

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 4687:2021 sisaldab Euroopa standardi EN 4687:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 4687:2021 consists of the English text of the European standard EN 4687:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.01.2021.	Date of Availability of the European standard is 13.01.2021.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 49.040

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 4687

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2021

ICS 49.040

Supersedes EN 4687:2012

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.

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

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	6
4 Surface pretreatments	6
5 Classification	7
6 Batch release and qualification testing	7
6.1 General	7
6.2 Qualification tests	7
6.3 Batch acceptance testing	7
6.4 Purchaser batch release testing	7
7 Requirements for fibre reinforced composites	17
8 Designation	17

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/>.