Standard Operating Procedure

Laboratory Chemical Waste Disposal

H&S Document No	SSHS SOP008	**Version**	2.0	**Date Issued**	November 2023
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Contents

1.0 Purpose

This SOP has been written to assist laboratory users in the removal of hazardous chemical waste, old containers, and potentially hazardous glassware.

2.0 Definitions

Hazardous Waste - Wastes classified as 'hazardous' in The Hazardous Waste Regulations 2005 amended 2016 (Schedules 1 and 2) or in The European Waste Catalogue (EWC) 'List of Wastes'. Other wastes which display one or more of the hazardous properties (HP1 to HP15) listed in the Regulations (see the Environment Agency Guidance WM3). Waste is 'legally' defined as chemically hazardous if it contains hazardous chemicals above the numerous thresholds detailed in WM3, found here:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1021051/Waste_classification_technical_guidance_WM3.pdf.

Essentially, if the waste material exhibits any of the following characteristics it is subject to hazard waste regulation:

- Ignitable (flammable, easily catches on fire)
- Corrosive (pH ≤ 2 or ≥ 12)
- Reactive (unstable under normal conditions, reactive with water or air, self-reacting, peroxide formers, etc.)
- Toxic (acute or chronic health hazard, environmental toxicity)

3.0 Scope

This SOP is intended as a guide and must be interpreted and modified to be applied using appropriate risk assessments that reflect the actual research work and lab protocol being used.

4.0 Responsibilities

4.1 Laboratory User

Every individual has the responsibility to ensure that chemicals used by themselves, or others are appropriately stored following the current procedure. Laboratory users are responsible for:

- Ensuring that a suitable and sufficient Risk Assessment is in place before carrying out any work involving hazardous substances. The Risk Assessment should be approved by the Principal Investigator/Line Manager.
- Following any measures stated on the Risk Assessment, especially regarding the H&S arrangements for handling, storing and final disposition of hazardous chemicals.
- Following good laboratory practices and housekeeping measures.
- Ensuring that chemical containers are kept closed.
- Storing chemicals according to chemical compatibility.
- Labelling containers appropriately. Labels must clearly state the full name of the compound or main constituents of the mixture, health hazards and pictogram, generator information, and start date of accumulation.
- Disposing of chemicals when required by expiry date, container condition, or when no longer needed.
- Reporting any defects, errors, or omissions of the procedure, as well as any accidents or near misses that occur.

4.2 Principal Investigator / Line Manager

Supervisors have a duty of care for individuals operating under their instruction and supervision. The Principal Investigator / Line Manager should ensure:

- The Risk Assessment has evaluated any potential harm from handling, storing, and disposing of any substances hazardous to health. The Risk Assessment should include appropriate conditions for storing, handling, and disposal of hazardous substances and include the use of Personal Protective Equipment (PPE) and emergency procedures.
- Appropriate information, instruction and training is provided for safe chemical storage, handling precautions, and waste disposal.
- Any staff member under their instruction is competent to work with hazardous chemical substances, including appropriate segregation and storage.
- Any area of the laboratory or equipment no longer required is appropriately decontaminated, equipment cleared before disposal, and ALL hazardous substances are disposed of appropriately. Final disposition should be carried out by a competent subcontractor, and transfer records must be kept.
- Investigate and report any adverse incident arising from the inappropriate storage or segregation of hazardous substances.

4.3 Scientific Officer – H&S Manager

The H&S Manager is the first point of contact for staff members. They provide appropriate and sufficient guidance and advice on the safe storage of dangerous substances, including the update and distribution of SOPs. The H&S Manager conducts regular inspections to ensure the current SOP and all H&S arrangements defined in the Risk Assessment are in place.

4.4 Technical Manager

The Technical Manager oversees the Waste Disposal Storage Area and coordinates the final disposition with approved contractors. Records of final disposition must be kept. The Technical Manager should ensure that temporary storage areas follow the segregation guidance stated in this SOP.

4.5 Head of School/Head of Department

The Head of School (HoS) and Head of Department (HoD) must ensure the implementation of the University's Health and Safety Policy. They should ensure resources are allocated for the appropriate storage and segregation of hazardous substances in compliance with COSHH and DSEAR Regulations. They are also responsible for enforcing the local rules regarding the storage and disposal of hazardous chemicals.

