Standard Operating Procedure

Guidelines for Storage Of Chemicals

H&S Document No	SSHS SOP004	**Version**	1.0	**Date Issued**	September 2023
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Contents

1.0 Purpose

This document is meant to act as practical guidance for the storage of chemicals in the laboratory environment to support compliance with the Control of Substances Hazardous to Health (COSHH) Regulations 2002, the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002, and the Health and Safety at Work Act 1974.

The University of Sussex, under its Control of Hazardous Substances Policy, requires all staff members to ensure that any hazardous substance is stored, transported, packaged, and disposed of appropriately.

2.0 Definitions

COSHH- Control of Substances Hazardous to Health Regulations 2002
DSEAR- Dangerous Substances and Explosive Atmospheres Regulations 2002
GHS- Globally Harmonized System of Classification and Labelling of Chemicals
H&S- Health and Safety
HSE- Health and Safety Executive
PI- Principal Investigator
SDS- Safety Data Sheet
SOP- Standard Operating Procedure

3.0 Scope

This guidance is applicable to all laboratory operations across the University of Sussex and all lab users and responsible persons using chemical substances relevant to COSHH and DSEAR. This procedure **DOES NOT** apply to Biological Agents or Radioactive Chemicals.

If in any doubt about the storage of these substances or the guidance issued in this document, please contact your School H&S Coordinator or the Science Schools' Health and Safety Department at safetyscienceschools@sussex.ac.uk.

4.0 Responsibilities

4.1 Lab 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 in the Risk Assessment, especially regarding the H&S arrangements for handling, storing, and final disposal.
- following all Local and University rules and Standard Operational Procedures (SOPs) regarding safe handling, use and storage of Chemicals, including the appropriate use of control measures, personal protective equipment (PPE), and maintaining good housekeeping standards.
- ensuring there are no chemicals left open in storage areas or uncontained against release in the open lab environment.

- storing according to chemical compatibility.
- labelling containers appropriately and sending them for final disposal when required. Labels must clearly state the name of the compound or main constituents of the mixture, health hazards and relevant pictogram.
- reporting any defects, errors or omissions of the procedure, as well as any accidents or near misses.

4.2 Principal Investigator / Line Manager

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

- that the Risk Assessment has evaluated any risk from handling and storing any substances hazardous to health. The Risk Assessment should include appropriate conditions for storing, and precautions during handling, such as the use of any Personal Protective Equipment (PPE).
- appropriate information, instruction and training is provided. This should include the distribution of this SOP, and training on chemical segregation.
- any staff member under their instruction is competent to work with hazardous chemical substances, including appropriate segregation and storage.
- that in any area no longer required for use, ALL hazardous substances are disposed of appropriately and any material, equipment or area is decontaminated.
- that all chemical waste is properly labelled and sent to the appropriate waste storage area.
- investigate adverse incidents 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 would provide appropriate and sufficient guidance and advice on the safe storage of dangerous substances, including the update and distribution of SOPs. H&S managers would conduct frequent inspections to ensure the current SOP is followed and ensure all H&S arrangements defined in the Risk Assessment are in place.

4.4 Technical Manager

Technical managers would oversee the waste disposal storage area and coordinate the final disposal with approved contractors. Records of final disposal must be kept. Technical managers should ensure that temporary storage areas follow the segregation guidance stated in this SOP.

4.5 Head of School

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

5.0 Chemical Storage Procedures

5.1 General Storage Requirements

- Always review the chemical Safety Data Sheet (SDS) for proper storage procedures.
- Chemical storage areas should be well lit, appropriately ventilated, and kept away from aisles, exits, and extremes of temperature.

- The storage area, where possible, should be away from the main processing area, and should not jeopardise any means of escape in the event of an emergency.
- **DO NOT** store glass chemical containers on the floor or window ledges.

DO NOT use the lab bench, fume hood, or other worktop areas as chemical storage.

- **USE FIRST-IN, FIRST-OUT SYSTEM** - Use the oldest chemicals first to avoid degradation of chemicals and the containers.
- Inspect stored chemicals often for expiration, deterioration, and integrity.
- **DO NOT** sort and store chemicals alphabetically unless they have first been separated into hazard groups.
- Store liquid chemicals at or below eye level.
- Separate solids from liquids. This can be done using bunded trays or containers in the same storage area.
- Always keep containers closed, unless when venting is required to prevent pressure buildup. Ensure venting occurs in the fume hood.

- Keep bottles in the upright position.

- **DO NOT** stockpile chemicals. Store the minimum stock level of hazardous materials that is reasonable for the level of usage in the lab.

- Return chemicals to their assigned storage location when not in use.
- Post a chemical compatibility chart in the lab and next to chemical storage rooms for reference.
- Use a retention tray for liquids to capture any spillage.

5.2 Storage Areas - Cabinets and Shelves

- Ensure chemical storage shelves are securely fastened to the wall and have lips or other suitable methods to prevent bottles from falling.
- Avoid storing all chemicals above eye level. Large containers (2.5L or larger), liquids, and corrosive materials must be stored no higher than shoulder height.
- Do not overcrowd shelves.
- Flammables must be stored in a flammable storage cabinet. Storage levels of flammables should be kept to a minimum in working areas. According to BS496 it is recommended that no more than 50 Litres of extremely, highly flammable, or flammable substances with a flash point below maximum ambient temperature are stored in a working area. This limit is per room using single skin flammable cabinets BS476.

