

Title of HWBGM Guidance Note: **COSSH Assessment of Mercury Bulbs usage.**

Issue Number: **HWBGM/GN02/38**

Cross Ref. to University of Oxford Guidance Note:

Introduction

Three Microscopes in room 00/070 house mercury bulbs. If the Mercury Bulbs are not used correctly, then there is a risk that they will explode, releasing Mercury Vapour into the area. This assessment outlines the risk of this occurring and the practises that must be adopted by **ALL** users.

Responsibilities

All **Users** must ensure they are fully aware of the risks associated & understand the appropriate actions to take before they start using the instruments.

The **Cellular-Imaging Core Head, Sergi Padilla** is responsible for ensuring that all users are made aware of these risks.

NOTE:

This guideline must be read in conjunction with the 'Instruction Manuals' for any specialist equipment used.

Risk Assessment

The hazard associated with the use of Mercury Bulbs, is the potential release of Mercury Vapour:

- **Mercury is very toxic & if inhaled could lead to serious Liver, Kidney or CNS damage.**



In the event of a **long-term exposure** it could also cause **Death**. The present accepted threshold limit for Mercury in air is 0.05 mg m⁻³. (NB. air saturated with mercury vapour at 20°C exceeds the toxic limit by 100 times). Therefore if a bulb exploded, then the potential exposure is highly significant.

The mercury bulb is contained within the lamp housing of the fluorescent Microscope. It is readily accepted that in this position the bulb is stable and the risk of any explosion is Highly Unlikely, provided:

- The bulb is not damaged or faulty.
- It is fitted correctly.
- The usage life-time of the bulb is not exceeded

Therefore provided the following guidelines are in place, the risk to any user of the Microscope Room 00/070 is Effectively Zero.

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Do's & Don'ts

- Only **Authorised Personnel** are permitted to use the Microscope Room without supervision. Authorisation will be controlled by the use of a Swipe-Card system. You will only be able to gain access by the use of authorised swipe-cards – Please ask cellular-imaging for further details.
- You **must** book in advance to ensure mercury bulbs are not turned on/off unnecessarily.
- Always check the bulbs were previously turned off before turning on again. You **must** allow 30 mins for the bulbs to cool before turning them on again.
- Allow **bulbs to run for a minimum of 30 mins** before turning off.
- The **last person booked** in for the day is **responsible** for ensuring the system is **turned off**, even if they decide not to use it.
- **Record** the time the **bulb** was **switched of & its usage**, within the logbook provided.

In Addition

- Bulbs must be replaced before the lifetime of the bulbs expire (*refer to manufacturers instructions*).
- Installation & alignment can only be carried out by:

Cellular Imaging Microscopy Core Staff

Emergency Procedures

If you feel a bulb has exploded then:

- **Leave the room immediately.** If someone else has been exposed to Mercury Vapour & only if it is safe for you to do so, remove him or her also from the area.
- Carry out WTCHG Normal Emergency Procedures for dealing with Chemical Exposure. If severe, contact Medical Attention Immediately.
- **Inform** a member of the cellular-imaging group, **Security &/or H&S Officer** immediately.
- **Vacate**, along with anyone else in the vicinity, room 00/069.
- Place a sign on the outside of both entrances to room 00/069, stating 'DANGER - DO NOT ENTER – MERCURY BULB EXPLOSION'. Security will ensure that both doors are locked to prevent re-entry.
- Allow the room to **Ventilate** continuously for at **least one hour**.
- After 1 hour, remove lamp housing to the fume hood, open and leave for a further 24 hours for remainder of vapour to dissipate.
- Remove glass to sharps and contain any mercury liquid using Mercury Spill kit in the Spill Kit housed in room 00/081. Ensure all housing & mirrors are cleaned and all potential mercury is collected.
- **Record** the incident within the **Accident Book** held in Reception.

Further Information

If you have any difficulties while using the Microscopes within the HWBGM, then please contact cellular-imaging@well.ox.ac.uk for further help & advice.