

Ian Whisker

**REDUCTION AND
CONTROL OF
HAZARDOUS
SUBSTANCES USED IN
THE INSTALLATION OF
PLUMBING SYSTEMS**

The Leonardo da Vinci project REDUCE

REDUCTION AND CONTROL OF HAZARDOUS SUBSTANCES USED IN THE INSTALLATION OF PLUMBING SYSTEMS

Responsible : Ian Whisker

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1) INTRODUCTION

There are many pressures applied to a person trying to earn a living in the Plumbing trade!, either self-employed or as part of a larger workforce. These pressures result at different times and in different ways.

**FINANCIAL
TIME CONSTRAINTS
WORKPLACE
EXTERNAL FORCES
FAULTY EQUIPMENT
LACK OF TOOLS/MATERIALS
RULES AND REGULATIONS**

Some of the above you can avoid by careful planning and maybe an element of luck! However, the one thing you cannot avoid is **LEGISLATION**.

For just as sure as you need a safety helmet on a Construction site, your working day is governed by a number of legal requirements that are designed to protect you and the people around you during the working day!

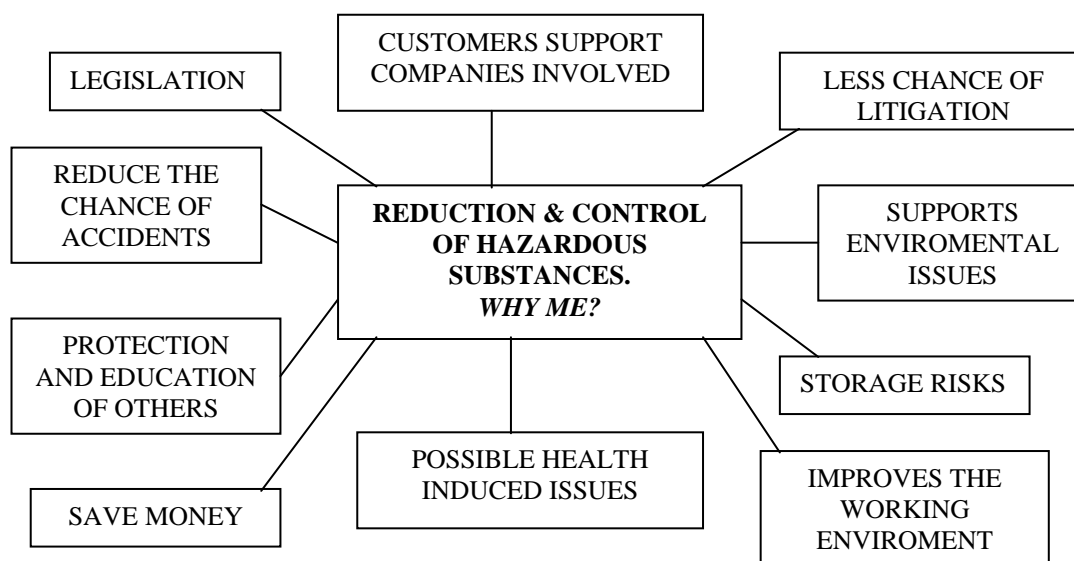
It is the intention of this document to look at one such area that most certainly effects this process, (maybe in a greater way than you realise) so much so, that the failure to get it right could result in **losing everything you have worked for** or ultimately prove fatal to any number of people including yourself.

The area in question is one of using chemicals (which we will look at in Section six (6) with typical examples). The fact that they are part of a plumbers life irrespective of being harmful or otherwise draws the user/supplier into regulations that are subject to possible severe penalties under the health & Safety at Work Act, if he or she decides to ignore the risks.

2) WHY DO I NEED TO REDUCE AND CONTROL CHEMICALS?

A number of issues arise from this question! Many that can have their own reason to you or your workers at different times, in particular if that chemical is “hazardous”, you have a **duty by law** to protect yourself and others.

“All workplaces that use or produce substances that are Hazardous to Health are “compelled” to assess and control these hazards and risks”.



LEGISLATION

With regards to chemical substances in use by plumbers, all are covered by legislation in one form or another, some if not all, can be linked to the following:

- 1 The Health and Safety at Work Act 1974
- 2 The Control of Substances Hazardous to Health Regulations 1994 (these update and consolidate the 1988 regulations).
- 3 The Control of Substances Hazardous to Health in the Construction Industry (CONIAC)
- 4 The Control of Substances Hazardous to Health (General Code of Practice)
- 5 HSE Guidance - IND(G)93L (rev 1993), IND(G)97L, IND(G)136L, IND(G)150L, IND(G)151L

The Control of Substances Hazardous to Health Regulations require us to become **pro-active** and **involved** when storing or using everyday chemical based materials (see Section three (3)).