- If 90-minute fire rate cabinets (BS-EN 14470-1) are used, then the limit is 50L per cabinet. Multiple cabinets can be stored in the same room as long as they are 4 m apart according to fire regulations HSG140.
- Label chemical storage cabinets according to the type of chemical family or hazard classification found there (Acid Storage, Solvent Storage, etc.) please refer to the section on Chemical Segregation below.
- Use secondary containment, such as polyethylene or stainless-steel trays, to separate incompatible chemicals stored in the same area and to provide spill containment. The volume for the spill tray should be able to contain at least 110% of the capacity of the largest container. Provide secondary containers for storage of solvents and concentrated acids and bases.

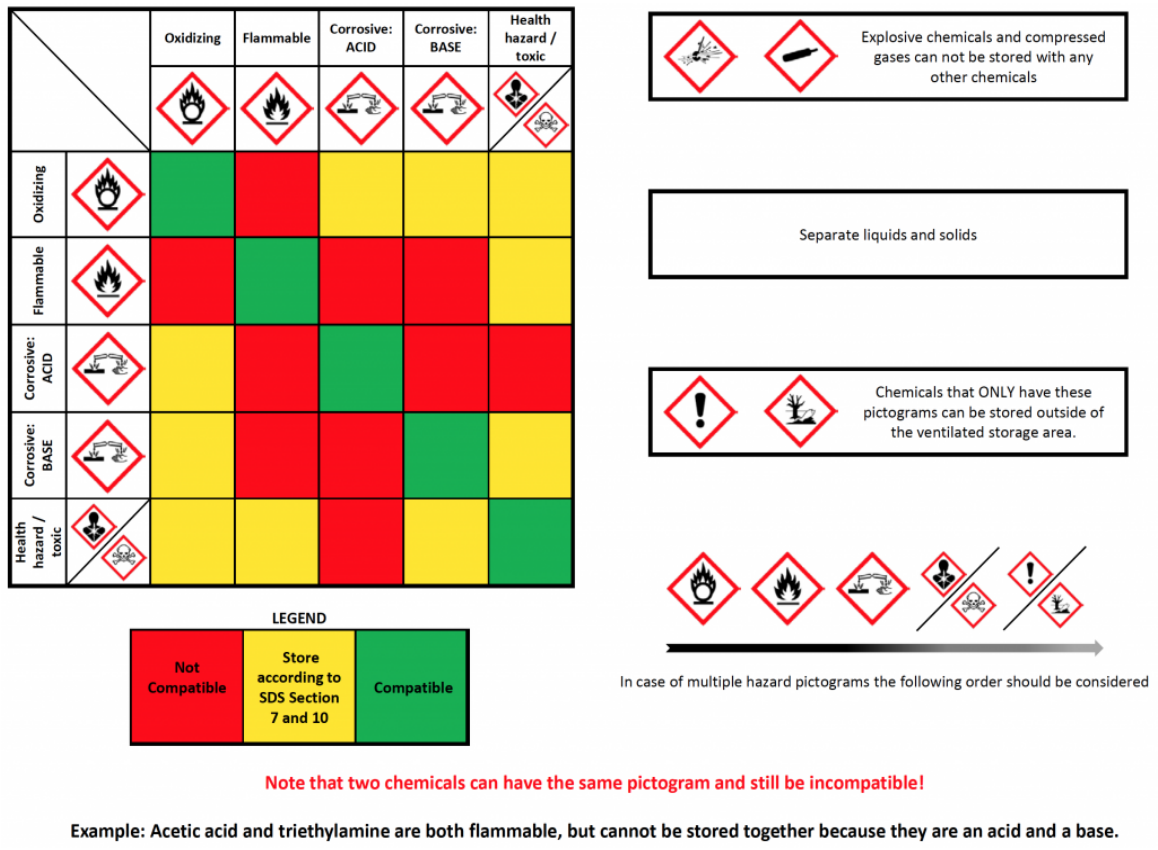
5.3 Storage Areas - Refrigerators and Freezers

- **DO NOT** store chemicals in offices, domestic, or personal refrigerators.
- **DO NOT** store chemicals and food together. Consumables used for lab purposes should be labelled "for lab use only."
- When storing flammables in a refrigerator, use an approved explosion proof or flammable storage refrigerator only. (i.e., LabCold Spark Free).
- Label all refrigerator/freezers as to intended use.
- Frequently inventory materials stored in refrigerators/freezers and defrost as required to prevent chemicals from becoming trapped in ice formations.
- Use appropriate secondary containment, such as polyethylene trays to separate incompatible chemicals stored in the same area and to provide spill containment. *N.B: polyethylene would not be appropriate in the case of some oxidisers such as nitric acid, always refer to the SDS.*

5.4 Chemical Segregation

When considering appropriate storage for chemical segregation, you can use the HSG71 guidance document (Appendix 2: HSE Segregation Chart) for warehousing of chemicals as a guide, but it is always important to first consult a supplier's SDS for chemicals in case of contradiction. Whilst guidance for the HSE is mainly concerned with warehousing chemicals and industry, the principles are still applicable to the lab. Figure 1 below shows a simplified diagram for storing by hazard class derived from the HSE Guidance and is more suitable for storing smaller quantities in labs. If ever in doubt about where to store any chemical, please contact your local Health and Safety advisor.

Figure 1. Chemical Segregation Diagram



Enlarged chemical segregation matrix available in Appendix 1: Chemical Segregation Matrix.

- Most labs will need a minimum of 5 designated lockable cabinets with segregation between bunded trays within the cabinet, and may include 2 flammables cabinets, 2 corrosive-resistant cabinets, and 1 lockable ventilated cupboard.
    a. Flammables Cabinet 1: Oxidiser cabinet - This is for oxidisers only- solids & liquids and substances with multiple hazards should be separated using bunded trays within the oxidiser cabinet.
    b. Flammables Cabinet 2: Flammables cabinet - Flammable liquids and solids should be separated and pyrophoric solids will be isolated according to their individual conditions. Within this cabinet there should be separation between flammables with multiple hazard groups by bunding.
    c. Corrosives Cabinet 1: Acids cabinet - Separation inside the cabinet achieved by bunding for solid and liquid and organic and inorganic acids.
    d. Corrosives Cabinet 2: Bases cabinet - Separation inside the cabinet achieved by bunding for solid and liquid and organic and inorganic bases.
    e. Lockable Ventilated Cabinet: Health hazards and toxics are separated within the cabinet as indicated for other storage classes and bunding used to separate solids and liquids.

