



# SLOVENSKI STANDARD

## SIST EN 2379:2019

01-januar-2019

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### Aeronavtika - Tekočine za preskušanje nekovinskih materialov

Aerospace series - Fluids for assessment of non-metallic materials

Luft- und Raumfahrt - Flüssigkeiten zur Prüfung von nichtmetallischen Werkstoffen

Série aérospatiale - Fluides pour la mise à l'épreuve des matériaux non métalliques

Ta slovenski standard je istoveten z: **EN 2379:2018**

[SIST EN 2379:2019](https://standards.iteh.ai/catalog/standards/sist/97571027-ba23-4f30-bd2f-29a3cdefc8cd/sist-en-2379-2019)

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#### **ICS:**

49.035	Sestavni deli za letalsko in vesoljsko gradnjo	Components for aerospace construction
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**SIST EN 2379:2019**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 2379**

November 2018

ICS 49.035

English Version

**Aerospace series - Fluids for assessment of non-metallic materials**

Série aérospatiale - Fluides pour la mise à l'épreuve  
des matériaux non métalliques

Luft- und Raumfahrt - Flüssigkeiten zur Prüfung von  
nichtmetallischen Werkstoffen

This European Standard was approved by CEN on 8 July 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN 2379:2018) 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 May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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**EN 2379:2018 (E)****1 Scope**

This European Standard specifies preferred test fluids for evaluating the resistance of non-metallic and related materials to the action of fluids.

The aim of this document is to rationalise the choice of fluids used for qualification and batch testing of materials.

In some cases, the test fluid and conditioning temperatures may closely simulate in-service conditions. However, no direct behaviour with service conditions shall be implied.

**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.

EN 2744, *Aerospace series — Non-metallic materials — Preferred test temperature*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

STANAG 1135, *Interchangeability of Fuels, Lubricants and Associated Products Used by the Armed Forces of the North Atlantic Treaty Nations*<sup>1</sup>

**3 Terms and definitions**

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>  
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- ISO Online browsing platform: available at <http://www.iso.org/obp>

**4 Test fluids**

**4.1** The preferred test fluids are given in Table 1 and are grouped as follows:

Group 1 – Mineral and synthetic oils

Group 2 – Hydraulic fluids

Group 3 – De-icing fluids

Group 4 – Solvents

Group 5 – Simulated corrosion inducing fluids

Group 6 – Simulated fuels

Group 7 – Test fuels

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<sup>1</sup> Published by: NATO Military Agency for Standardization (MAS), B-1110 Brussels.

**4.2** As commercial fluids, and those specified by performance requirements may not have an entirely constant composition, exposure should, whenever possible, be in well defined chemical products used alone or in mixtures. When it is necessary to use proprietary fluids, it is recommended that a stock of fluid is obtained, its composition fully detailed, and use restricted to environmental testing.

## **5 Test temperatures**

**5.1** Test temperatures shall be selected from EN 2744.

**5.2** When selecting the test temperature consideration shall be given to the flash point, maximum safe test temperature and toxicity of the test fluid in combination with the test specimen. It is necessary for all conditioning and testing to be performed in accordance with local and national requirements for health and safety at work and protection of the environment acts.

**5.3** Elevated temperature exposure increases the rate of oxidation of some materials. This effect can be reduced by restricting the access of air to the testing equipment.

## **6 Exposure requirement**

The requirements for the exposure of test specimens to a fluid contamination e.g. pre-conditioning, fluid, method of exposure, duration and temperature are given in the relevant technical specification or material standard.

## **7 Test report**

The requirements for the contents of the test report are given in the product standard.

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Table 1 — Standard test fluids for testing non-metallic materials (1 of 3)

Line	Test fluid	Standard or code (see Note 1)	Flash point °C	Comments
<b>1</b>	<b>Group 1:</b>			
1.1	Oil No. 1	ISO 1817	243	High aniline point oil - "Low effect on elastomers"
1.2	Oil No. 2	ISO 1817	240	Medium aniline point oil - "Medium effect on elastomers"
1.3	Oil No. 3	ISO 1817	165	Low aniline point oil - "High effect on elastomers"
1.4	Liquid 101	ISO 1817	N/A	A mixture of diethylhexylsebacate and phenothiazine
1.5	Liquid 102	ISO 1817		A mixture of 95 % oil No. 1 and 5 % of a hydrocarbon compound oil additive containing sulphur, phosphorus and nitrogen
1.6	Mineral oil	NATO 0-142 (see Notes 2 et 3)	118	
1.7	Pyrolised oil	NATO 0-149 (see Note 4)	> 216	
<b>2</b>	<b>Group 2:</b>			
2.1	Mineral hydraulic fluid	NATO H-515 (see Notes 2 et 3)	81	NATO H-520, may be used (see Notes 2 et 3)
2.2	Liquid 103	ISO 1817	N/A	Tri-N-Butyl phosphate, intended to simulate phosphate ester hydraulic fluids
2.3	Phosphate ester hydraulic fluid	Skydrol 500 B (see Notes 2 et 3)	160	
2.4	50 % phosphate ester hydraulic fluid + 50 % water			Distilled water, make up by volume
2.5	SHC hydraulic fluid	NATO H-537 (see Notes 2 et 3)	204	



Table 1 — Standard test fluids for testing non-metallic materials (2 of 3)

Line	Test fluid	Standard or code (see Note 1)	Flash point °C	Comments
<b>3</b>	<b>Group 3:</b>			
3.1	ISO-propyl alcohol	LAB grade	12	NATO S-737, may be used (see Notes 2 et 3)
3.2	Methanol	LAB grade	10	NATO S-747, may be used (see Notes 2 et 3)
3.3	Ethanol	LAB grade	13	NATO S-738, may be used (see Notes 2 et 3)
3.4	Ethenediol	LAB grade	110	
3.5	De-icing fluid	NATO S-745 (see Notes 2 et 3)	12	
<b>4</b>	<b>Group 4:</b>			
4.1	Acetone	LAB grade	- 17	
4.2	Methyl Ethyl Ketone	LAB grade	7	
4.3	Toluene	LAB grade	4	
<b>5</b>	<b>Group 5:</b>			
5.1	Distilled water	----	N/A	} Use distilled water and laboratory grade chemical for the preparation of fluids, make up by mass
5.2	3,5 % NaCl solution	----	N/A	
5.3	5,0 % NaCl solution	----	N/A	
5.4	10,0 % KOH solution	----	N/A	