RESTRICTED SUBSTANCES

The California Occupational Safety and Health Administration's (OSHA) Laboratory Standard (8 CCR 5191(e)(3)(H), requires that provisions be made by the Laboratory Supervisor for employee protection for work with hazardous substances. SCU has developed the following Restricted Substance List that contains these hazardous substances:

- Select carcinogens
  - Regulated by OSHA as a carcinogen; or
  - Listed under the category, "known to be carcinogens," in the Annual Report on Carcinogens" published by the National Toxicology Program (NTP) (http://ntp.niehs.nih.gov/?objectid=72016262-BDB7-CEBA-FA60E922B18C2540); or
  - Listed under Group 1 ("Carcinogenic to Humans") by the International Agency for Research on Cancer (IARC) Monographs (http://monographs.iarc.fr/ENG/Classification/index.php); or
  - Listed in either Group 2A or 2B by IARC or under the category "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidence in experimental animals in accordance with any of the following criteria:
    - After inhalation exposure of 6-7 hours per day, 5 days per week, for a significant portion of a lifetime to dosages of less than 10 mg/m3; or
    - After repeated skin application of less than 300 mg/kg of body weight, per week; or
    - After oral dosages of less than 50 mg/kg of body weight per day.
- Reproductive toxins
  - Substances that cause chromosomal damage and substances with lethal or teratogenic effects on fetuses.
- Acutely toxic substances and gases
  - The ability of a chemical to cause a harmful effect after a single exposure. Parameters for assessing the risk of acute toxicity of a chemical are its LD50 and LC50 values. Acutely toxic chemicals meet the following criteria:
    - Chemicals with an Oral LD50 in rats <50 mg/kg.
    - Chemicals with a skin contact LD50 in rabbits <200 mg/kg.
    - Chemicals with an inhalation LC50 in rats <200 ppm/hour.
- Chemicals with a NFPA health hazard class rating of 4,
- DEA Controlled Substances,
- Cryogenic liquids,
- Explosives,
- Peroxidizers,
- Reactive and Water Reactive materials,
- Pyrophorics,
- Toxic gases as regulated by Santa Clara County,
- CalOSHA Reportable Chemicals, and
- EPA Extremely Hazardous Substances and Wastes.

Designated Areas
Specific consideration should be given to the establishment of a designated area, the use of containment devices, procedures for safe removal of contaminated waste, and decontamination procedures. Designated areas are areas that are defined as being used for work with hazardous substances and within which, certain types of precautions must be employed. A designated area may be the entire laboratory, an area of a laboratory, or a device such as a laboratory fume hood or glove box.

Additional Protection
Additional employee protection will be considered for work with hazardous substances. Laboratory supervisors are responsible for assuring that laboratory procedures involving hazardous chemicals have been evaluated for the level of worker protection required. Specific consideration will be given to the following areas:

- Planning the experiment and protocol;
- Establishment of a designated area;
- Access control;
- Use of containment devices such as fume hoods or glove boxes;
- Use of Personal Protective Equipment;
- Isolation of contaminated equipment;
- Practicing good laboratory hygiene and housekeeping;
- Prudent transportation of hazardous substances;
- Planning for accidents and spills; and
- Special storage and waste disposal practices.

Responsibilities
It is the responsibility of the Laboratory Supervisor to ensure that Restricted Substance determination is conducted on existing chemical inventories and on all future chemical purchases for their laboratory. Prior to beginning work with a Restricted Substance or once a Restricted Substance determination is made, the Laboratory Supervisor shall complete a **SCU Restricted Substance Approval Form** which reproduced at the end of this section. All employees who work with a Restricted Substance must have a prior approved Restricted Substance Approval Form on file.
SCU Restricted Substance Approval Form

The purpose of the **SCU Restricted Substance Approval Form** is to ensure that employees are adequately trained and familiar with the physical and health hazards prior to the use of the substance. Procedures for containment, storage, and waste management shall be described in detail. Safety precautions shall be addressed including: assignment of a designated area, personal protective equipment (PPE), ventilation requirements, methods of monitoring exposure, first aid procedures, and spill or leak clean-up procedures.

A written **SCU Restricted Substance Approval Form** must be approved and signed by the Laboratory Supervisor and the CHO before work with **Restricted Substance** begins. Consultation with the CHO while completing the form is recommended to

ensure that procedures and safety precautions are adequate. The approved form shall be kept on file in the laboratory (readily accessible for use in an emergency).
The Laboratory Supervisor shall review and resubmit the **SCU Restricted Substance Approval Form** if procedures and processes change.

Recordkeeping
The original approved copy of the **SCU Restricted Substance Approval Form** must be kept on file by the Laboratory Supervisor.

Designated Area(s)
Restricted Substances must be used in designated areas ONLY. The designated area must be identified and the boundaries clearly marked (See: "Warning Signs," below). Unauthorized personnel (i.e., persons who are NOT approved for use on the **SCU Restricted Substance Approval Form**) are restricted from entry into a designated area while work with the **Restricted Substance** is being performed.
Warning Signs

When the **Restricted Substance** is being used, designated areas must be posted with signs that denote the nature of the hazard. Contact EHS for appropriate signage, which will be supplied to properly address the type of designated area identified by the laboratory, and will provide suitable hazard warnings.

