Waste Decontamination and Disposal

Subject	Requirements for disposal of biohazardous materials (infectious and/or GM wastes)
Document Type	Guidance
Author	Simon Golding
Version	1
Date Issued	27 November 2009

1. Introduction

Historically, biological waste from research and teaching laboratories has been consigned to a clinical waste stream. However, waste must now be segregated into a number of distinct fractions to satisfy legislative requirements and University environmental policies. The Sustainability website contains flow charts detailing how all wastes should be segregated, coded and ultimately disposed of (see http://www.bristol.ac.uk/environment/waste/hazardous/)

Biological research and teaching laboratories generate certain wastes that should or in some cases must be decontaminated before disposal as they contain or might contain substances that are infectious (to humans, animals or plants) and/or because they contain genetically modified micro-organisms. This present document supplements the Sustainability hazardous waste disposal charts by providing guidance on how infectious and/or genetically modified waste material from laboratories should be segregated and decontaminated using local procedures prior to disposal or disposed of directly via incineration. The University maintains its own incinerator for disposal of hazardous waste which is also managed by Sustainability.

2. Responsibilities

- **Department (or other unit) Managers and Safety Advisors**

University Biological Safety Policy requires that departments have in place local rules for managing biologically hazardous wastes including decontamination methods and this guidance has been produced to help departments achieve this. It has been developed in conjunction with Sustainability so that local rules can integrate into their procedures for removing hazardous wastes (see http://www.bristol.ac.uk/environment/waste/hazardous/). Laboratories should have disinfection policies and procedures in place. Managers should ensure that this is the case and also monitor the use of different disinfectants in order to limit chemical incompatibilities, confusion and misuse.

- **Principal Investigators (PI)**

Activity risk assessments must identify decontamination and disposal methods for all forms of hazardous waste that will be produced taking into account this guidance and department rules and discuss any additional requirements with their Department Safety Advisor in the first instance. Where activities involve biological agents in Hazard Group 2 or above or any genetic modification work then these risk assessments must be reviewed and the work

approved by the Biological and Genetic Modification Safety Committee (BGMSC). Templates are available from the Health and Safety Office website and should be used in these cases (see http://www.bris.ac.uk/safety/biological/forms)

PIs must ensure that disinfection protocols are in place and displayed within their laboratories and that these are based upon activity risk assessments. Protocols must designate the disinfectants in use with effective concentrations and contact times under conditions of use for decontamination and spillage treatment. The number of different disinfectants in use should be kept to a minimum in order to limit the risk of chemical incompatibilities, confusion and misuse.

PIs must undertake risk assessments for hazardous activities including the handling of any disinfectants used in their laboratory.

PIs should ensure that all workers under their care and supervision are given sufficient information, instruction and training regarding waste segregation, decontamination and disposal procedures and monitor that they are being carried out and remain effective. Where work takes place on other premises rules may differ and the PI must be satisfied that these are appropriate and that in all circumstances local procedures are clear and followed.

- **Individuals**

Health and safety and environmental legislation dictate that all producers of waste, down to individual workers, have a duty of care to ensure that waste is managed properly and disposed of safely and in accordance with specific requirements. When planning work, workers should take steps to eliminate or reduce the amount of hazardous wastes being generated by their procedures where reasonably practicable. See the recycling section for further information. Individuals should comply with all information and instruction provided for segregating, decontaminating and disposing of waste.

Further guidance may be sought from a Department Safety Advisor, Deputy Biological Safety Officer or the University Biological Safety Officer where required. Guidance on handling all hazardous wastes and disposal routes is also available directly from Sustainability who must be consulted regarding waste collection from departments, including those on NHS Trust sites, to ensure that the University fulfils its statutory duties.

3. Requirements

Each department's hazardous waste disposal requirements have been audited and disposal routes implemented where appropriate. Sustainability should be contacted for help and advice regarding operation of these disposal routes.

