

Birck Safety Training

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General Glove Use

- General use – Nitrile (**Blue-Microflex**)
 - Single glove (on the non-dominant hand) use for control of contamination to samples/ devices outside the lab
- Biological Safety Level 1 (use of **Gray Gloves**)
 - Not to worn outside the lab
- Biological Safety Level 2 (use of **Black Gloves**)
 - Not to be worn outside the lab!

Fume Hoods

All fume hoods are labeled as
“Acid” (Acid/Base/Aqueous) or “Solvent” hoods

Birck Nanotechnology Center

ACID HOOD

SOLVENTS **MUST NOT** BE USED IN THIS HOOD

DRAIN is for rinse water,
acids, and bases only

NO solvents may be put in
drain or any place in this
hood

Leave sash in down position

One window must be open
at all times

PPE required when
pouring chemicals

Goggles and face shield
Chemical-resistant coat-apron
Chemical gloves

PPE required when
using this hood

Goggles
Chemical-resistant coat-apron
Chemical gloves

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SOLVENT HOOD

ACIDS **MUST NOT** BE USED IN THIS HOOD

DRAIN is for rinse water
only

NO solvents may be put in
drain

Solvent waste must be
placed in labeled solvent
waste container for
pickup by REM

Leave sash in down position

One window must be open
at all times

PPE required when
pouring solvents

Goggles
Chemical-resistant coat-apron
Chemical gloves

PPE required when
using this hood

Goggles
Chemical-resistant coat-apron
Chemical gloves

- Users should ensure that they are following all Personal Protective Equipment requirements when working in a hood. The separation of hoods is for chemical compatibility.

General Hood Designation: Acid Hood or Solvent Hood

- **Acid Hoods (Inorganic Chemistry)**

- PPE Requirements – Nitrile gloves, Orange Acid Gloves, Chemical Smock, Safety Goggles and Face-shield
- Minimum PPE



- **Solvent Hoods (Organic Chemistry)**

- PPE Requirements – Nitrile Gloves, Solvent Gloves, Lab Coat, Safety Goggles



Acid Hood - Waste Disposal

- Birck Nanotechnology Center has an active acid/base neutralization system. This allows the disposal of acids and bases via the hood drain. Please make sure materials are poured slowly and with a lot of water for dilution.
- High heavy metal containing wastes (ex. spent plating baths) need to be containerized and sent as hazardous waste.

A yellow rectangular form titled "PURDUE UNIVERSITY HAZARDOUS WASTE DISPOSAL TAG" with the subtitle "Chemical Ingredients". It includes a section for "Principle Investigator:", a "Contents (Print)" section with a table of 10 rows for listing components, and a "Comments:" section at the bottom.

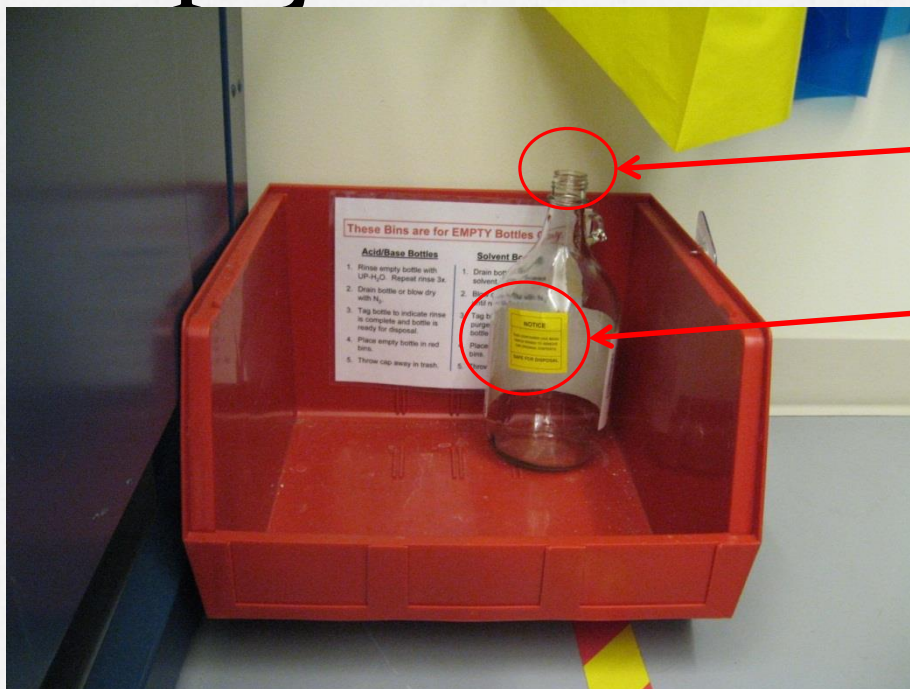
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Solvent Hood – Waste Disposal

