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Practical Inorganic Chemistry, Experiment 3

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University of Salahaddin-Hawler

Experiment 3:

Preparation of Barium peroxide



Outline

- Introduction
- Steps for the preparation of Barium peroxide
- Procedure
- Calculation

Introduction

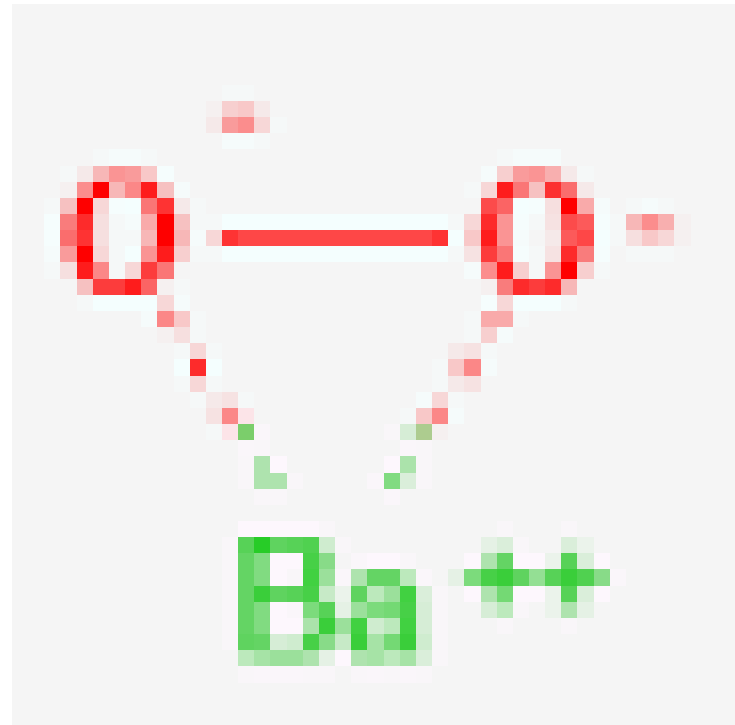
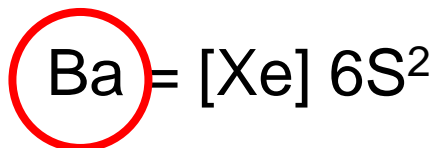
Barium peroxide is the inorganic compound with the formula **BaO₂**.

BaO₂ is white solid (grey when impure) is one of the most common inorganic peroxides.

Barium peroxide is an oxidizing agent which is used for **bleaching**. It is used in **firework** as an oxidizer and **pyrotechnic mixture**.

Introduction

The **stability** of peroxides MO_2 **increases** from CaO_2 to BaO_2 because the 1. The centers of the charge can approach more closed.
2. **lattice energy** increase from **top to bottom** because the size of the metal increase.

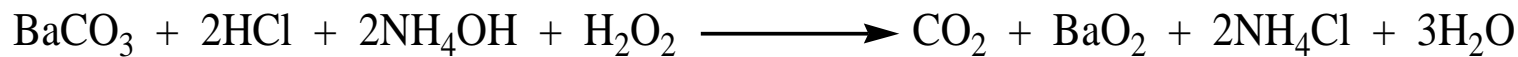
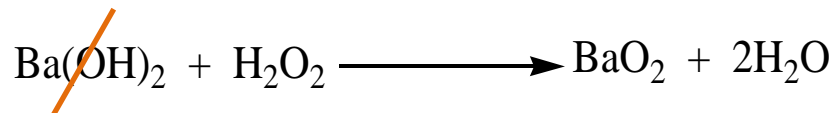
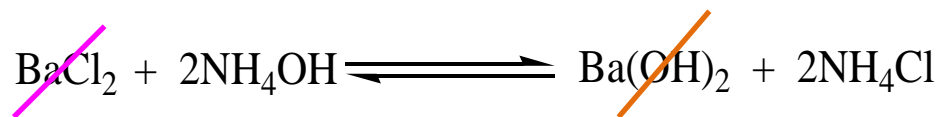
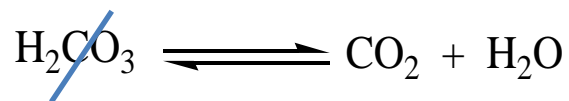
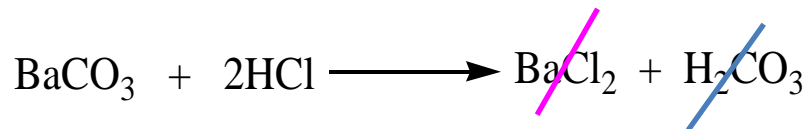


Why we must keep H₂O₂ in dark bottle????

