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Solar energy - Collector components and materials - Part 1: Evacuated tubes - Durability and performance (ISO 22975-1:2016)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPÄISCHE NORM

EN ISO 22975-1

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English Version

Solar energy - Collector components and materials - Part 1: Evacuated tubes - Durability and performance (ISO 22975-1:2016)

Énergie solaire - Composants et matériaux du
collecteur - Partie 1: Tubes sous vide - Durabilité et
performance (ISO 22975-1:2016)

Solarenergie - Kollektorbauteile und -materialien - Teil
1: Vakuumröhren - Beständigkeit und
Leistungsfähigkeit (ISO 22975-1:2016)

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European foreword

This document (EN ISO 22975-1:2016) has been prepared by Technical Committee ISO/TC 180 "Solar energy" in collaboration with Technical Committee CEN/TC 312 "Thermal solar systems and components" the secretariat of which is held by ELOT.

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of an identical text or by endorsement, at the latest by April 2017, and conflicting national standards shall be withdrawn at the latest by April 2017.

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**Solar energy — Collector components
and materials —**

**Part 1:
Evacuated tubes — Durability and
performance**

*Énergie solaire — Composants et matériaux du collecteur —
Partie 1: Tubes sous vide — Durabilité et performance*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 180, *Solar energy*.

ISO 22975 consists of the following parts, under the general title *Solar energy — Collector components and materials*:

- *Part 1: Evacuated tubes — Durability and performance*
- *Part 2: Heat-pipes for solar thermal application — Durability and performance*
- *Part 3: Absorber surface durability*

The following parts are under preparation:

- *Part 5: Insulation material durability and performance*

Introduction

This part of ISO 22975 is applicable to all categories of evacuated tubes, including double-glass evacuated tubes and glass-metal sealed evacuated tubes.

This part of ISO 22975 provides test methods for inspecting stones and knots in envelope glass tubes.

This part of ISO 22975 also provides test methods for determining durability of evacuated tubes, including vacuum performance, thermal shock resistance, external impact resistance and internal pressure resistance. For each durability test, this part of ISO 22975 specifies general, apparatus, procedure and results of the test.

This part of ISO 22975 also provides test methods for measuring performance of evacuated tubes, including exposure parameter, solar irradiation for temperature increase of double-glass evacuated tube and average heat loss coefficient. For each performance test, principle, test conditions, apparatus, procedure and results of the test are specified.

Solar energy — Collector components and materials —

Part 1:

Evacuated tubes — Durability and performance

1 Scope

This part of ISO 22975 specifies definitions and test methods for materials, durability and performance of evacuated tubes.

This part of ISO 22975 is applicable to all types of evacuated tubes.

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 9488, *Solar energy — Vocabulary*

ISO 9845-1, *Solar energy — Reference solar spectral irradiance at the ground at different receiving conditions — Part 1: Direct normal and hemispherical solar irradiance for air mass 1,5*

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