ICS 49.025.20, 49.040 SLOVENSKÁ TECHNICKÁ NORMA Október 2024

STN	**Letectvo a kozmonautika** **Anodizácia hliníka a zliatin hliníka bez obsahu šesťmocného chrómu**	**STN** **EN 4827** 31 2382

Aerospace series - Hexavalent chromium free anodizing of aluminium and aluminium alloys

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/24

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ICS 49.025.20; 49.040 Supersedes EN 4827:2019

English Version

Aerospace series - Hexavalent chromium free anodizing of aluminium and aluminium alloys

Série aérospatiale - Anodisation sans chrome hexavalent de l'aluminium et des alliages d'aluminium

Luft- und Raumfahrt - Chrom(VI)-freies Anodisieren von Aluminium und Aluminiumlegierungen

This European Standard was approved by CEN on 5 May 2024.

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

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

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

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European foreword

This document (EN 4827:2024) 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-STAN, prior to its presentation to CEN.

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of an identical text or by endorsement, at the latest by January 2025, and conflicting national standards shall be withdrawn at the latest by January 2025.

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 4827:2019.

This document includes the following significant technical changes with respect to EN 4827:2019:

— normative references have been updated;

— Figure 1 and Figure 2 were added to 3.2.4;

— Clause 6 “Engineering requirements” has been restructured into the new Clause 6 “Test specimens requirements” and Clause 7 “Parts requirements”;

— requirements relating to the test specimens materials, numbers, dimensions and periodicity have been included in Table 3 to Table 8;

— requirements for the definition of test specimens for the qualification have been changed and added to Table 3 to Table 5;

— requirements for the definition of periodic tests have been changed and added to Table 6 to Table 8;

— Annex A has been renamed;

— in Table A.1, changes were made or added to the items: “visual appearance”, “anodic layer thicknesses”, “corrosion resistance”, “paint adhesion” and “sealing quality”;

— Annex B has been renamed;

— in Table B.1, changes were made to the items “visual appearance”, “anodic layer thicknesses”, “corrosion resistance” and “paint adhesion”;

— Table C.1 has been added concerning levels of requirements for corrosion resistance of thin film anodizing on unpainted test specimens;

— in Table D.1, changes were made to the item “visual appearance”;

— document has been revised editorially.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, 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, Türkiye and the United Kingdom.

1 Scope

This document specifies the requirements for hexavalent chromium free anodizing of aluminium and aluminium alloys for corrosion protection, bonding and painting.

This document does not apply to hard anodizing and plasma electrolytic anodizing (micro-arc oxidation).

The purpose of this document is to give design, quality and manufacturing requirements. It does not give complete in-house process instructions; these are given in the processor's detailed process instructions.

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 2284, *Aerospace series — Sulphuric acid anodizing of aluminium and wrought aluminium alloys*

EN 3665, *Aerospace series — Test methods for paints and varnishes — Filiform corrosion resistance test on aluminium alloys*

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

EN 4707, *Aerospace series — Acid pickling of aluminium and aluminium alloys without hexavalent chromium*

EN 6072, *Aerospace series — Metallic materials — Test methods — Constant amplitude fatigue testing*

EN ISO 1463, *Metallic and oxide coatings — Measurement of coating thickness — Microscopical method (ISO 1463)*

EN ISO 2085, *Anodizing of aluminium and its alloys — Check for continuity of thin anodic oxidation coatings — Copper sulfate test (ISO 2085)*

EN ISO 2360, *Non-conductive coatings on non-magnetic electrically conductive base metals — Measurement of coating thickness — Amplitude-sensitive eddy-current method (ISO 2360)*

EN ISO 2376, *Anodizing of aluminium and its alloys — Determination of breakdown voltage and withstand voltage (ISO 2376)*

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

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

EN ISO 9220, *Metallic coatings — Measurement of coating thickness — Scanning electron microscope method (ISO 9220)*

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