



SF₆ Diagnostics and Solutions

Sulphur hexafluoride (SF₆) is a non-toxic, odourless gas with unique electrical properties. Since the mid fifties, it has been used in high-voltage gas-insulated switchgear (GIS), where its excellent dielectric and arc-quenching properties make it an ideal insulating gas for medium- and high-voltage equipment.

However, when the gas decomposes, it forms decomposition products that are toxic to maintenance personnel and harmful to equipment. As gas-insulated electrical equipment ages, electric utilities need efficient diagnostic procedures to assess the quality of in-service SF₆ to prevent failures, extend equipment life, reduce maintenance costs, and increase personnel safety. In addition, environmental concerns about SF₆ require improving handling practices, this includes accurate field assessment of SF₆ gas. Powertech Labs' analysis of SF₆ gas can provide electric utilities with invaluable information essential for safe handling and proper equipment operation. Of particular interest is the gas's potential as a diagnostic technique for in-service equipment. Knowledge of the nature and relative amounts of SF₆ by-products can be used to determine the operating condition of the equipment, to locate faults, and to detect incipient faults in GIS.

Powertech can also perform analysis on SF₆ gas for purity (including blend composition), decomposition products, and moisture. In addition, Powertech has the capability for complete on-site chemical analysis using a portable gas chromatograph and/or with Powertech's decomposition products detector. Together, these two analyzers offer the ability to completely assess, in real time, in-service gas to criteria as set by CIGRE (for recycled gas) and IEC (for new gas).

Powertech Labs' SF₆ services include:

- SF₆ Analysis
- Impurities – ASTM D2685
- Decomposition Products
- Moisture
- Field Assessment of SF₆-Filled Equipment
- SF₆ Capture of Leaks
- Research into Utility Use of SF₆
- Consultation

Powertech also offers the following training:

- SF₆ Gas Fundamentals, Safety and Handling
- SF₆ Gas Sampling, Analysis and Diagnostics
- Clean-Up and Decontamination of Failed SF₆ Equipment

FOR MORE INFORMATION CONTACT:

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ABOUT POWERTECH LABS:

Powertech Labs Inc. is one of the largest testing and research laboratories in North America, situated in beautiful British Columbia, Canada. Our 11-acre facility offers 15 different testing labs for a one-stop-shop approach to managing utility generation, transmission and distribution power systems.

Outside of the utilities industry, Powertech provides routine testing capabilities, product development, research and consulting services to support an array of industrial-type operations, electrical equipment manufacturers and automotive original equipment manufacturers.

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