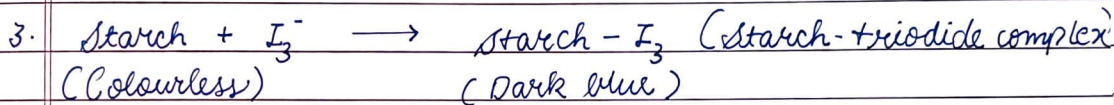
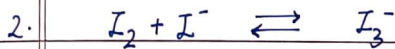
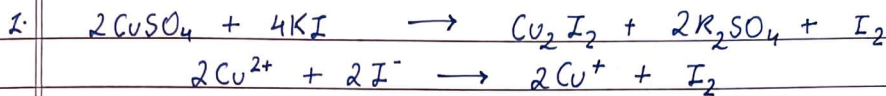


- Aim: Estimation of Cu in brass sample using standard sodium thiosulfate solution (Iodometric titration)

- Theory:



- Procedure:

1. 0.5g of brass is dissolved in 10ml conc. HNO_3 & dilute it upto 100ml with distilled water in standard measuring flask.
2. Pipette 10ml of this diluted alloy solution (test solⁿ) into a conical flask then add a few drops of dil. NH_4OH solⁿ until a slight permanent ppt. ^{remain}
3. The ppt is redissolved by adding acetic acid drop by drop till the solⁿ becomes clear.
4. Then about 5ml of a 5% KI solⁿ is added & titrate the ~~the~~ liberated iodine with 0.05N $\text{Na}_2\text{S}_2\text{O}_3$ solution from the burette using 1% starch solⁿ

Observation Table -

Sr No.	Initial Burette Reading (mL)	Final Burette Reading (mL)	Difference (mL)	Concurrent Reading (mL)
1	0.0	8.2	8.2	8.2
2	0.0	8.2	8.2	
3	0.0	8.2	8.2	
4	0.0	8.2	8.2	

Calculation -

$$1000\text{mL IN Na}_2\text{S}_2\text{O}_3 = 63.57\text{g of Cu} = 249.57\text{g CuSO}_4 \cdot 5\text{H}_2\text{O}$$

$$\therefore 1\text{mL IN Na}_2\text{S}_2\text{O}_3 = 0.06357\text{g of Cu} = 0.24957\text{g CuSO}_4 \cdot 5\text{H}_2\text{O}$$

$$A \text{ mL of } 0.05\text{N Na}_2\text{S}_2\text{O}_3 = 8.2\text{mL}$$

$$\therefore \text{Quantity of Cu in given sol}^n = A \times 0.05 \times 0.06357 \times 100 / 10$$

$$= B = \underline{\underline{0.26\text{g}}}$$

$$\% \text{ of Cu in the alloy} = X \times 100 / W = 52\%$$

B = quantity of Cu.

W = Weight of alloy taken = 0.5g

A = Constant Burette Reading

as an indicator.

5. The end point is marked with the disappearance of blue colour.
6. Repeat the titration 3-4 times.

• Observations :

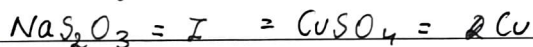
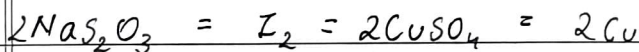
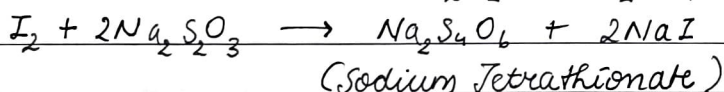
Burette - 0.05N $\text{Na}_2\text{S}_2\text{O}_3$ solution

Flask - 10mL dil. alloy solⁿ + NH_4OH (dropwise till slight permanent ppt) + HAc (till ppt dissolves) + 5% KI.

Indicator - Starch solⁿ (2-3 drop)

End pt - disappearance of blue colour

• Equations :



• Results :

1. 10mL of diluted solⁿ required = 8.2mL of 0.05N $\text{Na}_2\text{S}_2\text{O}_3$
2. Quantity of Cu in the given solⁿ = 0.26g
3. % of Cu in alloy = 52%