LAMPIRAN

PERHITUNGAN

1. **Perhitungan massa EDTA**

   0,01 M EDTA dalam 100 ml aquadest

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

   $$0{,}01 = \frac{gr}{372} \; x \; \frac{1000}{100\ ml}$$

   3,72 = 10 gr

   gr = 0,372 gr

2. Perhitungan Massa NaOH

   0,1 N NaOH dalam 100 ml aquadest

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

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

   gr = 0,4 gr

3. Perhitungan Kesadahan tanpa kombinasi karbon aktif

   $$kesadahan = \frac{V\ EDTA \; x \; M\ EDTA \; x \; {}^{1000}/_{ml\ sampel}}{V\ sampel}$$

   Menit ke nol

   $$\frac{1{,}2 \; x \; 0{,}01 \; x \; 1000\ ml}{10\ ml} = 1{,}2\ ppm$$

   Menit ke 10

   $$\frac{1{,}1 \; x \; 0{,}01 \; x \; 1000\ ml}{10\ ml} = 1{,}1\ ppm$$

   Menit ke 20

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

Menit ke 30

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

Menit ke 40

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

Menit ke 50

$$\frac{0{,}5 \ \ x \ \ 0{,}01 \ \ x\ 1000\ ml}{10\ ml} \ = 0{,}5\ ppm$$

4. Perhitungan penurunan Kesadahan dengan ion exchanger kombinasi karbon aktif

$$kesadahan \ = \frac{V\ EDTA \ \ x\ M\ EDTA \ \ x \ \ {}^{1000}/_{ml\ sampel}}{V\ sampel}$$

Menit ke nol

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

Menit ke 10

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

Menit ke 20

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

Menit ke 30

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

Menit ke 40

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

Menit ke 50

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

LAMPIRAN FOTO

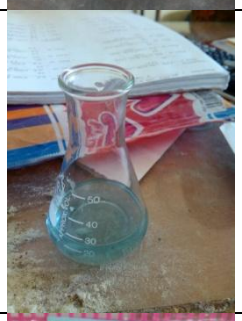
Ion Exchanger

PH 5 : 10

Buret dan klem statif

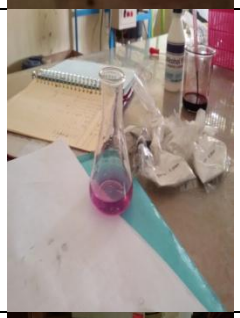
Titrasi kesadahan tanpa kombinasi karbon aktif

Menit	Sebelum titrasi	Sesudah titrasi
0		
10		

20		
30		
40		
50		

Titrasi kesadahan dengan kombinasi karbon aktif

Menit ke	Sebelum titrasi	Sesudah Titrasi
0		

10		
20		
30		
40		
50