

ZINC OXIDE

Chemical formula:-ZnO

Mol wt : 81.38

PREPARATION

a) commercially ZnO is obtained by heating metallic zinc in a current of air at higher temperature the metal burns into oxides which is collected as fine white powder.



b) Medicinal grade ZnO is obtained from zinc sulphate by double decomposition. sulphate is added to a boiling solution of sodium carbonate collected washed until free from sulphate dried & ignited.



Properties:-

- Colour: White/yellowish white
- Odour:- Odourless.
- Nature:-fine amorphous powder
- Solubility:-Insoluble in water & alcohol
soluble in NH_3 .
- Storage:- Zinc oxide absorbs carbon dioxide....

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ASSAY

- ✓ ZnO is insoluble in water therefore cannot directly titrated with acid.
- ✓ it is dissolved in excessive of acid & back titrated.
- ✓ Ammonium chloride is used in titration to prevent ppt
- ✓ White ppt interferes in end point
- ✓ Methyl orange is used as an indicator



USES:-

- Mild Antiseptic & Astringent.

in form of lotions, ointment paste or dusting powder.

- in treatment of urticaria, aczema, sunburns
- in combinations with other antimicrobial agents Eg Talc
- primary ingredient in calamine.
- pharmaceutical aid in mfg of adhesive tapes, bandages.
- It is used in the treatment of eczema, ring worm, pruritus and psoriasis

CALAMINE

Chemical formula:- $\text{ZnCO}_3 \cdot \text{Zn(OH)}_2 \cdot x\text{Fe}_2\text{O}_3$

Standard:- After ignition, it contains not less than 98.0% and not more than 100.5% of ZnO.

Properties:-

- Odour:- odourless.
- Nature:- fine powder & amorphous
- Taste :- tasteless
- Solubility:- Practically insoluble in water, almost completely soluble in mineral acids with effervescence.
- Colour: pink or reddish brown powderwater, almost
- NOTE

The presence of ferric oxide gives the substance a pink colour

Preparation

- Calamine is obtained by calcination(powdered by heating) of the natural native zinc carbonate.
- prepared by mixing zinc oxide with ferric oxide
- Sieved & fine powder is collected.

Assay

- An ignited & cooled sample is dissolved in excess acid H_2SO_4 (1 N) & filter.
- residue washed with hot water to free from acidity.
- Ammonium Chloride is added to prevent ppt of ferric hydroxide during titration) & titrated with NaOH (1N) using methyl orange as indicator.

USES

1. Topical protective
2. it is used in dusting powders, ointments and lotions (Calamine Lotion) is applied on the skin for its soothing, adsorbent and protective properties.
3. It has better cosmetic acceptability than zinc oxide.
4. Various dermatological conditions including the exudation of fluids respond reasonably well to calamine.
5. Mild astringent, antiseptic & protective for skin.
6. Phenolated calamine lotion contain 1% liquefied phenol which provides local anesthetic antiseptic & antipruritic.