5.0 Laboratory Waste Disposal Procedure

The fewer the number of chemicals associated with a waste stream, the more economical is the disposal method for that waste. Always review the Safety Data Sheet (SDS) for compatibility and disposal considerations and separate incompatible materials. A general waste separation chart is provided in Appendix 1: Waste Separation Chart.

5.1 Labelling laboratory waste stream bottles

Waste stream containers of single and mixed constituents must be labelled to indicate the contents, hazard category, generator, and date that waste accumulation begins.

- Container labels must be filled in to show the GHS symbols of all the relevant constituent materials in the waste stream as residues from any unreacted materials may persist. Relevant GHS symbols should be clearly indicated on the label.
- The group PI, owner of the chemical and the date accumulation begins must be filled in.
- When a waste stream container is full, it must be sealed with parafilm and tape before moving to the waste stream store.

Waste Label:

5.2 Inventory of chemicals for disposal

Primary containers (stock bottles) of chemicals that are no longer needed should be disposed of through the regulated waste disposal process. When primary chemical containers are removed from the laboratory, they must be removed from the laboratory's chemical inventory and added to a separate Waste Disposal Inventory sheet found in Appendix 2: Waste Disposal Inventory Sheet.

5.3 Transporting waste

5.3.1 Before transporting the waste:

- It is the responsibility of the individual lab members generating the waste to identify the nature and hazard of each chemical, the compatibility within a mixture of chemical waste, and the stability of storage. Review relevant SDS and risk assessments prior to transport.
- Ensure the printed Waste Disposal Inventory (Appendix 2: Waste Disposal Inventory Sheet) lists the contents for all the containers and is provided to Technical Staff during pickup or drop-offs at the waste store.
- Two people must be involved in transporting the chemical waste. In the event of an emergency (i.e., spillage), one person can remain in the area if safe to do so, while the other follows procedures to notify and respond to the incident.
- Transporters should conduct a risk assessment for the specific hazards of the waste and wear appropriate PPE. The minimum PPE required for all waste transport includes a lab coat with long sleeves, goggles or face shield, gloves appropriate for chemical contents, long trousers, and full coverage footwear.

5.3.2. Packing the trolley for waste transport:

- The waste should be transported safely in a designated trolley with secondary containment trays to minimize the chance of an accident and to contain any spills or leaks.
- If you do not have access to an appropriate trolley, then contact the responsible technical services staff member.
- Ensure that waste containers sit upright and are stable in the secondary containment. Do not overload the trolley. If necessary, make more than one journey to the chemical waste store.
- Dispose of waste regularly to avoid accumulation of waste in the laboratory.
- Do not place bottles of incompatible wastes together when transporting. Segregate waste containers according to chemical compatibility and **DO NOT** transport in the same trolley. If necessary, make more than one journey to the waste store to transport incompatible materials separately.
- Ensure substances are stabilised at room temperature prior to transport. Review the Safety Data Sheet (SDS) & risk assessment for chemical stability and temperature requirements as necessary.
- Pack the secondary containers with absorbent material to capture any spills and to prevent glass containers from breaking during transport. Sturdy boxes should be used, and newspaper can provide a good cushion.
  Note: Do not use paper absorbents with oxidisers and organic peroxides as it can react and increase the risk of fire!
- Whilst packing, ensure all containers, lids, and labels are in good condition. Secure any glass stoppers to the container with tape.

5.3.3. Transporting waste to the waste store:

- Ensure the trolley is equipped with a chemical spill kit when transporting hazardous waste. Never attempt to clean up a spill without assistance if you are unsure of what to do, you feel it is unsafe, or if you don't know what materials have been spilled.
- Prior to transporting the waste ensure you are familiar with your planned route, the hazards of the substances being moved, and the procedure for cleaning a chemical spill.
- Always choose a safe transport route with few occupants in the area and even floor surfaces to minimise ramps and obstructions along the way. You may wish to inform the relevant building manager of the transport before it occurs.
- Never transport waste substances alone. At a minimum, work in pairs with one person handling the trolley and the other opening doors and checking ahead for anything that may present a hazard, such as people, steps, or blockages along the route.
- Ensure that you follow your planned route.
- If the use of an elevator is required, do not ride in the elevator with the trolley. Post signage (Appendix 3: Waste Transport Elevator Signage) on the elevator door instructing people not to enter the elevator if it stops on their floor. Load the trolley into the elevator and send it to the correct floor. One person will remain on the initial floor until the lift safely departs while the other person waits at the final floor to retrieve the trolley. Remove the signage when the trolley is collected.

