INTERNATIONAL STANDARD

ISO 8180

Second edition
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Ductile iron pipelines — Polyethylene sleeving for site application

Canalisations en fonte ductile — Manche en polyéthylène pour application sur site

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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 8180 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*, Subcommittee SC 2, *Cast iron pipes, fittings and their joints*.

This second edition cancels and replaces the first edition (ISO 8180:1985), which has been technically revised.

Ductile iron pipelines — Polyethylene sleeving for site application

1 Scope

This International Standard specifies the characteristics of polyethylene film, commonly called sleeving, used as additional protection against corrosion for ductile iron pipelines, particularly when laid in aggressive soil conditions.

This film, the efficiency of which has been proved by experience, takes the form of a sheet or tube fitted around the pipes and fittings, on-site, immediately before pipe-laying.

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

ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets*

ISO 7765-1, *Plastics film and sheeting — Determination of impact resistance by the free-falling dart method — Part 1: Staircase methods*

ISO 6383-2, *Plastics — Film and sheeting — Determination of tear resistance — Part 2: Elmendorf method*

3 Terms and definitions

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

3.1
polyethylene sleeving
sleeving of piping with polyethylene film in tube or sheet form

3.2
polyethylene film
film extruded from virgin polyethylene raw material

4 Raw material

4.1 Characteristics

The material used for making the film shall be polyethylene or a mixture of polyethylene and/or ethylene and olefin copolymers.

When tested in accordance with ISO 1183-1, its density shall be between 910 kg/m^3 and 935 kg/m^3.

NOTE The raw material used to produce film to this standard typically has a volume resistivity of at least 10^{15} ohm-centimetres and the finished film typically has a dielectric strength of at least 32 V/μm.

4.2 Additives and impurities

If protection against ultra-violet rays is required, the material shall be stabilized by the addition of an appropriate product; if carbon black is used for this purpose, the addition shall be in the range of 2 to 3 % by mass.

The addition of antioxidants is permitted, but shall be not greater than 0,5 % by mass.

Any impurities in the polymer shall be less than 0,1 % by mass.

The product shall not contain any plasticizers or fillers.

4.3 Regenerated or re-worked products

The use of regenerated products is not permitted.

The use of re-worked products free from dirt from the film manufacturer's own production is permitted as long as the same type of original product is used and the films thus manufactured meet the requirements of this International Standard.

5 Sleeving

5.1 Appearance

The film shall not have holes, splits, punctures, perforations or any other detrimental faults affecting its strength or impermeability.

5.2 Dimensions

5.2.1 Width

The nominal flat width of the tube or flat sheet is specified in national standards or in the manufacturers' catalogues.

5.2.2 Thickness

The nominal thickness of the sleeving shall be not less than 200 μm. The negative tolerance on the nominal thickness shall not exceed 10 %.

If necessary, it is permitted to use thicker sleeving or double sleeving.

6 Mechanical properties

6.1 Tensile strength

When tested in accordance with ISO 527-3, using test specimens of type 2, a gauge length of 50 mm and a rate of grip separation of 500 mm/min, the tensile stress at break of the film in the longitudinal and transverse directions shall be not less than 20 MPa.

6.2 Elongation

When tested in accordance with ISO 527-3, using test specimens of type 2, a gauge length of 50 mm and a rate of grip separation of 500 mm/min, the elongation at fracture of the film in the longitudinal and transverse directions shall be not less than 500 %.

6.3 Impact resistance

When tested in accordance with ISO 7765-1 Method A, the impact resistance of the film shall be not less than 900 g.

6.4 Propagation tear resistance

When tested in accordance with ISO 6383-2, the propagation tear resistance of the film in the longitudinal and transverse directions shall be not less than 20 N.

7 Marking

The polyethylene film supplied shall bear a card or label giving the following information:

a) the manufacturer's name or trademark;

b) the year of manufacture;

c) the number of this International Standard, i.e. ISO 8180;

d) the nominal film thickness;

e) the applicable range of nominal pipe diameter size(s).

8 Storage and transportation

The sleeving shall be suitably packaged and protected by the manufacturer for transportation and storage.

When the sleeving is stored prior to use, it shall be sheltered from direct sunlight.

9 Conditions of use and fitting

For determining when polyethylene sleeving is required and also the method of fitting, the user should refer to appropriate national specifications or to the manufacturers' catalogues.

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