

## **DISPOSAL OF HAZARDOUS WASTES PROCEDURE**

### **1. INTRODUCTION**

The University inevitably produces hazardous waste as a result of its operations and accepts that it has a duty of care to dispose of this in a manner that is safe, environmentally appropriate and legal.

This procedure is intended to ensure that all staff and students of the University who generate, manage or dispose of hazardous waste do this in a manner that assists the university to discharge its duty of care in this area.

### **2. SCOPE OF PROCEDURE**

This procedure applies to all Schools and Departments of the University and applies on all campuses.

This procedure covers management of hazardous waste anywhere within the University. It does not apply to the management of hazardous waste in areas outside of the University (e.g. as the result of visits to other workplaces with University Staff, field trips). Separate arrangements must be put in place for such management in consultation with the University Health and Safety Manager (or depute) prior to the commencement of the activities that may generate such waste.

### **3. FOUNDATION IN POLICY**

The University has a duty to ensure the health, safety and welfare of all employees, students and other persons who may be affected by its operations. This procedure is aimed at ensuring the University discharges that duty and must be followed when any hazardous waste is disposed of by staff or students of the University.

There is a specific requirement, under the Environmental Protection Act 1990 and subsidiary legislation (see section **4.2**, below) to ensure the safe management and disposal of hazardous waste. The responsibility to ensure compliance rests with the University, the School / Support Department and all individuals involved.

**Failure to properly manage the handling, storage, and disposal of hazardous waste is a breach of the legislation and may leave the University and individuals involved open to prosecution.**

The procedure which follows details how the University is organised to manage hazardous waste. Compliance with this procedure will ensure that there is no breach of legislation. Failure to follow this procedure is a breach of this University Health, Safety and Wellbeing Policy and is likely to lead to a breach of legislation.

## 4. PROCEDURE

### 4.1 Management Responsibilities

The responsibility to ensure the safe and legal disposal of hazardous waste arising within Schools and Departments of the University rests with the Health, Safety and Wellbeing Champions (as defined in University Health, Safety and Wellbeing Policy and Health, Safety and Wellbeing Champions will be deemed to have discharged their legal responsibility in this area by fulfilling the requirements of this Procedure (University of the West of Scotland procedure for "Disposal of Hazardous Waste").

While this procedure applies to all Schools and Departments of the University, those Schools and Departments that do not generate hazardous waste need not set up the infrastructure of Schools and Departments waste co-ordinator etc. as defined below. However, all members of such Schools and Departments staff should be aware of the existence of such a Procedure as it does not merely apply to hazardous wastes generated within laboratory and workshop environments. It can also apply to seemingly innocuous materials such as concentrated detergents, batteries and darkroom chemicals.

All Local Health, Safety and Wellbeing Champions are required to ensure that all processes within their area of responsibility that could give rise to hazardous waste are assessed as part of the Risk Assessment process required by the Management of Health & Safety at Work Regulations (see procedure for carrying out Risk Assessment within the University of the West of Scotland) and the Control of Substances Hazardous to Health Regulations (COSHH Regulations) and University Procedure made under the COSHH Regulations.

All such Risk Assessments must identify the nature and quantity of hazardous wastes arising out of processes and, in doing so, identify methods to minimise such waste where possible, storage facilities prior to disposal and the routes of disposal. A copy of all such Risk Assessments with the hazardous wastes so identified must be sent to the Hazardous Waste Officer.

Early sight of such Risk Assessment and identified wastes will allow the Hazardous Waste Officer and, if necessary, the University Health & Safety Manager, to give advice on minimisation of waste, neutralisation of waste prior to disposal, storage of waste and correct routes for disposal if the University hazardous waste disposal management system is not appropriate for this function. It will allow the Hazardous Waste Officer to exercise good forward planning.

The Local Health, Safety and Wellbeing Champion must ensure that all waste generators, i.e. academic, technical & research staff and students are aware of this Procedure and the requirements placed upon them (see Section 4) and, where appropriate, the Local Health, Safety and Wellbeing Champion must also appoint a School or Department waste co-ordinator to ensure the management of such waste within his/her area of authority (see 1(b) above for exceptions).

The role of the School or Department waste co-ordinator is defined at Section 4.

