



Management of Hazardous Substances

Guidance

Doc control no WELLBEING, SAFETY AND HEALTH MANAGEMENT SYSTEM

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Introduction:

Across the University people use a wide range of hazardous substances, and the University expects these substances to be managed through their full lifecycle. The information in these pages aims to keep people safe and protect them, and the environment, from harm, whilst endorsing our innovative work and study.

Definitions:

'Hazardous substances' are any substances or preparations which are already classified as hazardous and come with a hazard warning label (see examples linked to this protocol) showing that they have any, or a combination of, the following harmful properties:

- very toxic, toxic, harmful, corrosive, irritant, sensitising, carcinogenic, mutagenic, toxic for reproduction, explosive, oxidising, extremely flammable, highly flammable, flammable or harmful to the environment.

Unclassified substances that are received as samples, or collected from the environment, produced, or manufactured on-site, where there is a reasonable expectation that they have any of the above harmful properties are considered as hazardous substances.

Also included are any substances or preparations that are:

- an asphyxiant when it is being used – i.e. any substance which is hazardous because it displaces respirable air, e.g. nitrogen, argon, helium etc.
- a dust or powder (that can become airborne and breathed in)

'Procurement' is the act of obtaining hazardous substances e.g. purchasing, receiving as a gift, being paid to take them (e.g. for analysis), collecting them from the environment etc. it also includes manufacturing.

'Delivery' the process by which hazardous substances are brought to the University.

'Storage' is the storing or retention of hazardous substances when they are not being used.

'Use' covers using hazardous substances for a particular purpose or task as well as those tasks that can generate hazardous substances (e.g. sand blasting, or sanding teak wood), and may also include manufacturing.

'Transfer or Disposal' is the passing on or getting rid of hazardous substances, e.g. sending samples for analysis, giving to a collaborator, disposal via the University waste contractor, disposal to drain etc.

If you are using **biological agents** or **asbestos** follow the protocols for these particular topics which can be found at www.leeds.ac.uk/safety.

If you are using **radioactive materials** follow the protocols which can be found at www.leeds.ac.uk/rps. For more information, consult your Radiation Safety Coordinator or University Radiation Protection Officer. Where a radioactive substance has hazardous properties other than radioactivity these need to be assessed as well using this protocol.

If you are using Government-identified controlled substances (e.g. drugs, explosives, chemical weapons, etc.), you should follow this protocol and also speak to your Health and Safety Manager as there are additional requirements placed on staff and students which are currently being developed into a new protocol.

Nano-particles are **not** included in the scope of this protocol – please speak to your Health and Safety Manager for guidance.

Roles and proposed actions

The health and safety responsibilities of staff, students or visiting personnel are set out in the University Health and Safety Policy (<http://www.leeds.ac.uk/safety/policy.htm>). For the management of hazardous substances, by following the additional suggested roles, actions, and guidance below you will help you meet the requirements of the standard. If you choose to meet the hazardous substances standard in a different way, then the means by which you do this should be as good as (or better than) this guidance.

Line Managers and Academic Tutors

You need to check that if a person within your remit leaves their role, any hazardous substances are handed over to you.

Staff and students (including visiting researchers and other personnel etc)

You need to attend health surveillance and support workplace monitoring where required.

If you are leaving your role, hand over your hazardous substances to your line manager, and identify any risks and control measures necessary.

Guidance

The guidance below provides supporting information for the roles and action above as well as general guidance for meeting the hazardous substances standard.

In General

- **Induction, training, management supervision and awareness of emergency and reporting systems**

Induction, training and management supervision is provided to staff and students who are involved in the procurement, delivery, storage, use, handling, transport, and disposal of hazardous substances. The level of training will depend on their involvement but will often include: understanding the hazards of the substances they come into contact with and how to use them safely, which control measures need to be taken and when, the requirements of any local processes or rules, what to do in the event of an emergency and who to contact if there are any concerns. Training requirements need to be documented in a training matrix, while the training itself is often included in local inductions, or local rules, or as part of direct supervision, records of training must be kept.

For emergency processes, as a minimum, people need to know the names of hazardous substances they are using, the risks created by their exposure and how to find the safety data sheets for each substance in case they need to take it to hospital. Where applicable, people should be trained to deal with foreseeable emergencies, such as: exposure to, or spills of, hazardous substances (i.e. first aid and spill clean-up). If emergency plans are complex people should practice them.