5.3.4. Depositing items at the waste store:

- Waste pickup and drop-offs at the waste store are coordinated with Technical Staff.

- Ensure the printed Waste Disposal Inventory (Appendix 2: Waste Disposal Inventory Sheet) lists the contents for all the containers and is provided to Technical Staff during pickup or drop-offs at the waste store.
- Ensure chemical safety gloves, lab coats, and safety goggles are always worn when handling chemicals in the waste store.
- When entering the waste store, refer to the posted map to determine the correct location to deposit each container depending on UN hazard category (figures 1 & 2 below).

The UN transport hazard class is indicated in the chemical's Safety Data Sheet (SDS), Section 14.3.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2811 IMDG: 2811 IATA: 2811

14.2 UN proper shipping name
ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (Azinphos-methyl) (Azinphos-methyl)
IMDG: TOXIC SOLID, ORGANIC, N.O.S. (Azinphos-methyl) (Azinphos-methyl)
IATA: Toxic solid, organic, n.o.s. (Azinphos-methyl) (Azinphos-methyl)

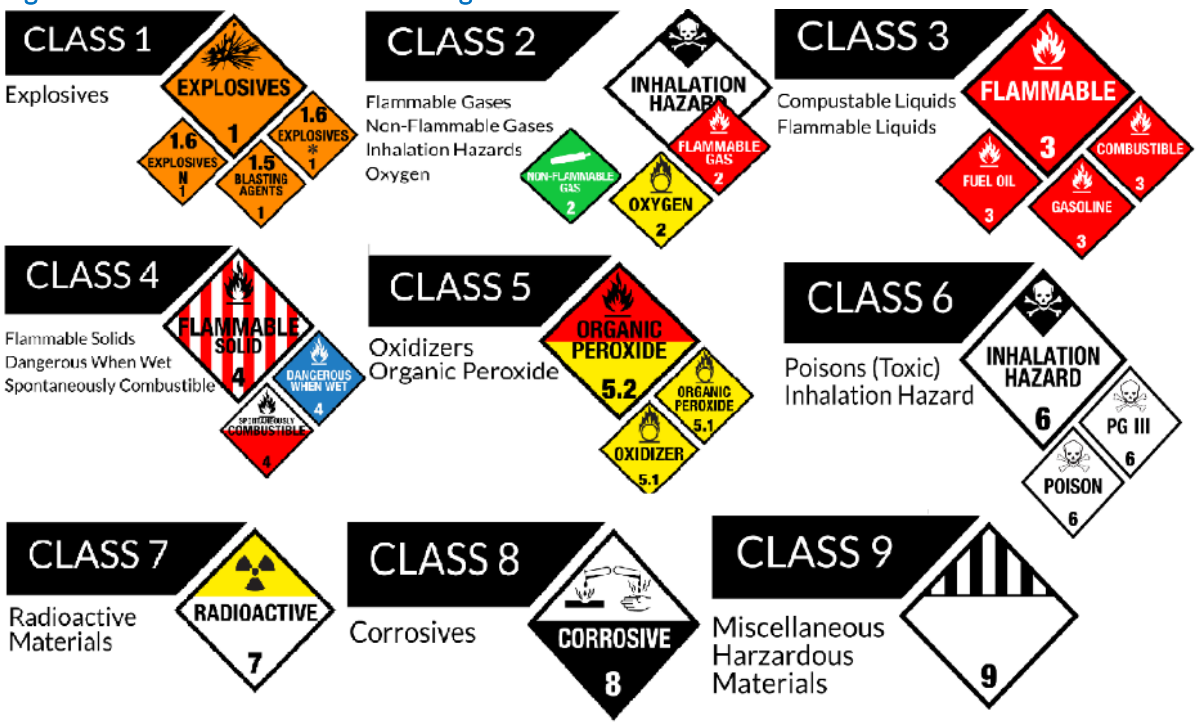
14.3 Transport hazard class(es)
ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4 Packaging group
ADR/RID: I IMDG: I IATA: I

Figure 1 UN Hazard Classification

UN Class	Dangerous Goods	Division(s)	Classification
1	Explosives	1.1 - 1.6	Explosive
2	Gases	2.1	Flammable gas
		2.2	Non-flammable, non-toxic gas
		2.3	Toxic gas
3	Flammable liquid		Flammable liquid
4	Flammable solids	4.1	Flammable solid
		4.2	Spontaneously combustible substance
		4.3	Substance which in contact with water emits flammable gas
5	Oxidising substances	5.1	Oxidising substance
		5.2	Organic peroxide
6	Toxic substances	6.1	Toxic substance
		6.2	Infectious substance
7	Radioactive material		Radioactive material
8	Corrosive substances		Corrosive substance
9	Miscellaneous dangerous goods		Miscellaneous dangerous goods

