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AS 1021 — 1980
UDC 621.3 — 213.34

Australian Standard 1021–1980

ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES

PROTECTION BY PURGING

AS 2380
Electrical equipment for explosive atmospheres—Explosion-protection techniques

AS 2380.4—1994
Pressurized rooms or pressurized enclosures
(In Professional Packages 24A, 40A)
27pp G
Specifies requirements for the design, construction and testing of rooms and enclosures of electrical equipment in which the entry of flammable gas or vapour is prevented by maintaining the air (or other non-flammable gas) within the room or enclosure at a specified pressure above that of the external atmosphere. Requirements for the use of pressurized rooms and enclosures in Class II, combustible dust areas are also included.
(EL/14): Supersedes AS 1021—1980 and AS 1825—1982; DR 89196; Publication date 1994-09-19.

STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Coal Association

Australian Electrical Manufacturers Association

Confederation of Australian Industry

Co-opted specialist interests

Department of Productivity

Departments of Explosives

Departments of Labour and Industry

Departments of Mines

Electrical Contractors Associations of Australia

Insurance Council of Australia

Oil companies

Statutory Electricity Authorities

Sydney County Council (Testing Interest)

This standard, prepared by Committee EL/14, Electrical Equipment in Hazardous Locations, was approved on behalf of the Council of the Standards Association of Australia on 28 November 1979, and was published on 1 March 1980.

AUSTRALIAN STANDARD

PROTECTION BY PURGING OF ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES

AS 1021 — 1980

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PREFACE

This standard was prepared by the Association's Committee on Electrical Equipment in Hazardous Locations, for the guidance of manufacturers, users, stautory authorities and associated interests and for use in association with the SAA Wiring Rules (AS 3000, Part 1). It includes a procedure for reducing the explosion hazard of electrical equipment used in explosive atmospheres, by purging the enclosure, and prescribes requirements in respect of design, construction, marking, and testing.

In this new edition, the published amendments to the 1971 edition have been incorporated, and substantial changes have been made to the Foreword and to Clause 1.4 (grouping). Consequential alterations have been made to the Figures. The Clause dealing with maximum temperature of enclosure (3.2.4) has been expanded as has the marking clause (3.9). A new clause (3.6) deals with safety provisions and devices.

In its terminology, definitions and general treatment of the subject, this standard is similar to a corresponding standard issued by the National Fire Protection Association, U.S.A., viz NFPA Standard No 496—1967 (endorsed as American Standard ANSI 496—1967), Purged Enclosure for Electrical Equipment in Hazardous Locations, and acknowledgment is made of the assistance received from this source.

This standard requires reference to the following Australian standards:

AS 1076	Code of Practice for Selection, Installation and Maintenance of Electrical Apparatus and Associated Equipment for Use in Explosive Atmospheres (Other Than Mining Applications) Part 1—Basic Requirements
AS 1825	Pressurized Enclosure of Electrical Equipment for Explosive Atmospheres
AS 1829	Intrinsically Safe Electrical Apparatus for Explosive Atmospheres
AS 1874	Aluminium Ingots and Aluminium Alloy Ingots and Castings
AS 1881	Zinc Alloy Ingots (For Pressure Diecasting) and Zinc Alloy Pressure Diecastings
AS 1896	Method of Test for Ignition Temperature of Gases and Vapours
AS 2238	Electrical Apparatus with Type of Protection 'n' for Explosive Atmospheres
AS 3000, Part 1	SAA Wiring Rules
AS C98	Flameproof Enclosure of Electrical Equipment for Explosive Atmospheres
AS C100	Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for PROTECTION BY PURGING OF ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES

FOREWORD

The purpose of this standard is to establish requirements for the purging of electrical equipment enclosures which will enable such equipment to be used in flammable and explosive atmospheres without risk of fire or explosion, i.e. as required by certain Mining Regulations or by the SAA Wiring Rules (AS 3000, Part 1) for defined hazardous areas.

NOTE: It is unlikely that these requirements for purged enclosures will be applicable to underground coalmining.

This standard is confined to the purging system and associated enclosure concerned with the electrical equipment to be protected. Careful consideration must be given to the auxiliary apparatus needed for the supply of the purging medium to the enclosure.

Electrical protection, airflow velocity and pressure-measuring devices are provided for the operation of alarm and/or trip devices whenever the purging medium within the enclosure falls below the minimum permitted.

The equipment enclosure is designed so that a minimum positive pressure of 50 Pa above the atmospheric pressure surrounding the enclosure can be established and maintained prior to and during the operation of the electrical apparatus which is enclosed.

The purging system is designed so that on admission of the purging medium to the enclosure, the atmosphere then existing within the enclosure is completely displaced or scavenged and there is a continuous flow of the purging medium.

The velocity profile of the purging medium within the enclosure is so arranged that any pockets or hazardous concentration of flammable gases or vapours does not exist within the enclosure.

It should be noted that temperature limits in relation to the ignition temperature of gases and vapours apply to any apparatus referred to herein, equally with those applicable for flameproof apparatus, under similar conditions.

It must be recognized that safe use of electrical equipment in flammable or explosive gas atmospheres may depend on many factors besides the use of purged enclosures, e.g.: