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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3836.6-2017

**Explosive atmospheres -- Part 6: Equipment protection by
liquid immersion 'o'
(English Translation)**

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Foreword

The Explosive Environment is divided into several parts.

- Part 1. General requirements for equipment;
- Part 2. Equipment protected by flameproof enclosure "d";
- Part 3. Equipment protected by an increased safety "e";
- Part 4. Equipment protected by intrinsically safe "i";
- Part 5. Equipment protected by a positive pressure enclosure "p";
- Part 6. Equipment protected by liquid immersion "o";
- Part 7. Equipment protected by sand-filled "q";
- Part 8. Equipment protected by the "n" type;
- Part 9. Equipment protected by the encapsulated type "m";
- Part 11. Test methods and data for the classification of gas and vapour properties;
- Part 13. Repair, overhaul, repair and modification of equipment;

- Part 14. Location classification of explosive atmospheres;
- Part 15. Design, selection and installation of electrical installations;
- Part 16. Inspection and maintenance of electrical installations;
- Part 17. Structure and use of positive pressure rooms or buildings;
- Part 18. Intrinsically safe electrical systems;
- Part 19. Fieldbus Intrinsic Safety Concept (FISCO);
- Part 20. Equipment with an Equipment Protection Level (EPL) of Class Ga;
- Part 21. Application of equipment production quality system;
- Part 22. Protection measures for optical radiation equipment and transmission systems;
- Part 23. Class I EPLMa class equipment for use in gas and/or coal dust environments;
- Part 24. Equipment protected by special type "s";

This section is part 6 of the Explosive Environment.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB 3836.6-2004 "Electrical equipment for explosive gas atmospheres - Part 6. Oil immersion type "o"", and GB 3836.6-Compared with 2004, the main technical changes are as follows.

- Oil immersion type "o" is redefined as liquid immersion type "o", introducing protection levels "ob" and "oc";
- Added the terms "isolation switch", "switching device", "safety device", "tap selector" (see 3.7~3.10);
- Modified structural requirements (see Chapter 4, Chapter 4 of the 2004 edition);
- Increased requirements for protecting liquids (see Chapter 5);
- Increase the maximum temperature test and switch test (see Chapter 6);
- Added requirements for additional signs (see Chapter 7);
- Added requirements for the instruction manual (see Chapter 8);
- Increased selection and installation requirements (see Appendix A);
- Increased maintenance requirements (see Appendix B);
- Added repair and overhaul requirements (see Appendix C).

This section uses the redrafting method to modify the use of IEC 60079-6:2015 "Explosive environment part 6. protected by liquid immersion type "o" device".

The main technical differences between this part and IEC 60079-6:2015 and their reasons are as follows.

---About the normative reference documents, this part has made technical adjustments to apply to China's technical conditions, adjustments the situation is reflected in Chapter 2, "Regulatory References", and the specific adjustments are as follows.

- Replace ISO 2719 with GB/T 261, IEC 60156 with GB/T 507, and IEC 60296 with GB 2536.

Replace ISO 3016 with GB/T 3535, ISO 2592 with GB/T 3536, and replace with GB 3836.1 IEC 60079-0, replace IEC 60529 with GB/T 4208, replace IEC 60247 with GB/T 5654, use GB/T 21218 replaces IEC 60836, uses GB/T 30515 instead of ISO 3104, and replaces with DL/T 285 IEC 62535, replace IEC 61125 with NB/SH/T 0811, replace IEC 62021-1 with NB/SH/T 0836;

- Added reference to GB/T 3836.16 (see Appendix B).

---In the 4.8.2 "maximum surface temperature", add "for Class I equipment, the temperature should not exceed 150 °C" to meet the requirements of China's coal mines.

The specific situation of the preparation.

This section has made the following editorial changes.

--- Note 2 and footnotes of Table 2 were combined.

This part was proposed by China Electrical Equipment Industry Association.

This part is under the jurisdiction of the National Technical Committee for Standardization of Explosion-proof Electrical Equipment (SAC/TC9).

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1 Scope

This section of the Explosive Environment specifies the design of Ex equipment and Ex components for use in an explosive atmosphere with a liquid immersion "o".

Special requirements for calculations, structures, tests and signs.

The Ex device and the Ex component protected by the liquid immersion type "o" form a protection level "ob" (EPL "Mb" or "Gb"), or a protection level "oc" (EPL "Gc").

For the protection level "ob", the rated voltage applicable to this section does not exceed 11kV (AC rms or DC).

For the protection level "oc", the rated voltage applicable to this section does not exceed 15kV (AC rms or DC).

Note: The requirements for higher voltages are still under investigation.

This part is based on the general requirements of GB 3836.1, and has been added and supplemented.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 261 Determination of flash point Binsky-Martin closed cup method (GB/T 261-2008, ISO 2719:2002, MOD) GB/T 507 insulating oil breakdown voltage measurement method (GB/T 507-2002, eqvIEC 60156.1995) GB 2536 Unused mineral insulating oil for electrical fluid transformers and switches (GB 2536-2011, IEC 60296.

2003, MOD)

GB/T 3535 petroleum product pour point determination method (GB/T 3535-2006, ISO 3016:1994, MOD) GB/T 3536 Determination of flash point and ignition point of petroleum products Cleveland open cup method (GB/T 3536-2008, ISO 2592.

2000, MOD)

GB 3836.1 Explosive atmosphere - Part 1. General requirements for equipment (GB 3836.1-2010, IEC 60079-0:2007, MOD) GB/T 3836.16 Explosive atmosphere - Part 16. Examination and maintenance of electrical installations (GB/T 3836.16-2017, IEC 60079-17:2007, IDT) GB/T 4208 enclosure protection grade (IP code) (GB/T 4208-2017, IEC 60529.:2013, IDT) GB/T 5654 Measurement of relative permittivity, dielectric loss factor and DC resistivity of liquid insulating materials (GB/T 5654-2007, IEC 60247:2004, IDT) GB/T 21218 Electrically used unused silicon insulating liquid (GB/T 21218-2007, IEC 60836:2005, IDT) GB/T 30515 Transparent and opaque liquid petroleum products, kinematic viscosity measurement method and dynamic viscosity calculation method (GB/T 30515-2014, ISO 3104:1994, MOD) DL/T 285 Mineral Insulating Oil Corrosive Sulfur Detection Method Wrapped Insulation Paper Copper Flat Wire Method (DL/T 285-2012, IEC 62535-2008, MOD) NB/SH/T 0811 Unused hydrocarbon insulating oil oxidation stability test method (NB/SH/T 0811-2010, IEC 61125.

1992, MOD)

NB/SH/T 0836 Determination of acid value of insulating oils - Automatic potentiometric titration (NB/SH/T 0836-2010, IEC 62021-1.