

**Department of Materials  
Department Safety Policy  
October 2018**

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## **DEPARTMENT OF MATERIALS STATEMENT OF HEALTH AND SAFETY ORGANISATION**

As Head of Department, I am responsible for ensuring compliance with the University Health and Safety Policy within the Department of Materials at both the central Oxford and Begbroke sites. My responsibilities are set out in Appendix A and I have delegated some of these responsibilities to others, as set out in Section 1.

### **1. EXECUTIVE RESPONSIBILITY FOR SAFETY**

Every employee with a supervisory role is responsible for ensuring the health and safety of staff, students, and other persons within their area of responsibility; and of anyone else (e.g. contractors and other visitors) who might be affected by their work activities. In particular, the responsibilities listed in Appendix A are delegated to supervisors for areas under their control. In each area, the person named on the notice on the door has overall executive authority for safety.

As it is my duty to ensure adherence to the University's Health and Safety Policy, I instruct every employee with a supervisory role and the Departmental Safety Officer and the Area Safety Officer to report to me any breach of the Policy.

All those with executive responsibility should notify me, the Departmental Safety Officer, Andrew Watt, and the Area Safety Officer, Linda Curson, of any planned, new, or newly identified significant hazards in their areas and also of the control measures needed to avert any risks identified. In particular, if any new research proposal involves either (a) a substantially increased risk, or (b) a new or different risk from existing activities, it **must** be approved by me **before submission**.

Where supervisors or others in charge of areas or with specific duties are to be absent for significant periods (e.g. more than a term), adequate substitution must be made in writing to me and such employees and other persons as are affected. For shorter periods of absence adequate substitution must be arranged by those absent. Deputising arrangements must be in accordance with University Policy.

The following employees have executive responsibility throughout the Department for ensuring compliance with the relevant part of University Safety Policy:

The Administrator, **Malcolm Bradbury**, is responsible for making arrangements for visitors, excluding contractors, and for ensuring the necessary risk assessments have been made. **Les Chorley** is responsible for the same for contractors.

The person responsible for the bulk storage of highly flammable and flammable liquids is **Les Chorley**.

The person responsible for safety in the Teaching Laboratories is **Sergio**

**Lozano-Perez**.

## THE SENIOR RADIATION PROTECTION SUPERVISOR (SRPS)

**Chris Grovenor**

**73737** [chris.grovenor@materials.ox.ac.uk](mailto:chris.grovenor@materials.ox.ac.uk)

I have appointed a senior radiation protection supervisor (SRPS), responsible for the day-to-day coordination of radiation protection arrangements within the Department and supervision of work with ionising radiation, in accordance with the requirements of the Ionising Radiations Regulations 1999. The purpose of this supervision is to ensure compliance with the requirements of the Department's local rules for work with ionising radiation and the University's general radiation protection arrangements. The SRPS is also responsible for supervising the keeping and use of radioactive materials and the accumulation and disposal of radioactive waste, in accordance with the conditions of the University's permits under the Environmental Permitting (England and Wales) Regulations 2010. This is a supervisory role and the SRPS has the authority to direct others. To assist in his role we have appointed the following as Radiation Protection Supervisors (RPS):

**Paul Bagot**

**73711** [paul.bagot@materials.ox.ac.uk](mailto:paul.bagot@materials.ox.ac.uk)

**James Marrow**

**73938** [james.marrow@materials.ox.ac.uk](mailto:james.marrow@materials.ox.ac.uk)

**Susannah Speller**

**71783** [Susannah.speller@materials.ox.ac.uk](mailto:Susannah.speller@materials.ox.ac.uk)

**Dominic Forstermann**

**12765** [dominic.forstermann@materials.ox.ac.uk](mailto:dominic.forstermann@materials.ox.ac.uk)

## 2. ADVISORY RESPONSIBILITY FOR SAFETY

I have appointed those listed below to advise me on matters of health and safety within the Department. If any member of the Department does not take their advice, they should inform me. If they discover danger that requires immediate action, they are authorised to take the necessary action and inform me subsequently.

### DEPARTMENTAL SAFETY OFFICER (DSO)

**DSO: Andrew Watt**

**13455** [andrew.watt@materials.ox.ac.uk](mailto:andrew.watt@materials.ox.ac.uk)

**Deputy: Paul Bagot**

**73711** [paul.bagot@materials.ox.ac.uk](mailto:paul.bagot@materials.ox.ac.uk)

The DSO and his deputy are responsible for advising me on the measures needed to carry out the work of the Department without risks to health and safety, coordinating any safety advice given in the Department by specialist advisors and the University Safety Office, monitoring health and safety within the Department and reporting any breaches of the Health and Safety Policy to me, and informing me and the Director of the University Safety Office if any significant new hazards are to be introduced to the Department.

The DSO's duties are described in University Policy Statement S1/01. To assist in this work, the Department has the following specialist advisors:

## **AREA SAFETY OFFICER (ASO)**

**Linda Curson**      83331      [linda.curson@earth.ox.ac.uk](mailto:linda.curson@earth.ox.ac.uk)

has been appointed to support the DSO in his role.

## **DEPARTMENTAL FIRE OFFICER**

**Les Chorley**      73681      [les.chorley@materials.ox.ac.uk](mailto:les.chorley@materials.ox.ac.uk)

is responsible for advising the DSO on all matters relating to fire precautions and fire prevention in compliance with University Health and Safety Policy.

## **DEPARTMENTAL ELECTRICAL SAFETY SUPERVISOR**

**Les Chorley**      73681      [les.chorley@materials.ox.ac.uk](mailto:les.chorley@materials.ox.ac.uk)

is responsible for advice to the DSO on all matters relating to electrical safety to ensure compliance with University Health and Safety Policy and the Departmental Electrical Equipment Policy. Other specific duties of the Departmental Electrical Safety Supervisor are described in University Policy Statement S4/10.

## **DEPARTMENTAL LASER SUPERVISOR (DLS)**

**Clara Barker**      73793      [clara.barker@materials.ox.ac.uk](mailto:clara.barker@materials.ox.ac.uk)

is responsible for advising the DSO on the use of laser systems and in particular for the implementation of University Policy Statement S2/09, which also outlines the other duties of a Departmental Laser Supervisor.

## **CHEMICAL SAFETY ADVISOR**

**Christina Holdway**      73721      [christina.foldbjerg@materials.ox.ac.uk](mailto:christina.foldbjerg@materials.ox.ac.uk)

is responsible for advising on the disposal of waste hazardous materials and is the nominated signatory for the approval of COSHH assessments.

## **DEPARTMENTAL SAFETY AND SECURITY ADVISORY COMMITTEE**

In addition to the above arrangements I have set up a Departmental Safety Advisory Committee, whose functions are set out in University Policy Statement S2/01. The Committee's function is to advise me on safety issues within the Department of Materials, and to monitor compliance with the University Safety Policy. The Committee will meet once a term and its membership comprises:

**Andrew Watt (Chairman)**  
**Malcolm Bradbury**  
**Angus Wilkinson**  
**Les Chorley**  
**Kyriakos Porfyraakis**  
**Linda Curson**  
**Nadia Abdul-Karim**  
**Christina Holdway (Secretary)**

**Chairman of JCCU**  
**Chairman of JCCG**  
**Neil Young**  
**Chris Grovenor**  
**Hannah Gilbert**  
**Clara Barker**  
**Peter Flaxman**  
**Tony Wheeler**  
**Diana Passmore**

### **3. OTHER SAFETY FUNCTIONS**

#### **First aid**

The following persons are certified first aiders:

<b>Holder</b>	<b>Diana Passmore</b>	<b>83205/73658 (first-aid co-ordinator)</b>
<b>Holder</b>	<b>Graham Wyatt</b>	<b>83229</b>
<b>12/13 PR</b>	<b>Kyriakos Porfyraakis</b>	<b>73724</b>
<b>12/13 PR</b>	<b>Tom Orton</b>	<b>73783</b>
<b>Hume-Rothery</b>	<b>Jayne Shaw</b>	<b>73710</b>
<b>Hume-Rothery</b>	<b>Kiri Holmes</b>	<b>73706</b>
<b>Rex Richards</b>	<b>Zsofia Lazar</b>	<b>12761</b>
<b>21 BR</b>	<b>Francis Dunleavey</b>	<b>83222</b>
<b>21 BR</b>	<b>Christina Holdway</b>	<b>73721</b>

First aid boxes are to be found in all corridors and numerous other locations within the Department.

#### **Accident and incident reporting**

All accidents and incidents should be entered into the departmental accident book (kept at Reception in the Hume-Rothery Building and in Reception in the Christian Building at Begbroke) and should be reported immediately to:

**Andrew Watt**      **13455 [andrew.watt@materials.ox.ac.uk](mailto:andrew.watt@materials.ox.ac.uk)**

who is responsible for investigating accidents/incidents and for ensuring they are reported promptly to the University Safety Office. See University Policy Statement (S1/14).

