



Product Safety Summary Sheet

Hydrofluoric Acid

KMG manufactures and sells high purity Hydrofluoric Acid (HF) for the semiconductor manufacturing industry. During the semiconductor manufacturing process, HF is used to etch and clean silicon wafers. These semiconductors are utilized in various end markets, including computing, communications, entertainment, healthcare, and transportation.

Chemical Identity

Chemical formula: HF

CAS number: 7664-39-3

Uses and Benefits

Concentrated hydrofluoric acid is used in wide variety of applications. Some of the common uses include: fabrication of electronic components, etching of glass and manufacture of semiconductors. It can also be used by biologists for staining procedures and by geologists to dissolve sedimentary rock for analysis.

Hydrofluoric acid is a critical chemistry in semiconductor processing. It is used to solubilize many oxides, particularly silicon dioxide, the most widely used insulator on semiconductor devices.

Physical and Chemical Properties

Aqueous solutions of hydrofluoric acid are clear, colorless, corrosive liquids with an extremely acid odor. Hydrofluoric acid is corrosive to most metals, leather, natural rubber and many organics. When water is added to hydrofluoric acid, considerable heat is produced and a violent reaction may occur.

Health Effects

Hydrofluoric acid may be fatal if absorbed through the skin, inhaled or swallowed. Hydrofluoric acid may cause severe burns to eyes. Contact with eyes may cause blindness.

Dermal exposure to hydrofluoric acid must be avoided. Liquid or vapor can cause severe burns and life threatening cardiac arrhythmias. Even moderate



exposures to concentrated hydrofluoric acid may result in death if left untreated.

Medical treatment of hydrofluoric acid is different from treatments provided for exposure to other organic acids. Special measures are taken by KMG plants handling hydrofluoric acid to ensure local medical facilities are familiar with the unique characteristics of the chemical and the specialized first aid and treatment measures required for hydrofluoric acid exposure.

Environmental Risks

The manufacture, use and disposal of hydrofluoric acid can be completed safely without harming the environment. Evaluation of the usage of the chemical to determine possible environmental risks must be completed and proper pollution prevention measures taken.

Exposure Potential and Risk Management Measures

Hydrofluoric acid is a hazardous, corrosive acid that demands rigorous safety considerations in its use and handling. Both liquid and vapor can cause severe burns to all parts of the body. Specialized medical treatment is required for any exposure to hydrofluoric acid.

Due to the extremely hazardous properties of hydrofluoric acid, KMG has specific handling procedures that must be followed. Operators are trained and follow established work procedures. Detailed environmental, health and safety requirements are outlined for all tasks performed during the manufacturing process.

Industrial Use

There are many industrial uses for hydrofluoric acid, including removal of surface impurities from steel (called pickling); etching of glass; petrochemical manufacturing/refining; degreasing agents; and metal surface treatment agents.

Consumer Use

KMG does not sell hydrofluoric acid directly to consumers.



Regulatory Information

Several regulations govern the manufacture, sale, transportation and use of hydrofluoric acid. These laws vary by country and geographic region. Regulatory data is extensive and defines specific rules for safe handling and use of this chemical.

Conclusion

When proper measures and consideration are taken, hydrofluoric acid can be manufactured and utilized with minimal impact to environment, health and safety.

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