- **Unclassified substances received as samples, or collected from the environment, produced or manufactured on-site**

Where there is a reasonable expectation that an unclassified substance, that is being procured, has any of the following harmful properties:

very toxic, toxic, harmful, corrosive, irritant, sensitising, carcinogenic, mutagenic, toxic for reproduction, explosive, oxidising, extremely flammable, highly flammable, flammable or harmful to the environment then it should be identified as a hazardous substance and managed in-line with the protocol

Procurement

- **Authorised people purchase hazardous substances**

Only authorised people are able to purchase hazardous substances using University approved or Purchasing Office-negotiated suppliers. The number of authorised persons will vary dependent upon local activities and needs.

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- **List-A Substances (substances requiring extreme caution)**

For a number of hazardous substances the University does not have the physical infrastructure to allow people to work with these substances safely or securely (e.g. chemical weapons such as sarin). If the facilities to manage such substances were put in place then a list-A substance could be obtained as long as written authorisation from the Head of Safety and Health has also been obtained. See list-A for further details. If you are considering the use of these substances ensure you involve your HSM at the earliest opportunity.

List-B substances (sensitive substances) – An inventory is kept

For each type of List-B substance (e.g. controlled drugs, chemical weapons precursors, explosives, etc.) there is specific legislation (see list-B for further detail). The common theme in all the legislation is **security**, and key to managing security is for holders of these substances to be able to keep track of them. Schools or services holding list-B substances need to be able to identify what they have, where it is, and who is in charge of it.

- **A security procedure for list-B substances is being developed**

A procedure is currently being developed that will guide people through the process of managing the security of substances in list-B. In the interim, if there are any questions about the requirements for managing these substances then contact the Health and Safety Services Technical Specialist (Mark Behrendt) for more details.

Delivery

- **Safe drop off points**

Designated drop-off (delivery) points need to be identified to ensure that they are suitable to receive and manage (i.e. safe), hazardous substance deliveries. These are identified as the only place for deliveries of hazardous substances. People involved with procurement and delivery will need to know to tell suppliers to deliver hazardous substances ONLY to a designated drop-off point where they can be checked, accepted, and signed for. This is to prevent deliveries to locations that are unsuitable to receive hazardous substances.

- **Hazardous substances received incorrectly**

There is a system in place to deal with deliveries of a hazardous substance that: is not what was ordered or arrives damaged or is being delivered to the wrong place. This should be the suppliers' responsibility and they need to deal with any problems. In most cases this will mean sending it back.

- **Identifying what hazardous substances are present**

A school/service needs to have a method or means to be able to identify what hazardous substances are present within their area. This can be at a faculty or school/service level, but it is important to know what is under your control and then you can assure yourself that there are suitable controls in place.

Storage

- **Safe and secure storage**

There are a wide range of hazardous substance storage needs across the University (from an outdoor 5000 litre tank of liquid nitrogen through to a small bottle of highly toxic Arsenic in a lab). Storage, therefore, is expected to follow recognised good practice so that storage areas are suitable for the types of hazard of the substances, and where necessary substances are segregated (e.g. flammable substances stored separately from oxidising or acidic substances). There are many examples of good practice guidance documents on the internet including (but not limited to) the HSE, British Standards, the EU and industry specific guidance etc. Good practice guidance ranges from very general (e.g. good laboratory practice) to extremely specific (e.g. storage of cryogenic liquids) and should be selected on the basis of local needs. Storage needs to be secure to limit the possibility of unauthorised people from accessing hazardous substances.

- **Properly labelled**

A hazardous substance needs to be labelled (on its container), with, as a minimum, the name and hazard(s) of the substance.

- **Emergency procedures**

Emergency procedures for hazardous substance storage to deal with foreseeable accidents (such as: exposure to, or spills of, hazardous substances) need to be considered. And, if needed, controls put in place to deal with them (e.g. suitable first aid or clean-up material for spills).

- **Disposal**

Measures need to be put in place to prevent uncontrolled accumulation of old/unused hazardous substances so that they are regularly disposed of in line with the University waste disposal protocol.

- **Arrangements for storage are documented**

Local arrangements for storage (i.e. the points above) need to be documented; by doing this a risk assessment for storage will have been carried out. This can be combined with a risk assessment for “use” (see below), or kept as a general storage assessment.

