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Space product assurance - Measurements of thermo-optical properties of thermal control materials

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. 07/15

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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.

English version

Space product assurance - Measurements of thermo-optical properties of thermal control materials

Assurance produit des projets spatiaux - Mesures des propriétés thermo-optiques des matériaux de contrôle thermique

Raumfahrtproduktsicherung - Messung der thermo-optischen Eigenschaften von Materialien zur Thermalkontrolle

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

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Foreword

This document (EN 16602-70-09:2015) has been prepared by Technical Committee CEN/CLC/TC 5 "Space", the secretariat of which is held by DIN.

This standard (EN 16602-70-09:2015) originates from ECSS-Q-ST-70-09C.

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of an identical text or by endorsement, at the latest by July 2015, and conflicting national standards shall be withdrawn at the latest by July 2015.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

The thermo-optical properties of materials are of importance to enable the calculation of the thermal housekeeping and radiative heat transfer.

This Standard describes the methodology, instruments, equipment and samples, used to calculate the thermo-optical properties of thermal-control materials, i.e. solar absorptance [α_s or α_p] and the infrared emittance [ε_h or ε_n].

In general this procedure has been written in connection with instruments and equipment available at ONERA, INTESPACE and ESTEC; however, any supplier is encouraged to built up his own instrument or equipment provided the accuracy of the results is equivalent to the one specified herein.

In this Standard, the supplier is identified as the entity that performs the test.

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Scope

This Standard describes the methodology, instruments, equipment and samples, used to calculate the thermo-optical properties of thermal-control materials.

The following test methods are detailed in this Standard including the configuration of samples and calculations:

- Solar absorptance using spectrometer (α_s) - (see Annex C.2).
- Comparative test method (α_p) - (see Annex C.3).
- Infrared emittance using thermal test method (ε_h) - (see Annex C.4).
- Infrared emittance using IR spectrometer (ε_h) - (see annex C.5).
- Infrared emittance using portable equipment (ε_n) - (see Annex C.6).

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 revisions 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 most 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	ECSS-Q-ST-10	Space product assurance – Product assurance management
EN 16602-10-09	ECSS-Q-ST-10-09	Space product assurance – Nonconformance control system
EN 16602-20-07	ECSS-Q-ST-20-07	Space product assurance – Quality assurance for test centres
EN 16602-70-02	ECSS-Q-ST-70-02	Space product assurance – Thermal vacuum outgassing test for the screening of space materials

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