



Chemicals

Introduction

This information sheet gives employers and employees practical advice on chemical safety and allows employers to assess the risks of chemicals and manage chemical safety in the workplace.

Almost all workplaces use chemicals from the motor vehicle repair industry to hotels, restaurants and offices. Employees could be routinely exposed in the workplace to paints, sprays, inks, toners and adhesives not to mention a wide range of materials used in cleaning and maintenance such as detergents and oils.

Chemicals can exist in the form of solids, e.g. dusts, fumes, and fibres, liquids or mists, e.g. liquid bleach, or gases, vapours, e.g. carbon monoxide, chlorine or ammonia. Chemicals can be individual substances, e.g. petrol, or mixtures / products, e.g. paints and degreasers, ink, toners.

Any chemical, in either gas, liquid or solid form, that has the potential to cause harm is referred to as a **hazardous** or **dangerous** chemical.

Chemicals include those that are brought directly into the workplace and used for processing, e.g. solvents, cleaning agents. They can also be generated by a process or work activity, e.g. fumes from welding / soldering, flour dust or generated as waste or residue, e.g. carbon monoxide from engine or motor exhausts.

How can chemicals cause harm to health?

Chemicals can cause harm ranging from mild skin irritation to cancer when in contact with the human body. The effects of hazardous chemicals may be seen immediately after contact, e.g. chemical burn, or many years after the exposure, e.g. lung cancer following exposure to asbestos. Harm can also occur following a single short exposure, e.g. irregular use of a chemical for a couple of hours per day, or longer-term exposures, e.g. daily use of a chemical in the workplace.



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Chemicals can come in contact with or enter the human body through inhalation (breathing in contaminated air), skin contact, ingestion (swallowed accidentally) or injection (sharp object such as needles).

Some common examples of the effects of hazardous chemicals include:

- Skin irritation, dermatitis or skin cancer from frequent contact with oils
- Injuries to hands and eyes from contact with corrosive liquids, e.g. sodium hydroxide, hydrochloric acid
- Asthma resulting from sensitisation to isocyanates in paints and adhesives
- Long term disability from lung diseases following exposure to dusty environments, e.g. exposure to wood or flour dust

- Death or injury from exposure to toxic fume, e.g. chlorine, ammonia, carbon monoxide, fire and explosion

In addition to effects on human health, some chemicals also present physical hazards such as the potential to ignite or support combustion of other chemical substances (an oxidiser) and others have the potential to explode, e.g. flammable solvents.

Assessing the risk of chemicals

1. Make a list (inventory)

Walk around your workplace and make a list of all the chemicals you have, e.g. solvents and those generated by the work processes, e.g. dust, residues, waste. Making an inventory is the first step in effective chemical management.

The following shows an example of a simple inventory:

Name of chemical	How much? Where is it stored?	What is it used for?	Hazard information	Supplier details	SDS available?
Best Cleaner	5 x 1 Litre containers Stored in cleaning cabinet in kitchen	Cleaning kitchen area	Eye and skin irritant	Acme Cleaning Ltd., 1 Acme Lane, Ind. Estate, Dublin 123	Yes
Unknown	Approx. 1L On top shelf of garage	Not currently used	No information	No information	No. Arrange for chemical to be safely removed

