AS/NZS 61241.2.3:2000
IEC 61241-2-3:1994

Australian/New Zealand Standard™

Electrical apparatus for use in the presence of combustible dust

Part 2.3: Test methods—Method for determining minimum ignition energy of dust/air mixtures

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL/14, Electrical Equipment in Hazardous Areas. It was approved on behalf of the Council of Standards Australia on 3 December 1999 and on behalf of the Council of Standards New Zealand on 22 November 1999. It was published on 3 February 2000.

The following interests are represented on Committee EL/14:

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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia International or Standards New Zealand at the address shown on the back cover.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/14, Electrical Equipment in Hazardous Areas.

This Standard is identical with and has been reproduced from, IEC 61241-2-3:1994, *Electrical apparatus for use in the presence of combustible dust*, Part 2: *Test methods*, Section 3: *Methods for determining the minimum ignition energy of dust/air mixtures*.

The objective of this Standard is to provide testing authorities and certifying bodies with a test method to determine the minimum ignition energy of dust/air mixtures, so as to allow the proper selection of adequate electrical apparatus to be used in areas where combustible dusts are or may be present.

In January 1997, the IEC commenced numbering its Standards from 60000 by adding 60000 to the number of each existing Standard. This coordinates IEC numbering with ISO numbering. During the transition period an IEC Standard might be identified by its new number or its old number (for example, IEC 60050 or IEC 50).

A reference to an International Standard identified in the Normative References Clause by strikethrough (~~example~~) is replaced by a reference to the Australian or Australian/New Zealand Standard(s) listed immediately thereafter and identified by shading (example). Where the struck-through referenced document and the referenced Australian or Australian/New Zealand Standard are identical, this is indicated in parenthesis after the title of the latter.

This Standard is part of a series covering electrical apparatus for use in the presence of combustible dust which comprises the following:

AS/NZS	
61241	Electrical apparatus for use in the presence of combustible dust
61241.1.1	Part 1.1: Electrical apparatus protected by enclosures and surface temperature limitation—Specification for apparatus
61241.1.2	Part 1.2: Electrical apparatus protected by enclosures and surface temperature limitation—Selection, installation and maintenance
61241.2.1	Part 2.1: Test methods—Methods for determining the minimum ignition temperatures of dust
61241.2.2	Part 2.2: Test methods—Method for determining the electrical resistivity of dust in layers
61241.2.3	Part 2.3: Test methods—Method for determining minimum ignition energy of dust/air mixtures (this Standard)
61241.3	Part 3: Classification of areas where combustible dusts are or may be present.

As this Standard is reproduced from an International Standard a full point should be substituted for a comma when referring to a decimal marker.

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

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Electrical apparatus for use in the presence of combustible dust Part 2.3: Test methods—Method for determining minimum ignition energy of dust/air mixtures

1 Scope

This part of AS/NZS 61241 specifies a method of test to determine the minimum ignition energy of a dust/air mixture by an electrically generated high-voltage d.c. spark. This test method is intended to develop data to be used in deciding whether or not combustible dust/air mixtures are considered to be ignitable with respect to electrical discharge. It is intended that the dust be tested in a form (particle size, moisture content, etc.) representing conditions of actual use so that assessment of the hazard present can be made. Ignition energies determined by this method would be compared with ignition energies of other dusts to assess the relative hazard with regard to ignition by an electrical or electrostatic discharge, thereby permitting decisions to be made on the suitability of electrical apparatus for installation in areas where combustible dust is present.

The test method is not suitable for use with recognized explosives, gunpowder, dynamite, explosives which do not require oxygen for combustion; pyrophoric substances, or substances or mixtures of substances which may under some circumstances behave in a similar manner. Where any doubt exists about the existence of a hazard due to explosive properties, an indication may be obtained by placing a very small quantity of the dust in question on the heated surface of the apparatus described in AS/NZS 61241.2.1**,** heated to 400°C.

NOTE - Precautions should be taken to safeguard the health of personnel conducting the tests against the risk of fire, explosion and/or the effects, including toxic effects of combustion. Compliance with this international standard does not itself confer immunity from legal obligations.

Annex B of this section includes guidance on the significance of minimum ignition energy with respect to electrostatic discharges.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of AS/NZS 61241. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of AS/NZS 61241 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

References to International Standards that are struck through in this Clause are replaced by references to equivalent Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is appropriately identified.