More cabinets can be used, if available, to achieve better separation between the different hazard classes. When doing so, it is still pertinent to separate solids and liquids and organic and inorganic materials.

- If any chemical within the storage cabinet requires greater security (i.e., locked cabinet), then the entire cabinet must be locked. Alternatively, a secured lock box within the cabinet is acceptable for specific chemicals requiring this level of security (controlled drugs, highly toxics, etc.).
- Although not used in all labs, if pyrophoric substances are present then these must be separated from other hazard classes and stored securely in a locked cabinet. Ensure the storage area is free from ignition sources (heat, flame, electrical components, etc.), oxidisers, combustible materials, and is rated fire resistant if possible. Please consult with the school's chemical safety advisor.
- Class 9 miscellaneous hazardous/non-hazardous substances do not need to be stored in locked fire-resistant cabinets and can be stored in standard cabinets made of compatible material. Bunding is still advised to manage spills, and separating solids and liquids is best practice.
- Always check the SDS for specific guidance and compatibility considerations.

5.5 Hierarchy - Chemical Storage Workflow

Consult the flow chart provided in Appendix 3: Storage Workflow Diagram when deciding on primary storage areas and subsequent separation within.

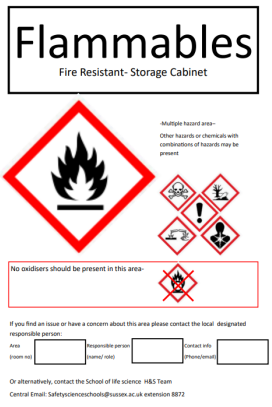
- If you have multiple GHS pictograms: prioritise according to Figure 1, and pay special attention to the padlock symbol for any substances that should be kept secure.
  Prioritise hazard classes (higher priority → lower priority):
  Oxidisers → Flammable → Corrosive, Acid → Corrosive, Base → Health/Toxic → Irritant/Environmental Hazard.
- Always refer to the SDS Section 7 (Handling and Storage) and Section 10 (Stability and Reactivity) to determine any special requirements and incompatibilities.
- E.g., For instance, a substance that is an oxidiser, with acute toxicity will need to be kept isolated from all other chemicals in the oxidiser cabinet, also separated by bunding from the other oxidisers in the cabinet. The storage cabinet will then need to remain locked, with access controlled, due to the presence of acutely toxic material.

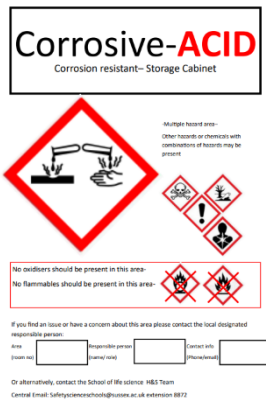
5.6 Labelling Storage Areas.

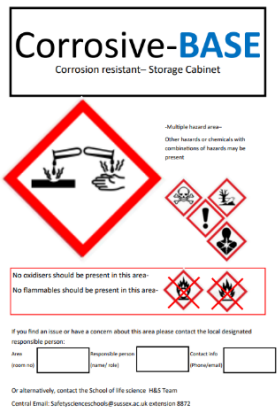
- Signage should be posted on the exterior of all chemical storage areas to identify the hazards stored within. Hazard labels are available to print on the Life Science H&S webpage under Chemical Safety: http://www.sussex.ac.uk/lifesci/internal/servicesandsupport/healthandsafety
- It is advisable to place a chemical segregation chart within the vicinity of chemical storage areas. An example chart for purchase can be found here: https://www.seton.co.uk/coshh-wallcharts-storage-hazardous-substances.html.
- Segregation within the storage area by use of zoning and bunded trays to separate incompatibles should be labelled with simple text and the GHS pictogram. Further Guidance on the GHS can be found at SSHS G001 Laboratory Safety Signage.

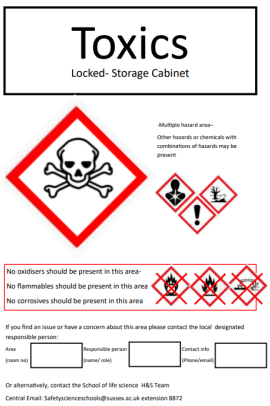
Example labelling:

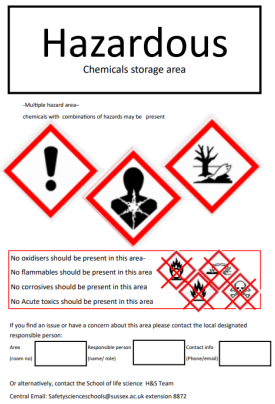
Flammable liquids / toxics	

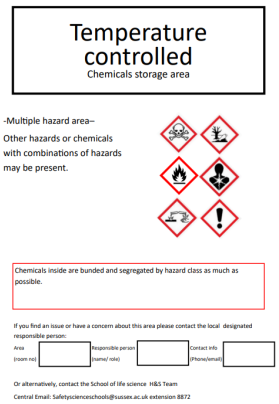












5.7 Labelling Samples, Solutions, Chemical Stocks, and Waste

The purpose of labelling is so that someone unfamiliar with any chemical could handle it safely and dispose of it properly.