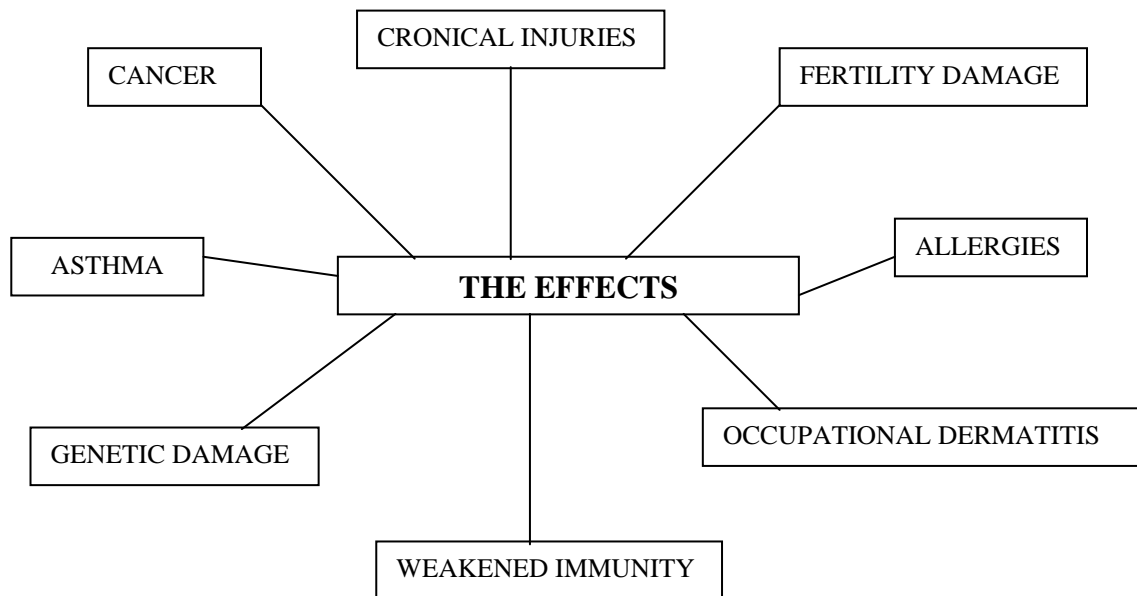
HEALTH RISKS

Everyone is well aware of the health risks involved when using chemical substances, the risks can be all too evident, for other industries. **But have you thought about yourself! people you employ or people where you are working**, leaving tools and materials overnight is commonplace, however many homes have children more than willing to explore the exciting world of plumbers equipment and any resultant accident would see serious litigation, your company may not be able to stand, quite apart from any mental anguish caused.

Also consider the knock-on effect of exposing yourself or others to dangerous substances, a result that could bring about long term illnesses that could effect lungs, brain, eyes, reproduction, liver and skin (If you don't like to wear gloves for jointing compounds **use a barrier cream**).

Safety Equipment can and does prevent exposure but is it being used! dangerous chemicals attack the body in many ways:

INHALATION, SKIN OR EYE CONTACT AND INGESTION



“There are estimated to be 50,000 to 100,000 cases of occupational dermatitis every year”

“Up to 400,000 people are believed to be suffering from asthma caused by their work, and it has been estimated that there are 1,000 new cases every year!” (Tell me about it!)

RoSPA.

THOUGHT FOR THE DAY!

If you can smell a chemical, you are inhaling it.

ENVIRONMENTAL ISSUES

In a recent comprehensive United States report it claimed “**The entire population of Earth has probably been exposed to hormone-disrupting chemicals**” effects which has been linked to lowered fertility, nervous system damage and impaired development, one such chemical is **P.V.C.**

Plumbers have always been a vital part in the health and welfare of the nation, it makes sense to champion the cause of environmental issues (also, good for business!). By becoming more aware of the types and effects from chemicals, it makes sense to **reduce** their use and specify less/non toxic substances creating a cleaner more healthy environment for all.

STORAGE RISKS

Quite apart from the problems of space! storage of hazardous substances has Legal requirements, injury from contact, explosion or exposure is very real!. Ask yourself where do I keep the potential substances at risk. At home, work or even worse:-

“IN SOMEONE ELSE’S HOME”



POSSIBLE IMPLICATIONS RESULTING FROM USE

“The fact is, if you install Plumbing, Heating or Gas systems somewhere in your arsenal of materials and equipment you need to undertake this work, will almost certainly be hazardous chemicals”

A sweeping statement but I don't expect many letters to prove otherwise!, therefore the implications of accidents, litigation, personal injury and criminal charges are all too real.

3) HOW DOES THIS EFFECT ME ?

Put **very simply!** **IT'S THE LAW** that most effects your position to operate in the workplace **and everyone knows what can happen to people who disregard it**, though remember, the idea is to protect all others, including you!

