \times 10^{-3} \text{ m}^3 \\&= 3,88 \text{ liter}\end{aligned}$$

Sampel 12 : Berat Aluminium 3 gr; Konsentrasi KOH 2,5 M

$$\begin{aligned}V &= \frac{4}{3} \times 3,14 \text{ cm} \times 10,4^3 \text{ cm} \\&= 4.709,43 \text{ cm}^3 \\&= 4,70 \times 10^{-3} \text{ m}^3 \\&= 4,70 \text{ liter}\end{aligned}$$

LAMPIRAN C DOKUMENTASI

A. Preparasi Bahan



Gambar 1. Menghaluskan Kaleng Bekas Minuman merk “Pocari Sweat”

B. Pembuatan Larutan Kalium Hidroksida



Gambar 2. Menimbang Kalium Hidroksida



Gambar 3. Menambahkan Aquades sebanyak 50 mL dan dimasukkan ke labu ukur

C. Pembuatan Gas Hidrogen



Gambar 4. Menimbang serbuk Aluminium



Gambar 5. Mencampurkan Serbuk Aluminium dengan KOH



Gambar 6. Menutup Erlenmeyer dengan penutup karet



Gambar 7. Mereaksikan Serbuk Aluminium dan KOH selama 60 menit untuk memperoleh Gas Hidrogen



Gambar 8. Mengukur suhu reaksi tiap 10 menit



Gambar 9. Mengambil Balon yang terdapat Gas Hidrogen didalamnya



Gambar 10. Hasil Gas Hidrogen yang didapatkan selama 60 menit