Labelling Samples

Samples have lots of different naming conventions within the university and what is treated as a sample can be very different from one school to another. For instance, biological samples (i.e., tissue samples) may have strict rules around anonymisation and collection dates and information that must be documented on them. Chemical samples derived from a process may not be able to be labelled with GHS hazard pictograms and statements as little will be known about their reactivity and interactions.

In these instances, your PI should provide written guidance on how your samples should be labelled.

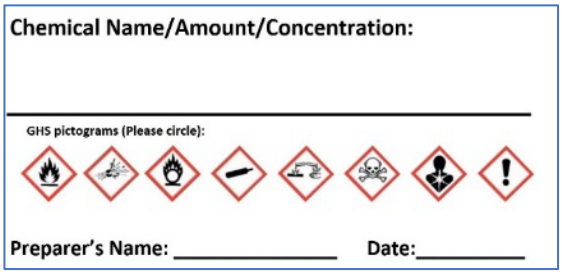
At a minimum your labelling should contain the following:

- make the substance uniquely identifiable (this can be with structure or sample code).
- list any known precautions or hazards associated.
- make the owner identifiable- both individual and PI/Group it belongs to.
- the date the sample was taken or derived. (Unless in the case of anonymised samples this would make the source inappropriately identifiable)

Labelling Solutions

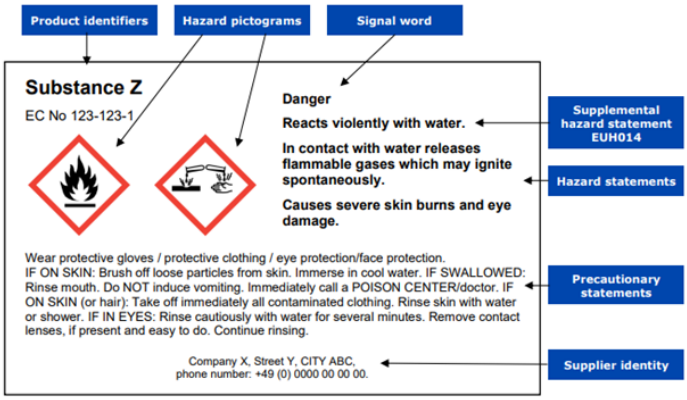
Solutions made from stock chemicals, a concentrated form, stored in Duran bottles or another container, or products made from a reaction or procedure are required to conform to standardised labelling conventions. This includes a minimum of:

- Compound name
- Concentration
- GHS hazard symbol
- Date prepared
- Owner/ Group



Labelling Chemical stocks

Chemical stocks purchased from companies are already labelled adhering to the Classification, Labelling and Packaging of Chemicals Regulations (GB CLP Regulations) and must include the product identifier, hazard pictograms, signal word, hazard statements, precautionary statements, supplemental hazard statement, and supplier identify.



In addition to this, the bottles should also indicate owner and group/PI, date received, and date opened, to aid with inventory management. Company stock bottle labels from vendors such as Fisher Scientific already have a space on the label to indicate date received and opened and this information should be filled in by the lab users.

Labelling Waste Containers

- Hazardous waste needs to be identifiable so that proper disposal can occur through appropriate waste streams to prevent damage to people, property, or the environment.
- Reusing chemical containers for waste is acceptable so long as the original contents are compatible with the generated waste that will be added. The bottle should be triple rinsed to ensure it is clean and the original label completely defaced or removed so only the waste contents are clearly visible.
- Simply writing "waste" on top of the original label is not acceptable.
- Waste made from a process, chemical reaction or procedure is required to be properly labelled and must include a minimum of:
  - Waste type (identified/ described as much as possible by category: i.e., halogenated organic waste)
  - Concentration
  - GHS hazard symbol
  - Start date for waste accumulation (date first chemical added)
  - Owner/ Group (waste generator)

5.8 Temporary Waste Storage Area

- Minimize storage of hazardous waste.
- Store hazardous waste using the same guidelines as you would for storing chemical containers:
  - use secondary containment.
  - ensure the container is closed when not in use, unless actively venting.
  - ensure proper labelling of the waste.
- Waste can be stored in the same area as stock chemicals as long as it is appropriately labelled, and chemical interactions are considered. Use the workflow in Appendix 3: Storage Workflow Diagram to determine correct separation when considering any known chemical interactions.
- If you no longer need a chemical, rather than keeping it stored, dispose of it properly (e.g., as hazardous waste).
- When storing untreated chemicals that degrade to unstable forms (e.g., peroxide formers such as diethyl ether), limit maximum storage time as indicated in the SDS, manufacturer information, and

guidance for time-sensitive chemicals below. Refer to the date received and opened on time-sensitive materials and dispose of appropriately.

- For other hazardous chemicals, use manufacturer's recommended storage time (if there is one) or other indications of degradation (e.g., discolouring of liquids).
- Expired chemicals should not be stored or used in laboratories and should be disposed of appropriately.

5.9 Time Sensitive Chemicals

Some chemicals require special consideration and careful monitoring for storage, handling, and use. This section details the hazards and necessary precautions for chemicals that develop additional risk upon prolonged storage and are commonly found in laboratories on campus. These chemicals must be monitored and disposed of at regular intervals to avoid costly and dangerous situations if extended storage has formed hazardous by-products.

Peroxide Forming Chemicals

Certain organic chemicals react with air at ordinary temperatures to form peroxide compounds which can react violently or explosively! Organic peroxides are substances that contain the peroxo group (R-O-O-R) and are classified as low-power explosives. These compounds are hazardous due to their sensitivity to shock, sparks, or other source of ignition such as heat, friction, sunlight, impact, or reaction with strong oxidizing/reducing agents. Due to this unusual instability and the fact that peroxide formation increases with age, it is important to label all peroxide forming chemicals with the date received and the date opened and follow the storage and disposal guidelines indicated below. Some common peroxide forming chemicals are listed, but always check the SDS and manufacturer guidance for confirmation of storage/disposal guidelines for the chemicals in your lab.

