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**Explosive Atmospheres - Part 33: Equipment in  
Adverse Service Conditions**

爆炸性环境

第 33 部分：严酷工作条件用设备

(IEC TS 60079-43:2017, Explosive Atmospheres - Part 43:  
Equipment in Adverse Service Conditions, MOD)

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## Table of Contents

|                                                                                   |    |
|-----------------------------------------------------------------------------------|----|
| Foreword.....                                                                     | 3  |
| Introduction .....                                                                | 7  |
| 1 Scope.....                                                                      | 10 |
| 2 Normative References .....                                                      | 10 |
| 3 Terms and Definitions .....                                                     | 11 |
| 4 Environmental Conditions Affecting Equipment Used in Explosive Atmospheres..... | 11 |
| 5 Equipment Design Recommendations.....                                           | 13 |
| 6 Effects of Low Temperature on Different Explosion-proof Types.....              | 15 |
| 7 Selection, Installation and Application of Equipment.....                       | 17 |
| 8 Equipment Maintenance .....                                                     | 18 |
| 9 Classification of Hazardous Areas .....                                         | 18 |
| Appendix A (informative) Recommendations on Materials.....                        | 19 |
| Appendix B (informative) Motors Used under Low Temperature Conditions ..          | 20 |
| Appendix C (informative) Solar Radiation .....                                    | 22 |
| Bibliography .....                                                                | 24 |

## Foreword

This document was drafted in accordance with the rules in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document is Part 33 of GB/T 3836 *Explosive Atmospheres*. GB/T 3836 has released the following 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: Equipment Protection by Pressurized Enclosure “p”;
- Part 6: Equipment Protection by Liquid Immersion “o”;
- Part 7: Equipment Protection by Powder Filling “q”;
- Part 8: Equipment Protection by Type of Protection “n”;
- Part 9: Equipment Protection by Encapsulation “m”;
- Part 11: Material Characteristics for Gas and Vapor Classification - Test Methods and Data;
- Part 12: Material Characteristics for Combustible Dusts - Test Methods;
- Part 13: Equipment Repair, Overhaul, Reclamation and Modification;
- Part 14: Classification of Areas - Explosive Gas Atmosphere;
- Part 15: Electrical Installations Design, Selection and Erection;
- Part 16: Electrical Installations Inspection and Maintenance;
- Part 17: Equipment Protection by pressurized Room “p” and Artificially Ventilated Room “v”;
- Part 18: Intrinsically Safe Electrical Systems;
- Part 20: Equipment with Equipment Protection Level (EPL) Ga;
- Part 21: Application of Quality Systems for Equipment Manufacture;

- Part 22: Protection of Equipment and Transmission System Using Optical Radiation;
- Part 23: Group I, Category EPL Ma Equipment Intended to Remain Functional in Atmospheres Endangered by Firedamp and / or Coal Dust;
- Part 24: Equipment Protection by Special Protection “s”;
- Part 25: Requirements for Process Sealing between Flammable Process Fluids and Electrical Systems;
- Part 26: Electrostatic Hazards - Guidance;
- Part 27: Electrostatic Hazards - Test;
- Part 28: Non-electrical Equipment for Explosive Atmospheres - Basic Method and Requirements;
- Part 29: Non-electrical Equipment for Explosive Atmospheres - Constructional Safety “c”, Control of Ignition Source “b”, Liquid Immersion “k”;
- Part 30: Equipment and Components in Explosive Atmospheres in Underground Mines;
- Part 31: Equipment Dust Ignition Protection by Enclosure “t”;
- Part 32: Intrinsically Safe Systems with Electronically Controlled Spark Duration Limitation;
- Part 33: Equipment in Adverse Service Conditions;
- Part 34: Equipment Assemblies;
- Part 35: Classification of Areas for Explosive Dust Atmospheres.

This document adopts the re-drafting method in the modification and adoption of IEC TS 60079-43:2017 *Explosive Atmospheres - Part 43: Equipment in Adverse Service Conditions*.

This document makes the following structural adjustment:

- The sequence of Appendix B and Appendix C is adjusted.

The technical differences between this document and IEC TS 60079-43:2017, and the causes for the differences are as follows:

- In terms of Normative References, this document makes certain adjustments with technical differences, so as to adapt to the technical conditions of China.

The adjustments are intensively reflected in Chapter 2 “Normative References”. See the specific adjustments below:

- GB/T 3836.1, which modifies and adopts international standard, is used to replace IEC 60079-0 (see Chapter 3);
- GB/T 3836.4, which modifies and adopts international standard, is used to replace IEC 60079-11 (see 6.2);
- GB/T 3836.15, which modifies and adopts international standard, is used to replace IEC 60079-14 (see 5.1);
- GB/T 3836.16, which equivalently adopts international standard, is used to replace IEC 60079-17 (see 5.1);
- GB/T 4942.1, which equivalently adopts international standard, is used to replace IEC 60034-5 (see 5.3);
- GB/T 4208, which equivalently adopts international standard, is used to replace IEC 60529 (see 5.3);
- IEC 60721-1 and IEC 60721-2-1 are deleted; the corresponding GB/T 4796 and GB/T 4797.1 are moved to Bibliography;
- IEC 60068 (all parts) and IEC TR 60721-4 (all parts) are deleted; the corresponding GB/T 2423 (all parts) and GB/T 20159 (all parts) are moved to Bibliography.

This document makes the following editorial modifications:

---In order to be consistent with the existing standard series, the title of this document is modified into *Explosive Atmospheres - Part 33: Equipment in Adverse Service Conditions*;

---NOTEs regarding Appendix A and Appendix B are added to 5.1;

---Bibliography is modified.

Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by China Electrical Equipment Industry Association.

This document shall be under the jurisdiction of National Technical Committee 9 on Explosion Protected Electrical Apparatus of Standardization Administration of China (SAC/TC 9).

# Explosive Atmospheres - Part 33: Equipment in Adverse Service Conditions

## 1 Scope

This document provides guidance for equipment used in explosive atmospheres with an ambient temperature of below -20 °C and other additional adverse conditions (including marine applications).

This document provides recommendations for the design, manufacture and application of this type of equipment. This document is applicable to equipment operating within the range of environmental conditions specified in the explosion-proof certificate.

**NOTE:** see the classification of climatic conditions in details in GB/T 4796, GB/T 4797 (all parts), GB/T 4798 (all parts) and GB/T 2421.

This document is used together with other relevant parts of GB/T 3836.

## 2 Normative References

The contents of the following documents constitute indispensable clauses of this document through normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 3836.1 Explosive Atmospheres - Part 1: Equipment - General Requirements (GB/T 3836.1-2021, IEC 60079-0:2017, MOD)

GB/T 3836.4 Explosive Atmospheres - Part 4: Equipment Protection by Intrinsic Safety "i" (GB/T 3836.4-2021, IEC 60079-11:2011, MOD)

GB/T 3836.15 Explosive Atmospheres - Part 15: Electrical Installations Design, Selection and Erection (GB/T 3836.15-2017, IEC 60079-14:2007, MOD)

GB/T 3836.16 Explosive Atmospheres - Part 16: Electrical Installations Inspection and Maintenance (GB/T 3836.16-2017, IEC 60079-17:2007, IDT)

GB/T 4208 Degrees of Protection Provided by Enclosure (IP code) (GB/T 4208-2017, IEC 60529:2013, IDT)

GB/T 4942.1 Degrees of Protection Provided by the Integral Design of Rotating Electrical Machined (IP code) - Classification (GB/T 4942.1-2006, IEC 60034-5:2000, IDT)

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