*UCSB LABORATORY*

***SAFETY MANUAL***

***and***

***CHEMICAL HYGIENE PLAN***

# 

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## UCSB Laboratory Safety Division

MANUAL DESCRIPTION

**MANUAL PURPOSE -** this manual serves two basic purposes:

1. It is the basic laboratory safety manual for UCSB
2. Serves as the campus **Chemical Hygiene** **Plan (CHP***)* as required by the *California Occupational Safety and Health Administration (Cal-OSHA)*. In short, OSHA requires that a written chemical safety plan address the policies and procedures that an employer has in place to minimize the exposure of its lab employees to chemicals. Workers are required to receive documented training on their CHP. A full summary of the OSHA standard is in Sec. III.

For **lab supervisors**, the most important portion of this manual (Section I) contains links to *Standard Operating Procedures (SOP)* templates for developing their **required** **Lab-specific** **Chemical Hygiene Plan.**

**MANUAL STRUCTURE**

* **Section I: Introduction and Lab-specific Chemical Hygiene Plan.** Forms and templates for customizing your CHP with SOPs and other local information. Links to other lab safety programs.
* **Section II: UC & UCSB policies, procedures and resources.** Summaries of key/core lab safety issues that apply to most/all laboratories. Primarily based on specific OSHA requirements.
* **Section III: Regulatory Framework.** Overview of the OSHA CHP Standard; specific University policies relative to the Lab Standard; roles and responsibilities of UCSB personnel in the program.

**OTHER UCSB RESEARCH SAFETY PROGRAMS / REGULATIONS**

Given the breadth of research at UCSB, there are other campus safety programs and regulations that can apply to a given operation. In the interests of keeping this manual shorter, more specialized programs are not directly included herein. Instead, links to these programs are provided below and affected individuals should contact these program managers for further information.

[Injury and Illness Prevention Program](http://www.ehs.ucsb.edu/iipp)

The “umbrella” OSHA-required worker safety program that applies to all campus workers, regardless of work activities. Elements include: designation of individuals with the authority/responsibility for program (Chairs, Directors, etc.); documented safety training and inspections; injury investigation; safety communication to workers, etc. There is significant overlap between IIPP elements and this manual as relates to lab work, particularly the training and inspection components.

[Biological Safety Program](http://www.ehs.ucsb.edu/biosafety): Biological Use Authorizations; Aerosol Transmittable Diseases; Bloodborne Pathogens; Medical Waste Management

[Radiation Safety Program:](http://www.ehs.ucsb.edu/rad)

Oversight of radioactive materials; radiation-producing machines and lasers

[Hazard Communication Standard Program](http://www.ehs.ucsb.edu/ih/hazard-communication-program)

Safety Data Sheets (formerly MSDS); chemical labeling

(for labs, much of the HazCom program is superseded by the CHP program – see SDS pg. in Sec. II)

[Research Diving and Boating Safety Program](http://www.ehs.ucsb.edu/dive)

Oversight of research projects involving SCUBA and small boats

[Controlled Substance Program](http://www.ehs.ucsb.edu/rad/controlled-substances)

Oversight of research activities using State/Federal regulated narcotic and non-narcotic drugs

[Fire Protection Programs](http://www.ehs.ucsb.edu/fire)

Includes fire extinguisher training for lab workers, oversight and inspections of fire alarms, sprinklers and other fire protection infrastructure, plus State Fire Marshal approval of plans for lab construction.

[Animal Care and Use](http://www.research.ucsb.edu/compliance/animal-subjects/arc/)

Oversight of care and use of animals used in campus research activities

[Respiratory Protection Program](http://www.ehs.ucsb.edu/ih/respiratory-protection-program) (see pg. II-9)

[Confined Space Program](http://www.ehs.ucsb.edu/ih/confined-space-program)

Campus/OSHA requirements and procedures for entering Permit Required Confined Spaces

[Indoor Air Quality Program](http://www.ehs.ucsb.edu/ih/indoor-air-quality-and-mold-assessments)

Response to concerns regarding IAQ within and around campus buildings, especially as relates to health and comfort of building occupants

[Hearing Conservation Program](http://www.ehs.ucsb.edu/ih/hearing-conservation-program)

Personnel exposed to occupational noise levels exceeding an 8-hr time-weighted average of 85 dBA must be enrolled in this UCSB/OSHA program

[Heat Illness Program](http://www.ehs.ucsb.edu/ih/heat-illness-prevention-program)

Establishes campus/OSHA requirements and procedures for individuals who perform outdoor work

[Ergonomics Program](http://www.ehs.ucsb.edu/ergonomics)

Assessments and trainings designed to analyze and evaluate an employee’s workspace, equipment, body mechanics, posture, and work flow to promote a more efficient, productive worker and prevent musculoskeletal injuries.