The department is committed to preventing accidents, incidents and near misses that could affect its staff, students and visitors. We are committed to a **no-blame** reporting culture to encourage all persons to report accidents, incidents and near-misses.

## Display screen equipment assessor

I have appointed the following as Display Screen Equipment assessor:

**Linda Curson (co-ordinator) 83331 [linda.curson@earth.ox.ac.uk](mailto:linda.curson@earth.ox.ac.uk)**

The Department now operates a co-ordinated system of self assessments for DSE use. For further information, please see Display Screen Assessments, on page 27 of this document.

## Manual handling assessor

I have appointed the following as a Manual Handling Assessor:

**Les Chorley                      73681 [les.chorley@materials.ox.ac.uk](mailto:les.chorley@materials.ox.ac.uk)**

## 4. TRADES UNIONS AND APPOINTED SAFETY REPRESENTATIVES

University Policy Statement S2/13 sets out the arrangements for dealing with trade unions and their appointed safety representatives. Employees who wish to consult their safety representatives should contact the senior safety representative of the appropriate trade union.

UCU: <http://www.oxforducu.org.uk>

Unite: <http://users.ox.ac.uk/~unite>

UNISON: <http://users.ox.ac.uk/~unison>

## 5. INDIVIDUAL RESPONSIBILITY

All Departmental employees, all students and all other persons entering onto the Department's premises or who are involved in Departmental activities have a duty to exercise care in relation to themselves and others who may be affected by their actions. Those in immediate charge of visitors and contractors should ensure that those persons adhere to the requirements of University Health and Safety Policy.

### You must

- a) Make sure that your work is carried out in accordance with University Safety Policy.
- b) Protect yourself and others by properly using any safety equipment or devices (e.g. machinery guards) provided.
- c) Protect yourself by properly wearing any personal protective equipment that is required as defined in local rules.
- d) Obey all instructions emanating from the Head of Department in respect of health and safety.

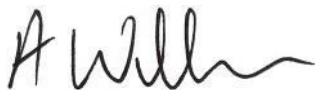
- e) Warn me and the DSO/ASO, (Andrew Watt / Linda Curson) of any significant new hazards to be introduced to the Department, or of newly identified significant risks found on the premises or in existing procedures.
- f) Ensure that your visitors, including contractors, have a named contact within the Department with whom to liaise.
- g) Attend training where managers identify it as necessary for health and safety.
- h) Register and attend for health surveillance with the Occupational Health Service when required by University Safety Policy.
- i) Report all fires, incidents, and accidents immediately to Charlotte Sweeney, Les Chorley or Andrew Watt. Note that the Department has a “no-fault” policy. I shall be supportive of those who report incidents or problems, even when they themselves made mistakes. I will take a far graver view of anyone who conceals a safety incident, or who fails to report a potential problem.
- j) Familiarise themselves with the location of firefighting equipment, alarm points and escape routes, and with the associated fire alarm and evacuation procedures.

### **You should**

- a) Report any conditions, or defects in equipment or procedures, that you believe might present a risk to your health and safety (or that of others) so that suitable remedial action can be taken.
- b) Offer any advice and suggestions that you think may improve health and safety.
- c) Note that University Policy Statements are available on the web at <http://www.admin.ox.ac.uk/safety/policy-statements/>.

## **6. SPECIFIC SIGNIFICANT RISKS**

Several areas/activities have been identified as presenting significant risks within the Department of Materials. The Department has produced a series of Safety Policies and guidance, set out over the following pages, which are to be followed by all members of the Department, along with visitors, contractors and others under the control of the Department.



**Professor Angus Wilkinson**  
**Head of Department (Acting)**  
**Revised October 2018**

## FIRE POLICY

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### IF YOU DISCOVER A FIRE:

- Immediately operate the nearest fire alarm point and phone the fire brigade on 999 (from any telephone).
- If electrical appliances are involved switch off the power at the plug.
- Attack the fire, if safe to do so, with the nearest suitable fire extinguisher. Minor fires can usually be brought under control by prompt individual action. Know where the fire extinguishers are and how to use them.

<u>Type</u>	<u>Suitable Fires</u>
Water	Fires involving wood, paper, textiles, etc.
CO <sub>2</sub>	Electrical and flammable liquid fires
Powder	Flammable liquid and wood, paper, textiles, etc.

- If successful in fighting the fire report to the Fire Officer at the assembly point.
- If the fire is considered to be too large, or if it should get out of control, or if the escape route is threatened, leave the building quickly and calmly by the nearest available escape route, closing doors and windows, extinguishing naked flames and turning off lights, if it is safe to do so.
- Do not stop to collect personal belongings.
- Report to the Fire Officer at the Assembly Point.
- Do not re-enter the building until authorised to do so by the Fire Officer.

### IF YOU HEAR THE FIRE ALARM:

- Close doors and windows, extinguish naked flames and switch off lights, if it is safe to do so.
- Leave the building quickly and calmly by the nearest available escape route.
- Do not stop to collect personal belongings.
- Report to the fire Assembly Point
- Do not re-enter the building until authorised to do so by the Fire Officer.

### ACTIONS REQUIRED FROM OTHER GROUPS

#### **Fire Officer**

The Fire Officer will take up a position at the Assembly Point and will receive reports and liaise with the City Fire Office.

### FIRE ASSEMBLY POINTS

After occupants have left their building they should assemble at the following locations:

#### ***Building***

Hume-Rothery

Engineering & Technology

#### ***Assembly Point***

On slip road beneath the Holder Building tower

On slip road beneath the Holder Building tower



21 Banbury Road  
12/13 Parks Road  
Holder Building

Rex Richards  
Begbroke

Rear car park, 21 Banbury Road  
In front of the building  
Paved cycle stand area outside the ground floor north of  
the Hume-Rothery building  
On the lawn in front of Physical Chemistry  
In IAT car park

## **FIRE ALARM TESTS**

Fire alarm tests (intermittent ringing) are made on a routine basis on Monday mornings. If the fire alarm rings **continuously** it must be assumed **at all times** that there is a fire and the occupants of the building must evacuate as detailed above.

## **PRACTICE OF FIRE DRILL**

Fire drill rehearsals will be conducted in each building once per year. The date and time will not be announced in advance in order that rehearsals can be carried out under reasonably realistic conditions.

Supervisors will be informed of the week in which a drill is to take place, and if necessary they can consult with the DSO to ensure that no experiment is underway which cannot be interrupted.

Any person failing to vacate the premises during a fire drill will be reported to the Head of Department. **FAILURE TO COMPLY WILL BE TREATED AS A SERIOUS OFFENCE.**

## RISK ASSESSMENTS AND COSHH ASSESSMENTS

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### Risk Assessments

The University has instituted a formal system of risk assessment in University departments where the work activities carry a significant risk (see University Policy Statement S5/08, "Risk Assessment"). This requires departments to carry out written risk assessments for all significant risk activities in the department.

**No work can be started before all necessary risk assessments are complete and approved by the DSO, and a copy of the documentation filed with the Administration Office. No individual may engage even on an approved project until they have been fully briefed by their supervisor, and have signed their personal risk assessment form, which confirms that they have been fully briefed.**

Risk assessments are of several types – (a) **general laboratory risk assessments**, (b) **individual risk assessments**, (c) **specific risk assessments carried out for high-risk activities or before activities such as manual handling, maintenance or building work** and (d) **COSHH assessments for the use of hazardous substances**. All types of assessment **must** be carried out. Forms for carrying out assessments of type (a), (b) and (d) can be downloaded from the local-access section of the Department's website:

<http://www.materials.ox.ac.uk/local/documents>

#### **(a) General Laboratory Risk Assessments**

General laboratory risk assessments will have been carried out for all laboratories, and are checked as part of the annual safety inspection of the Department. **These written assessments should be displayed clearly in all laboratories. Copies of all risk assessment should also be deposited in the Administration Office.** All those working in a laboratory or workshop must be familiar with the risk assessment for that area.

Laboratory risk assessments involve:

- i) identification of the person(s) responsible for the laboratory;
- ii) identification of the hazards which could be reasonably expected to result in significant harm;
- iii) identification of the groups of persons who might be harmed, e.g. academic or non-academic staff, students, visitors, contractors etc;
- iv) evaluation of the precautions in place to see if they are adequate;
- v) specification of action required so that risks are adequately controlled.

The hierarchy of principles which has been followed is:

- remove the risk
- use a less risky option
- prevent access to the hazard
- organise the work to reduce exposure to the hazard -
- as a last resort issue personal protective equipment.

