

Parameter: TH, Ca, Mg

Name of Supervisor: Mr. Md. A. Rafiq

Sample details: SR00025, 26, 27, 28 } FW/RDKL/234

Allocation date: 7, 10-11-23

Analysis date: 13/11/23

| SLNO | Requisition No. Sample Code | Sample vol (ml) | IR | FR | Titre Value (mL) | Total Hardness (mg CaCO ₃ /L) |
|------|--|-----------------|------|------|------------------|--|
| 1 | RN: RDKL/FW/2324/SR00025 SC: 2324/RDKL/FW/FW/L00025 | 50 | 0 | 8.3 | 8.3 | 166 |
| 2 | RN: RDKL/FW/2324/SR00026 SC: 2324/RDKL/FW/FW/L00026 | 50 | 8.4 | 18.1 | 9.7 | 194 |
| 3 | RN: RDKL/FW/2324/SR00027 SC: 2324/RDKL/FW/FW/L00027 | 50 | 18.1 | 34.5 | 16.4 | 328 |
| 4 | RN: RDKL/WW/2324/SR00028 SC: 2324/RDKL/WW/WW/L00028 | 25 | 0 | 15 | 15 | 600 |
| | Standard analysis for Calagmite | 10 | 0 | 10 | 10 | |

| SLNO | Requisition No. Sample Code | Sample vol (ml) | IR | FR | Titre Value (mL) | Calcium Hardness (mg CaCO ₃ /L) | Ca (mg/L) | Mg (mg/L) |
|------|--|-----------------|------|------|------------------|--|-----------|-----------------------------------|
| 1 | RN: RDKL/FW/2324/SR00025 SC: 2324/RDKL/FW/FW/L00025 | 50 | 0 | 6 | 6 | 121.20 | 48.48 | 10.89 |
| 2 | RN: RDKL/FW/2324/SR00026 SC: 2324/RDKL/FW/FW/L00026 | 50 | 6 | 13.2 | 7.2 | 145.44 | 58.18 | 11.80 |
| 3 | RN: RDKL/FW/2324/SR00027 SC: 2324/RDKL/FW/FW/L00027 | 50 | 13.2 | 20.4 | 7.2 | 145.44 | 58.18 | 44.36 |
| 4 | RN: RDKL/WW/2324/SR00028 SC: 2324/RDKL/WW/WW/L00028 | 25 | 0 | 9.2 | 9.2 | 371.84 185.84 8.2 | 148.67 | 55.44 100.64 8.2 |
| | Standard analysis for Murexide | 10 | 0 | 9.9 | 9.9 | - | - | - |

Calculation:

$$\text{EDTA equiv for Calagmite Indicator (C)} = \frac{\text{CaCO}_3 \text{ vol} \times \text{CaCO}_3 \text{ strength}}{\text{Titre (EDTA) Vol}} = \frac{10 \times 1}{10} = 1$$

$$\text{EDTA equiv for Murexide Indicator (M)} = \frac{\text{CaCO}_3 \text{ vol} \times \text{CaCO}_3 \text{ strength}}{\text{Titre (EDTA) Vol}} = \frac{10 \times 1}{9.9} = 1.01$$

$$\text{Total Hardness (mg/CaCO}_3\text{L)} = \frac{\text{Titre (EDTA) Vol (mL)} \times C \times 1000}{\text{Sample Volume (mL)}}$$

$$\text{Calcium Hardness (mg/CaCO}_3\text{L)} = \frac{\text{Titre (EDTA) Vol (mL)} \times M \times 1000}{\text{Sample Volume (mL)}}$$

$$\text{Ca (mg/L)} = \frac{\text{Titre (EDTA) Vol (mL)} \times M \times 400}{\text{Sample Volume (mL)}}$$

$$\text{Mg (mg/L)} = (\text{Total Hardness} - \text{Calcium Hardness}) \times 0.243$$

S. Anwar

Parameter: $\text{NO}_3^- \text{N}$ Sample details: FW/SR00025 } RDKL/2324
 WW/SR00036/37 }

