



SLOVENSKI STANDARD SIST EN 60079-6:2016

01-april-2016

Nadomešča:
SIST EN 60079-6:2007

Eksplozivne atmosfere - 6. del: Zaščita opreme s potopitvijo v olje "o" (IEC 60079-6:2015)

Explosive atmospheres - Part 6: Equipment protection by liquid immersion "o" (IEC 60079-6:2015)

Explosionsgefährdete Bereiche - Teil 6: Geräteschutz durch Flüssigkeitskapselung "o" (IEC 60079-6:2015)

Atmosphères explosives - Partie 6: Protection du matériel par immersion dans le liquide "o" (IEC 60079-6:2015)

Ta slovenski standard je istoveten z: EN 60079-6:2015

ICS:

29.260.20	Električni aparati za eksplozivna ozračja	Electrical apparatus for explosive atmospheres
-----------	---	--

SIST EN 60079-6:2016

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 60079-6:2016

<https://standards.iteh.ai/catalog/standards/sist/39b68a1a-0b9d-4fd1-a180-9ecc03196309/sist-en-60079-6-2016>

EUROPEAN STANDARD

EN 60079-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2015

ICS 29.260.20

Supersedes EN 60079-6:2007

English Version

Explosive atmospheres - Part 6: Equipment protection by liquid immersion "o" (IEC 60079-6:2015)

Atmosphères explosives - Partie 6: Protection du matériel
par immersion dans le liquide "o"
(IEC 60079-6:2015)

Explosionsgefährdete Bereiche - Teil 6: Geräteschutz durch
Flüssigkeitskapselung "o"
(IEC 60079-6:2015)

This European Standard was approved by CENELEC on 2015-03-27. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



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

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

EN 60079-6:2015 (E)

European foreword

The text of document 31/1157/FDIS, future edition 4 of IEC 60079-6, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-6:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-06-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-03-27

This document supersedes EN 60079-6:2007.

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

<https://standards.iteh.ai/catalog/standards/sist/39b68a1a-0b9d-4fd1-a180-9e703196309/sist-en-60079-6-2016>

Endorsement notice

The text of the International Standard IEC 60079-6:2015 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 60079 series	NOTE Harmonized in the series EN 60079.
IEC 62770	NOTE Harmonized as EN 62770.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60079-0	-	Explosive atmospheres -- Part 0: Equipment - General requirements	EN 60079-0	-
IEC 60156	-	Insulating liquids - Determination of the breakdown voltage at power frequency - Test method	EN 60156	-
IEC 60247	-	Insulating liquids - Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity	EN 60247	-
IEC 60296	-	Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear	EN 60296	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60814	-	Insulating liquids - Oil-impregnated paper and pressboard - Determination of water by automatic coulometric Karl Fischer titration	EN 60814	-
IEC 60836	-	Specifications for unused silicone insulating liquids for electrotechnical purposes	EN 60836	-
IEC 61099	-	Insulating liquids - Specifications for unused synthetic organic esters for electrical purposes	EN 61099	-
IEC 61125	-		EN 61125	-
IEC 62021-1	-	Insulating liquids - Determination of acidity -- Part 1: Automatic potentiometric titration	EN 62021-1	-
IEC 62535	-	Insulating liquids - Test method for detection of potentially corrosive sulphur in used and unused insulating oil	EN 62535	-
ISO 2592	-	Determination of flash and fire points - Cleveland open cup method	EN ISO 2592	-
ISO 2719	-	Determination of flash point - Pensky-Martens closed cup method	EN ISO 2719	-
ISO 3016	-	Petroleum products - Determination of pour point	-	-

EN 60079-6:2015 (E)

ISO 3104	-	Petroleum products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity	EN ISO 3104	-
----------	---	---	-------------	---

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 60079-6:2016](https://standards.iteh.ai/catalog/standards/sist/39b68a1a-0b9d-4fd1-a180-9eee03196309/sist-en-60079-6-2016)

<https://standards.iteh.ai/catalog/standards/sist/39b68a1a-0b9d-4fd1-a180-9eee03196309/sist-en-60079-6-2016>

Annex ZZ
(informative)

**Relationship between this European standard and the essential requirements of
Directive 94/9/EC aimed to be covered**

This European standard has been prepared under a Commission's standardisation request to provide one voluntary means of conforming to essential of Directive 94/9/EC of the European Parliament and the Council of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

**Table ZZ.1 – Correspondence between this European standard and Annex II of Directive
94/9/EC**

<i>Essential Requirements of Directive</i>	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1.0.1.	4, 5	
1.0.2.	4	
1.0.3.	7, 8	
1.0.4.	Not covered	
1.0.5.	7	
1.0.6.	8	
1.1.1.	4, 5	
1.1.2.	4, 5	
1.1.3.	5	
1.2.1.	4, 5	
1.2.2.	4	
1.2.3.	Not covered	
1.2.4.	4	
1.2.5.	Not covered	
1.2.6.	4.5	
1.2.7.	Not covered	
1.2.8.	Not covered	

