

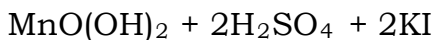
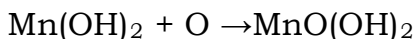
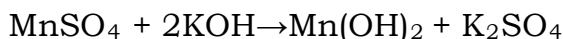
# Aim 33

## To Determine the Dissolved Oxygen Content of Water Sample

### Introduction

The water sample which gives low value of dissolved oxygen should be considered to contain high organic content. While which gives high value of dissolved oxygen should be considered to have low organic content. More the organic content means there is more microbes present to use the organic matter and this usage will reduce the oxygen content in water sample.

The titration method is used for the estimation of DO content. Combination of oxygen present in water with manganese hydroxide gives  $\text{MnO}(\text{OH})_2$  as product. The product thus formed liberate iodine equivalent to the oxygen combined with manganese hydroxides in the presence of KI on acidification. The iodine thus liberated is titrated against standard sodium thiosulphate solution using starch as an indicator.



↓



### Requirements

1. Burette
2. Pipette
3. BOD bottle

4. Collected water from different sources
5. Starch solution – 1%
6. Sulphuric acid (concentrated)
7. Sodium thiosulphate solution- 0.1N
8. Manganese sulphate solution – 10%
9. KOH solution – 10%
10. KI solution – 10%

**Procedure**

1. 50 ml of water sample in BOD bottle is taken.
2. 1 ml of manganous sulphate solution, 1 ml of KOH solution and 1 ml of KI solution are added.
3. Immediately replace the stopper.
4. Pour the contents in the bottle and mix well.
5. 2 ml of concentrated sulphuric acid is added and the contents are mixed.
6. Pour the material in conical flask.
7. The content is titrated with the standard sodium thiosulphate solution (see experiment 32, for standardizing the sodium thiosulphate solution) till the straw yellow colour appears.
8. Few drop of starch solution is added, (if blue colour appears) again do the titration with sodium thiosulphate solution until the blue colour disappears completely.

S. No.	Standard reading in the burette - A	End reading in the burette - B	Volume of sodium thiosulphate solution used = (B-A) ml
1.			
2.			
3.			
4.			
5.			
6.			

### Results

Dissolved oxygen content of water (mg/L) can be calculated by

$$DO = \{8 \times 1000 \times N \times V_t\} / V_s$$

DO = this is the content value since 1 ml of 1 mg of sodium thiosulphate solution is equivalent to 8 mg oxygen.

1000 = for 1000 ml

$V_s$  = Volume of sample taken (ml)

N = Normality of the titrant

$V_t$  = Volume of the titrant used (ml)

$$DO = \{8 \times 1000 \times 0.1 \times V_t\} / V_s$$

$$DO = \{800 \times V_t\} / V_s \text{ mg/L}$$