Name of Supervisor: Mr. Md. A. Rafiq Allocation date: 07-11-23

Analysis date: 8/11/23

Parameter Name

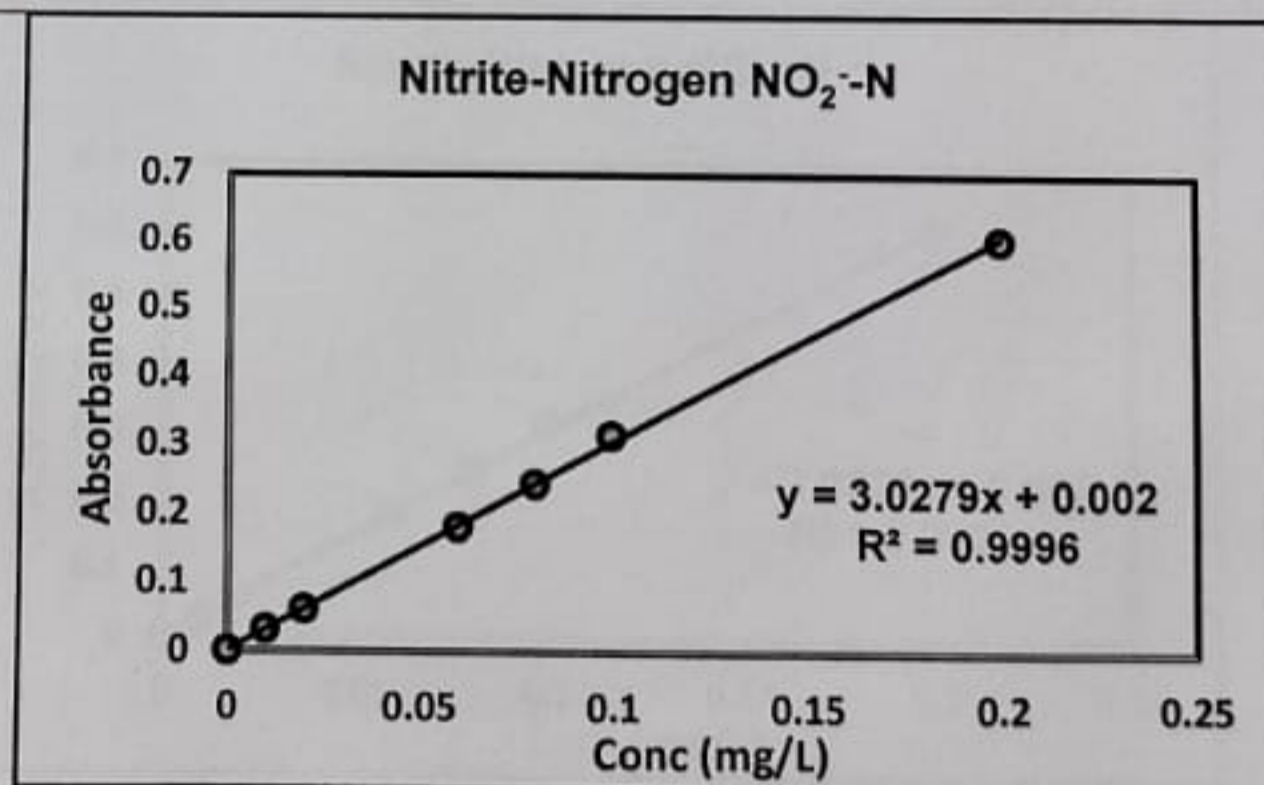
Calculation

$$\text{NO}_2^- \text{N} = \left(\frac{\text{Abs} - \text{Intercept}}{\text{Slope}} \right) \times \text{Df}$$

