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**Plastics piping systems — Polyethylene  
(PE) pipes for irrigation — Specifications**

*Systèmes de canalisations en plastique — Tubes en polyéthylène (PE)  
pour l'irrigation — Spécifications*



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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.

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

ISO 8779 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 2, *Plastics pipes and fittings for water supplies*.

This third edition cancels and replaces the second edition (ISO 8779:2001), which has been technically revised. The scope of this third edition has been enlarged to cover the mains and sub-mains of irrigation piping systems, which were previously specified in ISO 4427.

# Plastics piping systems — Polyethylene (PE) pipes for irrigation — Specifications

## 1 Scope

This International Standard specifies the pipes (mains, sub-mains and laterals) with nominal outside diameters from 12 mm up to and including 63 mm made from polyethylene (PE) intended to be used for the conveyance of water for irrigation.

It also specifies the general properties of PE and the test parameters for the pipes designated as PE 32 and PE 40 by checking referenced points as given in 4.4, to be used under the following conditions:

- nominal pressures of PN 2,5, PN 4, PN 6, PN 8 and PN 10, as applicable,
- at temperatures up to and including 45 °C, as specified in Annex A.

NOTE Pipes with a diameter of 75 mm and nominal pressure (PN) of 4 bar<sup>1)</sup> are also included in this International Standard.

## 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 1133-1, *Plastics — Determination of the melt volume-flow rate (MVR) and melt mass-flow rate (MFR) of thermoplastics materials — Part 1: Standard method*

ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method*

ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces*

ISO 2505, *Thermoplastics pipes — Longitudinal reversion — Test method and parameters*

ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions*

ISO 4065:1996, *Thermoplastics pipes — Universal wall thickness table*

ISO 4427-2:2007, *Plastics piping systems — Polyethylene (PE) pipes and fittings for water supply — Part 2: Pipes*

ISO 6964, *Polyolefin pipes and fittings — Determination of carbon black content by calcination and pyrolysis — Test method and basic specification*

1) 1 bar = 0,1 MPa = 0,1 N/mm<sup>2</sup> = 10<sup>5</sup> N/m<sup>2</sup>.

ISO 8796, *Polyethylene PE 32 and PE 40 pipes for irrigation laterals — Susceptibility to environmental stress cracking induced by insert-type fittings — Test method and requirements*

ISO 11922-1, *Thermoplastics pipes for the conveyance of fluids — Dimensions and tolerances — Part 1: Metric series*

ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

ISO 18553, *Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds*

### 3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

- 3.1**  
**irrigation main**  
main supply line within an irrigation system, including sub-mains
- 3.2**  
**irrigation lateral**  
branch supply line within an irrigation system on which water distribution devices are mounted directly or by means of fittings, risers or tubes

NOTE Examples of water distribution devices are sprinklers, emitters and drippers.

- 3.3**  
**melt mass-flow rate**  
**MFR**  
value relating to the viscosity of the molten material at a specified temperature and load measured in accordance with ISO 1133-1

NOTE MFR is expressed in units of grams per 10 min (g/10 min).

- 3.4**  
**nominal outside diameter**  
 $d_n$   
specified outside diameter, in millimetres, assigned to a nominal size DN/OD

- 3.5**  
**outside diameter at any point**  
 $d_e$   
value of the measurement of the outside diameter through its cross-section at any point of the pipe rounded to the next greater 0,1 mm

- 3.6**  
**mean outside diameter**  
 $d_{em}$   
value of the measurement of the outer circumference of the pipe or spigot end of a fitting in any cross-section divided by  $\pi$  (= 3,142), rounded to the next greater 0,1 mm

- 3.7**  
**minimum mean outside diameter**  
 $d_{em, min}$   
minimum value of the outside diameter as specified for a given nominal size