**EXPERIMENT NO. 01**

**Determination of chloride content of the given unknown water sample**

**by Mohr’s method**

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| **CO - 4** | Analyze the quality of water and suggest suitable methods of treatment. |

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| **AIM** | **:** | To determine the chloride content of the given water sample by Mohr’s method. |
| **REAGENTS**  **REQUIRED** | **:** | 1. 0.01 N Standard Sodium chloride (0.01 N NaCl) solution  2. Silver Nitrate (AgNO3) solution  3. Potassium Chromate (K2CrO4) as an indicator  4. Unknown water sample |
| **APPARATUS REQUIRED** | **:** | Burette, pipette, conical flask, wash bottle, burette stand |
| **REACTIONS** | **:** | AgNO3 + NaCl → AgCl ↓ + NaNO3  (white ppt)  2AgNO3 + K2CrO4 → Ag2CrO4 ↓ + KNO3  (Brick red ppt) |
| **PROCEDURE** | **:** | **Part I : Standardisation of AgNO3**   1. Pipette out 10 ml of given 0.01 N Standard Sodium chloride (NaCl) solution. 2. Add 2 drops of Potassium Chromate (K2CrO4) indicator. 3. Add slowly silver nitrate solution (AgNO3) from a burette, while stirring the solution in the conical flask constantly. 4. Continue the titration until the solution acquires ***a******faint brick red colour.*** 5. Note the end point. 6. Repeat the steps 1-4, till you obtain constant readings.   **Part II : Determination of Chloride content**   1. Similarly, titrate the given water sample as mentioned in the Part I (Step 1-6). 2. Calculate the concentration of chloride (in ppm) in the given unknown water sample. |
| **CALCULATIONS** | **:** | 1. N1V1 (AgNO3) = N2V2 (NaCl) 2. a. 1 ml of 1N AgNO3 solution ≡ 35.5 mg of Cl-   ‘***Y’ ml*** of N1 N AgNO3 = N1 x Y x 35.5/1 = ***‘a’ mg*** of Cl-  b. 10 ml of unknown water sample contains ‘***a’ mg*** of Cl-  1L of will contain ‘***100a’ mg*** of Cl-  Therefore,  ***Concentration of Chloride in given unknown water sample = 100a ppm*** |
| **RESULT** | **:** | The Chloride Content of the given water sample = --------ppm. |



**EXPERIMENT NO. :**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **DATE :**  \_\_\_\_\_\_\_\_\_\_\_\_\_

**DIVISION/ BATCH :**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **SAP ID :** \_\_\_\_\_\_\_\_\_\_\_\_

**COURSE :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ COURSE CODE :\_\_\_\_\_\_\_\_\_\_**

**NAME :** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**COURSE OUTCOME : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**AIM :** To determine the Chloride content of water by Mohr’s method.

**REAGENTS :** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**GLASSWARE :** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**CHEMICAL :** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**REACTIONS**

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**PROCEDURE :** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**OBSERVATIONS :**

**TABLE 1 : STANDARDISATION OF AgNO3 SOLUTION**

Volume of standard sodium chloride for each determination = \_\_\_\_\_\_\_\_ml

|  |  |  |  |
| --- | --- | --- | --- |
| Reading (ml) | Trial  1 | Trial  2 | Trial  3 |
| Initial  Reading |  |  |  |
| Final  Reading |  |  |  |
| Volume of \_\_\_\_\_\_\_\_\_\_  Solution |  |  |  |

CBR (X) = \_\_\_\_\_\_\_\_\_\_ml

**TABLE 2 : DETERMINATION OF CHLORIDE CONTENT OF WATER SAMPLE**

Volume of water sample for each determination = \_\_\_\_\_\_\_\_\_\_\_ml

|  |  |  |  |
| --- | --- | --- | --- |
| Reading (ml) | Trial  1 | Trial  2 | Trial  3 |
| Initial  Reading |  |  |  |
| Final  Reading |  |  |  |
| Volume of \_\_\_\_\_\_\_\_\_\_  Solution |  |  |  |

CBR (Y) = \_\_\_\_\_\_\_\_\_\_ml

**CALCULATIONS :**

1. Normality of NaCl solution = \_\_\_\_\_\_\_\_\_\_\_\_N
2. Normality of AgNO3 solution

N1V1 (AgNO3) = N2V2 (NaCl)

N1 x X = 0.01 x 10

* 1. x 10

N1 = -------------------

X

1. Chloride content of the sample:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**RESULT :** The concentration of chloride in given water sample is \_\_\_\_\_\_\_\_\_\_\_\_ppm

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| **D.J.S.C.E. (Chemistry)** | | |
| **Journal** | | |
| **(Lab Ethics)** | **5** |  |
| **(Performance)** | **5** |  |
| **(Documentation)** | **5** |  |
| **(Knowledge)** | **5** |  |
| **(Punctuality)** | **5** |  |
| **Total** | **25** |  |

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| **DATE** | **SIGNATURE OF FACULTY** |