- Only water is to be disposed of down a solvent hood drain.
- Solvent waste is to be placed in one of two containers – non-halogenated in one container and halogenated in the other.
- Replace container cap immediately upon completion of adding waste to containers



Empty Container Disposal



Cap has been removed.

Disposal label has been applied.

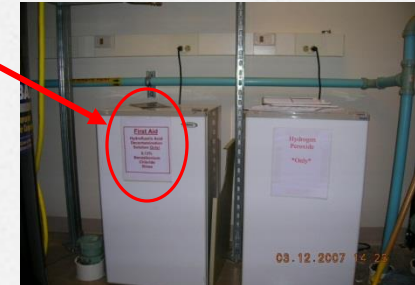
- Container has been triple rinsed and semi-dried using a nitrogen gun.

HF and BOE Hazards

- Hydrofluoric Acid and Buffered Oxide Etch
 - Potentially highly corrosive and highly systemically toxic
- Treatment – Decontamination followed by application of 0.13% Benzylkonium Chloride



- Additional treatment 2.5% Calcium Gluconate



HF and BOE Hazards (Continued)

- If skin contamination occurs – surface pain will occur once rinsed deep tissue pain will follow.
- Treatment as soon as possible with 0.13% Benzalkonium Chloride – follow procedure from HF first Aid kit. Then dial 911.



TMAH Hazards



- Tetramethylammonium Hydroxide (TMAH)
 - Potentially highly corrosive and highly systemically toxic, esp. at 25% concentration
 - 2.4% TMAH is basis for metal ion free photoresist developers: MF CD-26(A), MF-319, AZ 326/726/826, etc.
 - Tetramethylammonium (TMA) ion is neurotoxic; Strongly basic/caustic solution liquefies skin and allows TMA ion to be rapidly absorbed through skin.
- In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with plenty of water. Take victim immediately to hospital. Consult a physician.
- In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

