**Standard Operating Procedure For Acid Bath**

**Purpose**

The acid bath is a plastic container that holds several liters of concentrated strong acid for cleaning glassware and ceramic objects and it is located in the fumehood with the waste containers. Metal objects such as tweezers spatulas and stirrer bars should not be placed in the acid bath as they will corrode. Plastic tweezers are provided as are thick gloves (thin nitrile gloves should not be used as they provide insufficient protection) to place items into and take items from acid bath.

The acid in the bath is 50:50 by volume HNO3 water as many metal nitrates are soluble in this mixture. There are a number of subtasks associated with the acid bath described in this SOP.

**Location**

The acid bath is located in the fumehood in Ø150 on a plastic tray with the waste containers. There is also a bottle of ‘top up’ HNO3 for users to top up the acid bath when it gets low (see SOP).

**Contact Persons**

**Refill Contact:** Dr Chris Thomas Ø138

**Person responsible for laboratory:** Prof Helmer Fjellvåg Ø142

**Supervisors:** Prof Helmer Fjellvåg Ø142

Prof Anja Sjåstad Ø130

**Standard Laboratory wear**

As the acid bath is inside the laboratory users should be wearing appropriate personnel protective equipment (PPE). This means that lab coat, safety glasses and closed toe shoes also legs must be covered (i.e. no shorts and sandals in summer) must be worn at all times. Further protective equipment may be required as detailed in the subtasks and is stored in the labeled draw beneath the fume hood.

**Filling Acid Bath**

Only authorized personnel should complete this task as the acid bath should be full (if this is not the case see contact person).

Before starting task see contact person for this equipment to enable efficient timetabling of refills.

First put the glass beaker into the fumehood and add the required amount of water (Technical grade HNO3 is 68% by vol HNO3 so 1 litre of Technical grade HNO3 goes into 360 ml H2O.

Next with the thick plastic gloves and apron on slowly add the acid, remember that a large amount of heat is given off in this process.

Always add acid to water NEVER the other way round.

Do not fill acid bath up to the top, leave half empty to allow for items to be placed in bath and splashes to be contained. Sign sheet to document acid bath has been filled.

**Placing Items into and taking items from Acid Bath**

Put on the thick gloves and apron (thin nitrile gloves should not be used as they provide insufficient protection).

Do not drop items into bath instead place gently in bath so not to break either your items or items already in the bath. Avoid contact of acid with the gloves, plastic tweezers are available for use.

Do not place metal objects such as spatulas, pellet dies, or magnetic stirrer bars in the acid as they will corrode.

Items should be left in the acid bath for several hours (days) before removing.

To remove items first place a container of water next to acid bath, put on the thick gloves and apron use plastic tweezers to take item out of the acid bath and place into water container. Avoid contact of acid with gloves and allow as much of the acid to drip from the item back into bath before placing in water. Next take item from water and run under tap for further cleaning. Dispose of the water (remember this is now acidic so gloves should still be worn) by flushing down the drain with the tap running.

Always leave the acid bath area and the sink area clean and tidy ready for use by the next person.

**Re-Filling Acid Bath**

The Acid bath will be re filled up by the contact person, following the instructions for filling acid bath.

Only authorized personnel should complete this task as the acid bath should be full (if this is not the case see contact person).

If acid level is not high enough for desired purpose the volume of liquid can be increased.

With the thick plastic gloves on slowly add the acid from the ‘Top up bottle’ until desired volume is reached. If top up bottle empty see contact person.

Sign sheet to document acid bath has been re filled.

**Replacing Acid Bath**

Only authorized personnel should complete this task.

Before starting task see contact person for this equipment.

Remove all items from the bath as described above.

Carefully pour acid into waste container and give container to safety officer (Vidar)

Follow instructions for filling acid bath.

**Materials**

Plastic container: IKEA Plastic tool tray

Gloves: Stores

Plastic tweezers: Stores

Water: Tap

Acid: Stores technical grade HNO3

Apron: See Vidar

**I the undersigned have read and understood the Risk Assessment, the Safe Job Analysis and the standard operating procedure for the acid bath in Ø150.**

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