The recommended biohazardous waste decontamination and disposal methods to address most situations and requirements are summarised in the accompanying flow charts. Unit safety advisors and PIs should ensure that these methods are incorporated into local decontamination and disposal rules and protocols where required. The flow charts cover:

- Non-hazardous or “Effectively zero risk” material disposal routes
- Guidance on decontamination and disposal of material that contains or might contain:

- Hazard Group 1 biological agents / Class 1 GMMs
- Hazard Group 2 biological agents / Class 2 GMMs
- Hazard Group 3 biological agents / Class 3 GMMs

Laboratory rules, protocols and activity risk assessments should take into account the following:

- **Genetically Modified Micro-organisms (GMM)** – waste contaminated with viable GMMs (all classes) must be inactivated by validated means before disposal. All sites handling viable waste must be registered as undertaking GM activities with the Health and Safety Executive. Viable waste collected through the Sustainability hazardous waste routes for decontamination by incineration (**permitted for class 1 and for class 2 notified as such**) will meet these requirements. Viable GMM waste must not be handled by external contractors unless the University Biological Safety Officer has been consulted.

- **Hazard Group 3 Pathogens** - waste from containment level 3 (CL-3) laboratories should be sterilised within the laboratory or laboratory suite. As an autoclave must be present for such work to satisfy statutory containment requirements this should be easily achieved. If disinfection is used within the containment laboratory instead then the procedure must be validated under working conditions and preferably the waste should then be autoclaved before disposal or incinerated. Rigorous procedures must be in place for the contained transportation of any contaminated waste at any point. There may be specific license requirements imposed by defra for disposal of animal pathogen wastes.

- **Hazard Group 2 Pathogens** – which appear to have a low infectious dose and/or are easily transmissible by the airborne route should be disinfected or sterilised within the building and preferably within the laboratory (suite). Rigorous procedures must be in place for the contained transportation of any contaminated waste. There may be specific license requirements imposed by defra for disposal of animal pathogen wastes.

- **TSE Agents/Prion Material** – contaminated waste treatment will vary depending upon the type, form and amount of the agent and type of material contaminated. Oxidation by hypochlorite-based disinfectants or sodium hydroxide have generally been used for decontamination where possible and have some success at reducing the infective titre (see disinfectant guide). Heat denaturation by autoclaving has variable results but there is some evidence that autoclaving at high pH may improve the effectiveness. Proprietary disinfectants are now also available which generally contain denaturants and/or proteases but demonstrated efficacy against the TSE agent in use must be considered prior to use. The use of disposable items and production of solid waste is encouraged which should ultimately be incinerated. Infectivity should be reduced prior to transportation to the incinerator where practicable (by autoclaving or disinfection) and rigorous procedures must be in place for the contained transportation of any contaminated waste. Decontamination and disposal procedures should be fully considered before work starts and be included in the activity risk assessment.

- **Human Tissue** – disposal of human tissue must comply with the requirements of the Human Tissue Act 2004. Where work is carried out as a HTA licensed activity, the Designated Individuals or their deputies should be consulted if there is any doubt as to waste disposal requirements. The University code of practice for work with human tissue contains further guidance on disposal.

- **Glassware –** use of sharps must be minimised at CL-2 and eliminated at CL-3 as far as is practicable due to the potential for needle-stick injuries and increased risk of infection. Plastic alternatives to all types of glass pipette (e.g. Pasteurs, serological, aspiration) are available and should be used in preference to glass. Glass containers should also be replaced by plastic in containment laboratories as much as possible. Plastics can be decontaminated by full immersion in a validated disinfectant or disposed of as hazardous plastic waste where such a route has been implemented (see the waste packaging and identification section).

- **Animal carcasses** - waste should be stored frozen and disposed of by direct incineration. This disposal route is managed by ASU and Sustainability. Special arrangements should be made for incineration of large carcasses.

- **Animal housing materials –** Uncontaminated (no infection risk) bedding may be disposed of as offensive waste and sent for non-hazardous land fill or alternative treatments. Risk assessments should identify cases where items such as cages, bedding, drinking bottles and other items will be contaminated with pathogens shed by naturally or deliberately infected animals. Where a risk is identified measures should be identified for decontaminating these items before cleaning or disposal. This information should be recorded on the form "Provision of Health and Safety Information to ASU Staff by Research Staff" and requirements discussed with ASU facility managers. Where reasonably practicable it is recommended that the contaminated cage with bedding and other items is enclosed in a suitable bag and sterilised by autoclaving.

