**Manchester Institute of Biotechnology - Risk Assessment Form**



| Date: 20/01/15 | Assessed by: Steve Marsden | Validated by:Tanya Aspinall | Location: General lab areas  |  | Review date: 2016 |
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| Task / premises: Cleaning up a broken mercury arc lamp after explosion or at room temperature  |

| Activity  | Hazard  | Person(s) in danger  | Existing measures to control risk  | Risk Rating | Result  |
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| Broken mercury lamp following explosion | **Mercury** - Corrosive. Harmful if inhaled and easily absorbed through lungs, skin and alimentary system.Can cause burns **Glass** – cuts and puncture wounds  | Microscope user and those in the vicinity  | Following recommendations in the UV lamp risk assessment should greatly reduce the risk of explosion.In the event of an explosion, the lab will be evacuated and a member of staff trained in mercury clean-up will return to the microscope once the lamp housing has cooled down and the mercury vapour has had time to condense. The lamp power should be turned off at the PSU and at the mains. A mercury spills kit is available outside the MIB Safety Office (2.015). The enclosed instructions should be followed to clean up the spill.The following items of PPE must be worn: Howie-style laboratory coat, BS EN374 compliant gloves (nitrile) and BS EN166 compliant eye protection (chemical splash proof safety glasses) and a face visor. A selection of safety glasses and goggles are available from MIB Stores; users are advised to visit Stores and select eye protection which fits well and is comfortable to use. Regular lab inspections monitor the wearing of PPE; users found not to be wearing PPE when the risk assessment states that it must be worn will be subject to the MIB compliance policy.Traces of mercury can then be cleaned up as follows; • Place the lamp housing into a large plastic bag before removing it from the microscope in order to contain the spill.• Working inside the plastic bag where possible; remove the larger pieces of glass, use tweezers or a fine brush – place in a suitable container and clearly label it (plastic lunch boxes / glass jars are good) and temporarily store it in the fume hood.• In practice very little liquid mercury will be visible following a mercury bulb explosion. Sprinkle granules from the mercury spills kit onto the inside of the lamp housing and on any other surface where debris from the explosion is evident. Leave for a couple of hours and then mop up with damp blue role CAUTION – some small glass shards may be present.• Place the plastic bag along with all debris and used blue role in a sealable plastic box and clearly label it. Close the box, dispose of as mercury contaminated hazardous waste.• Wash hands thoroughly with soap and water• Complete an incident report form (See MIB H&S intranet for guidance). | Low | A |
| Cleaning up a broken mercury lamp at room temperature | **Mercury** - Corrosive. Harmful if inhaled and easily absorbed through lungs, skin and alimentary system.Can cause burns **Glass** – cuts and puncture wounds**Flower of Sulphur** - Causes eye and skin irritation  | All those in the vicinity. | Spent mercury bulbs should be stockpiled and then taken to hazardous waste disposal. Mercury vapour lamps contain very little mercury but care should still be taken especially if more than one lamp has been broken.Procedure to be followed Immediately:* Stop the spill of mercury spreading by creating dikes of blue roll
* Stop all foot traffic in the vicinity of the spill and evacuate the immediate area.
* Stop further activity in lab until clean-up is complete.
* While in the area, place overshoes over normal shoes to protect them from contamination.
* (The overshoes should be removed before leaving the area and disposed of as hazardous waste as they may be contaminated with mercury.)
* Immediately ventilate the area to provide the highest level of air circulation possible.

The following items of PPE must be worn: Howie-style laboratory coat, BS EN374 compliant gloves (nitrile) and BS EN166 compliant eye protection (chemical splash proof safety glasses) and a face visor. A selection of safety glasses and goggles are available from MIB Stores; users are advised to visit Stores and select eye protection which fits well and is comfortable to use. Regular lab inspections monitor the wearing of PPE; users found not to be wearing PPE when the risk assessment states that it must be worn will be subject to the MIB compliance policy.* Remove the larger pieces of glass, use tweezers or a fine brush – place in a suitable container and clearly label it (plastic lunch boxes / glass jars are good) and temporarily store it in the fume hood
* Carefully gather as much mercury together as possible by using a straight edge e.g. a piece of cardboard. (The larger the drops the smaller the surface face area to mass ratio and the lower the evaporation will be).
* Collect up the mercury using a small brush / damp paper / adhesive tape. CAUTION – some small glass shards may be present.
* Place in a sealable plastic box and clearly label it. Close the box, dispose of as mercury contaminated hazardous waste.
* Sprinkle the affected area(s) with granules from the mercury spills kit, located outside the MIB Safety Office (**2.015) and follow the enclosed instructions.**
* This should finally be carefully swept up; place in a suitable, labelled container as above and disposed of as hazardous waste.
* Sweep up with a soft brush and place in a sealable containers (preferably the one containing the thermometer) and temporarily store in a fume hood until is can be disposed of as hazardous waste. Dispose of the brush and pan used to sweep up.
* Wash hands thoroughly with soap and water

Finally * Complete an incident report form and return to MIB Safety Office
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| **Authorisation by PI** **I confirm that I have considered and understand the experiment and the associated hazards. I am satisfied that all of the hazards have been identified and that the control measures to be followed will reduce the risks to acceptable levels.** **Print name: Signed:****Date:** |

**Declaration by researcher**

**I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated. Where PPE has been identified as a control measure, I will ensure that it is worn.**

**Declaration by PI**

**I confirm that the researcher who has signed below is competent to undertake the work. My counter-signature indicates that I am happy for the work to proceed.**

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| **Name (please print)** | **signed** | **PI countersignature** | **date** |
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