Hudson
AIR & WATER HYGIENE SERVICES

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SUBSTANCES HAZARDOUS TO HEALTH

INTRODUCTION

The Control of Substances Hazardous to Health (COSHH) Regulations relate to all substances within the workplace which employees or the public may use or come into contact with. At the very simplest level it is necessary to assess all such substances to establish whether there is a potential for them to be hazardous to health. Once this has been established a risk assessment must be made based upon toxicological data for the substance, how it is used, the quantities involved, how it is stored and the extent of any training/instruction given.

LEGISLATION & RELATED DOCUMENTS

Health & Safety at Work Act 1974
Management of Health & Safety at Work Regulations 1992
Control of Substances Hazardous to Health Regulations 1994 (and ACOP)
Control of Carcinogenic Substances (and ACOP)
Control of Biological Agents (and ACOP)
EH40/96

FUNCTION

To ensure that all personnel who use, or come into contact with, substances hazardous to health do not incur injury through usage.

FIELD OF REFERENCE

All personnel that use substances hazardous to health.

REQUIREMENTS

The use of substances hazardous to health has the potential for causing ill health or serious injury. These substances may present a hazard through various types of exposure such as:

- inhalation
- ingestion
- skin contact
- eye contact

The effects of such exposure may vary considerably for any given substance. Similarly the means of controlling exposure will vary depending upon the nature of the substance.

Hudson Technical Services Ltd is to assess and review health and safety risks to persons exposed to substances hazardous to health and reduce the risks identified. The risk assessment should be:

- systematic in its approach
- appropriate to the foreseeable degree of risk
- comprehensive, covering the hazards of the substances, its route of entry into the body, its effect, the activity in which it is used, the quantities of substance used, any control measures which are in place and the storage/disposal arrangements for the substance.

The assessment is to be recorded and kept in this section of the manual.

INFORMATION FOR THE EMPLOYEE/CONTRACTOR

Hudson Technical Services Ltd is to supply the following information to its employees/contractors who use or produce substances hazardous to health.

- The risks associated with the substance.
- The control measures which are to be employed while using the substance (i.e. PPE/LEV etc).
- First aid procedures for accidental exposure to the substance
- Emergency spillage/leakage procedures.

TRAINING

Hudson Technical Services Ltd is to train employees/contractors in the safe handling and use of substances hazardous to health. This will include:

- Undertaking their own duties with respect to COSHH.
- Correct use of PPE where applicable.
- Correct use of LEV system.
- Emergency procedures.
- Understanding the hazards of the substances with which they work.

CONTROLLING EXPOSURE

Hudson Technical Services Ltd must ensure that employees are not exposed to substances hazardous to health, where this is not possible exposure must be adequately controlled. Measures not requiring the use of protective equipment should be used except in cases of carcinogens and biological agents.

Measures for controlling the exposure:

- Elimination of the use of the substance.
- Substitution by a less hazardous substance.
- Totally enclosing process and handling systems.
- Plant or processes which suppress dust, fumes etc.
- Use of local ventilation.
- Reduction of number of employees exposed.
- Reduction in exposure of employees.
- Regular cleaning of contaminated areas.
- Provision of safe storage and disposal of hazardous substances.
- Suitable PPE.
- Prohibition of eating, drinking, smoking in contaminated areas.
- Provision of adequate washing facilities.
- Provision of adequate changing facilities.
- Arrangements for laundering contaminated clothing.

Where control measures do not adequately control exposure then personal protective equipment (PPE) is to be supplied.

ENGINEERING CONTROLS

Engineering controls should be subject to regular examination and tests and records kept.

Local exhaust ventilation should be tested every 14 months.

LEGIONELLA

COSHH regulations extend to the prevention and control of risk from hazardous micro-organisms including legionella. Hudson Technical Services Ltd as an employer must so far as reasonably practicable:

- identify/assess sources of risk
- prepare schemes for preventing/controlling risk
- implement precautions
- keep records of precautions

with regards to the following:

- water systems incorporating a cooling tower
- water systems incorporating an evaporative condenser
- hot water services (except where the volume does not exceed 300 litres)
- hot/cold water services
- humidifiers/air washers
- spa pools

Suitable precautions include:

- water services should be regularly and well maintained
- avoiding water temperatures between 20°C and 45°C
- avoid water stagnation
- use of water treatment systems and chemicals
- ensure whole system operates safely

GLOSSARY

SYMBOL	LETTER	EXPLANATION	MEANING
	T+	**VERY TOXIC**	A substance which if it is inhaled or ingested or if it penetrates the skin, may involve extremely serious acute or chronic health risks and even death
	T	**TOXIC**	A substance which if it is inhaled or ingested or if it penetrates the skin, may involve serious acute or chronic health risks even death
	Xn	**HARMFUL**	A substance which if it is inhaled or ingested or it penetrates the skin, may involve limited health risks.
	C	**CORROSIVE**	A substance which may on contact with living tissue destroy them.
	Xi	**IRRITANT**	A non-corrosive substance which, through immediate, prolonged, or repeated contact with the skin or mucous membrane can cause inflammation.

Other words and their meanings which may be seen on packaging:

EXPLANATION	MEANING
CARCINOGENIC	A substance which is thought to cause cancer in a human, it may be labeled 'R45 may cause cancer' or 'R49 may cause cancer by inhalation.
MUTAGENIC	A substance which can cause changes in reproduction systems and affect future generations.
TERATOGENIC	A substance which causes birth defects by altering genetic material in cells in reproductive organs and cause abnormalities in the embryo.

