

STN P	Náterové látky Náterové systémy na listy rotora veterných turbín Časť 5: Meranie priepustnosti UV ochranných náterov (ISO/TS 19392-5: 2023)	STN P CEN ISO/TS 19392-5 67 2030
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Paints and varnishes - Coating systems for wind-turbine rotor blades - Part 5: Measurement of transmittance properties of UV protective coatings (ISO/TS 19392-5:2023)

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/24

Táto predbežná slovenská technická norma je určená na overenie. Prípadné pripomienky pošlite do júla 2026 Úradu pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky.

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English Version

**Paints and varnishes - Coating systems for wind-turbine
rotor blades - Part 5: Measurement of transmittance
properties of UV protective coatings (ISO/TS 19392-
5:2023)**

Matériaux de revêtement pour pales de turbines
éoliennes - Partie 5: Mesurage des propriétés du
facteur de transmission des revêtements de protection
anti UV (ISO/TS 19392-5:2023)

Beschichtungsstoffe - Beschichtungssysteme für
Rotorblätter von Windenergieanlagen - Teil 5:
Messung der Transmissionseigenschaften von UV-
Schutzbeschichtungen (ISO/TS 19392-5:2023)

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CEN ISO/TS 19392-5:2024 (E)**Contents**

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European foreword

The text of ISO/TS 19392-5:2023 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 19392-5:2024 by Technical Committee CEN/TC 139 "Paints and varnishes" the secretariat of which is held by DIN.

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Endorsement notice

The text of ISO/TS 19392-5:2023 has been approved by CEN as CEN ISO/TS 19392-5:2024 without any modification.

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Paints and varnishes — Coating systems for wind-turbine rotor blades —

Part 5: Measurement of transmittance properties of UV protective coatings

Matériaux de revêtement pour pales de turbines éoliennes —

*Partie 5: Mesurage des propriétés du facteur de transmission des
revêtements de protection anti UV*

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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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This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

A list of all parts in the ISO/TS 19392 series can be found on the ISO website.

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Introduction

In the wind energy industry, coatings are applied to rotor blades surface to protect the glass fibre reinforced polymer composite substrate from environmental stresses. Rain drops and hailstones can damage these coatings in such a way that individual layers come off or the whole coating delaminates from the substrate. This applies mostly to the leading edge. Glass fibre reinforced polymer composites and other blade materials can be also sensitive to UV degradation and thus can be damaged during outdoor operation, if not protected accurately against irradiation by solar radiation. Failure of protection can lead to delamination and a subsequent failure of the full blade.

An important function of the rotor blade coating is therefore to protect the blade material from UV radiation. This applies to the leading edge, but also to the other surface areas of the blade.

The damage by solar radiation is mainly induced by the most energetic ultraviolet (UV) radiation, but also visible (VIS) radiation (e.g. violet or blue radiation) is still energetic enough to have a negative input on the appearance and durability of the blade.

Pigments and organic or inorganic UV absorbers can be used to reduce the coating film transmittance against UV (and visible) radiation and cause a positive effect on lifetime and functional aspects of the blade material. Pigments and UV absorbers can affect the transmittance in the visible range. This may lead to colour change of the coated blade.

This document, as part of the ISO/TS 19392 series on rotor blade coatings, describes a method to measure the spectral transmittance or the transmittance in a specific wavelength range. This allows evaluating the UV and VIS radiation protection quality of a coatings film on the sensitive blade substrate below. The focus is to avoid damage of the blade by natural solar radiation especially caused by the most energetic part, the ultraviolet and short wavelength visible radiation.

Paints and varnishes — Coating systems for wind-turbine rotor blades —

Part 5: Measurement of transmittance properties of UV protective coatings

1 Scope

This document specifies a test method to measure the ultraviolet (UV) and visible (VIS) spectral transmittance in the wavelength range from 280 nm to 700 nm of coatings for wind turbine rotor blades. Single and multilayer coatings or coating systems can be tested.

From the spectral transmittance the transmittance of UV, VIS and the combined UV and VIS wavelength range can be calculated.

It is applicable to free coatings films or coatings applied on a UV-transparent quartz substrate.

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 2808, *Paints and varnishes — Determination of film thickness*

ISO 3270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*

ISO 4618, *Paints and varnishes — Vocabulary*

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