

**Plastics - Polyamide (PA) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 1874-2:2012)**

## EESTI STANDARDI EESSÕNA

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English Version

**Plastics - Polyamide (PA) moulding and extrusion materials -  
Part 2: Preparation of test specimens and determination of  
properties (ISO 1874-2:2012)**

Plastiques - Matériaux polyamides (PA) pour moulage et  
extrusion - Partie 2: Préparation des éprouvettes et  
détermination des propriétés (ISO 1874-2:2012)

Kunststoffe - Polyamid (PA)-Formmassen für das  
Spritzgießen und die Extrusion - Teil 2: Herstellung von  
Probekörpern und Bestimmung von Eigenschaften (ISO  
1874-2:2012)

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## Foreword

This document (EN ISO 1874-2:2012) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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### Endorsement notice

The text of ISO 1874-2:2012 has been approved by CEN as a EN ISO 1874-2:2012 without any modification.

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# Plastics — Polyamide (PA) moulding and extrusion materials —

## Part 2:

## Preparation of test specimens and determination of properties

### 1 Scope

This part of ISO 1874 specifies the methods of preparation of test specimens and the test methods to be used in determining the properties of polyamide moulding and extrusion materials. Requirements for handling test material and for conditioning both the test material before moulding and the specimens before testing are given.

Procedures and conditions for the preparation of test specimens and procedures for measuring properties of the materials from which these specimens are made are given. Properties and test methods that are suitable and necessary to characterize polyamide moulding and extrusion materials are listed.

The properties have been selected from the general test methods in ISO 10350-1. Other test methods in wide use for, or of particular significance to, these moulding and extrusion materials are also included in this part of ISO 1874, as are the designatory properties viscosity number and tensile modulus of elasticity given in ISO 1874-1.

### 2 Normative references

The following normative documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 62, *Plastics — Determination of water absorption*

ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

ISO 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test*

ISO 179-2, *Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test*

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 294-1, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 1: General principles, and moulding of multipurpose and bar test specimens*

ISO 294-3, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 3: Small plates*

ISO 294-4, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 4: Determination of moulding shrinkage*

ISO 307, *Plastics — Polyamides — Determination of viscosity number*

ISO 472, *Plastics — Vocabulary*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 1110, *Plastics — Polyamides — Accelerated conditioning of test specimens*

ISO 1133-2, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 2: Method for materials sensitive to time-temperature history and/or moisture*

ISO 1183-1, *Plastics — Methods for determining the density and relative density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 1183-2, *Plastics — Methods for determining the density and relative density of non-cellular plastics — Part 2: Density gradient column method*

ISO 1183-3, *Plastics — Methods for determining the density and relative density of non-cellular plastics — Part 3: Gas pycnometer method*

ISO 1874-1, *Plastics — Polyamide (PA) moulding and extrusion materials — Part 1: Designation system and basis for specification*

ISO 3167, *Plastics — Multipurpose test specimens*

ISO 3451-4, *Plastics — Determination of ash — Part 4: Polyamides*

ISO 8256, *Plastics — Determination of tensile-impact strength*

ISO 10350-1, *Plastics — Acquisition and presentation of comparable single-point data — Part 1: Moulding materials*

ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization*

ISO 15512, *Plastics — Determination of water content*

ISO 27547-1, *Plastics — Preparation of test specimens of thermoplastic materials using mouldless technologies — Part 1: General principles, and laser sintering of test specimens*

IEC 60093, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60243-1, *Electric strength of insulating materials — Test methods — Part 1: Tests at power frequencies*

IEC 60250, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths*

IEC 60296, *Fluids for electrotechnical applications — Unused mineral insulating oils for transformers and switchgear*

IEC 60695-11-10, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods*

### **3 Preparation of test specimens**

#### **3.1 Treatment of the material before moulding**

Before processing, the material sample shall have reached room temperature.

Before processing, the moisture content of the material sample shall not exceed 0,2 % (mass fraction) in the case of PAs having a viscosity number  $\leq 200$  ml/g, and not exceed 0,1 % (mass fraction) in the case of PAs having a viscosity number  $> 200$  ml/g. For PA46, PA6T/66, PA6T/XT, PA6T/6I/66, PA6T/6I, PA6I/6T and PA NDT/INDT, the moisture content shall be less than 0,1 % (mass fraction).

The moisture content of filled or reinforced materials shall be expressed as a percentage of the total mass of the compound. The moisture content shall be determined in accordance with ISO 15512 and the viscosity number in accordance with ISO 307.

To ensure that the moisture content remains low, it is recommended that the sample material in the feed hopper of the injection-moulding machine be blanketed with a suitable gas (dried air, nitrogen or argon, for example). Better results may be obtained using a dehumidifier hopper drier.

If test specimens are to be prepared by laser sintering (see 3.3 and Annex A), follow the instructions given in Annex A for treatment of the material before processing.