SLOVENSKI STANDARD
SIST EN 4588:2009

01-februar-2009

Aeronavtika - Barve in laki - Dvokomponentna poliuretanska barva, ki se suši pri sobni temperaturi in ne drsi

Aerospace series - Paints and varnishes - Two component, cold curing polyurethane paint, anti slip

Luft- und Raumfahrt - Beschichtungsstoffe - Zweikomponenten-Polyurethan-Beschichtung, kalthärtend, tritt- und rutschfest

Série aérospatiale - Peintures et vernis - Peinture polyurethane à deux composants polymérisant à température ambiante, antidérapante

Ta slovenski standard je istoveten z: **EN 4588:2007**

ICS:

49.040	Prevleke in z njimi povezani postopki, ki se uporabljajo v letalski in vesoljski industriji	Coatings and related processes used in aerospace industry

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EUROPEAN STANDARD

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EN 4588

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English Version

Aerospace series - Paints and varnishes - Two component, cold curing polyurethane paint, anti slip

Série aérospatiale - Peintures et vernis - Peinture polyurethane à deux composants polymérisant à température ambiante, antidérapante

Luft- und Raumfahrt - Anstrichstoffe - Zweikomponenten Polyurethan-Beschichtung, raumtemperaturhärtend, tritt- und rutschfest

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Foreword

This document (EN 4588:2007) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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of an identical text or by endorsement, at the latest by September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

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1 Scope

This standard specifies the requirements for a two component polyurethane top coat to be applied over top coats in line with EN 2434 to provide an anti slip surface for walkway/step areas in aerospace applications.

The paint shall be formulated to meet the requirements of this standard or alternatively shall consist of material approved to and complying with the requirements the appropriate parts of EN 2434 together with a non-metallic anti slip agent.

2 Normative references

The following referenced documents are indispensable for the application 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 1513, *Paints and varnishes — Examination and preparation of samples for testing.*

ISO 2811 (all parts), *Paints and varnishes — Determination of density.*

ISO 2812-1, *Paints and varnishes — Determination of resistance to liquids — Part 1: General methods.*

ISO 2812-2, *Paints and varnishes — Determination of resistance to liquids — Part 2: Water immersion method.*

ISO 2813, *Paints and varnishes — Determination of specular gloss of non-metallic paint films at 20°, 60° and 85°.*

ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content.*

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

ISO 3668, *Paints and varnishes — Visual comparison of the colour of paints.*

ISO 3675, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method.*

ISO 3679, *Determination of flash point — Rapid equilibrium closed cup method.*

ISO 3680, *Determination of flash/no flash — Rapid equilibrium closed cup method.*

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 6270-1, *Paints and varnishes — Determination of resistance to humidity — Part 1: Continuous condensation.*

ISO 7724 (all parts), *Paints and varnishes — Colorimetry.*

ISO 11341, *Paints and varnishes — Artificial weathering and exposure to artificial radiation — Exposure to filtered xenon-arc radiation.*

ISO 11890-1, *Paints and varnishes — Determination of volatile organic compound (VOC) content — Part 1: Difference method.*

ISO 11890-2, *Paints and varnishes — Determination of volatile organic compound (VOC) content — Part 2: Gas-chromatographic method.*

ISO 11909, *Binders for paints and varnishes — Polyisocyanate resins — General methods of test.*

EN 2434 (all parts), *Aerospace series — Paints and varnishes — Two component cold curing polyurethane finish.* [1)]

EN 2435 (all parts), *Aerospace series — Paints and varnishes — Corrosion resistant chromated two component cold curing primer.*

EN 2436 (all parts), *Aerospace series — Paints and varnishes — Corrosion resistant chromated-free two component cold curing primer.*

EN 3837, *Aerospace series — Paints and varnishes — Nature and method for surface preparation of test pieces in aluminium alloys.* [1)]

EN 3840, *Aerospace series — Paints and varnishes — Technical specification.* [1)]

EN 4160, *Aerospace series — Non-metallic materials — Paints and varnishes — Test methods — Determination of the effects of thermal exposure*. [1)]

EN 4508, *Aerospace series — Paints and varnishes — Test method for anti slip coatings determination of the sliding friction behaviour.*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 3840 apply.

4 Classification

The top coat is classified according to the following types and classes:

— Type I: Standard solvent content;

— Type II: Low volatile organic content (≤ 420 g/l).

5 Batch release and qualification testing

5.1 Qualification tests

For product qualification, all tests defined in this standard, in the Tables 1 to 5, shall be performed. A minimum of three batches shall be tested for qualification purposes.

NOTE If the product is formulated by the addition of non metallic texturing agents to a product already approved to the appropriate parts of EN 2434 without change to the base resin or activator components then only test in Tables 1 to 3 need to be performed to prove compliance with this standard.

5.2 Batch acceptance testing

For batch acceptance the tests marked with the symbol * shall be performed.

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1) Published as ASD Prestandard at the date of publication of this standard.

Table 1 — General requirements

Material description	Two component cold curing anti slip polyurethane coating
Formulation	Base: hydroxyl functional resins, solvents and pigments to give the required colour and gloss level and coarse particulate matter to provide resistance to slip. Activator: a polyisocyanate activator solution Thinner: if required
Preparation	These components shall be mixed in simple whole number proportions, by volume or weight, in accordance with the manufacturer's instructions.
Technical specification	EN 3840
Marking	See EN 3840.
Storage stability	See EN 3840.
Application and use	Dry film thickness of (100 ± 25) µm
Drying conditions	ISO 3270
Freedom from defects	See EN 3840.
Quality assurance	See EN 3840.
Packaging	See EN 3840.
Health and safety	See EN 3840.

Table 2 — Physical and chemical characteristics – Delivery conditions

Tests according to EN 3840	Test	Test criteria	Test requirements			
_ *	Condition	test method	ISO 1513 (as received in original container)			
		requirement	Shall be free from extraneous matter and show no skinning, gelling, hard settlement or other defect which will prevent satisfactory application to produce a defect free film. The base material and curing agent shall each be in a condition such that stirring easily produces a smooth, uniform material which, after mixing in the proportions specified by the manufacturer shall be suitable for spray application.			
1	Non volatile matter	test method	ISO 3251			
		requirement	%	base	activator	thinner
				± 2 % ref. value [a b]	± 2 % ref. value [a b]	—
49	Volatile organic content (VOC)	test method	ISO 11890-1, ISO 11890-2			
		test condition	base + activator + thinner			
		requirement	g/l	≤ reference value [b]		
7	Flash point	test method	ISO 3679 or ISO 3680			
		requirement	°C	base	activator	thinner
				≥ reference value [b]	≥ reference value [b]	≥ reference value [b]
3 *	Density	test method	ISO 2811			
		test condition	ISO 3270			
		requirement	g/cm^3	base	activator	thinner
				± 2 % ref. value [a b]	± 2 % ref. value [a b]	—
4 *	Density hydrometer	test method	ISO 3675			
		test condition	ISO 3270			
		requirement	g/cm^3	base	activator	thinner
				—	± 1 % ref. value [a b]	± 1 % ref. value [a b]
16	Isocyanate value	test method	ISO 11909			
		test condition	To be agreed between purchaser and supplier.			
		requirement		base	activator	thinner
				—	± 1 % ref. value [a b]	—

continued