## (b) **Personal Risk Assessments**

For research work, individual risk assessment forms should normally be completed by supervisors when new students or staff start. The form is completed as an initial assessment, i.e. **before** the work to which it relates starts. This should be completed as part of localized induction training and the relevant pro-forma – titled ‘Personal Risk Assessment with training record – lab’ is available at:

<http://www.materials.ox.ac.uk/local/safety-information.html>

**Completed forms should be sent to the DSO, who will check them before they are filed. The person assessed and the supervisor should keep copies of their form. They will be sent an updated copy if the DSO makes any changes.**

Risks are placed in one of three categories:

- A. Those where the work may not be undertaken without senior supervision;
- B. Those where work may not be started without the supervisor’s advice; and
- C. Those where extra care must be observed, but where it is considered that workers are adequately trained and competent in the procedures involved.

Once the risk assessment has been made, supervisors must then decide on the controls necessary to protect the worker and anyone else who may be affected by the work activity. Instructions and advice should include the method of work and safeguards to be used. The person who is to supervise category A and B risks should be identified. **The activity must not be started before authorisation has been given by the DSO.**

***If the work involves the use of hazardous substances it will normally be necessary to complete a COSHH assessment form as well as a risk assessment form.***

### **Deputising arrangements**

Supervisors have an obligation to appoint a deputy during periods of short-term absence (e.g. illness, holidays or conferences) or long-term absence. For longer periods of absence (e.g. sabbaticals) supervisors need to agree a deputising system with the Head of Department, and the DSO should also be informed. It is important to realise that the supervisor still retains responsibility even when a deputy has been nominated.

The person appointed as deputy need not have a detailed knowledge of the work, but must know enough to sanction further work, or stop work, as necessary. Students must be aware that they should seek advice from the deputy before starting new work when the supervisor is absent.

### **(c) Specific risk assessments**

Specific risk assessments must be carried out for particularly hazardous procedures or the operation of potentially hazardous equipment: Full operational protocols are required in such cases. Examples would include the use of casting furnaces or welding equipment.

**Movement of heavy equipment:** An assessment should always be carried out when experimental equipment is moved.

**Building and maintenance work:** The Buildings and Facilities Manager is responsible for ensuring that written assessments have been undertaken before building or maintenance work is undertaken, including the presence of any asbestos. Research group leaders are asked to provide information and assistance as required.

### **(d) COSHH Assessments**

The Control of Substances Hazardous to Health Regulations (COSHH Regulations - see University Policy Statement S6/14), control the use at work of any substance that is hazardous to health. This embraces **any substance** listed as dangerous for supply and for which the nature of the risk is specified as very toxic, toxic, harmful, corrosive or irritant. This covers materials from cyanides and strong acids to toilet cleaners. It also encompasses all materials for which the Health and Safety Commission has approved either a maximum exposure limit or an occupational exposure standard. Microorganisms hazardous to health, as well as dust, are also included in the definition. Any work including biological material is also included.<sup>1</sup>

The whole fabric of the COSHH Regulations is built around the concept of assessment. This requires that an employer shall not carry out any work which is liable to expose any employee (or other person who may be affected) to any substance hazardous to health, unless he has made a suitable and sufficient assessment of the risks created by that work and of the steps needed to meet the requirements of these regulations.

#### **When is a COSHH assessment required?**

A COSHH assessment should **always** be made **before the start of any work involving a hazardous substance**.

COSHH forms must be signed by the assessor and, where relevant, signed by the assessor's supervisor. The form must then be sent to the Chemical Safety Advisor for approval. The completed form must be available in the laboratory where the work is undertaken.

Further advice on the completion of COSHH assessments is available in Section 5 of the Laboratories Safety manual available at the following link:

<http://www.materials.ox.ac.uk/local/documents>

If you have any doubts concerning the requirement for COSHH assessments contact the Chemical Safety Advisor for further advice.

## **Other types of assessment**

For policy on assessments associated with live electrical working, manual handling, the extensive use of computer (display screen equipment) and the use of lasers see the appropriate polices within this document.

## HAZARDOUS WASTE POLICY

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The University Safety Office operates and funds a disposal service for hazardous waste (waste that may be harmful to human health or the environment). This includes wastes such as chemicals, gas cylinders, waste oils, fluorescent tubes, asbestos, batteries, and sharps, as well as clinical/biological and radioactive wastes.

The University Safety Office makes all necessary arrangements with waste disposal contractors and the Environment Agency (EA). However, as the producers of waste, individuals within departments have certain legal responsibilities relating to its disposal: they must ensure the waste is properly stored, properly packaged, containers are correctly labelled, and it is safe for transport.

The Chemical Safety Advisor can be contacted by telephone (73721) or email ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) for help or advice on the disposal of hazardous waste.

### Arrangements

1. All hazardous waste must be disposed of in accordance with University Policy Statement S5/11. Waste disposal forms are available from the local access section of the Department's website: [www.materials.ox.ac.uk/local/documents](http://www.materials.ox.ac.uk/local/documents).
2. The Department has instituted local arrangements for waste disposal for both the main site and Begbroke. The current arrangements are detailed in appendices B and C to this document.
3. Further advice on the disposal of hazardous laboratory waste can be found in Section 6 of the Laboratories Safety Manual document, which is available at: [www.materials.ox.ac.uk/local/documents](http://www.materials.ox.ac.uk/local/documents).

## LABORATORY SAFETY POLICY

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### Introduction

All reasonable steps will be taken to secure the safety of employees who use departmental laboratories. It is acknowledged that work in laboratories can be of a hazardous nature and it is therefore the Department's intention to reduce the risks so far as is reasonably practical.

Outlined below are the Departmental arrangements. Please refer to the Laboratory Safety Manual, which is available at: [www.materials.ox.ac.uk/local/documents](http://www.materials.ox.ac.uk/local/documents), for detailed lab safety guidance.

### Arrangements

1. The routine administration of the departmental rules governing laboratories is the responsibility of each Laboratory Supervisor.
2. The Laboratory Supervisor is responsible for the publication of and enforcement of local rules for their laboratories.
3. In cases of misdemeanour, the Laboratory Supervisor must suspend from use of the laboratory anyone who wilfully fails to obey these regulations and inform the Head of the Department so that a decision can be taken whether to ban that person from working in the laboratory. Failure to do so, resulting in an accident, can result in a criminal prosecution under the Health and Safety at Work Act.
4. No food or drink may be consumed in a Laboratory.
5. Children under 16 years of age are not permitted into laboratories except as members of official organised and escorted groups.
6. Personal protective equipment will be issued, free of charge, as a last resort measure for the control of exposure. The type and use of PPE will be carefully assessed and it will be maintained according to the manufacturer's instructions.
7. Engineering control measures, for example fume cupboards, will be properly maintained to ensure their continued effectiveness. Fume cupboard log books will be kept.
8. The Department will provide sufficient information and training to ensure full understanding of the hazards to health posed by workplace activities.
9. All hazardous waste must be disposed of in accordance with the Department's hazardous Waste Policy. It is the responsibility of the person making the waste to dispose of it.

10. Flooding can lead to very serious damage in the Department by seeping to lower floors and entering electrical equipment and power supplies, or ruining furniture, equipment, decoration and books. Flooding is to be avoided at all costs. The following rules have been drawn up by the Safety and Security Committee to guard against flooding (please see Mr. Les Chorley for further advice if necessary):

- All equipment built in the Department should have ferruled hose-connecting nozzles fitted to water pipes before it leaves the Workshop.
- Small and medium low pressure hose connections should be secured with nylon straps.
- High pressure hose connections to larger diameter tube (1/2" internal diameter or greater) should be secured with 'Jubilee' or similar metal screw clips.
- Lock-nut union connections to the water pipes of a diffusion pump should be made by soldering copper tubing (which may be obtained from the Main Workshop) to one of the union pieces. The copper tubing itself, if connected to a hose, should be terminated with a ferrules nozzle. On no account should the lock-nut unions (supplied with new diffusion pumps and to which the copper tubing should be soldered) be discarded and the hosepipes fixed directly to the cooling coil where they are liable to be affected by heat.
- Apparatus with high fire risk or capital cost should, where possible, be protected by water flow switches or similar units.
- Where there is a risk of fire or damage in apparatus (not fitted with a flow switch) if the water supply is interrupted, the taps concerned should bear a clear notice to the effect that on no account should they be turned off while the apparatus is running.

If a serious flood occurs, first ascertain whether it is likely that water has penetrated electrical fittings or distribution boards. If so, the power should be disconnected to avert the risk of electrical shock.



## ELECTRICAL EQUIPMENT POLICY

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### Introduction

All reasonable steps will be taken to secure the health and safety of employees and students who use, operate or maintain electrical equipment. The Department acknowledges that work on electrical equipment can be hazardous and it is therefore the Department's intention to reduce the risks so far as is reasonably practical.

