

INTERNATIONAL STANDARD



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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Polyethylene (PE) pipes and fittings — Designation of polyethylene, based on nominal density and melt flow index

Tubes et raccords en polyéthylène (PE) — Désignation du polyéthylène, basée sur la masse volumique nominale et sur l'indice de fluidité à chaud

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4056 was developed by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, and was circulated to the member bodies in May 1976.

It has been approved by the member bodies of the following countries :

Australia	Ireland	Poland
Austria	Israel	Romania
Belgium	Italy	South Africa, Rep. of
Chile	Korea, Rep. of	Spain
Denmark	Mexico	Sweden
Finland	Netherlands	Turkey
France	New Zealand	United Kingdom
Germany	Norway	U.S.A.
India	Philippines	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Canada
Switzerland

Polyethylene (PE) pipes and fittings — Designation of polyethylene, based on nominal density and melt flow index

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the method of designation of polyethylene (PE) pipes and fittings in terms of the material used for their manufacture.

It applies to polyethylene (PE) pipes and fittings, whatever their end use, the material of which only contains the antioxidants and stabilizers necessary for their satisfactory service, and, if necessary, pigments.

It does not apply to pipes or fittings made from polyethylene (PE) containing materials such as glass fibres, asbestos fibres, etc.

2 REFERENCES

ISO/R 1183, *Plastics — Methods for determining the density and relative density (specific gravity) of plastics, excluding cellular plastics.*

ISO 1872, *Polyethylene thermoplastic materials — Designation.*

ISO/R 292, *Plastics — Determination of the melt flow index of polyethylene and polyethylene compounds.*

3 PRINCIPLE

The principle of designation of materials in the form of polyethylene (PE) pipes and fittings is based on the nominal density and the melt flow index of the material.

NOTE — It is recognized that some additional properties, for example the long term working stress (the sigma value), may, in certain applications, be required for a more complete designation.

The means to quantify such properties were being studied at the time ISO 4056 was drafted and therefore a definitive proposal was considered to be premature.

4 METHOD OF DESIGNATION

The designation of pipes and fittings in terms of the material used for their manufacture consists of two groups of figures :

- the first group consists of the second and third significant figures of the expression for the nominal density;
- the second group consists of the melt flow index (minimum value 0,01) multiplied by 100.

Example : A polyethylene (PE) pipe whose nominal density is 0,948 g/cm³ and whose melt flow index is 0,05 is designated 48 – 5.

5 TEST METHODS

5.1 Density

The nominal density at 23 °C shall be determined in accordance with ISO 1872.

NOTE — In case of dispute the nominal density may be calculated from the reference density according to the method specified in ISO 1872.

5.2 Melt flow index

The melt flow index shall be determined in accordance with ISO/R 292.