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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 17049-2024

Replacing GB/T 17049-2005

All-glass evacuated solar collector tubes

全玻璃真空太阳集热管

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. This document replaces GB/T 17049-2005 "All-glass vacuum solar collector tube". Compared with GB/T 17049-2005, except for the structural adjustment In addition to the integration and editorial changes, the main technical changes are as follows:

a) The introduction to Chapter 3 has been changed (see Chapter 3, Chapter 3 of the.2005 edition);

b) Deleted the coating classification in the commonly used solar selective absorption coating nomenclature (see

4.2.2 and Appendix D of the.2005 edition);

c) Added reference standards for cover glass tube wall thickness requirements and test methods [see

1 Scope

GB/T 17049-2024 is the Chinese national standard on all-glass evacuated solar collector tubes, in the field of energy and heat transfer engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 15 March 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2024. Classification: ICS 27.160, CCS F12. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the structure and naming, technical requirements, test methods, inspection rules and marking of all-glass vacuum solar collector tube products. Packaging, transportation and storage. This document applies to all-glass evacuated solar collectors that receive solar radiation and convert it into thermal energy.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 191 Pictorial markings for packaging, storage and transportation

GB/T 308.1 Rolling bearing balls Part

3 Terms and definitions

The terms and definitions defined in GB/T 12936, ISO 9488 and the following apply to this document.

3.1 Knot of glass tube There is vitreous humor in the vitreous body that has a different composition from the main body of vitreous.

3.2 Stone of glass tube Solid inclusions contained in the vitreous body.

3.3 A coating with high solar absorptivity and low emissivity.

3.4 The inner glass tube has a solar selective absorption coating on the outer surface, which absorbs solar radiation and converts it into heat energy.

5.1.1 c) and d),.2005 edition

5.1.1.2 and 5.1.1.3];

f) The limit value of the solar absorption ratio (AM1.5) of the solar selective absorption coating has been changed (see 5.1.2,

5.1.2 of the.2005 edition);

g) The limit of hemispherical emissivity of solar selective absorption coatings has been changed (see 5.1.3,

5.1.3 of the.2005 edition);

h) The limits of air drying performance parameters have been changed (see 5.2, 5.2 of the.2005 edition);

i) The limit of solar radiation for collector tubes has been changed (see 5.3, 5.3 of the.2005 edition);

j) The limit of the average heat loss coefficient has been changed (see 5.4,

5.4 of the.2005 edition);

k) The vacuum quality requirements and tests have been changed (see

5.5.2 and 6.5.2,

6.5.2 of the.2005 edition);

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