**Directions to Customize Your Laboratory-Specific CHP**

1. Develop applicable Standard Operating Procedures (SOP).This is the key step.
2. **Determine Which SOPs You Need.** [Compare your chemical stocks](http://www.ehs.ucsb.edu/labsafety-chp/sec1/compare-your-chemical-stocks) and lab processes against the [***UCSB Standard Operating Procedures Library***](http://www.ehs.ucsb.edu/labsafety-chp/sops) to see which SOPs you need. In short, per OSHA, “[hazardous chemicals](http://www.ehs.ucsb.edu/labsafety-chp/sec1/hazardous-chemicals)” require an SOP. The library is not comprehensive, but should cover the majority of SOPs needed on campus. SOPs can be based on any of the following as suits your needs:

* a group of chemicals of similar hazard and control (e.g., acids, carcinogens)
* a specific chemical, (e.g., formaldehyde)
* a laboratory process involving chemicals (e.g., distillation)
* non-chemical processes of concern due to their inherent risk (optional)

Alternatives, if SOPs in the UCSB online library are deemed insufficient:

* EH&S has access to more SOPs from other UCs upon request
* Use blank SOP templates from the SOP library above to create your own SOP

If you have materials you never use, an SOP is not necessary. Unwanted materials can be disposed of free via EH&S, except from teaching labs.

1. **Customize SOPs Selected from Library to your Lab.** This generally means only completing the sections in red. However, you can/should add more information, if deemed [necessary to protect workers](http://www.ehs.ucsb.edu/labsafety-chp/sec1/necessary-protect-workers). Two of the red-marked sections are sometimes *not* applicable. However, the *Laboratory Specific Information* section is **mandatory** to generate an OSHA-compliant SOP. In many cases this can be satisfied by just a few sentences: [**Examples**](http://www.ehs.ucsb.edu/labsafety-chp/sec1/three-examples-language-used-customize-standard-operating-procedure).
2. Add completed SOPs to the end of CHP Sec. I (this section).
3. On next page the PI/supervisor needs to certify/sign that their CHP/SOPs have been approved.
4. Assemble the above pieces, plus Secs. II and III ([EH&S-provided](http://www.ehs.ucsb.edu/labsafety-chp)). Store electronically and/or in the EH&S-provided binder.
5. Ensure your workers have reviewed the sections below and have ready-access to the Plan. **Document** the worker reviews on pg. I-6

* your customized SOPs in Sec. I
* Sec. II which covers universal/core lab safety issues (EH&S provided)

## **Chemical Hygiene Plan: CERTIFICATION PAGE**

**Laboratory PI or Supervisor Name: Leander Anderegg**

**Applicable Laboratory Location(s) (Buildings /Rooms):**

Noble Hall, Room 2224 & 2230

**Date of Last Review of *Chemical Hygiene Plan with Standard Operating Procedures*:**

(OSHA mandates Plan be updated as needed, but with minimum of **annual** review)

10/14/2021

**Laboratory PI or Supervisor Signoff (required). I certify that I have reviewed and approve the attached Laboratory-specific *Chemical Hygiene Plan with Standard Operating Procedures* for my above laboratory locations.**

**Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Laboratory Worker Training Record: Chemical Hygiene Plan**

Principal Investigator/Supervisor: \_\_Leander Anderegg\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The following lab workers have reviewed and understand the following elements of the attached *Chemical Hygiene Plan* for the above PI or supervisor:

* Sec. I: Laboratory-specific Chemical Hygiene Plan with Standard Operating Procedures
* Sec. II: UC/UCSB Policies, Procedures and Resources

Name (print) Signature Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**BASIC FLAMMABLE and COMBUSTIBLE LIQUIDS HANDLING**

**STANDARD OPERATING PROCEDURE TEMPLATE**

**This SOP is for work in which flammable/combustible liquids are NOT used in operations that often generate static electricity which can act as an ignition source; including the pumping or pouring of solvents between metal containers. Those operations require grounding and/or bonding of the containers to prevent static buildup and a different SOP template in the UCSB SOP Library should be used: ADVANCED FLAMMABLE AND COMBUSTIBLE LIQUIDS HANDLING**

**(See also these related UCSB SOPs: *“Solvent Use: Extractions, Distillations & Still Quenching” a*nd *“Peroxide-Forming Chemicals”)***

**Type of SOP:**  ProcessHazardous Chemical Hazard Class

To customize this SOP, add lab-specific information to the sections below marked in RED, as applicable. Completion of the last section (“Lab-Specific Information”) is required. Also, any of the content below may be amended with lab-specific information to enhance worker safety as desired.

