

INTERNATIONAL STANDARD

ISO
8179-2

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Ductile iron pipes — External zinc coating —

Part 2:

Zinc rich paint with finishing layer

Tuyaux en fonte ductile — Revêtement extérieur au zinc —

Partie 2: Peinture riche en zinc et couche de finition



Reference number
ISO 8179-2:1995(E)

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.

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.

International Standard ISO 8179-2 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 first edition of ISO 8179-2 as well as ISO 8179-1 cancel and replace ISO 8179:1985, which has been technically revised.

ISO 8179 consists of the following parts, under the general title *Ductile iron pipes — External zinc coating*:

- Part 1: *Metallic zinc with finishing layer*
- Part 2: *Zinc rich paint with finishing layer*

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Ductile iron pipes — External zinc coating —

Part 2:

Zinc rich paint with finishing layer

1 Scope

This part of ISO 8179 deals with a factory-applied protective external coating system for centrifugally cast ductile iron pipes as specified in ISO 2531 and ISO 7186. This coating system comprises a metallic zinc layer followed by a finishing layer.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8179. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8179 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2531:1991, *Ductile iron pipes, fittings and accessories for pressure pipe-lines*.

ISO 7186:1983, *Ductile iron pipes and accessories for non-pressure pipe-lines*.

3 Materials

The coating materials are zinc rich paint with inorganic binder and a zinc content of at least 85 % (m/m) in the dry film, and bituminous paint or synthetic resin compatible with zinc rich paint.

4 Zinc rich paint coating

4.1 Pipe surface condition

The pipe surface shall be dry and free from rust or any non-adhering particles or foreign matter such as oil or grease.

The zinc shall be applied to the oxidized external surface of the pipe, or to a blast-cleaned or ground surface, at the manufacturer's discretion.

4.2 Method of application

The zinc rich paint coating shall be applied by a spraying or a brushing process on to the pipe surface.

The design and construction of the coating equipment is not within the scope of this part of ISO 8179.

4.3 Coating characteristics

The zinc rich paint coating shall cover the outside diameter of the pipe, and shall be free from such defects as bare patches or lack of adhesion.

A spiralled appearance is permissible provided that the zinc rich paint coating masses comply with the requirements of 4.4.

Damaged areas of zinc rich paint coating caused by handling are acceptable, provided that the area of damage is less than 5 cm² per square metre and that the minor dimension of the damaged area does not exceed 5 mm.

Greater areas of damage shall be repaired in accordance with 4.6

4.4 Zinc rich paint mass

The mean mass of zinc rich paint coating measured in accordance with 4.5 shall be not less than 150 g/m², with a local minimum of 130 g/m².

The manufacturer shall visually inspect each pipe for quality and uniformity of coating and shall carry out regular measurements of zinc rich paint coating masses in accordance with the method described in 4.5.

4.5 Determination of zinc rich paint coating mass

A rectangular token is attached along the pipe axis before passing it through the zinc rich paint coating equipment. After coating and trimming, the minimum token sizes shall be either

- a) 250 mm × 100 mm or
- b) 500 mm × 50 mm.

The mean mass of zinc rich paint coating, m , expressed in grams per square metre, is calculated from the mass difference of the token before and after zinc rich paint coating using the following formula:

$$m = \frac{C(m_2 - m_1)}{A}$$

where

- m_1 and m_2 are masses, in grams, before and after zinc coating, measured to an accuracy of 0,1 g;
- A is the area of the token, in square metres;
- C is a correction factor depending on the material of the token, taking into account the difference in surface roughness between the token and the pipe surface.

The value of C shall be determined by the manufacturer and specified when required in test documents.

NOTE 1 For information, C lies between 1,0 and 1,2 for sand-blasted steel sheet or polyester sheet.

m_2 should be measured after the sample has been dried

The uniformity of the zinc rich paint coating is checked by visual inspection of the token. In the event of lack of uniformity, pieces 50 mm × 50 mm shall be cut from the token in the lighter zones and the local minimum mass of zinc rich paint coating determined according to the above method.

4.6 Repairs to the zinc rich paint coating

The manufacturer is permitted to carry out repairs by zinc rich paint coating, provided that the requirements of clause 3, and subclauses 4.3 and 4.4 are met.

5 Finishing layer

After zinc rich paint coating the pipe shall be given a finishing layer of bituminous paint or synthetic resin compatible with the zinc rich paint coating.

Application of this finishing layer may be done by any proven process such as spraying or brush coating at the manufacturer's discretion. It shall uniformly cover the zinc rich paint coating and be free from bare patches or lack of adhesion.

The mean dry film thickness of the finishing layer shall be not less than 70 µm with a local minimum thickness of 50 µm.

Verification of the dry film thickness of the finishing layer shall be carried out by measurement

- a) directly on the pipes by means of suitable gauges, e.g. magnetic, or by using a "wet film" thickness gauge where a correlation between wet film thickness and dry film thickness can be demonstrated or
- b) indirectly on a sample token which is attached to the pipe before coating and is used after coating to measure the dry film thickness by appropriate means, e.g. micrometer, magnetic thickness gauge or by a weight method similar to 4.5

NOTE 2 The method of measurement is at the manufacturer's discretion.

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