

# SVENSK STANDARD

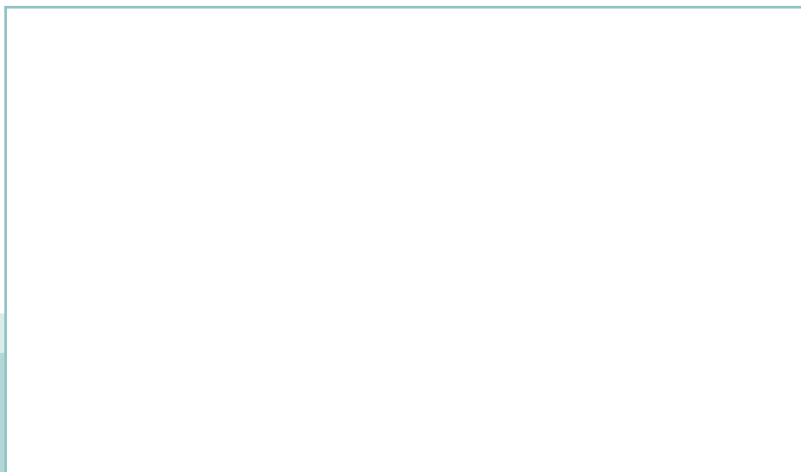
## SS-EN 3909:2016



Fastställt/Approved: 2016-05-30  
Publicerad/Published: 2016-05-31  
Utgåva/Edition: 2  
Språk/Language: engelska/English  
ICS: 49.060

---

**Aerospace series – Test fluids and test methods for electrical and optical components and sub-assemblies**



# Standarder får världen att fungera

*SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.*

## Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

## Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

## Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

**Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på [www.sis.se](http://www.sis.se) eller ta kontakt med oss på tel 08-555 523 00.**



# Standards make the world go round

*SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.*

## Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

## Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

## Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

**If you want to know more about SIS, or how standards can streamline your organisation, please visit [www.sis.se](http://www.sis.se) or contact us on phone +46 (0)8-555 523 00**



Europastandarden EN 3909:2016 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 3909:2016.

Denna standard ersätter SS-EN 3909:2007, utgåva 1.

The European Standard EN 3909:2016 has the status of a Swedish Standard. This document contains the official English version of EN 3909:2016.

This standard supersedes the Swedish Standard SS-EN 3909:2007, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

*Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.*

*Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.*

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på [www.sis.se](http://www.sis.se) - där hittar du mer information.



EUROPEAN STANDARD

EN 3909

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2016

ICS 49.060

Supersedes EN 3909:2007

English Version

## Aerospace series - Test fluids and test methods for electrical and optical components and sub-assemblies

Série aérospatiale - Fluides d'essais et méthodes d'essai pour composants et sous-ensembles électriques et optiques

Luft- und Raumfahrt - Prüfflüssigkeiten und Prüfverfahren für elektrische und optische Bauelemente und Untergruppen

This European Standard was approved by CEN on 27 September 2015.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>		<b>Page</b>
	European Foreword.....	3
1	Scope .....	4
2	Normative references .....	4
3	Test fluids.....	5
4	Test samples .....	5
5	Test procedures .....	5
6	Test temperatures .....	5
7	Health and safety .....	6
8	Information to be supplied in the product standard .....	6
9	List of test fluids.....	6
10	General guidance.....	9

## European Foreword

This document (EN 3909:2016) 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 November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

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

This document supersedes EN 3909:2007.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This standard specifies the list of test fluids to be used to demonstrate that components and sub-assemblies will not be adversely affected by contamination by fluids types that they may typically be exposed to.

The fluids listed are representative of those commonly used and encountered in airborne and ground operations, and align with the requirements of fluids susceptibility of ISO 7137. This shall not be considered an exhaustive list and additional test fluids may be instructed in the product standard, against which compliance needs to be demonstrated. This standard, when used in conjunction with the test requirements defined in Clause 6 or the product standard shall be considered the starting point to test a component to determine its minimum performance capability when exposed to the fluids listed.

Test results obtained from a number of sources over a considerable period of time have shown that, in many cases, widely varying results can be obtained when using fluids that are used in service. The practice of specifying fluids based on performance criteria rather than their constituents can mean variations in test results between batches of the fluid obtained from different manufacturers, or even from the same manufacturer.

For this reason the EN 3909 Standard recommends the use of "standard test fluids" which are specified by their constituents and contain the chemicals that may be found in commonly used fluids.

Where equipment may be exposed to fluid types that are not covered by Table 1 or where specific test fluids are considered to be necessary, the product standard shall identify the particular fluid required. If a manufacturer chooses to include additional test fluids (e.g. to satisfy a customer requirement), they do so at their own risk.

## 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 2349-405, *Aerospace series — Requirements and test procedures for relays and contactors — Part 405: Fluid resistance*

EN 2591-315, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 315: Fluid resistance*

EN 3475-411, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 411: Resistance to fluids*

EN 3745-411, *Aerospace series — Fibres and cables, optical, aircraft use — Test methods — Part 411: Resistance to fluids*

EN 3841-405, *Aerospace series — Circuit breakers — Test methods — Part 405: Fluid resistance*

EN 4057-303, *Aerospace series — Cable ties for harnesses — Test methods — Part 303: Resistance to fluids*

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

ISO 7137, *Aircraft — Environmental conditions and test procedures for airborne equipment*

ISO 11075, *Aircraft — De-icing/anti-icing fluids — ISO type I*

ISO 11078, *Aircraft — De-icing/anti-icing fluids — ISO types II, III and IV*

MIL-PRF-87937, *Cleaning Compound, Aerospace Equipment*<sup>1)</sup>

AMS 1428G, *Fluid, Aircraft Deicing/Anti-Icing, Non-Newtonian, (Pseudoplastic), SAE Types II, III, and IV*<sup>2)</sup>

AMS 1476B, *Deodorant, Aircraft Toilet*<sup>2)</sup>

<sup>1)</sup> Published by: DoD National (US) Mil. Department of Defense (<http://www.defenselink.mil/>).

<sup>2)</sup> Published by: SAE National (US) Society of Automotive Engineers (<http://www.sae.org/>).