

# Inorganic Solids

## Standard Operating Procedure

Lab: 155 ESB and 3724 BI

Department: Various

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### Section 1: Overview

Type of SOP:  Process  Hazardous Material  Hazardous Class of Materials  Equipment

Synopsis:

*The purpose of this SOP is the proper handling, storage, and use of inorganic chemicals.*

### Section 2: Risk Assessment Summary (Hazards and control measures)

*Information obtained from performing a risk assessment should be entered into this section.*

Materials:

Material (name, CAS #, other ID)	Hazards
Many	See specific MSDS

Relevant References for Material Hazards:

*See MSDS (internet or laboratory list)*

Hazardous Conditions:

*See MSDS*

Technique Hazards:

*Some compounds are air reactive, pyrophoric liquids, toxic, etc. See MSDS and be aware of proper handling procedures.*

Personal Protective Equipment

*Safety goggles*

*Gloves*

*Lab coat*

*Highly toxic/reactive compounds may require additional controls. See MSDS and compound specific SOPs*

## Engineering Controls

*Chemical fume hood  
Glovebox or nitrogen tent (in some cases)*

## Section 3: Procedures

Procedures are step-by-step guides for performing the process. A good indication that you are writing a procedure is the presence of action words at the beginning of most sentences.

*Note: Before ordering any chemical read the MSDS and familiarize yourself with any properties that may require special storage or handling. (air sensitive, moisture sensitive, etc.)*

*Storage: All chemicals should be stored in accordance to both DRS and laboratory standards. Hygroscopic chemicals should preferably be stored in a desiccator. Additionally, the bottle should be sealed with parafilm after each opening. Air sensitive chemicals should only be opened in an inert environment and should be stored in a glovebox or nitrogen tent.*

*In weighing inorganic solids tilt the bottle and slightly rotate in order to transfer a small amount of solid into a weigh boat or onto weigh paper. The bottle should be capped promptly. A spatula can then be used to transfer the solid from the weigh boat onto the balance (Do not put the spatula directly into the bottle, this will contaminate the contents of the bottle). If additional material is required to reach the desired mass repeat the above procedure. Once the desired mass is reached the extra solid should be disposed of in the waste (Do not add the solid back into the bottle).*

*In the case of highly reactive chemicals the following precautions should be taken:*

*Use minimal quantities of the chemical and carry out only small-scale reactions.*

*Use extra caution in the handling of the chemicals.*

*Ensure that the desired reaction conditions are conducive with the reactivity of the chemical.*

*Clearly label the reaction indicating the risks and possible hazards.*

## Section 4: Waste Disposal/Cleanup

*For guidance on disposal procedures, see the "Waste Management" menu on the [DRS webpage](#).*

## Section 5: Emergency Response

*Emergency Response should be a component of the Laboratory Safety Plan. If there are particular response measures that are required by this procedure, include them here.*

## Section 6: Additional Information

### Advice:

*Many inorganic solids are corrosive. In addition to wearing proper protective equipment for yourself be careful not to spill the corrosive chemicals on the balance. The chemicals will corrode the balance and should be cleaned promptly in accordance with DRS standards if a spill occurs.*

*Some anhydrous salts react readily with moisture to form HCl. Please refrain from using such compounds outside of inert environments.*

Checklist:

*A checklist can be written in the SOP as a reminder for the steps needed to take in order to perform the procedure. Potential checklist items include:*

- Read (Material) Safety Data Sheets.*
- Proper fire extinguisher is nearby.*
- Another researcher is nearby and knows the hazards present.*
- All calculations are done prior to beginning the procedure.*
- The required glassware is of the proper size to accommodate all steps of the procedure.*