### Arrangements

1. The repair, maintenance, modification and extension of the electrical distribution system are the responsibility of Estates Services. Anyone wishing to modify the electrical distribution network in any way, or to maintain permanently wired equipment, should contact Mr. Les Chorley.
2. On no account should anyone attempt to connect any equipment, which needs to be permanently wired to the distribution network. Further, anyone wishing to order equipment, which needs to be so connected, must first ensure adequate power is available, by consulting Mr. Les Chorley before an order is placed.
3. Any faults identified in electrical equipment (e.g. a frayed lead) must be reported to Mr. Les Chorley, who will arrange for test and repair as necessary. Do not attempt to use the equipment until repaired, and do not attempt to repair it yourself.
4. All portable electrical equipment belonging to, borrowed by, or used in, the Department and its outstations shall be recorded in electrical equipment inventories and maintained in accordance with University Safety Policy S4/10. Most items require testing every two years, but handheld equipment that is moved frequently and equipment used in a harsh environment are tested annually. All private portable electric equipment (e.g. kettles and radios) must be declared to Mr. Les Chorley when first brought on to site so that they can be tested before first use.
5. Any item of portable equipment that has expired its test date must not be used until a successful test has been completed.
6. Any portable electric equipment that has failed its test must not be used until repaired and re-tested. It should be reported to Les Chorley for further action.
7. Individuals should not normally seek to construct their own electrical equipment. If however this is absolutely necessary, the plans must be inspected and approved by the Electronics Safety Supervisor **before** construction commences. Such equipment must be safe at all stages and must be inspected both during and after construction to ensure that this is so. The Electrical Safety Supervisor will retain a copy of the circuit diagram of the equipment, clearly labelled as to the equipment to which it refers and its whereabouts. Any equipment assembled in racks or Dexion frames, e.g. furnaces, controllers etc., must be inspected and approved by

the Electrical Safety Supervisor before it can be used. Les Chorley should be contacted for further advice.

8. Only authorised persons may carry out repairs to electrical equipment. This includes the fitting of electric plugs. Authorised persons are Mr. Ashley Brown.
9. Live electrical working is prohibited without the express written authorisation of the Electrical Safety Supervisor.

## **ENGINEERING WORKSHOP AND FURNACE ROOM POLICY**

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### **Introduction**

All reasonable steps will be taken to secure the safety of employees and students who use the departmental furnace room. Work in the Furnace Room can be very hazardous. The most common causes of workshop accidents are - handling goods; slips, trips and falls; the use of machinery and electricity. It is the Department's intention to reduce the risks so far as is reasonably practical.

### **Arrangements for the use of the Furnace Room**

- 1) The routine administration of the Department rules governing the Furnace Room is the responsibility of the Furnace Technician (or in his absence the Facilities Manager).
- 2) Only those persons judged as competent by the Furnace Technician may use the Furnace Room. The Furnace Technician will provide training as required, and will keep a list of competent users, for all the equipment located within the Furnace Room.
- 3) All work must be covered by risk assessment, and when using chemicals a COSHH assessment will also be required. General assessments are in place for all equipment. Any work that is beyond the scope of the existing assessment must have a written assessment approved before work may take place.
- 4) Safety regulations requiring the use of personal protective equipment (such as goggles, gloves, respirators, etc.); machine guards and engineered protective equipment (for example, exhaust ventilation) must be used to protect against workshop hazards.
- 5) Out-of-hours and unsupervised use of the Furnace Room:
  - a) Only those listed as competent users may use Furnace Room facilities when the Furnace Room Technician is not present.
  - b) Users may only use the facilities for which they have been rated competent
  - c) Only activities covered by risk assessment are allowed. No new or hazardous activities may be attempted.
  - d) Any equipment left running overnight will also need to have the unattended equipment form attached with all the relevant contact details included.
  - e) Sanctions will be taken against those who break these rules.
- 6) All users must familiarise themselves with location of furnace room emergency alarms.
- 7) Safety regulations requiring the use of personal protective equipment (such as goggles, gloves, respirators, etc.); machine guards and engineered protective

equipment (for example, exhaust ventilation) must be used to protect against workshop/furnace hazards.

- 8) The Furnace Room is locked when not in use. Also when the Furnace Technician is on holiday approval for access will need to be requested via the Facilities Manager.

### **Thom Building Main Workshop**

The main workshop for the Department is now located in the Thom Building level 4 and comes under the control of the Department of Engineering. We have agreed days and times when you can use all of the equipment in the workshop. These are:

Wednesdays and Thursdays 08.30 – 10.15, 10.45 – 13.00 and 14.00 – 16.30 hours.

Fridays 08.30 – 10.15 and 10.45 – 13.00 hours.

Contact details for the workshop technicians are;

Cleveland Williams ([cleveland.williams@eng.ox.ac.uk](mailto:cleveland.williams@eng.ox.ac.uk))

Maurice Keeble-Smith ([maurice.keeble-smith@eng.ox.ac.uk](mailto:maurice.keeble-smith@eng.ox.ac.uk))

You will also be required to complete the workshop safety-training course. This can be arranged by Les Chorley and happens every Wednesday. The Department of Engineering provides two sessions lasting two hours and each session can hold up to six people at a time. The times are 11.00 – 13.00 and 14.00 – 16.00.

### **Begbroke Workshop**

We have a small workshop at Begbroke which falls under the control of Robin Vincent. All request for works need to be sent to Robin. No students are allowed to use these machines.

# MANUAL HANDLING POLICY

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## Introduction

Statistics show that manual handling is one of the most common causes of absence through injury at the workplace. More than one third of lost time accidents are caused in this way. This policy is intended to reduce the risk of manual handling injuries and to provide guidance on the measures that should be taken to ensure safe lifting and carrying at the workplace.

## Arrangements

1. The Department will ensure that operations which involve manual handling are eliminated, so far as is reasonably practical.

An assessment of potentially hazardous manual handling activities will be carried out by a competent person. The authorised assessor under the Manual Handling Operations Regulations 1992 is:

**Les Chorley**                      **73681** [les.chorley@materials.ox.ac.uk](mailto:les.chorley@materials.ox.ac.uk)

2. Risks which are identified will be reduced to the lowest level reasonably practical. The following factors will be considered during the assessment:

- The task - how the load is to be moved, over what distance, etc.
- The load - the weight, size and difficulty of handling the load, etc.
- The environment - the amount of space, light obstructions, etc.
- The individual - consideration of age, weight, strength, etc. of those undertaking the handling.

3. All manual handling assessments will be completed using an appropriate assessment sheet. Copies of completed assessment sheets will be kept.

4. Nobody will undertake a manual handling activity that they believe to be unsafe.

# IONISING RADIATION POLICY

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## Introduction

All reasonably practical provisions will be made by the Department in protecting *all* persons against risks to their health, safety and welfare arising out of, or in connection with, the work activities of this Department.

The Department acknowledges that work involving the use of ionising radiation may have a detrimental affect on the health, safety and welfare of persons exposed to them. It is the intention of the Department to minimise any risks arising from such work.

## Arrangements

### 1. Training

- Before starting work with X-ray sets all individuals should attend the lecture “Hazards from Ionising Radiation in X-ray Diffraction”, which is organised by the University Safety Office. If early attendance of this lecture is not possible, then other appropriate training must be undertaken as recommended by the Senior Radiation Protection Supervisor (SRPS).
- Before starting work with radioactive substances all individuals should attend the lecture “Hazards from Ionising Radiation in the Use of Radioactive Isotopes”, which is organised by the University Safety Office. If early attendance of this lecture is not possible, then other appropriate training must be undertaken as recommended by the SRPS.
- Supervisors of those persons wishing to use x-ray sets should contact the Radiation Protection Supervisor (RPS) responsible for the equipment to be used (this person is named on the door of the laboratory containing the equipment) to arrange for suitable training. The instruction may be given by the RPS or by an experienced user nominated by the RPS.

### 2. Registration

- Researchers working with radioactive substances or certain other sources of ionising radiation will need to be registered. This is not normally necessary for users of unmodified electron-optical instruments for which a list of users will be maintained separately. If anyone is in doubt about whether registration is required, they should consult the Senior Radiation Protection Supervisor (SRPS)
- Registration cards can be obtained from the SRPS. Once completed it should be signed by the user’s supervisor and the SRPS. In signing the form the supervisor takes on the responsibilities of the Radiation Protection Supervisor (RPS) for that user, as required by the Ionising Radiation Regulations 1999.