It is not anticipated that the person nominated as the School or Department Waste Co-ordinator will require any specific training. The person so nominated should be someone familiar with the structure, operations and processes taking place within the Local Health, Safety and Wellbeing Champion's area of responsibility. Examples of such persons would be laboratory supervisors, chief or senior technicians or experienced members of academic staff. Also, technical support is available from the Hazardous Waste Officer.

## 4.2 Legislation

Various pieces of legislation are relevant to the management of waste within the University.

**The Control of Substances Hazardous to Health Regulations 2002 (COSHH)** applies to waste. A suitable and sufficient risk assessment must be carried out for work that involves substances that are classified as very toxic, toxic, harmful, corrosive or irritant under the **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP4)**. This applies also to all other substances not thus classified but hazardous to health and arising from work activities

The following requirements are in place:

- Assessment of likely risks including that arising from waste generated
- Prevention or control of such risk
- Maintenance, examination and testing of measures put in place to control such risk

The wastes considered in this assessment (procedures for managing hazardous wastes) fall into a range of categories. **The Environmental Protection Act 1990 [EPA] Parts II and IV, The Controlled Waste Regulations 1992 [CWR]**, defines the waste categories thus:

### 4.2.1 Controlled Waste:

Controlled Waste is household and industrial waste.

\* Industrial waste is generated in laboratories, workshops and research areas e.g. uncontaminated waste oil.

### 4.2.2 Special Waste:

Special waste is controlled waste with hazardous properties and subject to additional legislation. Special waste legislation was designed to track all movements of special waste to ensure they are properly managed and disposed of. Waste is defined as hazardous, and therefore special waste, when it is particularly reactive and cannot be neutralised in a safe manner. Hazardous waste (under the EU Hazardous Waste List), within the definition of special waste, includes the following types of materials:

**Acids                      Alkalis                      Carcinogenic**  
**Mutagenic              Teratogenic              Ecotoxic**  
**Explosive                Flammable              Harmful**  
**Infectious                Irritant              Corrosive**  
**Toxic agents              Reducing agents              Oxidising agents**  
**Amines - (these must be kept separate from other material)**  
**Any material that releases toxic gas in contact with air, water or acid**

[ For Hazard categories/codes and risk phrases see appendix 5 ]

**The Environmental Protection (Duty of Care) (Scotland) Regulations 2014** place a Duty of Care on the university in its responsibility to provide a safe procedure for the collection and legal disposal of all controlled and special waste. This includes the provision of a register of all special waste that is generated through laboratory processes, teaching, and research activities

In addition to the above, the following legislation must be adhered to:

- **Control of Pollution Act 1974.**
- **Deposit of Poisonous Wastes Act 1972.**
- **Polution Prevention and Control (Scotland) Regulations 2012**
- **Landfill (Scotland) Regulations 2003.**
- **Waste Incineration (Scotland) Regulations 2003.**
- **Special Waste Regulations 1996 .**
- **Special Waste Amendment (Scotland) Regulations 2004 - specifically regulations 2, 2A, and 2B.**
- **Waste (Scotland) Regulations 2011**
- **Waste Electrical Electronic Equipment Regulations 2006 - WEEE**
- **Waste Battery Regulations [Scotland ] 2009.**

The Special Waste Regulations 1996, amended 2004, set out the technical procedures for determining which wastes are special to ensure that all parties involved in generating, collecting, and disposing of special waste, as defined by these regulations, are quite clear as to their obligations to themselves, to each other, and to their organisation. These regulations

require that each organisation must have a procedure that is adhered to in the collection of special waste and its storage until a competent company licensed under the above Regulations disposes of it.

### 4.3 Procedures for Hazardous Waste Management

Electronic lists are used to give clarity and easier use of auditing. (Appendix 1).

Names of School or Department waste co-ordinators must be made available to the Hazardous Waste Officer. The development of the university electronic "waste list" depends upon School or Department lists being grouped by specific chemical type and hazard. These lists are used by the Hazardous Waste Officer to compile a master file. Such a list will reduce the time required to compile departmental and master waste lists. Further use of an electronic system ensures continuity with coding and packaging.