An example label for peroxide forming chemicals:

CAUTION! PEROXIDE FORMING CHEMICAL
Date Received: _____
Date Opened: _____
Date Expires: _____
Test Date/Result: _____

Table 1: List of Common Peroxide Formers

Common Compounds That Form Peroxides During Storage		
Risk Category	**Examples**	**Disposal Guidelines**
MOST DANGEROUS Peroxide formation occurs during storage. Form explosive levels of peroxides without concentration.	diisopropyl ether (isopropyl ether) potassium metal potassium amide divinyl acetylene sodium amide (sodamide) vinylidene chloride	Test for peroxide formation before use and discard within **3 months**
DANGEROUS Peroxide formation occurs during storage and becomes more hazardous when the peroxides are concentrated upon evaporation or distillation.	Diethyl ether Tetrahydrofuran Dioxane Acetal Ethylene glycol dimethyl ether Furan Vinyl ethers Dicyclopentadiene Cyclohexene Diethylene glycol dimethyl ether	Test for peroxide formation before distillation or evaporation and discard within **12 months**
DANGEROUS May initiate exothermic polymerization which could rupture the container, release toxic gas, or initiate combustion	Methyl methacrylate Styrene Acrylic acid Acrylonitrile Butadiene Vinylidene chloride Chlorofluorethylene Vinyl acetate	Test for peroxide formation before use and discard within **12 months**

Safe practices for storing and handling peroxide forming chemicals:

- If visible crystals are evident in a peroxidizable liquid or discoloration is observed in a peroxidizable solid, **DO NOT HANDLE** the chemical and contact the Health & Safety Office immediately. These conditions indicate a higher concentration of peroxide formation and require special handling and disposal procedures.
- Purchase quantities of peroxidizable compounds according to short-term needs. Avoid bulk-purchasing to save money as this often results in excess materials with peroxidation potential and subsequent disposal costs.
- Label the container with date received, opened, and expiration.
- Follow the recommended storage and disposal guidelines in the table above or as listed on the SDS and manufacturer guidance.

- Test for peroxide formation per the recommended guidelines and record the date and test results. Peroxide test strips are available from commercial vendors and are convenient to use. For results less than 30 ppm, the chemical may be stabilized by adding an inhibitor or removing the peroxides.
- **DO NOT USE** if the peroxide test result is greater than 30 ppm and contact the Health & Safety Department for disposal.
- When transferring peroxide forming chemicals from a stock bottle into a new container, label the new bottle with the received, opened, & expiration dates listed on the original stock bottle.
- Store peroxide forming chemicals in a flammable cabinet or explosion proof refrigerator if cooler temperatures are indicated on the SDS.
- Keep away from sources of heat and sunlight.
- Routinely test peroxide forming solvents before distillation or evaporation and don't distil to dryness. Leave at least 10% volume of liquid in the container to ensure safety.
- Properly reseal the containers to limit atmospheric contaminants (particularly oxygen).
- Empty containers of ethers and other peroxide-formers must be triple rinsed with water or other suitable and compatible solvent before discarding.
- Always wear proper personal protective equipment (PPE) in the lab. Wearing a lab coat and clothing that minimizes exposed skin provides better protection when working with chemicals.
- Work behind a safety sash such as a fume hood, plexiglass shield, or face shield, when working with potentially explosive chemicals. Rotovap explosions have occurred in the lab, so always be careful when using peroxidizable solvents in the rotovap – test the solvent for peroxides before using and shield the rotovap flasks to prevent injury from flying glass fragments in the event of an explosion!
- Always know where the emergency eyewash and safety shower are located before beginning work in the lab.
- Avoid working alone in the lab during business hours and if necessary, use a buddy system to periodically check in. Never work alone during off-hours (evenings, weekends, or holidays).

Chloroform

Chloroform reacts with air to form highly toxic phosgene gas and hydrochloric acid upon prolonged storage and exposure to light. Signs of deterioration may not be visibly evident so confirm the bottle dates before use. A low pH can be used as an indicator for hydrochloric acid formation and the presence of phosgene can be detected with an indicator strip method.

- Always wear appropriate PPE and handle chloroform in a fume hood.
- Unstabilised chloroform should be disposed of within 12 months even if unopened. Opened containers of chloroform with a stabilizer other than ethanol should be disposed of within 12 months of opening. Chloroform stabilized with ethanol should be disposed of within 5 years.

Shock Sensitive Chemicals

These chemicals can detonate due to heat, friction, or shock. Identify these chemicals and take precautions for storage and handling as detailed on the SDS. Examples include, but are not limited to the following:

Acetylene Acetylides of heavy metals Ammonium nitrate Ammonium percholate Ammonium picrate Azides of heavy metals Calcium nitrate Chlorates Dinitrotoluene Dinitrophenol	Ethylene oxides Fulminating Gold Fulminating Silver Fulminate of Mercury Germanium Hexanitrodiphenylamine Hexanitrostilbene Hydrazine Hydrazoic acid Lead styphnate	Metal Fulminate Nitrogen triiodide Nitrogen trichloride Nitroglycerin Nitroglycol Nitroguanidine Nitrourea Ozonides Perchlorate of heavy metals Perchloric Acid Picric acid

Polynitrated aromatics are a class of chemical containing highly reactive nitrate (NO_3) functional groups that can form explosive salts when exposed to certain metals. Examples include picric acid, dinitrotoluene, dinitrophenol, hexanitrostilbene, and nitroglycerin.

