# CODE OF PRACTICE

## Hazardous Chemical/Biological Waste

### Guidance document for waste producers and managers

Document Information

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|---|---|---|---|---|---|
| Author | Debbie Robarts | | | | |
| Revised By | Debbie Robarts | | | | |
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| March- April 2025 | Change type of document to Code of Practice and updates to include more specific information on waste types and requirements for effective disposal by external waste management companies. Subsumed the hazardous waste standard into this document. | Debbie Robarts |
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# 1. Summary

Waste producers have a legal Duty of Care to ensure that their waste is managed appropriately by themselves and others.

The waste producer is the person or department whose activities generate the hazardous waste.

Certain types of waste are classed as hazardous because they possess properties that pose a threat to human health or the environment. Examples of these properties are **toxic**, **flammable**, **corrosive** and **carcinogenic** (see Appendix 1 for a full list of hazardous properties).

Because of these properties, hazardous wastes must be managed carefully, and there are strict rules on how they are dealt with. These rules are brought in to force by the following:

- The Environmental Protection Act 1990
- The Waste (England and Wales) Regulations 2011
- Hazardous Waste (England and Wales) Regulations 2005

There can be serious consequences if hazardous waste is not managed correctly. This includes:

- Harm to persons collecting the waste, e.g. exposed to sharps or contaminated items not packaged correctly
- Harm and/or property damage to waste companies and their personnel if items placed in wrong bins, e.g. explosive chemicals in glass bins
- Fines and other regulatory action for events such as the above, and breaching regulatory conditions
- Hazardous waste production and therefore research stopped due to waste companies refusing to accept university waste because of infringements such as incorrectly packaged and labelled waste

# 2. Scope

This Code of Practice (CoP) is intended for all employees who produce, carry, package and store hazardous chemical and biological waste at the University. It provides information on classification and identification and the safe handling, storage and packaging of these types of hazardous waste across the University campus.

This document only applies to chemical/biological (clinical) hazardous waste whose disposal is managed by the Hazardous Waste Service under the Safety, Health and Employee Wellbeing (SHEW) department. It excludes hazardous waste such as Waste Electrical and Electronic Equipment (WEEE), fluorescent tubes and asbestos managed by other departments such as Campus Services and Infrastructure. It also does not cover radioactive waste.

This document also includes the disposal and prohibition of substances to drain as defined by the University of Bath Trade Effluent Consent.

# 3. Introduction

Hazardous Waste is any waste with hazardous properties that may make it harmful to human health and the environment.

In the context of this document this includes laboratory chemicals and waste products, oils, paints, resins, clinical/biological waste, including contaminated items from labs and workshops such as fume hood filters, and cleaning chemicals such as detergents.

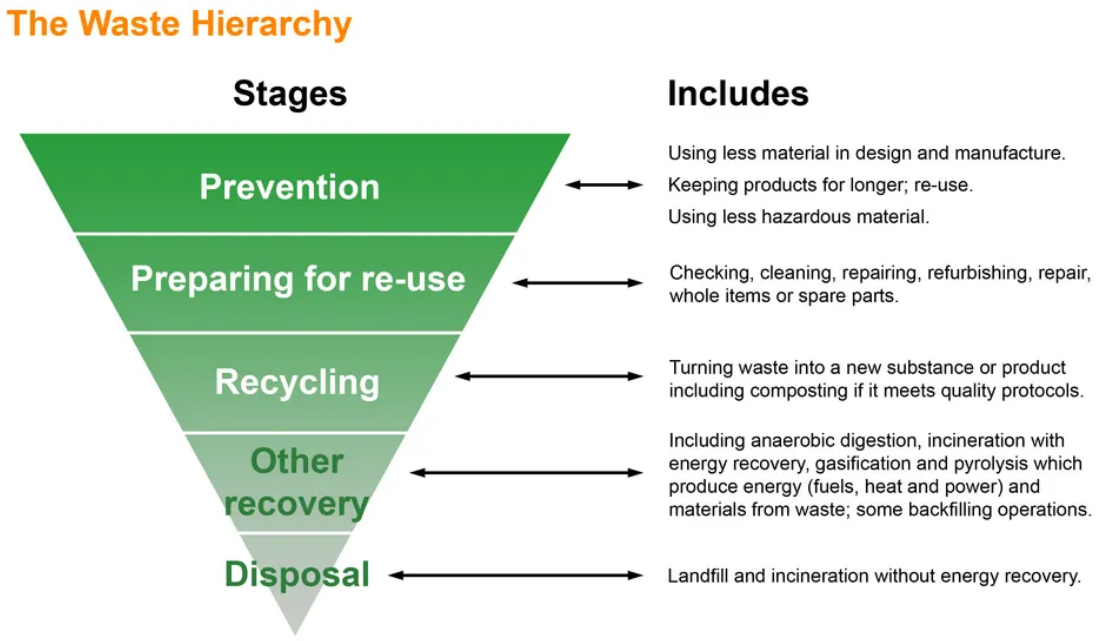
The aim of this Code of practice is to set out the requirements for safe management of hazardous waste generated as a result of University activities from production to transfer to the University Hazardous Waste Service.