Under current and evolving waste management principles, the reduction of waste requiring disposal is the desirable approach to optimising resource use and budgets.

Where reasonably practicable it should be possible to replace some hazardous materials with less hazardous ones, for example, replacement of mercury apparatus with non-mercury systems e.g. water manometers, electronic thermometers.

#### 4.3.1 Responsibility for Waste

The University Health & Safety Manager, and in particular, the Hazardous Waste Officer

- Are the only personnel with access to the waste chemical store
- Advise on all matters relating to waste
- Can refuse to accept waste for disposal if it is inappropriately contained or labelled or poses a danger to disposal staff or requires specialist disposal through an alternative management system e.g. (clinical or radioactive)

The Hazardous Waste Officer

- Is the only member of staff with approval to add or remove material from the waste chemical store - exceptions are: **In the absence of the Hazardous Waste Officer and in an emergency** - Operational Health & Safety staff
- Will inform all departments to compile a list of waste for disposal at the appropriate times
- Will collate all lists, compile and keep up to date a hazardous waste register
- Will check that all special waste is labelled with the appropriate code for disposal
- Will arrange for a "drop off" point (waste store at rear of D-block) and a time for all Schools and Departments prior to finalised waste disposal uplift
- Will check all containers are securely packaged prior to the arrival of the waste disposal company
- Will ensure all waste leaves the university in a safe condition.

Laboratory supervisors, project supervisors, and technical staff

- Will appropriately manage general laboratory and student project waste
- Complete **COSHH** and **RISK ASSESSMENT** forms to include waste information (see paragraph 1(c))
- Will ensure waste leaving their work area is labelled appropriately.

All staff, project students & waste generators

- Will inform the School or Department waste coordinator or Hazardous Waste Officer of any waste that may arise within their work area.
- Must ensure that all stocks and samples, whether in use, storage, or for disposal, are labelled with the correct chemical content.
- Will ensure on completion of projects that all hazardous materials used or stored are to be disposed of.

#### 4.3.2 Procedure for Removal of Hazardous Waste

All waste accepted by the Hazardous Waste Officer must meet the following criteria:

- No hazardous waste will be accepted if it is not on the coded list or there is no indication on the storage container as to its contents.
- No hazardous waste will leave the university without a waste code.
- Hazardous waste will be removed from the University, generally on a once per annum basis and normally at the beginning of September. Other uplifts may take place at the discretion of the Health & Safety Manager (or Depute) and Hazardous Waste Officer.
- Hazardous (and other) wastes may not be transferred between campuses of the University. **Such transfer is in breach of legislation.** Hazardous waste arising on campuses other than the Paisley Campus will be uplifted from the campus of origin. The receipt, classification, coding and uplift of such waste will be arranged by the Hazardous Waste Officer in conjunction with the School/Department where the waste has been generated on the campus involved.

On receipt of hazardous waste from each School or Department, the Hazardous Waste Officer will:

- Designate packaging for each specific type of chemical, then code and pack waste on a weekly basis.
  - Print off final lists as required for removal of waste. [ see section 4 ]
  - Contact SEPA approved waste contractor and arrange removal of waste at a mutually agreed time for each campus.
  - Ensure all documentation is legally correct and "sign off" waste to contractor.
  - Ensure contractor has correctly labelled all waste prior to removal.

- Keep records of all waste consignments that have been removed for **5 years** and send a copy to the University Health & Safety Manager.

#### 4.3.3 Management of General Laboratory Waste

- All laboratory waste from experiments should be collected in the appropriately labelled containers by the waste generator or supervisor.
- Organic solvents waste must be classified as *chlorinated* or *non-chlorinated* and must be kept separate from other waste types. The Hazardous Waste Officer, from whom advice on the different types of solvent is available, will provide suitably labelled containers for these materials.
- Small quantities of waste that can be neutralised safely and then diluted with water, may be washed down the sinks in fume cupboards. **Advice on such disposal must always first be obtained from the Hazardous Waste Officer and be incorporated into the COSHH Risk Assessment.**
- Mercury waste from broken thermometers should be collected using the appropriate spillage kit. The University Health & Safety Manager must be informed of every such spillage immediately it occurs. The waste must be placed in a sealed container and stored safely by the Hazardous Waste Officer until the yearly disposal.