Picric acid must be kept wet and can become explosive if the water content falls below 10% by volume. Signs of deterioration may include a pale color, visible crystals, or a white film around the neck of the container. **DO NOT** touch the container if deterioration is suspected! Picric acid should be disposed of within 2 years of receipt.

Hazard Controls for Time Sensitive Materials

- Substitute with a less hazardous chemical whenever possible.
- Purchase the smallest amount feasible to complete the work. Avoid stockpiling to save money, as increased risk for a dangerous situation and disposal of expired product in the future far outweighs the initial cost savings! Purchase the stabilized chemical whenever possible.
- Clearly label the container with date received, date opened, and expiration date.
- Review the chemical Safety Data Sheet (SDS) and manufacturer guidance before using the material.
- Store in a cool, dry, well-ventilated area away from heat sources. Always store separately from incompatible materials and follow manufacturer instructions.
- Always wear appropriate PPE as indicated on the SDS and at a minimum safety goggles, gloves, and proper laboratory attire.
- Always handle in a chemical fume hood.
- Do not store in ground glass stoppered bottles or bottles with metal-lined foil caps.

- Store in dark colored glass to avoid reactions with light.
- Look for signs of deterioration before opening the container. If signs of deterioration are evident (crystals, bulging container, color) **DO NOT OPEN** and contact the Health and Safety Department for disposal.

5.10 Maintaining Chemical Inventory

A system for maintaining an accurate chemical inventory on campus is essential for compliance with regulations and fire safety building codes. Regular monitoring of the chemical storage areas should be part of general laboratory operations to provide an integrity check for containers and labels and an opportunity to remove unnecessary or time-sensitive chemicals. To facilitate this, an updated chemical inventory is required to be submitted annually to the Science Schools' Health and Safety Department.

The benefits of performing an annual inventory include:

- ensures chemicals are stored according to compatibility.
- eliminates unneeded or outdated chemicals.
- updates the hazard warning signage on the laboratory door.
- promotes more efficient use of lab space.
- checks expiration dates of peroxide formers.
- ensures integrity of shelving and storage cabinets.
- replaces illegible or missing labels.

6.0 Audit and Monitoring of Appropriate Storage

The Science Schools' Health and Safety Department will conduct inspections to determine individual laboratory compliance with chemical management and other relevant safety policies. These surveys are comprehensive and address record keeping, fire safety, egress, engineering controls, personal protective equipment, and work practices for safe chemical handling. At least one annual inspection will be announced to work directly with the PI or laboratory supervisor to address specific items, such as inventories of particularly hazardous materials or processes and any other safety concerns that arise. Other inspections may be unannounced to provide a snapshot of laboratory safety and compliance and will help to continually improve the laboratory safety program.