The onus is on both the employer and employee to obtain and understand as much information about the hazardous substances used in the workplace as possible.

All countries have their own legislation, including in ours is:-

The Control of Substances Hazardous to Health Regulations (COSHH)

THE COSHH REGULATIONS

These Regulations apply to all substances that have been classified as being able to cause harm under the Classification, Packaging and Labelling of Dangerous Substances Regulations 1984 and to all other substances hazardous to health not already covered by specific regulations. See full COSHH Regulations 1988 - ISBN 0 11 885468 2.

COSHH requires employers to:

1. Assess risks to health arising from exposure to hazardous substances
2. Prevent or adequately control exposure
3. Ensure control measures are used, maintained, examined and tested
4. In some instances monitor exposure and carry out health surveillance
5. Inform, instruct and train employees

The employee must:

1. Co-operate with the employer, so far as is necessary, to enable him to meet his obligations.
2. Make full and proper use of any control measures.

For example:

- Compliance with Safe Working Practices
- Ensuring adequate ventilation when working in confined spaces
- Safe storage, disposal and transport of substances
- Use of the correct personal protective equipment (masks or breathing apparatus, gloves, clothing etc)
- Set up, use and keep records

The following is a small part of the regulation layout with some relevant points.

REGULATION 1 - Citation and commencement

The Regulations may be cited as the control of Substances Hazardous to Health Regulations 1988 and are effective 1st October 1989 onwards.

REGULATION 2 - Interpretation

An explanation of the terms used in the Regulations.

REGULATION 3 - Duties under these Regulations

There is an equal obligation on the employer and the self-employed to inform employees and visitors on the premises of the hazards and risks which they are liable to encounter. Regulations 10 and 11 do not apply to a self-employed person.

REGULATION 4 - Prohibitions relating to certain substances

Specific substances and the purpose for which this substance is prohibited are described in Schedule 2 of the Regulations.

REGULATION 5 - Application of Regulations 6 to 12

Qualifies the extent to which COSHH regulations 6-12 inclusive are appropriate.

REGULATION 6 - Assessment of health risks created by work involving substances hazardous to health

This regulation states that, before any work is carried out, a suitable and sufficient assessment of risks involved be made. The onus is on the employer and the self-employed to make the assessment but if delegated the assessment should be carried out by a competent and fully trained person.

REGULATION 7 - Prevention or control of exposure to substances hazardous to health

Regulation 7 sets out the duty laid upon the employer and the self-employed to prevent, or, if not reasonably practicable, to adequately control exposure to hazardous substances. These controls should, whenever possible, be other than the use of personal protective equipment. Where personal protective equipment is used it must comply with the standard approved by the Health and Safety Executive.

REGULATION 8 - Use of control measures etc.

This Regulation lays down that the employer must ensure that control measures are complied with by employees. Equally the employee has a reciprocal obligation to use the control measures and equipment provided in a full and proper manner.

REGULATION 9 - Maintenance, examination and test of control measures etc.

The purpose of this Regulation is to ensure that the equipment and control measures provided by the employer for the control of substances hazardous to health are properly maintained to perform as originally intended.

REGULATION 10 - Monitoring exposure at the workplace

Where necessary for the protection of health and to ensure correct operation of control measures employers are obligated to monitor (and keep suitable records) the exposure of their employees to substances hazardous to health, using valid and suitable occupational hygiene techniques.

REGULATION 11 - Health surveillance

Where an assessment has judged it to be necessary employers shall ensure that their employees are under suitable health surveillance. Relevant records must be kept in a suitable form for at least 40 years.

REGULATION 12 - Information, instruction and training for persons who may be exposed to substances hazardous to health

An employer who undertakes work which may expose any of his employees to substances hazardous to health shall inform, instruct and train employees, and where reasonably practicable, other persons on the premises, of the risks to health and precautions to be taken. Employees and their representatives must be informed of the result of monitoring and health surveillance.

REGULATION 13 - Provisions relating to certain fumigations

Specific fumigants should not be used by employers without providing the appropriate notifications.

REGULATION 14 - Exemption certificates

The Health and Safety Executive may grant an exemption certificate to any person(s) or substance(s) from all or some of the requirements imposed by COSHH subject to meeting the relevant criteria.

REGULATION 15 - Extension outside Great Britain

The COSHH regulations apply to any work outside Great Britain to which Sections of the Health and Safety at Work etc. Act 1974 apply.

REGULATION 16 - Defence in proceedings for contravention of these Regulations

Non-compliance with these Regulations constitutes an offence under the Health and Safety at Work Act 1974; the only defence being that all reasonable precautions were taken to comply with these regulations.

