

Preparation of Ferrous Sulphate

BACKGROUND-

Iron is a transitional element in periodic table. Iron compounds are used in medicine as an important constituent and the ores are widely distributed which includes haematite Fe_2O_3 , limonite $2\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$, magnetic iron ore Fe_3O_4 . The earth's core consists largely of iron. Iron shows two oxidation states – Ferrous and Ferric.

Ferrous sulphate is otherwise known as “green vitriol” and used as a reducing agent in chemistry. For the preparation with sulphuric acid the very first step is to determine the amount of impurity as sulphuric acid tolerable by the crystals which may result in chemical burns on touching if the amount of sulphuric acid content will be higher. The lab temperature has to be kept low or below 25°C . In the experiment we can take direct iron chips or a steel wool can be taken and iron can be extracted from it by degreasing with acetone for half an hour and then dried completely in safe place where no light source should be present not even a lamp.

Then the degreased steel wool has to be dipped in dilute sulphuric acid to make it dissolve completely as a result reddish brown insoluble ferric compounds are formed.

Aim: Aim of the experiment to do the preparation of ferrous sulphate.

Ferrous sulphate: $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$; Molecular weight: 278.0

REQUIREMENTS-

Sample: Iron

Chemicals: Dilute H_2SO_4 ,

Distilled water

Apparatus: Wire gauze,

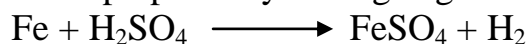
pH meter,

Beaker,

Glass doppers

PROCEDURE-

It can be prepared by adding slight excess of iron to dilute sulphuric acid.



After completion of reaction the liquid is concentrated by boiling. Then the solution is filtered and allowed to cool. The crystals are separated and dried, then recrystallizes from water.

Uses-

1. It is used as hematinic and in the preparation of oral iron formulation.
2. It is a drug of choice for treatment of iron deficiency anaemia.

CONCLUSION-

The green crystals of ferrous sulphate are obtained and can be separated out by using Mohr's salt. $[\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}]$

REFERENCES-

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2. Indian Pharmacopoeia, 1996, 2016.
3. Available at: www.crscientific.com/ferroussulfate.html.