SLOVENSKI STANDARD
SIST EN 4687:2021

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Nadomešča:
SIST EN 4687:2012

Aeronavtika - Barve in laki - Brezkromatni (protikorozijski) dvokomponentni temeljni premaz, ki se strdi pri temperaturi okolja - Brezkromatni temeljni premaz za vojaško uporabo

Aerospace series - Paints and varnishes - Chromate free (non corrosion inhibiting) two-components cold curing primer - Chromate free primer for military application

Luft- und Raumfahrt - Beschichtungsstoffe - Zweikomponenten Grundierung, chromatfrei, nicht korrosionsschützend, raumtemperaturhärtend für militärische Anwendung

Série aérospatiale - Peintures et vernis - Peinture primaire sans chromate (non anticorrosion) à deux composants polymérisant à température ambiante - Peinture primaire sans chromate pour applications militaires

Ta slovenski standard je istoveten z: **EN 4687:2021**

ICS:

49.040	Prevleke in z njimi povezani postopki, ki se uporabljajo v letalski in vesoljski industriji	Coatings and related processes used in aerospace industry
87.040	Barve in laki	Paints and varnishes

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EUROPEAN STANDARD

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English Version

Aerospace series - Paints and varnishes - Chromate free (non corrosion inhibiting) two-components room temperature curing primer - Chromate free primer for military application

Série aérospatiale - Peintures et vernis - Peinture primaire sans chromate (non anticorrosion) à deux composants polymérisant à température ambiante - Peinture primaire sans chromate pour applications militaire

Luft- und Raumfahrt - Beschichtungsstoffe - Zweikomponenten Grundierung, chromatfrei, nicht korrosionsschützend, raumtemperaturhärtend für militärische Anwendung

This European Standard was approved by CEN on 2 November 2020.

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

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European foreword

This document (EN 4687:2021) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2021, and conflicting national standards shall be withdrawn at the latest by July 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 4687:2012.

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

1 Scope

This document defines the requirements for a two-components, chromate and lead-free primer.

The coating applies to fibre reinforced composite materials, titanium and corrosion resistant steels and other suitably prepared corrosion resistant substrates.

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.

EN 2101, *Aerospace series — Chromic acid anodizing of aluminium and wrought aluminium alloys*

EN 2334, *Aerospace series — Chromic-sulphuric acid pickle of aluminium and aluminium alloys*

EN 2437, *Aerospace series — Chromate conversion coatings (yellow) for aluminium and aluminium alloys*

EN 3837, *Aerospace series — Paints and varnishes — Nature and method for surface preparation of test pieces in aluminium alloys*

EN 3840, *Aerospace series — Paints and varnishes — Technical specification*

EN 3847, *Aerospace series — Paints and varnishes — Determination of sedimentation rating*

EN 4160, *Aerospace series — Paints and varnishes — Determination of the effect of thermal exposure*

EN 4689, *Aerospace series — Paints and varnishes — Two-components room temperature curing polyurethane finish — High flexibility and chemical agent resistance for military application*

EN 4704, *Aerospace series — Tartaric-Sulphuric-Acid anodizing of aluminium and aluminium wrought alloys for corrosion protection and paint pre-treatment (TSA)*

EN ISO 1513, *Paints and varnishes — Examination and preparation of test samples*

EN ISO 1518-1, *Paints and varnishes — Determination of scratch resistance — Part 1: Constant-loading method*

EN ISO 1519, *Paints and varnishes — Bend test (cylindrical mandrel)*

EN ISO 1520, *Paints and varnishes — Cupping test*

EN ISO 1524, *Paints, varnishes and printing inks — Determination of fineness of grind*

EN ISO 2409, *Paints and varnishes — Cross-cut test*

EN ISO 2431, *Paints and varnishes — Determination of flow time by use of flow cups*

EN ISO 2811-1, *Paints and varnishes — Determination of density — Part 1: Pycnometer method*

EN ISO 2811-2, *Paints and varnishes — Determination of density — Part 2: Immersed body (plummet) method*

EN ISO 2811-3, *Paints and varnishes — Determination of density — Part 3: Oscillation method*

EN ISO 2811-4, *Paints and varnishes — Determination of density — Part 4: Pressure cup method*

EN ISO 2812-1, *Paints and varnishes — Determination of resistance to liquids — Part 1: Immersion in liquids other than water*

EN ISO 2812-2, *Paints and varnishes — Determination of resistance to liquids — Part 2: Water immersion method*

EN ISO 2813, *Paints and varnishes — Determination of gloss value at 20°, 60° and 85°*

EN ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content*

EN ISO 3675, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method*

EN ISO 3679*, Determination of flash no-flash and flash point — Rapid equilibrium closed cup method*