Remember these areas do not list the Regulations in full. **It is a brief guide** For further information contact the Health and Safety Executive.

COSHH applies to virtually all substances hazardous to health except:-

- * asbestos and lead.
- * substances which are hazardous only because they are radioactive, simple asphyxiants at high pressures, at extreme temperature or have explosive or flammable properties.
- * biological agents not directly connected with work (such as catching a cold from a workmate).

The COSHH Regulations are quite specific as to what should be done, by everyone concerned, reducing, where reasonably practicable, the actual hazard level in the workplace to nil. Where this cannot reasonably be achieved, alternative safeguards are required and must be observed.

This may be achieved by carrying out:

- identification of substances used
- assessment of risk in use
- introduction of control methods
- information, instruction and training provision
- health surveillance where necessary
- monitoring of control methods and record keeping

RISK AUDIT

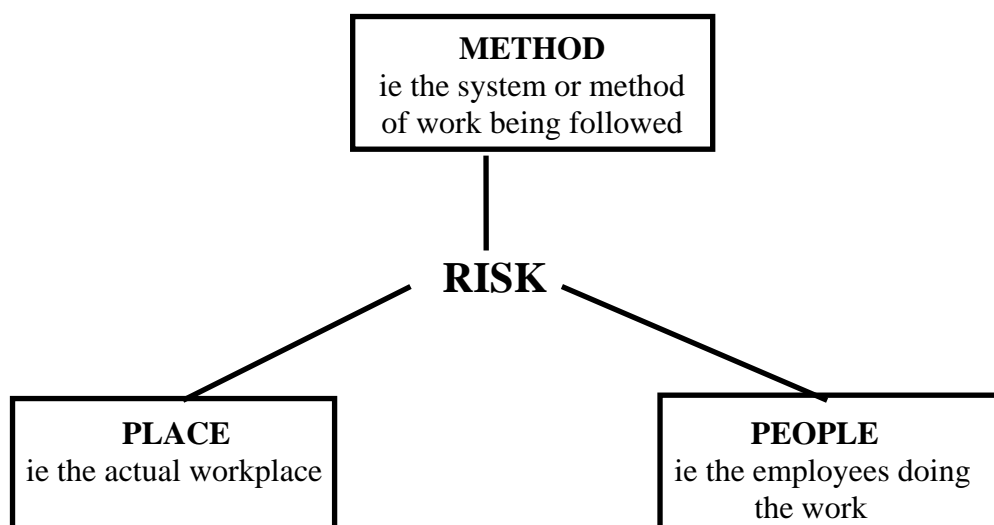
It should now be apparent that you are, or may be required to undertake the official requirements of “**Identifying, Logging, and Use of hazardous chemicals or substances**”. However, also for us in the U.K. (please don’t stop reading!) the extra task of the written likelihood of potential risks when using them in the workplace.(In fact **all risks!** in the workplace),is required.

NO Risk Assessment = No defence in a Court of Law

“Employers must adequately assess the risks to the health and safety of all employees and the risks to others not in their employment “for the purpose of identifying the measures that person needs to take to comply with their duties under law”.

Health & Safety Executive

So practically and very briefly how do you create a model workplace risk assessment!.



A model for practical risk assessment

Allowing for variables

The model described by the diagram above shows how a possible practical risk assessment depends on the input from 3 variables.

1. The place, or actual work environment.
2. The method, or how the work is being done.
3. The people actually doing the work.

Place

The place where the work is being carried out may probably vary the least. A factory, workshop, office or similar work environment does not normally suffer major changes every hour or so, and may, therefore, be considered, for the purposes of making an assessment of risk, to be relatively static, “ **BUT A HOUSE DOES NOT!**”

Method

The method of work being followed can change by the minute. Factors influencing the work method may include:

- pressure to get the job finished in order to meet deadlines
- piecework
- boredom
- lack of skill
- stress

The level of supervision is likely to have an important influence on how much the work methods vary, depending on the degree of responsibility taken on by employees and the effectiveness of individual supervisors.

People

The people doing the work are the most variable of the three factors. People will influence the method of work, but it is the characteristics, attitudes and habits of the individual employees themselves which create the most wide ranging variations in the total level of risk in any given work situation.

In truth it is necessary to **commit a risk assessment to a paper** that not only complies to legislation but is simple to complete and undertaken by a survey, “ before the work is undertaken”!.

TYPICAL EXAMPLE OF RISK ASSESSMENT

All forms produced for Risk Assessment may differ in their layout, however, bear in mind they require certain information and that someone else may have to use or understand them!

“ KEEP THEM SIMPLE “

The following is one example that is by no means perfect, but it is a starting point.