#### 4.3.4 Management of Project Waste

- Student and special projects, which may produce unique wastes, must be stored in the appropriate labelled container and kept safely until subsequent removal / disposal by the Hazardous Waste Officer.
- Large quantities of hazardous waste arising out of one project or operation may need to be disposed of through an approved, licensed waste disposal company. Such disposal must be made in conjunction with the Hazardous Waste Officer. **Charges for such a disposal may require to be met by the School or Department that generates such bulk waste.**

#### 4.3.5 Solvent Waste

Organic solvent must be collected in 2.5 litre bottles in each generating department. The Hazardous Waste Officer will supply these labelled bottles. When the bottles are full, the Hazardous Waste Officer must be notified. They will remove them to the hazardous waste area where they are then decanted into larger 25-litre drums. Conversely, the Hazardous Waste Officer may call the department and request advice as to whether there is material to be moved into storage.

The solvent must be categorised as either:

- Chlorinated
- Non-chlorinated
- Toxic solvent, i.e. Biohazard solvent waste - store as separate waste.



N.B. - For toxic solvent waste, the generating School or Department must supply complete chemical content details to the Hazardous Waste Officer.

**It is important to note that if the non-chlorinated solvent has chlorinated waste within it that exceeds a 1% concentration of chlorinated hydrocarbon, it must be treated as chlorinated waste.**

Unknown and non-specified materials should be isolated until tested and identified.

#### 4.3.6 Type Specific Waste

Type specific waste, i.e. that classified under CHIPS as toxic, harmful, irritant etc., should be identified by the Hazardous Waste Officer. The Hazardous Waste Officer should generally designate a package for each specific waste stream then code and pack.

#### 4.3.7 Oil Waste

Oil/contaminated oil may also be managed within this system, and must be accommodated and managed with the following guidelines:

- Waste oil from machinery that has not been contaminated by chemicals should be stored in a suitably labelled container.
- Contaminated oil must be stored in a separate container and labelled with comprehensive details of the contaminants.
- Heavy oil and light lubricating oil waste should be kept separate from each other.
- All waste oil should be stored by the generating School or Department until the specified disposal date. The Hazardous Waste Officer will provide containers and labels.
- Bulk quantities of waste oil may have to be disposed of as a “one-off” operation. This may need to be disposed of through an approved, licensed waste disposal company. Such disposal must be made in conjunction with the Hazardous Waste Officer. **Charges for such a disposal may require to be met by the School or Department that generates such bulk waste.**

#### 4.3.8 Battery Waste

- All waste batteries must now be recycled and this is carried out by an approved licensed contractor. **NO BATTERIES MUST ENTER THE WASTE STREAM THAT GOES TO LANDFILL.**
- All batteries should be placed in the containers provided by the approved contractor at the specified locations on each campus.
- Each container is clearly labelled with the removal companies logo and is clearly marked "RECYCLE YOUR BATTERIES HERE".
  - All types of battery can be placed in the containers provided except rechargeable, lead, mercury or thionyl chloride types These must be given to the hazardous waste officer to be added to the hazardous waste stream ..



- It is not necessary to separate the different types and sizes of battery, as the removal company will do this.
- Once the container is full the Hazardous Waste Officer must be informed so that it can be removed and emptied.
- A record of the weight of batteries removed for recycling will be kept by the Hazardous Waste Officer.

#### 4.3.9 Radioactive Waste

All radioactive wastes are dealt with by the Health & Safety Manager only in coordination with the local Radiation Protection Supervisor.

### 4.4 Procedures for Movement of Waste from Generating Source to Disposal

The collection of wastes from points of generation is an on-going process, with regular weekly movement of materials from source of generation to storage facility. In general the following procedure is adhered for the removal of waste:

1. Contact SEPA approved waste contractor and arrange removal of waste at a mutually agreed time for each campus.
2. Ensure all documentation is legally correct and "sign off" waste to contractor.
3. Ensure contractor has correctly labelled all waste prior to removal.
4. Keep records of all waste consignments that have been removed for **5 years** and send a copy to Health & Safety Services.

