SLOVENSKI STANDARD
SIST EN 10202:1996

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Hladno valjano elektrolizno kromano jeklo s prevleko krom/kromov oksid

Cold reduced electrolytic chromium/chromium oxide coated steel

Kaltgewalzter elektrolytisch spezialverchromter Stahl

Fer chromé électrolytique

Ta slovenski standard je istoveten z: **EN 10202:1989**

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English version

Cold reduced electrolytic chromium/chromium oxide coated steel

Fer chromé électrolytique

Kaltgewalzter elektrolytisch spezialverchromter Stahl

This European Standard was accepted by CEN on 1989-04-01. CEN members are bound to comply with the requirements of the CEN/CENELEC Common Rules 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 CEN Central Secretariat or to any CEN member.

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

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue Bréderode 2, B-1000 Brussels

Brief History

This European Standard was prepared by the Technical Committee ECISS/TC 26 "Tinplate and blackplate - qualities, dimensions, tolerances and specific tests", the Secretariat of which has been allocated to the British Standards Institution (BSI).

It replaces the prENs:

prEN 10 170: Single cold reduced electrolytic chromium/chromium oxide coated steel : Sheet

prEN 10 171: Double cold reduced electrolytic chromium/chromium oxide coated steel : Sheet

prEN 10 172: Single cold reduced electrolytic chromium/chromium oxide coated steel : Coil for subsequent cutting into sheets

prEN 10 173: Double cold reduced electrolytic chromium/chromium oxide coated steel : Coil for subsequent cutting into sheets

It has been submitted to the CEN Formal Vote on 1988-10-21.

It has been adopted and ratified by CEN BT on 1989-04-01.

According to the Common CEN/CENELEC Rules, following countries are bound to implement this European Standard :

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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1 Object and field of application

This European Standard specifies requirements for single and double cold reduced electrolytic chromium/chromium oxide coated steel (ECCS) in the form of sheets or coils for subsequent cutting into sheets.

Single reduced ECCS is specified in nominal thicknesses that are multiples of 0,005 mm from 0,17 mm up to and including 0,49 mm. Double reduced ECCS is specified in nominal thicknesses that are multiples of ,005 from 0,14 mm up to and including 0,29 mm.

This standard applies to coils and sheets cut from coils in nominal minimum widths of 600 mm.

Annex C lists the relevant clauses for the selected product.

2 References

EU 109: 1980 — Conventional Rockwell hardness test. Rockwell scales HRN and HRT. Rockwell scales HRBm and HR30Tm for thin products.

EN 10 002-1: 1989 — Metallic materials - Tensile testing. Part 1: Methods of test (at ambient temperature)

3 Definitions

For the purposes of this standard the following definitions apply:

3.1 **electrolytic chromium/chromium oxide coated steel (ECCS)**: Low carbon mild steel sheet or coil electrolytically treated to produce on both surfaces a duplex film of metallic chromium adjacent to the steel substrate with a top layer of hydrated chromium oxide or hydroxide.

3.2 **single cold reduced**: A term used to describe those products where the steel substrate has been reduced to the desired thickness in a cold reduction mill and subsequently annealed and temper rolled.

3.3 **double cold reduced**: A term used to describe those products in which the steel base has had a second major reduction after annealing.

3.4 **standard grade ECCS**: Material in sheet form which is the product of line inspection. It is suitable under normal conditions of storage, for established lacquering and printing over the entire surface of the sheet and does not contain any of the following:

a) pinholes i.e. any perforation through the whole thickness of the material;

b) thickness outside the tolerance range specified in 10.3;

c) surface defects which render the material unsuitable for the intended use;

d) damage or shape related defects which render the material unsuitable for the intended use.

3.5 **batch (box) annealed (BA)**: Annealed by the process in which the cold reduced strip is annealed in tight coil form, within a protective atmosphere, for a predetermined time-temperature cycle.

3.6 **continuously annealed (CA)**: Annealed by the process in which cold reduced coils are unwound and annealed in strip form within a protective atmosphere.

