

# ISO 19717:2026-05 (E)

## Plastics - Differential scanning calorimetry (DSC) or thermogravimetric analysis (TGA) - Model-free kinetics based on the non-linear incremental isoconversional method

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
<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>Principle .....</b>	<b>2</b>
<b>5</b>	<b>Apparatus and materials .....</b>	<b>2</b>
5.1	Differential scanning calorimeter (DSC) .....	2
5.2	Thermobalance .....	2
<b>6</b>	<b>Test specimens .....</b>	<b>2</b>
6.1	Differential scanning calorimetry (DSC) .....	2
6.2	Thermogravimetry (TG) .....	2
<b>7</b>	<b>Test conditions and specimen conditioning .....</b>	<b>2</b>
7.1	Differential scanning calorimetry (DSC) .....	2
7.2	Thermogravimetry (TG) .....	2
<b>8</b>	<b>Calibration .....</b>	<b>3</b>
8.1	Differential scanning calorimetry (DSC) .....	3
8.2	Thermogravimetry (TG) .....	3
<b>9</b>	<b>Procedure .....</b>	<b>3</b>
9.1	General .....	3
9.2	Dynamic temperature program or isothermal temperature program measurements .....	3
9.3	Calculation of the activation energy as a function of conversion .....	3
9.4	Prediction of conversion curves at conditions different from measurements .....	4
9.4.1	Prediction of isothermal kinetics based on dynamic measurements performed at constant heating rates .....	4
9.4.2	Prediction of non-isothermal kinetics at heating rates different from measurement .....	4
9.4.3	Prediction of non-isothermal kinetics at arbitrary temperature variation .....	5
<b>10</b>	<b>Precision and bias .....</b>	<b>5</b>
<b>11</b>	<b>Test report .....</b>	<b>5</b>
<b>Annex A (normative)</b>	<b>Theoretical background for the determination of the activation energy as a function of conversion based on the integral isoconversional principle .....</b>	<b>7</b>
<b>Bibliography .....</b>		<b>10</b>