SLOVENSKI STANDARD
SIST EN 12487:2007

01-junij-2007

Nadomešča:
SIST EN 12487:2000

Antikorozijska zaščita kovin - Kromatne prevleke na aluminiju in aluminijevih zlitinah, splaknjene ali nesplaknjene

Corrosion protection of metals - Rinsed and non-rinsed chromate conversion coatings on aluminium and aluminium alloys

Korrosionsschutz von Metallen - Gespülte und no-rinse Chromatierüberzüge auf Aluminium und Aluminiumlegierungen

Protection contre la corrosion des métaux - Couches de conversion au chromate rincées et non rincées sur l'aluminium et les alliages d'aluminium

Ta slovenski standard je istoveten z: **EN 12487:2007**

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25.220.40	Kovinske prevleke	Metallic coatings
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English Version

Corrosion protection of metals - Rinsed and non-rinsed chromate conversion coatings on aluminium and aluminium alloys

Protection contre la corrosion des métaux - Couches de conversion au chromate rincées et non rincées sur l'aluminium et les alliages d'aluminium

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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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 12487:2007) has been prepared by Technical Committee CEN/TC 262 “Metallic and other inorganic coatings”, 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of an identical text or by endorsement, at the latest by October 2007, and conflicting national standards shall be withdrawn at the latest by October 2007.

This document supersedes EN 12487:2000.

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

1 Scope

This European Standard specifies requirements for rinsed and non-rinsed chromate conversion coatings on aluminium and aluminium alloys intended to protect against corrosion and serve as a base for other coatings.

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 485-1, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 1: Technical conditions for inspection and delivery*

EN 485-2, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 485-3, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 3: Tolerances on dimensions and form for hot-rolled products*

EN 485-4, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 4: Tolerances on shape and dimensions for cold-rolled products*

EN 515, *Aluminium and aluminium alloys – Wrought products – Temper designations*

EN 573-1, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 1: Numerical designation system*

EN 573-2, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 2: Chemical symbol based designation system*

EN 573-3, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition*

EN ISO 3892, *Conversion coatings on metallic materials — Determination of coating mass per unit area — Gravimetric methods (ISO 3892:2000)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2006)*

ISO 4519, *Electrodeposited metallic coatings and related finishes — Sampling procedures for inspection by attributes*

IEC 60603-1, *Connectors for frequencies below 3 MHz for use with printed boards - Part 1: Generic specification - General requirements and guide for the preparation of detail specifications, with assessed quality (IEC 60603-1:1991 + A1:1992)*

3 Terms and definitions

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

3.1
rinsed chromate coating
chromate coating that is rinsed in water prior to drying

NOTE This type of coating is typically applied to extruded and rolled aluminium fabricated parts, castings and long coils.

3.2
non-rinsed chromate coating
coil coating
chromate coating that is dried immediately after the chromating step without receiving a water rinse

NOTE This type of coating is normally used on long coils of aluminium sheet stock that receive immediate painting or adhesive coating.

4 Information to be supplied by the purchaser

The following information shall be supplied by the purchaser:

a) coating designation (see clause 5);

b) sampling methods, acceptance levels or any other inspection requirements if different from those given in ISO 4519 (see clause 6);

c) surface preparation prior to chromate conversion coating (see Annex A for guidance);

d) requirements for adhesion (see 7.3) and corrosion resistance (see 7.6);

e) nature, condition and finish of the basis metal, if any of these could affect the serviceability and/or appearance of the coating.

WARNING —Use of this standard can involve hazardous materials, operations and equipment. This standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

Chemicals and materials shall be used and disposed of in a professional and environmentally suitable manner.

5 Coating types and designation

5.1 Coating types

A conversion coating shall be referred to as type A, type C1, or type E1 in accordance with Table 1.

NOTE Annex A provides guidance on coating type, purpose, end use and mass per unit area.

Table 1 — Types of chromate conversion coating

Type	Appearance	Coating mass per unit area (g/m^2)	Other properties
A	Colourless	0,05 to 0,2	Decorative, low insulation resistance
C1	Yellow (light to iridescent)	0,4 to 1,0	Used as a paint base and for bonding to rubber
E1	Light green	0,4 to 1,2	Used as a paint base and for bonding to rubber
NOTE For chromated long coils for types C1 and E1, the coating mass 0,5 g/m^2 to 0,8 g/m^2 is recommended.			

5.2 Conversion coating designation

The conversion coating designation shall be comprised of the following:

a) number of this European Standard;

b) hyphen;

c) aluminium alloy designation in accordance with EN 573-1, EN 573-2 and EN 573-3 (wrought aluminium alloys), EN 485 parts 1 through 4 (cast aluminium alloys) and the temper designation in accordance with EN 515;

d) solidus;

e) symbol designating the type of coating (see Table 1 and NOTE 1 below).

If the chromate conversion coating has to be after-treated, the designation shall also be comprised of the following:

f) solidus;

g) symbol indicating any after-treatment of the conversion coating as specified in Table B.1, Annex B (also see NOTE 2 below).

NOTE 1 It is recommended that the chemical symbol is followed by the standard designation of the basis metal.

NOTE 2 This can be repeated if more after-treatments are required.

EXAMPLE

The designation of a chromate conversion coating with a coating mass of 0,4 g/m^2 to 1,2 g/m^2 (E1) on wrought aluminium alloy EN AW-6060 T6, that has been after-treated with the application of inorganic or organic sealant (T2) is:

Chromate conversion coating EN 12487-EN AW 6060 T6/E1/T2.

6 Sampling

Sampling shall either be carried out in accordance with ISO 4519 or as specified by the purchaser (see clause 4, b)).

7 Coating requirements

7.1 General

Any tests (including corrosion resistance tests) shall be deferred until the expiry of a 24 h period after treatment.

NOTE Conversion coatings harden with age by gradual dehydration; they should, therefore, be handled carefully for the first 24 h after the last treatment.

7.2 Electrical insulation

When measured at an open circuit voltage of 9 V and a current of 2 A in accordance with IEC 60603-1, the resistance between an electrical contact and the aluminium shall be less than 0,1 Ω for type A, type C1 and type E1 coatings.

7.3 Adhesion

7.3.1 The coatings shall be adherent and non-powdery. The conversion coating shall pass the test described in 7.3.2 or 7.3.3.

7.3.2 Rub the dried surface with white soft tissue paper using normal hand pressure, making 10 movements. This treatment shall not leave any trace of staining on the paper.

7.3.3 If the test described in 7.3.2 is not sufficient to measure the adhesion of a conversion coating on aluminium, carry out a practical evaluation of the adhesion by measuring the adhesion of a secondary organic film applied to the chromated aluminium.

7.4 Coating mass per unit area

For all but thin (type A) coatings, the coating mass per unit area of chromate and chromate-phosphate coatings on aluminium shall be determined in accordance with EN ISO 3892 or with the methods described in C.2 to C.4.

For thin (type A) chromate coatings, the coating mass per unit area shall be determined in accordance with C.3 and C.4.

NOTE For thin chromate coatings, the errors associated with the methods described in EN ISO 3892 are unacceptably high.

7.5 Coating identification

7.5.1 General

The test methods specified in Annex D shall be used to determine the presence or absence of relevant chemical elements in the conversion coating.

7.5.2 Chromate conversion coatings (yellow)

The presence of chromium and the absence of phosphate in the coating shall identify the layer as a chromate conversion coating. The layer may contain hexavalent chromium.

7.5.3 Chromate phosphate coatings (green)

The presence of phosphate and chromium and the absence of zinc shall identify the layer as a chromate-phosphate conversion coating. The layer consists of trivalent chromium.