SLOVENSKI STANDARD
SIST EN 16602-70-31:2015

01-januar-2015

Zagotavljanje varnih proizvodov v vesoljski tehniki - Uporaba barv in premazov na vesoljski strojni opremi

Space product assurance - Application of paints and coatings on space hardware

Raumfahrtproduktsicherung - Anwendung von Farben und Beschichtungen auf Raumflug -Hardware

Assurance produit des projets spatiaux - Application des peintures et revêtements des matériels d'un projet spatial

Ta slovenski standard je istoveten z: **EN 16602-70-31:2014**

ICS:

49.140	Vesoljski sistemi in operacije	Space systems and operations
87.040	Barve in laki	Paints and varnishes

SIST EN 16602-70-31:2015 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16602-70-31

October 2014

ICS 49.140

English version

Space product assurance - Application of paints and coatings on space hardware

Assurance produit des projets spatiaux - Application des peintures et revêtements des matériels d'un projet spatial

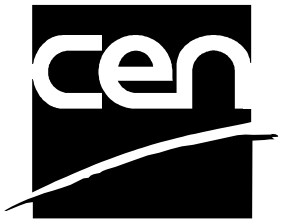
Raumfahrtproduktsicherung - Anwendung von Farben und Beschichtungen auf Raumflug-Hardware

This European Standard was approved by CEN on 11 April 2014.

CEN and CENELEC 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 and CENELEC 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 and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN and CENELEC members are the national standards bodies and national electrotechnical committees of 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 United Kingdom.



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

Table of contents

Foreword

This document (EN 16602-70-31:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16602-70-31:2014) originates from ECSS-ST-Q-70-31C.

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.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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

This Standard describes in a generic way the methods and techniques that can be used for application of paints on space hardware. This document is prepared to replace all existing ECSS-Q-70 paint standards, i.e. ECSS-Q-70-25A, ECSS-Q-70-33A, ECSS-Q-70-34A and ECSS-Q-70-35A. It also covers the acceptance criteria for paints.

The parameters to be defined are:

- For substrate:
  - Cleanliness
  - Roughness or other preparation
- For primer:
  - Quality
  - Thickness
  - Adhesion
  - Time between application of primer and application of paint
- For paint:
  - Aspect
  - Thickness
  - Adhesion
  - Thermo-optical properties
  - Electrical properties

NOTE This list is not exhaustive.

1
Scope

This Standard defines the approach for producing a defined surface finish to spacecraft or associated equipment, by means of the controlled application of a paint. This also includes measurements and verifications to be performed.

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

2
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 16602-10-09	ECSS-Q-ST-10-09	Space product assurance - Nonconformance control system
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 16602-70-02	ECSS-Q-ST-70-02	Space product assurance - Thermal vacuum outgassing test for the screening of space materials
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 - Measurement of the peel and pull-off strength of coatings and finishes using pressure-sensitive tapes
EN 16602-70-22	ECSS-Q-ST-70-22	Space product assurance - Control of limited shelf-life materials
	ASTM D1005-95	Standard Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers
	ASTM D1400-94	Standard Test Method for Non-destructive Measurement of Dry Film Thickness of Nonconductive Coatings Applied to a Nonferrous Metal Base
	ISO 2409:2007	Paints and Varnishes – Cross-cut test
	ISO 2360:2003	Non-conductive coatings on non-magnetic electrically conductive basis materials – Measurement of coating thickness – Amplitude-sensitive eddy current method

	EC 1907/2006	European regulation for the registration, evaluation, authorisation and restriction of chemicals

3
Terms, definitions and abbreviated terms

3.1 Terms from other standards

For the purpose of this Standard, the terms and definitions from ECSS-ST-00-01 apply.

3.2 Terms specific to the present standard

3.2.1 hemispherical emittance (ε_h)

ratio of the radiant intensity of the specimen to that emitted by a black body radiator at the same temperature and under the same geometric and wavelength conditions

NOTE Examples are:

- Hemispherical emittance (ε_h) -- conditions for incident or viewing of flux over a hemispherical region.
- Normal emittance (ε_n) -- conditions for incidence or viewing through a solid angle normal to the specimen.

3.2.2 solar absorptance (α_s)

ratio of the solar radiant flux absorbed by a material (or body) to that incident upon it

NOTE Differentiation is made between two methods:

- Spectroscopic method using a photospectrometer covering the range from 0,25 µm to 2,5 µm for the determination of α_s.
- Portable equipment using a xenon flash for relative measurements (α_p).

3.2.3 toxic

substance causing serious, acute or chronic effects, even death, when inhaled, swallowed or absorbed through the skin