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Article Abstract

Student Paper: Evaluating the Options: Recycling Hydrofluoric Acid

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A substance commonly used in the semiconductor industry because of its unique ability to dissolve silicon, hydrofluoric acid (HF). Hydrofluoric acid, by volume, is one of the largest Resource Conservation and Recovery Act (RCRA) regulated hazardous waste streams generated by the semiconductor industry. To find out if a method exists today to reduce the amount of HF waste being disposed, a survey was conducted of the semiconductor industry to see what options currently exist for recycling HF. The survey was to uncover the current techniques used by the semiconductor industry to determine the most cost effective method for recycling HF, and also to learn the advantages and disadvantages of recycling HF. According to the results of the survey, the most common method for recycling HF for the semiconductor industry involves the precipitation and flocculation of HF with calcium hydroxide (CaF₂). The CaF₂ filter cake can be sold to another industry to be used in that industry. Other methods along with the crystallization method and the ion exchange method are discussed.