

Continuous hot-dip terne (lead alloy) coated cold-reduced carbon steel sheet of commercial, drawing and structural qualities

ICS 77.140.50

National foreword

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INTERNATIONAL STANDARD

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Continuous hot-dip terne (lead alloy) coated cold-reduced carbon steel sheet of commercial, drawing and structural qualities

Tôles en acier au carbone laminées à froid, revêtues d'un alliage au plomb en continu par immersion à chaud, de qualités commerciale, pour emboutissage et de construction



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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.

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ISO 4999 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 12, *Continuous mill flat rolled products*.

This fourth edition cancels and replaces the third edition (ISO 4999:1999), which has been technically revised.

Continuous hot-dip terne (lead alloy) coated cold-reduced carbon steel sheet of commercial, drawing and structural qualities

1 Scope

This International Standard applies to cold-reduced carbon steel sheet of commercial, drawing and structural qualities coated by a continuous hot-dip terne (lead alloy) coating process. It includes the group of products commonly known as terne plate or terne sheets (or in the U.S.A. as terne coated).

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 reference document (including any amendments) applies.

ISO 6892:1998, *Metallic materials — Tensile testing at ambient temperature*

ISO 7438:1985, *Metallic materials — Bend test*

ISO 16162, *Continuously cold-rolled steel sheet products — Dimensional and shape tolerances*

ISO 16163, *Continuously hot-dipped coated steel sheet products — Dimensional and shape tolerances*

3 Terms and definitions

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

3.1 Quality applications

3.1.1

commercial

intended for general fabricating purposes where sheet is used in the flat condition, or for bending or moderate forming

3.1.2

drawing

intended for parts where drawing or severe forming may be involved

3.1.3

deep drawing

intended for parts where severe forming or severe drawing may be involved

3.1.4

drawing-aluminum killed (non-aging)

intended for fabricating parts where particularly severe drawing or forming may be involved or essential freedom from aging is required

3.1.5

extra deep drawing (stabilized)

intended for applications requiring interstitial free steel (IF) which is non-aging and has maximum formability

3.1.6

structural quality

structural quality which is available in several grades and classes

See Table 5.

3.2

aluminum killed

steel which has been deoxidized with aluminum that is sufficient to prevent the evolution of gas during solidification

3.3

stabilized interstitial free steel

extra low carbon steel in which all interstitial elements are combined with titanium and/or equivalent elements

NOTE Stabilized steel is sometimes referred to as interstitial free steel.

3.4

terne

lead alloy

any lead-based alloy in commercial use for the hot-dip coating of steel sheet

NOTE 1 Tin is the most common alloying element, but antimony is also commercially used, as are combinations of both elements

NOTE 2 If a specific alloy composition is required, it shall be by agreement between the manufacturer and purchaser.

3.5

skin pass

light cold rolling of the coated steel sheet

NOTE The purpose of the skin pass is to produce a higher degree of surface smoothness and thereby improve the surface appearance. The skin pass also temporarily minimizes the occurrence of a surface condition known as stretcher strain (Luder's Lines) or fluting during the fabrication of finished parts. The skin pass also controls and improves flatness. Some increase in hardness and some loss in ductility will result from skin passing.

3.6

differential coating

coating having a coating mass on one surface significantly different from the coating mass on the other surface

4 Thickness

Terne sheet is normally produced in thicknesses from 0,30 mm to 2,0 mm, and in widths of 600 mm to 1 400 mm in coils and cut lengths. Terne sheet less than 600 mm wide may be slit from wide sheet and will be considered as sheet. Slit sheet is not available from all producers. Terne sheets are used where ease of solderability, a degree of corrosion resistance, or amenability to stamping, pressing or deep-drawing will be advantageous.

The thickness of hot-dip terne (lead alloy) coated steel sheet may be specified as a combination of the base metal and metallic coating, or as base metal alone. The purchaser shall indicate on the order which method of specifying is required. In the event that the purchaser does not indicate any preference, the thickness as a combination of the base metal and coating will be provided. Annex B describes the requirements for specifying the thickness as base metal alone.

a) Terne (lead alloy) coated steel sheet may be ordered in one of two ordering conditions:

- Ordering condition A): Steel ordered to satisfy mechanical property requirements.
- Ordering condition B): Steel ordered to make an identified application.

b) Terne (lead alloy) coated steel sheet is available in several fabrication qualities.