

STANDARD OPERATING PROCEDURE

Procedure	Working with benzene
School/Department:	School of Molecular Bioscience
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Version:	SMB053.2

Section 1 - Personal Protective Equipment (PPE)

1. Buttoned-up lab coat
2. Enclosed footwear
3. Safety goggles
4. Nitrile gloves

Section 2 – Potential Hazards

1. Skin contact/inhalation/ingesting – benzene is toxic and a known carcinogen
2. Catching fire/explosion – benzene is a flammable liquid
3. Workers with pre-existing medical conditions (e.g. allergy, immunocompromised state, chemical sensitivity) and workers who are pregnant or expecting pregnancy must consult with their supervisor AND medical specialist AND the university's WHS services before performing this procedure. If there are any serious concerns expressed by any of these individuals, this task must not be performed.

Section 3 – Procedure

1. Use less hazardous materials whenever possible
2. Know the location of spill kits, eyewashes, safety showers, fire extinguishers and fire blankets before starting work.
3. Wear appropriate PPE
4. Minimize the handled quantities of benzene by preparing small aliquots whenever possible
5. Conduct all the work with benzene under the fume hood, keeping it away from potential ignition sources

Section 4 – Disposal / Spills / Incidents

1. Any small spills of benzene that could occur in the fume hood will be taken care of by the strong airflow in the fume hood, which will prevent it from being inhaled or contacting ignition sources
2. In case of skin contact with benzene, the affected areas must be thoroughly washed, removing all contaminated clothes.
3. In case of dizziness, drowsiness or other neurological symptoms after accidental breathing in of benzene vapours, one must contact a Doctor or/and Poison Information Centre immediately.
4. The one serious incident that may occur would be if the whole 2.5L bottle of benzene were broken. If this occurred in the fume hood, the corrective actions would be to just wait for the liquid to evaporate, meanwhile ensuring the sash of the hood was drawn down very low (~10 cm) to minimise any escape to the lab area, and for workers to leave the lab area until it is safe to be re-entered. If the bottle's contents were released outside of the fume hood, this would be the most serious possible emergency. In this event, all workers would leave the lab immediately, and trigger the fire alarm on the way out in order to evacuate the building and call emergency services.
5. In case of accidental inhalation and/or spillage of quantities > 50 mL the Safety Officer at SMB and the Chair of the Safety Committee must be informed immediately and a Riskware incident be submitted within 24 hours.
6. Benzene is to be disposed in a separate container - see SOP "Disposal of hazardous chemical waste" (SMB008).

Section 5 – Repairs / Certification / Validation

Not applicable.

Section 6 – Relevant safety data sheets (to be available and accessible)

1. Consult SDS for benzene supplied by the manufacturer
2. See also risk assessment "Chemical Spills", and SOPs: "Use, storage and disposal of flammable liquids" (SMB013), "Using a fume hood" (SMB016), "Handling toxic chemicals" (SMB034).

Section 7 - References

SOP Consultation, Training and Approval

Print names and enter signatures and dates to certify that the persons named in this section have been consulted/trained in relation to the development and implementation of this Standard Operating Procedure. WHS Representative (WHS Committee) certifies that consultation has taken place.

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Signature: **Date:** 30/3/15

WHS Committee Representative Name (Printed): MARKUS HOFER.....

Signature:  **Date:** 30/3/15