Personal Protective Equipment (PPE)
Chemically compatible gloves shall be used with **Restricted Substances**. It is recommended that glove manufacturers and/or EHS be contacted for compatibility information and assistance in selecting the appropriate glove. Other protective equipment and apparel such as a fully closed laboratory coat and chemical splash goggles and/or a face shield may be required according to the approved **Restricted Substance Approval Form**.

Containment
Restricted Substances should generally be used in a fume hood or glove box. Spill protection in the form of plastic backed matting (hospital paper) or chemical resistant pans should be employed. All weighing operations involving **Restricted Substance** shall be performed in a certified laboratory fume hood, glove box, approved vented enclosure or by specified written procedure to manage risk. Air exhausted from glove boxes where **Restricted Substances** are handled must be vented to a certified fume hood or exhaust system.

Storage
Restricted Substance containers must be labeled as such (EHS can provide labels for this activity). Refer to other sections of the Chemical Hygiene Plan for general information on proper chemical storage, transportation and compatibility.

Decontamination and Waste
Every effort should be made to minimize spills or loss of **Restricted Substances**. All **Restricted Substances** must be disposed of as hazardous waste. During decontamination, all equipment should be thoroughly rinsed with a suitable solvent (which may be organic or water-based, depending on the material). This solvent should be collected as hazardous waste. Care should be exercised to prevent contamination of the outside of the waste container. In the event that decontamination is not feasible, the equipment should be placed in an impervious container that is sealed and properly labeled and disposed of as hazardous waste (contact EHS for hazardous waste disposal).

All solid **Restricted Substance** waste must be sealed in double-lined plastic bags and disposed of as hazardous waste.
When composed of finely divided solid materials, wet wiping, or mopping should clean spills of **Restricted Substances**. Water reactive materials should not be wiped up with a damp cloth. Dry sweeping should NOT be done. Contaminated toweling used for the cleanup of hazardous materials shall be disposed of as a **Restricted Substance** hazardous waste.

Employees should leave protective apparel in designated areas and wash hands and arms before leaving designated areas if possible.

Safety Precautions
Ensure that all laboratory occupants are aware of the hazards involved with each **Restricted Substance**s. Keep first aid procedures and materials readily accessible for use during an emergency.

Exposures
Never exceed exposure limits (consult MSDS). Know how a particular chemical can enter the body and symptoms of exposure. Notify your supervisor and the CHO if you suspect exposure. Seek medical attention if you suspect exposure.
Santa Clara University provides all employees who have received a hazardous chemical exposure the opportunity to receive medical attention.

Items Not Covered
Any specific safety program approaches or other items not covered by this program should be submitted to the CHO for review and approval.

SCU Restricted Substance Approval Form

Before acquiring or using a Restricted Substance, please complete this form, sign it and obtain the CHO's approval.

Substance Information:

Substance name:	Identify the location where the substance will be used (Building/Room):
CAS #:	Describe the area where the substance will be used and the method for designating the use area:
Quantity ordered:	Identify who will work with this substance (students, student employees, laboratory technicians, ect.):
Estimated rate of usage (e.g. grams/month):	Will a vacuum system be used (if yes, describe the method for trapping effluents):

Substance Hazards:

Health Hazards	**YES**	**NO**
Carcinogen		
Reproductive Toxin		
Acutely Toxic		
MSDS reviewed and attached		
Indicate NFPA Rating:		
Physical Hazards	**YES**	**NO**
Explosive		
Reactive		
Cryogenic		
Pyrophoric		
Peroxidizer		

Regulatory Requirements:

Listed in Regulation	**YES**	**NO**
Toxic gases as regulated by Santa Clara County		
CalOSHA Reportable Chemicals		
EPA Extremely Hazardous Substances and Wastes		
DEA Controlled Substance		

Procedure:

Describe how the substance will be used and the precautions for preparation of stock solutions and dilutions:

Exposure Control:

Personal Protective Equipment (PPE)	**YES**	**NO**
Safety Glasses		
Chemical Splash Goggles		
Face Shield		
Gloves		
Lab Coat		
Apron		
Other:		

Ventilation/Isolation	**YES**	**NO**
Fume Hood		
Glove Box		
Vented gas cabinet		
Storage	**YES**	**NO**
Refrigerator/freezer		
Double containment		
Flammable storage cabinet		
Vented cabinet		
Other:		

Spills, Decontamination and Waste Disposal

Spill Response	**YES**	**NO**
Spill control materials available		
Special personal protective equipment needed		
Explain needs:		

Decontamination	**YES**	**NO**
In-lab neutralization		
In-lab deactivation		
Will hazardous waste be generated		

Laboratory Supervisor Signature/Date

Print Names:_____

Chemical Hygiene Officer Signature/Date

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