## 4. Waste Hierarchy

Anyone who produces waste has a legal duty of care to take all such measures available as are reasonable in the circumstances to prevent waste and to apply the following waste hierarchy as a priority order. The "waste hierarchy" ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill/incineration).

A declaration is included on waste consignment documentation confirming compliance with this duty.

Please refer to [Defra Guidance on applying the waste hierarchy to hazardous waste]




The University (LEAF) Laboratory Efficiency Assessment Framework also has guidance on the application of the hierarchy and managing/minimising waste.

https://preview.bath.ac.uk/campaigns/responsible-lab-waste-management/

https://preview.bath.ac.uk/guides/minimising-lab-waste/

## 5. Hazardous Chemical/Biological Waste Classification

The risk and/or COSHH assessment for your work shall identify the resulting waste products. This should classify it as hazardous or non-hazardous. The assessment should also identify how waste should be stored safely in the laboratory or workspace (e.g., risks of exposure to waste and the appropriate type of bin to use). The assessment should also identify how waste is safely and correctly packaged when it is collected for disposal. Just stating your waste is hazardous is not sufficient, you need to fully identify it, and how it should be packaged, and labelled in

accordance with the requirements of this document, the regulations, and requirements of the waste disposal companies.

Waste is defined as hazardous if it is classified as hazardous in the European Waste Catalogue (EWC or List of Wastes). Waste is hazardous if it, or the materials or substances it contains, are harmful to human health or the environment.

Waste is hazardous if it possesses one or more of the properties H1 to H15 set out in Appendix 1 (taken from the Hazardous Waste Directive Annex III). In general, if it contains 'dangerous substances', it is hazardous. This information can be obtained from a variety of sources, including:

- The European Waste Catalogue 2002
- Safety Data Sheets (SDS)
- Annex VI Table 3.2 of the Classification, Labelling and Packaging of Substances Regulation (CLP)
- The hazard classification given in the HSE's 'Approved Supply List'
- The Approved Classification and Labelling Guide (HSE Books L131)
- Reference books or internet sources.

Some dangerous substances have concentration threshold limits. If a waste contains a dangerous substance(s) at a concentration below the threshold for all of the hazardous properties, the waste will not be hazardous and is categorised as **non-hazardous**. Threshold limits are set out in the Environment Agency document 'Technical Guidance WM3 Waste Classification – https://www.gov.uk/government/publications/waste-classification-technical-guidance

If the content of the waste is not clear, producers must prove that it is non-hazardous before it can go to a non-hazardous waste stream.
Appendix 2 provides a short summary of threshold concentrations against common hazards and risk phrases. This is an indicative, not an exhaustive list.

Items that can be considered non-hazardous (e.g. non sharps and items containing very low levels of chemical contamination below threshold concentrations) may be disposed of in general waste bins.

# 6. Types of Hazardous Chemical/Biological Waste

The following are descriptions of the types of hazardous waste produced at the University of Bath on a regular basis. This list may not be exhaustive, and advice should be sought from the Hazardous Waste Manager if there is any uncertainty regarding classification of waste.

More detail regarding their disposal requirements can be found in SHEW Chemical and Biological Waste Checklists.

The following are descriptions of the most common types generated on campus currently, with general advice on correct type of bin/container to be used.

## 6.1. Organic Solvent Waste

Organic Solvent waste generally is segregated into two types: Halogenated (containing halogen atoms) and non-halogenated (all others). This is due not only to their chemical incompatibility but also that the disposal route differs for each of these waste types. These are disposed of in plastic reused 2.5L solvent bottles with red or yellow labels (labels provided by SHEW upon request), placed four bottles to a crate for ease of carriage.

