

Australian/New Zealand Standard™

**Electrical apparatus for use in the  
presence of combustible dust**

**Part 10: Classification of areas where  
combustible dusts are or may be  
present**



## **AS/NZS 61241.10:2005**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee MS-011, Classification of Hazardous Areas. It was approved on behalf of the Council of Standards Australia on 5 April 2005 and on behalf of the Council of Standards New Zealand on 15 April 2005.

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*This Standard was issued in draft form for comment as DR 05070.*

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### **Electrical apparatus for use in the presence of combustible dust**

### **Part 10: Classification of areas where combustible dusts are or may be present**

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MS-011, Classification of Hazardous Areas, with the assistance of the Joint Subcommittees EL-014-05, Dust and Plenum Systems and MS-011-01, Combustible Dusts, to supersede AS/NZS 61241.3:1999.

*This Standard incorporates Amendment No. 1 (March 2007). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

This Standard is identical with, and has been reproduced from IEC 61241-10, Ed.1(2004), *Electrical apparatus for use in the presence of combustible dust – Part 10: Classification of areas where combustible dusts are or may be present.*

The objective of this Standard is to provide manufacturers and installers of electrical equipment, as well as electrical inspecting authorities, with classification of areas where explosive dust/air mixtures and combustible dust layers are present, in order to permit the proper selection of electrical apparatus for use in such areas.

This first edition of AS/NZS 61241.10 cancels and replaces AS/NZS 61241.3, published in 1999.

The major changes with respect to AS/NZS 61241.3 are listed below:

- (a) Definitions of zones have changes.
- (b) Layers are no longer restricted to Zone 20. Consideration of layers as a source of a dust cloud has been introduced.

AS/NZS 61241 consists of the following parts under the general title: *Electrical apparatus for use in the presence of combustible dust:*

Part 0:	General requirements
Part 1:	Protection by enclosures ‘tD’
Part 2:	Type of protection ‘pD’*
Part 10:	Classification of areas where combustible dusts are or may be present
Part 11:	Protection by intrinsic safety ‘iD’†
Part 14:	Selection and installation
Part 17:	Inspection and maintenance of electrical installations in hazardous areas (other than mines)†
Part 18:	Protection by encapsulation ‘mD’
Part 20:	Test methods‡
Part 20.1:	Methods for determining the minimum ignition temperatures of dust
Part 20.2:	Method for determining the electrical resistivity of dust in layers
Part 20.3:	Method for determining minimum ignition energy of dust/air mixtures

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

- (i) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (ii) In the source text ‘this International Standard’ should read ‘this Australian/New Zealand Standard’.
- (iii) A full point substitutes for a comma when referring to a decimal marker.

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\* To be published (to supersede current AS/NZS 61241.4).

† To be published.

‡ Under consideration (to supersede current Parts 2.1, 2.2 and 2.3).

Further useful information regarding combustible dusts can be found in AS/NZS 4745:2004, *Code of practice for handling combustible dusts*.

The terms 'normative' and 'informative' are used to define the application of the annex 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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## INTRODUCTION

Combustible dusts are hazardous because when they are dispersed in air by any means they form potentially explosive atmospheres. Furthermore, layers of combustible dust may ignite and act as ignition sources for an explosive atmosphere.

Therefore, equipment placed in an environment where dust clouds can form should be dust ignition protected and have a surface temperature limitation below the temperature at which a dust cloud or layer will ignite.

This part of IEC 61241 gives guidance on the identification of areas where hazards from combustible dust can arise. The purpose is to permit selection of appropriate equipment for use in such areas. General and special criteria are given, with examples, for the procedure used to identify areas.

By exercising ingenuity in the layout of equipment, it is frequently possible to locate much of the equipment in less hazardous or in non-hazardous locations and thus to reduce the amount of special equipment required.

This standard contains an informative annex giving practical examples for classifying areas (Annex A).



## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

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**1 Scope**

This part of IEC 61241 is concerned with the classification of areas where explosive dust/air mixtures and combustible dust layers are present, in order to permit the proper selection of equipment for use in such areas.

In this standard, explosive dust atmospheres and combustible dust layers are treated separately. In Clause 4, area classification for explosive dusts clouds is described, with dust layers acting as one of the possible sources of release. In Clause 7, the hazard of dust layer ignition is described.

This standard assumes effective housekeeping based on a system of cleaning for the plant.

The principles of the standard can also be followed when combustible fibres or flyings may cause a hazard.

This standard is intended to be applied where there can be a risk due to the presence of explosive dust/air mixtures or combustible dust layers under normal atmospheric conditions.

It does not apply to

- underground mining areas,
- areas where a risk can arise due to the presence of hybrid mixtures,
- dusts of explosives that do not require atmospheric oxygen for combustion, or to pyrophoric substances;
- catastrophic failures which are beyond the concept of abnormality dealt with in this standard (see Note 1),
- any risk arising from an emission of flammable or toxic gas from the dust.

This standard does not take into account the effects of consequential damage following a fire or an explosion.

NOTE 1 Catastrophic failure in this context is applied, for example, to the rupture of a storage silo or a pneumatic conveyor.

NOTE 2 In any process plant, irrespective of size, there can be numerous sources of ignition apart from those associated with equipment. Appropriate precautions will be necessary to ensure safety in this context, but these are outside the scope of this standard.

**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.