

AOE DEPARTMENT SAFETY REVIEW FORM FOR **EXPERIMENTAL WORKSPACES**

Before experimental activities can begin in any room in the Department of Aerospace and Ocean Engineering, and **at least once per year** thereafter, a copy of this form must be completed, signed and submitted by the responsible faculty/staff member (usually the principal investigator). Completed forms should be submitted to the AOE Assistant Department Head for Facilities (Michael Philen) and should also be made available to other faculty/staff with relevant expertise, or with direct involvement in the space. Any advice resulting from this interaction should be copied to the Assistant Department Head, as well as being transmitted back to the responsible faculty/staff member. Once the responsible faculty/staff member is satisfied that all safety concerns have been met the final version of the form should be signed and submitted and a copy prominently displayed on the door to the space and on the department safety website. The responsible faculty/staff member may then authorize experimental activities.

Date of form: 08/16/2024

Form expires (no more than 1 year after form date): 08/15/2025

Name and location of workspace: RB2, 1861 Pratt Drive, Blacksburg, VA 24061

Faculty/staff member responsible for Experimental Workspace and its safety: Yao Fu

Office Address: 201 VTSS

Phone: 540-231-8722

Email: yaof@vt.edu

GENERAL SAFETY REVIEW

1. *The workspace houses the following potentially hazardous experimental rigs. An 'Experimental Rig Safety Form' has been completed, posted, and is current for each of these.*

- ATS creep machine
- Thermofisher furnace
- Instron Fatigue machine
- Tabletop mill and lathe
- Bridgman solidification furnace

2. *An evaluation of the above experimental workspace has been performed and the following safety risks have been identified, in addition to those associated with the above facilities (append details where necessary)*

Users of the lab are subject to risks from electrical hazards associated with normal operation of electrically operated equipment, chemical hazards from chemicals used or stored in this laboratory, mechanical hazards due to tripping or operation of the experimental rigs identified in section 1.

3. *The following actions have been taken to minimize those risks (append details where necessary)*

Chemical Hazards: All users of this lab are required to have completed and have current EHS Hazcom RTK training. A chemical inventory has been compiled and is attached to this form. Chemicals in this lab must be stored in the marked chemical storage cabinet and Safety Data Sheets for all chemicals can be found near the main entrance of the lab.

Electrical Hazards: All users of this lab are required to have completed and have current EHS Electrical Awareness and EHS Lockout/Tagout Awareness training. Use of electrical equipment, lights, power strips and extension cords are required to be consistent with OSHA standards.

Mechanical Hazards: Safety requirements associated with the experimental rigs in section 1 are detailed on those safety forms

4. All users of this workspace have been registered and are listed on the EHS training website at <https://www.ehss.vt.edu/training/>. Click on **My EHS Profile** to view training history and required training. Users have taken all appropriate safety training courses from Environmental Health and Safety. Their training is current and is recorded on the EHS website, under the workspace name RB2, 1861 Pratt Drive
The appropriate safety courses are (list here):

1. Electrical Awareness
2. General Laboratory Safety
3. Personal Protective Equipment (PPE) Awareness
4. HAZCOM RTK
5. Portable Fire Extinguishers
6. Lockout/Tagout Awareness

HAZARD COMMUNICATION PLAN

1. A Chemical Hygiene Plan (CHP) is required for this work space. (The responsible faculty/staff member is required to contact EHS to make this determination before answering this question)

No . Continue to step 2


Yes . Sign below to certify that a current and complete Chemical Hygiene Plan has been completed for this space. Provide the location of the CHP in the workspace RB2.