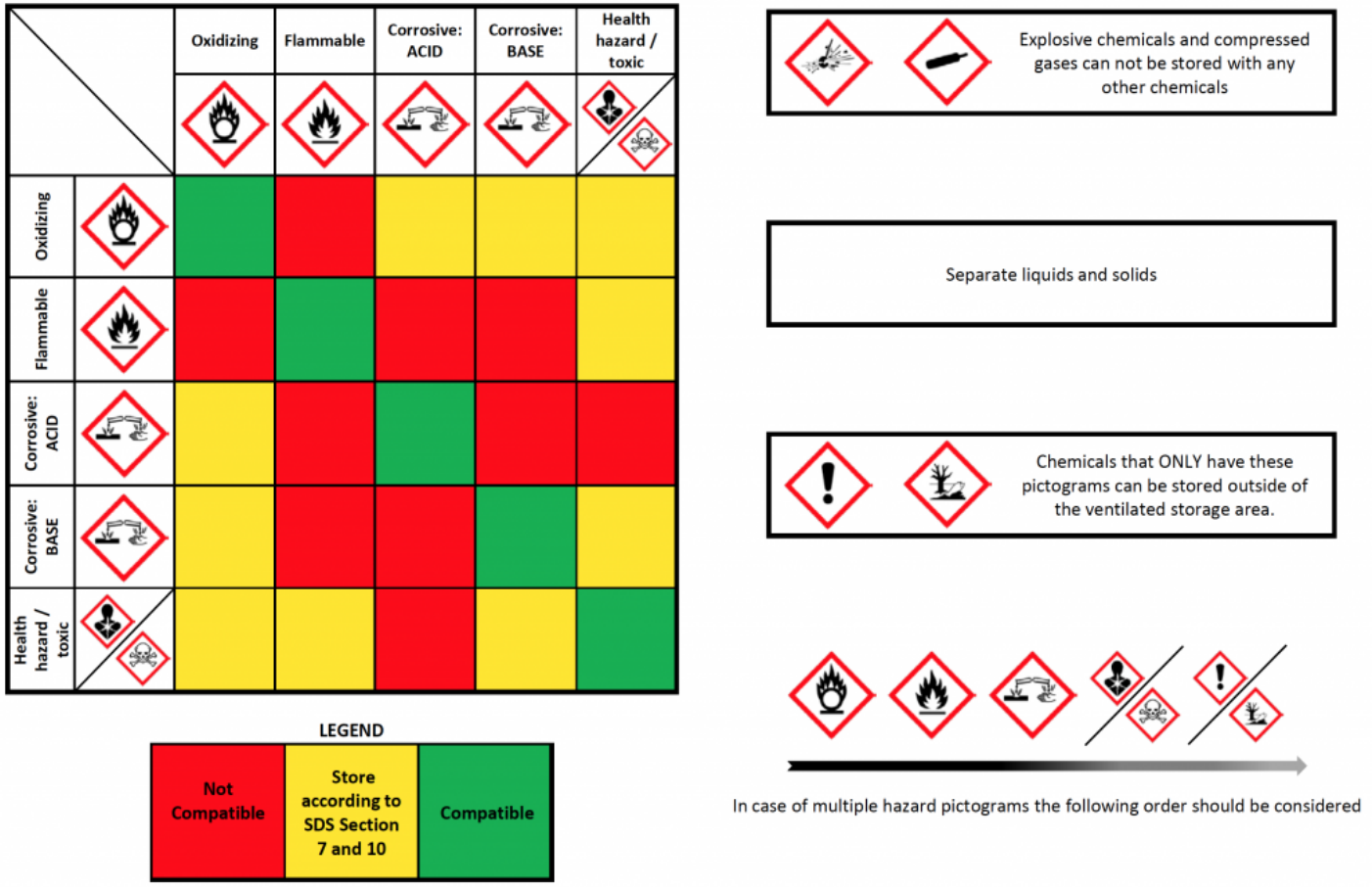
7.0 Laboratory Closeout Procedure

The Science Schools' Health & Safety Department must be notified prior to a laboratory move, relocation, or vacancy for any reason to perform a lab check-out assessment. This procedure will ensure that all hazardous materials are properly accounted for or disposed of and will prevent the next occupant from inheriting "unknown" or potentially hazardous materials. Please contact safetyscienceschools@sussex.ac.uk to begin the closeout procedure.

Lab equipment that is broken or unwanted, such as refrigerators, freezers, incubators, centrifuges, etc., may be discarded through Surplus. Equipment that could possibly be contaminated with biological, chemical, or radioactive materials must be decontaminated prior to disposal. Contact

safetyscienceschools@sussex.ac.uk to request an “Equipment Clearance” before scheduling pickup for Surplus Disposal.

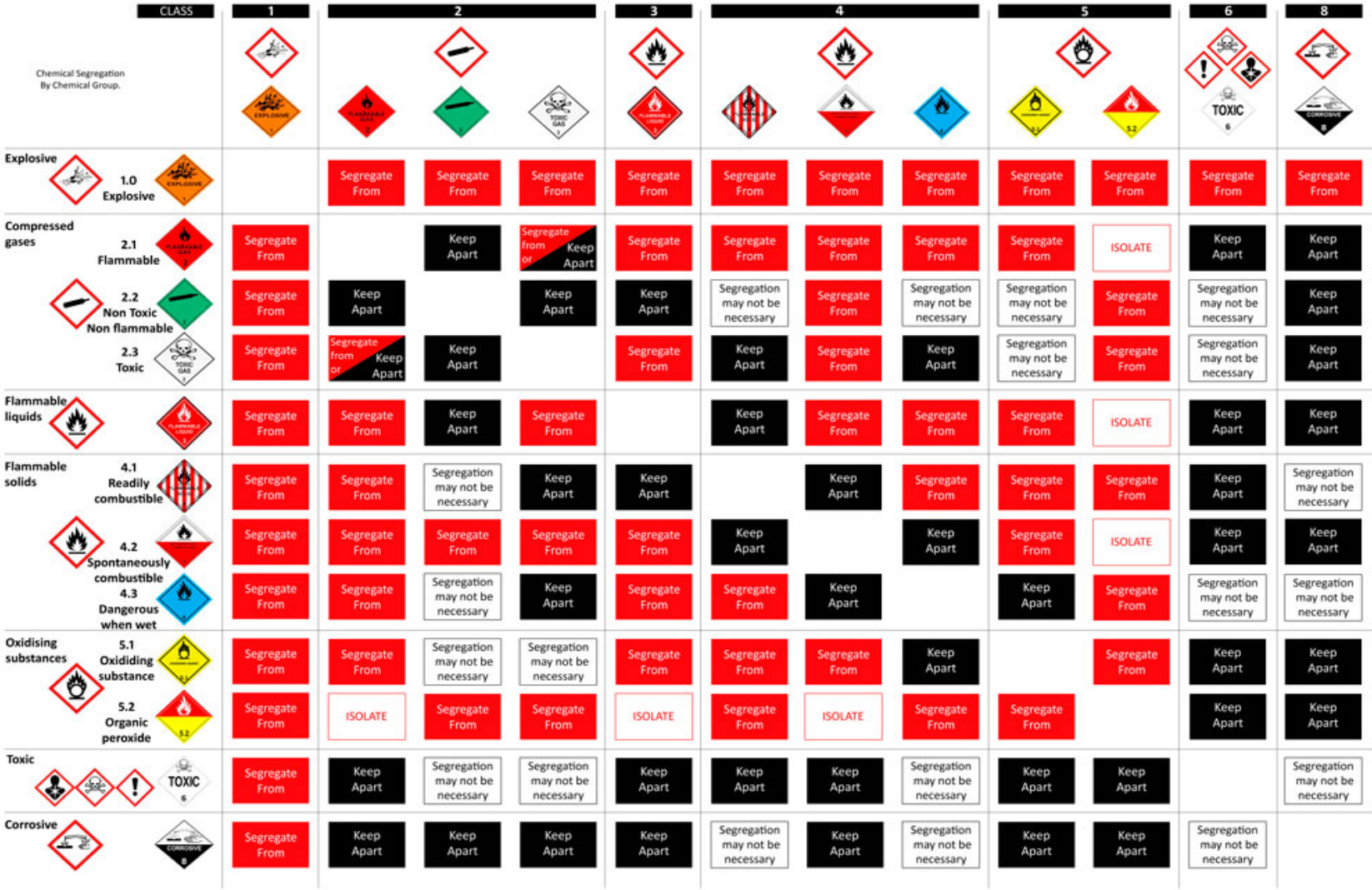
Appendix 1: Chemical Segregation Matrix



Note that two chemicals can have the same pictogram and still be incompatible!