#### 4.4.1 Preparation for Waste Removal

The Hazardous Waste Officer will:

- Inform the University Health & Safety Manager of the impending waste uplift
- Advise the licensed waste contractor that the waste is being made ready for uplift
- Advise all Schools and Departments via the waste coordinator of the impending uplift, allowing two weeks for lists to arrive
- Advise on the types of waste that are acceptable for disposal
- State the date by which completed lists must be sent
- Establish of a drop-off or pick-up point and the date on which all materials must be delivered to these points
- State the date by which the waste will be removed by licensed waste contractor

Once all lists are received, the Hazardous Waste Officer will compile a full list on a database of all waste to be removed in accordance with the master list. This master list may be viewed by all Schools and Departments upon request to the Hazardous Waste Officer. This list is protected and only the Hazardous Waste Officer and University Health & Safety

Manager (or Depute) have the authority to add or remove information from the database.

Details on the use of the electronic waste database can be found in Appendix 2.

#### 4.4.2 Compilation of Final Waste List

The Hazardous Waste Officer will contact all Schools and Departments once again to advise that the master list is being finalised and that all waste materials must be submitted within two days. Thereafter, he will:

- Check lists for materials that could be recycled
- Finalise complete master list with School or Department codes
- Contact authorised licensed waste contractor and supply them with the final master list
- Receive confirmation from the authorised licensed waste contractor that the list and costs are acceptable (interdepartmental recharges may apply).
- Inform the University Health & Safety Manager of accepted list and ensure all appropriate documents are signed by the appropriate Head of Department.
- Set an uplift date

#### 4.4.3 Programme for Actual Removal

The Hazardous Waste Officer and a representative from Health & Safety will be present at the waste storage area (currently at the rear of “D” block). The waste master list and consignment notes will be checked with the authorised licensed waste contractor. Copies of all consignment notes will be retained by the Hazardous Waste Officer and a copy forwarded to [resilienceandsafety@uws.ac.uk](mailto:resilienceandsafety@uws.ac.uk).

Procedure Author – Resilience and Safety	Procedure Owner – Resilience and Safety
Parent Policy Statement - Health, Safety and Wellbeing Policy	Public Access or Staff Only Access - Staff
Version 2 – November 2018 (Interim update with full review scheduled for 2019)	Changes and Reason for Changes – Policy Review





**Appendix 2**

**Using the Electronic Waste Database**


The database has been compiled using Excel and has two spreadsheets for use:

1. The master file which has the filename: **MASTER.xls** and consists of the following sheets:

- **TOTAL**
- **NON-CHLORINATED ORGANIC SOLVENT**
- **CHLORINATED ORGANIC SOLVENT**
- **TOXIC ORGANIC SOLVENT**
- **ORGANIC OXIDISING AGENTS**
- **INORGANIC OXIDISING AGENTS**
- **TOXIC**
- **ACIDS**
- **ALKALIS**
- **EXPLOSIVE**
- **HARMFUL - IRRITANT**
- **CORROSIVE**
- **AMINES**
- **WATER REACTIVES**
- **METAL POWDERS**
- **UNKNOWNNS**
- **CYANIDES**

**NB: The master list is read only and can only be written to by**

The Hazardous Waste Officer and Health & Safety Manager (or Depute).

2. The department file which has the filename: **DEPARTMENT LIST.xls** and contains the same first four columns as the master file for ease of copying data from one file to the other.
3. The master file has the name of each sheet at the bottom of the page. By clicking on the name you can access that sheet e.g. oxidising agents. To see all sheets listed use the small black arrow, , at the bottom left hand side of the screen to scroll along the listed sheets.
4. When a department list has been completed and sent via e-mail, the Hazardous Waste Officer will open both the master and department files. By examining the contents of the department list, the material's type specific category can be decided.
5. When this has been done that row should be highlighted and copied using the "edit" and "copy" commands.
6. The master file should be clicked to maximise it onto the screen and the selected sheet opened.
7. A row should be selected and the information from the department list should be copied into it using the "edit" and "paste" commands.
8. The Hazardous Waste Officer will then add the School or Department al code and article/package number. This is the only information the Hazardous Waste Officer adds to the file. By setting the cursor into the corner of the code and drum cell to get a crosshair (+), it can be pulled down into other cells and the next

consecutive number will appear and save typing all the codes and drum numbers.

