

Determination of Sedimentation Volume with Different Suspending Agents

Practical 06 | Physical Pharmaceutics II

Aim

To determine Sedimentation Volume with Different Suspending Agents, and interpret the recorded observations.

Principle

- The ultimate sediment volume is compared with initial suspension volume. A large sedimentation volume does not alone establish easy redispersion or product quality.
- 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

- Comparable suspensions containing different assigned suspending agents and graduated containers.
- 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. Prepare or identify the comparable assigned suspensions and record their initial volume.
2. Document the suspending-agent identity and concentration for every container.
3. Record sediment volume at the specified observation times without disturbing the sediment prematurely.
4. Assess redispersion by the assigned procedure and record it separately.
5. Calculate the volume ratio and compare at the same time point.
6. Discuss settling, sediment structure and redispersion together.

Observation Record

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

Observation / parameter	Record / finding
Agent	_____
Initial volume V_0	_____
Sediment volume V_u	_____
Time	_____
Redispersibility	_____

Calculations and Interpretation

- Sedimentation volume $F = V_u/V_0$.
- Compare like-for-like sediment readings and include redispersion observations.

Worked Illustration

Illustration: 18.0 mL final sediment in a suspension initially occupying 30.0 mL gives $F = 0.60$. Redispersion still needs separate observation.

The values in this illustration are for calculation practice.

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 control the test conditions?

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

2. Why retain replicate readings?

They show repeatability and help identify an anomalous measurement.

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