

Inspection Report

Full Report

Description			
Type:	Lab Inspection	Date:	Feb 4, 2019
Room:	ACMAL Shared Facility	College:	Vice President for Research
Inspector:	Courtney Holzberger	Department:	Vice President for Research
		Facility:	Shared Facility: Applied Chemic

Roster	
David Dixon	EHS
Owen Mills	Laboratory Supervisor / PI

Actions and Recommendations	
1. Laboratory Supervisor / PI Required	
1.1 A written lockout policy MUST be available and any employee who services equipment must know how to access the written policy.	
Completed By:	Owen Mills (Completed: Feb 20, 2019) Severity: High
1.2 All PPE that touches exposed skin must be disinfected prior to another person using it. This includes safety glasses, lab coats, gloves, etc. Disinfection can include washing via washer/dryer (lab coats) or disinfecting wipes (safety glasses), etc.	
Completed By:	Owen Mills (Completed: Feb 5, 2019) Severity: Low
1.3 All employees in the laboratory must review the chemical hygiene plan and it must be documented.	
Completed By:	Owen Mills (Completed: Feb 20, 2019) Severity: Medium
1.4 An MTU emergency response poster is required at the entrance to all laboratories.	
Completed By:	Owen Mills (Completed: Feb 5, 2019)
1.5 Power strips are only used with computers or other low amperage equipment. Power strips are not "daisy chained" or plugged into an extension cord.	
Completed By:	Owen Mills (Completed: Feb 18, 2019) Severity: Medium
1.6 Replace burned out lights.	
Completed By:	Owen Mills (Completed: Feb 5, 2019)

Question Responses	
1. 1. General Safety	
1.1 A current Michigan Tech emergency response poster is posted at the entrance to the laboratory.	
Selection:	Recommendations
Inspector Note:	Update poster on 617 and 717.
1.2 Hazard symbols and warnings are posted as required for radiation, biohazard, high voltage, laser, unattended operations, and other hazards.	
Selection:	Yes
1.3 Doors controlling access to the laboratory are closed at all times and locked when the laboratory is not occupied. Access is limited to individuals authorized to work in the laboratory.	
Selection:	Yes

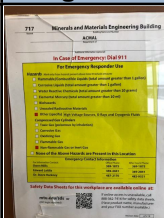
1.4 A hazard/risk assessment has been conducted to identify potential risks associated with laboratory equipment, materials and procedures. Methods to minimize those risks have been implemented.	
Selection:	Yes
1.5 All employees that work in areas with hazardous materials or chemicals have completed Michigan Tech's online (PureSafety) course "Hazard Communication Michigan Tech."	
Selection:	Yes
1.6 A laboratory-specific safety manual defining laboratory policies, safe practices, and procedures is available and accessible to everyone in the lab. Individuals working in the laboratory agree to follow laboratory defined policies, practices, and procedures.	
Selection:	Yes
1.7 Appropriate personal protective equipment is worn in the laboratory. Gloves, lab coats, and other potentially contaminated PPE are removed before leaving the laboratory.	
Selection:	Yes
1.8 All reusable PPE that is exposed to skin is disinfected prior to being used by another person.	
Selection:	Recommendations
Inspector Note:	Wipes or similar for disinfecting safety glasses between users.
1.9 Laboratory has appropriate ventilation for the work being performed (chemical fume hood, snorkel, canopy hood, biosafety cabinet, etc.).	
Selection:	Yes
1.10 A sink is available for hand washing in areas where hazardous materials are used.	
Selection:	Yes
1.11 All laboratory furniture (chairs, shelves, benches, cabinets, etc.) is in good condition, is appropriate for use in the laboratory, and is capable of supporting anticipated loads.	
Selection:	Yes
1.12 Work areas are well lit with all lights in working order.	
Selection:	Recommendations
Inspector Note:	Room 636 lights
1.13 All laboratory refrigerators, freezers, and microwaves are labeled with appropriate hazard signage. Food storage and preparation are prohibited.	
Selection:	Yes
1.14 A First Aid kit is available to deal with minor injuries that may be sustained in the laboratory. Contents are in date. No aspirin or other pain relievers.	
Selection:	Yes
2. 2. Housekeeping	
2.1 The laboratory is well maintained, with work and storage areas clean and organized for safe and efficient use.	
Selection:	Yes
2.2 Access to exits and safety equipment is unobstructed. Floors aisles, work areas, and entry/exits routes are uncluttered with no tripping hazards.	
Selection:	Yes
2.3 If necessary, an appropriate container is available for the disposal of broken glass.	
Selection:	Yes
2.4 Universal wastes are collected in containers that prevent a release to the environment, are labeled according MDEQ rules, dated with the date the first item was placed in the container, and are sent for recycling within 365 days of the date.	
Selection:	Yes
2.4.1 An appropriate container is available for the disposal of sharps.	
Selection:	Yes

