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MERCURY SPILL CLEANUP

Elemental (metallic) mercury is a toxic silver liquid metal that readily vaporizes at temperatures as low as 10°F. Mercury vapor is colorless, odorless, and toxic. Vapor exposure can occur through inhalation or absorption through intact skin.

1. Mercury Exposure

Health effects resulting from prolonged mercury exposure include fatigue, weight loss, anorexia, gum inflammation, and tremors of the hands. Acute health effects resulting from short-term exposure to mercury vapor include symptoms such as cough, chest pain, bronchitis, excessive salivation, and the presence of a metallic taste in the mouth.

2. Mercury Spill Procedures

Laboratories utilizing and storing mercury-containing devices should obtain a mercury spill kit. The following guidelines should be followed when assessing and handling a mercury spill:

2.1. Large Mercury Spill (>25ml) Procedures

- 2.1.1. Large mercury spills should be cleaned up by EH&S personnel.
- 2.1.2. Exit the spill area and inform others to leave spill area. **Do not walk through the suspected mercury spill area.**
- 2.1.3. Close any doors to the spill area.
- 2.1.4. **Contact EH&S immediately at 412-624-9505 (during regular business hours) or the University Police at 412-624-2121 (after business hours).**
- 2.1.5. Ensure that no other individuals enter the contaminated area until proper cleanup has been conducted.

2.2. Small Mercury Spills (<=25ml)

- 2.2.1. Small mercury spills such as those from mercury thermometers can be cleaned up by laboratory personnel, provided the appropriate spill cleanup materials are available. Please contact EH&S if additional assistance is needed.
- 2.2.2. Personal protective equipment including safety glasses, and nitrile gloves must be used when cleaning a mercury spill.
- 2.2.3. Ensure adequate ventilation by opening fume hoods and doors.

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- 2.2.4. If necessary, use a flashlight and shine at an angle to locate mercury beads in the spill area. **DO NOT WALK THROUGH SPILL AREA UNTIL CLEANUP HAS BEEN PERFORMED.**
- 2.2.5. Mercury waste and any other items used in the cleanup process should be collected, placed in a sealable container and/or sealable plastic bag, and disposed of through the University's chemical waste program
- 2.2.6. Amalgamating compounds such as those found in a mercury spill kit can be used to amalgamate and collect mercury beads.
- 2.2.7. Rigid pieces of paper such as index cards can be used to collect mercury.
- 2.2.8. Small plastic pipettes can also be used to collect mercury beads; ensure that pipettes used for cleanup are handled as chemical waste.
- 2.2.9. Broken mercury-devices or glassware (such as the sharp ends of a broken thermometer) should be taped to prevent puncture prior to being placed in a sealable plastic bag.
- 2.2.10. **DO NOT** use a broom or a regular vacuum to collect mercury. This will result in additional contamination and the spreading of mercury vapors.
- 2.2.11. **DO NOT** place glass from mercury-containing devices (e.g. thermometers, barometers, etc.) into a broken glass box. All mercury contaminated debris must be disposed of through the University's chemical waste program.
- 2.2.12. If mercury beads are unable to be collected due to inaccessibility (e.g. mercury beads between floor tiles), a slurry consisting of sulfur powder and water should be spread over and into the contaminated area.
 - 2.2.12.1. The slurry oxidizes the mercury metal to mercury sulfide which reduces the potential for mercury vapor release.
 - 2.2.12.2. The slurry should set for approximately 24 hours and can then be cleaned up with soap and water. If excessive pink or brown spotting is noted after the 24-hour contact period, the slurry should be wiped up with all cleanup materials being disposed of through the chemical waste program.
- 2.2.13. If the mercury spill occurs on a carpeted area, immediately contact EH&S at 412-624-9505 and exit the spill area until EH&S arrival. Avoid using mercury containing devices in carpeted areas.

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2.2.13.1. Mercury spills on carpeting or fabric may require removal of carpet or fabric surface pending the results of EH&S mercury vapor monitoring.

2.3. Contact EH&S for assistance with mercury spill cleanup or with questions regarding cleanup and disposal of mercury-containing devices and spill debris.

3. **Mercury Spill Prevention**

3.1. Mercury spills and the associated wastes are difficult to manage. Mercury spills that contaminate equipment such as incubators and ovens often cannot be completely cleaned due to gross contamination within the equipment. Often, the entire unit must be disposed of and treated as mercury-contaminated waste. EH&S recommends using ‘mercury free’ temperature reading devices to eliminate mercury spills and releases.

3.2. **MERCURY SPILLS CAN BE EASILY PREVENTED.** Since mercury spills most often occur as a result of broken thermometers, it is recommended that all mercury-containing thermometers be replaced with mercury-free alternatives. Mercury-free thermometers are available for a variety of temperature ranges and applications including (but not limited to): partial-immersion, total-immersion, refrigerator, incubator, and oven thermometers. Spills from mercury-free thermometers do not pose a chemical exposure hazard and do not require specialized clean up or decontamination procedures.

3.3. **For information about mercury-free thermometers, contact EH&S at 412-624-9505.**