

# DIN EN ISO 527-1:2019-12 (E)

## Plastics - Determination of tensile properties - Part 1: General principles (ISO 527-1:2019)

---

<b>Contents</b>		<b>Page</b>
<b>European foreword</b> .....		<b>4</b>
<b>Foreword</b> .....		<b>5</b>
<b>1</b>	<b>Scope</b> .....	<b>6</b>
<b>2</b>	<b>Normative references</b> .....	<b>6</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>7</b>
<b>4</b>	<b>Principle and methods</b> .....	<b>11</b>
4.1	Principle .....	11
4.2	Method .....	11
<b>5</b>	<b>Apparatus</b> .....	<b>12</b>
5.1	Testing machine .....	12
5.1.1	General .....	12
5.1.2	Test speeds .....	12
5.1.3	Grips .....	12
5.1.4	Force indicator .....	13
5.1.5	Strain indicator .....	13
5.1.6	Recording of data .....	15
5.2	Devices for measuring width and thickness of the test specimens .....	16
<b>6</b>	<b>Test specimens</b> .....	<b>16</b>
6.1	Shape and dimensions .....	16
6.2	Preparation of specimens .....	16
6.3	Gauge marks .....	16
6.4	Checking the test specimens .....	16
6.5	Anisotropy .....	17
<b>7</b>	<b>Number of test specimens</b> .....	<b>17</b>
<b>8</b>	<b>Conditioning</b> .....	<b>18</b>
<b>9</b>	<b>Procedure</b> .....	<b>18</b>
9.1	Test atmosphere .....	18
9.2	Dimensions of test specimen .....	18
9.3	Gripping .....	18
9.4	Prestresses .....	19
9.5	Setting of extensometers .....	19
9.6	Test speed .....	19
9.7	Recording of data .....	20
<b>10</b>	<b>Calculation and expression of results</b> .....	<b>20</b>
10.1	Stress .....	20
10.2	Strain .....	20
10.2.1	Strains determined with an extensometer .....	20
10.2.2	Nominal strain .....	21
10.3	Tensile modulus .....	22
10.3.1	General .....	22
10.3.2	Chord slope .....	22
10.3.3	Regression slope .....	22
10.4	Poisson's ratio .....	22
10.5	Statistical parameters .....	23
10.6	Significant figures .....	23
<b>11</b>	<b>Precision</b> .....	<b>23</b>
<b>12</b>	<b>Test report</b> .....	<b>23</b>

<b>Annex A</b> (informative) <b>Determination of strain at yield</b> .....	<b>25</b>
<b>Annex B</b> (informative) <b>Extensometer accuracy for the determination of Poisson's ratio</b> .....	<b>28</b>
<b>Annex C</b> (normative) <b>Calibration requirements for the determination of the tensile modulus</b> .....	<b>29</b>
<b>Bibliography</b> .....	<b>31</b>