### **3. Equipment Producing Ionising Radiation (X-ray sets, electron microscopes, etc.)**

- Only persons who have been suitably trained and have been certified as competent may use radiation equipment. RPSs will keep a register of persons they have deemed to be competent.
- When an X-ray set, electron microscope or other equipment generating ionising radiation is brought into the Department, a Certificate of Critical Inspection must be obtained from the contractors carrying out the installation.
- After any maintenance, and after every 6 months in normal use, every electron microscope or similar unit must be tested for leakage of radiation and for correct operation of the safety systems (interlocks, warning lamps, etc.). A record of the test must be made in a book provided for the purpose, which should be kept near to the microscope.
- After any maintenance, and after every month in normal use, every X-ray set must be tested for leakage of radiation and for correct operation of the safety systems (interlocks, warning lamps, etc.). A record of the test must be made in a book provided for the purpose, which should be kept near to the unit.
- Each piece of equipment must display a notice stating that only trained persons are permitted to use the equipment, and include a list of those people who are so trained. The notice must also carry the name and contact details of the RPS responsible, and the name and contact details of the SRPS.

### **4. Radioactive Materials**

- The SRPS will maintain a register of the quantities, types and whereabouts of all radioactive material within the Department. The SRPS must be informed of the movement of radioactive material.
- Before starting any work involving radioactive materials, the SRPS must be informed so that arrangements can be made for their safe handling, use, storage and disposal. An agreed system of work must be in place before any radioactive material is received in the Department.
- All orders for radioactive materials must be countersigned by the SRPS. No radioactive material can be received into the Department without the express permission and signed authorisation of the SRPS. No delivery of radioactive material is to be accepted by any person other than the SRPS or the registered radiation worker designated to work with that material and listed in the Local Rules.
- All laboratories and fume-cupboards where work with radioactive materials is being carried out must be marked with the appropriate warning labels. Radioactive materials must be stored in locked cupboards when not in use, and the cupboards marked with appropriate warning labels. Labels and advice on labelling can be obtained from the SRPS.
- The disposal of any radioactive material or radioactive waste must be carried out through the University Safety Office, and the SRPS informed for record keeping purposes.

## **5. Undergraduate Practical Classes**

- All practical classes involving radiation must be risk assessed and approved by the SRPS.
- Experiments involving X-ray sets and electron microscopes are to be carried out under the control of a qualified demonstrator.

## **6. Designated Areas (as defined by the Ionising Radiation Regulations 1999)**

- Supervised Areas: there are none.
- Controlled Areas: there are none.

## **7. Transport and Movement of Radioactivity**

- Radioactive material which is moved between laboratories within a building must be in a container which will not leak if it is dropped (the SRPS should be contacted for advice on suitable containers). No activity may be transported outside the building without authorisation from the SRPS.

## **8. Equipment**

- X-ray sets. All sets are fully interlocked with no interlock over-ride. The external dose rate is always less than  $2.5\mu\text{Sv/h}$  so there is no requirement to designate controlled or supervised areas, but Local Rules must be followed.
- Electron optical equipment. The dose rates are always less than  $2.5\mu\text{Sv/h}$  so there is no requirement to designate controlled or supervised areas. No modifications may be made to these instruments without the approval of the SRPS.

## **9. Contingency Plan**

- Anyone who believes that he may have been irradiated must immediately tell his supervisor, the SRPS or the University Radiation Protection Officer.



## LASER SAFETY POLICY

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1. The Departmental Laser Supervisor (DLS), Clara Barker must be consulted before an order for a new laser is placed.
2. All lasers entering the department, even if on loan, must be registered with the DLS. The only exceptions are for inherently safe Class 1 lasers (e.g. laser printers, CD players, etc), where the beam is not being collimated or amplified. You must register Class 1 by design products that have embedded Class 3 or 4 lasers where beams might be exposed during routine servicing or maintenance. This requires completion of the Laser registration form, LS1. This form is available on the Safety Office web site, as detailed at the bottom of this policy and on the Department intranet site at: <http://www.materials.ox.ac.uk/local/safety-information.html> and
3. Before first use of the laser the supervisor must consult with the DLS with regards to how the laser is to be used and what measures are to be put in place to control any associated hazards. The DLS will advise if further assessment and/or record keeping is required (which depends on the class of laser being used and its set-up).
4. It is the supervisors responsibility to ensure that the University Safety Policy on Lasers is complied with for Class 1 (with class 3 and 4 embedded), Class 3 and Class 4 lasers when they are serviced by staff or visiting engineers.
5. Only suitably trained individuals may work with open laser beams. The Supervisor must identify the appropriate level of training required and ensure this is completed before use is authorised. All users of registered lasers (other than for laser pointers) must also attend the Engineering Laser Safety course – this course runs every two weeks and bookings can be made through the Materials DLS.
6. Class 3 and 4 lasers must be enclosed and interlocked unless deemed unnecessary by the LS2 for that laser (such as delivery by fibres).
7. All laser pointers must be checked by the DLS before first use who will establish their actual laser strength.
8. The determination of correct eye protection should be made using the Laser Bee software package available at: <https://www1.admin.ox.ac.uk/safety/lasers/risass/laserbee/>. No goggles should be bought before a copy of the calculations are sent to the DLS for approval. This software will also allow calculation of MPE and NOHD values.
9. All laser documentation must be reviewed on a two yearly basis.
10. Electronic copies of all laser forms must be sent to the DLS, whenever a change is made.
11. Further detail is provided within the University Safety Office policy document, S2/09 (Laser Safety) which is available at: <http://www.admin.ox.ac.uk/safety/policy-statements/s2-09/>.

## OXFORD UNIVERSITY BEGROKE SCIENCE PARK

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1. The organisation of safety described in the Department Safety Policy applies equally to the Department's laboratories at Begbroke as to the main site.
2. Organisations which have made service agreements with the Department, and which occupy departmental space at Begbroke, must adhere to the University's Health and Safety policies. All personnel employed by these organisations must comply with any direction or notices on Health and Safety issues given by the Head of Department. The Department will keep all collaborators fully informed of health and safety matters that might affect them, and bring to their attention new University policies.
3. Radioactive work at Begbroke is presently not possible. For X-ray sets and electron microscopes the provisions of the Ionising Radiation Policy (page 24) apply.
4. There is a local arrangement for waste disposal, see Appendix C.
5. No hazardous items, e.g. chemicals, may be transported to, or from, Begbroke Science Park to the main site by the University bus, private vehicles, etc. All such items must be delivered directly to site or be couriered. The DSO or ASO can be approached for further advice on this matter.
6. Any accidents should be reported using the accident book held at Begbroke main site reception, in the Christian building
7. Begbroke employs Safeshield Services as the first point of contact for out of hours emergencies. Safeshield Services patrol the site and have an office on site. Oxford University Security Services also carry out security patrols of the site. In case of emergencies you should contact Safeshield Services on 01865 854865.
8. Begbroke buildings are locked every night at 10.00. If you are going to be working later than this, you should, by 9.30pm at the latest, notify Safeshield Services who will then delay their lock up until you notify them that you have left the building. Safeshield Services may well check on your personal safety during their normal patrols.

## DISPLAY SCREEN ASSESSMENTS

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The ever-increasing use of display screen equipment throughout the University is leading to a marked increase in the number of users referred to the University Occupational Health Service. These cases can progress to disabling work-related illness, but they are preventable. To minimise these issues within the Department of Materials a system of workplace assessments will be undertaken on a regular basis.

### **Assessment Coordinator**

Linda Curson has been appointed to oversee, coordinate and resolve issues raised through DSE assessments for all departmental users. If you have any queries or problems, please email her on [linda.curson@earth.ox.ac.uk](mailto:linda.curson@earth.ox.ac.uk) or telephone ext 83331.

### **Users**

The Department will assess all employees, post-graduate students and agency employed “temps” who use DSE for continuous spells of at least an hour on most days.

### **User Assessment**

All new users to the Department will receive a DSE assessment using the online assessment system run by the University and co-ordinated by Linda Curson, who will then follow up any issues raised during the assessment process. Further assessments will be sent out by the co-ordinator as required by University Safety Policy. If you feel you would prefer a face-to-face assessment, please contact Linda Curson.

### **Eyesight Testing**

Staff experiencing difficulties when using DSE may request eyesight testing, and this will be provided. The Department will meet the cost of this test, which will be held at one of the University nominated opticians. The frequency of retesting will normally be two years unless otherwise specified by the optometrist.

### **Corrective Spectacles**

Where the optician recommends specifically that a particular user requires spectacles for their work with display screen equipment, the Department will meet reasonable costs. The Department will currently pay up to £75. If the user wishes to exceed this amount, they will have to meet any additional costs. The departmental contribution will be reviewed on a regular basis.

### **Individual Responsibility**

All users are required to adopt a correct posture and follow the sound ergonomic principles that will be explained during their assessments. If any user has any concern over their current or a new workstation, or has a significant change in their current setup, they should contact the Assessment Coordinator who will arrange for an assessment.

## WORKING HOURS / LONE WORKING POLICY

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It is University policy that all work outside normal working hours must be controlled by formal measures. Within the Department of Materials, the term “normal working hours” applies to the following periods only: Monday to Friday, 8.00 am to 5.00 pm.