4. Decontamination – Sterilisation and Disinfection

Decontamination is the process whereby microbial contamination of a material is reduced to render it safe to handle. There are two methods of achieving this, disinfection and sterilisation, which should not be confused. Disinfection refers to a treatment that is designed to **reduce** the potential infectivity of a material to a level that effectively destroys its potential to cause harm. It does not necessarily remove all viable micro-organisms which is instead the aim of a sterilisation process. The choice of which decontamination method to use in any particular situation will depend upon the level of decontamination required and should be determined by PIs in their activity risk assessment.

4.1 Autoclave Sterilisation

4.1.1 General information

Sterilsation is best practice for inactivating biological waste and is defined as effectively giving a 100% kill. Where this is not reasonably practicable then the high hazard waste from laboratories should be identified in activity risk assessments and be prioritised for autoclaving. Such wastes would include pathogens from Hazard Groups 2 or 3 and Class 2 or Class 3 GMMs. Also see guidance on waste packaging and identification.

Autoclaves must be designed, installed and maintained in accordance with the Provision and Use of Work Equipment Regulations 1998 and Pressure Systems Safety Regulations 2000. Unit managers must ensure that autoclave installation is notified to and a maintenance and an examination scheme agreed with Estates Operations and the University Insurance Officer.

Benchtop autoclaves should not be used for decontaminating waste as the process cannot be easily validated.

4.1.2 Minimum values for waste decontamination cycles

Temperature (°C)	Pressure (bar)	Holding time (minutes)
121	1.15	15
126	1.5	10
134	2.25	3

Operating times should take into account the time taken to reach the temperature as determined by the validation procedure.

4.1.3 Validation

Autoclaves that are used to decontaminate waste must have their process of decontamination validated at least annually and at any other times when the previous test may no longer be valid (such as part of re-commissioning after maintenance work). Records of validation should be kept for 5 years. Validation tests the ability of the autoclave to effectively deploy the decontamination process with typical user-defined loads and is not the same as calibration which checks that the autoclave control panel is correctly controlling and indicating the various autoclave operating parameters.

For validation a worse-case load should be simulated (without using hazardous material) and temperature probes inserted at various positions (usually a minimum of 12). These are attached to recording equipment which take readings throughout the decontamination process. The holding part of the cycle will start when all probes indicate that the sterilisation temperature has been reached. The autoclave must then maintain this temperature at all points for the required holding time. This validation test should be carried out by a competent person using calibrated equipment and according to the methods described in the relevant British Standard (BS 2646).

4.1.4 Routine monitoring

Autoclaves should be fitted with chart recorders or alternative devices for recording run-time parameters. These should be checked and kept for each sterilisation run to ensure that the autoclave continues to perform satisfactorily. This procedure should not be used or relied upon for the decontamination validation process described above. Also note that autoclave tape does not indicate that a load has been sterilised effectively but merely that the temperature of the tape became sufficient at some point during the run to invoke a colour change. This change can occur quite quickly.

Further guidance on installation, maintenance and use of autoclaves for sterilisation can be found in the ACDP publication *"Safe working and the prevention of infection in clinical laboratories* 2003. HSE Books. ISBN 07176 2513 3.

4.2 Chemical Disinfection

4.2.1 General information

Chemical disinfection should be used routinely for decontamination of discarded liquid cultures, possibly small amounts of solid material (e.g. small sample tubes), surfaces and spillages. The following points should be considered when selecting disinfectants:

- **Compliance** - disinfectants used must comply with the Biocidal Products Regulations 2005. That is their active component(s) must be supported as part of the Biocidal Product Directive review programme.

- **Health hazards** - all disinfectants are hazardous substances in their own right but the extent of the hazard to human health will vary and a risk assessment covering disinfectant use should always be undertaken before use. Disinfectants with the lowest risk to human health possible should be used in preference and in accordance with the principles of COSHH. For example, formaldehyde and glutaraldehyde based disinfectants have extremely toxic and irritant hazardous properties and should only be used in exceptional circumstances.

- **Efficacy** - The effectiveness of disinfectants is influenced by:

    - **species of the micro-organism** – the spectrum of activity of disinfectants varies. If the identity of the micro-organisms present is unknown then a broad-spectrum disinfectant should be selected.

    - **contact times** - sufficient time is required for the disinfectant to be in contact with the item to enable effective decontamination. Items should be fully immersed without air pockets being present. It is important that “in use” conditions match as closely as possible those detailed in the references used to define contact times.

