

**Aim:** Preparation of Lugol's Solution (Strong Iodine Solution)

### References

1. Indian Pharmacopoeia - Monograph on Lugol's Solution.
2. British Pharmacopoeia - Section on Iodine and Iodide Solutions.
3. Relevant articles on "Applications of Lugol's Solution in Medicine" from PubMed.

### Objective

To prepare 100 mL of Lugol's Solution, a strong iodine solution used as a topical antiseptic and for medical diagnostic purposes.

### Materials Required

#### Chemicals:

- Iodine: 5 g
- Potassium Iodide: 10 g
- Distilled Water: q.s. to 100 mL

#### Equipment:

- Analytical balance
- Beakers (100 mL, 250 mL)
- Measuring cylinder (10 mL, 100 mL)
- Stirring rod
- Funnel
- Amber-colored glass bottle

### Principle

Lugol's Solution is an aqueous solution of iodine and potassium iodide. Potassium iodide enhances the solubility of iodine in water, forming a stable solution. The solution is widely used in medical and laboratory applications.

### Procedure

### 1. Dissolution of Potassium Iodide:

- Weigh 10 g of potassium iodide using an analytical balance.
- Transfer it into a 100 mL beaker.
- Add approximately 20 mL of distilled water and stir until the potassium iodide dissolves completely.

### 2. Addition of Iodine:

- Weigh 5 g of iodine and add it gradually to the potassium iodide solution.
- Stir continuously until the iodine dissolves completely. The solution will turn a dark reddish-brown color.

### 3. Volume Adjustment:

- Transfer the iodine-potassium iodide solution into a measuring cylinder.
- Add distilled water q.s. to make the total volume 100 mL.
- Stir or mix thoroughly to ensure uniformity.

### 4. Filtration (if necessary):

- Filter the solution using filter paper or muslin cloth to remove any undissolved particles.

### 5. Packaging:

- Transfer the prepared Lugol's Solution into an amber-colored glass bottle to protect it from light.
- Seal the bottle tightly to avoid oxidation of iodine.

### Label

- **Product Name:** Lugol's Solution (Strong Iodine Solution)
- **Strength:** 5% iodine and 10% potassium iodide
- **Usage:** For external use or as directed by a physician.
- **Storage:** Store in a cool, dark place. Protect from light and heat.
- **Precautions:** Avoid ingestion unless prescribed. Keep out of reach of children.

### Precautions

1. Handle iodine with care as it can stain skin and surfaces.

2. Use accurate weighing techniques to ensure proper strength.
3. Maintain sterile conditions during preparation to prevent contamination.
4. Store the solution in an amber-colored bottle to prevent degradation by light.

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