1.2.9.	Not covered	
1.3.1.	All	Covered by the principle of the type of protection "o": Immersion of potential ignition sources in oil.
1.3.2.	4.5	
1.3.3.	Not covered	
1.3.4.	Not covered	
1.3.5.	Not covered	
1.4.1.	4	
1.4.2.	4	
1.5.1	4.5, 4.6, 4.7	
1.5.2.	Not covered	
1.5.3.	Not covered	
1.5.4.	4.6, 4.7	
1.5.5.	4.6, 4.7	
1.5.6.	Not covered	
1.5.7.	Not covered	
1.5.8.	Not covered	
1.6.1.	Not covered	
1.6.2.	Not covered	
1.6.3.	Not covered	
1.6.4.	4.9	
1.6.5.	Not covered	
2.0.1.1.	4, 5	
2.0.1.2.	4.5	
2.0.1.3.	4.8	
2.0.1.4.	Not covered	
2.0.2.1.	4.1, 4.8	
2.0.2.2.	4.5	

2.0.2.3	4.5	and
2.1.1.1.	4, 5	
2.1.1.2.	4.8	
2.1.1.3.	4.5	
2.1.2.1.	4, 5	
2.1.2.2.	Not covered	
2.1.2.3.	Not covered	
2.2.1.1.	4.1, 4.2.2, 4.5	
2.2.1.2.	4.8	
2.2.1.3.	4.5	and
2.2.2.1	4.1, 4.2.2, 4.5	
2.2.2.2.	Not covered	
2.2.2.3.	Not covered	
2.2.2.4.	Not covered	
2.3.1.1.	4.1, 4.2.3, 4.5 SIST EN 60079-6:2016	
2.3.1.2.	4.8 https://standards.iteh.ai/catalog/standards/sist/39b68a1a-0b9d-4ddf-a180-9eee03196309/sist-en-60079-6-2016	
2.3.2.1.	4.1, 4.2.3, 4.5	
2.3.2.2.	4.8	
2.3.2.3.	Not covered	
3.0.1.	Not covered	
3.0.2.	Not covered	
3.0.3.	Not covered	
3.0.4.	Not covered	
3.1.1.	Not covered	
3.1.2.	Not covered	
3.1.3.	Not covered	
3.1.4.	Not covered	
3.1.5.	Not covered	

EN 60079-6:2015 (E)

3.1.6.	Not covered	
3.1.7.	Not covered	
3.1.8.	Not covered	

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the product falling within the scope of this standard.

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST EN 60079-6:2016

<https://standards.iteh.ai/catalog/standards/sist/39b68a1a-0b9d-4fd1-a180-9eee03196309/sist-en-60079-6-2016>



IEC 60079-6

Edition 4.0 2015-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 6: Equipment protection by liquid immersion "o"
(standards.iteh.ai)

Atmosphères explosives –
Partie 6: Protection du matériel par immersion dans le liquide "o"
(standards.iteh.ai)

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.260.20

ISBN 978-2-8322-2251-5

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Constructional requirements	8
4.1 General.....	8
4.2 Levels of protection and requirements of electrical equipment	8
4.2.1 Level of Protection	8
4.2.2 Requirements for Level of Protection “ob”	9
4.2.3 Requirements for Level of Protection “oc”	9
4.3 Switching device	9
4.4 Creepage and clearance	9
4.5 Liquid containment enclosures.....	10
4.5.1 General	10
4.5.2 Sealed enclosures	10
4.5.3 Unsealed enclosures.....	10
4.5.4 Outlet of breathing device or pressure relief device.....	10
4.5.5 Enclosures intended to be opened.....	10
4.5.6 Determination of the maximum/minimum criteria of the protective liquid	10
4.6 Immersion depth	11
4.7 Protective liquid level indication.....	11
4.7.1 General	11
4.7.2 Remote-indicating protective liquid level indicator.....	12
4.7.3 Safety devices for Level of Protection “ob”	12
4.8 Temperature limitations	12
4.8.1 General	12
4.8.2 Maximum Surface Temperature.....	12
4.8.3 Flashpoint of the protective liquid	12
4.9 Field wiring connections to liquid immersion equipment.....	12
4.10 Constructional elements of enclosures.....	12
4.10.1 Operating rods, shafts etc.	12
4.10.2 Devices for draining of liquid	13
5 Protective Liquid.....	13
5.1 Protective liquid specification	13
5.2 Detailed alternative specification	13
5.3 Group I equipment	13
5.4 Liquid contamination and gassing that may result from arcing	13
5.5 Total volume of the protective liquid.....	14
6 Verifications and tests	14
6.1 Type tests	14
6.1.1 Overpressure test on sealed enclosures	14
6.1.2 Reduced pressure test on sealed enclosures	14
6.1.3 Overpressure test on unsealed enclosures	14
6.1.4 Maximum temperature.....	14
6.1.5 Switching Tests.....	15
6.2 Routine tests.....	15