# HAZARD OVERVIEW

# Flammable and combustible organic solvents are amongst the most dangerous chemicals in the lab. A measure of how ignitable a particular solvent is the flashpoint ; defined as the lowest temperature at which a material can form an ignitable mixture with air and produce a flame when a source of ignition is present. The lower the flashpoint, the more easily the liquid can be ignited. Most common organic solvents in the lab are readily ignited, with the exception of chlorinated solvents like dichloromethane which require more extreme conditions to burn.

Flammable liquids (flash point < 100oF) are divided into three classes:

Class Flash Point Boiling Point Examples

IA Below 73°F Below 100 °F Ethyl Ether

IB Below 73 °F At or above 100 °F Acetone, Benzene, Toluene

IC At or above 73°F and Isopropanol, Xylene

below 100°F

Combustible liquids (flash point > 100oF) are divided into three classes:

|  |  |  |
| --- | --- | --- |
| Class | Flash Point | Examples |
| II | 100-139 °F | Acetic acid, cyclohexane, and mineral spirits |
| IIIA | 140-199 °F | Cyclohexanol, formic acid and nitrobenzene |
| IIIB | 200 °F or above | Formalin and vegetable oil |
|  |  |  |

A particular organic solvent may have other hazards beyond their flammability. For example, benzene is recognized carcinogen. Check the Safety Data Sheet for the particular solvents in use.

The international symbol ([Globally Harmonized System](http://www.sigmaaldrich.com/content/dam/sigma-aldrich/countries/european-images/GHS_EU_Poster.pdf)) for a flammable liquids/gases/solids is:



# A picture containing different, stack Description automatically generated Diethyl ether initiated fire

# PERSONAL PROTECTIVE EQUIPMENT (PPE)

See the PPE information under Sec. II of the *UCSB Chemical Hygiene Plan* regarding:

* the UC PPE Policy and policy summary (what PPE is needed and when/where to use)
* obtaining your PPE via use of the *Laboratory Hazard Assessment Tool (LHAT)*
* glove selection criteria
* respirator use, etc.

In general, workers who use flammable liquids will be issued a free fire-resistant Nomex lab coat via the LHAT process.

# ENGINEERING/VENTILATION CONTROLS

All chemicals should be transferred and used in an annually certified laboratory chemical fume hood with the sash at the certified position or lower. The hood flow indicator should be checked to be operating correctly prior to using the hood. For further information see the following pages in Sec. II of the *UCSB Chemical Hygiene Plan:*

* Fume Hood Usage Guide
* Criteria for Implementing Engineering Controls
* Safety Shielding: Shielding is required any time there is a significant risk of explosion, splash hazard or a highly exothermic reaction. All manipulations of flammable liquids which pose this risk should occur in a fume hood with the sash in the lowest feasible position. Portable shields, which provide protection to all laboratory occupants, are acceptable.
* Special Ventilation: Manipulation of flammable liquids outside of a fume hood may require special ventilation controls in order to minimize exposure and reduce the fire risk. Fume hoods provide the best protection against exposure to flammable liquids in the laboratory and are the preferred ventilation control device. If your research does not permit the handing of large quantities of flammable liquids in your fume hood, contact EH&S to review the adequacy of all special ventilation.

# SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

Use in an area that is properly equipped with a certified eye wash and safety shower that is available within ten seconds of travel.

Store in a tightly closed, labeled container and in a cool, dry, well-ventilated area. Segregate from incompatible materials. Repackaged chemicals must be labeled clearly. For example, squirt bottles and acid/base cleaning baths. Follow any substance-specific storage guidance provided in Safety Data Sheet documentation.