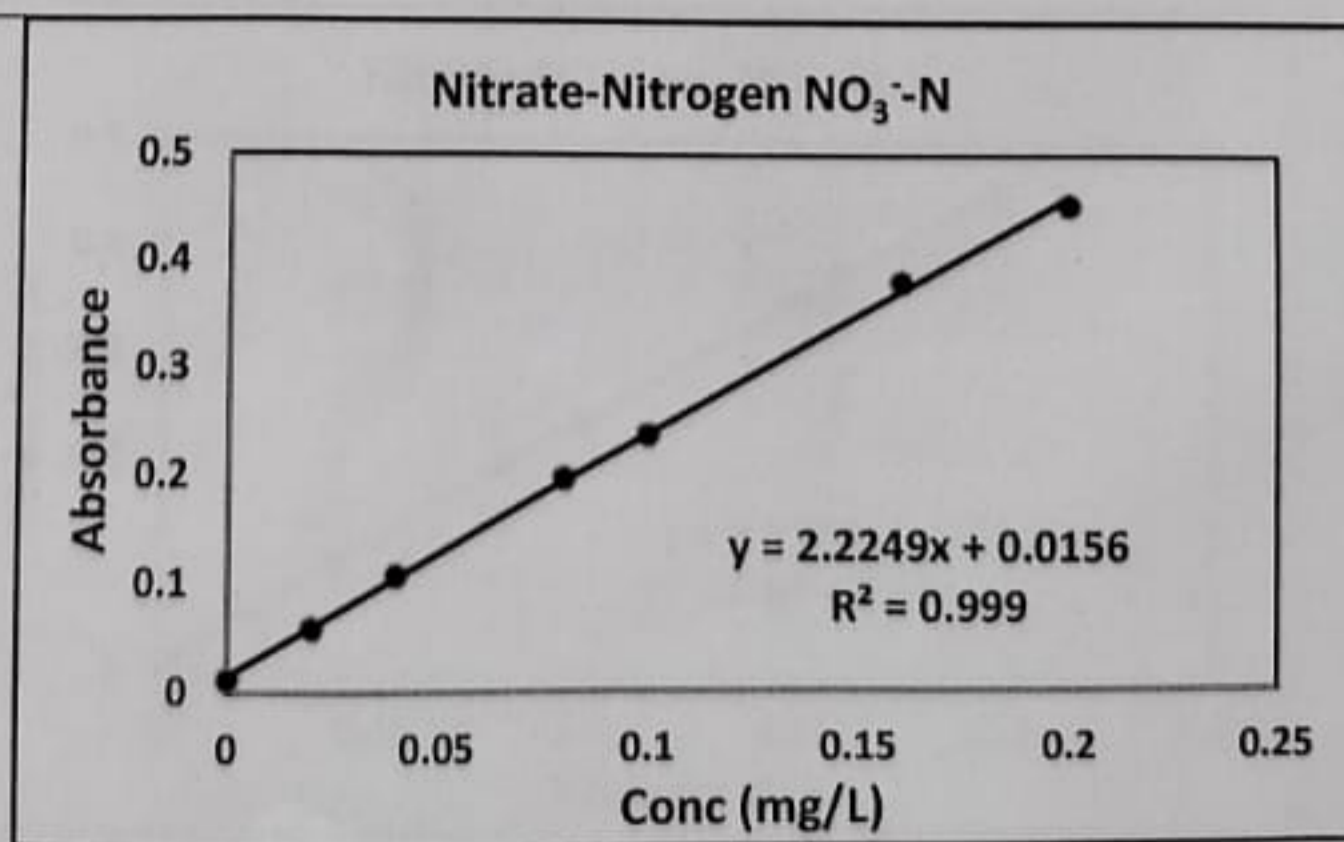
$$\text{NO}_3^- \text{N} = \left(\frac{\text{Abs} - \text{Intercept}}{\text{Slope}} \right) \times \text{A} \times \text{Df}$$

| SL NO. | Requisition No. Sample Code | Nitrite Estimation (mg/L) | | | Nitrate Estimation (mg/L) | | | |
|--------|--|---------------------------|----|--------------------------|---------------------------|----|---|--------------------------|
| | | Abs | DF | $\text{NO}_2^- \text{N}$ | Abs | DF | $(\text{NO}_2^- \text{N}) + (\text{NO}_3^- \text{N})$ | $\text{NO}_3^- \text{N}$ |
| 1 | RN: RDKL/FW/2324/SR00025 SC: 2324/RDKL/FW/FW/L00025 | 0.003 | 1 | 0.000 | 0.017 | 1 | 0.003 | 0.00/BLQ |
| 2 | RN: RDKL/WW/2324/SR00036 SC: 2324/RDKL/WW/WW/L00063 | 0.008 | 1 | 0.002 | 0.019 | 1 | 0.006 | 0.00/BLQ |
| 3 | RN: RDKL/WW/2324/SR00036 SC: 2324/RDKL/WW/WW/L00064 | 0.527 | 1 | 0.173 | 0.236 | 1 | 0.396 | 0.22 |
| 4 | RN: RDKL/WW/2324/SR00037 SC: 2324/RDKL/WW/WW/L00066 | 0.418 | 1 | 0.137 | 0.179 | 1 | 0.294 | 0.16 |
| 5 | RN: RDKL/WW/2324/SR00037 SC: 2324/RDKL/WW/WW/L00069 | 0.013 | 1 | 0.004 | 0.02 | 1 | 0.008 | 0.00/BLQ |
| | Blank | 0.002 | - | - | 0.009 | - | - | - |

| Conc. (mg/L) | Abs (543 nm) |
|--------------|--------------|
| 0 | 0.001 |
| 0.01 | 0.032 |
| 0.02 | 0.061 |
| 0.06 | 0.181 |
| 0.08 | 0.244 |
| 0.1 | 0.314 |
| 0.2 | 0.604 |
| Slope | 3.028 |
| Intercept | 0.002 |



| Conc(mg/L) | Abs (543 nm) |
|------------|--------------|
| 0 | 0.012 |
| 0.02 | 0.059 |
| 0.04 | 0.107 |
| 0.08 | 0.196 |
| 0.1 | 0.237 |
| 0.16 | 0.38 |
| 0.2 | 0.453 |
| Slope | 2.2249 |
| Intercept | 0.0156 |



Baq

M. Rafiq
28.11.23

SLNO

1

2

3

4

SLNO

1

2

3

4