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BSI Standards Publication

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

Part 1: Minimum requirements and weathering

bsi.

National foreword

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The UK participation in its preparation was entrusted to Technical Committee STI/10, Test methods for paints.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Paints and varnishes - Coating systems for wind-turbine rotor blades - Part 1: Minimum requirements and weathering (ISO/TS 19392-1:2018)

Peintures et vernis - Matériaux de revêtement pour pales de turbines éoliennes - Partie 1: Exigences minimales et érosion (ISO/TS 19392-1:2018)

Beschichtungsstoffe - Beschichtungssysteme für Rotorblätter von Windenergieanlagen - Teil 1: Mindestanforderungen und Bewitterung (ISO/TS 19392-1:2018)

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European foreword

The text of ISO/TS 19392-1:2018 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 19392-1:2022 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 19392-1:2018 has been approved by CEN as CEN ISO/TS 19392-1:2022 without any modification.

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Foreword

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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 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. 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 document describes the minimum requirements and weathering of the coating system. Rain erosion can be simulated by means of high speed water jets or water droplets impinging on the specimen surface. ISO/TS 19392-2 describes a method which simulates rain erosion by accelerating one or more coated panels, attached to the end of rotating arms, through a simulated rain field at a constant rotational velocity. ISO/TS 19392-3 describes a method where a water jet or a series of water jets at a defined pressure hits the surface of the specimen.

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TECHNICAL SPECIFICATION **ISO/TS 19392-1:2018(E)**

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

Part 1: Minimum requirements and weathering

1 Scope

This document specifies minimum requirements and weathering for coating systems for wind-turbine rotor blades.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets*

ISO 1513, *Paints and varnishes — Examination and preparation of test samples*

ISO 2813, *Paints and varnishes — Determination of gloss value at 20°, 60° and 85°*

ISO 4624, *Paints and varnishes — Pull-off test for adhesion*

ISO 4628-2, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering*

ISO 4628-4, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 4: Assessment of degree of cracking*

ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 6270-2, *Paints and varnishes — Determination of resistance to humidity — Part 2: Condensation (in-cabinet exposure with heated water reservoir)*

ISO 11664-4, *Colorimetry — Part 4: CIE 1976 L*a*b* Colour space*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

ISO 16474-2, *Paints and varnishes — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 16474-3, *Paints and varnishes — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO/TS 19392-2, *Paints and varnishes — Coating systems for wind-turbine rotor blades — Part 2: Determination and evaluation of resistance to rain erosion using rotating arm*

ISO/TS 19392-3, *Paints and varnishes — Coating systems for wind-turbine rotor blades — Part 3: Determination and evaluation of resistance to rain erosion using water jet*

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