The only exceptions are liquid waste with multiple halogen atoms such as polyfluoroalkyl substances (PFAs) and lachrymatory compounds. These must be disposed of separately and labelled as per the specific requirements in this document.

## 6.2. Other Liquid and Aqueous Wastes

Aqueous wastes are low levels of liquid chemical waste where the bulk of the solution is water. There should be no organic solvents present as these should go into the organic solvent route. These are only classed as hazardous waste if the chemical components exceed the threshold concentration limits, otherwise they can be disposed of to drain (taking into account the trade effluent consent limits, see section 10).

Liquid waste is preferably contained in 2.5L plastic bottles, unless compatibility issues require glass bottles. Larger sizes can be accommodated but manual handling and storage space need to be considered. Advice should be sought from the hazardous waste manager on bulking waste.

## 6.3. Glass Waste

This is placed in yellow 60L hermetically sealed bins labelled UN2811 (off site transport code).
This is glass that cannot be recycled for example: borosilicate glass, non-recycleable glass solvent bottles, broken glass, ceramic-ware, glass chromatography plates, microscope slides, pipettes, empty vials, test tubes, thermometers (no mercury present). Empty glass chemical containers must be rinsed with either water or solvent prior to disposal in glass bins.
ONLY glass waste should be placed in these bins, paper towels, gloves etc should NOT be placed in this bin.

The following absolutely must **not** be disposed of in glass waste containers:

- air or water sensitive compounds or containers
- highly toxic chemical waste
- Heavy metals

## 6.4. Waste containing Toxic Material

Most common toxic materials disposed of are ethidium bromide and low level lead, arsenic, cyanide and mercury waste. Any waste item contaminated with toxic material must be disposed of via the appropriate route. This is generally soft solid waste consisting of laboratory consumables which cannot be cleaned/decontaminated to below the threshold concentration. They must be segregated by chemical form and type, e.g. ethidium bromide waste cannot be mixed with lead waste and so on.

Usually, this type of waste is disposed of in hermetically sealed 30L yellow bins. The main exception to this is mercury; this must be segregated and appropriated packaged depending on the material form such as being present in glass thermometers. Advice should be sought from the hazardous waste manager.

Liquid waste containing cyanides should be oxidised with bleach and depending on the waste product either be disposed of to drain or classed as aqueous heavy metal waste. Please seek advice if unsure.

## 6.5. Sealed Ampoule/Sample Vial Waste

This type of waste consists of ampoules/sample vials that contain a liquid or solid sample, e.g. HPLC vials where the contents cannot be emptied, e.g. lid is sealed. They must be segregated into solid and liquid (referring to the material within the vial) waste containers and disposed of in correctly labelled 30L yellow bins. Liquid sample vials containing removable lids must not be placed in these bins as they are not leak proof.

Those that contain solvents cannot exceed a maximum of 2litres (combined volume for all sample vials) per 30L yellow plastic container.

## 6.6. Dusts/powders/particulate

This type of waste may be deemed hazardous due to its properties such as a respiratory irritant or potential carcinogen.

The majority of this type of waste produced at the University is in the form of silica, used in laboratories for chromatography processes or as TLC plates (non-glass). It will also include nanoparticle solid waste and drying agents such as magnesium sulphate, sodium sulphate and calcium chloride.

Any waste in this form should be double bagged or put into a plastic container prior to being placed in a lidded 60L blue waste drum to prevent escape of the dust/particulate.

They also must be segregated by chemical form and type, e.g. silica chromatography waste must not be mixed with silica TLC plates.

## 6.7. Waste Oils/Fuels

As well as general waste oil from University vehicles and equipment such as pumps, a significant amount of oil and fuel waste is generated by the Engineering Faculty from their vehicle research projects. Oils with different characteristics should not be mixed, for example mineral oils, halogenated oils, brake fluids, antifreeze, washer fluids and oily waters are different waste categories and mustn't be mixed.

Also, some edible oils such as vegetable oil are produced with chemical contaminants from research laboratories.

Plastic 2.5L bottles are an appropriate container for these types of oils.

## 6.8. Sharps

These are any items that can cause personal injury such as cuts and puncture wounds from handling and includes needles, scalpels, blades, broken scissors, microscope slides, small empty vials and small broken glass items. This type of waste must be handled with care and disposed of in dedicated sharps containers to prevent such injuries and minimise the potential for spread of infections such as Blood Borne Viruses (BBVs) or chemical contamination.