    - **concentration of disinfectant** (e.g. not too dilute or too concentrated) – disinfectants are normally supplied in concentrated form and may need to be diluted before use. The final dilution should also be taken into account when disinfecting solutions or liquid spillages to ensure that the concentration of disinfectant remains in the effective range. As the effectiveness of disinfectants deteriorates with time and under differing environmental conditions this should be taken into account and detailed in disinfection protocols. Working dilutions should be labelled with the concentration and date of preparation/use-by date.

    - **effect on/of the contaminated item** – in addition to the adverse effects on human health, some disinfectants can be harmful to equipment and non-consumable items. For example, hypochlorite solutions can corrode some metals and damage rubber.

    - **other factors** – disinfectants can be affected by factors such as the presence of organic matter, incompatible soaps and detergents, other chemicals, the surface material being treated, pH, temperature and age.

- **Validation** - Disinfectants should be used in accordance with manufacturer's instructions. Other reliable sources of information (e.g. research publications) may also be used and referenced in the activity risk assessment. In both cases, the conditions of use in the

laboratory should equate to the validation methods cited in the sources of information used. Where necessary, and proportionate to the risk, in-house experimental data may be required to ensure efficacy.

- **Liquid waste disposal** - refer to the waste packaging and identification section.

4.2.2 Types of disinfectant

Adapted from *Safe working and the prevention of infection in clinical laboratories and similar facilities. HSE Books 2003 and Health Protection Agency guidance.*

- **Hypochlorites** -
  - active ingredient is chlorine
  - should not be mixed with acids as chlorine gas is released at low pH
  - should not be mixed with formaldehyde as bis chloromethyl 3 ether (a lung carcinogen) is released
  - commonly available as a solution or in powdered or tablet form as sodium dichloroisocyanurate (NaDCC)
  - highly effective against vegetative bacteria, viruses and fungi
  - limited activity against bacterial spores
  - recent data suggests effectiveness against *Mycobacterium spp* and could replace clear soluble phenolics such as hycolin which are no longer available for use
  - compatibility with anionic and non-ionic detergents
  - incompatibility with cationic detergents
  - inactivated by organic matter (concentration may need to be increased)
  - stock solutions decay with time, light and temperature
  - NaDCC is stable in dry form but deteriorates when diluted
  - corrodes some metals and damages rubber
  - concentrations expressed as parts per million available chlorine (ppm) – commonly used working dilutions are:

1000ppm	-	general cleaning of equipment and benches
2500ppm	-	discard jars
10000ppm	-	spillages

20000ppm - prion contaminated surfaces (see prion section). NaDCC is not effective in this context

Household bleach varies considerably in its concentration of hypochlorite and other constituents. Use should be avoided.

- **Clear soluble phenolics (*e.g.* Hycolin)**

  These have been withdrawn from the European market as they have not been registered under the Biocidal Products Directive. Hycolin was the disinfectant commonly used against *Mycobacterium spp.* See Appendix 1 for guidance on replacing Hycolin in these circumstances

- **Peroxygen disinfectants (e.g. Virkon)**

  - wide ranging efficacy against fungi, bacteria and viruses
  - variable activity against bacterial spores or *Mycobacterium spp.*
  - less corrosive than hypochlorite but still may cause corrosion of some items

  Specific Information on Virkon

  - dilutions have **low** toxicity and irritancy; powder form is an irritant
  - stock available to buy in liquid, tablet and powder form.
  - extensive published efficacy data (http://www2.dupont.com/RelyOn/en_US/assets/downloads/europe/Virkon_efficacy_data.pdf)
  - built-in colour indicator
  - detergent properties allow a level of cleaning combined with disinfection
  - can be stable for up to 7 days when dilute (environment dependent)
  - can be ineffective at high concentrations (>4%)
  - it is marketed under several names including Virkon-S (for animal applications) and RelyOn Virkon (for human applications). The active formulations are the same but due to GMP requirements the human use form undergoes more stringent manufacturing controls.

  Virkon is often the disinfectant of choice in laboratories due to its wide spectrum of activity and less hazardous properties. The following should be considered as part of the risk assessment for its use.

