

Recrystallization of an Organic Compound

Practical 01 | Pharmaceutical Organic Chemistry II

Aim

To study Recrystallization of an Organic Compound, and interpret the recorded observations.

Principle

- Recrystallization uses a suitable difference between hot and cold solubility to separate crystals from soluble impurities.
- The property is obtained from a defined observable under controlled conditions.
- Replicate measurements, instrument checks and consistent units are needed before comparison.

Materials and Apparatus

- Assigned impure solid, selected recrystallization solvent, heating bath and filtration apparatus.
- Assigned test material and calibration or comparison material.
- The apparatus specified for this property, a balance or volumetric equipment where relevant, and a record sheet.

Method

1. Select the assigned solvent and document its hot/cold solubility behaviour.
2. Dissolve the material in the required minimum hot solvent under supervision.
3. Remove insoluble matter by the assigned hot-filtration arrangement if necessary.
4. Allow the solution to cool as directed so crystals form.
5. Separate crystals, wash with the specified cold solvent and dry appropriately.
6. Record mass and purity observations before and after purification.

Observation Record

Complete this record using actual laboratory findings or the provided teaching data.

Observation / parameter	Record / finding
Starting mass	_____
Hot-solution appearance	_____
Crystal appearance	_____
Dry recovered mass	_____
Melting range	_____

Calculations and Interpretation

- Percentage recovery = $\text{dry recrystallized mass} / \text{initial impure mass} \times 100$.

Result

Record the actual finding, calculated value with units where relevant, and a conclusion supported by the observations.

Finding: _____

Conclusion: _____

Precautions

- Keep temperature and test conditions consistent across comparative readings.
- Record raw readings before rounding calculated values.
- Do not compare results obtained with different methods as if they were interchangeable.

Viva Questions

1. Why avoid excessive solvent?

Too much solvent can retain more product in solution after cooling and reduce recovery.

2. Why control the test conditions?

A change in conditions may alter the measured property independently of the intended variable.

3. Why retain replicate readings?

They show repeatability and help identify an anomalous measurement.

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