Example: Acetic acid and triethylamine are both flammable, but cannot be stored together because they are an acid and a base.

Appendix 2: HSG71 - HSE Segregation Chart



HSG71- HSE Segregation Chart Guidance

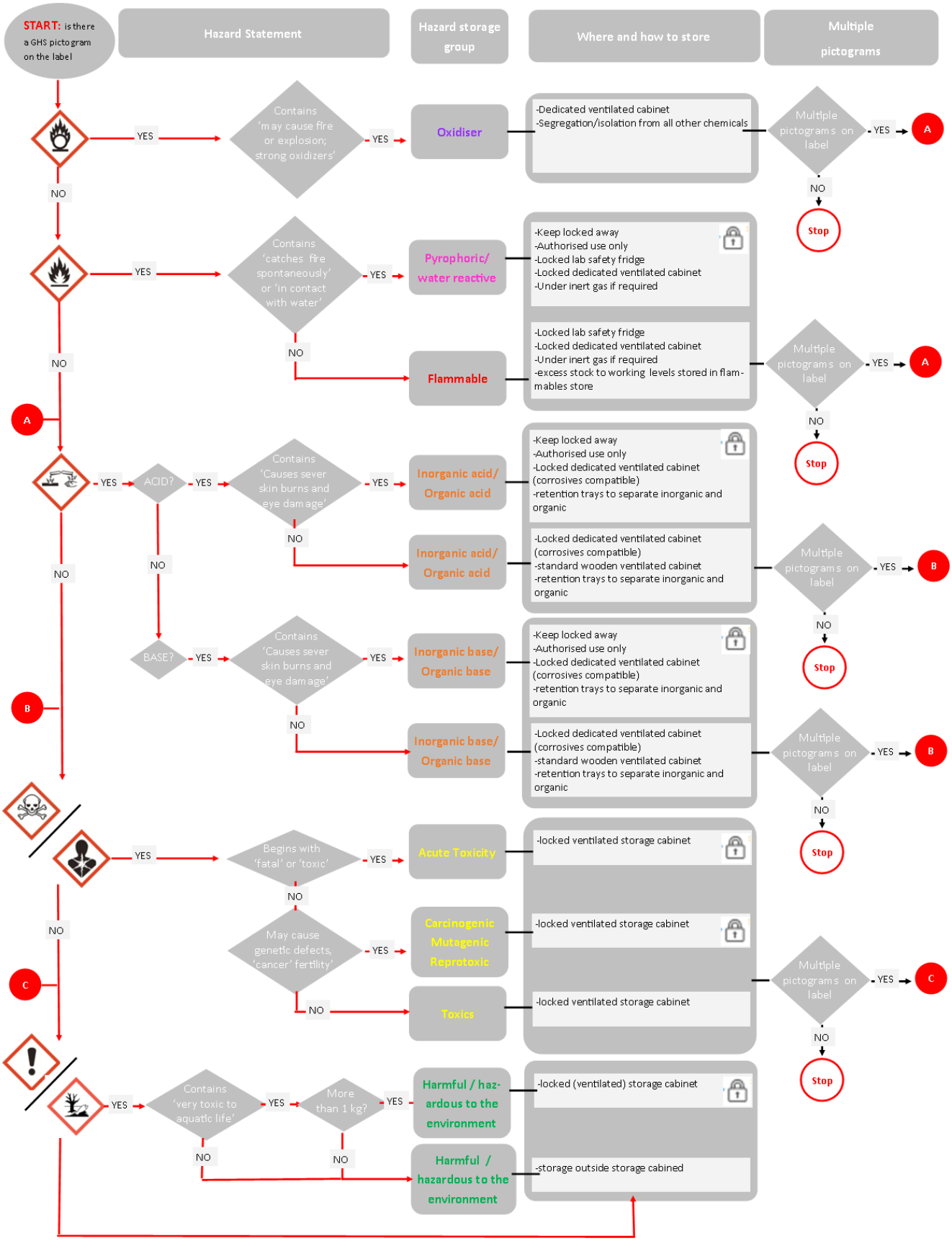
Chemicals stored according to this table must comply with the following instructions:

Segregate from	These combinations should not be kept in the same building compartment or outdoor storage compound. Compartment walls should be imperforate, of at least 30-minute fire resistance and sufficiently durable to withstand normal wear and tear. Brick or concrete construction is recommended. An alternative is to provide separate outdoor storage compounds with an adequate space between them.
Separation may not be necessary	Separation may not be necessary but consult suppliers about requirements for individual substances. In particular, note that some types of chemicals within the same class, particularly Class 8 corrosives, may react violently, generate a lot of heat if mixed, or evolve toxic fumes.
ISOLATE	This is used for organic peroxides, for which dedicated buildings are recommended. Alternatively, some peroxides may be stored outside in fire resisting secure cabinets. In either case, adequate separation from other buildings and boundaries is required.
KEEP APART	Separate packages by at least 3 metres in the storeroom or storage area outdoors. Materials in non-combustible packaging that are not dangerous substances and present a low fire hazard may be stored in the separation area. This standard of separation should be regarded as a minimum between substances known to react together readily, if that reaction would increase the danger of an escalating incident.
Segregate from KEEP APART	The lower standard refers to the outside storage of gas cylinders. Where non-liquefied flammable gases are concerned, the 3-metre segregation distance may be reduced to 1 metre.

N.B: This HSE Guidance chart- has been left in its unaltered form.

The chart is targeting industry and large-scale warehousing; therefore, some recommendations are disproportionate for application in small scale laboratories, but the principles still apply.

Appendix 3: Storage Workflow Diagram



Appendix 4: SOP Record of Acknowledgement

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