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POTASSIUM BROMATE TITRATION

Preparation and standardisation of 0.05 M Bromine solution using Sodium **Thiosulphate**

Bromine Solution Preparation

Dissolve 3 g of potassium bromate and 15 g of potassium bromide in sufficient water to produce 1000 ml.

Standardize the solution in the following manner.

Bromine Solution Standardization

Pipette 25.0 ml of the solution into a 500 ml iodine flask and dilute with 120 ml of water.

Add 5 ml of hydrochloric acid, insert the stopper in the flask and shake it gently.

Add 5 ml of potassium iodide solution, again insert the stopper and allow it to stand for 5 minutes in the dark.

Titrate the liberated iodine with 0.1 M sodium thiosulphate using 3 ml of starch solution, added towards the end of the titration, as an indicator.

1 ml of 0.1 M sodium thiosulphate is equivalent to 0.002784 g of Br2.

	$KBrO_3 + HI \longrightarrow HIO_3 + KBr$
	$IO_3^- + 5I^- + 6H^+ \longrightarrow 3I_2 + 3H_2O$
or	$KBrO_3 \equiv IO_3^- \equiv 3I_2 \equiv 6e$
or	$167.02 \text{ g KBrO}_3 \equiv 6000 \text{ ml N}$
or	$27.84 \text{ g KBrO}_3 \equiv 1000 \text{ ml N}$
or	$0.002784 \text{ g KBrO}_3 \equiv 1 \text{ ml of } 0.1 \text{ N Sodium thiosulphate}$

ASSAY OF PHENOL

Weigh accurately 0.5 g of phenol and dissolve in sufficient water to produce 500 ml in a volumetric flask. Mix 25.0 ml of this solution with 25.0 ml of 0.1 N potassium bromate in a 250 ml iodine flask and add to it 1 g of powdered KI and 10.0 ml of dilute hydrochloric acid. Moisten the glass stopper with a few drops of KI solution and place it in position. Set it aside in a dark place for 20 minutes while shaking the contents frequently in between. Add to it 10 ml of KI solution, shake the contents thoroughly and allow it to stand in the dark for a further duration of 5 minutes. Wash the stopper and neck of the flask carefully with distilled water, add 10 ml chloroform and titrate with the liberated iodine with 0.1 N sodium thiosulphate using freshly prepared starch as an indicator. Carry out a blank titration simultaneously and incorporate any necessary correction, if required. Each ml of 0.1 N potassium bromate is equivalent to 0.001569 g of C_6H_6O .

Thus, we have:

$$C_6H_5$$
—OH = $3Br_2$ = $6e$
or $94.11 \text{ g } C_6H_5$ —OH = 6000 ml N
or $15.685 \text{ g } C_6H_5$ —OH = 1000 ml N
or $0.001569 \text{ g } C_6H_5$ —OH = $1 \text{ ml } 0.1 \text{ N Potassium Bromate}$