The basic rules for the conduct of work outside normal working hours are as follows:

1. Work in offices, libraries and computing areas.  
This may be carried out by people on their own, if required.
2. Work in laboratories (other than the simple use of computers).  
This may be undertaken only if authorised by the Laboratory Supervisor for that laboratory and should be undertaken with at least two persons present or at least a second person able to be contacted, preferably by being within earshot. In most cases, authorisation will not be required for each occasion such work is carried out, but a separate authorisation will be required for each task undertaken. The authorisation will depend on factors such as the age, experience, qualifications and training of the people involved, the nature of the work to be undertaken and of any hazards associated with it, and the extent and nature of safety measures in place at the location.
3. All hazardous work to be undertaken working alone or out of hours, must be covered by a written risk assessment.

## RESPONSIBILITIES OF THE HEAD OF THE DEPARTMENT OF MATERIALS

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It is my responsibility, as Head of the Department of Materials, directly, or through delegation (which is detailed and in writing), in accordance with the law -

1. To ensure adherence to the University's Health and Safety Policy and to ensure that sufficient resources are made available for this.
2. To plan, organise, control, monitor, and review the arrangements for health and safety, including the arrangements for students, contractors, and other visitors, and to strive for continuous improvements in performance.
3. To carry out general and specific risk assessments as required by health and safety legislation and University Safety Policy.
4. To ensure that all work procedures under my control are, as far as is reasonably practicable, safe and without risks to health.
5. To ensure that training and instruction have been given in all relevant policies and procedures, including emergency procedures.
5. To keep a record of all cases of ill health, accidents, hazardous incidents and fires, to report them to the University Safety Office, and to ensure any serious or potentially serious accidents, incidents, or fires are reported without delay.
6. To ensure senior staff maintain full oversight of those areas for which they are responsible.
7. To inform the University Safety Office before any significant hazards are introduced or when significant hazards are newly identified.

## LOCAL ARRANGEMENTS FOR WASTE DISPOSAL (MAIN SITE)

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The Chemical Safety Advisor (Christina Foldbjerg Holdway, can be contacted by telephone (73721) or email [chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) for help or advice on the disposal of hazardous waste.

### WASTE, EXCESS AND UNWANTED CHEMICALS

The current regulations do not permit the disposal of any chemicals via sinks. All chemicals have to be disposed of through the University Safety Office and its licensed Contractor. Policy Statement S5/11 states, "As producers of waste, individuals within departments have certain legal responsibilities relating to its disposal. They have a 'Duty of Care' to ensure that the waste is segregated at source (DO NOT MIX non-hazardous waste with hazardous waste), is properly packaged, containers are correctly labelled, and it is safe for transport".

The Department operates a scheme for the onward disposal of all unwanted and waste chemicals at its main site.

To use this service, members of the Department should:

1) Ensure that wastes are packaged safely by:

- Using suitable containers that are compatible with the waste that you put in it. **Please see guidelines below for selecting suitable containers.** –
- Ensuring the containers are not damaged and not leaking liquids or vapours.
- Not overfilling the containers above the maximum line, or 3/4 of the container if no maximum line is shown. This allows for expansion.
- Ensure the containers' exterior are clean and free of chemicals.
- The containers must also be fully and correctly labelled (see S5/11). Pre-printed chemical-resistant labels are available (free of charge) from Stores.
- No liquid wastes in containers over 10L, no solid wastes in containers over 10Kg

Any waste presented at the chemical waste store not conforming to the conditions stated above will be rejected.

#### Guideline for selecting suitable containers for chemical wastes:

- Chemicals may be sent for disposal in their original containers.
- UN marked containers may be reused, provided they have been visually checked to ensure that there is no sign of damage, and that their materials are compatible with the chemicals you intend to put in it. Thoroughly clean and dry the containers to ensure they do not contain residues of incompatible materials. If you need to purchase containers for specific types of waste, or if it is absolutely necessary to collect wastes in containers of  $\geq 10L$  or 10Kg capacity, please contact the Chemical Safety Advisor [chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk) for advice to ensure they comply with UN standards. UN approved containers carry the UN mark.

- For hydrofluoric acid, use Teflon or high density polyethylene (HDPE). DO NOT use glass, because HF attacks glass.
  - For perchloric acid, use glass.
  - For solvents, use HDPE (high density polyethylene).
  - For aqueous acids and alkalis, HDPE are also suitable.
  - For solid wastes, use plastic containers designed for hazardous solid wastes.
  - All containers for liquid wastes must be screw caps.
  - All containers for solid wastes must have removable lids.
- 2) Complete the waste disposal form on the Department's web page <http://www.materials.ox.ac.uk/local/documents.html?panel=6#SafetyForms>. Please pay attention to the instructions on the form to ensure all required information is provided. Incorrectly completed disposal forms will be returned to the sender.
- 3) Send the completed waste form to the Chemical Safety Advisor by email ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)); she will schedule a time for you to bring the waste to the chemical waste building (on Banbury Road) on a Monday morning. On NO account leave chemical waste at the Store.

## CLEANSING CHEMICALS/PRODUCTS

Unused cleaning products displaying a hazard warning pictogram are considered hazardous waste and must be disposed of using the waste form, i.e. via the Chemical Safety Advisor. Empty containers should be thoroughly rinsed and warning labels removed and then disposed of in the domestic waste stream.

## PAINTS AND VARNISHES

Solvent based paints and varnishes must be disposed of as hazardous waste. Water based paints may be disposed of as non-hazardous waste.

## MATERIALS WITH RESIDUAL CHEMICAL CONTAMINATION

Materials considered hazardous for disposal are determined by the proportion of hazardous material to non-hazardous material present, known as the hazardous waste threshold limit. This threshold level varies from 0.1% to 25% w/w depending on the hazardous property of the substance present. As this type of waste is likely to contain mixtures of substances, it is easier to use the worst case, lower threshold of 0.1% to assess whether it may be hazardous. So **if a material cannot be cleaned, but contains only minimal residual contamination, that is if there is less than 0.1% w/w of the contaminate on the material, this waste is not considered hazardous.**

Examples include:

- Gloves and paper towels. These items may be disposed via the non-hazardous waste route (the normal bins/general waste skip).

- Where glass or plastic tubes, pipettes, or pipette tips have been emptied, then the threshold level is very unlikely to be exceeded and this material may be disposed of as non-hazardous waste as described below for empty glass and empty *plastic containers*.

If it is suspected that the threshold level will be exceeded, contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)).

## DISPOSAL OF GLASS WASTE

### 1) Empty glass chemical bottles (non-pyrex)

University regulations governing the disposal of empty, glass chemical bottles are covered by Policy Statement S5/11. The regulations prohibit the disposal of empty glass bottles that have contained chemicals via the “domestic” waste, i.e. our normal waste bins.

To comply with regulations, **all bottles must be thoroughly washed out** and their tops removed **BEFORE disposal** (clean bottle tops may be placed in the normal waste bins) and their labels removed/defaced. The clean glass bottles can then be disposed in the recycling wheelie bin near the Holder Tower.

### 0) Empty non-recyclable glass (laboratory glassware made of

**Pyrex/borosilicate)** Cardboard boxes for the disposal of glass waste, for example laboratory glassware etc are available from Stores. The boxes should be lined with a plastic bag (also available from stores). All glass must be clean or cleaned prior to being placed in the boxes. When the box is ready for disposal, they must be sealed (with gaffer tape) and clearly marked as containing glass. The taped up box can then be disposed in the general waste skip. There is no need to use ‘sharps bins’ for this waste as it is not considered ‘clinical or hazardous waste’.

### 1) Contaminated glass

Contaminated glass should be considered as hazardous waste. There should be very little of it, because end users must clean out all glassware or bottles in the manner described above. In exceptional circumstances, where contaminated glassware cannot be cleaned and disposed via the general waste stream, contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) for advice. Please note that if the waste material is broken or otherwise has sharp or jagged edges, it is *your responsibility* to ensure that it is *packaged safely and labelled correctly* with full details of what is contained within the packaging and what the contaminant(s) is/are. Inappropriately packaged and/or labelled contaminated glass will not be accepted for disposal.

## EMPTY PLASTIC CHEMICAL BOTTLES

Plastic containers that have open necks, e.g. solvent bottles, may be washed out, remove/deface the labels and disposed of via the non-hazardous waste route (the normal bins/general waste skip). Containers that cannot be washed out, e.g. hydrofluoric acid bottles **MUST** be treated as hazardous waste and disposed of as such via the Chemical Safety Advisor. Containers that remain stubbornly dirty or contaminated must also be disposed of as hazardous waste.



