
**Specifikacije za nerabljene silikonske izolacijske tekočine za uporabo v
elektrotehniki (IEC 60836:2005)**

Specifications for unused silicone insulating liquids for electrotechnical purposes
(IEC 60836:2005)

EUROPEAN STANDARD

EN 60836

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2005

ICS 29.040.10

Supersedes HD 565 S1:1993

English version

**Specifications for unused silicone insulating liquids
for electrotechnical purposes
(IEC 60836:2005)**

Spécifications pour liquides isolants
silicones neufs pour usages
électrotechniques
(CEI 60836:2005)

Anforderungen an ungebrauchte
Silikonisolerflüssigkeiten für
elektrotechnische Zwecke
(IEC 60836:2005)

This European Standard was approved by CENELEC on 2005-06-01. CENELEC 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 Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 10/619/FDIS, future edition 2 of IEC 60836, prepared by IEC TC 10, Fluids for electrotechnical applications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60836 on 2005-06-01.

This European Standard supersedes HD 565 S1:1993.

It includes the following major technical changes:

- a) the title has been modified;
- b) the scope has been adapted to meet the changes in the title;
- c) health, safety and environmental requirements have been revised in order to follow the environmental practice carried out for other insulating liquids. Isopropyl alcohol now replaces chlorinated dissolvents for cleaning test equipment;
- d) Clause 8 replaces Section 2 of HD 565 S1. In line with other TC 10 documents, EN ISO 2592 (ISO 2592, not modified) is now the only method specified for measuring fire point and EN 60814 (IEC 60814, not modified) for water content. Breakdown voltage measurement has now been transferred to EN 60156 (IEC 60156, not modified);
- e) Table 1 replaces Sheet 1 of HD 565 S1. Two technical changes have been made:
 - the minimum fire point is increased from 330 °C to 340 °C (in conformity with ASTM D4652) and recognizes also that the test values registered for production are even higher.
 - neutralization values have been reduced from 0,02 mg KOH/g to 0,01 mg KOH/g, in line with production test data.
- f) Annex A has been deleted.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2006-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2008-06-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60836:2005 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- | | | |
|-----------|------|--|
| IEC 61039 | NOTE | Harmonized as HD 618 S1:1992 (not modified). |
| IEC 61100 | NOTE | Harmonized as EN 61100:1992 (not modified). |
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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60156	- ¹⁾	Insulating liquids - Determination of the breakdown voltage at power frequency - Test method	EN 60156	1995 ²⁾
IEC 60247	- ¹⁾	Insulating liquids - Measurement of relative permittivity, dielectric dissipation factor (tan d) and d.c. resistivity	EN 60247	2004 ²⁾
IEC 60475	- ¹⁾	Method of sampling liquid dielectrics	-	-
IEC 60628	- ¹⁾	Gassing of insulating liquids under electrical stress and ionization	HD 488 S1	1987 ²⁾
IEC 60814	- ¹⁾	Insulating liquids - Oil-impregnated paper and pressboard - Determination of water by automatic coulometric Karl Fischer titration	EN 60814	1997 ²⁾
IEC 60944	- ¹⁾	Guide for maintenance of silicone transformer liquids	-	-
ISO 2211	- ¹⁾	Liquid chemical products Measurement of colour in Hazen units (platinum-cobalt scale)	-	-
ISO 2592	- ¹⁾	Determination of flash and fire points - Cleveland open cup method	-	-
ISO 2719	- ¹⁾	Petroleum products and lubricants - Determination of Flash Point Pensky-Martens closed cup method	EN 22719	1993 ²⁾
ISO 3016	- ¹⁾	Petroleum Oils - Determination of pour point	-	-

1) Undated reference.

2) Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 3104	- ¹⁾	Petroleum products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity	EN ISO 3104	1996 ²⁾
ISO 3675	- ¹⁾	Crude petroleum and liquid petroleum products - Laboratory determination of density - Hydrometermethod	EN ISO 3675	1998 ²⁾
ISO 5661	- ¹⁾	Petroleum products - Hydrocarbon liquids - Determination of refractive index	-	-

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60836

Deuxième édition
Second edition
2005-05

**Spécification pour liquides isolants silicones
neufs pour usages électrotechniques**

**Specifications for unused silicone insulating
liquids for electrotechnical purposes**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SPECIFICATIONS FOR UNUSED SILICONE INSULATING LIQUIDS
FOR ELECTROTECHNICAL PURPOSES**

FOREWORD

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International Standard IEC 60836 has been prepared by IEC technical committee 10: Fluids for electrotechnical applications.

This second edition cancels and replaces the first edition published in 1988. This edition constitutes a technical revision.

This edition includes the following major technical changes with regard to the first edition:

- a) the title has been modified;
- b) the scope has been adapted to meet the changes in the title;
- c) health, safety and environmental requirements have been revised in order to follow the environmental practice carried out for other insulating liquids. Isopropyl alcohol now replaces chlorinated solvents for cleaning test equipment;