

CATHARTICS

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Laxatives, purgatives, or cathartics are substances that loosen stools and increase bowel movements. They are used to treat and prevent constipation.

Constipation is the difficult evacuation of the faeces.

Cathartics are used:

- To ease defecation in patients with painful hemorrhoids or other rectal disorders.
- To avoid potentially hazardous rise in B.P during defecation in patients with hypertension.
- To relieve acute constipation.
- To remove solid material from intestinal tract prior to certain roentgenographic studies.

Types:

1. **Laxative or aperient** : Milder action, elimination of soft but formed stools

Onset of action: 12 – 7 hours

2. **Purgative:** Purgative are moderate laxative.

Onset of action: 6-8 hours.

3. **Cathartic:** Stronger action resulting in more fluid evacuation.

Onset of action: 0.5-3 hours (oral), 2-15 minutes (rectal)

Classification:

1. **Bulk forming:** Dietary fibre: Ispaghula (Plantago), Methylcellulose
2. **Stool softener:** Docusates (DOSS), Liquid paraffin
3. **Stimulant purgatives:** Senna, Sodium picosulfate, Castor oil
4. **Osmotic purgatives [Saline (Osmotic) Cathartics]:** Magnesium salts: sulfate, hydroxide; Sodium salts: sulfate, phosphate; Sod. Pot. tartrate; Lactulose

1. Magnesium Sulphate: ($\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$)

Molecular weight: 120.36 g/mol

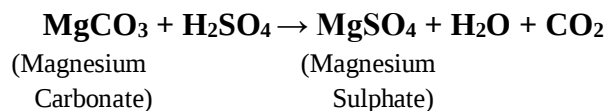
Synonyms: Epsom salt, bitter salt

Properties:

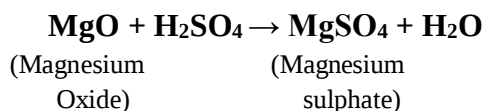
- **Appearance:** White crystalline solid
- **Odor :** Odourless
- **Taste :** Bitter taste
- **Melting point :** 1500C Solubility : 113g/100 ml at 200C in water (Heptahydrate); Slightly soluble in alcohol

Preparation:

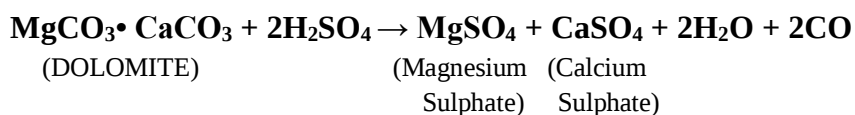
1. **Laboratory method:** Magnesium sulphate is prepared from magnesium carbonate and dilute sulphuric acid.



Magnesium sulphate is also prepared from magnesium oxide and sulphuric acid.



2. **Industrial Preparation:** Magnesium sulphate is prepared from **DOLOMITE (MgCO₃•CaCO₃)** by using dil. sulfuric acid.



Uses:

- It is used as osmotic laxative (Saline Cathartics)
- In treatment of electrolyte deficiency
- In wet dressing in boils
- In treatment of cholecystitis, sea sickness.

Dose: 10 – 15 g/day

2. **Sodium orthophosphate: (Na₂HPO₄ .12H₂O)**

Molecular weight: 358.14 g/mol

Synonym: dodecahydrate of disodium orthophosphate

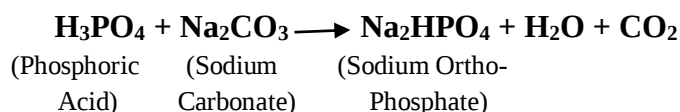
It contains NLT 98.5% and NMT 101.0% sodium orthophosphate.

Properties:

- **Appearance:** Colourless transparent crystals
- **Taste:** saline taste.
- **Odour:** Odourless and effloresces in air.
- **Solubility:** Soluble in water but insoluble in alcohol.

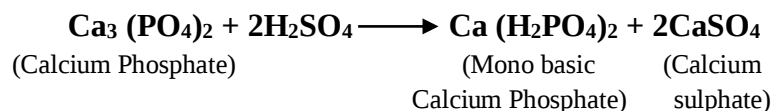
Preparation:

1. It is obtained by adding sodium carbonate to a hot solution of phosphoric acid.

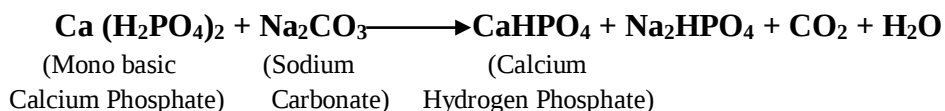


The solution is neutralized, concentrated and the crystals are separated out by centrifuging, washed and dried.

2. It is also obtained from calcium phosphate which is treated with sulphuric acid, yields calcium sulphate and monobasic calcium phosphate.



Now the filtrate is treated with sodium carbonate when dibasic calcium phosphate gets deposited leaving sodium phosphate in solution.



The solution is filtered off. The crystals of sodium phosphate are obtained by concentrating the solution and crystallization.

Uses:

- It is used as a saline laxative.
- It is a cathartic and buffering agent.

Dose: 2 – 16 g/mol