

# ISO 11357-1:2023-02 (E)

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

---

<b>Contents</b>		<b>Page</b>
Foreword.....		v
Introduction.....		vi
<b>1</b>	<b>Scope.....</b>	<b>1</b>
<b>2</b>	<b>Normative references.....</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions.....</b>	<b>1</b>
<b>4</b>	<b>Basic principles.....</b>	<b>8</b>
4.1	General.....	8
4.2	Heat-flux DSC.....	8
4.3	Power-compensation DSC.....	8
<b>5</b>	<b>Apparatus and materials.....</b>	<b>9</b>
<b>6</b>	<b>Specimen.....</b>	<b>10</b>
<b>7</b>	<b>Test conditions and specimen conditioning.....</b>	<b>11</b>
7.1	Test conditions.....	11
7.2	Conditioning of specimens.....	11
<b>8</b>	<b>Calibration.....</b>	<b>11</b>
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
<b>9</b>	<b>Procedure.....</b>	<b>17</b>
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
<b>10</b>	<b>Test report.....</b>	<b>20</b>
<b>Annex A</b>	<b>(normative) Extended, high-precision, temperature calibration</b> <a href="#">[12]</a> .....	<b>22</b>
<b>Annex B</b>	<b>(normative) Extended, high-precision, heat calibration.....</b>	<b>24</b>
<b>Annex C</b>	<b>(informative) Recommended calibration materials.....</b>	<b>26</b>
<b>Annex D</b>	<b>(informative) Interaction of calibration materials with different crucible materials.....</b>	<b>30</b>
<b>Annex E</b>	<b>(informative) General recommendations.....</b>	<b>32</b>
<b>Bibliography</b>	.....	<b>34</b>