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MERCURY SPILLS PROCEDURE

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1 Introduction

The purpose of this procedure is to inform any person who could come into contact with mercury of the appropriate action to take to protect themselves from any health risks.

2 Scope

This procedure applies to all University facilities, operations or equipment containing mercury is used or stored.

This clean up procedure is to be used for spills less than 40mL only. For spills over 40mL, evacuate and isolate the area. Then contact security on x4900 to arrange attendance by emergency services (HAZMAT) and contact the WHS unit on ext 3931 for further advice.

3 Health Hazards of Mercury

Mercury vapours are readily absorbed through the lungs into the bloodstream and are therefore particularly hazardous. In extreme situations, even several drops of metallic mercury may raise air concentrations to levels that may be harmful to human health. Mercury vapours are also heavier than air and may linger in higher concentrations close to the floor.

4 Procedure

1. If you have come into contact with the mercury follow first aid advice given in the Safety Data Sheet (SDS). **REMOVE ANY CONTAMINATED CLOTHING IMMEDIATELY**. All contaminated items must be double bagged and disposed of according to the [Hazardous Waste Disposal Guidelines](#).
2. Treat everything used during the clean-up procedure as 'hazardous waste'. Secure the scene (use barrier tape if necessary) and restrict admission to only those persons cleaning up the spill.
3. If possible, **LOWER the TEMPERATURE**. The cooler the temperature, the less mercury vapour will be released into the air (a temperature increase of 100°C will double mercury's vapour pressure). **CLOSE INTERIOR DOORS** leading to other inside areas and open exterior doors and windows.
4. Contact the WHS unit on ext 3931 to **DETERMINE IF THE SPILL MUST BE REPORTED OR IF YOU DO NOT FEEL COMFORTABLE IN CLEANING THE SPILL YOURSELF**. The WHS unit can arrange for someone more experienced in chemical spills management to come and clean the spill.
5. **CONTAIN THE SPILL**. Surround or block off the mercury to keep it from spreading onto sloped or porous surfaces. Divert mercury away from floor drains, cracks, or crevices that may impact groundwater, surface water, and soils. If there is a possibility of Mercury having gine down a drain the the s bend will need to be carefully removed and its contents disposed of according to the [Hazardous Waste Disposal Guidelines](#).
6. **VENTILATE THE ROOM** to the outdoors. **The danger of mercury exposure is greatest in small, confined, poorly ventilated areas**. Avoid breathing any dust, vapours, mist, or gas. Avoid contact with eyes, skin, and clothing.
7. **ASSEMBLE CLEAN UP SUPPLIES** or obtain a mercury spill kit. Mercury spill kits are commercially available and convenient, but not necessary to clean up a small mercury spill.

The following are some common articles that could be used to construct an in-house mercury clean-up kit:

- pasteur pipette/eye dropper/ syringe
- eye protection
- rubber gloves
- flashlight
- paper towel
- plastic container with sealable lid
- plastic bags with zipper seal
- tray or box
- rubber squeegee
- plastic dust pan
- adhesive strips
- powdered sulfur
- powdered zinc

Note: Used items are to be double-bagged and disposed of in accordance with the [Hazardous Waste Disposal Guidelines](#).

8. Put on **PERSONAL PROTECTIVE EQUIPMENT** including rubber gloves and goggles or safety glasses.
9. Inspect the spill zone with a bright light to help illuminate any hidden droplets. Special precautions should be taken if mercury was spilled in a high traffic area or a confined area.
10. **PICK UP ALL VISIBLE MERCURY DROPLETS** using a plastic squeegee or index card and plastic dust pan. With the index or plastic card, sweep the mercury toward the centre of the spilled area away from any carpet, fabric, or porous surfaces. Carefully combine and consolidate the mercury droplets. Next, slide droplets onto a sheet of rigid paper like an index card.

NEVER use a broom on a mercury spill because it will only scatter the mercury droplets, making them harder to find and pick up.

NEVER use a domestic vacuum cleaner to clean up mercury. These devices are not adequately filtered and will spread mercury vapours.

11. **GENTLY TRANSFER MERCURY INTO AN UNBREAKABLE PLASTIC CONTAINER** with a locking or air tight lid. If necessary, suction off the droplets using an eye dropper or syringe. Adhesive tape strips may also be used to clean up any tiny remaining mercury droplets. Place the plastic container inside a second plastic container to provide additional containment protection. Tighten each lid securely so that liquid and vapours will be contained.
12. **PLACE THE MERCURY WASTE CONTAINER(S) INTO A ZIP-TOP PLASTIC BAG.** This should ensure that in the event of any leakage, all mercury will be safely contained within the packaging. Attach a [Hazardous Waste Disposal Identification Label](#) to the waste package.

NEVER pour liquid mercury or mercury compounds down the drain. Since mercury is heavier than water, it will accumulate in the S-trap of your drain and may continue to emit harmful vapours. It is also an environmental pollutant.
13. **SPRINKLE FINE POWDER SULFUR OR ZINC ON THE SPILL SITE** to bind any remaining mercury. This may be supplied in mercury spill kits as mercury vapour absorbent or purchased separately from chemical suppliers. Apply over hard-to-reach areas such as cracks and crevices to minimise the release of mercury vapours. In instances where furniture has been exposed to mercury, wash fabric thoroughly and allow all items to air out completely. Mercury may lodge in porous areas like carpet backing or cracks and crevices.
14. **CHECK CAREFULLY FOR MISSED MERCURY.** To aid in detection, a high intensity lamp may be used to better illuminate the spill area. *The presence of scattered mercury droplets may also be detected by a sodium sulphide solution, which can be obtained from most chemical suppliers. This solution may also be sprayed on an affected person (but not*

the eyes, mucous membranes, or the mouth). Any mercury present will show up as dark, reddish brown stains. Residual mercury may then be uplifted by wiping the area with a vinegar-soaked swab, followed by a peroxide wipe.

15. **REMOVE and DISPOSE OF CONTAMINATED ARTICLES** that have directly contacted mercury. These items are to be double-bagged and disposed of in accordance with the [Hazardous Waste Disposal Guidelines](#).

DO NOT place mercury-contaminated substances in the rubbish bin.

16. **MONITOR SPILL ZONE FOR MERCURY VAPORS.** Even if the impacted area appears clean, there may still be hidden residual quantities of mercury present that emit vapours. For larger-sized spills, it may be necessary to test mercury vapour levels in the immediate area. (Contact WHS Unit who can try and source a Mercury detector from other schools/centres or alternatively to source appropriate occupational hygienists) If mercury is detected, re-clean the impacted area using previously mentioned procedures and repeat testing until levels fall to within safe parameters.

17. **WASH HANDS EXPOSED TO MERCURY** using an alkaline soap.

18. **CONTINUE VENTILATION** to completely air out the spill zone with outside air for a minimum of two days, preferably longer.

Use fans to force air circulation for a minimum of one hour after clean up. In an office building, increase the air exchange rate for one day.

19. **REPLACE** broken device with a '**MERCURY-FREE**' alternative.

20. Produce an **INVENTORY** of all remaining mercury-containing devices and consider substituting them with mercury free alternatives.

5 Version Control Table

| Version Control | Date Released | Approved By | Amendment |
|-----------------|---------------|-------------|------------------|
| 1 | November 2016 | Manager WHS | Document created |