Figure 2 UN Hazard Classification Pictograms



- Safely place the waste container, or secondary container with waste bottles, in the designated hazard class area inside the store.
- If the secondary container will not safely fit in the designated area, then inspect for any spillages and if none have occurred, carefully unpack the individual containers, and place them in the area relevant to their hazard class. If possible, keep them together as a group with the filled waste inventory disposal form.
- Place larger containers on lower levels. If a container is too large to allow the box lid to properly close, then place the container in the black bunded trays on the lower level instead.

5.3.5. Entering waste into the LabCup inventory system:

- Primary chemical containers (stock bottles) that are disposed of when no longer needed (i.e., expired, legacy, or abandoned) must be entered into the Waste Store LabCup inventory prior to transport of the container to the waste store. Follow the instructions for adding waste to LabCup found in Appendix 4: Adding Waste to LabCup.
- Waste containers being disposed of that are not already on the LabCup system (i.e., generated waste from experiments, or chemical bottles not previously inventoried in the system) do NOT need to be entered into the LabCup inventory for disposal. In this case, the contents are indicated on the label and are listed on the Waste Disposal Inventory (Appendix 2: Waste Disposal Inventory Sheet).

6.0 Sharps Disposal

It is very important that sharps are disposed of in puncture-proof containers to avoid potential injuries to personnel disposing of the waste. Types of sharps waste include broken glass, needles, razor blades, scalpels, lancets, syringes, slide covers, specimen tubes, and pipettes (glass and plastic). Intact glassware and other items can easily break during the disposal process, and therefore should never be discarded in regular rubbish bags.

- Separate contaminated from non-contaminated sharps items.
- Avoid overfilling containers and discard when 3/4 full or at the indicated fill-line.
- Keep container weight below 30 lbs to prevent injury from lifting during disposal.
- Minimize the use of sharps by using alternative safer devices whenever possible.
- Do not recap needles, bend, break, or otherwise manipulate sharps by hand.
- Decontaminate the exterior of the container if used in a contaminated area.
- Securely tape the container closed to ensure that contents cannot spill out during disposal.

6.1 Disposal of glassware

- Glass waste bins are available in the lab for disposal of non-contaminated glassware. These containers are disposed of to the landfill. Any contaminated glassware should be cleaned as thoroughly as possible, if safe to do so, before disposal into the non-contaminated glass waste bin.
- Contaminated glassware is disposed of in a glass waste bin that is designated for contaminated hazard waste disposal.
- Extreme care must be exercised when handling broken glassware. Don appropriate personal protective equipment (PPE) (i.e., protective eyewear, cut-resistant gloves, fully covered limbs, close-toed shoes, etc.) and use a tool to handle the broken pieces (dustpan, tweezers, etc.).
- Broken glass containers are to remain inside the laboratory until the time of disposal. Do not place the broken glass or broken glass containers in the hallway or means of egress. Do not overfill the broken glass container, only ever fill 3/4 of the container.
- When it is time to dispose of the broken glass container, carefully seal the inside bag with tape. Close the box lid and secure with tape to ensure that the contents cannot spill out during transport and disposal.
- Remove the broken glass containers from the laboratory or space and place them in the solid waste dumpsters, usually located in the loading docks. Always wear PPE while disposing of broken glass containers. Exercise extreme caution when placing glass containers in metal dumpsters. Glass may cause injuries due to shattering at contact with the hard metal surface. Always wear eye protection while placing glass containers in the dumpsters.
- Glass waste bins containing contaminated materials must be disposed of via the regulated waste disposal stream. Do not place these waste bins into the landfill waste stream! Contaminated waste boxes should be placed inside a large hazardous waste bag before being placed in the designated sharps dumpster for contaminated waste.

6.2 Disposal of empty chemical containers

To be considered empty, containers that held liquids must not have any material left that can be removed by inverting the container. Containers that held solid and semi-solid materials are considered empty when no more material can be feasibly removed by scraping or chipping. Every effort should be made to remove as much of the remaining material as possible. Bottles should be rinsed with water,

or an appropriate solvent and the rinse waste collected for hazard waste disposal. Empty solvent containers can be air dried in a chemical fume hood. The cleaned containers can then be disposed of via the regular waste stream.

