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

GB/T 28537-2012

**Use and handling of sulphur hexafluoride (SF₆) in high-voltage
switchgear and controlgear**

高压开关设备和控制设备中六氟化硫（SF₆）的使用和处理

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard uses redrafted law revision using IEC 62271-303:2008 "high-voltage switchgear and control equipment Part 303. Six Sulfur hexafluoride (SF₆) for use and handling. " this standard and IEC 62271-303. 208 technical differences and their reasons are as follows.

--- Removed and this has nothing to do IEC 62271-303 standard in Chapter 4. SF₆ storage and transportation, Chapter 5. Security and emergency services Aid, Chapter 6. training and certification, Chapter 11. SF₆ processing type of the device;

--- Delete this standard has nothing to do with the IEC 62271-303 Annex A (informative), Annex B (informative) Appendix C (informative) and Annex D (informative) content.

The standard proposed by China Electrical Equipment Industrial Association.

This standard by the national high-voltage switch equipment Standardization Technical Committee (SAC/TC65) centralized.

This standard was drafted. Xi'an High Voltage Apparatus Research Institute Co., Ltd., Xi'an High Voltage Switch Co., Ltd., New Northeast Electric Gas (Shenyang) High Voltage Switchgear Co., Ltd., Shanghai days Ling Switch Factory Co., Limited ABB (China) Co., Ltd., Beijing Northern Electric shares Company, Jiangsu Province, such as high-pressure high Appliance Co., Ltd., Shanghai Electric Power Transmission Test Center Co., Ltd., Xiamen ABB High Voltage Switchgear Co., Secretary, Guangdong Fan Electric Equipment Manufacturing Co., Ltd., Shantou Zhengchao Electric Group Co., Ltd., Shenzhen Institute of Electrical Science, Ningbo Tianan set Group benefits and Electric Group Co., Ltd., Zhejiang Switch Factory Co., Ltd., Henan high level of electrical Co., Ltd., Xi'an Electrical Switch Ltd., Schneider Electric (China) Investment Co., Ltd. Taixing Branch Lide refrigeration equipment.

Introduction

SF₆ gas used in electrical switchgear and control equipment for over 30 years. It is mainly used for rated voltage above 1kV until the There has manufactured the highest rated voltage switchgear and control equipment. It is estimated that there are several million units filled with different types of SF₆ units in operation.

According to GB/T 11022, there are three kinds of gas system is technically available.

--- Controllable pressure systems;

Note 1: Because unacceptable leak rate (see GB 7674), the new equipment is no longer controllable pressure systems.

--- Closed pressure systems. For the standard modern electrical equipment per year leak

rate is 0.5% and 1% each inflatable compartments;

--- Sealed pressure system. For a modern medium voltage electrical equipment (commercially known as "lifelong seal products" or "hermetically sealed system"), the seal Sealing pressure of the system to the provisions of its expected life. Leakage performance with respect to life expectancy by the manufacturer to regulate set. Preferably of 20 years, 30 years and 40 years.

Note 2: In order to meet the anticipated requirements of life, that the annual rate of the leak sealed pressure system is less than 0.1%.

Electrical switching and control equipment used in the long-term experience has shown that SF6, as long as the establishment and comply with certain basic precautions and procedures Order, to benefit the operation, safety and working environment, for example.

- Safe operation of equipment;
- Optimization of resources and tools;
- Minimize equipment downtime of;
- SF6 Processing Standards trainers;
- Emissions during gas processing operation is reduced to below the limit of physical function;
- Avoid any deliberate emissions, such as emissions into the atmosphere;
- During the transfer, use, operation and end of life processing SF6 consumption and emissions to a minimum.

Recently, on the latest technology in SF6 switchgear and control practices recommended by the equipment has been studied by the committee CIGREB3 B3.02 Working Group will be published [1]. This information is used to develop this standard.

High-voltage switchgear and control equipment for sulfur hexafluoride (SF6) for use and handling

1 Scope

This standard applies to high-voltage switchgear and control equipment SF6 processing installation, transfer, normal and abnormal operation, at the end of life Procedures set of safety and the environment.

Should be considered in these procedures is to ensure the safety of personnel working SF6 and SF6 emissions will be the most minimal to the environment reduced the number of Low demand.

This standard is generally applicable to a mixed gas of SF6.

Note 1: In order to facilitate the use of this standard, the voltage range of high-voltage switchgear in the usual sense generally refers to the rated voltage of 3.6kV and above. Practical application the rated voltage range is typically medium voltage switchgear is 3.6kV ~ 63kV; Rated voltage range of high-voltage switchgear is 72.5kV ~ 252kV; rated voltage range is EHV switchgear 363kV ~ 800kV; rated voltage range of special high-voltage switchgear is 1100kV and above.

Note 2: The entire Standard, the term "electrical equipment" stands for "high-voltage and medium-voltage switchgear and/or control devices."

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 1984 high voltage AC circuit breaker (GB/T 1984-2003, IEC 62271-100, MOD) GB/T 2900.20-1994 Electrotechnical terminology voltage switchgear (IEC 60050, NEQ) GB/T 8905 sulfur hexafluoride gas in electrical equipment management and testing guidelines (GB/T 8905-1996, IEC 60480, NEQ) GB/T 11022-2011 high-voltage switchgear and control equipment standard common technical requirements (IEC 62271-1:2007, MOD) GB/T 12022 Industrial sulfur hexafluoride (GB/T 12022-2006, IEC 376, IEC 376A, IEC 376B, MOD) GB/T 28534-2012 high-voltage switchgear and control equipment in sulfur hexafluoride (SF6) gas release impact on the environment and health (IEC 62271-303:2008, MOD)

3 Terms and Definitions

GB/T 2900.20 define the following terms and definitions apply to this document.

Note: Many different types of switches and control equipment are used SF6 gas as insulation and/or arc-quenching medium.

Sulfur hexafluoride (SF6) abnormal release abnormal release of sulphur hexafluoride (SF6) Pressure system failures caused by the release of SF6 from a running device.

NOTE: abnormal release of SF6 is generally undesirable and continuous gas emissions. Just SF6 leak abnormality is detected, appropriate measures should be taken immediately set Bit and reduce leakage.

Sulfur hexafluoride (SF6) processing handling of sulphur hexafluoride (SF6) any process may involve the transfer of SF6.