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SAMPLE: Potassium Bromide

1) IDENTIFICATION REACTIONS OF IONS

- **CATIONS** (*describe briefly reactions*):

Solutions S gives the reactions of potassium

- Dissolve 0.1 g of the substance to be examined in 2 mL of water R or use 2 mL of the prescribed solution. Add 1 mL of sodium carbonate solution R and heat. No precipitate is formed. Add to the hot solution 0.05 mL of sodium sulfide solution R. No precipitate is formed. Cool in iced water and add 2 mL of a 150 g/L solution of tartaric acid R. Allow to stand. A white crystalline precipitate is formed.
- b) Dissolve about 40 mg of the substance to be examined in 1 mL of water R or use 1 mL of the prescribed solution. Add 1 mL of dilute acetic acid R and 1 mL of a freshly prepared 100 g/L solution of sodium cobaltinitrite R. A yellow or orange-yellow precipitate is formed immediately.

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

- Dissolve in 2 mL of water R a quantity of the substance to be examined equivalent to about 3 mg of bromide (Br^-) or use 2 mL of the prescribed solution. Acidify with dilute nitric acid R and add 0.4 mL of silver nitrate solution R1. Shake and allow to stand. A curdled, pale yellow precipitate is formed. Centrifuge and wash the precipitate with three quantities, each of 1 mL, of water R. Carry out this operation rapidly in subdued light disregarding the fact that the supernatant solution may not become perfectly clear. Suspend the precipitate obtained in 2 mL of water R and add 1.5 mL of ammonia R. The precipitate dissolves with difficulty.

2) ASSAY

Volumetric solutions: 0,1 M AgNO₃

Titre of volumetric solutions: 0.9998

Titration No.	m [g] (<i>4 decimal places</i>)	Consumption of VS [ml]	ASSAY
1.	2.0014	8.45	98.866
2.	2.1054	7.89	97.139
3.	2.0456	8.38	97.157
4.	1.9985	8.34	99.683
Average			98.211

CALCULATION PROCEDURE:

$$X1=(25 \times 0.9998 - 8.45 \times 0.9897) \times 11.90 \times 100 / 200.19 = 98.866$$

$$X2=(25 \times 0.9998 - 7.89 \times 0.9897) \times 11.90 \times 100 / 210.54 = 97.139$$

$$X3=(25 \times 0.9998 - 8.38 \times 0.9897) \times 11.90 \times 100 / 204.56 = 97.157$$

$$X4=(25 \times 0.9998 - 8.34 \times 0.9897) \times 11.90 \times 100 / 199.85 = 99.683$$

$$\bar{X} = 98.211$$

STATISTICAL EVALUATION:**Range:****R = 2.544****Standard deviation (estimated from range):****sd = 1.2722563617452****Relative standard deviation:****RSD = 1.30%****CONCLUSION (does your sample meet/not meet Ph. Eur): yes**