6.2.1 Preparation of containers:

- Under no circumstances is it acceptable to pour or dump hazardous chemicals, materials, solids, or liquids down the sink or into the sewer system or into the landfill waste stream.
- Ensure the appropriate Personal Protective Equipment (PPE) is utilized before handling or treating any material or containers.
- For liquids such as chemicals, oils, or dilutions with a residual amount remaining that cannot pour out of the container but can evaporate over time, place the container inside a chemical fume hood, remove the lid, and allow the liquid to evaporate. Note: Ensure no other operations are occurring within the fume hood.
- Solids include powders, resins, sludges, greases, and similar material. The solid material should be collected and disposed of as hazardous waste. Residual material can be scrapped off the container's interior and collected as hazardous waste. If you can safely rinse the container, the dilution is considered hazardous waste and must be disposed of via the hazardous waste stream.

6.2.2. Label defacement:

After removing the contents and ensuring it is clean, the label must be made illegible. Remove the label completely or cover by writing with permanent marker, and writing 'empty container' on the container itself. The container can then be disposed of via the regular waste stream.

6.2.3 Disposal of aerosol cans

- To be considered empty, an aerosol can must NOT contain any propellant or product and must be at atmospheric pressure. When completely empty, aerosol cans can be placed in a recycling bin. Aerosol cans containing any material are disposed of as hazardous waste. Do not discard partially empty cans in the trash as they may contain ignitable propellants, chlorinated solvents, flammable material, or other toxic substance.
- Consider phasing out the use of spray cans containing hazardous chemicals and consider using refillable containers that use compressed air as the propellant.

7.0 Unidentified Containers

The disposal of 'unknowns' is costly, as analysis to identify the appropriate disposal route may be required and departments may be charged for this. Items should only be labelled as 'unknown' with a unique numbered code (to allow it to be identified through the waste stream) after extensive enquiries have been made as to what the 'unknown' may be. Where possible, 'unknowns' should be classified by functional chemical group. Simple categorization may be adequate, i.e., stable, non-flammable, acidic, aqueous solution could suffice.

- In the event of an unidentifiable container being found, personnel should report this to the Principal Investigator. The Principal Investigator should investigate who the bottle belongs to and identify possible contents. The investigation should be carried out within 24 hours. An unidentified chemical should be quarantined from other substances and should not be transported to the waste store.
- If the substance remains unidentified, contact the safety office to arrange the removal of the container from the laboratory.

8.0 High-Risk Chemical Concerns

Peroxide Formers: Chemicals such as peroxides can become dangerous over time and have expiration dates that must be closely tracked. Never handle a container that has visible crystals in the liquid or discoloration for a solid peroxide forming material.

Reactive Chemicals: For the safety of waste disposal personnel and to ensure compliance with regulations, you must exercise care to identify reactive wastes. Although the process of using reactive chemicals in laboratory experiments usually eliminates the reactivity characteristic, some reactive chemicals can exhibit dangerous, residual properties. As an example, residual metallic sodium added to a solvent to remove water could result in a fire or explosion if that solvent is mixed with aqueous wastes.

Label solutions containing sulphides and/or cyanides to alert personnel not to mix these with acid wastes. This mixing could release lethal amounts of toxic hydrogen sulphide (H2S) and/or hydrogen cyanide (HCN) gas. Due to the cost and hazards associated with shipping and disposing of reactive materials, make every effort to use or react the entire contents before disposing as hazard waste.

Mercury Spills: If your laboratory uses any device that contains liquid elemental mercury, such as a thermometer, manometer, or sphygmomanometer, you must have a small mercury spill kit available to contain the spill. The kit should include mercury-absorbing sponges, amalgamating powder, mercury indicator powder, and containment bags. Liquid droplets of mercury travel quickly and can become lodged in tiny cracks and crevices. It is important to contain the spread before it can contaminate a larger area. If a mercury spill occurs, contact the Health and Safety Office immediately after completing initial containment. Seal off the spill area so no one can walk on the spilled mercury.

9.0 Emergency Procedures

In the event of a fire:

- Raise the alarm in the area.
- Sound the alarm by breaking the glass in the nearest red fire alarm call point to evacuate the building and then leave the building via the nearest clear emergency exit.
- Notify emergency services directly by dialling 3333 (internal landline) or 01273 87 3333 (mobile phone). Avoid dialling 999 as the fire services will need to be directed when on site (as per emergency policy).