Colour coded dedicated sharps bins are to be used for this type of waste. Only sharps should be disposed of in these bins, syringe needles must be detached from the plastic barrel using the remover at the lid. Plastic items such as pipette tips, gloves, tissues should not be placed in this type of bin.

Please see the biological waste checklist for further information.

## 6.9. Clinical Waste

Any waste consisting wholly or partly of human or animal tissue, blood or other body fluids, excretions, prescription/controlled drugs or other pharmaceutical products, swabs or dressings, or syringes, needles or other sharp instruments, being waste which unless rendered safe may prove hazardous to any person coming into contact with it.

Please refer to the biological waste checklist for the correct colour coding for bins/bags for correct disposal of the waste depending on its properties.

Controlled drugs as defined by the Misuse of Drugs Regulations 2001 must be denatured, to make it safe, prior to being placed into a medicinal waste bin (blue lid). Proprietary denaturing kits can be obtained from clinical waste specialist companies who also supply the required bins.

Cytotoxic waste must be accompanied by a detailed list of contents for the waste disposal company.

## 6.10. Animal By-Products (ABPs)

Animal by-products (ABPs) are defined as entire bodies or parts of dead animals, products of animal origin or other products obtained from dead animals which are not intended for human consumption. Animal by-products are a potential source of risks to public and animal health.

They are split into three key categories – category 1 (highest risk to public health), category 2 (high risk), and category 3 (lowest risk).

Examples of ABPs include:

- Anatomical waste
- Animal bedding & manure
- Animal carcasses, hides, skin, hooves, feathers, wool, horns or hair
- Processed animal proteins (PAP)
- Carcasses of animals used in experiments

This type of waste must be packaged in specific ABP or anatomical yellow clinical waste bags with black writing indicating the type of waste, which are complaint with transport regulations. Plain yellow bags or standard clinical waste bags will not be accepted.

It must also be kept in a freezer to avoid spoiling prior to collection.

## 6.11. Waste containing Biological Agents

The University only works with Hazard Group (HG) 1 and 2 microorganisms and geneticially modified organisms (GMOs). All GMO and HG2 biological waste, including cell cultures, must be rendered safe, i.e. by autoclaving at the correct specification, prior to collection for disposal. HG1 waste disposal must be determined by risk assessment. Departmental procedures must include the arrangements for managing this type of waste.

## 6.12. Relevant Material (Human Tissue) Waste

Surplus relevant material no longer required for a scheduled purpose and waste materials that are contaminated (have come into contact) with relevant material as defined by the Human Tissue Act are required to be disposed of respectfully and sensitively and in accordance with the HT Act and Human Tissue Authority (HTA) codes of practice.

Relevant material must be disposed of in accordance with the terms of consent, and where no specific conditions have been specified, relevant material must be disposed of separately from other types of clinical and general (non-human) waste.

The HTA Code E (2023) for research (page 30) states the following:

• Processes should be in place to inform donors as to how their relevant material will be disposed of

• The HT Act permits disposal of surplus relevant material as waste

• It is not necessary for each tissue sample to be bagged and disposed of individually

All relevant material waste must be disposed of via incineration to ensure that it cannot be unethically used, unless the requirements of the donor differ from this.

Sharps items must be segregated into a separate sharps bin, labelled that it contains relevant material along with the department and lab number. Human tissue itself such as skin should not be placed in sharps bins. Surplus material that can be removed from sharps should be done by a safe method such as the use of tweezers. This surplus material should be placed in the clinical waste bag as below.

The normal hazardous waste disposal process should then be followed for collection and disposal of sharps bins.

All other relevant waste must be placed into orange clinical waste bags. An exception to this is if chemicals or medicines are present. Please contact the hazardous waste service in SHEW if this is the case for advice on correct bags to use and disposal route.

Clinical waste bags must be either knotted or cable tied (recommended) securely closed to prevent spillage during transport. They should then be placed into allotted dedicated yellow clinical waste bins. These bins will be routinely emptied by an approved waste company.

Only surplus relevant material and waste items that have come into contact with relevant material should be placed in these bags. All other infectious waste must be appropriately bagged, labelled and disposed of in accordance with university biological waste procedures and risk assessments.

General waste and recycling good practice procedures must be followed for items such as packaging, paper, etc.

### 6.13. General Laboratory Chemicals ("lab smalls")

These are generally expired or unused chemicals in their original containers which are no longer required. A detailed list is required containing specific information requested by waste companies for disposal of this type of waste. An example is provided in Appendix 5. The containers need to be segregated appropriately and packed in lidded boxes, secure and upright for transport. The chemical waste checklist provides further information on these requirements.

