

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 10333:2005](#)

<https://standards.iteh.ai/catalog/standards/sist/1735bdfd-58d2-49cc-a988-5031f43965a5/sist-en-10333-2005>

EUROPEAN STANDARD

EN 10333

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2005

ICS 67.250

English version

Steel for packaging - Flat steel products intended for use in contact with foodstuffs, products and beverages for human and animal consumption - Tin coated steel (tinplate)

Acier pour emballage - Produits plats en acier destiné à entrer au contact des denrées, produits et boissons pour l'alimentation de l'homme et des animaux - Acier revêtu d'étain (fer blanc ou fer étamé)

Verpackungsblech - Flacherzeugnisse aus Stahl für die Verwendung in Berührung mit Lebensmitteln, Produkten und Getränken für den menschlichen und tierischen Verzehr - Verzinnter Stahl (Weißblech)

This European Standard was approved by CEN on 7 March 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Information to be provided by the purchaser	5
5 Dimensions and dimensional tolerances	5
6 Requirements	5
6.1 Base metal	5
6.2 Tin coating	5
6.3 Passivation and oiling	5
7 Checks	6
8 Sampling	6
9 Test method	6
10 Designation	6
11 Marking, labelling, packaging	6
Annex A (normative) Determination of lead	7
A.1 Scope	7
A.2 Principle	7
A.3 Apparatus	7
A.4 Reagents	7
A.5 Health and safety	8
A.6 Instructions	8
A.7 Figures	8
A.8 Expression of results	11
Bibliography	12

Foreword

This document (EN 10333:2005) has been prepared by Technical Committee ECISS/TC 26 “Tinmill products - Qualities, dimensions, tolerances and specific tests”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2005, and conflicting national standards shall be withdrawn at the latest by October 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 10333:2005](https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-5031f43965a5/sist-en-10333-2005)

<https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-5031f43965a5/sist-en-10333-2005>

EN 10333:2005 (E)**1 Scope**

This document specifies the composition of the base steel used for the production of tinplate for use in direct contact with foodstuffs or products for human and animal consumption as well as the composition of tin used to coat it. Tinplate can be produced with or without an organic coating.

The main examples of use are:

- drinks cans,
- food cans,
- packaging of dry foods,
- aerosol cans.

The material should be chosen in accordance with the conditions for its use.

This standard does not apply to categories of steel other than steel for packaging intended for use in contact with foodstuffs, products or beverages for human or animal consumption.

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.

EN 610, *Tin and tin alloys – Ingot tin*

[SIST EN 10333:2005](https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-502483961557/en-610-2005)

[https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-](https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-502483961557/en-610-2005)

EN 10202:2001, *Cold reduced tinmill products – Electrolytic tinplate and electrolytic chromium/chromium oxide coated steel*

EN 10204, *Metallic products – Types of inspection documents*

EN 10334, *Steel for packaging – Flat steel products intended for use in contact with foodstuffs, products and beverages for human and animal consumption - Non-coated steel (blackplate)*

EN ISO 14284, *Steel and iron – Sampling and preparation of samples for the determination of chemical composition (ISO 14284:1996)*

3 Terms and definitions

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

3.1**tinplate**

cold-rolled blackplate coated on at least one side with a layer of tin. The mass of the coating can reach up to 15.1 g/m²

3.2**blackplate**

See EN 10334

3.3**steel intended for use in contact with foodstuffs**

See EN 10334

3.4**passivation**

surface treatment designed to improve resistance to oxidation, resistance to sulphurizing and ease of lacquering or printing on the tin coating

3.5**steel for packaging**

See EN 10334

3.6**steel for other applications than packaging**

See EN 10334

4 Information to be provided by the purchaser

The information, which shall be provided by the purchaser at the time of enquiry and order, shall satisfy the requirements of EN 10202.

NOTE Furthermore, the purchaser can specify the type of oil suitable for food contact to be used when the product is delivered oiled.

5 Dimensions and dimensional tolerances

The nominal dimensions shall be agreed at the time of enquiry and order.

Dimensional tolerances shall meet the requirements of Clause 9 of EN 10202:2001.

6 Requirements

[SIST EN 10333:2005](https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-5031f43965a5/sist-en-10333-2005)

<https://standards.iteh.ai/catalog/standards/sist/1735b1df-58d2-49cc-a988-5031f43965a5/sist-en-10333-2005>

6.1 Base metal

The composition of the base metal shall meet the requirements of EN 10334.

NOTE As described in EN 10202:2001 informative Annex A, tighter limits may be necessary for certain elements particularly for manufacturing reasons.

6.2 Tin coating

The chemical composition of the tin ingot used shall comply with the requirements set down in EN 610 for grade Sn99.85 with the exception of the Pb content, which shall be < 0.010 %.

The Pb content of the tin coating shall be $\leq 0,010$ %.

6.3 Passivation and oiling

The requirements specified in EN 10202 shall apply.

Unless otherwise specified at the time of enquiry and order, the products delivered shall be coated with an oil that is suitable for contact with foodstuffs.

EN 10333:2005 (E)**7 Checks**

At the request of the purchaser, conformity with the order requirements shall be proven in accordance with this standard. Unless otherwise specified, the inspection document 2.1 shall be used in accordance with EN 10204.

8 Sampling

The sampling process and the preparation of the sample shall be in accordance with the requirements of EN ISO 14284.

9 Test method

Lead present in the tin coating shall be assayed in accordance with the requirements contained within Annex A. Other methods can be used. Nevertheless, in cases of dispute, the method defined in Annex A is the reference method.

10 Designation

The designation shall be in accordance with EN 10202.

11 Marking, labelling, packaging

Each coil or bundle shall display a label indicating the reference to this standard, the name and the trademark of the manufacturer and the batch identification. [SIST EN 10333:2005](#)

The packaging specifications shall be agreed at the time of enquiry and order.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/1735bfd5-58d2-49cc-a988-303145965a5/sist-en-10333-2005>

Annex A (normative)

Determination of lead

A.1 Scope

Measurement of the lead content of tin coating for steel for packaging.

A.2 Principle

- Coulometric dissolution of tin coating in hydrochloric acid;
- Elimination of tin through hydrobromic distillation;
- Placing of remaining elements into solution and assaying of lead by means of atomic absorption spectrophotometry.

A.3 Apparatus

- Direct current generator for currents of between 0 mA and 500 mA;
- Potentiometer recorder with a range of 0 mV to 2500 mV;
- Calomel electrode (ECS) and counter-electrode in platinum wire;
- Glass laboratory receptacles and adjustable hot plate;
- Air-drying vinyl spray paint can;
- Atomic absorption spectro-photometer with oven able to detect between 0 µg/l and 100 µg/l lead.

A.4 Reagents

All of the solutions shall be prepared on the basis of products intended specifically for toxicological analyses:

- Hydrochloric acid 2N;
- Hydrochloric acid at 10 %;
- Bromine solution at 10 % in hydrobromic acid;
- Sulphuric acid 9N;
- Lead standard solution at 5 µg/ml prepared by dilution of a commercial solution at 1 g/l.