Only try to extinguish the fire if:

- You have been properly trained in the use of extinguishers, and or fire blankets.
- It is safe for you, and you are comfortable to do so.
- The fire can easily be controlled by using one extinguisher.

In the event of a chemical spillage:

- In the case of a spillage during transport through a public area, attempt to determine the contents of the spillage, and if it safe to do so (no fire, no dangerous gases evolved) remove the trolley from the public area before attempting to clean the spill.
- If you are unsure what to do, never attempt to clean the spill without assistance.
- Refer to the Emergency Chemical Spill SOP (SSHS SOP003) for the proper procedure.

10.0 Waste Minimisation

The most significant impact that individual departments can have on hazardous waste costs is to reduce the volume of waste required to be handled. Principal Investigators and laboratory supervisors should consider ways of reducing the volume of waste or preserving the reuse of materials through the redesign of experiments and work processes. Recyclable materials should be kept separate from other waste. Efforts should be made to decontaminate, detoxify, neutralize, or otherwise render the waste non-hazardous as a final step in the procedure. Different waste materials should be kept segregated whenever possible.

10.1 Effective waste reduction techniques:

- **Material Purchasing** – purchase only what is needed, minimise inventories, and redistribute excess materials.
- **Material Substitution** – substitute non-hazardous or less toxic materials in chemical processes, experiments, and maintenance operations to reduce the toxicity of a waste.
- **Product Substitution** – laboratory operations, most notably teaching labs, can change their products by replacing hazardous laboratory experiments with non-hazardous alternatives. The emphasis of the lab work may be shifted toward a fundamental aspect of the course work, where classroom material is reinforced in a way that does not require hazardous materials.
- **Process Modification** – Procedures can be modified to decrease the amount of hazardous waste generated. Examples include implementing microscale techniques or recirculating materials within the system (closed-loop recycling).
- **Equipment Selection**: Select equipment for not only its ability to perform the task but also for its durability to minimize having to discard faulty equipment, or equipment with hazardous components. Examples include substituting electronic, alcohol, or bimetallic thermometers for mercury thermometers and electronic vacuum or pressure gauges for mercury manometers.
- **Inventory Control**: Effective management of chemical inventories will reduce the amount of waste generated. Best practices include chemical redistribution, reviewing shelf-life requirements, testing outdated materials, and rotating stock.
- **Chemical Recycling**: Redistribute unopened and unused chemicals to other areas within the University.
- **Solvent Recovery**: Setup solvent recovery systems (i.e., distillation) provided they meet specific safety and regulatory requirements to reduce the amount of solvent waste generated.
- **Neutralisation**: Simple acids and bases can be rendered non-hazardous in the laboratory by elementary neutralization as the final step in a process. Toxic metals may also be precipitated from aqueous streams as the final step in a laboratory process. Changes to the waste stream outside of the generating process is considered treatment and requires a permit, so any changes to the waste stream should be the final step of a process in the generating laboratory.
- **Waste Segregation**: Segregation of wastes simplifies the treatment, provides an alternative method for recycling and disposal, and ultimately minimises the costs involved. Do not mix hazardous waste with non-hazardous waste and keep waste streams as simple as possible (fewer contents). Accurately label the waste containers as to their exact contents.
- **Off-Site Recycling:** Departments should be diligent in identifying materials that can be sent for recycling.

11.0 Equipment Surplus & Disposal Procedures

All laboratory equipment and potentially contaminated furniture used in a laboratory must be decontaminated prior to disposal. If the equipment was used in an office and had no potential for exposure to chemical, biological, or radioactive materials, then clearance prior to disposal is not necessary.

- Any equipment that contains a radioactive source, or that potentially came in contact with radioactive materials, must be tested and cleared by the Health & Safety Office prior to handling for disposal.
- Equipment that has been used in experiments involving biological materials must be decontaminated with either a 10% bleach solution that has been freshly prepared (within 24 hours of use) or another approved disinfectant. All exposed surfaces of the equipment or potentially contaminated furniture must be wiped down with the bleach solution or disinfectant prior to handling for disposal or surplus.
- In general, most other laboratory equipment can be decontaminated with soap and water solution or mild detergent. If equipment appears too contaminated to perform decontamination safely, contact the Health & Safety Office for guidance.
- Any equipment that contains oil must be properly drained of its contents prior to disposal.
- If the unit to be cleared is a refrigerator or freezer, the unit must be unplugged, defrosted, and wiped dry. DO NOT defrost fridges and freezers with radioactive hazard stickers without first obtaining Radiation Safety Clearance. When defrosting, place absorbent materials (pads, paper towels) around the unit and monitor periodically to prevent water from collecting onto the floor. Additionally, all samples should be removed prior to unplugging refrigerators or freezers to reduce the generation of offensive odours.

