

INTERNATIONAL STANDARD

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Steel tubes — Continuous character marking and colour coding for material identification

*Tubes et éléments tubulaires en acier — Marquage par caractères et couleurs
codifiées pour identification des matériaux*



Reference number
ISO 9095 : 1990 (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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9095 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*.

Annex A of this International Standard is for information only.

Introduction

This International Standard has been prepared to provide an additional identification system for use on steel pipe materials employed in the manufacture of piping systems where continuous marking along the entire length of the tube is a special requirement (as an alternative to the normal practice of marking at one end of the tube or on a label attached to the tube).

It requires that all tubes be continuously and clearly marked with the details required by the relevant product standard. A simple colour code, in the form of a stripe, is also used to identify different groups of materials. The colour coding can also be used to mark fittings and components. The material groups have been chosen to minimize the probability of failure if, by error, a different material within the same group were used instead of the specified material. The groups are defined according to their nominal chemical composition or specified mechanical properties.

The marking of materials during manufacture as specified in this International Standard does not affect in any way the use of colour coding for the identification of the contents of piping systems in service. Where confusion might occur, the user should ensure that the colour marking applied in accordance with this International Standard is obliterated after final inspection of the installation.

This International Standard forms a proposal to unify the different systems of continuous marking practised throughout the world.

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Steel tubes — Continuous character marking and colour coding for material identification

1 Scope

This International Standard specifies the requirements for the optional continuous character and colour marking of ferritic and austenitic steel tubes that are used in the fabrication of piping systems. The colour coding specified can also be used for the marking of fittings and components (see 6.2.3).

It covers specific requirements for definitive material identification by the use of printed characters which are applied repetitively (continuously) along the length of the tube, and for the colour coding of discrete groups of steels. The colour coding may be specified at the option of the purchaser and is intended for use only in conjunction with the definitive character marking requirements given in clause 5.

In the absence of a suitable International Standard defining colours suitable for use in colour coding, annex A makes reference to certain equivalent colour codes given in national standards which may be used.

It is recognized that this International Standard can only be applied by agreement between the parties concerned.

2 Information to be supplied by the purchaser

2.1 The purchaser shall state the following in the enquiry and order :

- a) the number of this International Standard;
- b) the number of the product standard and the steel grade required;
- c) the tube dimensions (e.g. outside diameter \times thickness), in millimetres;
- d) the manufacturing process designation, where applicable;
- e) the test category, where applicable.

2.2 Since this International Standard provides for various options, the purchaser shall state on the enquiry and order all requirements concerning the following :

- a) the use of colour coding (see clause 6);
- b) the maximum lead, tin, zinc or copper content in the dried film (see 3.1);

- c) the use of a special protective coating (see 3.3);
- d) the use of additional marking (see 5.2.1.3).

If the purchaser does not specify any requirements the supplier shall supply in accordance with his/her normal practice for marking and protective coating provided that these conform with the requirements of this International Standard.

3 Marking materials

3.1 Quality of paint or ink

All paints and inks shall be as free as practicable from sulfur, halogens, lead, tin, zinc and copper. If specified by the purchaser, the dried film shall not contain more than 250 ppm of each of lead, tin, zinc or copper.

The quality of the paint or ink as applied shall be such that it shall have a life of at least one year in unheated storage under cover.

3.2 Colour

The colours used to designate the grade of material shall be as indicated in tables 3 and 4.

Annex A gives guidance on the definition of colours.

3.3 Compatibility with protective coating

The protective coating shall be compatible with the marking materials specified in this International Standard.

Where the purchaser specifies a protective coating other than the manufacturer's normal mill protection, it shall be the purchaser's responsibility to ensure compatibility with the marking material.

4 Responsibility for marking

4.1 Character marking

The character identification marking in accordance with clause 5 should normally be applied by the manufacturer. In other cases it shall be the responsibility of the supplier to ensure compliance with this International Standard on the basis of the certificate provided by the manufacturer according to the requirements in the product standard.