* **Flammable Liquid Storage Cabinets**
* One or more Flammable Liquid Storage Cabinets **(FLSC)** are required by CA Fire Code for laboratories which store, use or handle more than 10 gallons of flammable or combustible liquids.
* Containers of flammable liquids that are one gallon and larger must be stored in a flammable-liquids storage cabinet.
* The storage of flammable and combustible liquids in a laboratory, shop, or building area must be kept to the minimum needed for research and/or operations. FLSC are not intended for the storage of highly toxic materials, acids, bases, compressed gases, or pyrophoric chemicals.
* In most UCSB laboratories, flammable liquids storage is provided under the chemical fume hood. These cabinets are clearly marked “Flammable Storage” and are often ventilated via a stainless steel hose into the fume hood exhaust duct. Flammable liquids storage cabinets are constructed to limit the internal temperature when exposed to fire. When additional storage is needed, NFPA-approved FLSC may be purchased. All containers of flammable liquids must be stored in a FLSC when not in use. The following requirements apply:

General Requirements

* Cabinets shall be marked “Flammable - Keep Fire Away”
* Cabinets should be kept in good condition. Doors that do not close and latch must be repaired or the cabinet must be replaced.
* Flammable liquids storage cabinets are equipped with a grounding system that can be connected to a building ground. If you are pouring from a container in the storage cabinet and if the container being poured into is conductive then a bonding strap must be attached between them as explained in PROCEDURES TO AVOID STATIC ELECTRICITY.

A picture containing text

Description automatically generated FLSC involved in fire

* **Labeling**
* All flammable liquids must be clearly labeled with the correct chemical name.
* Handwritten labels are acceptable; chemical formulas and structural formulas are not acceptable.
* The label on any containers of flammable liquids should say “Flammable” and should include any other hazard information, such as “Corrosive” or “Toxic”, as applicable. Example: lab squirt bottles, or acid/base baths.
* **Heating/Open flame**
* Do not permanently store flammable liquids in chemical fume hoods or allow containers of flammable liquids in proximity to heating mantles, hot plates, or torches.
* With the exception of vacuum drying ovens, laboratory ovens rarely have any means of preventing the discharge of material volatilized within them. Thus it should be assumed that these substances will escape into the laboratory atmosphere, but may also be present in sufficient concentration to form explosive mixtures within the oven itself. Venting the oven to an exhausted system will reduce this hazard.
* Drying ovens should not be used to dry glassware that has been rinsed with organic solvents until all of the solvent has had the opportunity to drain or evaporate at room temperature.

# SPILL AND INCIDENT PROCEDURES

See directions under the “*Chemical Incident*” and “*Medical Emergency*” tabs of the *UCSB Emergency Information Flipchart* – should already be posted in all labs.

Graphical user interface, text, application

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For those that routinely use flammable liquids, it is strongly recommended that they attend the live version of the EH&S *Fundamentals of Laboratory Safety* class, where **hands-on fire extinguisher training** is conducted. All campus labs should have a fire extinguisher already on-site, generally near the exit door.

# DECONTAMINATION

Wear proper PPE, decontaminate equipment and bench tops using [soap and water]. Dispose of all used contaminated disposables as hazardous waste per below.

# WASTE DISPOSAL

See “Chemical Waste Disposal” in Sec. II of the *UCSB Chemical Hygiene Plan*.

# PRIOR APPROVAL/REVIEW REQUIRED

As they deem necessary, the PI/supervisor should insert here any prior approval or review needed, before an individual can do the operation.

# DESIGNATED AREA

To be used in Noble 2224 (lab benches, tables on east end of room, fume hood and counter near sink) and Nobel 2230. Not to be used in ‘Food only’ tables at west end of Noble 2224.

Work should be completed in a laboratory fume hood given the volatility and flammability of most solvents.

# SAFETY DATA SHEETS and OTHER REFERENCES

Online SDS can be found at: <http://ehs.ucsb.edu/labsafety/msds>

Prudent Practices in the Laboratory, 2011, see Secs. 4.D and 6.F for flammable liquids <http://www.nap.edu/openbook.php?record_id=12654&page=R15>

1. **LAB-SPECIFIC INFORMATION (required) *(***[*Examples*](http://www.ehs.ucsb.edu/labsafety-chp/sec1/three-examples-language-used-customize-standard-operating-procedure)***of appropriate content)***

Flammable liquids, principally alcohols such as ethanol, are routinely used at room temperature to clean/sterilize implements and surfaces. Applications that involve repeated use of alcohols should be performed in the fume hood.