11.1 Equipment Clearance Form

After ensuring that the equipment is clean and ready for disposal, contact the Health & Safety Department at safetyscienceschools@sussex.ac.uk to request an equipment clearance. The safety team will verify the equipment has been decontaminated as described above and affix a "Clearance Form" to the equipment, as well as provide one to the responsible party for their records. This process will indicate that it is safe to handle and dispose of the equipment.

12.0 Laboratory Close-Out Procedure

The Health & Safety Department must be notified prior to a laboratory move, relocation, or vacancy for any reason in order to perform a lab check-out assessment. This procedure will ensure that all hazardous materials are properly disposed of and will prevent the next occupant from inheriting "unknown" or potentially hazardous materials.

Appendix 1: Waste Separation Chart

The fewer the number of chemicals associated with a waste, the more economical is the disposal method for that waste. Review the Safety Data Sheet for compatibility and disposal considerations and separate incompatible materials.

Acids and Bases	Separate acids and bases from one another in individual, compatible containers. Do not mix with solvent or oil wastes.
Biocides	Chemicals which are persistent in the environment, or any concentrated solutions of biocides must not to be released to the sanitary sewer and are collected separately for hazardous waste disposal.
Compressed Gas Cylinders	Disposal of non-returnable cylinders (i.e., lecture bottles) that are not empty can be very expensive, especially for reactive gases. Make every effort to purchase from suppliers who have a cylinder return program. Even if a cylinder seems empty, it cannot be discarded in the trash. Always treat pressurized cylinders as waste and follow appropriate disposal procedures.
Oil Waste	Used oil wastes from vacuum pumps, transformers, motors, etc., are collected for disposal and can be sent to a recycling service if the oil has not been mixed or contaminated with hazardous waste. Collect oil that has not been mixed or contaminated with hazardous waste in a container labelled as 'Used Oil'. Oils that are mixed with hazardous wastes must be collected and disposed of as hazardous waste.
Oily Rags	Oily rags must be placed in a designated *oily rag* can with a self-closing lid. Oily rags should not be left lying around because they can ignite and cause fire to spread to other areas.
Oxidisers	Package oxidisers separately; store and accumulate away from organics including flammable materials. Oxidisers should never be stored or accumulated adjacent or proximate to any organic substances.
Sodium azide	Solutions containing sodium azide, commonly used as a preservative in many in-vitro diagnostic products and with automatic blood cell counters, cannot be discharged to the sanitary sewer. The accumulation of lead and/or copper azide in the drainpipes can produce a potentially explosive situation.
Solvents	Collect non-halogenated solvents separately from halogenated solvents whenever possible. Most solvents are flammable and should be separated from oxidising and combustible materials.
Unknowns	Unlabelled and unidentified chemicals present a challenging, dangerous, and very costly disposal problem. Exercise every precaution to avoid generating unknowns in the laboratory and ensure that all containers are properly labelled.

Appendix 2: Waste Disposal Inventory Sheet

Date of Pick-up/Drop-off:	
Generator Location (Building/Lab):	
Principal Investigator (PI)/Lab Supervisor:	

Container contents	Container Size	Number of Containers	Hazard Class (Flammable, Toxic, Corrosive, etc.)

Appendix 3: Waste Transport Elevator Signage

STOP!

PLEASE DO NOT ENTER THE ELEVATOR.

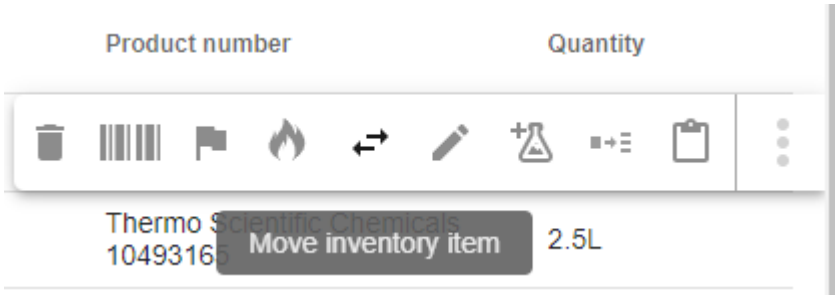
WASTE TRANSPORT IS IN PROGRESS.