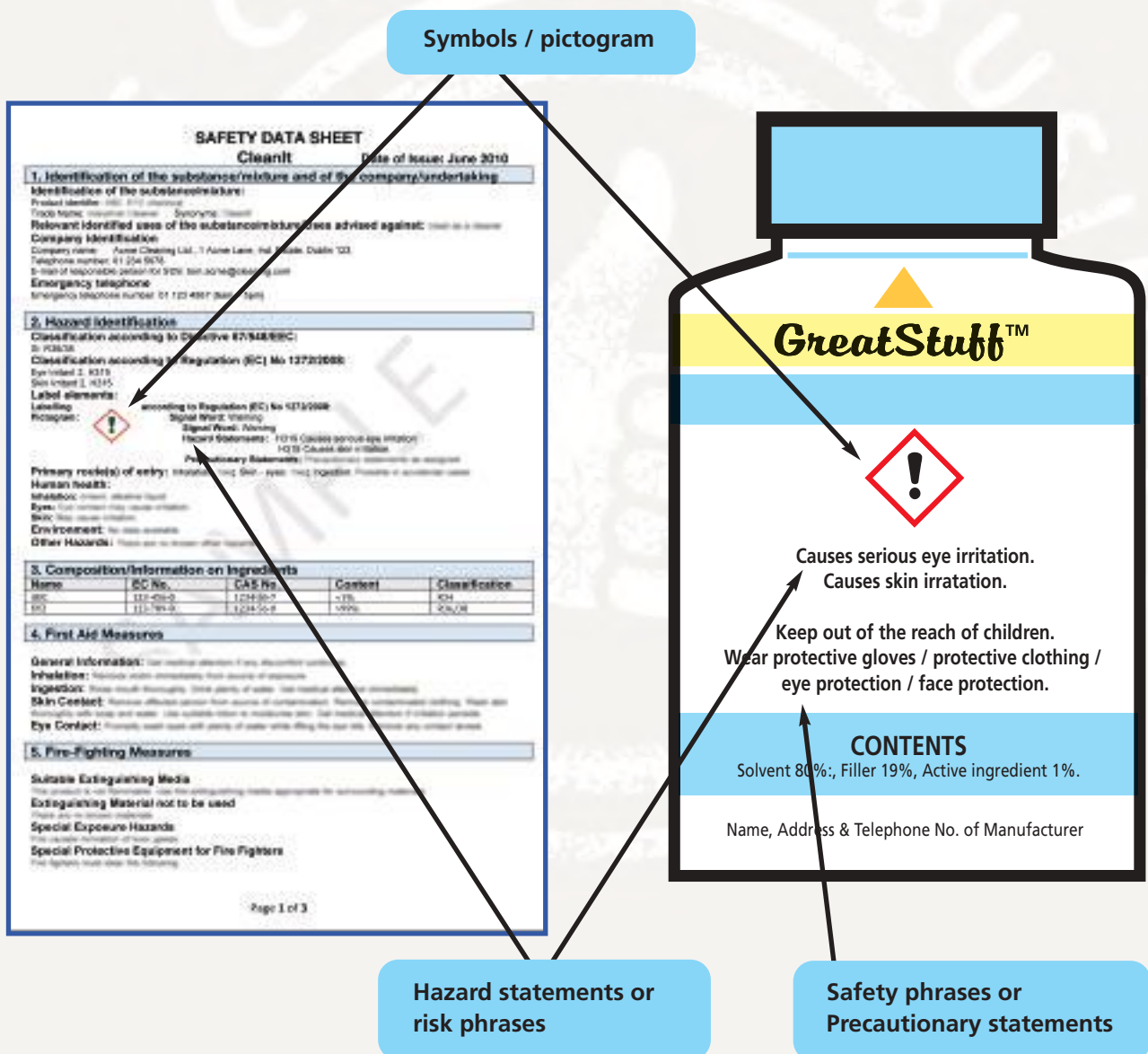
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2. How to identify chemical hazards

The most important sources of information on the hazards of your chemicals are the **safety data sheet (SDS)** and the **label**.

A SDS is a document that should be provided with all hazardous chemicals. It provides useful information on the chemical hazards, advice on safe handling, use and storage, and the emergency measures to be followed in case of an accident

All chemicals containers should be supplied with a label which clearly identifies the chemical and its hazards. Where a chemical is hazardous, the label should contain a symbol / pictogram, a hazard statement or risk phrases giving more detailed information on the hazard, e.g. causes serious eye irritation, causes skin irritation. It should also contain safety phrases or precautionary statements giving advice on safety precautions to be taken, e.g. keep out of reach of children, wear protective gloves/protective clothing / eye protection / face protection.



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3. How to assess exposure

Once you have identified your chemical hazards you then need to assess what the potential exposure is to your employees. An exposure assessment involves looking at each chemical which you have identified as hazardous and considering the following questions:



4. How to control your chemical risks

Once you have assessed the risks associated with your chemicals, control measures must be put in place in order to keep your employees and your workplace safe.

You should first consider if you can eliminate the hazard by changing the process or removing the hazardous chemical. If you cannot eliminate the chemicals consider if you can substitute the hazardous chemical with another, non-hazardous or less dangerous chemical. For example, you could replace isocyanate based paints for water based paints or you could also use a less hazardous form of the same chemical, e.g. using a pellet rather than a powder form of the chemical, could have a significant effect on reducing inhalable dust levels.

Where 1 & 2 is not possible, exposure to hazardous chemicals should be minimised and the following additional control measures must put in place to remove or reduce the risks to employees.

- ✓ Type of engineering controls, e.g. local exhaust ventilation (LEV); isolation/containment hoods or booths
- ✓ Review current work practices or procedures
- ✓ Appropriate personal protective & safety equipment, e.g. gloves, masks and respiratory masks. As these are the last line of defense, they should not be used without first considering the other controls above

- ✓ Training provided to employees on chemicals currently used in the workplace, what the chemical hazards are and the potential risks to their health
- ✓ Hygiene arrangements, e.g. separate meal and wash facilities
- ✓ Storage arrangements so that chemicals are stored correctly, safely and securely
- ✓ A good level of housekeeping
- ✓ Correct disposal of waste; and emergency procedures in case of an accident, incident or spillages, e.g. eyewashes, showers, spill kits