## 7. Segregation

It is important that hazardous waste is managed safely and securely because of the effects it may have on human health or the environment if it is not properly controlled. You must keep separate:

- hazardous waste from non-hazardous waste
- different types and forms of hazardous waste from each other, and
- hazardous waste from other materials
- relevant material from other clinical wastes

This is a legal requirement. It prohibits waste producers from discarding items of hazardous waste in general waste bins. It is also important for appropriate disposal of wastes, waste companies may not take mixed wastes or incorrectly identified wastes for disposal.

For more information, please refer to https://www.gov.uk/guidance/hazardous-waste-segregation-and-mixing

Therefore, it is important that these obligations are communicated clearly to waste producers and that the correct type of waste container/bin is provided in areas where it is required with clear communication of what cannot and can be put in the bin/container.

## 8. Packaging and Labelling

During storage and transport, it is important that your waste can be easily identified, waste that is not fully identified cannot be transported on the public highway nor will it be accepted by waste disposal companies. In addition, waste that is incorrectly identified, can incur penalties depending on the potential consequences and could result in waste companies refusing to collect our waste. This could have the effect of research being stopped if we cannot dispose of our waste.

Containers must be labelled with the following information:

- an indication that it is waste
- the contents of the container (where it is a chemical you should use the chemical identity rather than a trade name)
- hazard(s) classification symbol
- Form of waste, e.g. solid or liquid
- for liquids concentration in % of all components

Labels on both waste containers and hazardous substances (particularly chemicals used infrequently) should be checked periodically to ensure that they remain legible and in place. They should be replaced if needed. This will ensure that full identification and classification can be provided for disposal. Attaching a paper label with Sellotape or similar is not appropriate as they do not stay fixed in place during transport and storage, labels should be properly stuck on.

The packaging or waste container should be appropriate to the waste it contains. It needs to ensure that it will not allow the contents to escape, particularly if there is a leak of liquid or particulate solid. Therefore, cardboard boxes are not an accepted waste package for liquids in particular. Plastic bottles should be used in preference to glass to avoid breakages unless compatibility with the chemical is an issue. Vermiculite or similar absorbent packaging must be used for containers of multiple bottles of liquid, such as lab smalls and glass items such as mercury thermometers.

Waste containers, which are reused, should be periodically inspected visually for any signs of wear that could lead to a loss of integrity. They should be replaced immediately if they are not considered adequate for purpose.

If the waste container is to be stored outside prior to collection, then it should be able to withstand reasonable weather conditions and/or be protected.

## 9. Storage Requirements

The University also has a ‘Duty of Care’ to store waste appropriately. The key factors are that you ensure waste is:

- secure
- contained so that it cannot escape, and
- protected from the weather, vehicles including fork lift trucks, scavengers and pests

The University does not have a permit for hazardous waste operations but instead operates under the Non Waste Framework Directive (NWFD) Exemption 2: temporary storage at place of production (Ref: https://www.gov.uk/guidance/waste-exemption-nwfd-2-temporary-storage-at-the-place-of-production--2). This exemption allows us to temporarily store any waste at the place of production before it is collected for disposal off campus. However, there are still terms and conditions which need to be met. The University can only:

- store waste in a secure place at the place of production (it cannot be produced elsewhere)
- store for no longer than 12 months
- carry out some treatments on the waste to help with storage and collection

The treatments referred to can only make the waste easier to store and collect, they cannot change the characteristics of the waste. For example, allowable treatments include:

- compacting,
- sorting and segregating
- shredding
- decanting (transfer from one vessel to another)

However, for example the following are not allowable treatments:

- diluting
- mixing with other types of waste

If a requirement for treatment of hazardous waste were to be identified, then this would require a permit from the Environment Agency (EA).

## 10. Liquid Waste Disposal to sinks, drains and surface water

Liquid waste not classified as hazardous can go to drain. However, the following requirements of the Trade Effluent Consent must also be considered prior to disposal.

Material which enters the University drains (trade effluent) goes via the public sewage system to a Wessex Water treatment plant. Material which enters the surface water drains goes (depending on location) either to the public sewage system or to controlled waters (e.g. rivers, streams, lakes, groundwater).

