DSC - Thermal-analysis Demonstration

Experiment 21 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To interpret the supplied dsc - thermal-analysis demonstration.

Principle

Differential scanning calorimetry records a heat-flow difference during a defined thermal programme. Transitions depend on the material and programme.

Requirements

- Instructor-provided labelled diagrams, traces or data for this activity.
- Calculator, graph paper or spreadsheet, and the activity record.

Procedure

1. Read conditions

Record specimen mass, pan, atmosphere and heating/cooling programme from the supplied trace.

2. Locate events

Mark assigned endothermic/exothermic direction, onset, peak and any baseline step.

3. Classify cautiously

Distinguish a melting event from a glass-transition-like baseline change using the assigned comparison.

4. Report

Record transition temperatures and assigned enthalpy with the calculation basis; do not infer purity from a single peak.

Observations and Record

Record item	Entry
Activity / material identifier	_____
Measurement or visible feature	_____
Comparison / calculated outcome	_____
Interpretation and limitation	_____

Worked Example

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

- Mass-normalised enthalpy = integrated heat / specimen mass.
- Example: 0.10 J / 0.002 g = 50 J/g on the supplied integration basis.

Result

The recorded finding is ____; the supporting observation or calculation is ____. The main limitation is ____.

Precautions

- Use the supplied teaching material; distinguish a measured observation from an assumed value.
- Keep units, axes, labels and measurement conditions consistent.
- Record limitations and seek instructor review before applying a conclusion to a live case.

Viva Questions and Answers

1. What is the main endpoint?

Interpret the supplied dsc - thermal-analysis demonstration.

2. Does one observed result prove a general conclusion?

No. Controls, repeatability and the limitations of the method must be considered.

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