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**SAMPLE: Potassium Chloride**

1. **IDENTIFICATION REACTIONS OF IONS**

* **CATIONS** *(describe briefly reactions)***: Potassium (K+)**

1. Dissolve 0.1g of the substance to be examined in 2ml of water R or use 2ml of the prescribed solution. Add 1ml of sodium carbonate solution R and heta. No precipitate is formed. Add to the hot solution .05ml of sodium sulphide solution R. No precipitate is formed. Cool in iced water and 2ml of a 150g/L solution of tartaric acid R. allow to stand. A white crystalline precipitate is formed.
2. Dissolve about 40mg of the substance to be examined in 1ml of water R or use 1ml of the prescribed solution. Add 1ml of dilute acetic acid R and 1ml of a freshly prepared 100g/L solution of sodium cobaltinitrite R. A yellow or orange-yellow precipitate is formed immediately.

* **ANIONS** *(describe briefly reactions)***: Chloride (Cl-)**

1. Dissolve in 2ml of water R a quantity of the substance to be examined equivalent to about 2mg of chloride or 2ml of the prescribed solution. Acidify with dilute nitric acid R and add 0.4ml of silver nitrate solution R1. Shake and allow to stand. A curdled, white precipitate is formed. Centrifuge and wash the precipitate with three quantities, each of 1 ml of water R. Carry out this operation rapidly in subdue light, disregarding the fact that the supernatant solution may not become perfectly clear. Suspend the precipitate in 2ml of water R and add 1.5ml of ammonia R. The precipitate dissolves easily with the possible exception of a few large particles which dissolve slowly.
2. Introduce into a test-tube a quantity of the substance to be examined equivalent to about 15mg of chloride or the prescribed quantity. Add 0.2g of potassium dichromate R and 1ml of sulfuric acid R. place a filter-paper strip impregnated with 0.1ml of diphenyl carbazide solution R over the opening of the test-tube. The paper turns violet-red. The impregnated paper must not come into contact with the potassium dichromate.
3. **ASSAY**

**Volumetric solutions**: 0.1 M Ag NO3(Silver Nitrate), 0.1M Ammonium thiocyanate

**Titre of volumetric solutions:** 0.9998 , 0.9897

|  |  |  |  |
| --- | --- | --- | --- |
| **Titration No.** | **m [g]** *(4 decimal places)* | **Consumption of VS [ml]** | **ASSAY** |
| **1.** | 1.3256 g | 10.56 | 81.85 |
| **2.** | 1.2988 g | 10.87 | 81.77 |
| **3.** | 1.3004 g | 10.35 | 84.63 |
| **4.** | 1.3006 g | 10.54 | 83.53 |
| **Average** | | | **82.95** |

**CALCULATION PROCEDURE:**

1. **𝑥 (%)= ((V1∗f1)-(V2\*F2))∗m∗100)/q**

**V2**= 10.56ml **F2**=0.9897 **M**=7.46mg/ml **q**=1.3256g(1325.6mg) **F1**=0.9998, **V1**=25ml

**X=** ((25\*0.9998)-(10.56\*0.9897))7.46\*100)/1325.6

**=**8.1847 X10**= 81.8471**

1. **𝑥 (%)= ((V1∗f1)-(V2\*F2))∗m∗100)/q**

= (25\*0.9998)-(10.87\*0.9897))\*7.46\*100)/1298.8

**=**8.17737 X10**= 81.7737**

1. **𝑥 (%)= ((V1∗f1)-(V2\*F2))∗m∗100)/q**

X= ((25\*0.9998)-(10.35\*0.9897))\*7.46\*100)/1300.4

**=** 8.4625X10**= 84.6254**

1. **𝑥 (%)= ((V1∗f1)-(V2\*F2))∗m∗100)/q**

X=((25\*0.9998)-(10.54\*0.9897)\*7.46\*100)/1300.6

**=** 8.35338X10**= 83.5339**

**STATISTICAL EVALUATION:**

**Range: R = (Xmax-Xmin)**= 84.63-81.77 = **2.86**

**Standard deviation** *(estimated from range)***: sd = kn\*R=** K4\* R = 0.4857\*2.86= **1.3891**

**Relative standard deviation: RSD = (SD/AVERAGE)\*100=** (1.3891/82.95)\*100= **1.6746**

**CONCLUSION** *(does your sample meet/not meet Ph. Eur)***:**

Potassium chloride **doesn’t meet pharmacopeia** because our content says that potassium chloride is found in the range of 99% to 100.5%. Our average is 82.945% and it’s not in the range of content that is given to us.