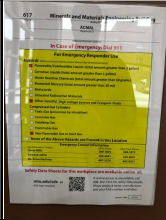

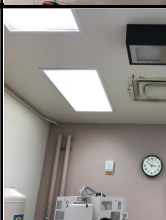
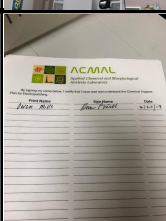
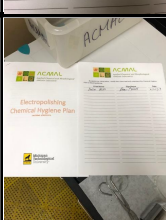


3. 3. Fire Safety	
3.1 Are flammable materials stored in the laboratory?	
Selection:	Yes
3.1.1 Flammables are stored in an unmodified flammable cabinet when required. Storage does not exceed cabinet capacity. Nothing is stored on top of a free-standing cabinet.	
Selection:	Yes
3.1.2 Flammables are stored in a flammable rated refrigerator and/or freezer.	
Selection:	N/A
3.1.3 A fire extinguisher is available in the laboratory. Fire extinguisher has a current inspection tag and is sealed.	
Selection:	Yes
3.1.4 Flammable gasses, liquids, and solids are not stored near exits or under staircases. This includes cabinets that contain flammable materials.	
Selection:	Yes
3.2 Paper, boxes, and other combustible materials are properly stored and not in excessive amounts.	
Selection:	Yes
3.7 Are open flames utilized in the laboratory or shop?	
Selection:	No
3.8 Fire sprinkler heads are unobstructed. All furniture and other materials (including cardboard boxes) must be at least 18 inches below the the plane of the sprinkler heads.	
Selection:	Yes
4. 4. Electrical Safety	
4.1 Electrical panels have a 36 inch clearance in front of the panel. Breakers and disconnects are labeled.	
Selection:	Yes
4.2 Electrical outlets within 6 feet of sinks and other wet areas are protected by a ground fault circuit interrupter.	
Selection:	Yes
4.3 Power cords on equipment and tools are in good condition (no exposed wires or frayed cords). Electrically powered tools and equipment are grounded or double insulated.	
Selection:	Yes
4.4 Extension cords are used appropriately and only for temporary applications.	
Selection:	Yes
4.5 Battery terminals are protected to prevent electrical shocks or potential shorts.	
Selection:	N/A
4.6 Power strips are only used with computers or other low amperage equipment. Power strips are not "daisy chained" or plugged into an extension cord.	
Selection:	Recommendations
Inspector Note:	Power strips in 615 should be labeled or documented that they are appropriate for vaccuum pumps.
4.7 All concerns about electrical safety have been addressed.	
Selection:	Yes
5. 5. Chemical Safety	
5.1 Are chemicals used in the laboratory?	
Selection:	Yes
5.1.1 A current chemical inventory listing the chemicals used in the laboratory is available.	
Selection:	Yes

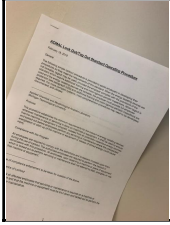
5.1.2 A spill kit is available for cleanup of hazardous materials. Its location is posted in the laboratory.
Selection: Yes
5.1.3 Anyone working with chemicals in the laboratory is trained to use MSDSonline to access Safety Data Sheets (SDSs).
Selection: Yes
5.1.4 Chemical containers, including working solutions and those with non-hazardous contents, are correctly labeled with (i) full name of the chemical, (ii) concentration, (iii) hazardous properties, (iv) date, (v) responsible person.
Selection: Yes
5.1.5 Waste chemicals are collected at the point of generation, in a compatible leak-proof containers. Containers are closed. All RCRA waste labels have the word "hazardous waste" and the contents spelled out.
Selection: Yes
5.1.6 An eyewash and/or emergency shower are available when required. They are inspected regularly and freely accessible (not behind closed doors).
Selection: Yes
5.1.7 In service compressed gas cylinders have the correct, non-modified, regulator for the gas being used, have accessible shutoff controls, and have no Teflon tape on the CGA or other compression fittings.
Selection: Yes
5.1.8 Chemicals are well organized and correctly and safely stored. Chemical containers and storage shelves are in good condition. Hazardous liquids are stored below eye level.
Selection: Yes
5.1.9 The chemical fume hood is in good operational order. Inspection certificate is current. Sash is closed when not in use.
Selection: Yes
5.2 Does the laboratory require a Chemical Hygiene Plan?
Selection: Yes
5.2.1 There is a written chemical hygiene plan detailing the policies and procedures using chemicals in the laboratory.
Selection: Yes
5.2.2 All employees in the laboratory have reviewed the Chemical Hygiene Plan. This is documented.
Selection: Recommendations
Inspector Note: Recommended to have people sign off that they have reviewed the CHP.
5.2.3 The chemical Hygiene Plan includes written Standard Operating Procedures (SOPs) for chemical procedures in the laboratory.
Selection: Yes
5.12 All concerns about chemical safety have been addressed (also see section 7. Chemicals Requiring Special Precautions).
Selection: Yes
6. 6. Compressed Gases and Cryogenic Liquids
6.1 Cryogenic liquids are used in the laboratory.
Selection: Yes
6.1.1 The room where dewars or cylinders are used has appropriate ventilation. The space has been evaluated to determine if an oxygen sensor is required.
Selection: Yes
6.1.2 Dewars are rated for the cryogenic liquids used in the laboratory.
Selection: Yes

