Applications and Opportunities for SF6 (Sulfur Hexafluoride)

Sulfur Hexafluoride (SF6) gas, available in utility and high purity grades, is widely used in a variety of industries. SF6 is a heavy, colorless, odorless liquefied gas that is a strong dielectric. Approximately 80% of SF6 gas is used as a dielectric (non-conducting) medium in the electrical industry. The outstanding electrical arc quenching properties of SF6 gas make it ideal for use in high voltage (HV) equipment including circuit breakers and gas insulated switchgear substations.

SF6 provides other important advantages to high voltage equipment OEM’s and end users. These include equipment size and weight reduction, reliable operation, ease of installation, and ease of handling and maintenance. SF6 is abundantly used by electrical maintenance contractors and local power companies where SF6 is consumed when refilling the HV equipment. There are many potential opportunities for SF6 within (S)tandard (I)ndustrial (C)lassification codes 3612 and 3613. The typical ASTM and IEC requirement for this use is 99.9% or 3.0 Grade.

In the aluminum industry, SF6 is used as a degassing agent; it is also used as a cover gas in

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the magnesium industry. Aluminum foundries use SF6, typically mixed with nitrogen, as a degassing agent to prevent porosity. In some molten aluminum degassing methods, SF6 gas helps remove the hydrogen gas bubbles that can form from aluminum contact with water vapor. Magnesium foundries use SF6 as a protective atmosphere cover gas to prevent spontaneous combustion of magnesium in the presence of air. Foundries are very abundant across the United States; see SIC codes 3363, 3364, 3365, and 3369.

The Semiconductor industry is another common arena where SF6 gas is used, but specifications require a high purity grade, typically 99.999%. SF6 is popular as a RIE (Reactive Ion Etching) Plasma etchant, and chamber cleaning gas in this industry. SF6 dissociates in a plasma field to form the reactive fluorine ions which are active during the etching and cleaning processes. Manufacturers and business involved in the semiconductor industry, including photovoltaics and flat panels, can be found categorized in SIC code 3674.

Other minor applications for SF6 include use as a tracer gas in leak detection, use as an intraocular gas in retinal eye surgery, and use as a dielectric in lasers.

Because SF6 is a greenhouse gas with a high GWP (global warming potential), the EPA mandates that many users of SF6 must report all pounds used or lost to atmosphere. Electronic Fluorocarbons has a program to track all SF6 purchased and recycled, so customers can comply with EPA requirements. No matter the application, EFC offers SF6 purities from 99.9% to 99.999% in a variety of cylinder sizes to meet your customer’s demands. Now is a great time to focus on SF6 and win new business.
Our mailing address is:

Plant: 3266 Bergey Road, Hatfield, PA 19440
Corporate: PO Box 759, Hopkinton, MA 01748

Phone: 508-435-7700 Email: sales@efgases.com

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