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Solar energy — Collector components and materials —

Part 5: Insulation material durability and performance

Énergie solaire — Composants et matériaux du collecteur —
Partie 5: Durabilité et performance des matériaux isolants

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Foreword

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This document was prepared by Technical Committee ISO/TC 180, *Solar Energy.*

A list of all parts in the ISO 22975 series can be found on the ISO website.

Introduction

The insulation material is a component of a solar collector, which is placed behind the panel in a flat plate solar collector or in the header of an evacuated tube solar collector through a specific filling process and is used as a heat insulation element.

This document provides test methods for measuring the common properties on insulation materials, including apparent density, apparent volume percentage of open cells of PU and PF, and dimension, bulk density of MW and mineral fibre. For each test, this document specifies sampling, apparatus and acceptance test procedure.

This document also provides test methods for determining the durability of insulation materials, including compression properties, water absorption, hygroscopic sorption properties, water vapor transmission properties, flammability, accelerated aged value of thermal resistance of PU and PF, and compression behaviour, water absorption, moisture content, water vapor transmission properties, maximum use temperature, non-combustibility of MW and mineral fibre. For each durability test, this document specifies principle, apparatus, sampling, acceptance test procedure, calculation and expression of results, or evaluation.

This document also provides test methods and acceptance test procedure for measuring performance of insulation materials, including thermal resistance and thermal conductivity.

This document also provides test methods and acceptance test procedure for measuring outgassing of insulation materials in solar flat-plate collector.