ISO 11357-1:2023-02 (E)

Plastics - Differential scanning calorimetry (DSC) - Part 1: General principles

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Basic principles **8**
4.1 General 8
4.2 Heat-flux DSC 8
4.3 Power-compensation DSC 8

5 Apparatus and materials **9**

6 Specimen **10**

7 Test conditions and specimen conditioning **11**
7.1 Test conditions 11
7.2 Conditioning of specimens 11

8 Calibration **11**
8.1 General 11
8.2 Calibration materials 12
8.3 Temperature calibration 12
8.3.1 General 12
8.3.2 Procedure 12
8.3.3 Accuracy of calibration 13
8.4 Heat calibration 13
8.4.1 General 13
8.4.2 Procedure 14
8.4.3 Accuracy of calibration 14
8.5 Heat flow rate calibration 14
8.5.1 General 14
8.5.2 Procedure 15

9 Procedure **17**
9.1 Setting up the apparatus 17
9.1.1 Switching on 17
9.1.2 Purge gas 17
9.1.3 Experimental conditions 17
9.1.4 Baseline determination 17
9.2 Loading the specimen into the crucible 17
9.2.1 General 17
9.2.2 Selection of crucibles 17
9.2.3 Weighing the specimen crucible 18
9.2.4 Loading the specimen 18
9.2.5 Determination of the mass of the specimen 18
9.3 Insertion of crucibles into the instrument 18
9.4 Performing measurements 18
9.4.1 General 18
9.4.2 Scanning mode 18
9.4.3 Isothermal mode 19

9.5 Post-run checks 20
9.5.1 Check for loss in mass 20
9.5.2 Inspection of specimens 20
9.5.3 Checking of crucibles and crucible holder 20
10 Test report **20**
Annex A (normative) **Extended, high-precision, temperature calibration**[12] **22**
Annex B (normative) **Extended, high-precision, heat calibration** **24**
Annex C (informative) **Recommended calibration materials** **26**
Annex D (informative) **Interaction of calibration materials with different crucible materials** **30**
Annex E (informative) **General recommendations** **32**
Bibliography **34**