DIN EN ISO 11357-1:2017-02 (E)

Plastics - Differential scanning calorimetry (DSC) - Part 1: General principles (ISO 11357-1:2016)

Contents

Page

European foreword ... **4**

Foreword ... **5**

Introduction ... **6**

1 Scope ... **7**

2 Normative references ... **7**

3 Terms and definitions ... **7**

4 Basic principles ... **14**
4.1 General ... 14
4.2 Heat-flux DSC ... 14
4.3 Power-compensation DSC ... 14

5 Apparatus and materials ... **15**

6 Specimen ... **16**

7 Test conditions and specimen conditioning ... **17**
7.1 Test conditions ... 17
7.2 Conditioning of specimens ... 17

8 Calibration ... **17**
8.1 General ... 17
8.2 Calibration materials ... 18
8.3 Temperature calibration ... 18
8.3.1 General ... 18
8.3.2 Procedure ... 18
8.3.3 Accuracy of calibration ... 19
8.4 Heat calibration ... 19
8.4.1 General ... 19
8.4.2 Procedure ... 20
8.4.3 Accuracy of calibration ... 20
8.5 Heat flow rate calibration ... 21
8.5.1 General ... 21
8.5.2 Procedure ... 21

9 Procedure ... **23**
9.1 Setting up the apparatus ... 23
9.1.1 Switching on ... 23
9.1.2 Purge gas ... 23
9.1.3 Experimental conditions ... 23
9.1.4 Baseline determination ... 23
9.2 Loading the specimen into the crucible ... 23
9.2.1 General ... 23
9.2.2 Selection of crucibles ... 24
9.2.3 Weighing the specimen crucible ... 24
9.2.4 Loading the specimen ... 24
9.2.5 Determination of the mass of the specimen ... 24
9.3 Insertion of crucibles into the instrument ... 24

9.4 Performing measurements 24
9.4.1 General 24
9.4.2 Scanning mode 24
9.4.3 Isothermal mode 25
9.5 Post-run checks 26
9.5.1 Check for loss in mass 26
9.5.2 Inspection of specimens 26
9.5.3 Checking of crucibles and crucible holder 26
10 Test report 26
Annex A (normative) **Extended, high-precision, temperature calibration[12] 28**
Annex B (normative) **Extended, high-precision, heat calibration 30**
Annex C (informative) **Recommended calibration materials 32**
Annex D (informative) **Interaction of calibration materials with different crucible materials 35**
Annex E (informative) **General recommendations 37**
Bibliography 38