6.1.3 Dewars are labeled with the cryogenic liquid name and “warning extreme cold/frostbite hazard” or similar warning.	
Selection:	Yes
6.1.4 Appropriate personal protective equipment is available and used when handling cryogenic liquids. Written procedures are available.	
Selection:	Yes
6.2 Chemicals in the gas phase are used in the facility (supplied by cylinders, gas generators, or storage tanks).	
Selection:	Yes
6.2.1 Gases are listed on the emergency response poster.	
Selection:	Yes
6.2.2 Compressed gas cylinders are properly segregated, securely stored, upright, and capped when not in use.	
Selection:	Yes
6.2.3 The room where cylinders are used has appropriate ventilation. The space has been evaluated to determine if an oxygen sensor or a specific gas sensor is required.	
Selection:	Yes
6.2.4 All gas lines, including those fed from compressed and liquid cylinders or from gas generators, are labeled (in English), compatible with the gases they carry, appropriately connected or welded, and adequately supported.	
Selection:	Yes
6.2.5 Highly toxic gases are contained in a properly designed cabinet or stored and used under an appropriate engineering control.	
Selection:	N/A
6.2.6 Gas cylinder storage areas are labeled with the names of the gases in storage. (Does not include a spare).	
Selection:	Yes
6.7 All concerns about compressed gases and cryogenic liquids have been addressed.	
Selection:	Yes
7. 7. Chemicals Requiring Special Precautions	
7.1 Hydrofluoric acid is used in the laboratory.	
Selection:	N/A
7.2 Peroxide forming chemicals are used in the laboratory.	
Selection:	N/A
7.3 Controlled substances are used in the laboratory.	
Selection:	N/A
7.4 Concentrated phenol is used in the laboratory.	
Selection:	N/A
7.5 Perchloric acid is used in the laboratory.	
Selection:	Yes
7.5.1 Perchloric acid digestions are only done in appropriate hoods that include wash down capabilities.	
Selection:	Yes
7.5.2 Perchloric acid is stored in glass containers with non-metal secondary containers. Waste solutions are managed as RCRA hazardous wastes.	
Selection:	Yes
7.6 Ethidium bromide is used in the laboratory.	
Selection:	N/A

7.9 Elemental mercury (including thermometers, barometers, or other mercury containing devices) is present in the laboratory. Selection: N/A
7.10 Pyrophoric chemicals are used in the laboratory Selection: N/A
8. 8. Biological Safety
8.1 Biological materials are used in this laboratory. Selection: N/A
8.2 This a biosafety level 2 (BSL-2) laboratory. Selection: N/A
8.3 All biological safety concerns are covered by the questions in this section. Selection: Yes
9. 9. Equipment Safety
9.1 Confined spaces are properly identified and labeled. Selection: N/A
9.2 Is there any noise hazard producing equipment? Selection: N/A
9.3 Pinch points, rotating shafts, and other mechanical hazards are appropriately guarded. Selection: N/A
9.4 All ladders are in good condition and rated for the weight of the user and their equipment. Ladders used for servicing equipment are fiberglass. Selection: Yes
9.5 Are respirators used in the facility? This includes N95 respirators and dust masks. Selection: No
9.6 Written lockout procedures are available or referenced when repairing and servicing equipment. Employees who perform these tasks can verbally explain where to find the written lockout policy. Selection: Recommendations Inspector Note: Xray diffraction should have a lockout/tagout procedure written.
9.7 Compressed air nozzles are equipped with a safety tip that reduces dead end pressures below 30 PSI. Selection: Yes
9.8 Are any of the following stationary power tools present: table saw, band saw, grinder, or drill press? Selection: No
9.9 All equipment safety concerns are covered by the questions in this section. Selection: Yes

Images	
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		<p>Work areas are well lit with all lights in working order. - Notes: Room 636 lights</p>
		<p>All employees in the laboratory have reviewed the Chemical Hygiene Plan. This is documented. - Notes: Recommended to have people sign off that they have reviewed the CHP.</p>
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