

**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 2- LIQUID DOSAGE FORMS
CASE STUDY PUZZLES**

Case 1: The Sediment That Never Settles

A pharmacist notices that a newly formulated **antacid suspension** remains uniformly

Antacid Suspension: Too Thick to Pour



Formulation Success:
No Sedimentation

Patient Complaint:
Difficult to Pour



dispersed for several days without sedimentation. However, patients complain that the suspension feels “too thick” and difficult to pour.

Puzzle:

1. Why is the suspension not sedimenting?
2. Which excipient was likely added in **excess**?
3. How can you improve pourability while maintaining stability?

Case 2: The Spoiled Mouthwash



A mint-flavored **mouthwash** turns cloudy and emits a mild odor after 2 weeks. The preservative used is **ineffective above pH 7**, and the product pH is 7.4.

Puzzle:

1. What type of instability is observed?
2. Why did the preservative fail?
3. Suggest **one corrective strategy**.

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Case 3: The Phase Inversion Mystery



A topical **antiseptic emulsion** behaves normally at room temperature. But during summer, it becomes too thin and suddenly behaves like a **W/O emulsion** instead of **O/W**.

Puzzle:

1. What phenomenon has occurred?
2. How does **temperature** cause this change?
3. Mention one excipient that influences emulsion type.

Case 4: The Precipitating Oral Drops

Oral Vitamin Drops: Crystalization

Day 0: Freshly Prepared Solution



Day 10: Solid Crystals Formed



Microscopic View

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An oral **vitamin drop solution** (monophasic) contains alcohol and propylene glycol as co-solvents. After 10 days, solid crystals appear at the bottom.

Puzzle:

1. Why did the drug precipitate?
2. Which co-solvent property changed?
3. Suggest one measure to prevent precipitation.

Case 5: The Leaky Syrup Problem



A cough syrup bottle arrives with a slightly **collapsed cap seal** and sticky syrup around the rim. The syrup's sugar concentration was low to improve taste.

Puzzle:

1. What microbial or physical problem is likely happening?
2. How does **low sucrose concentration** affect preservation?

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3. Give one formulation fix.