**Any discharge to the trade effluent or sewerage system must:**

- Comply with the requirements of the Water Industry Act 1991
- Not present a risk to the health and safety of workers on the sewage system or effluent treatment plant
- Not damage the sewage system
- Cause a nuisance or give off a vapour or harmful substance
- Cause harm to the environment

**Under no circumstances should:**

- Dilution and sink disposal be used as a means of disposing of hazardous liquids that should otherwise be collected, bulked up and disposed of via the University hazardous waste service (or in the case of unused substances, returned to the supplier where practical)

- Any liquid wastes, hazardous or not, be poured into external drains as they could be surface water drains that drain directly into local water courses

**Liquid waste disposed of to sinks should not contain:**

- solids, sludges or viscous substances
- grease or oil
- Corrosive chemicals - Liquids that have a pH less than or equal to 5 or greater or equal to 9 cannot be disposed of down the drain. Flushing corrosives down the drain with lots of water is not permitted.
- Reactive chemicals - Liquids that could result in an explosion, heat generation, or toxic gas release cannot be disposed of down the drain. Examples include cyanides, azides, oxidizers, water reactive and air-reactive chemicals.
- Toxic chemicals - Chemicals that have an LD50 less than 500 mg/kg or are identified as carcinogenic, mutagenic, or tetratogenic cannot be disposed of down the drain.
- Heavy metals - Heavy metals should never be disposed of down the drain.
- Prohibited Substances as defined by the Trade Effluent Consent. A full list is included in Appendix 3.

# 11. Waste Collection and Disposal Process

The process for arranging a collection of hazardous waste covered by this document is shown in Appendix 4.

The Safety, Health and Employee Wellbeing (SHEW) Hazardous Waste Service is the university department which acts as the waste holder and consignor to manage the transfer of hazardous waste (within its remit) off campus for disposal or recovery.

Campus services are the department responsible for the collection and transport of hazardous waste from the department collection point to the hazardous waste compound, managed by the Hazardous Waste Service.

All waste collection requests should be made via waste@lists.bath.ac.uk or the Topdesk form.

https://www.bath.ac.uk/guides/disposing-of-waste/

For routine waste, the request should be submitted by 12pm on a Monday to guarantee (as far as possible) collection the following Wednesday (current assigned collection day). A simple description of the waste; type and no. of containers, and collection point is sufficient for standard bins and organic solvent bottles. For other waste, chemical components and concentration (where applicable) will need to be listed.

An Internal waste Transfer Note (ITN) must be completed and accompany this waste when collected.

Routine waste is waste generated on regular basis, such as glass, solvents and some liquid waste, sharps, silica, and waste collected in 30L yellow bins.

Non-routine waste, which is mainly lab smalls, some liquid waste and other legacy items, requires a more detailed list to be provided which provides sufficient information for each individual container of waste:

- Name of waste/chemical name
- Description of waste, e.g. powder, liquid
- Amount/volume of waste
- Type of container, e.g. glass bottle
- Classification/Hazard warning of waste
- Concentration of all chemical components in % for liquids

- Any other information required/requested by the waste disposal company

The hazardous waste service will check that the submission meets the requirements for safe transfer, storage and disposal. This may require contact with the waste disposal company for further advice and assurance that their conditions are met. Once the check is complete and any queries answered, the request is approved, and a collection date will be provided.

The hazardous waste service provides campus services with a list of waste to be collected based on the requests received. Waste not on this list will not be collected.

On collection by campus services, if the waste does not meet the requirements set out in this document for packaging and labelling, e.g. not lidded, or does not have an ITN where required, it will not be taken.

In addition, any waste not listed or packaged incorrectly, such as medicinal or biological items in lab smalls boxes, may be returned to the department to be correctly packed and listed.

## Appendix 1: Properties of Waste which render it Hazardous

| Hazardous Property | Pictogram (where applicable) | Description |
|---|---|---|
| **HP1 Explosive** |  | Substances and preparations which may explode under the effect of flame, or which are more sensitive to shocks or friction than dinitrobenzene. |
| **HP2 Oxidising** |  | Substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances. |
| **HP3-A Highly Flammable** |  Danger | - liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or<br>- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or<br>- solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or<br>- gaseous substances and preparations which are flammable in air at normal pressure, or<br>- substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities. |
| **HP3–B Flammable** |  Warning | Liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C. |
| **HP4 Irritant** |  | Non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation. |