## SHARPS BINS

**YELLOW** sharps bins are available from Stores and should only be used for:

- \_ Small contaminated glass shards that cannot be cleaned
- \_ Syringe needles (as well as the syringe body)
- Razor blades and scalpel blades

***No other bins should be used for this type of waste.***

All (yellow) sharps bins are to be regarded as hazardous waste. As such they must be disposed of via a specialist contractor. Under no circumstances must sharps bins be disposed of with general department waste. The individual wishing to dispose of the sharps bin is to:

1. Complete the information details on the front of the sharps bin
2. Telephone the Safety Office (70811), 10 Parks Road, for a time to take the sharps bin along to them.
3. Complete an entry in the logbook in the Safety Office for disposal records
4. Obtain a replacement bin from the Materials Stores.

## WASTE OILS

The waste cutting oil store is located beneath the concourse between the Hume-Rothery, Holder and Thom buildings. The key to the store is available from the senior workshop technician in Engineering (Mr Graham Haynes, telephone 73070) and should be returned to him after use. Empty containers should be cleaned out, and then disposed of as described above. Rags and paper that are heavily contaminated with oil are to be disposed of as hazardous waste (i.e. via the Chemical Safety Advisor). If there is any swarf in the rags or paper, you must tell the Chemical Safety Advisor.

## AEROSOL CANISTERS

S5/11 identifies aerosol spray cans as special waste, regardless of their original contents. All aerosol containers must be disposed of through the University's hazardous waste procedures – a bin for disposal of these is available outside Stores.

## BATTERIES

**All** batteries must be disposed of via the hazardous waste system. You may drop off your old alkaline and NiCad batteries outside Stores where there is a container for this purpose.

Contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) directly if you are disposing of lead-acid batteries, lithium and lithium ion batteries. Do **not** take these to stores.

## ELECTRICAL EQUIPMENT

The disposal of waste electrical and electronic equipment (WEEE) now comes under the WEEE regulations 2006 (see Policy Statement S5/11 for details). It is no longer permissible to put WEEE into domestic waste bins even if it does not contain hazardous materials. Generally, WEEE not containing hazardous materials must be

returned to the manufacturer or a reputable waste contractor for recycling. Electrical equipment containing hazardous material, for example, rechargeable batteries, will continue to be dealt with by the Safety Office. If you have any piece of electrical/electronic equipment to get rid of, please consult Ashley Brown ([ashley.brown@materials.ox.ac.uk](mailto:ashley.brown@materials.ox.ac.uk) or 73756) or Paul Warren ([paul.warren@materials.ox.ac.uk](mailto:paul.warren@materials.ox.ac.uk) or 73727) for their advice prior to disposal. Additionally, when disposing of any item of equipment, including electrical equipment, you should contact Barry Fellows in the General Office and complete and return to him an asset disposal form, available to download from the Materials website.

### **FLUORESCENT TUBES**

The only fluorescent light tubes you are likely to dispose of are those from the illuminated magnifying lenses found in some laboratories. The small circular tubes from these lamps/lenses should be given to Maintenance Workshop (73744) for disposal.

### **COMPUTERS AND MONITORS**

All computers and monitors should be disposed of via the IT section. Contact Paul Warren (73727) or Khalid Schofield (73728).

### **CATHODE RAY TUBES**

All types of cathode ray tubes have to be disposed/recycled through a contractor. Contact Paul Warren (73727).

### **FURTHER INFORMATION AND HELP**

If you have any questions about the disposal of your hazardous waste, please contact the Chemical Safety Advisor who will do her best to help ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk) or tel. 73721).

## SUMMARY OF WASTE DISPOSAL INSTRUCTIONS (MAIN SITE)

Waste type	Disposal route	Disposal information required
Chemicals	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	Waste Form TW 2/10
Aerosols (whether full or empty)	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	n/a
Photographic waste	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Cleaning products with hazard warning pictogram	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Solvent based paints, varnishes and 'empty' tins	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Water based paints & empty paint tins	Via non-hazardous waste stream	N/A
Waste cutting oil	Contact Duncan Constable in Engineering Science (73070)	N/A
(Other) Waste oil	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Solvent or oil impregnated materials, rags etc	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Empty plastic chemical containers	MUST BE CLEAN, remove/deface the labels then dispose in non-hazardous waste stream (normal waste bin/general waste skip).  EXCEPT containers that cannot be washed out e.g. some hydrofluoric acid bottles have a non-removable dripper top. These MUST be treated as hazardous waste and be disposed of via the Chemical Safety Advisor  Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	N/A TW 2/10
Empty glass reagent bottles (recyclable)	MUST BE CLEAN, remove/deface the labels, then dispose in recycling wheelie bin near the Holder tower.	N/A

Clean non-recyclable laboratory glassware (in cardboard boxes)	MUST BE CLEAN, and the cardboard box safely packaged, can dispose in the general waste skip	
Contaminated glass waste	Contaminated glass must be treated as chemical waste. Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Fluorescent tubes	Contact Maintenance Workshop (73744)	N/A
Batteries (alkaline and NiCad only) and aerosols	There are containers outside Stores. If you have lead-acid, lithium or lithium ion batteries or are in any doubt, contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721) or the Stores Technician.	N/A
Sharps	Through Safety Office (70811)	N/A
Asbestos	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	N/A
Computer monitors, cathode ray tubes, televisions and other computer equipment.	Dispose/recycle through contractor - contact Paul Warren (73727)	N/A
Electrical or electronic equipment (including fridges and freezers etc)	Make sure equipment is taken off the Portable Appliance Testing and Equipment Register databases before disposal. For fridges and freezers, contact the Chemical Safety Advisor, for other electrical items contact Paul Warren or Ashley Brown.	N/A
Components containing mercury (eg some light bulbs & electrical switches)	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)	TW 2/10
Toner cartridges (except Epson type and photocopier cartridges) & mobile phones	Take to Reception they are recycled by the RNIB	N/A

## **LOCAL ARRANGEMENTS FOR WASTE DISPOSAL (BEGBROKE SITE)**

The Chemical Safety Advisor, Christina Foldbjerg Holdway is your point of contact for enquiries regarding waste disposal at Begbroke. She is not based at Begbroke on a full-time basis (although she does visit the site frequently) and can be contacted by e-mail [chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk) or by telephone (73721).

A summary of disposal routes is to be found at the back of this document (and near to the entrance/exit doors of laboratories). Under NO account leave waste of any type at Stores.

### **WASTE CHEMICALS**

Some waste chemicals at the Begbroke site may be disposed of via the drains (the Department has a license to do this) providing they are water-soluble and are not “heavy metal” salts or organic materials, and are **well diluted**. All chemicals that cannot be disposed of in this way (and that includes most of the common solvents) have to be disposed of through the University Safety Office and its licensed Contractor. Policy Statement S5/11 states, “As producers of waste, individuals within departments have certain legal responsibilities relating to its disposal. They have a ‘Duty of Care’ to ensure that the waste is segregated at source (DO NOT MIX non-hazardous waste with hazardous waste), is properly packaged, containers are correctly labelled, and it is safe for transport”.

The Department operates a scheme for the onward disposal of all unwanted and waste chemicals at its main site.

To use this service, members of the Department should:

- 1) Ensure that wastes are packaged safely by:
  - Using suitable containers that are compatible with the waste that you put in it. **Please see guidelines below for selecting suitable containers.**
  - Ensuring the containers are not damaged and not leaking liquids or vapours.
  - Not overfilling the containers above the maximum line, or 3/4 of the container if no maximum line is shown. This allows for expansion.
  - Ensure the containers’ exterior are clean and free of chemicals.
  - The containers must also be fully and correctly labelled (see S5/11). Pre-printed chemical-resistant labels are available (free of charge) from Stores.
  - No liquid wastes in containers over 10L, no solid wastes in containers over 10Kg

Any waste presented at the chemical waste store not conforming to the conditions stated above will be rejected.

Guideline for selecting suitable containers for chemical wastes:

- Chemicals may be sent for disposal in their original containers.
- **UN marked containers may be reused**, provided they have been visually checked to ensure that there is no sign of damage, and that their materials are compatible with the chemicals you intend to put in it. Also thoroughly clean and dry the containers to ensure they do not contain residues of incompatible materials).  
If you need to purchase containers for specific type of waste, or if it is absolutely necessary to collect wastes in containers of  $\geq 10\text{L}$  or  $10\text{Kg}$  capacity, please contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) for advice to ensure they comply with UN standards. UN approved containers carry the UN mark.
  - For hydrofluoric acid, use Teflon or high density polyethylene (HDPE).
  - DO NOT use glass, because HF attacks glass.
  - For perchloric acid, use glass.
  - For solvents, use HDPE (high density polyethylene).
  - For aqueous acids and alkalis, HDPE are also suitable.
  - For solid wastes, use plastic containers designed for hazardous solid wastes.
  - All containers for liquid wastes must be screw caps.
  - All containers for solid wastes must have removable lids.

