AMERICAN NATIONAL STANDARD

ANSI/ISA-60079-6 (12.00.05)-2009 (R2013)
Supercedes ANSI/ISA-60079-6 (12.26.01)-1998

Explosive Atmospheres – Part 6: Equipment Protection by Oil Immersion “o”

Approved 22 November 2013

Commitment for Amendments

This standard is issued jointly by ISA and Underwriters Laboratories Incorporated (UL). Comments or proposals for revisions on any part of the standard may be submitted to ISA or UL at any time. Revisions to this standard will be made only after processing according to the standards development procedures of ISA and UL. ***ISA and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue.***

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Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

The most recent designation of ANSI/ISA-60079-6 and ANSI/UL 60079-6 as an American National Standard occurred on 22 November 2013.

This ANSI/UL Standard for Safety, which consists of the third edition, is under continuous maintenance, whereby each revision is ANSI approved upon publication. Comments or proposals for revisions on any part of the standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at http://csds.ul.com.

The International Society of Automation
ANSI/ISA-60079-6
Third Edition

Underwriters Laboratories Inc.
ANSI/UL 60079-6
Third Edition

Explosive atmospheres – Part 6: Equipment Protection by Oil-Immersion “o”

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General Notes

This is the common ISA and UL Standard for Explosive atmospheres - Part 6: Oil immersion "o". It is the third edition of ANSI/ISA-60079-6 and the third edition of ANSI/UL 60079-6.

ANSI/ISA-60079-6 and ANSI/UL 60079-6 contain identical requirements, and identical publication dates. The presentation and format of the standards material may differ between the two published standards.

This common Standard was prepared by the International Society of Automation (ISA) and Underwriters Laboratories Inc. (UL).

Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.

Level of harmonization

This standard adopts the IEC text with deviations.

The requirements are presented in different formats. The ISA version of the standard illustrates the national differences from the IEC text through the use of legislative text (strike-out and underline). The UL version of the standard illustrates national differences immediately following the IEC text. National differences between the UL version and the ISA version shall be word for word except for editorial changes.

Interpretations

The interpretation by the SDO of an identical or equivalent standard shall be based on the literal text to determine compliance with the standard in accordance with the procedural rules of the SDO. If more than one interpretation of the literal text has been identified, a revision shall be proposed as soon as possible to each of the SDOs to more accurately reflect the intent.

UL Effective Date

As of 24 July 2009 all products Listed or Recognized by UL must comply with the requirements in this Standard.

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Preface (ISA)

This ISA standard is based on IEC Publication 60079-6. It is the intention of the ISA12 Committee to develop an ANSI standard that is harmonized with IEC 60079-6 to the fullest extent possible.

This preface, as well as all annexes, is included for informational purposes and is not part of ANSI/ISA-60079-6.

The standards referenced within this document may contain provisions which, through reference in this text, constitute requirements of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated within this document. Members of IEC and ISO maintain registers of currently valid International Standards. ANSI maintains registers of currently valid U.S. National Standards.

This document has been prepared as part of the service of the International Society of Automation (ISA) toward a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Secretary, Standards and Practices Board; ISA; 67 Alexander Drive; P. O. Box 12277; Research Triangle Park, NC 27709; Telephone (919) 549-8411; Fax (919) 549-8288; E-mail: standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavor to introduce SI-acceptable metric units in all new and revised standards, recommended practices, and technical reports to the greatest extent possible. *Standard for Use of the International System of Units (SI): The Modern Metric System*, published by the American Society for Testing & Materials as IEEE/ASTM SI 10-97, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

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National Differences

National Differences from the text of International Electrotechnical Commission (IEC) Publication 60079-6, Explosive Atmospheres – Part 6: Equipment Protection by Oil-Immersion “o”, copyright 2007, are indicated by notations (differences) and are presented in bold text.

In the ISA publication of this standard, National Differences are presented using legislative text (strike-out and underline). The national difference type is identified in an informative annex.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

The UL printed standard includes the national difference types within the body of the text. The ISA printed standard includes the national difference types in an annex at the back of the standard.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are national differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE – These are National Differences based on **editorial comments or corrections**.

DR – These are National Differences based on the **national regulatory requirements**.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

Addition / Add - An addition entails adding a complete new numbered clause, subclause, table, figure, or annex. Addition is not meant to include adding select words to the base IEC text.

Deletion / Delete - A deletion entails complete deletion of an entire numbered clause, subclause, table, figure, or annex without any replacement text.

Modification / Modify - A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, figure, or annex of the base IEC text.

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Contents

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Foreword (ISA)

All text of IEC 60079-6:2007, Ed. 3, is included. U.S. National Deviations are shown by ~~strikeout~~ through text deleted and underline under text added. There are three annexes in this standard. The annexes are informative and are not considered part of this standard.

The significant changes with respect to the previous IEC edition are listed below:

– all requirements for third-party certification removed;
– added requirements for external connections;
– collected all marking requirements in the marking clause;
– added requirements for instructions.

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1 Scope

This standard ~~part of IEC 60079~~ specifies the requirements for the construction and testing of oil-immersed electrical equipment, oil-immersed parts of electrical equipment and Ex components in the type of protection oil immersion "o", intended for use in explosive gas atmospheres.

NOTE Type of protection oil immersion “o” provides equipment protection level (EPL) Gb. For further information, see Annex A.

This standard supplements and modifies the general requirements of ANSI/ISA-60079-0 ~~IEC 60079-0~~. Where a requirement of this standard conflicts with a requirement of ANSI/ISA-60079-0 ~~IEC 60079-0~~, the requirement of this standard takes precedence.

This standard is applicable to electrical equipment, parts of electrical equipment, and Ex components which, in the absence of oil immersion, are not ignition capable in normal operation as determined by ANSI/ISA-60079-15 ~~IEC 60079-15~~ or ANSI/ISA-60079-11 ~~IEC 60079-11~~.

2 ~~Normative~~ references

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.

ASTM D3487, Mineral Insulating Oil Used in Electrical Apparatus

~~IEC 60079-0:2004, Electrical apparatus for explosive gas atmospheres – Part 0: General requirements~~

ANSI/ISA-60079-0 (12.00.01)-2005, Electrical apparatus for Use In Class I, Zones 0, 1, & 2 Hazardous (Classified) Locations General Requirements

~~IEC 60079-7, Explosive atmospheres – Part 7: Equipment protection by increased safety "e"~~

ANSI/ISA-60079-7 (12.16.01), Electrical apparatus for Use In Class I, Zone 1, Hazardous (Classified) Locations – Increased safety “e”

~~IEC 60079-11, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"*~~

ANSI/ISA-60079-11 (12.02.01), Electrical apparatus for Use In Class I, Zone 1, Hazardous (Classified) Locations – Intrinsic safety “i”

~~IEC 60079-15, *Electrical apparatus for explosive gas atmospheres – Part 15: Construction, test and marking of type of protection “n” electrical apparatus*~~

ANSI/ISA-60079-15 (12.12.02), Electrical Apparatus for Use in Class I, Zone 2 Hazardous (Classified) Locations - Type of Protection "n"

ANSI/UL 2225, *Cables and Cable-Fittings For Use In Hazardous (Classified) Locations*

IEC 60156, *Insulating liquids –Determination of the breakdown voltage at power frequency – Test method*