3.7 **finish**. The appearance of the surface of ECCS, governed by the surface characteristics of the steel base which result from controlled preparation of the work rolls during the final stages of rolling.

3.7.1 shot blast finish: A finish resulting from the use of temper mill work rolls that have been shot blasted.

3.7.2 smooth finish: A finish resulting from the use of temper mill work rolls that have been ground to a high degree of polish.

3.7.3 stone finish: A finish characterized by a directional pattern, resulting from the use of final mill work rolls that have been ground to a lower degree of polish than those used for the smooth finish.

3.8 coil: A rolled flat strip product which is wound into regularly superimposed laps so as to form a coil with almost flat sides.

3.9 bow.

3.9.1 longitudinal (line) bow: Residual curvature in the strip remaining along the direction of rolling.

3.9.2 transverse (cross) bow: A mode of curvature in the sheet such that the distances between its edges parallel to the rolling direction is less than the sheet width.

3.10 **centre buckle (full centre)**: An intermittent vertical displacement or wave in the strip occurring other than at the edges.

3.11 **edge wave**: An intermittent vertical displacement occurring at the strip edge when the strip is laid on a flat surface.

3.12 **feather edge (transverse thickness profile)**: The variation in thickness, characterized by a reduction of thickness close to the edges, at right angles to the rolling direction.

3.13 **burr**: Metal displaced beyond the plane of the surface of the strip by shearing action.

3.14 **rolling width**: The width of the strip perpendicular to the rolling direction.

3.15 **consignment**: A quantity of material of the same specification made available for despatch at the same time.

3.16 **bulk package, or bulk**: A packaging unit comprising a base platform or pallet, the sheets and packaging material. (See pallet.)

3.17 **pallet**: Base platform on which a coil is placed to facilitate ready transportation.

3.18 **stillage platform**: A base platform on which sheets are stacked to facilitate packing and ready transportation.

3.19 **sample unit**: 750 m of coil cut into sheets, for the purposes of sampling.

3.20 **line inspection**: The final inspection of the finished product performed by instruments and/or by visual examination at normal production line speeds.

3.21 **anvil effect**: The effect which a hard anvil can produce on the numerical hardness value obtained when a hardness test is performed on very thin sheet supported on such an anvil.

4 Information to be supplied by the purchaser

4.1 General

The following information shall be given on the enquiry and order to assist the manufacturer in supplying the correct material:

a) the designation as given in clause 5;
b) the quantity expressed as an area or mass basis;
c) for single reduced ECCS the finish required, see 6.2.1;
d) any further special requirements.

NOTE. Appropriate classifications are suitable for shaping operations such as stamping, drawing, folding, beading and bending and assembly work such as joint forming and welding. The end use should be borne in mind when the classification is selected.

4.2 Options

In the event that the purchaser does not indicate his wish to implement any of the options included in this standard and does not specify his requirements at the time of the enquiry and order, the product shall be supplied on the following basis:

a) for double reduced ECCS - with a stone surface finish (see 6.2.2);

b) for coils - the location of each joint shall be indicated by a piece of non-rigid material and punched holes (see 11.3);

c) for coils - the coils shall be dispatched with their cores vertical (see 15.1);

d) for sheets - the direction of the runners of the stillage platform is at the discretion of the producer but shall be consistent within a consignment (see 15.2);

e) for sheets - the rolling width shall be either of the two specified dimensions (see note to 4.3);

f) material shall be supplied with a coating of DOS or BSO (see 6.3).

4.3 Additional information

In addition to the information in 4.1 and 4.2 the purchaser may wish to provide further information to the supplier to ensure that the order requirements are consistent with the end use of the product.

The purchaser shall inform the supplier of any modifications to his fabrication operations that will significantly affect the way in which the ECCS is used.

NOTE. When ordering cold reduced ECCS, the purpose of manufacture for which the material is intended should be stated. When double cold reduced ECCS is used for built-up can bodies, it is essential that the rolling direction should be around the circumference of the can so as to minimize the hazard of flange cracking. In such cases it is imperative that the rolling direction is clearly designated on the contract.