EN ISO 4628-2, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering*

EN ISO 6270-1, *Paints and varnishes — Determination of resistance to humidity — Part 1: Condensation (single-sided exposure)*

EN ISO 9117-1, *Paints and varnishes — Drying tests — Part 1: Determination of through-dry state and through-dry time*

EN ISO 9117-3, *Paints and varnishes — Drying tests — Part 3: Surface-drying test using ballotini*

EN ISO 9117-6, *Paints and varnishes — Drying tests — Part 6: Print-free test*

EN ISO 9514, *Paints and varnishes — Determination of the pot life of multicomponent coating systems — Preparation and conditioning of samples and guidelines for testing*

EN ISO 11664-[*] , *Colorimetry*

EN ISO 11890-1, *Paints and varnishes — Determination of volatile organic compound (VOC) content — Part 1: Difference method*

EN ISO 11890-2, *Paints and varnishes — Determination of volatile organic compound (VOC) content — Part 2: Gas chromatographic method*

ISO 3270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*

MIL-PRF-5606H, *Performance specification: Hydraulic fluid, petroleum base; aircraft, missile, and ordnance. (NATO H-515)* [1)]

MIL-PRF-6081D, *Performance specification: Lubricating oil, jet engine. (NATO O-133)* [1)]

[*] And all its parts quoted in this document.

[1)] Published by: DoD National (US) MIL. Department of Defense http://www.defenselink.mil/.

MIL-PRF-23699F, *Performance specification: Lubricating oil, aircraft turbine engine, synthetic base, NATO code number O-156* [1)]

MIL-DTL-83133G, *Detail specification: Turbine fuel, aviation, kerosene type, JP-8 (NATO F-34), NATO F-35, and JP-8+100 (NATO F-37)* [1)]

AMS 1526B, *Cleaner for aircraft exterior surfaces water-miscible, pressure- spraying type* [2)]

AMS 1527B, *Cleaner for aircraft exterior surfaces water-miscible, foam-on, pressure-spraying* [2)]

AMS 1533A, *Cleaner for exterior aircraft surfaces gel-type, solvent-base* [2)]

DEF STAN 68-10 Issue 5, *Corrosion Preventive, Water Displacing NATO Code: C-634 Joint Service Designation: PX-24*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 3840 apply.

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

- ISO Online browsing platform: available at http://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

4 Surface pretreatments

In accordance with EN 3837, the surface pretreatments applicable to aluminium alloy test panels are the following:

EN 3837 Procedure A: Sulfochromic pickling in accordance with EN 2334

EN 3837 Procedure B: Chromic acid anodizing in accordance with EN 2101

EN 3837 Procedure C: Chromate conversion coating in accordance with EN 2437

EN 3837 Procedure D: Tartaric-Sulphuric-Acid anodizing in accordance with EN 4704

[2)] Published by: SAE International (US) Society of Automotive Engineers http://www.sae.org/.

5 Classification

The primer is classified according to the following types:

TYPE I: Standard solvent content (VOC < 680 g/l)

TYPE II: Low volatile organic content (VOC < 350 g/l)

TYPE III: Waterborne (VOC < 250 g/l)

6 Batch release and qualification testing

6.1 General

The general requirements for qualification and batch release testing shall be in accordance with (i.a.w.) EN 3840 and the applicable appendix for the specific material.

6.2 Qualification tests

For product qualification, all tests defined in this document, in Table 2 to Table 7, shall be performed. A minimum of 3 (three) batches shall be tested for qualification purposes.

6.3 Batch acceptance testing

The Manufacturer shall give evidence on the Test Report or the Certificate of Conformance that all the tests marked with the symbol * in this specification have been performed for batch acceptance tests.

6.4 Purchaser batch release testing

The Purchaser may perform any of the tests of this document deemed necessary to ensure continuing uniform quality in material shipments.

Table 1 — General requirements

Material description	Chromate and lead-free primer for aerospace applications.
Formulation	Base Activator Thinner – if appropriate.
Preparation	These components shall be mixed in simple proportions, by volume or weight, in accordance with the manufacturers' instructions.
Technical specification	EN 3840
Marking	See EN 3840.
Storage stability	See EN 3840.
Application and use	Dry film thickness of (25 ± 5) µm.
Drying conditions	(23 ± 2) °C/(50 ± 5) % RH for 7 (seven) days before testing, or after air drying for 4 (four) to 6 (six) hours before the application of the topcoat EN 4689. ISO 3270 for 7 (seven) days before testing of the topcoat EN 4689.
Quality assurance	See EN 3840.
Designation	Chromate free primer.
Packaging	See EN 3840.
Health and safety	See EN 3840.