SLOVENSKI STANDARD
SIST EN 4491:2014

01-februar-2014

Aeronavtika - Nekovinski materiali - Anaerobne polimerizirajoče zmesi - Zavarovanje vijakov - Navorna trdnost 16 Nm

Aerospace series - Non-metallic materials - Anaerobic polymerisable compounds - Threadlocking - Torque strength 16 Nm

Luft- und Raumfahrt - Nichtmetallische Werkstoffe - Anaerobe polymerisierbare Klebstoffe - Schraubensicherung - Torsionsfestigkeit 16 Nm

Série aérospatiale - Matériaux non-métalliques - Composé polymérisable anaérobie - Agent de freinage - Résistance au couple de torsion 16 Nm

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English Version

Aerospace series - Non-metallic materials - Anaerobic polymerisable compounds - Threadlocking - Torque strength 16 Nm

Série aérospatiale - Matériaux non-métalliques - Composé polymérisable anaérobie - Agent de freinage - Résistance au couple de torsion 16 Nm

Luft- und Raumfahrt - Nichtmetallische Werkstoffe - Anaerobe polymerisierbare Klebstoffe - Schraubensicherung - Torsionsfestigkeit 16 Nm

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Foreword

This document (EN 4491:2013) 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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Introduction

This standard is part of a series of EN non-metallic materials standards for aerospace applications. The general organisation of this series is described in EN 4385. This standard is a level 3 document as defined in EN 4385. It has been prepared in accordance with TR 7000-7.

1 Scope

This European Standard specifies the requirements relating to anaerobic polymerisable threadlocking compounds having a torque strength of 16 Nm for aerospace applications.

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.

EN 3792, *Aerospace series — Anaerobic polymerisable compounds — Technical specification* 1)

EN 4385, *Aerospace series — Non-metallic materials — General organisation of standardisation — Links between types of standards* 1)

TR 7000-7, *Aerospace series — Non-metallic materials — Rules for drafting and presentation of material standards — Part 7: Anaerobic polymerisable compounds* 2)

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1 Definition of subcase numbering

In the column “requirement” at the left hand side a subcase number is given. The definition of these subcase numbers is as follows:

Subcase number	Definition
–	Technical specification
1	Test method
2	Frequency of testing
3	Sample type
4	Test piece definition
5	Condition of test piece
6	Testing condition
7	Acceptance criteria

Note 1 to entry: The absence of a subcase indicates that the necessary information is given in Table 1 of this standard, e.g. in the reference to the technical standard (characteristic 1.004).

1) Published as ASD-STAN Prestandard at the date of publication of this standard (www.asd-stan.org).

2) Published as ASD-STAN Technical Report at the date of publication of this standard (www.asd-stan.org).

All the necessary information which does not appear is to be found in the referenced technical specification or the relevant test method.

Note 2 to entry: In this material standard, batch acceptance test titles and subcases 7 acceptance criteria are highlighted in the form of a bold frame and bold characters to show that they are mandatory for routine acceptance of the material.

3.1.2 Other definitions

See EN 3792.

3.2 Symbols and abbreviations

See EN 3792.

4 Requirements

The required characteristics are given in:

— Table 1 — General requirements

— Table 2 — Requirements in the delivery condition

— Table 3 — Requirements as processed to characteristic number 1.013

— Table 4 — Environmental testing requirements as processed to characteristic number 1.013

Table 1 — General requirements

Characteristic number	Characteristic	Requirements		
1.001	Material description	One part, threadlocking, anaerobic polymerisable compound		
1.002	Formulation	Acrylic ester of a polyhydroxy compound		
1.003	Form and method of production	Liquid		
1.004	Technical specification	See EN 3792.		
1.005	Grade	– 01	– 02	– 03
1.007	Colour	[a]		
1.010	Storage	Temperature < 25 °C, out of direct sunlight and in the presence of oxygen		
1.011	Shelf life	Not less than 12 months under storage conditions		
1.013	Processing condition	At least 24 h at (23 ± 2) °C		
1.093	Quality assurance	See EN 3792.		
1.094	Designation	See EN 4491 plus Grade.		
1.097	Flashpoint	> 100 °C		
1.098	Health and safety	See EN 3792.		
1.999	Notes	[a] Colour to be agreed between purchaser and supplier.		

Table 2 — Requirements in the delivery condition

Characteristic number	Characteristic		Requirements			
2.007	Visual inspection	7	Correct colour (see Table 1)			
2.106	Cure rate	7	> 4 min			
2.106	Reactivity in contact with zinc	7	< 30 min			
2.106	Gel time – stability at 100 °C	7	> 10 min			
2.107	Viscosity	7	Grade	– 01	– 02	
			$mm^2 s^{-1}$	< 50	500 ± 250	
	Viscosity	7	Grade			– 03
			mPa.s at 20 rpm			8 ± 3
			mPa.s at 2 rpm			70 ± 15
	Thixotropic index	7	Grade			– 03
						8 ± 2
2.111	Fluorescence	7	Shall fluoresce			

Table 3 — Requirements as processed to characteristic number 1.013

Characteristic number	Characteristic		Requirements			
3.310	Static shear strength	7	Grade	– 01	– 02	– 03
			MPa	–	21 ± 4	21 ± 4
3.315	Torque strength	7	Nm	16 ± 3		