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Space product assurance - Black-anodizing of metals with inorganic dyes

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. 01/15

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Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

ICS 49.140

English version

Space product assurance - Black-anodizing of metals with inorganic dyes

Assurance produit des projets spatiaux - Anodisation noire
des métaux avec colorants non organiques

Raumfahrtproduktsicherung - Schwarzes anodisieren von
Metallen mit anorganischen Farben

This European Standard was approved by CEN on 20 March 2014.

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**CEN-CENELEC Management Centre:
Avenue Marnix 17, B-1000 Brussels**

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Foreword

This document (EN 16602-70-03:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16602-70-03:2014) originates from ECSS-Q-ST-70-03C.

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of an identical text or by endorsement, at the latest by April 2015, and conflicting national standards shall be withdrawn at the latest by April 2015..

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This document has been developed to cover specifically space systems and has therefore precedence over any EN covering the same scope but with a wider domain of applicability (e.g. : aerospace).

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Passive thermal control systems onboard spacecraft are often based on the thermo-optical properties of the surfaces, namely emissivity and absorbance. The ratio of these two properties defines the equilibrium temperature of the surface. This Standard provides requirements for black-anodizing surface treatment applied on metallic surfaces to achieve an emissivity versus absorbance ratio close to unity, as requested for many applications.

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Scope

This Standard defines requirements for measurements and verifications to guarantee that an anodized coating is adequate for the intended application. The requirements set by this Standard ensure high reliability of surface treatments intended to withstand normal terrestrial conditions and environment loads imposed on spacecraft and associated equipment where surfaces require high solar absorptance, high emittance, high optical blackness, or a combination of these properties.

This standard may be tailored for the specific characteristics and constraints of a space project, in conformance with ECSS-S-ST-00.

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Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this ECSS Standard. For dated references, subsequent amendments to, or revision of any of these publications do not apply. However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the more recent editions of the normative documents indicated below. For undated references, the latest edition of the publication referred to applies.

EN reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01	ECSS system – Glossary of terms
EN 16602-20	ECSS-Q-ST-20	Space product assurance – Quality assurance
EN 16602-70	ECSS-Q-ST-70	Space product assurance – Materials, mechanical parts and processes
EN 16602-70-04	ECSS-Q-ST-70-04	Space product assurance – Thermal testing for the evaluation of space materials, processes, mechanical parts and assemblies
EN 16602-70-09	ECSS-Q-ST-70-09	Space product assurance – Measurement of thermo-optical properties of thermal control materials
EN 16602-70-13	ECSS-Q-ST-70-13	Space product assurance – Measurements of the peel and pull-off strength of coatings and finishes using pressure-sensitive tapes

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