LAMPIRAN

1. Perhitungan Pembuatan Bahan Analisa

- EDTA 0,01 M dalam 1000 ml

  Sifat kimia :

  Massa molar 372 gr/mol

  Rumus :

$$M = \frac{gr}{Mr}\ x\ \frac{1000\ ml}{V}$$

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

$$gr = 3{,}72\ gram$$

- NaOH 1 N dalam 100 ml

  Sifat kimia :

  Massa molar 40 gr/mol

  Rumus :

$$N = \frac{gr}{Mr}\ x\ \frac{1000\ ml}{V} x\ e$$

$$1\ N = \frac{gr}{40}\ x\ \frac{1000\ ml}{100\ ml} x\ 1$$

$$gr = 4\ gram$$

2. Perhitungan Kesadahan

$$kesadahan\ (ppm)\ = \frac{1000}{V_{contoh\ uji}} \times V_{EDTA} \times M_{EDTA} \times 100$$

- Perhitungan Kesadahan pada Air Awal (Air Sungai Blibis)

$$kesadahan = \frac{1000}{20\ mL} \times 4{,}1\ mL \times 0{,}01\ mmol/mL \times 100 = 205\ ppm$$

- Perhitungan Kesadahan pada Column Kation
  - Bukaan Valve 1/3

$$kesadahan = \frac{1000}{20\ mL} \times 0{,}4\ mL \times 0{,}01\ mmol/mL \times 100 = 20\ ppm$$

  - Bukaan Valve 2/3

$$kesadahan = \frac{1000}{20\ mL} \times 0{,}8\ mL \times 0{,}01\ mmol/mL \times 100 = 40\ ppm$$

  - Bukaan Valve Penuh (1)

$$kesadahan = \frac{1000}{20\ mL} \times 1{,}1\ mL \times 0{,}01\ mmol/mL \times 100 = 55\ ppm$$

- Perhitungan Kesadahan pada Column Anion
  - Bukaan Valve 1/3

$$kesadahan = \frac{1000}{20\ mL} \times 0{,}3\ mL \times 0{,}01\ mmol/mL \times 100 = 15\ ppm$$

  - Bukaan Valve 2/3

$$kesadahan = \frac{1000}{20\ mL} \times 0{,}6\ mL \times 0{,}01\ mmol/mL \times 100 = 30\ ppm$$

  - Bukaan Valve Penuh (1)

$$kesadahan = \frac{1000}{20\ mL} \times 1{,}0\ mL \times 0{,}01\ mmol/mL \times 100 = 50\ ppm$$

3. Foto Hasil Pengamatan

- Keadaan Sungai Blibis

- Analisa Kesadahan
  - Sebelum titrasi (setelah penambahan indikator EBT)







  - Setelah titrasi