

## **NSLS Environmental Awareness for Crystal Etching (Course Material)**

LS-ENV-CRYSTAL-ETCH

**Instructions:** Read the material below and then close this document. You will receive credit for training through the BNL training system.

**Course Objective:** A significant environmental aspect is associated with crystal etching. This course has been designed to provide you with the job-specific information that you need know to protect the environment and to meet Laboratory and Government regulations for handling the waste streams produced by this operation. The contents of this training have been extracted from the NSLS PRM and BNL Subject Area.

**Description of Significant Environmental Aspect:** NSLS crystal etching operations utilize acids such as hydrofluoric acid, sulfuric acid and nitric acid. The acid wastes produced from the operations are RCRA hazardous wastes that need to be managed in compliance with Federal and State hazardous waste regulations.

**Training Requirements:** Staff members performing crystal etching are required to read this form. Waste generators also have to take RCRA Hazardous Waste Generator training.

**Operational Controls:** Waste acids are to be accumulated in a designated Satellite Accumulation Area (SAA) located in the shop where the etching is performed. When the container is full, it shall be transferred to the NSLS 90-day Storage Area by the SAA Manager. Chemical wastes stored in a Satellite Accumulation Area must meet the following requirements.

- Waste containers must be closed at all times except when making additions.
- Containers must be labeled as hazardous waste and the contents of the waste identified (red labels are available in the 90-day Storage Area).
- The container must be kept in one of the SAA secondary containment trays and kept away from sinks or drains.
- Incompatible materials may not be stored in the same tray.
- Decisions about mixing must be made in consultation with the NSLS Safety Officer.

**Response to Leaks/Spills:** If a spill of acid occurs, take prompt action to prevent it from discharging to floor drains or sinks if you are familiar with the hazards involved and feel comfortable doing so and contact the NSLS Control Room Operator (x2550). Any discharge to a drain, or to the outdoors, must be reported to the Lab emergency response number (x2222) and to the NSLS Control Room Operator (x2550).

**Your Role and Responsibility:** You are responsible for the proper management of your waste and to take prompt action in the event of spills. If you are ever in doubt regarding the proper course of action, contact your supervision or a member of the NSLS ESH Staff.

**Potential Regulatory and Environmental Impacts:** Mismanagement of waste can result in violations of RCRA hazardous waste regulations. Discharge of oils and other chemicals to drains can result in violations of BNL release limits. Both can ultimately result in contaminated soil or groundwater. BNL is subject to fines and penalties for such violations, and is responsible for the clean-up costs associated with any required remediation. BNL has also suffered poor public perception due to poor waste management practices and contamination events in the past. Proper management of waste and spills will improve our relationship with regulators and the public.

**Pollution Prevention and Waste Minimization:** Please offer suggestions and comments to your supervision about pollution prevention and waste minimization. Disposal of hazardous waste is costly and time consuming. Please make every effort to minimize the quantity of chemicals you bring to the NSLS and the quantity of waste materials generated.