Additional Hazards Identified	Risk rating		Risk Factor		
	L x S	Total	H	M	L
Further Control Measures					
<p>Remaining risks are now – Low <input type="checkbox"/> Medium <input type="checkbox"/> High <input type="checkbox"/> (Please tick)</p>					
Further control measures checked					
Date Signature:					
Risk assessment reviews					
Date Signature:					
Risk assessment reviews					
Date: Signature:					
Risk assessment reviews					
Date: Signature:					

Name:

Position:

4) WILL IT CREATE A SAFE AND HEALTHY WORKPLACE ?

The main person who will create a safe and healthy workplace is you and the people involved with the job, however complying with legislation will move you forward in looking at and putting into practice a safer environment to work in while reducing the risks of accidents.

A safer workplace therefore means:

- identifying all articles and substances in use
- obtaining hazard data sheets from suppliers
- completing written assessments on all hazardous substances
- ensuring that they are updated
- identifying and establishing adequate control methods when necessary

including:

- safe systems of work
- correct preparation and use of:
 - equipment
 - environments

OK! What is a:

- A) **Substance**
- B) **Hazard**
- C) **Risk**

These are three key words, used in the regulations, which need to be clearly understood:

A) **Substance**

A substance can be anything that is solid, liquid or gaseous. Wood, water and air are all substances, but not necessarily substances hazardous to health - unlike, say, molten metal, sulphuric acid and acetylene, Micro-organisms such as the legionella bacterium that causes Legionnaire's disease and the virus that causes Leptospirosis or Weil's disease are specially covered by the regulations, although you may not have regarded them as a 'substance' before now.

The nature or form of the substance must also be considered; a piece of stone or wood when touched by an abrasive wheel can become a dense cloud of dust. Petrol or LPG in a container, if split, becomes a gas. A single substance can exist in more than one form and, as we have said before, each form of the substance must be considered. Substances can harm in different ways; a substance splashed on the skin may be a nuisance, the same substance swallowed could be fatal.

Contaminated or dirty oil and hydraulic fluid are potentially more dangerous substances than are the same materials when clean and unused.

B) **Hazard**

The hazard presented by a substance is its potential ability to cause harm, illness or to damage health.

The hazard can range from making the eyes smart or water to coughing or choking, suffocation and death. It may also be much more subtle and unseen, like cancer caused by asbestos, or damage to the liver by organic solvents.

The hazard potential may be immediate, or short term (acute), or delayed and long term (chronic).

C) **Risk**

The risk is the likelihood of the substances actually causing harm to the health of someone in the situation or circumstances in which it is used. The risk depends on the following factors:

- the hazard presented
- the method or way in which the substance is used.
- the way in which it is controlled
- the degree and duration of exposure

With the proper assessment and controls, the risk presented to health by even the most toxic substances can be adequately controlled; but with poor controls and a lack of effective supervision, even substances with a low hazard potential can cause major risks.

5) DO OTHERS HAVE A RESPONSIBILITY?

THE MANUFACTURERS IMPORTERS AND SUPPLIERS

Everyone shares responsibility when involved in the manufacture, importing or use of hazardous chemicals/materials, the need to produce and obtain adequate (or should we say accurate) information about the product and its uses is all part of our legislation.

“Suppliers must provide safety data sheets for dangerous chemicals to the recipient of the chemicals, but only if the chemicals are to be used in connection with work. Safety data sheets do not have to be provided when dangerous chemicals are sold through shops for use by the public, as long as enough information is given in another form, for example on the package”.
(CHIP Regulations)

With hazardous materials we all have a “right to know” and this can only come from the manufacturer or importer, who is required to feed the information down to all concerned, in the form of written instructions and material safety data sheets (more of this later). If they cannot/are reluctant to readily provide this service! then I can make a suggestion:

“CHANGE YOUR PRODUCT IMMEDIATELY”

Trust me on this one, it is important that you know and ask yourself why would they need to keep such things secret. Counteracting actual exposure to some hazardous material may depend on the best information at the time, if this is not available, what could be the effect in the short or long term to you or others!.

“SO DOES IT INVOLVE ME!”

Example 1

The Distributor

You buy chemicals and supply them to others. Your customers, in turn, supply the chemicals to others. You do not do anything with the chemicals – you do not mix or react or process or reformulate them. Your suppliers are reputable companies and you should be receiving safety data sheets from them. The products should be properly classified and labelled.

You do not have a great deal to do. If the chemical has been classified and labelled by someone else, you can probably use their classification.

However, it is important that you are aware that regulation 5 of CHIP makes suppliers responsible for the classification of a chemical right down the supply chain. If the manufacturer classifies it wrongly and everyone down the supply chain uses the classification without question, they could all be committing an offence.