9. When this has been completed the “**TOTAL**” sheet will automatically alter to give the current number of drums and types of waste.
10. Final completed sheets can be printed and given to authorised licensed waste contractor and a hard copy made for records to be filed at Resilience and safety Department..
11. Once used, the master file can be saved as **MASTER {YEAR}.xls** for records at Resilience and Safety Department.
12. The main master file can be cleared of data and used for future waste lists.
13. As each list is completed, a database of materials is built up. To decide what type of category a material should be in, simply go through each sheet in turn and perform the following:

Click the cell with **CHEMICAL NAME**, then **DATA** at the top menu followed by **FILTER** and **AUTO FILTER**.

This then gives a list of all materials in this category and makes identification easier as the database grows.

Appendix 3

Current School or Department Schools and Departments Codes

1	HEALTH & LIFE SCIENCE
2	COMPUTING, ENGINEERING and PHYSICAL SCIENCE
3	RESILIENCE AND SAFETY
4	ESTATES
5	COMMERCIAL SERVICES
6	PRINTING SERVICES
7	PHYSICS

Code Label:

**UNIVERSITY OF THE WEST OF SCOTLAND**  
**WASTE CHEMICALS**  
**CODE:**  
**DATE: 21/11/18**



**Appendix 4**

**Types of Hazardous Waste Organic Solvent**

<b>TYPE OF SOLVENT</b>	<b>MAIN CHEMICAL CONTENT</b>	<b>EXAMPLE</b>
<b>CHLORINATED*</b>	CONTAINS ANY ORGANIC CHLORINE BASED COMPOUND	DICHLOROMETHANE CHLOROFORM Tri-CHLOROETHANE
<b>NON-CHLORINATED</b>	CONTAINS ANY ORGANIC COMPOUND EXCEPT CHLORINE**	ETHANOL Iso-BUTYL KETONE ACETYL-ALDEHYDE
<b>TOXIC</b>	CONTAINS TOXIC MATERIAL IN ANY ORGANIC SOLVENT	PESTICIDES CYANIDE COMPOUNDS MERCURY COMPOUNDS

\* **CHLORINATED** IS DESIGNATED AS ANY ORGANIC SOLVENT THAT CONTAINS A CONCENTRATION OF GREATER THAN 1% CHLORINE.

\*\* THIS ALSO INCLUDES IODINE.

**NO IODINE CONTAINING MATERIAL IS ALLOWED TO BE DISPOSED OF.**

THE AUTHORISED LICENSED WASTE CONTRACTOR DOES NOT HAVE THE FACILITY TO REMOVE IODINE IN THEIR WASTE PROCESSES. IT IS SAFER FOR THE HAZARDOUS WASTE OFFICER TO NEUTRALISE THE PROBLEM BY CONVERTING IODINE WASTE INTO THIOSULPHATES, AS IS THE CURRENT PRACTICE. THE AUTHORISED LICENSED WASTE CONTRACTOR CAN THEN DEAL WITH THIS WASTE SAFELY.

Appendix 5

Hazard Code & Risk Phrases

Hazard Name	Hazard Code	Risk Phrases
Flammable non-chlorinated & chlorinated organic solvent	H3B	R10,R11,R12
TOXIC	H6	R21,R25,R28
ACIDS	H8	R20,R21,R22,R34,R35,R36
ALKALI	H8	R20,R21,R22,R34,R35,R36
OXIDISING	H2	R19,R30,R31,R32
EXPLOSIVE	H1	R1,R2,R3,R5,R6,R7,R9,R44
HARMFUL	H5	R20,R21,R22,R36,R37,R38
IRRITANT	H4	R20,R21,R22,R36,R37,R38
CORROSIVE	H8	R34,R35,R36,R37,R38
CYANIDES	H12	R26,R28,R31,R32
BATTERIES	H13	R58
CARCINOGENS	H7	CHECK INDIVIDUAL WASTE
INFECTIOUS	H9	CHECK INDIVIDUAL WASTE
TERATOGENIC	H10	CHECK INDIVIDUAL WASTE
MUTAGENIC	H11	CHECK INDIVIDUAL WASTE