Standard Operating Procedure **SOP042**

Title: RECEIPT AND PURCHASE OF CHEMICALS AND SOLVENTS

Location: CBE Laboratories

1. PURPOSE

The purpose of this SOP is to outline a procedure for the safe receipt of chemicals and solvents and their delivery to the appropriate recipient.

2. SCOPE

This SOP applies to containment level 2 (CL2) CBE laboratories and personnel, including the CBE Laboratory Unit (located in the Holywell Park) and the CBE Tissue Engineering Laboratory T208B (located in the Wolfson School).This SOP applies to the purchase and receipt of all laboratory chemicals and solvents and should be read in conjunction with SOP048; "Generation of Risk Assessments for New Materials and Processes" and SOP039; "Storage, Handling & Disposal of Chemicals". This SOP does not describe the purchase and receipt of radiolabelled compounds which are not permitted in the CBE facilities or the purchase and receipt of biological agents which are described elsewhere (SOP008).

3. RESPONSIBILITES

3.1 Receiver staff

- Shall log in package in accordance with local safety rules.
- Shall observe all local safety rules on handling known and unknown hazards.

3.2 Recipient Laboratory staff

- Shall log in samples in accordance with the details of this SOP
- Shall observe all local safety rules on handling known and unknown hazards
- Shall wear Personal Protective Equipment (PPE) including gloves, lab coat, and eye protection when opening packages containing potentially hazardous substances. **Consult Risk assessment and COSHH forms for requirement for special precautions.**
- Shall have spill kit readily available to use in the event that a primary sample container is found damaged.

4. EQUIPMENT, MATERIALS and HEALTH AND SAFETY NOTES

1. Chemical Spill Kit
2. Solvent bottle carriers and trolley

3. Personal Protective Equipment including disposable gloves and lab coat as a minimum. Consult Risk Assessment and COSHH Assessment Record for special precautions.

SPECIAL NOTES : HEALTH & SAFETY

All procedures should be performed adhering to all Health and Safety Codes of Practice

4.1 Definitions

4.1.1 Quarantine

Quarantine is a designated area where samples will be placed until identified, checked and logged in as described in this SOP by both the receiver and the recipient (see below). Samples arriving on ice, dry ice or labelled to require cold storage must be dealt with immediately.

4.1.2 Receiving (may be designated Goods Inward Personnel)

The person designated to receive and inspect chemical shipments. The receiver should be a person trained to recognize the hazardous nature of the material being received and whether or not the package is labelled and documented appropriately.

4.1.3 Recipient

The person whose name appears on the address label or an authorized person designated to receive chemical shipments

5. PROCEDURE

5.1 Package Delivery - Receipt of chemical or solvent substances

5.1.1 Before accepting the package, receiver should examine the shipment for the following:

- Integrity of the packaging - inspect it for leakage, i.e. indicated by broken or improperly sealed containers or any other damage. If the package is leaking or damaged in any way receiving should follow the instructions detailed in Section 5.2.

- Proper paperwork and labelling: The label and accompanying documentation should be examined and this information given to the Laboratory Manager, the recipient or other designated personnel

- The package should be checked to ensure that its identity (product code and batch number) is the same as that on associated documentation

5.1.2 If accepted, receiver must place all packages containing chemicals or solvents in quarantine upon arrival.

5.1.3 Receiving must notify the Laboratory Manager or technical personnel to whom the package is addressed immediately on arrival.

5.1.4 The relevant delivery note/invoice is essential in the finance/stores system chain for maintaining a documented history. If any goods are delivered directly to the recipient without the acknowledgement of the Goods Inward Personnel, it is the responsibility of the recipient to pass the relevant delivery note/invoice to Finance Office. If a delivery note is unavailable, then a Good Received Note (GRN) must be filled out and submitted to the Finance Office. A copy of the GRN form is available at: http://www.lboro.ac.uk/service/purchasing/pages/standardforms.html.

5.2 Leaking or Damaged Packages

5.2.1 Leaking or damaged packages must NOT be accepted. If evidence of leakage is found subsequent to acceptance, receiving personnel should:

- Not handle the package. It should only be handled by personnel trained in spill clean-up procedures and wearing appropriate personal protective equipment
- Isolate the area around the package
- Notify the recipients and the DSO

5.2.2 If anyone has handled the package and may have exposed their skin to the leaking material, wash the affected area with soap and warm water and then contact the recipient immediately

5.2.3 The recipient should clean up any spill and decontaminate the area according to the procedure detailed in SOP039 and summarised in ANNEX I

5.3 Opening the Package (Recipient only)

5.3.1 Each batch of chemical or solvent received should be delivered to the laboratory using a suitable carrier e.g. designated solvent carrier or secondary containment as required.

5.3.2 If multiple or heavy packages are received at the any of the CBE facilities, use the designated trolley

5.3.3 If the package appears leaking or damaged, it should be contained and transferred to a fume cupboard and opened by personnel trained in spill clean-up procedures wearing appropriate personal protective equipment.

5.3.4 Handle damaged or leaking shipments as chemical spills – see Section 5.2.3.

5.3.5 **If you find a sample container broken**, use forceps or other mechanical means to remove the broken glass and place it into a sharps container for disposal.

5.3.6 Report damaged or leaking packages to the Laboratory Manager or Department Safety Officer (DSO).

6. DOCUMENTATION

The following records are outputs of this SOP:

Chemical Inventory Record is completed according to QS-Form-013

These records shall be filed and stored in the CBE Office or otherwise archived for future review or retrieval.