Example 2

The “Final” Supplier

You are in the same situation as the distributor except that you supply to the end-user. You may be supplying to members of the public. You have even less to do. You should make similar checks on your supplier as for the distributor, to ensure that the classification and labelling are right, and that the goods are suitable for retail sale. If you are supplying through retail premises, you do not have to give safety data sheets to your customers unless they ask for them and, even then, only if they are going to use your chemicals at work. For example, painters buying your paint to use at work entitled to safety data sheets but not if they are painting their own homes.

6) WHAT TYPICAL SUBSTANCES DO I HAVE?

“There are around 2,000 cases of accidents involving chemicals at work reported every year”.
ROSPA

Most of us are now becoming aware of what can harm us, either from training courses, the media, various legislation (Model Water Bylaws), friends, even our children have valuable information. Though if I was to say that not enough information is available into the long term effects on you, your children or the people where the substances were used, then this would not be a lie!

“Although exposure limits for chemicals are usually based on the best available information, this information, particularly for chronic (long term) health effects may be incomplete”.

Labour Occupational Health Program, California

Given the above statement is true (and it's highly respected source) then we may not know what **is harmful**.

If as stated before up to 400,000 people are believed to be suffering from asthma caused by their work, with the estimated increase of 1,000 new cases every year, it seem obvious (and quite important) we isolate the causes.

“PLEASE WHAT IS THE HAZARDOUS SUBSTANCE”

The legal definition of ‘Hazardous substance’ (as you may have guessed!) is very wide but can be:

- specified by law
- recognised from experience
- recognised with common sense

They include:

- **Jointing compounds, fluxes, cement, plaster, paints, solvents, oil, grease, dust, fumes** and many other substances used in Plumbing

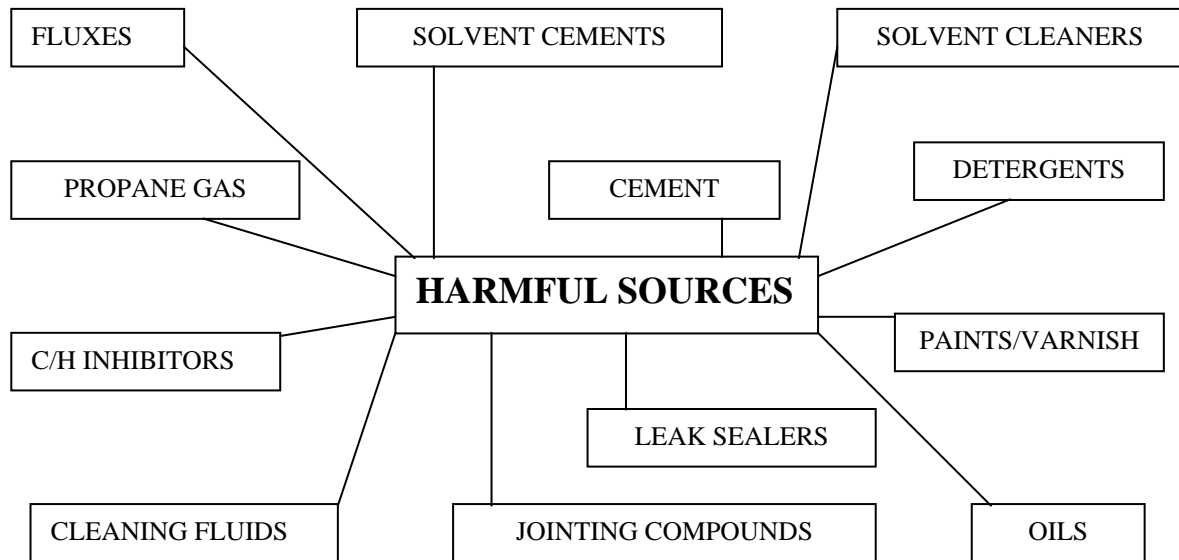
And remember they can be:

- breathed
- swallowed
- absorbed through the skin

Identifying the Potential Risks

Some are very evident as to a potential risk with clear markings on the containers, others are not! and given that many hundreds of thousand solids, liquids and gases have the potential to be hazardous! you need to take stock of likely areas.

The following may give some indication as a guide!:



Further examples are given later, but the truth is only you, your boss or your employees know what the company has, but they are there! and some will be a potential high risk hazard.

7) WHY DATA SHEETS? “WHAT DATA SHEETS”

The actual truth is “if you are using a substance hazardous to health”, then you are well advised (legally) to have Material Safety Data Sheets. However, we may need at this point to go back to basics, “**do you know if you are using substances hazardous to health**”?, ignorance is not an excuse in a Court of Law (or hospital).

