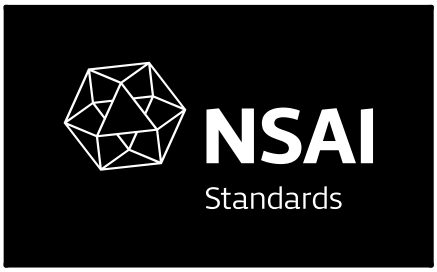

Irish Standard
I.S. EN 16602-70-09:2015

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

I.S. EN 16602-70-09:2015

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I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

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EUROPÄISCHE NORM

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

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of an identical text or by endorsement, at the latest by July 2015, and conflicting national standards shall be withdrawn at the latest by July 2015.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

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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.

1
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.