

An introduction to chemical protocols

Module 4

Contents

- UK Legislative Framework:
 - COSHH, 2002
 - H&S at Work Act, 1994
 - CLP Regs, 2008
 - CHIP, 2009
 - REACH, 2008
- Material Safety Data Sheets



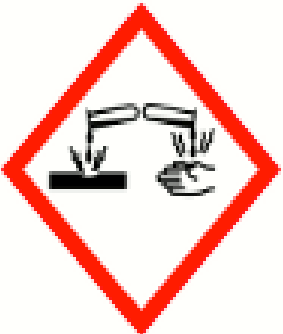
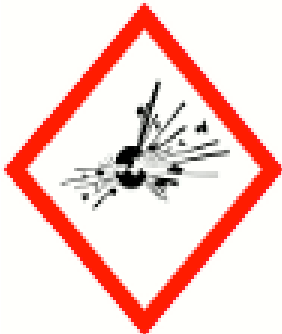
UK legislative framework

- COSHH Regulations 2002:
 - Duty to protect employees who may be exposed to substances hazardous to health.
 - Management of Health & Safety at Work Regulations 1999.
 - Duty to assess the risk of harm from hazardous substances.
 - Health & Safety at Work Act 1974. Sec 2 (b).
 - Duty for ensuring, so far as is reasonably practicable, safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances
- All the above extend to all persons on the premises (i.e visitors, contractors & trespassers).

Control of substances hazardous to health (COSHH) regulations 2022

- Health and safety regulation that requires employers to eliminate, or reduce, workers' exposure to hazardous substances.
- Complemented by the following regulations:
 - Classification, Labelling & Packaging of Substances and Mixtures (CLP) Regulations, 2008 (amended 2014) (EC No 1272/2008 adopting the UN Globally Harmonized System (GHS)).
 - Chemicals, Hazard Information and Packaging for Supply (CHIP) Amendment Regulations 2009 (replaced by CLP);
 - Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) 2008 – establishing a European Chemicals Agency.

GHS pictograms



Control of Substances hazardous to Health (COSHH)

- COSHH aims to protect workers and others from adverse effects of exposure to substances hazardous to health.
- It requires assessment of risk, control of exposure, monitoring and maintenance of controls, health surveillance and the provision of information, instruction and training.
- Main duties under COSHH fall on employers. This means owners, operators and contractors have responsibilities which cover both their own employees and others who may be affected by their activities.

COSHH risk assessments


Assessments should consider:

- Substances used: information on the hazardous properties of a substance and its risk potential is essential.
- Need to primarily check the Material Safety Data Sheets (MSDS), asking the supplier, looking at industry guidance or checking HSE's website.
- Work and working practices: if the substance is harmful, how might workers be exposed e.g. breathing in gases/fumes/dusts, contact with the skin/eyes, swallowing. Bear these in mind when looking at tasks.
- Need to identify how workers are exposed, and to what extent, and what can be done to reduce exposure.

Prevention and control of exposure

- Control measures are always a mixture of equipment and ways of working to reduce exposure.
- The right combination is crucial and no measures, however, practical, can work unless they are used properly.
- The use of personal protective equipment (PPE), including respiratory protective equipment (RPE) is only acceptable as a last resort in addition to other means if these alone cannot provide adequate control.
- Schedule 2A of COSHH sets out 8 principles of good control practice, which can be used as a checklist for assessing your approach to control.
- In addition, HSE has developed a free internet tool for identifying good control practice. It covers a wide range of processes and activities and includes the guidance on good control practice for the offshore oil and gas industry.

HSE website

 Health and Safety Executive

Google Custom Search

Home News **Guidance** About HSE Books Contact HSE

HSE » Guidance » Topics » COSHH » COSHH Essentials » Direct advice sheets

COSHH Essentials
- Direct advice sheets
Agriculture (Farming)
Flour (Bakers and millers)
Metalworking fluids
Microelectronics
Motor Vehicle Repair
Offshore
Printing
Rubber
Service & Retail
+ Silica
Welding
Woodworking
COSHH e-tool
Frequently asked questions

Direct advice sheets

Industries

First check the direct advice sheets listed by industry to see if there are any direct advice sheets for tasks or processes in your industry. If your industry is not listed don't worry, you can use our COSHH [e-tool](#).

