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Standards

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**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## 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

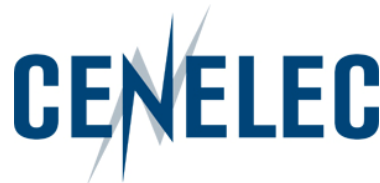
Raumfahrtproduktsicherung - Messung der thermo-optischen Eigenschaften von Materialien zur Thermalkontrolle

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

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## Foreword

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of an identical text or by endorsement, at the latest by July 2015, and conflicting national standards shall be withdrawn at the latest by July 2015.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

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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 [ $\alpha_s$  or  $\alpha_p$ ] and the infrared emittance [ $\varepsilon_i$  or  $\varepsilon_n$ ].

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

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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 ( $\alpha_s$ ) - (see Annex C.2).
- Comparative test method ( $\alpha_p$ ) - (see Annex C.3).
- Infrared emittance using thermal test method ( $\varepsilon_h$ ) - (see Annex C.4).
- Infrared emittance using IR spectrometer ( $\varepsilon_i$ ) - (see annex C.5).
- Infrared emittance using portable equipment ( $\varepsilon_n$ ) - (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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