5 Designation

5.1 Single reduced ECCS

For the purposes of this standard single reduced ECCS is designated in terms of a temper classification based on the Rockwell 30 Tm hardness values as given in table 2.

Single reduced material covered by this European Standard shall be designated by the following characteristics in the given sequence:

a) a description of the material (either ECCS coil or sheet);
b) the number of this standard (EN 10 202);
c) the temper designation in accordance with table 2;
d) the type of annealing if specified by the user (see 9.1);
e) the type of finish (see 3.7);

f) the dimensions in mm

- for coils, strip thickness x width

- for sheets thickness x width x length:

EXAMPLE. Single cold reduced ECCS sheet in accordance with this standard of steel grade T61 continuously annealed (CA), stone finish, with a thickness of 0.22 mm, a width of 800 mm and a length of 900 mm shall be designated:

ECCS sheet EN 10 202 - T61 - CA - stone - 0.22 x 800 x 900.

5.2 Double reduced ECCS

For the purposes of this standard the mechanical properties in which double reduced ECCS complying with this standard is supplied are designated in terms of a system of mechanical property classifications based on the 0.2 % proof stress as given in table 3.

Double reduced material covered by this European Standard shall be designated by the following characteristics in the given order:

a) a description of the material (either ECCS coil or sheet);

b) the number of this standard (EN 10 202);

c) the mechanical property designation (see table 3);

d) the type of annealing if specified by the user (see 9.1);

e) the dimensions in mm.

- for coils, strip thickness x width;

- for sheets thickness x width x length;

EXAMPLE. Double cold reduced ECCS coil in accordance with this standard of steel grade DR 620, continuously annealed (CA) with a thickness of 0.18 mm and a width of 750 mm shall be designated.

ECCS coil EN 10 202 - DR 620 - CA - 0,18 x 750.

6 Manufacturing features

6.1 Manufacture

The methods of manufacture of ECCS are the province of the manufacturer and are not specified in this standard.

The purchaser shall be informed if any alteration is made to the method of manufacture that will affect the properties of the ECCS.

NOTE. It is recommended that the manufacturer supplies to the purchaser such details of the manufacturing process as may assist the purchaser in his efficient use of the ECCS.

6.2 Finish

6.2.1 Single reduced ECCS

Single cold reduced ECCS can be supplied with either a smooth, stone or shot blast finish, and the finish required shall be specified at the time of order (see 4.1 c).

6.2.2 Double reduced ECCS

Double cold reduced ECCS is usually supplied with a stone surface finish (see 3.7.3).

NOTE. Special surface finishes may be available and should be agreed at the time of order.

6.3 Oiling

Under normal conditions of transport and storage, ECCS shall be suitable for surface treatments such as established lacquering and printing operations. ECCS coils and sheets are supplied with an oil coating. The oil shall be one that is recognized (i.e. by the relevant national or international authority) as being suitable for food packaging. Unless otherwise agreed at the time of order (see 4.2 f) DOS (dioctyl sebacate) or BSO (butyl stearate oil) shall be used.

6.4 Defects

6.4.1 Coils

The producer is expected to employ his normal quality control and line inspection procedures to ensure that the ECCS manufactured is in accordance with the requirements of this standard. However, the production of ECCS coils in continuous strip mill operations does not afford the opportunity for removal of all ECCS that does not comply with the requirements of this standard.

At the time of shearing, sheets not conforming to the standard grade shall be set aside by the purchaser or his agent.

NOTE 1. The amount of sheets complying with this standard should be at least 85 % of any one coil.

NOTE 2. Items c) and d) in 3.4 cannot be verified by specific tests and should be the subject of special agreement between producer and user.

If, when processing ECCS coil, the purchaser (or his agent) encounters recurring defects which in his opinion seem excessive, it is essential - where practicable - that he stops processing the coil and advises the supplier.

The purchaser is expected to have adequate handling, roller levelling and shearing equipment and to take reasonable care during these operations.

6.4.2 Sheets

Sheets shall not contain any defects as defined in 3.4, when sampled as described in 12.2.