

# Aerosol Spray Products

Aerosol-based products can have several advantages in terms of easier application, greater cleanliness than traditional materials and reduced risk of skin contact. But these factors have to be weighed against worries about the nature of aerosol sprays and the ease with which they can be breathed in.

Because of this, GPMU Chapels are advised to seek alternatives to aerosol spray products whenever they are used on a regular basis. Where it can be shown that less hazardous alternative products are not available, Chapels should ensure that aerosols are only used under conditions of strict control.

## COSHH Regulations

The use of aerosols is subject to the provisions of the Control of Substances Hazardous to Health (COSHH) Regulations. COSHH requires employers to:-

- assess the risks to health from the use of aerosols
- identify what must be done to achieve adequate control of exposure
- identify further action to ensure the maintenance and use of control measures, monitoring, health surveillance, information and training.

## Health Hazards

There are four potential sources of health hazard in respect of aerosol products. These are:-

1. Solvent Content
2. Propellant
3. Active Ingredient
4. Nature of Aerosol Sprays

The actual contents of any product and their specific potential hazards, can only be determined by reference to the suppliers' data sheets. If these sheets do not give these details, direct reference should be made to the suppliers concerned.

### 1. Solvent Content

Most industrial aerosols contain organic solvents which give off vapours that are dangerous if breathed for too long or in too high concentrations. The characteristic odour which can be detected when aerosols are used is likely to arise from the solvent content. Excessive intake can cause headache, giddiness, mental confusion, blurred vision, nausea, weakness and fatigue, numbness of limbs and, in extreme cases, loss of consciousness.

If any of these symptoms are experienced in the use of aerosols or solvents, then it indicates that control measures need to be improved immediately.

Solvents in contact with the skin will cause irritation and defatting of the skin, making it more vulnerable to dermatitis and possible damage from other constituents of the aerosol. Long-term effects of solvent exposure include damage to the heart, liver, kidneys and central nervous system.

### 2. Propellants

The most common propellant, butane, is of relatively low toxicity, but is extremely flammable. Where other propellants are used, information should be sought on potential health hazards in addition to flammability.

Chlorofluorocarbons (CFCs) have now been withdrawn from use in aerosols because of the damage they cause to the earth's ozone layer.

### 3. Active Ingredients

The hazards of the active ingredient of the product will vary according to the material involved. It is important, therefore, to ensure that there is sufficient information on the Suppliers Data Sheet to identify the active ingredient and any problems that may arise from its use.

Constituents such as adhesives, cleaning agents, static eliminators etc., may all contribute to the overall hazard of the product, as they will be deposited on internal surfaces of the nose, throat, lungs or stomach.

### 4. Nature of the Aerosol Spray

All of the factors discussed above are compounded by the nature of the aerosol spray itself. An aerosol spray will often consist of very small droplets of solvent, propellant and active ingredient, some of which will be ideally suited for breathing deep into the lungs. Larger droplets will be trapped in the nose, throat and upper part of the lung.

Work on the use of hair sprays has shown that they can cause temporary chest tightness or shortage of breath in normal, healthy people. This is a factor that might be expected in the use of other aerosol products.

Further to possible inhalation hazards, aerosol sprays may also cause irritation, pain or injury if it comes into contact with the eyes.

Thus, by the use of an aerosol, special conditions are being created which could enhance the risk of exposure to various chemicals, even though the quantities involved may often be relatively small.

## Control

If aerosols are in use they should always be accompanied by good general ventilation and should not be used in a situation where several people are constantly using them,

such that it gives rise to high concentrations of airborne droplets.

Particular attention should be paid to situations where aerosols are being used in a confined space. The excessive use of these products in small, unventilated rooms should not be permitted.

Good general ventilation should be maintained at all times, and local exhaust ventilation should be applied at points where aerosol products are regularly used.

The aim must be to avoid prolonged breathing of vapours, to avoid eye contact and to minimise skin contact.

## Measurement

Where monitoring of aerosol sprays is being proposed in the workplace, Chapels should ensure that the sampling technique is appropriate and gives a realistic estimation of the hazard that exists. Written details should be sought from the people who do the measurements.

It is recommended that Chapels should regard one quarter of the published control limit for the solvent content of the aerosol as the absolute maximum airborne concentration that can be accepted.

## Fire and Explosion Risk

The contents of aerosols, apart from the propellant, may themselves be flammable, but even if they are not the risk of explosion remains when they are exposed to excessive heat (e.g. direct sunlight, or radiation), or sprayed near naked flames or other sources of ignition.

## Storage

Aerosol cans are pressurised containers and should be stored at temperatures below 50° C. They should be kept in a cool, dry place, away from direct sunlight, radiators, etc.

In the event of a fire in an area associated with the storage of aerosol cans, it is most important that fire fighters and emergency services are informed, due to the explosive hazards of overheating pressurised containers.

## Disposal

Empty aerosol cans should not be placed in refuse bins but kept separate for eventual collection and disposal. When it is required to dispose of quantities of full or empty aerosol packs, the local authority, or alternatively a Chemical Waste Disposal Contractor, should be consulted and advised of the nature of the contents and the number of containers involved, in order that appropriate arrangements can be made.

Aerosol cans must not be broken open, crushed or punctured, except under the strictest possible control. An apparently empty aerosol can is still a potential source of danger due to its residual content.

Under no circumstances may aerosol containers be disposed of by incineration. The resultant explosion may cause injury and considerable damage.

## Summary

1. GPMU Chapels should seek safer alternatives to aerosol spray products.
2. Aerosol products generate fine sprays of chemical mixtures which can easily be breathed into the nose, throat and lungs.
3. Inhalation of aerosol spray can result in greater exposure to potentially harmful chemicals than that presented by similar chemicals in the vapour form.
4. Measurement and analysis of aerosol sprays may be difficult and could underestimate the true hazard.
5. Immediate steps should be taken to improve workplace conditions, whenever symptoms of overexposure such as headaches, dizziness, nausea or drowsiness are experienced. In any case, aerosol concentrations should be kept to the lowest possible level. A maximum of one quarter of the published control limit for the solvent content of the product is recommended.
6. Workplaces where aerosols must be regularly used should be well ventilated and provided with local exhaust ventilation. Aerosols should not be used extensively in the course of a production process, nor in confined spaces, nor in areas where several people may be using aerosols simultaneously in close proximity.
7. All aerosols should be accompanied by specific suppliers' health and safety information, including details of the chemical constituents of the product, potential hazards and precautions necessary for safe use.
8. The use of aerosols requires an assessment under the Control of Substances Hazardous to Health (COSHH) Regulations.