Appendix 4: Adding Waste to LabCup

Once a substance is entered into the LabCup system it MUST always be tracked. So, if the substance is removed from a lab for disposal, or moved to another location for storage or use, then the storage location MUST be updated on the LabCup system.

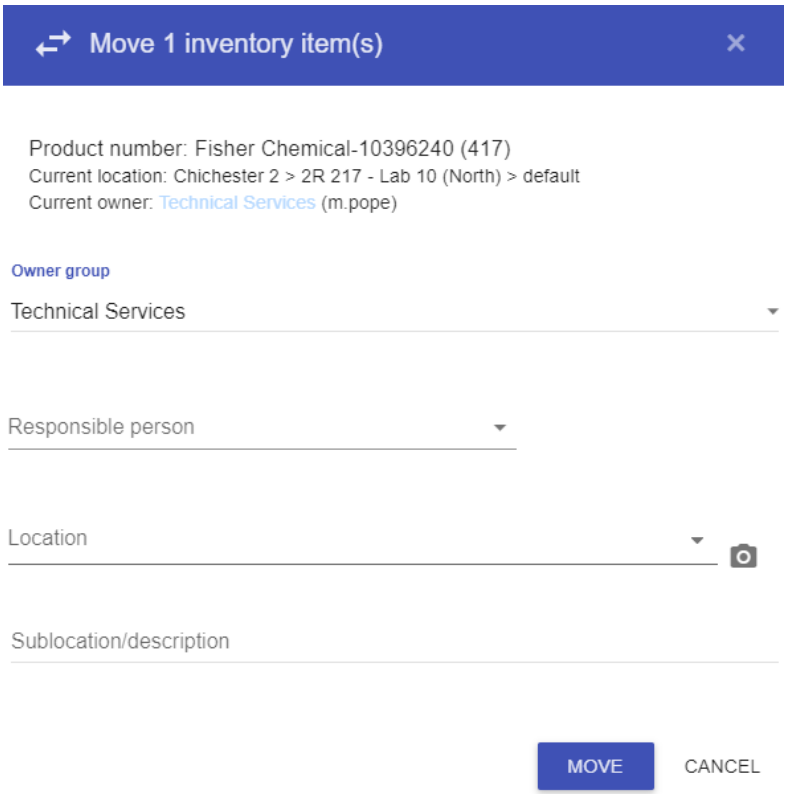
Note: Waste items that have not previously been entered into the LabCup system (i.e., abandoned chemicals not previously inventoried, or experiment generated waste streams) are NOT entered into LabCup as waste.

To move a chemical within a user's group, the storage location needs to be updated on the items data sheet. This can be done by searching for the chemical (either by name or group) or by scanning the barcode from the "Inventory Search" page. This will bring up all the information available. Once the desired chemical is found open the additional menu by clicking the 3 dots on the far right of the row. From these additional options the move inventory button is represented by the two opposing arrows.



Here the new location and responsible person should be selected, by manually inputting this information or by scanning the new storage location barcode.

LabCup Move Inventory Menu



Selecting the Location:

- **IF** the item is to be removed for disposal, i.e., due to the stated expiration date, the container is compromised or for any other reason, then this should be recorded as moved from the storage location to the relevant **chemical waste store** location. Each of the storage locations is labelled with the Hazard Class and a location barcode. Further, there are crib sheets located in the waste store to simplify the process. The container is removed from the LabCup Inventory by selecting the relevant chemical waste store location.

- If a chemical has been used up, then the container should be cleaned and disposed of via the appropriate waste routes. The container is removed from the LabCup Inventory by selecting the location "**Remove Inventory Item**" represented by a bin icon. This will make the item "removed" and it will be relocated to the recycle bin for 30 days. After 30 days it will no longer be visible to lab users but will remain visible in the database for auditing purposes.

Note: If an item is removed in error, it can be recovered for 30 days following removal. First, click the menu button top left, and click Stock Control > Recycle Bin. Search for the chemical and click the restore arrow, this will open a further menu to allow the user to identify a responsible person and the correct storage location, and once these fields are completed the item can be restored.

Appendix 5: Waste Disposal SOP Acknowledgment Form

	Lab Location:		
	Responsible PI/Line Manager:		
Date	**Person Reading**	**Job Title**	**Signature**