Powders and Pharmaceutical Incompatibility Risks

Experiment 8 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To prepare suitable powder dosage forms and recognise physical and reactive incompatibilities.

Principle

Particle size, geometric dilution, moisture and component compatibility determine powder uniformity and stability.

Requirements

- Assigned non-reactive teaching powders, balance, mortar, sieve and suitable containers.
- Instructor-provided compatibility records for hazardous reactive combinations.

Procedure

1. Eutectic powders

Discuss melting-point depression when compatible organic solids are combined. For the assigned safe formula, triturate separately with the specified adsorbent and combine; inspect for dampness.

2. Dusting powders

Reduce and sieve the assigned ingredients, mix by geometric dilution and package to deliver a fine uniform powder. Record whether the intended site requires a sterile product.

3. Insufflations

Examine the assigned route-specific formula and device; assess fineness, uniformity and packaging. Do not administer a teaching preparation.

4. Reactive powder discussion

Use a written case to recognise oxidiser-fuel or otherwise reactive incompatibilities. Explain segregation, rejection of an unsuitable formulation and escalation to the supervisor. This component is a discussion only; no explosive mixture is prepared.

5. Record

Enter the formulation type, ingredients, compatibility issue, observed quality and complete label.

Observations and Record

Type	Observation / assessment
Eutectic mixture	_____
Dusting powder	_____
Insufflation	_____
Reactive incompatibility case	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Illustration: 2 g of an ingredient in a 20 g final powder gives 10% w/w.
- A 2 g + 18 g blend requires uniform mixing; a correct total mass alone does not establish content uniformity.

Result

Record the prepared safe powder types and the conclusion from the reactive compatibility case.

Precautions

- Use non-reactive teaching mixtures only; never combine components from the reactive compatibility case.
- Control dust exposure and use the assigned route-specific quality requirements.

Viva Questions and Answers

1. What is geometric dilution?

Successively mixing the smaller portion with approximately comparable portions of diluent to improve uniformity.

2. What is a eutectic mixture?

A mixture whose melting behaviour can give a lower melting point than that of the separate components.

3. How is a reactive incompatibility handled?

Do not prepare the incompatible combination; document and refer it for a suitable reformulation.

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