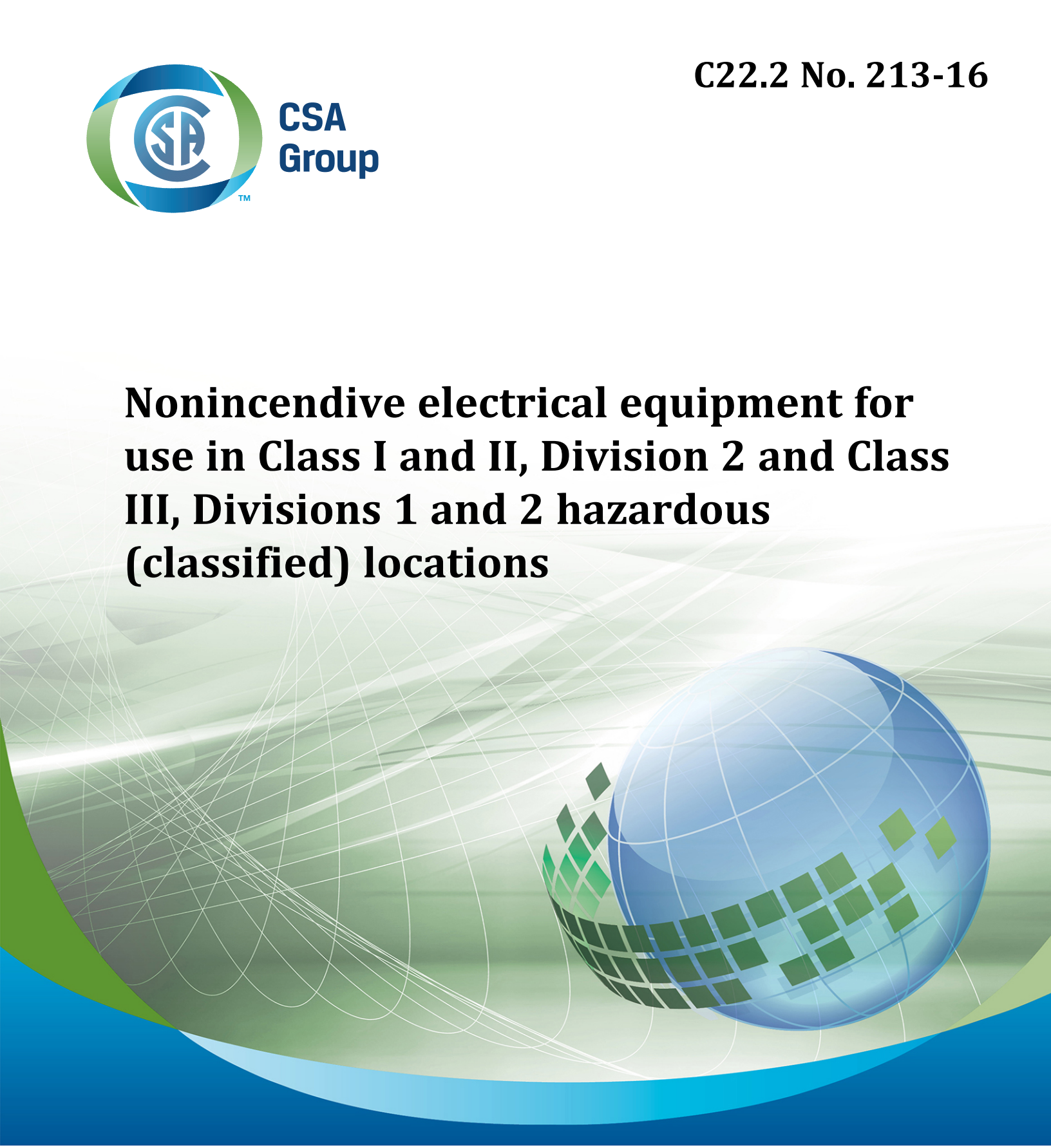
CSA Group

C22.2 No. 213-16

Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations



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Seventh Edition

Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

May 11, 2016

ANSI/ISA-12.12.01-2016

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Contents

Preface

This is the harmonized CSA and ISA standard for nonincendive electrical equipment, *Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations*. It is the second edition of CSA C22.2 No. 213 and the seventh edition of ISA 12.12.01. This edition of CSA C22.2 No. 213 replaces the previous edition published in 1987. This edition of ISA 12.12.01 replaces the previous edition published in 2013.

This harmonized standard was prepared by CSA Group and International Society of Automation (ISA).

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was reviewed by the CSA Integrated Committee on Hazardous Location Products, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee.

