

**LAMPIRAN 1**  
**HASIL PENGAMATAN**

**1. Hasil Pengamatan dan Analisis Produk**

**Tabel 1.** Hasil Pengamatan

Percobaan Ke-	Hidrolisa		Waktu Evaporasi	Densitas (gr/ml)		Viskositas	
	Asam Sulfat	Arang Aktif		Sebelum	Sesudah	Sebelum	Sesudah
				Evaporasi	Evaporasi	Evaporasi	Evaporasi
1	1 %	50 gr	60 menit	1,0648	1,0708	2,07 cP	2,23 cP
2	1 %	50 gr	75 menit	1,0648	1,0732	2,07 cP	2,23 cP
3	2 %	5 gr	60 menit	1,0688	1,0720	2,11 cP	2,23 cP
4	2 %	5 gr	75 menit	1,0688	1,0748	2,11 cP	2,25 cP

**Tabel 2.** Hasil Analisis Produk

Sampel	pH		Kadar Xylose (mg/ml)	Kadar Xylitol (mg/ml)	Warna dan Bau	
	Sebelum Evaporasi	Sesudah Evaporasi			Sebelum Evaporasi	Sesudah Evaporasi
Percobaan 1	7	8	1,935	0,754	Warna: keruh Bau: aroma jagung	Warna: bening dengan endapan Bau: aroma jagung
Percobaan 2	7	8	1,941	0,765	Warna: keruh Bau: aroma jagung	Warna: bening dengan endapan Bau: aroma jagung
Percobaan 3	8	6	1,963	0,788	Warna: keruh Bau: aroma jagung	Warna: bening dengan endapan Bau: aroma jagung
Percobaan 4	8	6	1,969	0,790	Warna: keruh Bau: aroma jagung	Warna: bening dengan endapan Bau: aroma jagung

## 2. Perhitungan

### 2.1 Proses Persiapan Bahan

- a. Perhitungan volume pengenceran asam sulfat 1% dari asam sulfat 90%

$$\begin{aligned} (\text{Kadar} \times \text{volume})_1 &= (\text{Kadar} \times \text{volume})_2 \\ 1\% \times 5000 \text{ ml} &= 90\% \times (\text{volume})_2 \\ (\text{volume})_2 &= \frac{1\% \times 5000 \text{ ml}}{90\%} = 55,55 \text{ ml} \\ \text{Volume aquadest} &= (5000 - 55,55) \text{ ml} \\ &= 4944,45 \text{ ml} \end{aligned}$$

- b. Perhitungan volume pengenceran asam sulfat 2% dari asam sulfat 90%

$$\begin{aligned} (\text{Kadar} \times \text{volume})_1 &= (\text{Kadar} \times \text{volume})_2 \\ 2\% \times 5000 \text{ ml} &= 90\% \times (\text{volume})_2 \\ (\text{volume})_2 &= \frac{2\% \times 5000 \text{ ml}}{90\%} = 111,1 \text{ ml} \\ \text{Volume aquadest} &= (5000 - 111,1) \text{ ml} \\ &= 4888,9 \text{ ml} \end{aligned}$$

- c. Perhitungan massa jenis xylose hasil hidrolisa (asam sulfat 1%)

$$\begin{aligned} \text{Massa piknometer kosong (a)} &= 15,96 \text{ gram} \\ \text{Massa piknometer berisi etanol (b)} &= 42,67 \text{ gram} \\ \text{Volume piknometer (c)} &= 25 \text{ ml} \\ \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,67 - 15,96)g}{25 \text{ ml}} \\ &= 1,0684 \text{ g/ml} \end{aligned}$$

- d. Perhitungan massa jenis xylose hasil hidrolisa (asam sulfat 2%)

$$\begin{aligned} \text{Massa piknometer kosong (a)} &= 15,96 \text{ gram} \\ \text{Massa piknometer berisi etanol (b)} &= 42,68 \text{ gram} \\ \text{Volume piknometer (c)} &= 25 \text{ ml} \\ \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,68 - 15,96)g}{25 \text{ ml}} \\ &= 1,0688 \text{ g/ml} \end{aligned}$$