- [Agriculture \(Farming\)](#)
- [Flour \(Bakers and millers\)](#)
- [Metalworking fluids](#)
- [Microelectronics](#)
- [Motor Vehicle Repair](#)
- [Offshore](#)
- [Printing](#)
- [Rubber](#)
- [Service and Retail](#)
- [Welding](#)
- [Woodworking](#)
- [Silica](#)
- [Brick and tile](#)
- [Ceramics](#)
- [Construction](#)
- [Foundry](#)
- [Manufacturing](#)
- [Quarries](#)
- [Stoneworkers](#)
- [Slate works](#)

Resources



Working with substances hazardous to health: A brief guide to COSHH



COSHH Essentials e-tool



Case studies
Examples of real life situations with COSHH



Example risk assessments
Use these to get ideas for completing assessments



Publications
Free leaflets and priced publications

Who should do COSHH assessment?

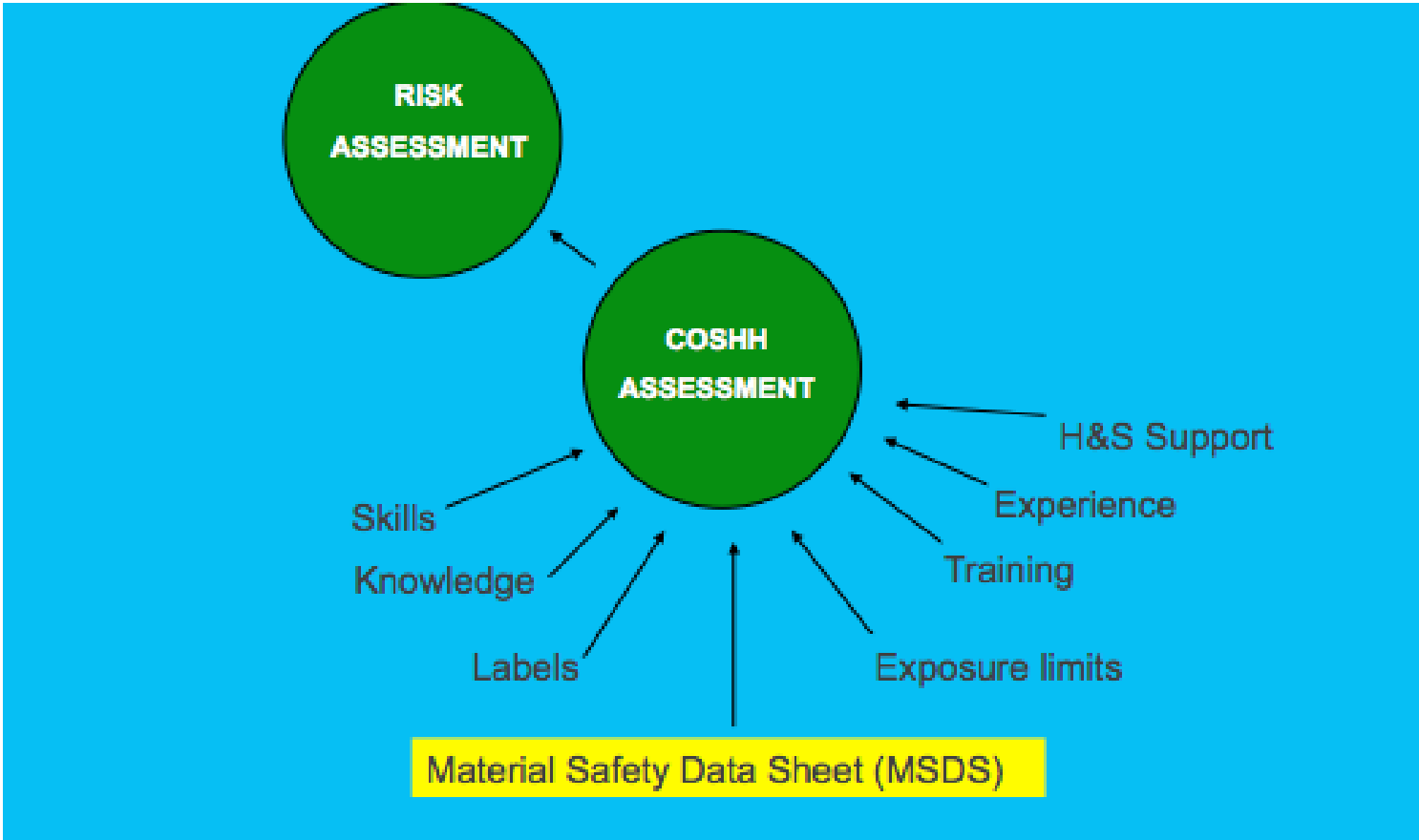
- Typically, the responsibility of the H&S manager.
- Should be person competent with necessary knowledge, skills and experience.
- But senior management also share responsibility in the event of things going wrong.

