

# ISO 6721-3:2021-02 (E)

## Plastics - Determination of dynamic mechanical properties - Part 3: Flexural vibration - Resonance-curve method

---

<b>Contents</b>		<b>Page</b>
<b>Foreword</b>		iv
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative reference</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions</b>	<b>1</b>
<b>4</b>	<b>Principle</b>	<b>1</b>
<b>5</b>	<b>Test apparatus</b>	<b>2</b>
5.1	General	2
5.2	Clamps or suspension fibres	2
5.3	Exciter and detector	2
5.4	Temperature-controlled enclosure	3
5.5	Gas supply	3
5.6	Temperature-measurement device	3
5.7	Devices for measuring test specimen dimensions	4
<b>6</b>	<b>Test specimens</b>	<b>4</b>
6.1	General	4
6.2	Shape and dimensions	5
6.3	Preparation	5
<b>7</b>	<b>Number of test specimens</b>	<b>5</b>
<b>8</b>	<b>Conditioning</b>	<b>5</b>
<b>9</b>	<b>Procedure</b>	<b>5</b>
9.1	Test atmosphere	5
9.2	Measurement of specimen cross-section	5
9.3	Measurement of specimen density	5
9.4	Mounting the test specimens and adjustment of the transducers	6
9.4.1	Method A	6
9.4.2	Method B	6
9.4.3	Adjustment of the transducers	6
9.5	Varying the temperature	6
9.6	Varying the frequency	6
9.7	Recording the resonance curve	6
<b>10</b>	<b>Expression of results</b>	<b>7</b>
10.1	Symbols	7
10.2	Calculation of flexural storage modulus, $E'_f$	7
10.3	Calculation of flexural loss factor, $\tan \delta_f$	8
10.4	Calculation of flexural loss modulus, $E''_f$	8
10.5	Plotting the complex modulus as a function of temperature	8
<b>11</b>	<b>Precision</b>	<b>8</b>
11.1	Storage modulus	8
11.2	Loss factor	8
11.3	Precision of the methods	9
<b>12</b>	<b>Test report</b>	<b>9</b>
<b>Annex A (informative) Interlaboratory testing</b>		<b>10</b>
<b>Bibliography</b>		<b>13</b>