Use

- **Hazardous substances risk assessment**

For any hazardous substances a risk assessment processes that:

- identifies the hazards associated with a substance,
- decides whether it poses a significant risk,
- agrees control measures that will be implemented,

is carried out and the assessment is formally approved.

As part of the risk assessment process consideration should always be given to whether a hazardous substance can be eliminated completely or, failing that, substituted for something less hazardous.

- **Hazardous substances risk assessment form**

The hazardous substances risk assessment form attached to this protocol is the minimum standard required, check that staff/ students are using a form which incorporates all the elements listed. These include: title; date; assessors name; brief description of the activity, process or experiment; list of hazards and/or details of hazardous substances and activities; people at risk; possible outcome/ harm; evaluation of risk; review date; and signature of approver (e.g. line manager, principal investigator, academic tutor, etc.)

- **Making people aware of the risk assessment**

Key information in assessments must be shared with people who may be affected by the hazard. This means that they understand: what they must do to use a hazardous substance safely, which control measures they should take and when, any instructions on using Personal Protective Equipment (PPE), any special requirements of any safety processes, what to do in the event of an emergency, how to report an accident or incident (using Sentinel the University’s accident reporting system) and who to contact if they have any concerns. Elements of this are often already included in local induction, local rules and direct supervision, but people may need more specific information for a particular hazardous substance.

- **Record and review the hazardous substance risk assessment**

Risk assessments for hazardous substances must be recorded; this can either be as a paper copy or kept electronically. Risk assessments should be reviewed ‘regularly’ (often every 2 years), however, the frequency may differ:

- depending on the level of risk involved (e.g. high risk more frequently than low risk).
- if any significant changes occur (e.g. in the people, or process, or activity involved)
- if an accident / near miss occurs then the risk assessment must be reviewed immediately.

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- if the review period is defined locally
- **Health surveillance and workplace monitoring**
The use of some substances may, under certain conditions, lead to a recognisable ill-health condition (e.g. occupational asthma) and a risk assessment should identify this. Therefore, people working with those substances may need health surveillance and/or workplace monitoring may also be needed. More information can be found on the Occupational Health website (<http://www.leeds.ac.uk/occupationalhealth/guidance.php#H>) – see under H in the Guidance page.
- **Maintenance and inspection of Equipment used as a control measure**
Where equipment (e.g. Local Exhaust Ventilation systems (LEVs such as fume cupboards etc.), Personal Protective Equipment (PPE), etc.) is used as a control measure to prevent people from being harmed and it is critical that it is maintained in a safe condition, then maintenance must be planned for and arranged. Protective equipment must be maintained and/or inspected as per the manufacturer's instructions or specific University protocols (e.g. Work Equipment, LEVs, etc.).

Transfer and Disposal

- **Transporting hazardous substances**
Staff/students/etc. who move hazardous substances from one workspace to another **on** campus need to know to include the transport of these substances in their risk assessment. They will also need to be aware of and understand any necessary emergency processes required for transport and have control measures in place. The substances will also need to be fully labelled.
If people are transporting hazardous substances off or onto campus, they will need to contact the University Dangerous Goods Safety Advisor (Paul Beal, see the contacts page on the health and safety website for more details) to get advice on the correct packaging and labelling as there are many legal requirements around this.
- **Waste hazardous substance disposal**
Staff/students/etc. must follow the Procedures for disposing of hazardous waste. Further information is available at www.leeds.ac.uk/safety or through your Health and Safety Manager.
- **People leaving their role handover all hazardous substances**
People need to be made aware of local processes to handover hazardous substances to members of the school/service if they leave.

University Good Practice

Whilst the following is not contained in the standard, it is seen by the University as good practice and should be considered by schools/services when managing hazardous substances.

- People should only procure the minimum quantity of the hazardous substance they require. This reduces the risk (e.g. of a fire) during storage but it also cuts costs for getting rid of hazardous waste.
- Where large quantities of certain hazardous substance (typically highly toxic, or highly flammable, or pyrophoric substances) are involved, you should notify your Health and Safety Manager, they may be able to help you determine if you need to contact relevant people (e.g. University Fire Safety Manager).
- If there are unused hazardous substances over five years old they should be considered for safe disposal (e.g. research samples which are no longer needed). This helps to stop stockpiles of unwanted chemicals building up.

If you have any further questions or need advice, guidance or support please contact your Health and Safety Manager.

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