AMERICAN NATIONAL STANDARD

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Supercedes ANSI/ISA-61241-1 (12.10.03)-2006

Explosive Atmospheres – Part 31: Equipment Dust Ignition Protection by Enclosure “t”

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Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t"

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Preface

This ISA standard is based on IEC Publication 60079-31, Edition 1. It is the intention of the ISA12 Committee to develop an ANSI standard that is harmonized with IEC 60079-31 to the fullest extent possible.

This preface, as well as all annexes, is included for informational purposes and is not part of ANSI/ISA-60079-31. The document is a modification of the IEC document and includes U.S. deviations encompassing both additions and deletions of information.

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FOREWORD

This is the ISA standard for Electrical apparatus for explosive gas atmospheres – Part 31: Equipment dust ignition protection by enclosure “t”. It is the first edition of ANSI/ISA-60079-31. The document is a modification of the IEC document and includes U.S. deviations encompassing both additions and deletions of information.

This standard was prepared by ISA.

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 thesStandard to judge its suitability for their particular purpose.

Level of harmonization

This standard adopts the IEC text with deviations.

The standard illustrates the national differences from the IEC text through the use of legislative text (strike-out and underline).

This first edition of ANSI/ISA-60079-31 has been developed from the first edition of ISA-61241-1 which it now cancels and supersedes

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

- Title changed to Equipment dust ignition protection by enclosure "t"
- Introduction of three levels of protection, “ta”, “tb” and “tc”
- Defined test voltage ranges and overload conditions for thermal tests.
- Introduction of a pressure test prior to the IP test
- Restrictions on available short circuit for level of protection “ta”
- Introduction of a variant of the IP6X test for level of protection “ta”
- Compulsory dust layer thermal test for level of protection “ta” by surrounding the enclosure with dust to a depth of at least 500 mm on all available surfaces

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CONTENTS

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1 Scope

This standard ~~part of IEC 60079~~ is applicable to electrical equipment protected by enclosure and surface temperature limitation for use in explosive dust atmospheres. It specifies requirements for design, construction and testing of electrical equipment.

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

This standard does not apply to dusts of explosives, which do not require atmospheric oxygen for combustion, or to pyrophoric substances.

This standard does not apply to electrical equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines endangered by firedamp and/or combustible dust.

This standard does not take account of any risk due to an emission of flammable or toxic gas from the dust.

NOTE 1 The application of electrical equipment in atmospheres, which may contain combustible dust as well as explosive gas, whether simultaneously or separately, may require additional protective measures.

NOTE 2 Where the equipment has to meet other environmental conditions, for example, protection against ingress of water and resistance to corrosion, additional methods of protection may be necessary. The method used should not adversely affect the integrity of the enclosure.

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.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

ANSI/ISA-~~IEC~~ 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

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

IEC 60127 series, *Miniature fuses*

IEC 60691, *Thermal-links – Requirements and application guide*

ISO 965-1, *ISO general-purpose metric screw threads – Tolerances – Part 1: Principles and basic data*

ISO 965-3, *ISO general-purpose metric screw threads – Tolerances – Part 3: Deviation for constructional screw threads*

ANSI/UL 248-1, *Low-Voltage Fuses - Part 1: General Requirements*