2.9.8 Informing Contractors

Employees of outside contractors performing work at the University will be informed of any hazards that they might encounter from our operations prior to the beginning of the contract work. The PIs, Department Administrators, physical facility management (PFM), and/or the University EH&S office will provide outside contractors with the following information:

- Toxic and hazardous substances to which they may be exposed while on the Howard University job site.
- Precautions the employees may need to take to reduce the possibility of exposure, such as use of appropriate protective equipment.
- The availability and location of appropriate SDSs.

The PIs, Department Administrators, PFM, and/or the University EH&S office will also be responsible for contacting each contractor before work is started within the University's property in order to gather and disseminate any information concerning chemical hazards that the contractor may be bringing into the University. Contractors will be required to provide appropriate SDSs for review and approval as a condition of use on Howard University property.

Contractors will be required to abide by the University safety and health policies or guidelines. Violations of any such agreed upon terms may be cause for termination of the work until the condition is corrected.

2.10 CHEMICAL SPECIFIC PROCEDURES

2.10.1 Highly Hazardous Chemicals

Work with highly hazardous chemicals is often completed in research laboratories and cannot be avoided. When safer alternatives are not available, use and handling procedures can be developed and implemented with these highly hazardous chemicals. The section below defines highly hazardous chemicals based on the unique physical or toxicological properties of these compounds. Additional precautions are necessary when

using, handling, storing or disposing of these chemicals in order to maintain the optimum level of safety for laboratory and building personnel.

A risk assessment must be completed by the University EH&S Office in conjunction with research personnel, prior to working with the designated chemicals in Groups 2 and 3. The risk assessment will evaluate how the chemical is being used in the laboratory setting and determine what, if any additional engineering controls, PPE and/or administrative controls are necessary to control the hazard(s) associated with these chemicals.

Chemicals listed in Group 1 require specific guidelines, or SOPs, which must be developed by the laboratory. Researchers working with these chemicals are required to review and be trained on the corresponding guidelines prior to use.
Note: These lists are not exhaustive.

2.10.2 Highly Hazardous Designation

If a researcher reviews a SDS for a chemical and determines that it requires special precautions (e.g., respirator, localized exhaust) or has highly hazardous properties (e.g., highly toxic, air reactive, chronic health hazard) when working with the chemical, s/he must notify the University EH&S Office. This notification also applies if a chemical has a rating of 4 in one of the NFPA or the Hazardous Materials Information System (HMIS) hazard categories, since this rating indicates that the chemical is considered a highly hazardous chemical and as a result, it is covered by this Policy.

GROUP 1

The laboratory must develop guidelines or SOPS that must be followed when using these chemicals. Certain chemicals require air monitoring to ensure exposure is to low levels while others need proper training from the laboratory. (Note: if air monitoring is required, please contact the University EH&S Office). The EH&S online training may include information on some of these materials, however training is not all-inclusive; laboratories need to ensure their processes are safe.

- Alkali metals, (sodium, potassium, etc.)
- Anesthetic gases

- Azides (sodium azide, etc.)
- Carcinogens (known or suspected, not otherwise referenced in this list)
- Chromium hexavalent compounds
- Cyanides (potassium, sodium, etc.)
- Diaminobenidine (DAB)
- Dimethylbenzanthracene (DMBA)
- Ethidium bromide
- Formaldehyde
- Mercury compounds
- Nitric acid with a concentration > 40%
- Organic peroxides
- Osmium tetroxide
- Oxidizing gases
- Peroxide formers (ether, 1,4 – dioxane, tetrahydrofuran, etc.)
- Perchloric acid
- O - Phenylenediamine (OPD)
- Phenol
- Picrylsulfonic acid
- Sulfuric acid with a concentration <97%
- Tamoxifen
- Taxol
- Titanium tetrachloride
- Water reactive chemicals

GROUP 2

These chemicals require notification to the University EH&S Office when possessed and **prior to usage**:

- All cholinesterase Inhibitors that are not included in Group 1
- Flammable gases
- Fuming nitric acid, sulfuric acid, hydrochloric acid
- Hydrofluoric acid
- Kainic acid

- Known carcinogens (Report of Carcinogens by Department of Health and Human Services: http://ntp.niehs.nih.gov/?objectid=72016262-BDB7-CEBA-FA60E922B18C2540)
- N-ethyl-N-nitrosourea (ENU)
- Organo-mercury compounds
- Phorbol compounds

GROUP 3

These chemicals require approval from the University EH&S Office prior to ordering or purchasing. In addition, researchers working with these chemicals will require additional training on how to work with these chemicals.

Select Agents—Here is a list of common select agents used in a research setting. For a complete list of select agents, go to the following link: http://www.selectagents.gov/resources/List%20of%20Select%20Agents%20and%20Toxins_111708.pdf

- Botulinum toxin
- Conotoxin
- Ricin
- Saxitoxin
- Staph entertoxins
- Tetrodotoxin

Chemicals:

- Chlorine gas
- Dioxins (e.g., 2,3,7,8-tetrachlorodibenzodioxin (TCDD))
- Highly toxic (e.g., nickel carbonyl)
- Mustard gas
- Nerve agents (e.g., sarin, soman, tabun, VX)
- Neurotoxins (e.g., dimethyl mercury, 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), 1-methyl-4-phenylpyridinium (MPP+))
- Poisonous gases
- Pyrophorics (a.k.a. air reactive chemicals) (e.g., tert-butyl lithium)

REQUIREMENT MATRIX

The following matrix outlines the requirements for each group:

Group	Risk Assessment	SOP/Guideline Development	SOP/Guideline Training
Group 3	Prior to ordering or purchasing	Prior to ordering or purchasing	Prior to ordering or purchasing
Group 2	Prior to use	Prior to use	Prior to use
Group 1	Not applicable	Not applicable	Prior to use

2.10.3 Chemical Facility Anti-Terrorism Standard (CFATS)

The U.S. Department of Homeland Security (DHS) has issued a Standard that imposes federal security regulations for high-risk chemical facilities. This rule establishes risk-based performance standards for the security of the nation's chemical facilities and requires chemical facilities to prepare Security Vulnerability Assessments that identify security vulnerabilities at the facility and develop and implement Site Security Plans that include measures that satisfy the identified risk-based performance standards.

In order to determine if your facility meets the criteria for a high-risk chemical facility, the chemical inventories on campus must be reviewed. If the University manufactures, uses, stores or distributes any chemical above the Screening Threshold Quantities found in the DHS CFATS – Chemicals of Interest (http://www.dhs.gov/xlibrary/assets/chemsec_appendixa-chemicalofinterestlist.pdf) the University must complete and submit a Chemical Security Assessment Tool (CSAT) Top-Screen available on the DHS website: http://www.dhs.gov/files/programs/gc_1235582326154.shtm.

2.11 PROCESS SAFETY

Unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals have been reported for many years in various industries that use chemicals with such properties. Regardless of the industry that uses