

Functional pigments and extenders for special applications - Part 2: Nanoscale titanium dioxide for sunscreen application (ISO 18473-2:2015)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 18473-2:2018 sisaldab Euroopa standardi EN ISO 18473-2:2018 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 18473-2:2018 consists of the English text of the European standard EN ISO 18473-2:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.10.2018.	Date of Availability of the European standard is 10.10.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 87.060.10

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English Version

Functional pigments and extenders for special applications
- Part 2: Nanoscale titanium dioxide for sunscreen
application (ISO 18473-2:2015)

Pigments et matières de charges fonctionnels pour
applications spéciales - Partie 2: Dioxyde de titane
nanométrique pour protections solaires (ISO 18473-
2:2015)

Funktionelle Pigmente und Füllstoffe für besondere
Anwendungen - Teil 2: Titandioxid im Nanomaßstab
für Sonnenschutzcreme (ISO 18473-2:2015)

This European Standard was approved by CEN on 6 August 2018.

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European foreword

The text of ISO 18473-2:2015 has been prepared by Technical Committee ISO/TC 256 "Pigments, dyestuffs and extenders" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 18473-2:2018 by Technical Committee CEN/TC 298 "Pigments and extenders" the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by April 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

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Endorsement notice

The text of ISO 18473-2:2015 has been approved by CEN as EN ISO 18473-2:2018 without any modification.

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 256, *Pigments, dyestuffs and extenders*.

ISO 18473 consists of the following parts, under the general title *Functional pigments and extenders for special applications*:

- *Part 1: Nanoscale calcium carbonate for sealant application*
- *Part 2: Nanoscale titanium dioxide for sunscreen application*

Introduction

The UV radiation of sunlight has great harm to the skin. Overmuch exposure in UV radiation will cause erythema and black spot, age the skin, and can even cause skin carcinoma. Sunscreens, which include UV blockers, are thus applied to skin to provide UV protection. Among them is titanium dioxide which has been used for decades as UV attenuator in sunscreens. Its attenuation is the combined effect of absorbing and scattering incident light. Compared with the pigmentary titanium dioxide, nanoscale titanium dioxide in the same dosage shows higher attenuation property in UV region, and thus provides superior UV protection. Furthermore, nanoscale titanium dioxide in sunscreen, when applied onto skin, maintains a high level of transparency because of its small size. Therefore, nanoscale titanium dioxide is rapidly, widely applied and becomes one of the most excellent inorganic ultraviolet resistant substances in sunscreen nowadays.

Although nanoscale titanium dioxide is commercially used in many sunscreen brands, its properties relevant to sunscreen application are not well defined which even causes misunderstanding among buyers and suppliers. In order to facilitate sound trading and technical transfer, the base for agreement on the characteristics of nanoscale titanium dioxide is to be established and shared by the stakeholders. The purpose of this part of ISO 18473 is to specify the requirements and corresponding test methods for sunscreen application of nanoscale titanium dioxide.

Functional pigments and extenders for special applications —

Part 2: Nanoscale titanium dioxide for sunscreen application

1 Scope

This part of ISO 18473 specifies requirements and corresponding methods of test for nanoscale titanium dioxide in powder form for sunscreen application. This part of ISO 18473 covers the surface modified, TiO₂.

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 591-1, *Titanium dioxide pigments for paints — Part 1: Specifications and methods of test*

ISO 787-2, *General methods of test for pigments and extenders — Part 2: Determination of matter volatile at 105 °C*

ISO 2859 (all parts), *Sampling procedures for inspection by attributes*

ISO 3262-1, *Extenders for paints — Specifications and methods of test — Part 1: Introduction and general test methods*

ISO 9277, *Determination of the specific surface area of solids by gas adsorption — BET method*

3 Classification

Nanoscale titanium dioxide is classified into several different types based on crystal structure.

For sunscreen application, the crystal types are determined by X-ray examination and the main component can be anatase-type or rutile-type.

4 Requirements and test methods

Nanoscale titanium dioxide applied for industrial use of sunscreen shall comply with the requirements specified in [Table 1](#).