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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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Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Material	3
4.1	General.....	3
4.2	Use of reprocessible material.....	4
4.3	Physical characteristics of the material.....	4
4.4	Designation and classification.....	5
5	Geometrical characteristics	5
5.1	Measurements.....	5
5.2	Mean outside diameter and out-of-roundness.....	6
5.3	Wall thicknesses and their tolerances.....	6
6	Mechanical characteristics	7
6.1	Requirements.....	7
6.2	Retest in case of failure at 80 °C.....	9
7	Physical characteristics	9
7.1	Requirements.....	9
8	Marking	10
8.1	General.....	10
8.2	Minimum required marking of pipes.....	10
Annex A (informative) Effect of water temperature on the maximum allowable working pressure of irrigation pipe		12
Bibliography		13

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document 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 fourth edition cancels and replaces the third edition (ISO 8779:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

- The scope of this fourth edition has been modified to cover larger sizes of mains and sub-mains of irrigation piping system.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The aim of this document is to specify the minimum requirements from polyethylene irrigation pipes that stay idle most of their life and are only pressurized for short periods from time to time. This condition is true for the majority of irrigation pipes in use, including laterals, sub-mains and even mains.

The normal conditions of use of irrigation pipes, as well as other important factors, differ widely from those of pipes used for long-term water distribution systems (according to the ISO 4427 series):

- Pressure regime: pressure is applied intermittently for short periods, adding up to maximum 15 % of any long period of time.
- Installation location: most pipes are laid above ground in fields, exposed to chemicals, soil cultivation operations, being stepped on, being run over by tractors, etc.
- Non-permanent connections: pipes are connected by removable and re-installable mechanical compression fittings, not by permanent fusion techniques.
- Movability: pipelines may be moved (manually or towed) between several locations in the field; they may also be disassembled at season's end and reassembled at the beginning of next season.
- End of life is mostly caused by external effects, mechanical or environmental, and not by failure under pressure.
- Lifetime expectancy is, consequently, much shorter: ten years maximum.
- Colours: pipes may be produced in non-black colours (e.g. violet, for irrigation by reclaimed water).
- Lower risk: a failure in an irrigation pipe has much lower impact, compared to a failure in long-term water distribution pipes.

Considering all factors above, the classification of pipe material in this document is by resistance to a standard series of pressure tests, rather than according to ISO 12162 (which relates to pipes under continuous pressure for 50 years), and material designation is therefore different. As explained above, fusion compatibility is not required either. Otherwise, this document follows ISO 4427-2 with regards to dimensions and test requirements.

In order to clearly restrict the use of this document to those pipes that fit the description above, the Scope specifies a usage limit of a maximum of 1 500 hours under pressure per year. For applications where pipes exceed or may exceed this limit, pipes complying with the ISO 4427 series should be selected.