BS ISO 16691:2014

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Space systems — Thermal control coatings for spacecraft — General requirements

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A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

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Introduction

This International Standard explains technical information for TCCs selection and application required to confirm their compliance with the requirements of the thermal control for spacecraft.

This International Standard classifies thermal control coatings in accordance with their usage in passive and/or active thermal control subsystems for reduction of external heat absorption or regulation of radiant heat exchange between on-board equipment on spacecraft, their general properties, and their special characteristics for space environment applications.

This International Standard also contains special recommendations for surface preparation, application of coating systems and curing, and establishes requirements for test methods on estimating properties of thermal control coatings according to their target use.

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INTERNATIONAL STANDARD ISO 16691:2014(E)

Space systems — Thermal control coatings for spacecraft — General requirements

1 Scope

This International Standard defines general requirements for thermal control coatings (TCC) that are applied on metallic and/or non-metallic surfaces of spacecraft and payloads in order to provide the following thermo-optical properties:

— α_S: solar absorptance;

— ε: emittance.

The function of TCC is to reduce external heat absorption and/or to regulate radiant heat exchange between on-board equipment on spacecraft.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9117-1:2009, *Paints and varnishes — Drying tests — Part 1: Determination of through-dry state and through-dry time*

ISO 14624-3, *Space systems — Safety and compatibility of materials — Part 3: Determination of offgassed products from materials and assembled articles*

3 Terms, definitions, and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
active thermal control system
system where the active thermal control method is used

Note 1 to entry: The active thermal control method is the procedure to control the temperature using mechanical mobile components or fluid, using electric energy from a heater, changing the component's thermo-physical property, or utilizing another technology to change/control the temperature.

[SOURCE: JERG-2–310:2009]

3.1.2
coating
continuous layer formed from a single or multiple application of a coating material to a substrate

[SOURCE: ISO 4618:2006]

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