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Australian STANDARD

Explosive atmospheres

Part 20.2: Material characteristics—Combustible dusts test methods

STANDARDS Australia

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The following are represented on Committee MS-011:

- Australasian Institute of Dangerous Good Consultants
- Australian Industry Group
- Australian Petroleum Production and Exploration Association
- Department of Natural Resources and Mines, Qld
- Engineers Australia
- Gas Energy Australia
- Institute of Electrical Inspectors
- Institute of Instrumentation, Control and Automation Australia
- Institution of Chemical Engineers
- National Electrical and Communications Association
- SafeWork NSW

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Explosive atmospheres

Part 20.2: Material characteristics—Combustible dusts test methods

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PREFACE

This Standard was prepared by the Standards Australia Committee MS-011, Classification of Hazardous Areas, to supersede AS/NZS 61241.2.1:2000, *Electrical apparatus for use in the presence of combustible dust*, Part 2.1: *Test methods—Methods for determining the minimum ignition temperatures of dust*, AS/NZS 61241.2.2:2000, *Electrical apparatus for use in the presence of combustible dust*, Part 2.2: *Test methods—Method for determining the electrical resistivity of dust in layers,* and AS/NZS 61241.2.3:2000, *Electrical apparatus for use in the presence of combustible dust*, Part 2.3: *Test methods—Method for determining the minimum ignition energy of dust/air mixtures*.

The objective of this Standard is to describe the test methods for the determination of the characteristics of combustible dusts, including whether the dust is combustible or not, in order to permit the classification of areas where such materials exist to enable the proper selection and installation of equipment for use in the presence of combustible dust. This includes such variables as the dust being in the form of a cloud or layer, the particle size, moisture content, explosibility and ignition temperatures.

This Standard addresses the characteristics of dusts at standard atmospheric conditions, as defined in the Scope.

This Standard does not include pyrophoric substances or inherently explosible materials, such as recognized explosives, propellants (e.g. gunpowder, dynamite), or dusts of explosives and propellants that do not require atmospheric oxygen for combustion.

This Standard is identical with, and has been reproduced from ISO/IEC 80079-20-2:2016, *Explosive atmosphere*—Part 20-2: *Material characteristics—Combustible dusts test methods*

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text ‘this part of ISO/IEC 80079’ should read ‘this Australian Standard’.

(b) A full point substitutes for a comma when referring to a decimal marker.

There are no normative references in the source document.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annexes to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

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1 Scope

This part of ISO/IEC 80079 describes the test methods for the identification of combustible dust and combustible dust layers in order to permit classification of areas where such materials exist for the purpose of the proper selection and installation of electrical and mechanical equipment for use in the presence of combustible dust.

The standard atmospheric conditions for determination of characteristics of combustible dusts are:

- temperature –20 °C to +60 °C,
- pressure 80 kPa (0,8 bar) to 110 kPa (1,1 bar) and
- air with normal oxygen content, typically 21 % v/v.

The test methods defined do not apply to:

- recognized explosives, propellants (e.g. gunpowder, dynamite), or substances or mixtures of substances which may, under some circumstances, behave in a similar manner or
- dusts of explosives and propellants that do not require atmospheric oxygen for combustion, or to pyrophoric substances.

2 Normative references

None.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
combustible dust
finely divided solid particles, 500 μm or less in nominal size, which may form explosive mixtures with air at standard atmospheric pressure and temperatures

Note 1 to entry: This includes dust and grit as defined in ISO 4225.

Note 2 to entry: The term 'solid particles' is intended to address particles in the solid phase but does not preclude a hollow particle.

3.1.1
conductive dust
combustible metal dusts and other combustible dusts with electrical resistivity equal to or less than 1×10^3 Ω·m

Note 1 to entry: Metal dust is treated as conductive dust because it is assumed that surface oxidation cannot be depended upon to always ensure electrical resistivity greater than 1×10^3 Ω·m