## Procedure:
Use, storage and disposal of flammable liquids

### School/Department:
School of Molecular Bioscience

### SOP prepared by:
Dianne Fisher and Nick Coleman

### Version:
SMB013.3

### Section 1 - Personal Protective Equipment
1. Safety glasses or goggles (face shield if appropriate)
2. Lab coat or gown
3. Gloves (refer to specific chemical SDS for appropriate glove selection, but nitrile gloves are appropriate for most solvents/flammables)
4. Fully enclosed shoes (preferably leather) with non-slip soles
5. Avoid wearing flammable clothing (e.g. synthetic fabrics like polyester) or clothing which produces static electricity.

### Section 2 – Potential Hazards + Safety precautions
1. Consult SDS for potential hazards of a specific chemical – it is essential that you know the risks of the chemicals you are working with *before* you begin hands-on work. Check with your supervisor if you are unsure about anything, especially if you are not sure the risks of the chemical can be adequately controlled.
2. Flammable substances are usually chemicals which may pose a fire or explosion hazard. Flammable liquids and solids may produce flammable vapours which can ignite from distant ignition sources.
3. It is important to minimise the amount of flammables kept in the work area. Store these in dedicated flammables/solvent cabinets away from incompatible materials (e.g. oxidisers and acids), and away from heat/ignition sources.
4. Flammable chemicals may also have other hazardous properties such as “toxic”, “corrosive”, carcinogenic”, etc – these properties should also be taken into account when storing/using the chemicals.
5. Manipulation of flammable chemicals should be carried out in a working fume hood whenever possible.
6. Know the locations of the nearest fire extinguisher, fire blanket, and spill kit and know how to use these in an emergency.
7. 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. Obtain and read SDS for each flammable chemical to be handled.
2. Wear PPE, especially eye protection, lab coat and gloves.
3. Know the location of the nearest appropriate spill kit, fire extinguisher, fire blanket and emergency exits before beginning work. All workers should be trained in fire control measures before working with flammables.
4. Large bottles of flammable liquids should be transported using a Winchester carrier. Smaller bottles should be transported inside a secondary container where possible (e.g. polyethylene). Use two hands to carry bottles.
5. Flammables should be used in a well-ventilated area, preferably a working fume hood (volumes > 100 mL)
6. Only use the smallest practical quantities of flammables for the experiment being performed. Lids of containers should be kept tightly closed when not in use.
7. Do not use flammables near naked flames (e.g. Bunsen burners) and other ignition sources.
sources such as power points and electrical equipment (e.g. hot plates).
8. Flammables should not be used within 3 metres from any potential ignition source (e.g. electrical devices including fridges and freezers).
9. Ensure all containers containing flammable chemicals are appropriately labelled with at least the “chemical name” and the warning diamond pictogram “FLAMMABLE”.
10. Dispose of excess/unused flammable chemical waste into designated “flammable/solvent” waste receptacles for disposal as hazardous wastes (Room 225) – do not put down sink.

Section 4 – Spill Procedure and Waste Disposal
1. Consult SDS of specific chemical for spill procedure
2. Keep an appropriate spill kit and appropriate PPE in lab and be informed how to use them (ensure you are properly trained).
3. For minor spills, some liquids may be able to be absorbed with paper towel and/or left to evaporate overnight if in a fume hood. Any material used to clean up spills should be placed in a labelled plastic bag (e.g. label with name of chemical and ‘Flammable’), then leave bag open in fume hood overnight to allow any residual vapours to disperse. Seal bag, and dispose of as hazardous chemical waste (See SOP/risk assessment for chemical waste).
4. Dispose of excess/unused flammable chemical waste into designated “flammable/solvent” waste receptacles for disposal as hazardous wastes (Room 225) – under no circumstances is flammable waste to go down sink.

Section 5 – First Aid
1. First aid – Consult SDS of specific chemical for treatment advice.
2. Eye contact – use emergency eye wash/shower and flush affected area on body (remove any jewellery) with copious amounts of water for at least 15 mins. Seek medical advice.
3. Skin contact – wash affected area with soap and water immediately.
4. Inhalation – Move exposed person to well ventilated area if safe to do so. Seek immediate medical advice.
5. Ingestion – Seek immediate medical advice.
6. Any incidents involving flammables (fire, injuries, large spills) must be reported to your supervisor and via the online incident reporting system. Near misses (hazardous situations not leading to an incident) should also be reported.

Section 6 – Storage and transport
1. All flammables should be stored correctly in dedicated flammables/solvent cabinets away from incompatible materials (e.g. oxidisers and acids) - consult individual chemical’s SDS for storage compatibilities with other chemicals. Do not store flammables in sump area (base of cabinet). Maximum volume capacities of cabinets apply.
2. Flammables that are used infrequently and any large or excess volumes of flammable should be stored in the dangerous goods depot (‘bunker’), rather than in the laboratory.
3. Flammables should not be stored in normal refrigerators – these are electrical devices and thus a potential ignition source (fridges must be appropriately approved for flammable storage).
4. The minimum possible amount of flammables should be kept in the work area. Empty or near-empty bottles should be removed from the laboratory. Do not store full or empty bottles on the floor as they present a tripping hazard.

Section 7 – Relevant Material safety data sheets
Consult SDS of specific chemical.
**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.

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employee / student</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Name Authorising (Printed):* DIANNE FISHER

*Signature:* .................................................. *Date:* 2/3/15

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

*Signature:* .................................................. *Date:* 2/3/15