| | | |
|---|---|---|
| **HP5 Harmful** |  | Substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks. |
| **HP6 Toxic** |  | Substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death. |
| **HP7 Carcinogenic** |  | Substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence. |
| **HP8 Corrosive** |  | Substances and preparations which may destroy living tissue on contact. |
| **HP9 Infectious** | None required | Substances and preparations containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms. |
| **HP10 Toxic for Reproduction** |  | Substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence. |
| **HP11 Mutagenic** |  | Substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence. |
| **HP12** | None required | Waste which releases toxic or very toxic gases in contact with water, air or an acid. |
| **HP13 Sensitising** |  | Substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced. |

| | | |
|---|---|---|
| |  | Picotgram used depends on severity of hazard. |
| **HP14 Ecotoxic** |  | Waste which presents or may present immediate or delayed risks for one or more sectors of the environment |
| **HP15** | None required | Waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above. |

## Appendix 2: Example Threshold Concentrations

These are concentrations below which the waste could be considered to be non-hazardous

| Hazardous Property | Hazard Statement | Risk Description | Threshold Concentration*[1] |
|---|---|---|---|
| **HP4 Irritant** | H318 | Causes serious eye damage | ≥10% |
| **HP4 Irritant** | H315<br>H319 | Causes skin irritation<br>Causes serious eye irritation | ≥20%<br>≥20% |
| **HP5 Harmful** | H335 | May cause respiratory irritation | ≥20% |
| **HP6 Very Toxic** | H330<br>H300 | Fatal if inhaled<br>Fatal if swallowed | ≥0.1%<br>≥0.1% |
| **HP6 Toxic** | H331 | Toxic if inhaled | ≥3.5% |
| **HP7 Carcinogenic Cat 1A or 1B** | H350 | May cause cancer | ≥0.1% |
| **HP7 Carcinogenic 2** | H351 | Suspected of causing cancer | ≥1% |
| **HP8 Corrosive** | H314 | Causes severe skin burns and eye damage | ≥1% |
| **HP10 Toxic for Reproduction Cat 1A or 1B** | H360 | May damage fertility or the unborn child | ≥0.3% |
| **HP10 Toxic for Reproduction Cat 2** | H361 | Suspected of damaging fertility or the unborn child | ≥3% |
| **HP11 Mutagenic Cat 1A or 1B** | H340 | May cause genetic defects | ≥0.1% |
| **H11 Mutagenic Cat 2** | H341 | Suspected of causing genetic defects | ≥1% |
| **H13 Sensitising** | H317<br>H334 | May cause an allergic skin reaction<br>May cause allergy or asthma symptoms or breathing difficulties if inhaled | ≥10%<br>≥10% |

Notes:

*[1] Value at which the waste is considered hazardous

For HP2 oxidising substances the threhold concentration is specific to a substance. Please refer to Appendix C2 of 'Technical Guidance WM3 Waste Classification **and** Annex VI Table 3.1 to CLP regulations https://echa.europa.eu/information-on-chemicals/annex-vi-to-clp