- powder use should be eliminated where reasonably practicable due to harmful properties. It may be indicated on large liquid spills to limit the spread of contamination when a suitable face mask and gloves should be worn.
- a fume cupboard should be used if preparing solutions from powder.
- suitable face protection, gloves and lab coat should be worn when preparing and using solutions
- highly concentrated solutions should generally be avoided as working solutions as they can be ineffective. Efficacy data should be checked for a suitable FINAL concentration
- where items are placed into the disinfectant to soak the pink indicator colour may be affected by other contaminants on the material being treated. In these situations, the disinfectant in the discard vessel should be changed more regularly as a matter of good practice.
- Virkon can generate sulphur dioxide when heated in an autoclave. Autoclaving should be avoided or only undertaken in an autoclave that is connected to the mains water supply and that is also an externally exhausted system.

- **Alcohols** -
  - active against many bacteria and fungi but not bacterial spores
  - variable anti-viral activity (particularly against non-enveloped viruses)
  - poor penetration of organic matter
  - flammable and should not be used near flames or electrical equipment that is likely to generate sparks (e.g. domestic type refrigerators)
  - most effective at 70-80% (v/v)
- **Aldehydes** -

  Glutaraldehyde
  - causes significant dermatitis and respiratory problems
  - assigned workplace exposure limits
  - use must be avoided unless sufficient justification can be made as part of a suitable and sufficient risk assessment.

  Formaldehyde
  - should only be used for fumigation of laboratories with tested and proven sealability and a means of externally exhausting vapour or for fumigating microbiological safety cabinets that are suitably ducted or modified to neutralise and capture generated vapour.

- See fumigation guidance for further information.

- **Defra approved disinfectants** -

  The Veterinary Laboratories Agency maintains a list of approved disinfectants with effective concentrations for statutory use. This information may be useful and can be accessed from the Defra website:

  http://www.defra.gov.uk/ahvla-en/tests-and-services/disinfectant-approvals/

4.2.3 Spillage Disinfection

Procedures for dealing with spillages should be considered in activity risk assessments, taking into account the size and potential components of the spill (e.g. micro-organisms, glass), and incorporated into laboratory policies and procedures. The following is offered as guidance for general situations.

- Minor spillages (confined to a small area with little splashing) -

  - liquids such as bodily fluids and micro-organism cultures, may be disinfected with hypochlorite granules. These should be mopped up with paper towels and placed into the hazardous waste stream for incineration. Any glassware should be picked up with forceps or a disposable scoop and treated as hazardous sharps waste.

  - small liquid spillages (less than 0.2ml) can be disinfected with a 2% aqueous solution of Virkon as for surface disinfection. Any glassware should be picked up with forceps or a disposable scoop and treated as hazardous sharps waste.

  - larger liquid spillages (greater than 0.2ml) can be disinfected with Virkon powder and left for 3 minutes. Any glassware should be picked up with forceps or a disposable scoop and treated as hazardous sharps waste. Otherwise the waste should be scraped up and discarded in the hazardous waste stream for incineration. The area should then be disinfected with 2% Virkon. Brushing should be avoided to prevent aerosol creation.

- Major spillages (significant splashing or aerosol generation)

  - at containment level 2 (CL-2), laboratories are not designed for fumigation. The laboratory should be evacuated to allow any aerosols to settle and then be thoroughly disinfected and cleaned. If the laboratory contains an externally exhausted microbiological safety cabinet that is already switched on then this should be left running. Risk assessments should include emergency plans to protect staff and spread of contamination where necessary.

  - at CL-3 staff should leave the laboratory and preferably leave behind any protective or contaminated clothing. The microbiological safety cabinet should be left running. The laboratory should then be fumigated and the atmosphere checked for residual fumigant before re-entering.

5. Waste Packaging and Identification

5.1 Autoclave waste

A department system should be in place to facilitate collection of items for sterilisation from laboratories and the contained and secure storage of these prior to treatment.

Autoclave bags used for sterilisation of hazardous/clinical solid waste should be

- clear or translucent so that “illegal” hazardous items within the bags can be easily detected (e.g. sharps).
- kept within a demarcated area within the laboratory but should not be allowed to stockpile.
- transported in rigid containers to contain any leaks.
- labelled as biohazardous waste for autoclave sterilisation with the originating room number and research group name for traceability and records should be kept of sterilisation and disposal.
- packaged in black bags following sterilisation and before disposal as non-hazardous waste.

