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Steel sheet, metallic-coated by the continuous hot-dip process for corrugated steel pipe

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 16172:2011), which has been technically revised. Tables and text have been updated for clarity.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Steel sheet, metallic-coated by the continuous hot-dip process for corrugated steel pipe

1 Scope

This document is applicable to the minimum requirements for steel sheet used in the manufacture of corrugated steel pipe, in coils, flat cut lengths and corrugated cut lengths metallic-coated by the continuous hot-dip process.

This product is intended for storm sewers, culverts, drains and similar uses.

Several metallic-coated materials are covered, which relies on users to determine which product best serves their needs. Four different metallic coatings are included:

— zinc coated;

— zinc-5 % aluminium-mischmetal alloy coated;

— 55 % aluminium-zinc alloy coated;

— aluminium-silicon alloy coated.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1460, *Metallic coatings — Hot dip galvanized coatings on ferrous materials — Gravimetric determination of the mass per unit area*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

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

3 Terms, definitions and abbreviated terms

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Terms and definitions

3.1.1
fabricator
<corrugated metal pipe> organization that produces the finished pipe

3.1.2
manufacturer
<corrugated metal pipe> organization that produces the metal sheet from which the pipe is made

3.1.3
purchaser
<corrugated metal pipe> person or agency that purchases the finished pipe

Note 1 to entry: For the purposes of this document, the *fabricator* (3.1.1) may also be considered as the purchaser of the sheet, where that term is used in this document. Such an interpretation does not restrict the purchaser of finished pipe from enforcing any provisions of this specification.

3.1.4
lot
up to a specified quantity of steel sheet of the same thickness and coating condition

3.2 Abbreviated terms

Zn	zinc
Zn-5Al-MM	zinc-5 % aluminium-mischmetal alloy
55Al-Zn	55 % aluminium-zinc alloy
Al-Si	aluminium-silicon alloy

4 Condition of manufacture

4.1 Chemical composition

The chemical composition (heat analysis and product analysis) of the base metal shall conform to the requirements of Table 1.

Table 1 — Chemical composition

Mass fractions in per cent

Element	Heat analysis	Product analysis
Sulfur, max., %	0,05	0,06
Sum of carbon, manganese, phosphorus, sulfur and silicon, max., %	0,70	0,74

4.2 Mechanical properties

The mechanical properties of the base metal shall conform to the requirements of Table 2.

Table 2 — Mechanical properties of flat sheet prior to fabrication[a]

Tensile requirements	Limits
Tensile strength[b], min., MPa	310
Yield strength[b], min. MPa	230
Elongation, in 50 mm[c], min., %	20

[a] To determine conformity with this specification, round each value for tensile strength and yield strength to the nearest 1 MPa and each value for elongation to the nearest 1 %.

[b] Yield strength and tensile strength are based on the thickness of the base metal. If tests are made after coating, determine the base metal thickness after stripping the coating from the ends of the specimen contacting the grips of the tension-testing machine prior to tensile testing.

[c] The elongation requirement does not apply to material tested after corrugating.