

AS 2381.10—1989

Australian Standard®

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**Electrical equipment for explosive atmospheres — Selection, installation and maintenance**

**Part 10: Equipment in combustible dust (Class II) areas**

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This Australian Standard was prepared by Committee EL/14, Electrical Equipment in Hazardous Areas. It was approved on behalf of the Council of Standards Australia on 24 November 1988 and published on 20 March 1989.

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The following interests are represented on Committee EL/14:

Australian Coal Association  
Australian Electrical and Electronic Manufacturers Association  
Australian Institute of Petroleum  
Confederation of Australian Industry  
Department of Defence  
Department of Industrial Relations and Employment, N.S.W.  
Department of Labour, Vic.  
Department of Minerals and Energy, N.S.W.  
Department of Mines, Qld  
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*This Standard was issued in draft form for comment as DR 88015.*

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First published as AS 2381.10 1989

Incorporating:  
Amdt 1—1989

## PREFACE

This Standard was prepared by the Standards Australia Committee on Electrical Equipment in Hazardous Areas for the guidance of manufacturers, designers, installers, users, statutory authorities and associated interests.

This Standard is part of a series of Standards which deal with the selection, installation and maintenance of electrical equipment for use in areas where combustible materials are generated, processed, handled or stored and which therefore are potentially hazardous.

This Part deals with equipment in combustible dust (Class II) areas.

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## STANDARDS AUSTRALIA

## Australian Standard

**Electrical equipment for explosive atmospheres — Selection, installation and maintenance**

## Part 10: Equipment in combustible dust (Class II) areas

## SECTION 1. SCOPE AND GENERAL

**1.1 SCOPE.** This Standard specifies requirements for the selection, installation and maintenance of electrical equipment for use in areas where combustible dust may be present in such quantities as are likely to produce a fire or explosion hazard. Such areas are hereinafter referred to as Class II areas.

NOTE: AS 2430.2 deals with the classification of Class II areas.

This Standard does not apply to —

- (a) areas where inherently explosive dusts are present;
- (b) underground workings of coal mines; and
- (c) areas which may be affected by oxygen enrichment.

**1.2 REFERENCED DOCUMENTS.** The following documents are referred to in this Standard:

AS	
1020	The control of undesirable static electricity
1722	Pipe threads of Whitworth form
1722.1	Part 1: Sealing pipe threads
1768	Lightning protection
1828	Electrical equipment for explosive atmospheres — Cable glands
1905	SAA Fire Door Code
1939	Classification of degrees of protection provided by enclosures for electrical equipment
2052	Metallic conduits and fittings
2053	Non-metallic conduits and fittings
2236	Electrical equipment for explosive atmospheres — Dust-excluding ignition-proof enclosure
2380	Electrical equipment for explosive atmospheres — Explosion-protection techniques
2380.7	Part 7: Intrinsic safety i
2430	Classification of hazardous areas
2430.2	Part 2: Combustible dusts
2431	Electrical equipment for explosive atmospheres — Encapsulated apparatus — Type of protection m
3191	Electric flexible cords
3000	SAA Wiring Rules
3112	Approval and Test Specification — Plugs and socket-outlets
NFPA	
68	Guide for explosion venting

**1.3 DEFINITIONS.** For the purpose of this Standard, the definitions below apply.

**1.3.1 Area, hazardous** — area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of potential ignition sources.

NOTES:

1. For the purpose of this Standard, an area is regarded as a three dimensional region or space.
2. Examples of potential ignition sources are electrical equipment, electrostatic discharges, naked flames, chemical reactions, sparks from grinding and welding operations, and hot surfaces.

**1.3.2 Combustible dust** — dust that is combustible or ignitable in mixtures with air.

NOTES:

1. Examples of such dusts are starch and coal dust.
2. Layered dusts under certain conditions may glow without ignition.

**1.3.3 Compounded joint** — joint which is formed in an enclosure which requires a sealant material (e.g. silicone rubber) other than a gasket in order to maintain its dust-excluding properties.

**1.3.4 Dust** — small solid particles that settle out under their own weight but that may remain suspended for some time.

NOTE: The term 'dust' includes fibres and flyings.

**1.3.5 Enclosure, dust-excluding ignition-proof (DIP enclosure)** — enclosure which excludes dust, and which will not permit arcs, sparks or heat otherwise generated or liberated inside the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specified dust on or in the vicinity of the enclosure.

NOTE: AS 2236 contains requirements for DIP enclosures.

**1.3.6 Equipotential bonding** — electrical connection which ensures that various exposed conductive parts, and extraneous conductive parts, of electrical equipment remain at a substantially equal potential.

**1.3.7 Fibre** — unit of matter characterized by flexibility, fineness and high ratio of length to thickness.

**1.3.8 Flyings** — waste fibres which fly out into the atmosphere during carding, drawing, spinning and other processes.

**1.3.9 Inherently explosive dusts** — dusts of explosives which require only a specific level of energy for ignition.

NOTES:

1. Examples of such dusts are gunpowder, propellant powder and lead styphnate.
2. Such dusts are hazardous whether airborne or not.