## Appendix 3: Substances which must NOT be discharged to drain

Volatile petroleum producs

Chlorinated hydrocarbons and related compounds

Calcium carbide

Mercury and its compounds

Cadmium and its compounds

Gamma-Hexachlorocyclohexane

DDT

Pentachlorophenol

Hexachlorobenzene

Hexacholobutadiene

Aldrin

Dieldrin

Endrin

Carbon Tetrachloride

Polychlorinated Biphenyls

Dichlorvos

1, 2 Dichloroethane

Trichlorobenzene

Atrazine

Simazine

Tributyltin compounds

Trifluralin

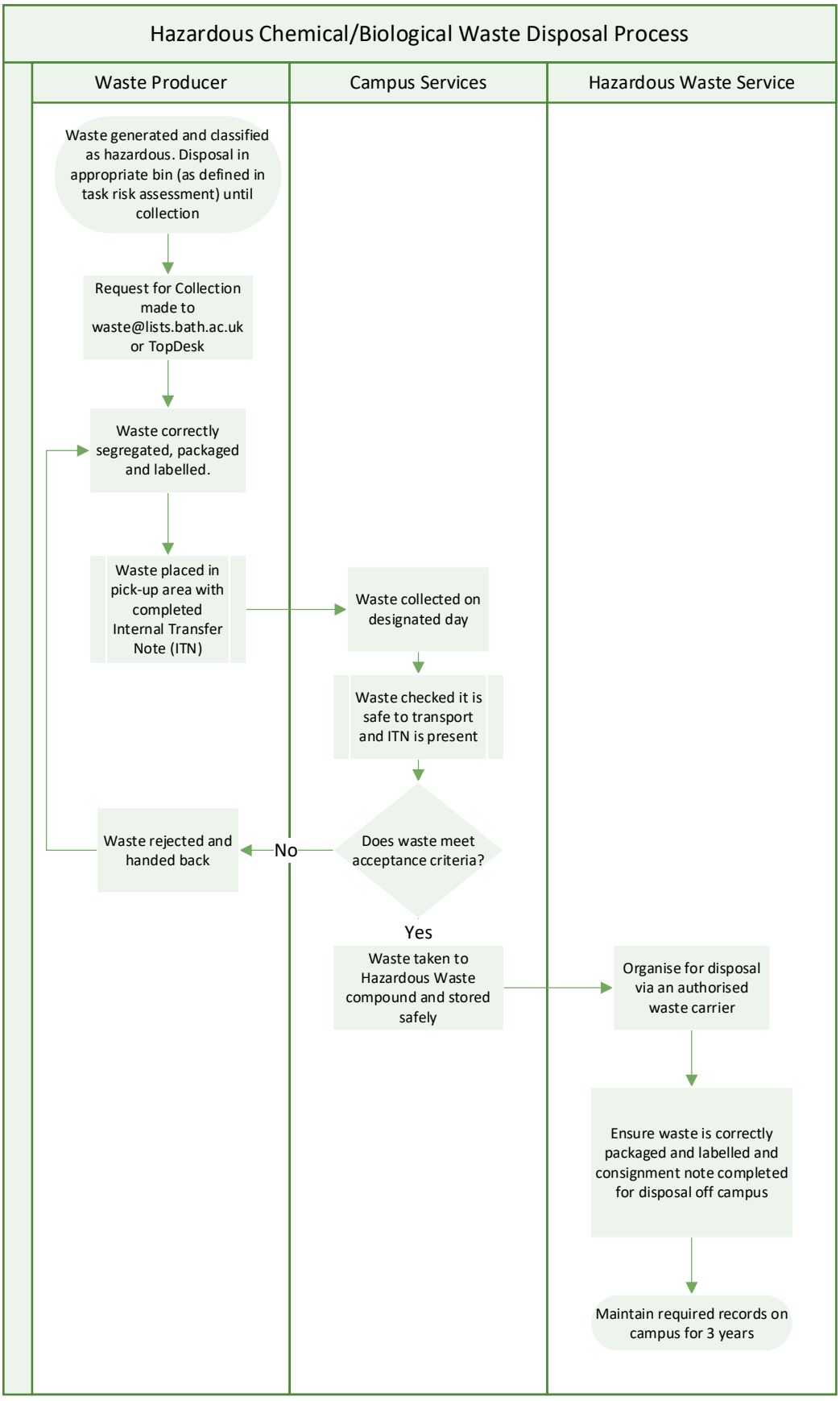
Fenitrothion

Azinphos-methyl

Malathion

Endosulfan

## Appendix 4: Collection and Disposal Process



## Appendix 5: Example Waste Request Form

| Chemical Name | Description of waste | Hazard | Form (e.g. solid/liquid) | Volume/Mass (L/g) of waste and concentration (%) where applicable | No. of waste containers |
|---|---|---|---|---|---|
| 2-Hydroxy-4'-(2-hydroxyethoxy)-2-methylpropiophenone | Expired Chemical (Lab smalls) dry powder in original plastic container | Environmental Hazard | Solid | 100g | 1 |
| Polyacrylic acid solution | Expired Chemical (Lab smalls) in glass bottle | Harmful, Irritant | Liquid | 250ml - 35% in water | 1 |
| Aqueous oil waste | Ionic Liquid (10%), Cellulose (10%), Sunflower oil (30%), and water (50%) | Harmful | Liquid | 2.5L (see description for concentrations) | 4 |
| Soft Lab consumables waste | Bagged waste containing tissues, blue roll, gloves, small plastic items lightly contaminated with heavy metals | Acute Toxicity | Solid | Medium sized black bags | 2 |
| Used Spill kit | Glycol contaminated spill kit: vermiculite, blue roll and absorbent material | Health Hazard | Solid | Large bag in plastic lidded box | 1 |
| Fume Cupboard Filter | Filter used for HCL, Ethanol, resin mixture; double wrapped individually | Corrosive, health hazard. Irritant | Bulk solid waste | 6kg each | 4 |