2) Complete the waste disposal form on the Department's web page <http://www.materials.ox.ac.uk/local/documents.html?panel=7#SafetyForms> Please pay attention to the instructions on the form to ensure all required information are provided. **Incorrectly completed disposal form will be returned to the sender.**

2) Send the completed waste form to the Chemical Safety Advisor by email ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)); she will schedule a time for you to bring the wastes to the chemical building (behind the Hirsch Building) on a Tuesday morning. On NO account leave chemical waste at the stores.

## **CLEANSING CHEMICALS/PRODUCTS**

Unused cleaning products displaying a hazard warning pictogram are considered hazardous waste and must be disposed of using the waste form, i.e. via the Chemical Safety Advisor. Empty containers should be thoroughly rinsed and warning labels removed and then disposed of in the domestic waste stream.

## **PAINT AND VARNISHES**

Solvent based paints and varnishes must be disposed of as hazardous waste. Water based paints may be disposed of as non-hazardous waste.

## MATERIALS WITH RESIDUAL CHEMICAL CONTAMINATION

Materials considered hazardous for disposal are determined by the proportion of hazardous material to non-hazardous material present, known as the hazardous waste threshold limit. This threshold level varies from 0.1% to 25% w/w depending on the hazardous property of the substance present. As this type of waste is likely to contain mixtures of substances, it is easier to use the worst case, lower threshold of 0.1% to assess whether it may be hazardous. So **if a material cannot be cleaned, but contains only minimal residual contamination, that is if there is less than 0.1% w/w of the contaminate on the material, this waste is not considered hazardous.**

Examples include:

- Gloves and paper towels. These items may be disposed via the non-hazardous waste route (the normal bins/general waste skip).
- Where glass or plastic tubes, pipettes, or pipette tips have been emptied, then the threshold level is very unlikely to be exceeded and this material may be disposed of as non-hazardous waste as described below for empty glass and empty *plastic containers*.

*If it is suspected that the threshold level will be exceeded, contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)).*

## DISPOSAL OF GLASS WASTE

### 1) Empty glass chemical bottles (non-pyrex)

University regulations governing the disposal of empty, glass chemical bottles are covered by Policy Statement S5/11. The regulations prohibit the disposal of empty glass bottles that have contained chemicals via the “domestic” waste, i.e. our normal waste bins.

To comply with regulations, **all bottles must be thoroughly washed out** and their tops removed **BEFORE disposal** (clean bottle tops may be placed in the normal waste bins) and their labels removed/defaced. The clean glass bottles can then be disposed in the recycling wheelie bin to the rear of the Hirsch Building.

### 3) Empty non-recyclable glass (laboratory glassware made of pyrex/borosilicate)

Cardboard boxes for the disposal of glass waste, for example laboratory glassware etc are available from Stores. The boxes should be lined with a plastic bag (also available from stores). All glass must be clean or cleaned prior to being placed in the boxes. When the box is ready for disposal, they must be sealed (with gaffer tape) and clearly marked as containing glass. The taped up box can then be disposed in the general waste skip (to the rear of the Hirsch Building). There is no need to use ‘sharps bins’ for this waste as it is not considered ‘clinical or hazardous wastes’.



### 3) Contaminated glass

These should be considered as hazardous waste. There should be very little of it, because end users must clean out all glassware or bottles in the manner described above. In exceptional circumstances where contaminated glassware cannot be cleaned and disposed via the general waste stream, contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) for advice. Please note that if the waste material is broken or otherwise has sharp or jagged edges, it is your responsibility to ensure that it is packaged safely and labelled correctly with full details of what is contained within the packaging and what the contaminant(s) is/are. Inappropriately packaged and/or labelled contaminated glass will not be accepted for disposal.

### EMPTY PLASTIC CHEMICAL BOTTLES

Plastic containers that have open necks, e.g. solvent bottles, may be washed out, remove/deface the labels and disposed of via the non-hazardous waste route (the normal bins/waste skip). Containers that cannot be washed out, e.g. hydrofluoric acid bottles **MUST** be treated as hazardous waste and disposed of as such via the Chemical Safety Advisor. Containers that remain stubbornly dirty or contaminated must also be disposed of as hazardous waste.

### SHARPS BINS

**Yellow** sharps bins are available from Stores and should only be used for:

- Small contaminated glass shards that cannot be cleaned
- Syringe needles (as well as the syringe body)
- Razor blades and scalpel blades

***No other bins should be used for this type of waste.***

All (yellow) sharps bins are to be regarded as hazardous waste. As such they must be disposed of via a specialist contractor. **Under no circumstances** must sharps bins be disposed of with general department waste. Please contact the Chemical Safety Advisor ([chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk)) who will arrange for the disposal of the sharps bins. Obtain a replacement bin from the Materials Stores.

### WASTE OIL

To dispose of waste oil, rags and paper that are heavily contaminated with oil please contact Gideon Ring (83748) who will arrange for you to bring your oil to the waste oil store. If there is any swarf in the rags or paper you must tell Gideon Ring. Gideon does not operate a collection service.

### AEROSOL CANISTERS

Aerosol containers are classified as special waste, regardless of their original contents. All aerosol containers must be disposed of through the University's hazardous waste procedures - please contact the Chemical Safety Advisor. There is no need to complete a waste disposal form for these items.



## **BATTERIES**

All batteries must be disposed of via the hazardous waste system. Contact the Chemical Safety Advisor [chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk) for the disposal of batteries.

## **ELECTRICAL EQUIPMENT**

The disposal of waste electrical and electronic equipment (WEEE) now comes under the WEEE regulations 2006 (see Policy Statement S5/11 Appendix 5 for details). It is no longer permissible to put WEEE into domestic waste bins even if it does not contain hazardous materials. Generally WEEE not containing hazardous materials must be returned to the manufacturer or a reputable waste contractor for recycling. Electrical equipment containing hazardous material, for example, rechargeable batteries, will continue to be dealt with by the Safety Office. If you have any piece of electrical/electronic equipment to get rid of, please consult Ashley Brown or Paul Warren for their advice prior to disposal.

## **FLUORESCENT TUBES**

The only fluorescent light tubes you are likely to dispose of are those from the illuminated magnifying lenses found in some laboratories. Contact Tony Bailey (83701) for disposal of these small circular tubes, he can show you where the box for these items is kept.

## **COMPUTERS AND MONITORS**

All computers and monitors should be disposed of via the IT section. Contact Paul Warren (73727) for advice.

## **FURTHER INFORMATION AND HELP**

If you require any help or information, please contact the Chemical & Laboratory Technician: [chemicals@materials.ox.ac.uk](mailto:chemicals@materials.ox.ac.uk) or 73721). Shaun Boyce (83724) will be able to help you regarding what is and what is not allowed to be disposed of via the drains at Begbroke.

## SUMMARY OF WASTE DISPOSAL INSTRUCTIONS (BEGBROKE)

Item	Disposal route
Chemicals	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Aerosols (whether full or empty)	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Batteries (alkaline and NiCad only) and aerosols	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721) or the Stores Technician.
Domestic chemical containers with orange hazard sign e.g. bleach, toilet cleaner etc	Wash out container with water (remove/deface labels) and place in non-hazardous waste stream (normal waste bin/general waste skips). If the container cannot be washed out dispose of via the Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Solvent based paints, varnishes and "empty" tins	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Water based paints and "empty" tins	Via non-hazardous waste stream (skips)
Oily and paint impregnated rags	Contact Gideon Ring (83748)
Waste oil	Contact Gideon Ring (83748)
Fluorescent tubes	Contact Tony Bailey (83701)
Empty plastic chemical containers	MUST BE CLEAN, remove/deface the labels then dispose in non-hazardous waste stream (general waste skip). <b>EXCEPT Hydrofluoric acid. This must be treated as hazardous waste and be disposed of via the Chemical Safety Advisor</b> Contact ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Empty glass reagent bottles (recyclable)	MUST BE CLEAN., remove/deface labels, then dispose in recycling wheelie bin behind the Hirsch building.
Clean non-recyclable laboratory glassware (in cardboard boxes)	MUST BE CLEAN, and the cardboard box safely packaged, can dispose in the general waste skip

Contaminated glass waste	Contaminated glass must be treated as chemical waste. Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Sharps bins	Contact Chemical Safety Advisor ( <a href="mailto:chemicals@materials.ox.ac.uk">chemicals@materials.ox.ac.uk</a> or 73721)
Fridges & freezers	See Safety Policy S5/11: Disposal of Refrigerators and Freezers
Computers and monitors	Contact Paul Warren (73727).
Electrical equipment	Via Ashley Brown ( <a href="mailto:ashley.brown@materials.ox.ac.uk">ashley.brown@materials.ox.ac.uk</a> ). He will arrange their transfer to town and contact Les Chorley to ensure the equipment is taken off the Portable Appliance Testing and Equipment Register databases.