Who should do COSHH assessments?

They must:

- Understand hazard and risk
- Know how the work can expose people to substances hazardous to health
- Be able to make the right decisions about how to control exposure
- Have access to the necessary resources

COSHH assessment



Material Safety Data Sheet (MSDS)

MATERIAL SAFETY DATA SHEET			
PRESCRIPTION TREATMENT® Lord of the Fruit Flies Fly Trap			
EMERGENCY PHONE NUMBERS:			
MEDICAL: 800-225-3320 (PROSAR)		TRANSPORTATION: 800-424-9300 (CHEMTREC)	
SECTION 1. PRODUCT AND COMPANY IDENTIFICATION		SECTION 5. FIRE FIGHTING MEASURES	
Product Name: PRESCRIPTION TREATMENT Fruit Fly Trap		FIRE AND EXPLOSION	
EPA Reg. No.: Not Regulated		Flash Point (TC): NE	
Product Code(s): 02-0960 (4 x 12 stations)		Explosibility Limits in Air (% by volume):	
Distributed by: Whitmire Micro-Gen Research Laboratories, Inc. 3568 Tree Court Industrial Blvd. St. Louis, MO 63122-6682		Lower (LEL) = NE Upper (UEL) = NE	
SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS		UNUSUAL FIRE, EXPLOSION AND REACTIVITY HAZARDS: None known.	
COMPOSITION INFORMATION			
INGREDIENTS*	%	CAS NO.	
Acetic Acid	proprietary	64-19-7	
* All ingredients may not be listed. Ingredients not listed do not meet the reporting requirements of the OSHA Hazard Communication Standard (HCS) as specified in 29 CFR 1910.1200.			
EXPOSURE INFORMATION			
Material	OSHA PEL	ACGIH TLV	
	STEL TWA	STEL TWA	
Acetic Acid	NE NE	15 ppm 10 ppm	
SECTION 3. HAZARDS IDENTIFICATION			
ROUTES OF ENTRY			
Primary: Skin	Secondary: Ingestion	Tertiary: Inhalation	
HAZARDOUS DECOMPOSITION PRODUCTS: None known.			
UNUSUAL FIRE, EXPLOSION AND REACTIVITY HAZARDS: None known.			
SECTION 4. FIRST AID MEASURES			
Have the product container or label with you when calling a poison control center or doctor or going for treatment. Describe any symptoms and follow the advice given.			
Ingestion: Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. Call a poison control center or doctor if symptoms persist.			
Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water. Call a poison control center or doctor if irritation persists.			
Eye Contact: Hold eyes open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor if irritation persists.			
Inhalation: Move person to fresh air. Call a poison control center or doctor if symptoms persist. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.			
Medical Conditions Generally Aggravated by Exposure: None known.			
Emergency Telephone Number of Prosar: 800-225-3320 (for medical emergencies.)			

Page 1 of 2

- The most important a document is the Material Safety Data Sheet (MSDS).
- The MSDS provides health and safety information about products, substances or chemicals that are classified as hazardous substances or dangerous goods.
- Contains far more information and detail than found on product label.

Whose responsibility is an MSDS?