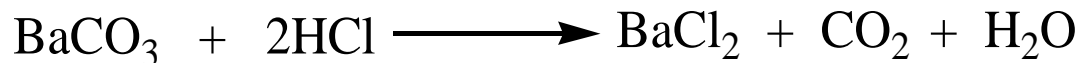
Hydrogen peroxide must be kept in dark bottle and in the fridge, because when it exposed to light or heat it decomposes to water and oxygen gas.



Steps for preparation of BaO₂



Main reactions:



Do You
Understand Me?



-Procedure

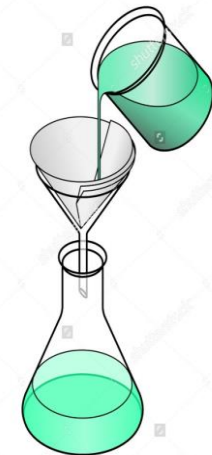




?
Boiling 10 min.



CO₂



filtration

1.8 g BaCO₃
8 ml HCl (1:1)

1



filtrate BaCl₂



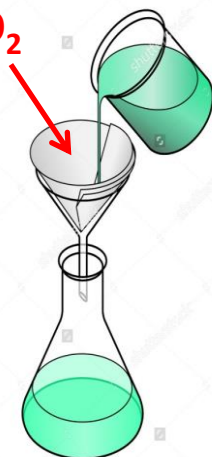
Cool in ice bath(20 min.)



1

With stirring

BaO₂



7.5 ml H₂O₂
3.7 ml **NH₄OH** (1:2) **?**

2

Any questions?

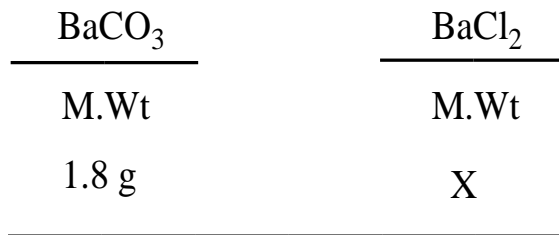


- Calculation

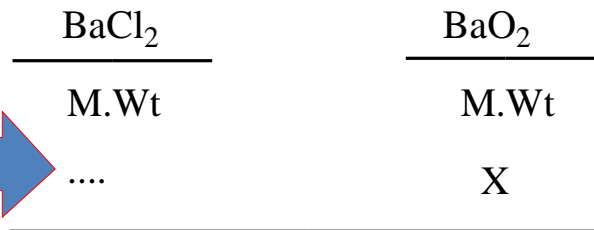
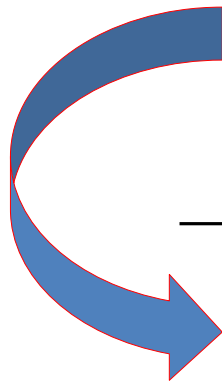
$$\% \text{ Yield} = \frac{\text{Practical Wt.}}{\text{Theoretical Wt.}} * 100$$



Wt. theory:



X=



X=

% Error=

$$\frac{\text{Pr. Wt.} - \text{Theo. Wt}}{\text{Theo. Wt.}} * 100$$

- Questions

- What is the application or usage of BaO_2 ?
- Why the stability of peroxides increase from top to bottom?
- Why we must store hydrogen peroxide in dark bottle?
- What is the role of using ammonium hydroxide solution in the prep. Of BaO_2 ?



Next Week



Experiment 7:

Preparation of Alum

- Questions

- Define Solubility Curve?

-What are the types of solubility curve?

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Thank You