

Inventory and Chemical Storage

The Tonks group has inventoried all the purchased chemicals on quartz.com. All the members should be invited by the person in charge to our management site. Please follow these instructions to best ensure that all newly purchased chemicals are placed in the appropriate place and the inventory remains up to date.

A. General Safety Guidelines & PPE:

Appropriate PPE should be determined by reading the appropriate SDS for the chemicals to be stored/inventoried.

B. New Chemical Ordering:

Whenever a chemical is needed that is neither cost or time effective to synthesize, it is appropriate to request the chemical for purchase. Chemicals that are < \$25 per gram are generally considered cheap enough to not require approval before purchasing **modest** (< 5 g) quantities. Synthetic routes should be considered more heavily for chemicals that greatly exceed this threshold. Expensive chemical purchases should receive IAT approval first.

- Search for the chemical in UMarket (searching by CAS easiest) and on oakwoodchemical.com and try to find the cheapest product **per gram** (within a reasonable amount. In other words, do not order 1 kg of nonstandard chemical that you will need 2 grams of). **Note:** if a chemical is needed in a timely manner, MilliporeSigma is the fastest supplier, but is not always the cheapest.
- Send an email with a link to the item to the group's purchaser. Don't forget to give the amount of the chemical that you want by the link.
- The group's purchaser will order the chemical, and send email confirmation that the chemical has been requested for purchase.

C. New Chemical Delivery:

- Whenever a new chemical is delivered, someone will have to sign for the delivery. Usually this is the first available person in lab. If you sign for a chemical that is not yours, place the package on the intended recipient's benchtop. **Whoever orders the chemical is responsible for its proper storage.**
- Chemicals should be stored in their appropriate locations (see below for storage guidelines).
- Make sure to properly clean up packing materials so they do not gather on the benchtops.

- Write where you stored the chemical on the packing slip. Packing slips should then be placed on the lab's inventory manager desk (there is currently a paper organizer cubby labeled "packing slips" on AJP's desk, please place packing slips there). The inventory manager will then use this information to add the chemical to the inventory system.
- Dealing with chemicals in a timely manner will help keep the lab decluttered and the inventory up-to-date.

D. Chemical Storage Guidelines:

Always first consult the SDS of the chemical you plan on storing to determine its safety hazard class and special storage requirements:

- **Thermal and Air Stability:** Thermal and air stability should be first considered when storing chemicals. All chemicals that must be stored below room temperature should be placed in an appropriate bin in the fridge or freezer. Air sensitive compounds should be stored in a glovebox.
- **Liquids** should be in 1 of 5 locations:
 - **Acid cabinet.** Do not mix organic acids (*e.g.* acetic acid) with mineral acids (*e.g.* sulfuric acid)
 - **Base cabinet**
 - **Fridge**
 - **Freezer**
 - **Flammable cabinet** – This is the most likely location for a "standard" liquid chemical. The flammable cabinet is organized by hazard class, as indicated in the chart below.
- **Solids** should be in 1 of 2 locations:
 - **Desiccators** – for moisture sensitive compounds. Should attempt to put in a desiccator with similar compounds (*e.g.* $(\text{PPh}_3)_2\text{PdCl}_2$ should be stored with other palladium compounds).
 - **Shelves** – this is the most likely location for solid chemicals. All low-hazard solids should be stored here. The shelves are organized by element and carbon count, although special hazard classes (oxidizers, corrosives, *etc.*) are separated out.
- If you are unsure of where a chemical should go, consult the SDS, the person who requested the chemical, and your labmates.

E. Chemical Storage Chart:

Flammables cabinet		Lab Shelves	
<u>Flammables liquids</u> <i>Acetone</i> <i>Alcohols</i> <i>Toluene</i>	<u>Stench chemicals</u> <i>Amines</i> <i>Sulfur containing</i>	<u>Low hazard</u> <i>Sodium chloride</i>	<u>"Reactives"</u> <u>Flammable Solids</u> <i>Na in mineral oil</i> <i>Hydrides</i>
<u>Peroxide formers</u> <i>Dioxane</i> <i>Ethers</i> <i>Tetrahydrofuran</i>	<u>Flammable fridge</u> <i>Metals dissolved in solvent</i>	Solid Corrosives	<u>Oxidizers</u> <i>Nitrates/</i> <i>Permanganate salts</i>
<u>Flammable acids</u> <i>Glacial Acetic acid</i>	<u>Flammable Gases (liquefied)</u> <i>Propane</i>	Toxics	
	<u>Highly toxic</u> <i>Hydrogen Cyanide</i>	Organic Peroxides	
Secured Cylinders Nitrogen, Argon, Hydrogen gas		Corrosives cabinet	
		<u>Oxidizing Acids</u> <i>Nitric acid</i> <i>Sulfuric acid</i> <i>Perchloric Acid</i>	<u>Inorganic acids</u> <i>Hydrochloric acid</i>
			<u>Bases</u> <i>Sodium Hydroxide</i>

By signing below, you indicate that you have read and understand the content of this document.

Name: _____

Date: _____