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AS 2380.7—1987

Australian Standard®

Electrical equipment for explosive atmospheres—Explosion-protection techniques

Part 7: Intrinsic safety i

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This Australian standard was prepared by Committee EL/14, Electrical Equipment in Hazardous Locations. It was approved on behalf of the Council of the Standards Association of Australia on 12 January 1987 and published on 2 March 1987.

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 Mines, Qld
Electrical Contractors Associations of Australia
Electricity Supply Association of Australia
Independent testing interests
Insurance Council of Australia
State electricity regulatory authorities

Representatives of the following interests also participated in the drafting of this standard:

Australian Gas Association
Institute of Instrumentation and Control Australia

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This standard was issued in draft form for comment as DR 80042.

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Electrical equipment for explosive atmospheres—Explosion-protection techniques

Part 7: INTRINSIC SAFETY i

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PREFACE

This standard was prepared by the Association's Committee on Electrical Equipment in Hazardous Areas, to supersede AS 2011—1977* and AS 1829—1981†. This standard is intended for the guidance of manufacturers, users, statutory authorities and associated interests. It is Part 7 of a standard dealing with the explosion-protection of electrical equipment intended for use in potentially explosive atmospheres.

In its terminology, definitions and general treatment of the subject, this standard is similar to the following standards and draft standards issued by the International Electrotechnical Commission and the European Committee for Electrotechnical Standardization:

IEC 79-11	Electrical apparatus for explosive gas atmospheres Construction and test of intrinsically-safe and associated apparatus
EN 50 020	Electrical apparatus for potentially explosive atmospheres Part 7: Intrinsic safety i
IEC 31G(Sect)24	Draft revision of IEC 79-11

Acknowledgement is made of the assistance received from these sources.

Acknowledgement is also made to the Safety in Mines Research Establishment, Ministry of Power, United Kingdom, for the graphs reproduced in Appendix A which have been extracted from SMRE Research Report No. 256.

Intrinsic safety is an explosion-protection technique for electrical circuits in hazardous areas, where ignition of explosive mixtures is prevented from occurring by limiting the energy of any potential spark occurring under fault conditions and by limiting surface temperatures.

This is generally achieved by a combination of electrical and mechanical measures, which also have to ensure that the protection is maintained in service.

Historically, intrinsic safety has been used as a protection technique for electrical equipment intended to be used in explosive gas atmospheres. Hence, the use of (gas) groups I and II throughout the standard. However, this technique has now been recognized in AS 3000 as suitable for combustible dust areas (Class II) under certain specified conditions.

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* AS 2011, Shunt Diode Safety Barriers for Explosive Atmospheres

† AS 1829, Electrical Equipment for Explosive Atmospheres—Intrinsically Safe Apparatus—Type of Protection i

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