



LOCATION DETAILS

School/Branch: School of Molecular & Biomedical Science

REFERENCE DOCUMENTS

MSDS Ethanol
SOP Fume cupboards
MBS Waste Management System

Date Prepared:
28th April 2010

PREPARED BY: Name, position, & Signature (insert names of supervisor, HSO, subject matter expert)

Kate Dixon – Health & Safety Officer
Uwe Stroehrer – Senior Research Officer
Thomas Tu – PhD student

Signature:

RISK ASSESSMENT

Has a risk assessment been completed and all other environmental considerations been made?
YES

See risk assessment dated:
21st April 2010

Risk Rating:
Low
Medium
High
Very High

RISKS IDENTIFIED

- Heat/fire from ignited ethanol
- Burns from hot instruments/flame from bunsen burner
- Accidental gas leakage
- Illness/effects from exposure to contact with ethanol
- Chemical spill

SAFETY PRECAUTIONS

The following control measures **MUST** be adhered to:

- Informal training by an experienced person must be given to all staff/students prior to undertaking this activity.
- Wear appropriate PPE
- Ensure container size used is no greater than 100ml in capacity
- Ensure waste is disposed of through the School's Waste Management System

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

The following PPE must be worn at all times:

- Safety glasses
- Lab coat

NB: latex gloves may not be suitable as the gloves may melt and stick to skin if exposed to flame.

SAFE OPERATING PROCEDURE

PREPARE THE ETHANOL JAR

1. Put on the necessary personal protective equipment.
2. Ensure that the work area is free of potential ignition sources. If working in a laminar flow cabinet, ensure cabinet is on.
3. Take the stock ethanol from the flammables cabinet and place on the work surface. Make sure you have a firm grasp on the container during transfer. If you already have a pre-prepared 100ml container of 70% ethanol, you can use this).
4. Select an empty jar or bottle (not plastic) with a maximum of 100ml capacity and label appropriately.
5. Carefully decant the ethanol you require from the bottle into the selected jar, transferring a maximum of 50ml into the jar.
6. Close both the lid on the stock bottle and the jar of newly filled ethanol. Return the stock ethanol to the flammables cabinet.
7. The ethanol jar must be positioned at least .5m from the Bunsen burner.

STERILISATION PROCEDURE

1. Turn on the gas mains at the tap and light the gas burner. Adjust the gas flow so that the flame is visible. This is important if you are using the Touch-a-matic burners - these only have a small flame that may be difficult to see.
2. Carefully remove the lid from the ethanol container ensuring that the container is **positioned at the opposite side of the bench or a minimum of 0.3m approximately**.
3. Dip your spreader into the ethanol, lift it out and pause to allow drips to fall back into the jar. You may tap it gently against the jar to remove excess solvent.
4. Replace the lid on the ethanol jar, then touch the tool in the flame to flame-sterilise the tool and burn off the excess ethanol. **If you need to re-sterilise the tool, do not re-dip the tool in ethanol unless you are absolutely sure that the flame on the tool is extinguished.**
5. Use the tool to spread your microbiological sample on the Petri dish.
6. Place the spreader in an empty container (such as a beaker) pending sterilisation for the next spread or return to the 100ml ethanol container.
7. Repeat the process – steps 2 to 6 –as required.
8. At the end of activities, **turn off the gas at the mains supply**. If you are working in a Laminar Flow cabinet you will need to turn off the gas mains at the bench tap, and also the tap inside the Laminar Flow cabinet.

CLEAN UP

1. Dispose of used ethanol as **flammable waste** or leave to evaporate in the fume hood. Fill out the manifest form and return to the School Health and Safety Officer to organise it's removal.
2. Store the jar away from ignition sources ensuring the lid is secured.
3. Disinfect any contaminated items from the procedure such as the beaker, used to hold the spreader between sterilisations. Spray out with 70% ethanol and take it to the wash up room for cleaning.

OTHER INFORMATION

TRAINING

Prior to first time use, (informal) training of personnel by an experienced user is required.

EMERGENCY

Fire: In case of fire ensure you know the location of your nearest fire-blanket and fire extinguisher. Fire extinguishers are available in each laboratory – ensure use of the appropriate extinguisher. If fire is uncontrolled instigate emergency response through the Chief Warden or Security. A fire from a small amount of ethanol contained in a beaker is easily extinguished by starving of oxygen.

Chemical Spill: Chemical spill kits are available in each laboratory.

General: Report any malfunctions, accidents or incidents to your supervisor and the School Health and Safety Officer. Call for First Aid if needed.

INSTRUMENT STERILISATION ALTERNATIVE OPTIONS

- Use commercially available Pre-sterilised spreaders (plastic). These can be collected after use for disinfection by autoclaving or bleach, cleaned and sterilised in paper bags for reuse. Alternatively they can be recycled as plastic waste after they have been sterilised (bleach or autoclaving)
- Where possible, and if budget permits, use Glass Bead Sterilisers for sterilising instruments for aseptic work. These cost approx \$1000.00 each. However they are unsuitable for work with spreaders for a number of reasons (the instrument port is generally too small for spreaders, glass instruments break when inserted into the glass beads and worker efficiency is greatly reduced due to the time required for instruments to cool down between actions).

FIRE HAZARD FROM USE OF GAS

Care is of upmost importance when working naked flames. Ensure your work area is uncluttered and all flammable items are well clear of any flame source.

Gas taps which control supply to burners must always be turned off when gas is not in use.

In Laminar flow cabinets, 2 taps control supply – one mains supply tap at the lab bench exterior to the Laminar Flow cabinet, and another internal to the cabinet. **Both taps must be turned off when the burner is not in use.**

If only the internal tap is turned off, the mains supply is still connected; there is a risk of gas leakage from pressure in the line from the mains tap to the cabinet.

BURNS HAZARD

Safe practice for use of gas burners in the Cabinets is to always have the **flame of the burner set such that it is burning yellow, not blue, and is visible to the user.**

This will reduce the risk of the user accidentally burning themselves. If a blue flame is required to heat sterilise an instrument, adjust the burner to burn with a blue flame only while the procedure is in place. The burner should be adjusted to yellow again once the procedure is completed.

Instruments heated using a Bunsen burner have the potential to cause burns to the user. All instruments should be handled by the end that is not exposed to the flame.

ADMINISTRATION

Note: This Safe Operating Procedure must be reviewed :

- a) after any accident, incident or near miss;
- b) when training new staff;
- c) if adopted by new work group;
- d) if equipment, substances or processes change; or
- e) within 5 years of date of issue.