

ICS 29.040.20
CCS K 15

DL

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

DL/T 1993-2019

**Technical specification for recovery, regeneration and reuse of
sulphur hexafluoride gas for electrical equipment
(English Translation)**

Issued on: June 4, 2019

Implemented on: October 1, 2019

Issued by: National Energy Administration

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Foreword

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

This standard was proposed by the China Electricity Council.

This standard is under the jurisdiction of the Power Industry High Voltage Switchgear and DC Power Supply Standardization Technical Committee.

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1 Scope

This standard specifies the technical indicators for the regeneration of sulfur hexafluoride gas for electrical equipment, and specifies Technical requirements for gas recovery and reuse process.

This standard applies to the quality supervision and management of sulfur hexafluoride gas in the process of recovery, treatment, recycling and reuse.

Rationale.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the the dated version applies to this document. For undated references, the latest version (including all Amendments) apply to this document.

GB 150 pressure vessel GB/T 3723 General Rules for Sampling Safety of Industrial Chemical Products GB/T 6681 General Rules for Sampling of Gas Chemical Products GB/T 8170 Numerical rounding rules and the expression and determination of limit values TSG R0004 Safety Technical Supervision Regulations for Stationary Pressure Vessels DL/T 639 Safety protection rules for personnel operating, testing and overhauling sulfur hexafluoride electrical equipment DL/T 662 Technical requirements for sulfur hexafluoride gas recovery device DL/T 1353 Technical specification for sulfur hexafluoride treatment system DL/T 1366 Sulfur hexafluoride gas for power equipment

3 Terms and definitions

The following terms and definitions apply to this standard.

Regenerated sulfur hexafluoride gas Sulfur hexafluoride gas that has been used before, through the recovery and purification process, to meet the requirements for reuse.

Sulfur hexafluoride treatment system Use physical and chemical methods to remove decomposition products, moisture, air, and solids in sulfur hexafluoride gas Particulate matter and other impurities system. Mainly include vaporization device, filter device, adsorption device, low temperature cooling device Installation (including cryogenic container) or distillation tower, cryogenic liquid pump (or booster pump), exhaust gas harmless device, online Sampling and analysis instruments, special compressors for sulfur hexafluoride, vacuum pumps and supporting accessories, etc.

Sulfur hexafluoride gas recovery the process of using a special device to extract sulfur hexafluoride gas from the equipment and fill it into a steel cylinder or gas storage tank.

Sulfur hexafluoride gas purification treatment the decomposition products, moisture, air, solid particles and other impurities in the sulfur hexafluoride gas are used in physical, the process of chemical removal.

Rate of final purification gas the ratio of the amount of sulfur hexafluoride gas after the treatment is qualified to the amount of sulfur hexafluoride gas in the treatment system.

Refilling of sulfur hexafluoride gas the process of filling the equipment with regenerated sulfur hexafluoride gas from a steel cylinder or a gas storage container using a special device.

4.1 Technical requirements for sulfur hexafluoride gas recovery process

4.1.1

The recovery device shall meet the corresponding requirements of DL/T 662 on the recovery device.

4.1.2

The material, design, manufacturing inspection and acceptance of gas storage vessels shall be carried out in accordance with the requirements of GB 150, and shall comply with Requirements of TSG R0004. The inside of the gas storage container should be clean and free of impurities. The inner wall should be treated with rust prevention, the outer surface paint should be firm and smooth.

4.1.3

During the recovery process, the gas path system should maintain good airtightness to ensure that no gas leakage occurs.

4.1.4

During the recovery process, the gas in the equipment to be recovered should be pumped to an absolute pressure of less than 2kPa.

4.2 Steps for recovery of SF₆ gas

4.2.1

Use special pipelines to connect equipment to be recovered, recovery devices and gas storage containers.

4.2.2

Vacuum and self-clean the recovery device, gas storage container and connecting pipeline.

4.2.3

Start the recovery device compressor, open the air release valve of the equipment to be recovered and the air inlet valve of the gas storage container, and start the recovery Close.

4.2.4

After the gas in the equipment to be recovered is evacuated and is less than 133pa, close the inlet valve and return of the gas storage container in turn.

The intake valve of the collection device, the air release valve of the equipment, and the compressor of the recovery device.

4.2.5

Remove the gas storage container and label it for purification. Disconnect the connecting pipe between the equipment to be recovered and the recovery device Road, restore the

valve port of the equipment to the closed state.

5.1 Technical requirements for the purification process of sulfur hexafluoride gas

5.1.1

The purification treatment device should meet the requirements of DL/T 1353. Its main function is to detect non-compliant equipment the required sulfur hexafluoride gas is purified.

5.1.2

The pretreatment device is mainly for pretreatment of sulfur hexafluoride gas with high impurity content, and should be able to effectively pass Filter impurities such as moisture, solid particles and decomposition products in the gas.

5.1.3

The material, design, manufacturing inspection and acceptance of gas storage vessels shall be carried out in accordance with the requirements of GB 150, and shall comply with Requirements of TSG R0004. The inside of the gas storage container should be clean and free of impurities. The inner wall should be treated with rust prevention, the outer surface paint should be firm and smooth. The internal cleanliness should be inspected regularly.

5.1.4

Sampling and testing should be carried out before the treatment of sulfur hexafluoride gas. For testing items and methods, refer to DL/T 1366 Required to be carried out, at least including air, moisture, decomposition products (sulfur dioxide, carbon monoxide, hydrogen sulfide).

5.1.5

Sulfur hexafluoride gas with high impurity content (sulfur dioxide greater than 30 μ L/L) should first be used for pretreatment equipment.

Set up (adsorption filter device) for pretreatment, and then enter the purification treatment system for purification treatment to prevent pollution Purification treatment device.

5.1.6

During the purification process, the gas circuit system should maintain good airtightness to ensure that no gas leakage occurs.

5.1.7

The purified sulfur hexafluoride gas should meet the technical index requirements of fresh gas.