- Employers must make sure that all controlled products have an up-to-date (less than three years old) MSDS when it enters the workplace.
- The MSDSs must be readily available to workers exposed to the controlled product and to the health and safety committee or representative.
- Employers may computerize the MSDS information if all employees have access to and are trained on how to use the computer.
- If new, significant information becomes available before three years has elapsed, the supplier is required to update the product label and MSDS.

What is on an MSDS?

- Identification
- Hazard(s) identification
- Composition/information on ingredients
- First-aid measures
- Fire-fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information

Simple classification of hazardous substances

- A method to simply grade the severity of hazardous substances.
- Focusing on the visual indication on the COSHH assessment (traffic light).
- Identifies substances that:
 - Are non-hazardous and exposure is not considered a risk.
 - Are hazardous and require little more control than standard laboratory PPE and/or fume extraction to manage the risk to health and the environment.
 - Are very hazardous and stringent control measures are required to manage the risk to health and the environment.

Simple classification of hazardous substances

- There may be certain employees who cannot work with or be exposed to these substances.
- There may be storage and security protocols to adopt to ensure these substances are not unlawfully used.

Simple classification of hazardous substances

- Ties in nicely with the new classification and labelling (CLP, 2008) of hazardous substances.
- CLP uses “Signal Words” that can be a direct translation into severity:
 - No signal word = Non-hazardous
 - Warning = Hazardous
 - Danger = Very hazardous
- CLP became mandatory in January 2015.
- It is possible to classify these substances based on R-Phrases (Risk Phrases).

COSHH assessment categorisation

Examples – hazardous

R-phrase	Statement
R20	Harmful by inhalation
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R21	Harmful in contact with skin
R21/22	Harmful in contact with skin and if swallowed
R22	Harmful if swallowed
R36	Irritating to eyes
R36/37	Irritating to eyes and respiratory system
R36/37/38	Irritating to eyes, respiratory system and skin
R37	Irritating to respiratory system
R37/38	Irritating to respiratory system and skin
R38	Irritating to skin
R65	Harmful: may cause lung damage if swallowed
R66	Repeated exposure may cause skin dryness or cracking
R67	Vapours may cause drowsiness and dizziness

COSHH assessment categorisation

Examples – very hazardous

R-phrase	Statement
R34	Causes burns
R35	Causes severe burns
R39	Danger of very serious irreversible effects
R39/23	Toxic: danger of very serious irreversible effects through inhalation
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
R39/24	Toxic: danger of very serious irreversible effects in contact with skin
R39/24/25	Toxic: danger of very serious irreversible effects in contact with skin and if swallowed
R39/25	Toxic: danger of very serious irreversible effects if swallowed
R39/26	Very Toxic: danger of very serious irreversible effects through inhalation
R39/26/27	Very Toxic: danger of very serious irreversible effects through inhalation and in contact with skin
R39/26/27/28	Very Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed

Example of COSSH assessment

Site: Hawarden	Assessor: Ben Tranmer	Assessment No: CA012
1) Chemical / Substance	Name: Sodium Thiosulphate	
Site: Rotherham	Assessor: Ben Tranmer	Assessment No: CA145
1) Chemical / Substance	Name: Zinc Acetate	
Site: Conwy	Assessor: Ben Tranmer	Assessment No: CA185
1) Chemical / Substance	Name: Hexane	

COSHH assessment form

- Found on the intranet: Central / Health & Safety / Health & Safety Forms / COSHH Substance Assessment Form (Form 21)
- This form is for individual substances.
- COSHH assessments for mixtures are being replaced as they are often very lengthy documents and hard to interpret.
- Form can be filled in electronically and stored on the intranet for reference.
- The H&S Manager is ultimately responsible.

How to complete the COSHH assessment form

- Identify the substance
- Determine if this is the least hazardous option
- Determine where it is used (methods or activities)
- Obtain rough quantities and frequencies
- Obtain information (MSDS and other sources, if relevant)

How to complete the COSHH assessment form

- Understand where and how it is stored and disposed
- Open a new COSHH assessment form (intranet)
- Grade the hazard (red, yellow, green)
- Populate with simplified and relevant information
- H&S Manager responsible for assessment and submission of findings

Thank you



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