ANNEX I: Chemical Spill Control Procedure (refer to SOP039 for further details)

The Laboratory Chemical Spill Clean-up Procedures have been developed to give guidance to knowledgeable laboratory personnel on the safe and effective way to clean up small laboratory spills. If you have ANY questions or concerns about the spill clean up process, contact the DSO.

Note that the majority of chemical spills can be prevented or minimized by:

(i) Maintaining a neat and organized work area

(ii) Performing a laboratory procedure review prior to conducting new experimental procedures

(iii) Storing liquid chemicals in secondary containment bins

(iv) Keeping reagent chemical containers sealed or closed at all times, except when removing contents

(v) Ordering reagent chemicals in plastic or plastic coated glass containers whenever possible

(vi) Using secondary containment to store and move chemicals.

Laboratory personnel can clean up the majority of chemical spills that occur. Due to the hazardous properties of certain chemicals or size of the spill, assistance from the DSO may be necessary when a spill occurs. The following table contains a list of chemical classes with examples that might require assistance from the DSO:

- Strong Acids - Any acid that is concentrated enough to fume or emit acid gases i.e. Fuming Sulphuric Acid, Red Nitric Acid, Hydrofluoric Acid, Perchloric Acid
- Strong Bases - Any base that is concentrated enough to emit vapours i.e. Ammonium Hydroxide
- Poison by Inhalation - Any chemical that readily emits vapours / gases at normal temperature and pressure that are extremely toxic by inhalation i.e. Phosphorous Oxychloride, Titanium Tetrachloride, Formates, Isocyanates
- Reactive - Any chemical that is sensitive to air, water, shock, friction and/or temperature i.e. Dry Picric Acid, Lithium Aluminium hydride, Sodium Borohydride, Phosphorus Metal, Organic Peroxides
- Mercury - Any mercury compound i.e. Metallic Mercury, Mercury Salts, Aqueous Mercury Solutions
- Extremely Toxic - Any chemical that is readily absorbed through the skin and is extremely toxic at small concentrations i.e. Benzene, Sodium Cyanide,

NOTE: ALL spillages of mercury MUST be reported, irrespective of size, to the DSO.

Spill Response Guidelines

(i) GET AWAY: If you see or smell a hazard move away to a safe distance, turn off any sources of ignition if you are not taking any personal risk in doing so. Spills can be dangerous, if so you do not know how to properly deal with it stay away and get someone with more experience.

(ii) IDENTIFY THE SPILL: Do not go back to a spill. Did it have a label? Was it foaming or fuming? Was there a fire? What colour was it? Did it have a characteristic smell?

(iii) GET HELP: Do not attempt to clear up a major spill on your own. Get assistance and whenever possible, a trained emergency spill team. In some cases the emergency services are required.

(iv) SEAL OFF THE AREA: Keep other people away from the hazard. Warn people of the hazard.

(v) LOOK FOR INJURIES: If you find someone injured get them to fresh air as soon as safely possible. Keep them warm and quiet. Seek medical help. If the victim is not breathing perform artificial respiration if it is safe to do so, remember they may have contacted something poisonous. Remove any contaminated clothes and if the hazardous material has come into contact with the skin flush with running water for no less than 15 minutes. DO NOT BECOME A CASUALTY YOURSELF. If you do not have the right protective equipment, do not retrieve a casualty from a spill area. Where casualties are involved 1st aid and or medical personnel should be called to attend.

(vi) IDENTIFY THE HAZARD: Identify what chemical/ chemicals are involved in the incident; evaluate what the potential dangers are by consulting the MSDS (MATERIAL SAFETY DATA SHEET), COSHH assessment form or SIGNS AND LABELS.

Chemical Spillage Clean Up

Having followed steps 7.2 (i)-(vi), notify the DSO if this has not already been done, and then, if the spill can be dealt with at a laboratory level proceed to:

(i) Make sure you have the correct personal protective equipment to deal with the spilled material.

(ii) Take the spillage kit to the site of the spill.

(iii) Liberally spread the absorbent material in the spill kit over any **liquid spill**.

(iv) Using the dustpan and brush shovel and sweep up the absorbent and place it in the disposal bag (do not overfill the bag). Label the bag appropriately (for example; methanol on spillage absorbent) and contact the person responsible for departmental site waste disposal.

(v) **For Solid Spills** use the following procedure:

- Use the plastic shovel to place the spilled material into a disposal bag. Care should be taken so as not to create dust or cause the contaminated powder to become airborne.
- After the bulk of the material is cleaned up, wet a spill pad and wipe the area down.
- Place the pads into the disposal bag.
- Wipe the area down with a wet paper towel. Dispose of paper towel with the waste

generated from the spill clean up. Remove gloves and other contaminated garments and place them in a bag/container. Seal bag with tape.

- Thoroughly wash hands, face, and other apparently contaminated areas again with soap and water

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SOP Version History

Version Reviewed	Date Revised/ Reviewed	Revision Summary	New Version Number
1.0	14.04.10 A. Chandra & C. Kavanagh	Annual Review – Following minor administrative revision identified: 1. Section 4 (1) Removal of the reference 'SOP026: Use and Maintenance of the Fume cupboard' New version issue not required	Not Issued
1.0	23/02/2011 P.Hourd	Revised scope to include the CBE Tissue Engineering Laboratory (T208B), located in the Wolfson School	2.0
2.0	18 October 2012 A. Chandra	Revised to the lean format. Removed the form as a QS form.	3.0
3.0	13th November 2015 K.Sikand	Reviewed SOP, minor editorial corrections. Kept same version number.	3.0
3.0	13th December 2019 by C.Kavanagh	Reviewed SOP. No amendments required	3.0