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National Standard of the People's Republic of China

中华人民共和国国家标准

GB 3836.1—2010
Replace GB 3836.1—2000

Explosive Atmospheres—Part 1: Equipment—General Requirements

爆炸性环境　第1部分：设备　通用要求

(IEC 60079-0:2007, MOD)

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Contents

Foreword

All technical contents of this part are compulsory.

GB 3836 "Explosive Atmospheres" is divided into a number of parts:

——Part 1: Equipment—General Requirements;

——Part 2: Equipment Protection by Flameproof Enclosures "d";

——Part 3: Equipment Protection by Increased Safety "e";

——Part 4: Equipment protection by intrinsic safety "i";

——Part 5: Pressurized Enclosures "p";

——Part 6: Oil—Immersion "o";

——Part 7: Power Filling "q";

——Part 8: Type of Protection "n";

——Part 9: Encapsulation "m;

——Part 11: Method of Test for Ascertainment of Maximum Experimental Safe Gap;

——Part 12: Classification of Gases or Vapours with Air according to Their Maximum Experimental Safe Gaps and Minimum Igniting Current;

——Part 13: Repair and Overhaul for Apparatus Used in Explosive Gas Atmospheres;

——Part 14: Classification of Hazardous Areas;

——Part 15: Electrical Installations in Hazardous Areas (Other than Mines);

——Part 16: Inspection and Maintenance of Electrical Installation (Other than Mines);

——Part 17: Construction and Use of Rooms or Buildings Protected by Pressurization;

——Part 18: Intrinsically Safe System;

——Part 19: Fieldbus intrinsically safe concept (FISCO);

——Part 20: Equipment with Equipment Protection Level (EPL) Ga;

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This part is part 1 of GB 3836, identical to IEC 60079-0:2007 "Explosive Atmospheres—Part 0: Equipment—General Requirements" (English Edition).

This part is modified in relation to IEC 60079-0:2007. Compared with IEC 60079-0:2007, the main modifications cover:

——Add "Note 7: 'Flameproof enclosures' and 'Flameproof type' in this part of GB 3836 are synonym" in Chapter 1 Scope;

——Add special requirements of Group I electrical equipment, see Appendix C;

Explosive Atmospheres—
Part 1: Equipment—General Requirements

1 Scope

This part of GB 3836 specifies the general requirements for construction, testing and marking of electrical equipment and Ex components intended for use in explosive atmospheres.

Unless modified by one of the standards supplementing this standard, electrical equipment complying with this standard is intended for use in hazardous areas in which explosive atmospheres exist under normal atmospheric conditions of

Temperature: −20℃~+60℃;

Pressure: 80kPa~110kPa;

Air with normal oxygen content (Volume ratio): 21%.

The application of electrical equipment in atmospheric conditions outside this range requires special consideration and may require additional assessment and testing.

Note 1: Although the normal atmospheric conditions above give a temperature range for the atmosphere of −20℃~+60℃, the normal ambient temperature range for the equipment is −20℃~+40℃, unless otherwise specified and marked, see 5.1.1.

Note 2: In designing equipment for operation in explosive atmospheres under conditions other than the atmospheric conditions given above, this standard may be used for guidance. However, additional testing related specifically to the intended conditions of use is recommended. This is particularly important when the types of protection flameproof enclosure "d" (GB 3836.2−2010) and intrinsic safety "i" (GB 3836.4−2010 or GB 12476.4−2010) are applied.

Note 3: Requirements given in this standard result from an ignition hazard assessment made on electrical equipment. The ignition sources taken into account are those found associated with this type of equipment, such as hot surfaces, mechanically generated sparks, thermite reactions, electrical arcing and static electric discharge in normal industrial environments.

Note 4: It is acknowledged that, with developments in technology, it may be possible to achieve the objectives of the GB 3836 series of standards in respect of explosion prevention by methods that are not yet fully defined. Where a manufacturer wishes to take advantage of such developments, this international standard, as well as other standards in the GB 3836 series, may be applied in part. It is intended that the manufacturer prepare documentation that clearly defines how the GB 3836 series of standards has been applied, together with a full explanation of the additional techniques employed. Under such circumstances, the designation "Ex s" has been reserved to indicate a type of protection that is not defined by the GB 3836 series of standards,

Note 5: Where an explosive gas atmosphere and a combustible dust atmosphere are, or may be, present at the same time, the simultaneous presence of both should be considered and may require additional protective measures.

This standard does not specify requirements for safety, other than those directly related to the explosion risk. Ignition sources like adiabatic compression, shock waves, exothermic chemical reaction, self ignition of dust, naked flames and hot gases/liquids, are not addressed by this part.

Note 6: Such equipment should be subjected to a hazard analysis that identifies and lists all of the potential sources of ignition by the electrical equipment and the measures to be applied to prevent them becoming effective.

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