Spill Carts and Emergency Procedures

- Spill Carts located in galleys
- Designed for spills less than 1 gallon

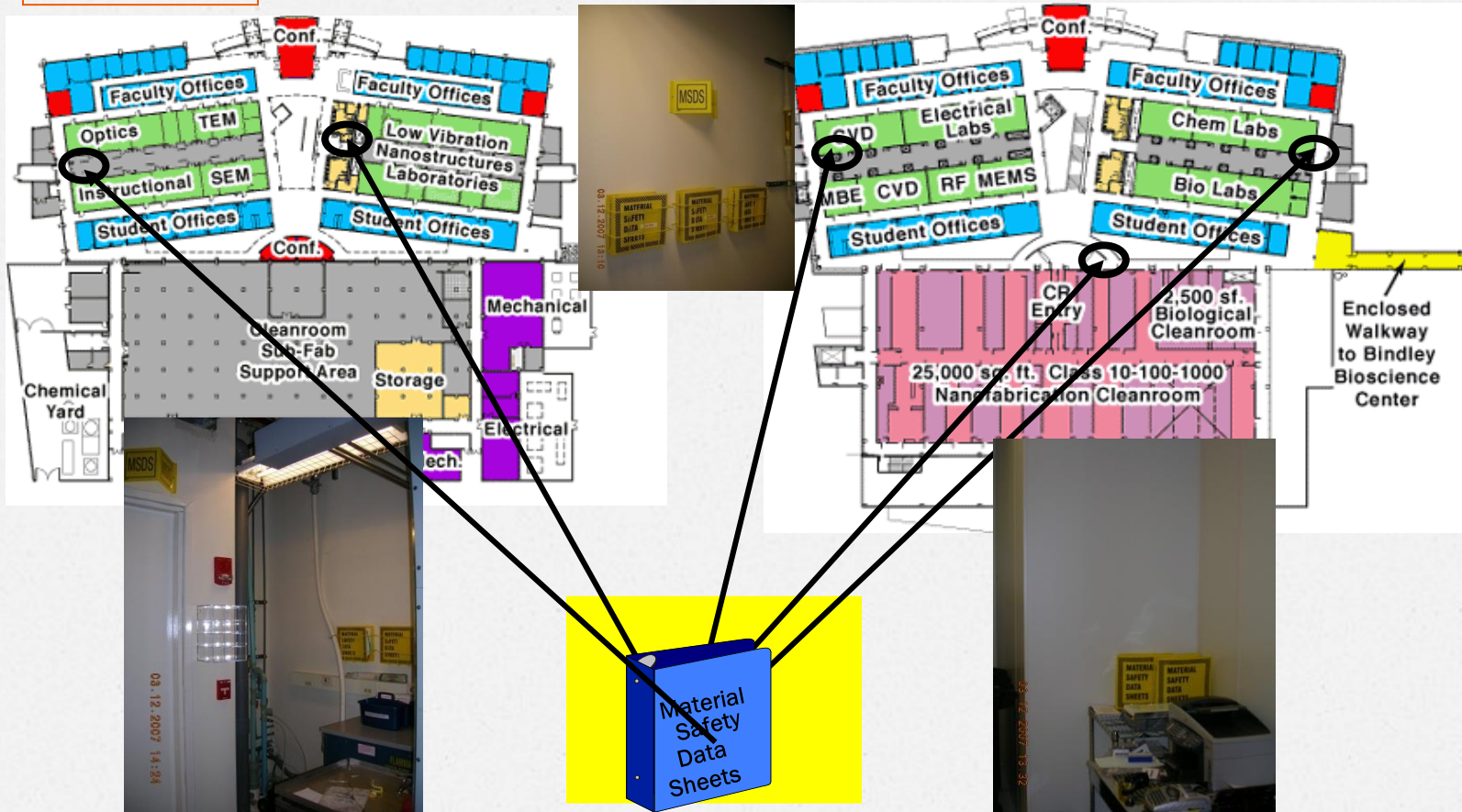
For spills greater than
1 gallon – Need staff
assistance (6333)



MSDS Locations

First Floor Locations

Second Floor Locations



Getting Chemicals into Birck

- If your major professor is here: Attach an electronic copy of the MSDS to the SAP order
- Not at Birck – [e-mail](#) me a copy of the MSDS for approval before ordering the material
- Chemicals on campus – must be shipped via campus mail: need the following
 - Shipped from mailroom
 - Need MSDS in the box
 - On the exterior
 - Name
 - E-mail address
 - Phone Number
 - Laboratory room number to be placed

Do not store chemicals in grad offices!

General Fume Hood Operation

- Horizontal hood sash
- Systems - 1 to 1 ½ open at all times
- Utilities - Vacuum, nitrogen, Tap water (General labs only) and UPW



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Leave sash in down position

One window must be open at all times

PPE required when pouring chemicals

- Goggles and face shield
- Chemical-resistant coat-apron
- Chemical gloves

PPE required when using this hood

- Goggles
- Chemical-resistant coat-apron
- Chemical gloves

J. R. Weaver
2 Dec 05

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Leave sash in down position

One window must be open at all times

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2 Dec 05

Emergency Contact Information

- **Personal Injury, fire/ explosion – Dial 911**
- **Staff assistance – In Birck Dial 6333
outside the university Dial 496-3333**