As explained in Section 5 the manufacturer or importer has to provide information. This is done in a standard layout to prevent confusion (either deliberate or otherwise), and should consist of the following:-

- Identification of substance/preparation and Company
- Composition/information of ingredients
- Hazard identification/adverse human health effects
- First Aid measures
- Fire and Explosion hazard data
- Accidental release measures/spills and leaks
- Handling and storage
- Exposure control/personal protection
- Physical and Chemical properties
- Stability and Reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Regulatory information
- Transport/label information
- Any other relevant Health and Safety information

“It doesn’t, then refer to my suggestion in Section 5!”

The fact is, **you do need to have Manufacturers Safety Data Sheets** available while carrying out your trade (not more paperwork) and **they should be to hand** (“in the workplace, in the van”), because if something happens they may be your saving grace, in more ways than one!. Please, try not to think of them as just something else to divert your attention from earning a living, this is relevant information, just as manufacturers fixing instructions help you install something, MSDS can support you in many ways.

Ask yourself :-

- What’s the hazard to me or others
- How should I handle it
- How should I store it
- How should I transport it
- If exposed, what should I or others do
- Is it likely to damage the environment
- How do I get rid of it

Whether you employ someone or work for a company, take time out to read Data Sheets and familiarise yourself with potential hazardous substances. I can guarantee you it will start to change the way you think in installing and using such materials. Which can only be to the benefit of everyone.

A Typical Data Sheet

The fact is, a world-wide, common multi-language data sheets are not available at this moment in time, though for Europe and many other countries this is happening. In our example I have chosen a typical chemical substance that most will use “OK it’s an extreme example (plastic adhesive”), but very widely in use, though I have omitted certain details to safeguard the company, in essence this is what you should expect and use.

Updates and review

Given we need to have access to MSDS it is very important that this information is accurate and relevant. It will be of no use to have details on a company’s jointing compound that you no longer use, due to better priced or even subsequent banned substances on potable water supplies (more legislation!). Therefore an ongoing process has to be in place to make certain that your Safety Data Sheets are:-

1. Accurate for the substances you have
2. Reviewed on a regular basis
3. Readily available

“If even the telephone number for the manufacturer is not accurate, your Data Sheets are worthless”.

A Company Representative

8) IS IT WORTH CHECKING WHAT I HAVE AND THE QUANTITY

In brief **YES!**

The following equation applies:-

No Harmful Substances = No need to comply with COSHH Regulations

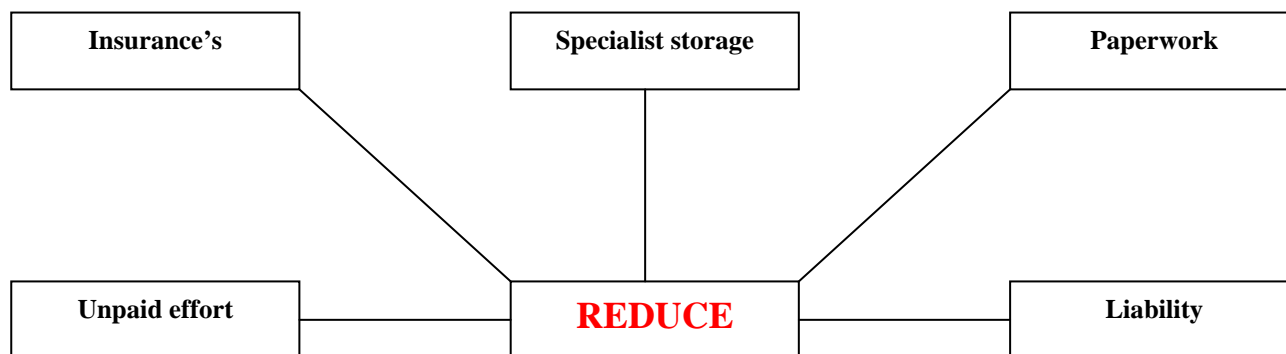
Therefore no need to comply = Reduced Risk Audit

Reduced Risk Audit = Safer working environment for everyone

But in an ideal world this may not be possible and it is safer to quote the following:-

“A journey of a thousand miles begins with a single step”
Confucius.

That single step should now be apparent! Start by **reducing** the amounts of chemicals you buy, use or store and from this simple act, many benefits will follow.



Survey of Items

Given there is a good chance you do not fully know what hazardous substances you or your employees store or use, it becomes obvious to start to undertake a survey of potential items and then eventually fine tune during purchase, any new substances. Start somewhere easy and potentially most at risk: -

On Site

Building sites are known to be very high risk areas with the ability to kill or seriously injure anyone who has access to them legally or illegally!, dangerous chemicals stored here (the one's with the big skull and crossbones on the side) always require careful storage and handling. But ask yourself do I store with the same care **Inhibitors, Gas Canisters, Flux, Solvent Cements, Jointing Compounds etc.**

All have the ability to be just as lethal!, and a quick survey should tell you the following:

- 1) What potentially dangerous chemicals are left unattended
- 2) Are they stored securely on site
- 3) Is a risk Audit needed
- 4) Do they constitute a danger to the public, fellow workers, employee's, employer **in fact anyone!**

Removal will save you time in finding out, but we all know this is not always possible, placing them back in the van (locked) is a better alternative! however **reduction** is the best alternative, that will limit the danger.

