

LAMPIRAN

PERHITUNGAN

1. Perhitungan massa EDTA

0,01 M EDTA dalam 100 ml aquadest

$$0,01 = \frac{gr}{Mr} \times \frac{1000}{V}$$

$$0,01 = \frac{gr}{372} \times \frac{1000}{100 \text{ ml}}$$

$$3,72 = 10 \text{ gr}$$

$$gr = 0,372 \text{ gr}$$

2. Perhitungan Massa NaOH

0,1 N NaOH dalam 100 ml aquadest

$$0,1 = \frac{gr}{Mr} \times \frac{1000}{V} \times e$$

$$0,1 = \frac{gr}{40} \times \frac{1000}{100} \times 1$$

$$gr = 0,4 \text{ gr}$$

3. Perhitungan Kesadahan dengan Ion *Exchanger* kombinasi zeolit

$$\text{kesadahan} = \frac{V \text{ EDTA} \times M \text{ EDTA} \times 1000 / \text{ml sampel}}{V \text{ sampel}}$$

Menit ke nol

$$\frac{1,4 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 1,4 \text{ ppm}$$

Menit ke 20

$$\frac{1,2 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 1,2 \text{ ppm}$$

Menit ke 40

$$\frac{1,0 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 1,0 \text{ ppm}$$

Menit ke 60

$$\frac{0,8 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 0,8 \text{ ppm}$$

Menit ke 80

$$\frac{0,6 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 0,6 \text{ ppm}$$

Menit ke 100

$$\frac{0,4 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 0,4 \text{ ppm}$$

4. Perhitungan penurunan Kesadahan dengan ion exchanger tanpa kombinasi zeolit

$$\text{kesadahan} = \frac{V \text{ EDTA} \times M \text{ EDTA} \times 1000 / \text{ml sampel}}{V \text{ sampel}}$$

Menit ke nol

$$\frac{1,4 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 1,4 \text{ ppm}$$

Menit ke 20

$$\frac{1,3 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 1,3 \text{ ppm}$$

Menit ke 40

$$\frac{1,1 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 1,1 \text{ ppm}$$

Menit ke 60

$$\frac{0,9 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 0,9 \text{ ppm}$$

Menit ke 80

$$\frac{0,8 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 0,8 \text{ ppm}$$

Menit ke 100

$$\frac{0,7 \times 0,01 \times 1000 \text{ ml}}{10 \text{ ml}} = 0,7 \text{ ppm}$$

LAMPIRAN FOTO



Ion Exchanger


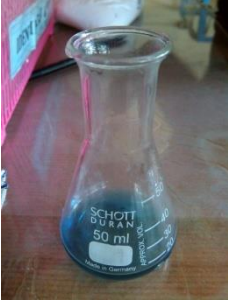







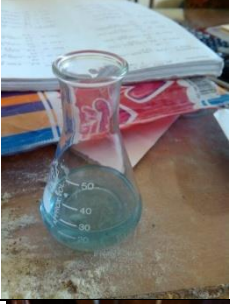




PH 5 : 10





Buret dan klem statif




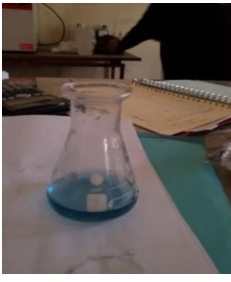





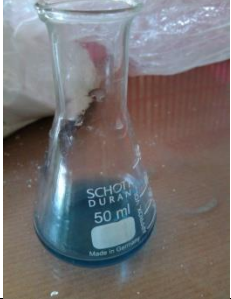
Titrasi kesadahan tanpa kombinasi zeolit

Menit	Sebelum titrasi	Sesudah titrasi
0		
20		

40				
60				
80				
100				

Titrasi kesadahan dengan kombinasi zeolit

Menit ke	Sebelum titrasi	Sesudah Titrasi
0		

20	 A 50 mL Erlenmeyer flask containing a pink liquid, sitting on a wooden surface.	 A 50 mL Erlenmeyer flask containing a blue liquid, sitting on a white surface.
40	 A 50 mL Erlenmeyer flask containing a pink liquid, sitting on a white surface.	 A 50 mL Erlenmeyer flask containing a blue liquid, sitting on a white surface.
60	 A 50 mL Erlenmeyer flask containing a pink liquid, sitting on a white surface with a notebook in the background.	 A 50 mL Erlenmeyer flask containing a blue liquid, sitting on a white surface.
80	 A 50 mL Erlenmeyer flask containing a pink liquid, sitting on a white surface.	 A 50 mL Erlenmeyer flask containing a blue liquid, sitting on a wooden surface. The flask has a label that reads "SCHOTT DURAN 50 ml".
100	 A 50 mL Erlenmeyer flask containing a pink liquid, sitting on a wooden surface.	 A 50 mL Erlenmeyer flask containing a blue liquid, sitting on a wooden surface. The flask has a label that reads "SCHOTT DURAN 50 ml".