

**SNS COLLEGE OF PHARMACY
AND HEALTH SCIENCES**
Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Approved by Pharmacy Council of India, New Delhi.
Coimbatore -641035



PHARMACEUTICS (BP103T)

UNIT 3- EMULSIONS Vs SUSPENSIONS

CASE STUDY PUZZLES

Case 1: The Milky vs Cloudy Bottle

A pharmacist prepares two formulations for a pediatric patient:

Bottle A looks *milky and uniform*.



Bottle B looks *cloudy with visible solid particles that settle on standing*.

When shaken, Bottle B redistributes but becomes cloudy again after some time, whereas Bottle A remains stable.

Puzzle:

Which bottle contains an emulsion?

Which contains a suspension?

Give one reason for the different appearances.

Case 2: The Separation Problem



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A dermatologist complains that her topical liquid preparation forms a thick creamy layer at the top, but the two layers mix easily on shaking.

A second preparation forms a hard sediment at the bottom that does not redisperse even after vigorous shaking.

Puzzle:

Identify which is an emulsion instability and which is a suspension instability.

Name the specific instability in each case.

Case 3: The Solubility Confusion



A student formulates a drug that is insoluble in water but soluble in fixed oils.

Another drug is virtually insoluble in both water and oils.

Puzzle:

Which drug is more suitable for an emulsion and why?

Which drug is more suitable for a suspension and why?

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Case 4: The Emulsifier Error



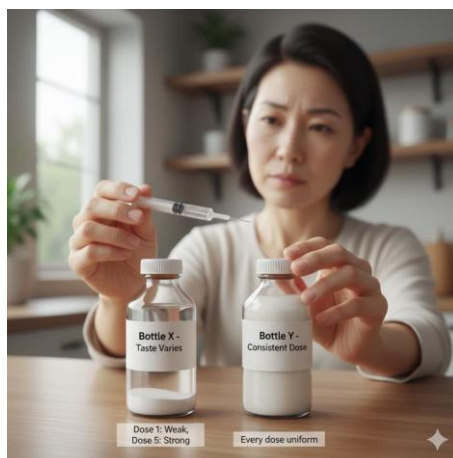
A trainee makes an O/W emulsion but forgets to add the emulsifying agent. After 24 hours, the product shows oil floating on top as a separate layer.
Another batch, prepared without suspending agent, shows rapid sedimentation of solid particles.

Puzzle:

Identify which failure corresponds to an emulsion and which to a suspension.

Explain briefly *why* the missing excipient caused the instability.

Case 5: The Dose Variation Complaint



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A parent reports that Dose 1 from Bottle X tasted weak, but Dose 5 tasted strong.
From Bottle Y, every dose seemed uniform, even without strong shaking.
Bottle X shows particles at the bottom; Bottle Y looks uniformly white.

Puzzle:

Which bottle is likely a suspension and which is an emulsion?

What type of sedimentation or separation might have caused the dose variation in Bottle X?