



## Dealing with Chemical spills

*Below is literature provided by the School of Maths and Science:*

A spill of a hazardous chemical is an emergency and needs to be dealt with safely and efficiently, using an established and familiar procedure, as referred to in *Hazcards* and in this section. This is a requirement of the Management of Health and Safety Regulations. Teaching staff, technicians and pupils will need to co-operate and work together to deal effectively with spills so all will need appropriate training.

- Teachers need to be familiar with the chemicals they use, how to deal with spills using *Hazcards*, and know where the mineral absorbent is kept in the laboratory.
- Pupils should be taught to deal effectively with minor spills and to report more-hazardous ones immediately.
- Technicians need accurate information about the nature of any spill they may have to deal with and they need to be fully familiar with, and to have practised, the clearing-up procedures. A spill may occur during a lesson, in the prep room or store or in transit between rooms. The procedure *Dealing with a chemical spill* describes how to deal with most large chemical spills.

The process can be summarised as:

- Assess the nature and extent of the spill,
- Make the area safe,
- Absorb the spill,
- Remove the absorbed spill treat it if necessary,
- Dispose of the treated spill and materials used,
- Remove remaining traces of the spill.

*Hazard E* summarises the initial action that a teacher or technician needs to take when confronted by a spill. It says the following:

**Spill emergency** Wear goggles and chemical-resistant gloves. Fence off the area and, if any fumes are causing distress, consider evacuation; see below. If the substance is HIGHLY FLAMMABLE, switch off all sources of ignition. Ventilate the area of the spill. Do not put other teachers, technicians or pupils at risk.

For liquid spills, evaluate the amount spilt and the degree of hazard. Paper towels may suffice but, for larger or more hazardous spills, add the mineral absorbent in your laboratory and summon help. For further advice on dealing with the mineral absorbent and its subsequent treatment, consult section 7.7 of the Handbook and, if necessary, phone the **Helpline**. In extreme cases, call the fire brigade, asking for the Chemical Incident Unit.

It is important that a science department keeps a supply of at least 1 kg of mineral absorbent in every laboratory and one or more (depending on the layout of the department) spills kits, which are only used to deal with spills. A spills kit needs to be complete and easily available in the event of a spill. The contents of general and more specific spills kits are described later in this section.

### **How hazardous is the spill?**

Mercury spills need special treatment and are dealt with separately later in this section. The questions in the following table can be used to judge whether it is safe to tackle a spill.

### **What are the chemical hazards?**

Specific advice on the treatment and disposal of a particular chemical, where it differs from the general procedure, is given on the relevant *Hazard*. General advice can be found on the Emergency E card and is amplified in the section.

### **How big is the spill?**

Small, low-hazard spills can be absorbed with paper towels that are then rinsed in the sink and placed in the normal refuse.

Larger spills and small spills of hazardous chemicals can be absorbed on mineral absorbent, which should be present in every room.

### **Is it solid or liquid; if liquid, is it volatile?**

A dustpan and brush can be used to clear up a solid but take extra care not to raise dust. It may be necessary wear a dust mask.

For volatile liquids and gases, open the windows to improve ventilation only if this can be done without putting anyone, including yourself, at risk.

It may be necessary to evacuate the room if, e.g., the spill is large, volatile and CORROSIVE or TOXIC.

In extreme cases, it may also be necessary to call in specialists, generally the fire brigade<sup>1</sup>.

### **What surfaces have been affected?**

A spill may seep into a rough surface. In extreme cases, the surface (e.g. carpet, pupil's bag) may need to be discarded once valuable items have been retrieved and cleaned.

Where there is doubt on how to proceed, call the CLEAPSS **Helpline**. If the spilled liquid produces a powerful smell, it would be wise to call CLEAPSS.

After dealing with a spill, it may be helpful to discuss the incident within the department and to note any points to avoid in future.

A general procedure for dealing with substantial spills is described on the following page. Copies of the procedure could be kept with the spills kit and in the departmental safety file.

# Dealing with a chemical spill

**For small relatively low hazard spills:**  
Absorb with paper towels and place in the refuse.

If unsure, call the  
**CLEAPSS Helpline**  
for advice.

**1. Manage the incident:**  
Is the area safe?  
Is anyone injured or suffering?  
Have you sent for extra help?

- If the area is unsafe, evacuate the room, close the door, allow any fumes to disperse or call specialist help.
- Treat any injuries.
- Spills involving hazardous chemicals: surround the area with stools, control onlookers and pour enough mineral absorbent on the liquid spill to absorb it completely.
- If the spill occurs during a lesson: call or

Wear chemical resistant gloves and goggles or a face shield.

**2. Absorb and remove the spill for treatment.**

- Sweep the dry spill with mineral absorbent into a bucket.
- Wipe over the area so that the lesson may continue if possible.
- Take the absorbed spill with its container to the prep room for treatment and disposal.

Read the label on the container and Hazard.

**3. Treat the contaminated mineral absorbent according to its properties:**

**Not water soluble?**  
• Add an equal volume of detergent.

**React with acids?**  
• Use 1M ethanoic acid or citric acid unless Hazcards say otherwise.

**Reacts with alkalis?**  
• Use solid sodium carbonate unless Hazcards say otherwise.

Don't worry if it is too acid or alkaline, the solution will be low hazard.

**4. Dilute the treated spill:**

- Add water and allow the contents to mix. If treated with acid or carbonate, check if the spill has been neutralised. Allow the mixture to settle.

**5. Pour away the diluted mixture with further dilution:**

- Decant the liquid down the foul-water drain.
- Refill the bucket with water and repeat.
- If the spill was oxidising or toxic, refill the bucket and pour away the liquid a further 8 times.

**6. Dispose of the residue:**

- Bag up the washed mineral absorbent and dispose of it in the bin.

Return to the spill areas after the lesson and clean thoroughly, particularly if TOXIC or OXIDISING chemicals were involved.