2. In signing below I am acknowledging that I am responsible for managing the Hazard Communication Plan for this workspace, specifically, it is my responsibility to ensure:

- a) that all workspace users (include students, staff, other faculty) understand and follow this plan through Scheduled HazCom training, all necessary EHS training, and disciplinary action.
- b) that a hazardous chemical inventory is compiled and maintained, using the EHS Safety Management System at <https://www.ehss.vt.edu/>. Click on the **Safety Management System** on left border. A list of hazardous chemicals, downloaded from that site, is appended to the paper copy of this form to be posted on the door to the space. Note that consumer products intended for household use, and used in a manner consistent with that intent need not be listed.
- c) that all containers of classified hazardous chemicals associated with or stored in the workspace are clearly and prominently labeled, in English, with the original manufacturers label. If that label is not available then a label based on information from the Safety Data Sheet (product name, danger/warning indication, pictogram...) that clearly communicates the hazard to the user will be used.
- d) that procedures are reviewed at least annually, on or about the expiration/renewal date of this form.
- e) that Safety Data Sheets (SDS) are available for all chemicals in the attached list are available to lab users at (give location): Besides the Entrance Door
- f) that EHS has been consulted on all other training requirements, and these training requirements have been met and are properly recorded on the EHS training website.
- g) that meetings to communicate health hazards associated with the use of all hazardous chemicals and the use of proper PPE will be held
 - o with all new workspace users before they begin work,
 - o with all workspace users when a new chemical or other hazard is added to the workspace (and at least annually)
- h) that all HazCom information and training of employees will at a minimum meet the requirements of OSHA 29 CFR 1910.1200(h), see below.

Signature of faculty/staff member responsible

for workspace and its safety



Date: 8/19/2024

LIST OF HAZARDOUS CHEMICALS

Research Building 2, Room 100, Ground Floor

Emergency Contact, Primary

Name: Yao Fu **Work Phone #:** 5402318722
Home Phone #: 412 877 7823 **Cell Phone #:**

Emergency Contact, Secondary

Name: Jie Song **Work Phone #:** 5402317061
Home Phone #: 734 358 9836 **Cell Phone #:**

Last Chemical Inventory Submit Date: 2024-06-01

Flammable Liquid (Class IA, IB, IC)

Chemical Name	Total Amount in Storage and Use
Acetone	2 Gallons
Ethyl Alcohol	6 Gallons
Methyl Alcohol	1 Gallons
	9 Total Gallons

Shock Sensitive, Explosive Hazards, Explosives or Blasting Agents

Chemical Name	Total Amount in Storage and Use
Acetic Acid	1.05 Pounds
	1.05 Total Pounds

Combustible Liquid (Class II, IIIA, IIIB)

Chemical Name	Total Amount in Storage and Use
Acetic Acid	0.1 Gallons
	0.1 Total Gallons

Corrosives

Chemical Name	Total Amount in Storage and Use
Acetic Acid	1.05 Pounds
Hydrochloric Acid	0.79 Pounds
Nitric Acid	0.13 Pounds
Sulfuric Acid	3.96 Pounds

Hydrofluoric Acid and Picric Acid

Chemical Name	Total Amount in Storage and Use
Hydrofluoric Acid	0.01 Gallons
	0.01 Total Gallons

Oxidizing Liquids or Solids

Chemical Name	Total Amount in Storage and Use	% by Weight
Perchloric Acid	0.13 Pounds	70%
Nitric Acid	0.13 Pounds	70%
	0.26 Total Pounds	

Water Reactive

Chemical Name	Total Amount in Storage and Use
Sulfuric Acid	3.96 Pounds
	3.96 Total Pounds

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LOCATION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

On the table near the entrance.

LOCATION OF SANITIZING PRODUCTS

Under the sink.

OSHA CFR 29 1910.1200(h)

1910.1200(h)

Employee information and training.

1910.1200(h)(1)

Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

1910.1200(h)(2)

Information. Employees shall be informed of:

1910.1200(h)(2)(i)

The requirements of this section;

1910.1200(h)(2)(ii)

Any operations in their work area where hazardous chemicals are present; and,

1910.1200(h)(2)(iii)

The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and safety data sheets required by this section.

1910.1200(h)(3)

Training. Employee training shall include at least:

1910.1200(h)(3)(i)

Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

1910.1200(h)(3)(ii)

The physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area;

1910.1200(h)(3)(iii)

The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

1910.1200(h)(3)(iv)

The details of the hazard communication program developed by the employer, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer; the safety data sheet, including the order of information and how employees can obtain and use the appropriate hazard information.