Workshops or place of business

These places from experience store and hide chemicals that can be years old!, saved for maybe the future!, decanted into other bottles/tins to preserve them, or just the most convenient place of storage, in fact a potential time bomb of possible dangerous scenarios for you or others!

Is reduction starting to make sense!

Disposal of redundant chemicals

Construction/General hazardous materials

Individually, the waste that is hazardous to us, may seem insignificant, but in the aggregate huge!..., for example, a city of 50,000 people could; contribute an average of five gallons of hazardous material (for each household) to the drainage system each year, over this period 250,000 gallons of waste would be produced!, which would convert to roughly 41.3 tons. Whether cleansers, paints, batteries, or motor oil, even general household hazardous waste should be of grave concern to all citizens.

So, ask yourself, what am I using each year! then multiply this by the number of people in the construction trade and only then do the figures start to become worrying.

Each person has options available to them for reducing their dependency on hazardous materials. However careful disposal has very few options.

DO NOT select this disposal approach

- First and foremost, never burn or dump any hazardous wastes on the ground.
- Do not dispose of any potential hazardous material “down the sink” (it is illegal) unless you are sure it can safely be disposed into the sewer system.
- Avoid burying any containers or leftover chemicals.
- Do not mix hazardous wastes and do not collect containers and chemicals to dispose of them by burning.

DO select this disposal approach

Read the label

Some hazardous materials indicate proper disposal techniques on their labels. Unfortunately, these are in a minority and some of the containers that do indicate disposal techniques fail to go far enough. If disposal directions are not present on the label of a material known to be hazardous, the label will indicate contents, solubility, or corrosive/reactive potential through the warnings or cautions on the container.

These warnings could include the following:

- “Wear gloves” is a sign of corrosive or dermally toxic substances.
- “Do not store near heat or open flame” suggests ignitability.
- “Do not store near....” indicates reactive qualities of material.
- “Use only in well ventilated room” is used for toxic fumes and reactive chemicals.

These and similar clues on the label will present a wise consumer with information necessary for proper disposal of the material.

The following summary of steps for disposal and packaging hazardous chemicals can serve as a quick reference in the future. Detailed instructions for the following steps may vary with area!.

- Contact your local Authority, they will have systems to deal with unwanted chemicals
- Ask waste disposal companies
- Label each container (use a Hazardous Materials tag for mixtures)
- Use sturdy boxes that will not be too heavy when fully packed
- Pack only compatible chemicals together
- Cushion all breakable containers with newspaper or other packing material
- Pack liquids upright and close their caps tightly so they don't leak
- Close boxes so that nothing sticks out, but do not tape shut.
- Clearly mark-up boxes with contents
- Fill-in any required forms for Environmental Agencies

If you are unsure of what constitutes a dangerous /hazardous chemical the following maybe of help! (though not definitive!)

Chemical waste definition: Nonradioactive (radioactive is special!) chemical solids, liquids
or
other waste types contaminated with hazardous chemicals.

Examples of chemical waste:

- Opened surplus chemicals
- Spent solvents
- Used oil of all types

- Pesticides
- Batteries
- Used chemical spill clean-up materials
- Nonradioactive lead shielding and lead scrap
- Photographic film processing solutions
- Empty drums and other containers with a capacity of 5 gallons and greater
- Broken thermometers and other items containing mercury
- Antineoplastic agents and other prescription drugs (noncontrolled substances)
- Non-returnable gas cylinders

Always use common sense when disposal is an issue, chemicals are proving to be a long term problem.

“Remember your life span may be only three score and ten! (If you are lucky) but our descendants and the Earth is hopefully much longer”

9) THE WAY FORWARD

It is at this point I wonder if you switched off after the first page! And skipped straight to the back, to see who the villain was!

Well as in most cases, the villain is the human race! But in this story everyone has a chance to rewrite the ending to:- “AND THEY LIVED HAPPILY EVER AFTER”

In particular it makes sense that people in the Construction Industry, who provide secure warm homes, with a safe and healthy water and sanitation system, could be in a position to champion another revolution that will alter our uncertain future, due to over reliance of chemicals and their indiscriminate dumping!.

We may have reduced the threat of nuclear weapons but this enemy is silent, deadly and prepared to wait a long time. **REDUCTION, FINDING SAFER ALTERNATIVES AND LIMITING USE** is the answer and if one person takes note after reading this, then all the time and effort by people across Europe who have contributed to the “REDUCE” project, will have made it all worthwhile.