

# SHREE H. N. SHUKLA INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH



**B.PHARM**  
(SEMESTER -I,

**SUBJECT NAME: PHARMACEUTICAL INORGANIC  
CHEMISTRY**

**SUBJECT CODE: BP104TP**

**UNIT 4 (b): Emetics**

**Content : Emetics definition, Mechanism of action, Contraindications, Application, Copper sulphate and Potassium tartarate.**

### EMETICS

Emetics are the agents which when taken orally or by injection induce/evoke the vomiting.

**Mechanism of action**– It generally act by two ways :-

1. By stimulation of chemoreceptor trigger zone (CTZ) located in the area of postrema medulla oblongata in brain.
2. By local irritating effect on GIT. E.g. copper sulphate, sodium chloride, zinc sulphate, antimony potassium tartrate.

**Contraindications**- Emetics should not be used in conditions like:-

1. Significant CNS depression and shock.
2. Unconscious or semi-consciousness or coma situations.
3. Patient with severe heart disease.
4. In tuberculosis, anemia and advanced pregnancy.
5. Poisoning caused by corrosive or petroleum product.

**Applications:-**

1. Mechanical antidote

2. Sometimes emetics are added in cough preparations in low dose to stimulate the flow of respiratory tract.

**Some of the common Emetics are :-**

#### **COPPER SULPHATE**

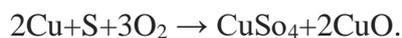
Mol. Formula-  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

Mol. Wt.- 249.7gm

Synonyms:- Blue vitriol, cupric sulphate

Standard → it contains not less than 98.5% and not more than 100.5% calculated with reference to the dried substance at 250 c.

### Method of preparation–



### Physical properties-

1. It exists in the form of deep blue crystal of pentahydrate available in the form of granules or powder.
2. It shows effervescence in dry air slowly.
3. It is soluble in water, very soluble in boiling water and insoluble in alcohol.

### Chemical properties-

1. On heating at 100 c it loses the water molecules and form anhydrous solution.



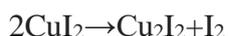
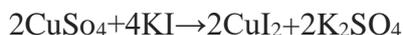
↓ 200 °c

CuSO<sub>4</sub>[anhydrous salt]

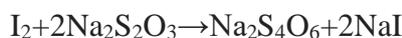
- At very high temperature, it decomposes to cupric oxide and Sulphur dioxide gas.



**Assay :-** The principle involved in assay of copper sulphate is oxidation reduction reaction. This reaction is based on the instability of CUI formed in the reaction of copper sulphate with potassium iodide, which decomposes to give cuprous iodide with the liberation of free iodine.



2gm of potassium thiocyanate is then added and titrated until the blue colour disappears.



Each 1 ml of 0.1N sodium thiosulphate  $\equiv$  0.02497 gm of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

**Identification test:-** A 5% w/v sample solution of cupric sulphate is tested for copper and sulphate.

**Test for purity:-** 1. Chlorides not more than 100 ppm.

2. Iron not more than 10 ppm.

3. Lead not more than 50 ppm.

4. Loss on drying not more than 33-36.5%

**Uses-** 1. As emetics, but in large doses, it is corrosive in nature

2. chemical antidote in phosphorous poisoning

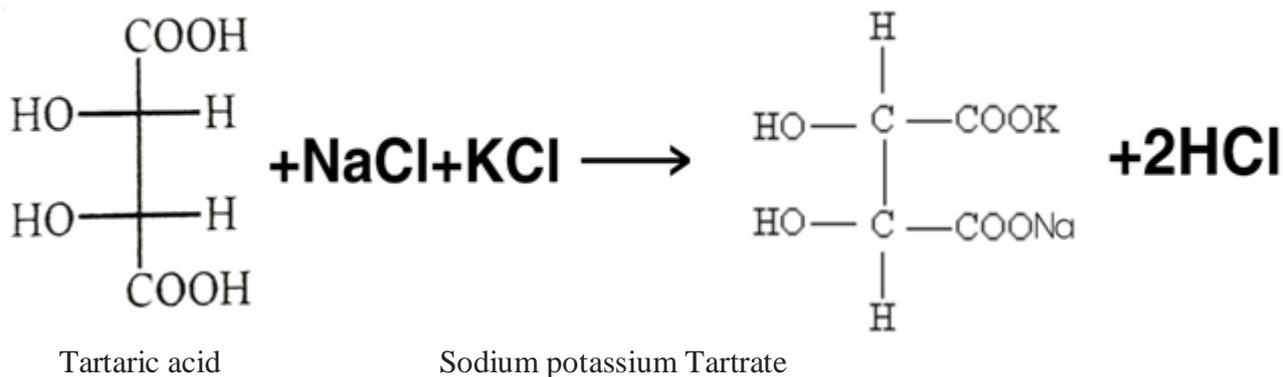
3. Externally it is astringent and fungicidal

4. It is ingredient of benedicts and Fehling's reagent

2. **Sodium potassium Tartrate** ( $\text{C}_4\text{H}_4\text{KNaO}_6 \cdot 4\text{H}_2\text{O}$ )

Synonyms :- Rochelle salt, Seignette salt

PREPARATION :-



### Physical properties-

- It is crystalline powder,
- Odourless
- Freely soluble in water and insoluble in alcohol.

### Chemical properties-

On heating, it gives odour of burning sugar.



**Identification test:-** As chemical properties

**Storage:-** Air tight container

**Dose:-** 10gm to adult

**Uses:-** 1. Saline cathartic.

2. Depending upon the dose, it is also used as mild laxative.

3. It can also be used as diuretic and urinary alkalizer.

4. It is used as food additive as a stabilizer in meat and cheese

Products.

5. It is an ingredient of compound effervescent powder.