- e. Perhitungan viskositas xylose hasil hidrolisa (asam sulfat 1%)

$$\begin{aligned} t_x &= 1,94 \text{ detik} \\ d_x &= 1,0684 \text{ g/ml} \end{aligned}$$

$$\begin{aligned}\text{Viskositas xylose } (\mu x) &= \frac{tx \times dx}{t0 \times d0} \times \mu 0 \\ &= \frac{1,94 \text{ s} \times 1,0648 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 2,07 \text{ cP}\end{aligned}$$

f. Perhitungan viskositas xylose hasil hidrolisa (asam sulfat 2%)

$$tx = 1,97 \text{ detik}$$

$$dx = 1,0688 \text{ g/ml}$$

$$\begin{aligned}\text{Viskositas xylose } (\mu x) &= \frac{tx \times dx}{t0 \times d0} \times \mu 0 \\ &= \frac{1,97 \text{ s} \times 1,0688 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 2,11 \text{ cP}\end{aligned}$$

## 2.2 Hasil Evaporasi dan Analisi Produk

a. Perhitungan massa jenis xylose hasil evaporasi (asam sulfat 1% ; waktu 60 menit)

$$\text{Massa piknometer kosong (a)} = 15,96 \text{ gram}$$

$$\text{Massa piknometer berisi etanol (b)} = 42,73 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned}\text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,73-15,96)\text{g}}{25 \text{ ml}} \\ &= 1,0708 \text{ g/ml}\end{aligned}$$

b. Perhitungan massa jenis xylose hasil hidrolisa (asam sulfat 1% ; waktu 75 menit)

$$\text{Massa piknometer kosong (a)} = 15,96 \text{ gram}$$

$$\text{Massa piknometer berisi etanol (b)} = 42,79 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned}\text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,79-15,96)\text{g}}{25 \text{ ml}} \\ &= 1,0732 \text{ g/ml}\end{aligned}$$

c. Perhitungan massa jenis xylose hasil hidrolisa (asam sulfat 2% ; waktu 60 menit)

$$\text{Massa piknometer kosong (a)} = 15,96 \text{ gram}$$

$$\text{Massa piknometer berisi etanol (b)} = 42,76 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned}\text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,76-15,96)\text{g}}{25 \text{ ml}}\end{aligned}$$

$$= 1,0720 \text{ g/ml}$$

- d. Perhitungan massa jenis xylose hasil hidrolisa (asam sulfat 2% ; waktu 75 menit)

$$\text{Massa piknometer kosong (a)} = 15,96 \text{ gram}$$

$$\text{Massa piknometer berisi etanol (b)} = 42,83 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned} \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,83-15,96)\text{g}}{25 \text{ ml}} \\ &= 1,0748 \text{ g/ml} \end{aligned}$$

- e. Perhitungan viskositas xylose hasil hidrolisa (asam sulfat 1% ; waktu 60 menit)

$$t_x = 2,08 \text{ detik}$$

$$d_x = 1,0708 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu\text{x}) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{2,08 \text{ s} \times 1,0708 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 2,23 \text{ cP} \end{aligned}$$

- f. Perhitungan viskositas xylose hasil hidrolisa (asam sulfat 1% ; waktu 75 menit)

$$t_x = 2,08 \text{ detik}$$

$$d_x = 1,0732 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu\text{x}) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{2,08 \text{ s} \times 1,0732 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 2,23 \text{ cP} \end{aligned}$$

- g. Perhitungan viskositas xylose hasil hidrolisa (asam sulfat 2% ; waktu 60 menit)

$$t_x = 2,08 \text{ detik}$$

$$d_x = 1,0720 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu\text{x}) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{2,08 \text{ s} \times 1,0720 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 2,23 \text{ cP} \end{aligned}$$

- h. Perhitungan viskositas xylose hasil hidrolisa (asam sulfat 2% ; waktu 75 menit)

$$t_x = 2,09 \text{ detik}$$

$$d_x = 1,0748 \text{ g/ml}$$

$$\text{Viskositas xylose } (\mu\text{x}) = \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0$$

$$= \frac{2,09 \text{ s} \times 1,0748 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP}$$
$$= 2,25 \text{ cP}$$

## LAMPIRAN 2

### FOTO

#### 1. Foto Bahan



Hidrolisat dalam autoklaf



Hidrolisat ditambah arang aktif

#### 2. Foto Alat



Alat evaporator



Kegiatan praktikum

#### 3. Foto Produk

