



NSAI
Standards

Irish Standard
I.S. EN ISO 1628-3:2010

Plastics - Determination of the viscosity of polymers in dilute solution using capillary viscometers - Part 3: Polyethylenes and polypropylenes (ISO 1628-3:2010)

I.S. EN ISO 1628-3:2010

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EN ISO 1628-3

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Supersedes EN ISO 1628-3:2003

English Version

Plastics - Determination of the viscosity of polymers in dilute solution using capillary viscometers - Part 3: Polyethylenes and polypropylenes (ISO 1628-3:2010)

Plastiques - Détermination de la viscosité des polymères en solution diluée à l'aide de viscosimètres à capillaires - Partie 3: Polyéthylènes et polypropylènes (ISO 1628-3:2010)

Kunststoffe - Bestimmung der Viskosität von Polymeren in verdünnter Lösung durch ein Kapillarviskosimeter - Teil 3: Polyethylen und Polypropylen (ISO 1628-3:2010)

This European Standard was approved by CEN on 29 April 2010.

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Foreword

This document (EN ISO 1628-3:2010) 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of an identical text or by endorsement, at the latest by November 2010, and conflicting national standards shall be withdrawn at the latest by November 2010.

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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I.S. EN ISO 1628-3:2010
**INTERNATIONAL
STANDARD**

**ISO
1628-3**

Third edition
2010-05-01

**Plastics — Determination of the viscosity
of polymers in dilute solution using
capillary viscometers —**

**Part 3:
Polyethylenes and polypropylenes**

*Plastiques — Détermination de la viscosité des polymères en solution
diluée à l'aide de viscosimètres à capillaires —*

Partie 3: Polyéthylènes et polypropylènes



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 1628-3 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

This third edition cancels and replaces the second edition (ISO 1628-3:2001), which has been technically revised. The main changes relate to the way in which the solution of the polymer under test is prepared and introduced into the viscometer.

ISO 1628 consists of the following parts, under the general title *Plastics — Determination of the viscosity of polymers in dilute solution using capillary viscometers*:

- *Part 1: General principles*
- *Part 2: Poly(vinyl chloride) resins*
- *Part 3: Polyethylenes and polypropylenes*
- *Part 4: Polycarbonate (PC) moulding and extrusion materials*
- *Part 5: Thermoplastic polyester (TP) homopolymers and copolymers*
- *Part 6: Methyl methacrylate polymers*

Plastics — Determination of the viscosity of polymers in dilute solution using capillary viscometers —

Part 3: Polyethylenes and polypropylenes

1 Scope

This part of ISO 1628 defines particular conditions for determining the reduced viscosity (also known as viscosity number) and intrinsic viscosity of polyethylenes and polypropylenes at 135 °C in dilute solution.

The viscosity of polymer solutions may be affected by additives present in the sample. The value of a reduced viscosity determined by this method may therefore be unreliable if the sample contains fillers or other additives.

NOTE Reduced viscosity is also known as the Staudinger function (J_v) and intrinsic viscosity as the Staudinger index (J_g).

2 Normative references

The following referenced 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 1628-1:2009, *Plastics — Determination of the viscosity of polymers in dilute solution using capillary viscometers — Part 1: General principles*

ISO 3105:1994, *Glass capillary kinematic viscometers — Specifications and operating instructions*

3 Principle

The times of flow of a solvent and a solution of polymer at a specified concentration in that solvent are measured at 135 °C. The reduced viscosity and intrinsic viscosity are calculated from these measurements and from the known concentration of the solution.

Ethylene polymers and isotactic polypropylenes are not soluble at room temperature in any known solvents. Precautions must therefore be taken during the test to avoid any precipitation of polymer, which would give an incorrect solution concentration.

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