5.2 Liquid waste

Liquid waste that has been effectively decontaminated can be classed as non-hazardous and inactivated GM waste. The University has trade effluent consent for this to be discarded to the drains with running water unless other hazards that are present (e.g. chemical, radioactive) dictate that further processing is required. Please refer to the relevant guidance for disposal of these hazardous wastes. **It is recommended that CL-3 waste that has undergone chemical disinfection is also autoclaved.**

The remaining liquid container should, where decontamination has been effective, be washed and preferably reused or recycled (where possible; refer to recycling section) or disposed of as non-hazardous waste. However, if the container is plastic and has not been decontaminated then it may be packaged and disposed of as hazardous plastic waste (refer to the plastic waste packaging and identification section).

5.3 Plastic pipette tips and serological pipettes

Contaminated serological pipettes and pipette tips should not be placed in yellow bags or autoclave bags unless they are packaged in a way that prevents them from piercing the bag.

A preferable method of disposal would be their collection in yellow Bio-bins for direct incineration. These boxes contain an absorbent gel to contain any residual liquid, however care should still be taken and workers should be trained to ensure that minimal amounts of liquid remain in the waste and that boxes are sealed correctly. Different sized bins exist for tips, serological pipettes and other plastics. The product is available directly from the manufacturer (see www.econix.co.uk) and via the NHS Supply Chain. Some

types are also stocked in the Medical and Veterinary Sciences faculty store. When purchasing these, staff should ensure that they obtain the “yellow-only” version containing a Bio-matt gel at the bottom to absorb any liquid. These boxes when sealed correctly are UN approved for transportation of infectious waste. Bio-bins should be labelled or tagged with the originating room number, research group name and appropriate European waste code and then transferred to the appropriate Eurobin at the hazardous waste collection point designated for the department by Sustainability. This waste will be collected by a contractor approved to take GM waste and approved by the University. Bio-bins, or other suitable containers, containing plastic may also be autoclaved and bagged prior to collection where the risk assessment shows that this is required.

5.4 Other plastic items

Empty contaminated plastic containers such as culture flasks or contaminated agar plates should be decontaminated and disposed of as non-hazardous waste or recycled/reused where appropriate. Large amounts of plastic cannot be incinerated in the University at present and so such contaminated plastic should not be discarded into the yellow bag waste stream for incineration via Sustainability. Where incineration is required (for HG-1/GMM Class 1 solids or empty containers only) arrangements should be made with Sustainability for collection or the Bio-bin disposal route should be adopted; refer to the previous section. This method must not be used for disposal of liquid wastes by incineration. Bio-bins should be labelled or tagged with the originating room number, research group name and appropriate European waste code and then transferred to the appropriate Eurobin at the hazardous waste collection point.

5.5 Incineration waste

Hazardous/clinical waste should be packaged and sealed in UN approved and marked **yellow bags**. These should be labelled or tagged with the originating room number, research group name and appropriate European waste code and then be transferred into the yellow Eurobin at the hazardous waste collection point designated for the department by Sustainability. This waste will be collected and incinerated on University premises by Sustainability or by a contractor approved to take GM waste and approved by the University. The Department of Health endorsed **orange bag system** designated for “low hazard” waste is not currently used at the University.

5.6 Non-hazardous or decontaminated waste for landfill (black-bag).

Non-contaminated waste originating from laboratories may be recycled as for any other recyclable waste. However, if the waste is placed into black bags for landfill, then the bags must be sealed before being placed into the non-hazardous waste stream.

6. Recycling

Sustainability is committed to following the waste hierarchy to reduce the University's impact on the environment and to comply with waste legislation.

1. All sites should where possible and practicable reduce waste entering the University through suppliers. Many suppliers offer take back schemes and will work with the University to reduce packaging. On-site supplies may also help reduce packaging.

2. Where possible resources should be reused on site, *e.g.* pallets and other containers.

3. All other packaging must be recycled in your site recycling bins. Sustainability currently provides containers for

    - paper (confidential and non-confidential)
    - cardboard
    - glass (please ensure glass is clean and hazard labels are defaced) We cannot take pyrex.
    - plastic (see Sustainability website - http://www.bris.ac.uk/environment - for types that can be recycled) Plastic must be decontaminated, clean and hazard labels must be defaced)
    - cans

Sustainability will continue to investigate ways in which waste from laboratories can be reduced, recycled or sent for alternative treatment and this guidance will be updated as required. Various points around the University have already been set up for collection of recyclable material. If you have a waste stream you need to find a collection for please contact environment-office@bristol.ac.uk