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: *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 uses the IEC format but is not based on, nor is it to be considered equivalent to, an IEC standard. This standard is published as an equivalent standard for CSA and ISA.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Reasons for differences from IEC

This Standard provides requirements for nonincendive electrical equipment in accordance with the codes of Canada, and the United States. At present there is no IEC standard for electric motors and generators for use in accordance with these codes. Therefore, this Standard does not employ any IEC standard for base requirements.

Interpretations

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

ANSI/ISA-12.12.01-2016 • CSA C22.2 No. 213-16
Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations

1 Scope

1.1 Purpose

The purpose of this Standard is to provide minimum requirements for the design, construction, and marking of electrical equipment or parts of such equipment for use in Class I and Class II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations.

This equipment, in normal operation, is not capable of causing ignition of the surrounding atmosphere under the conditions prescribed in this Standard, although the equipment could contain electronic components used in an incendive circuit and could also have field wiring that is an incendive circuit.

In addition, it is the intent of this document to establish uniformity in test methods for determining the suitability of the equipment and associated circuits and components as they relate to potential ignition of a specific flammable gas or vapor-in-air mixture, combustible dust, easily ignitible fibers, or flyings.

1.2 Applicable to Class I and II, Division 2 and Class III, Divisions 1 and 2 locations

This Standard applies only to equipment, circuits, and components for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations as defined in the *National Electrical Code*® (NEC®), ANSI/NFPA 70, or in the *Canadian Electrical Code, Part I* (CE Code Part I), CSA C22.1.

Notes:

1) *Some equipment designed for use in unclassified locations is permitted by the NEC® or CE Code Part I for installation in Division 2 locations. The judgment of acceptability for the installation would be determined by the authority having jurisdiction. Such equipment would not have the hazardous location marking or documentation described in this Standard. It is anticipated that such equipment would comply with the other requirements in this Standard and that the determination of compliance is elementary (e.g., a nonarcing instrument inside a Type 4 or Type 12 enclosure used in a Class II, Division 2 location).*

2) *Throughout this Standard, references to CAN/CSA-C22.2 No. 60079-0 and ANSI/ISA 60079-0 are made as "CSA/ISA 60079-0". Similarly, references to CAN/CSA-C22.2 No. 60079-1 and ANSI/ISA 60079-1 are made as "CSA/ISA 60079-1", references to CAN/CSA-C22.2 No. 60079-11 and ANSI/ISA 60079-11 are made as "CSA/ISA 60079-11", and references to CAN/CSA-C22.2 No. 60079-15 and ANSI/ISA 60079-15 are made as "CSA/ISA 60079-15".*

3) *The US and Canadian adoptions of IEC 60079-0, IEC 60079-1, IEC 60079-11 and IEC 60079-15 could be adopted at different revision levels and may have different National Deviations.*

1.3 Applicable to associated nonincendive field wiring apparatus

This standard also applies to associated nonincendive field wiring apparatus located in a non-hazardous (unclassified) location specifically designed to directly connect to nonincendive field wiring in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations.

Note: *The 2015 CE Code Part I does not address nonincendive field wiring circuits in Class II or Class III hazardous locations.*

1.4 Applicable ambient conditions

The requirements of this Standard are based on consideration of the following ambient conditions:

a) a lower ambient temperature of -50 °C or higher;
b) an upper ambient temperature of 40 °C or lower;
c) an oxygen concentration of not greater than 21 percent by volume; and
d) a pressure of 80 kPa (0.8 bar) to 110 kPa (1.1 bar).

Note: *Equipment specified for atmospheric conditions beyond the above limits could be subject to additional investigation.*

1.5 Not applicable to specified ignition mechanisms

This standard is not applicable to mechanisms of ignition from external sources, such as static electricity or lightning, that are not related to the electrical characteristics of the equipment.

1.6 Not applicable to specific products

This standard does not apply to electric luminaires for use in Division 2 hazardous (classified) locations.

This standard does not apply to electric motors, electric heaters, heat tracing cables, and similar heat-producing products, except where they are an integral part of the equipment under evaluation, for use in Division 2 locations. Where electric motors, electric heaters, heat tracing cables, or similar heat-producing products are an integral part of the equipment under evaluation, applicable requirements from the Division 2 hazardous locations standards for these products shall be considered.

In the United States, this Standard does not apply to battery-operated flashlights and lanterns within the scope of ANSI/UL 783.

2 Reference publications

Products covered by this Standard shall comply with the referenced installation codes and standards noted in Annex A as appropriate for the country where the product is to be used. When the product is intended for use in more than one country, the product shall comply with the installation codes and standards for all countries where it is intended to be used.

2.1

Where reference is made to any Standards, such reference shall be considered to refer to the latest editions and revisions thereto available at the time of printing, unless otherwise specified.