CLASSIFICATION OF RISK PHRASES ON THE BASIS OF PHYSICO-CHEMICAL PROPERTIES

These phrases may be found on information supplied with hazardous substances:

Chemical Property	Symbol	Meaning
Explosion	**R2**	Risk of explosion by shock, friction, fire and other source of ignition.
	R3	Extreme risk of explosion by shock, friction, fire and other sources of ignition.
Oxidising	**R11**	Highly flammable.
	R8	Contact with combustible material may cause fire.
	R9	Explosive when mixed with combustible material.
Extremely flammable	**R12**	Extremely flammable.
Highly flammable	**R17**	Spontaneously flammable in air.
	R11	Highly flammable.
	R12	Extremely flammable.
	R13	Extremely flammable liquified gas.
	R15	Contact with water liberates highly flammable gases.
Other physico-chemical properties	**R1**	Explosive when dry.
	R4	Forms very sensitive explosive metallic compounds.
	R5	Heating may cause an explosion.
	R6	Explosive when mixed with water.
	R7	May cause fire.
	R14	Reacts violently with water.

Chemical Property	Symbol	Meaning
Other physico-chemical properties	**R16**	Explosive when mixed with oxidising substances.
	R18	In use, may form flammable/explosive vapour - air mixture.
	R19	May form explosive peroxides.
	R30	Can become highly flammable in use.
	R44	Risk of explosion if heated under confinement.

CLASSIFICATION ON THE BASIS OF HEALTH EFFECTS

Chemical Property	Symbol	Meaning
Very Toxic Acute lethal effects	**R28**	Very toxic if swallowed.
	R27	Very toxic in contact with skin.
	R26	Very toxic by inhalation.
Non lethal effects after a single exposure	**R39**	Danger of very serious irreversible effects.
Toxic Acute lethal effects	**R25**	Toxic if swallowed.
	R24	Toxic in contact with skin.
	R23	Toxic by inhalation.
Non lethal effects after a single exposure	**R39**	Danger of very serious irreversible effects.
Severe effects after repeate or prolonged exposure	**R48**	Danger of serious damage to health by prolonged exposure.
Harmful Acute lethal effects	**R22**	Harmful if swallowed.
	R21	Harmful in contact with skin.
	R20	Harmful by inhalation.
Non lethal effects after a single exposure	**R40**	Possible risk of irreversible effects.
Severe effects after repeated or prolonged exposure	**R48**	Danger or serious damage to health prolonged exposure.

Chemical Property	Symbol	Meaning
Corrosive	**R35**	Causes severe burns.
	R34	Causes burns.
Irritant	**R38**	Irritating to skin.
	R36	Irritating to eyes.
	R41	Risk of serious damage to eyes.
	R42	May cause sensitisation by inhalation.
	R43	May cause sensitisation by skin contact.
	R37	Irritating to respiratory system.
Carcinogenic Substances	**R45**	May cause cancer.
	R49	May cause cancer by inhalation.
	R40	Possible risk of irreversible effects.
Mutagenic Substances	**R46**	May cause heritable genetic damage.
	R40	Possible risk of irreversible effects.
Teratogenic Substances	**R47**	May cause birth defects.
Other health effects	**R29**	Contact with water liberates toxic gas.
	R31	Contact with acids liberates toxic gas.
	R32	Contact with acids liberates very toxic gas
	R33	Danger of cumulative effects.
Aquatic environment	**R50**	Very toxic to aquatic organisms.
	R53	May cause long-term adverse effects in the aquatic environment.
	R51	Toxic to aquatic organisms.
	R52	Harmful to aquatic organisms.

Chemical Property	Symbol	Meaning
Non-aquatic environment	**R54**	Toxic to flora
	R55	Toxic to fauna.
	R56	Toxic to soil organisms
	R57	Toxic to bees.
	R58	May cause long term adverse effects in the environment.
	R59	Dangerous for the ozone layer.

LIST OF SAFETY PHRASES AND THEIR MEANINGS

SYMBOL	EXPLANATION
S1	Keep locked up.
S2	Keep out of reach of children.
S3	Keep in a cool place.
S4	Keep away from living quarters.
S5	Keep contents under.....
S6	Keep under .....
S7	Keep container tightly closed.
S8	Keep container dry.
S9	Keep container in a well ventilated place.
S12	Do not keep the container sealed.
S13	Keep away from food, drink and animal feeding stuffs.
S14	Keep away from (as indicated by manufacturer).
S15	Keep away from heat.
S16	Keep away from sources of ignition - No Smoking.
S17	Keep away from combustible material.
S18	Handle and open container with care.
S20	When using do not eat or drink.
S21	When using do not smoke.
S22	Do not breathe dusts.
S23	Do not breathe gas/fumes/vapour/spray.
S24	Avoid contact with skin.
S25	Avoid contact with eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27	Take off immediately all contaminated clothing.
S28	After contact with skin wash immediately with plenty of .....
S29	Do not empty into drains.
S30	Never add water to this product.
S33	Take precautionary measures against static discharge.
S34	Avoid shock and friction.
S35	This material and it container must be disposed of in a safe way.
S36	Wear suitable protective clothing.
S37	Wear suitable gloves.
S38	In case of insufficient ventilation wear suitable respiratory equipment.
S39	Wear eye/face protection.
S40	To clean the floor and all objects contaminated by this material use (specified by the manufacturers)

SYMBOL	EXPLANATION
S41	In case of fire and/or explosion do not breathe fumes.
S42	During fumigation/spraying wear suitable respiratory equipment.
S43	In case of fire use .....
S44	If you feel unwell seek medical advice (show the label where possible.)
S45	In case of accident or if you feel unwell seek medical advice immediately (show label where possible)
S46	If swallowed seek medical advice immediately and show this container or label.
S47	Keep at a temperature not exceeding ° C
S48	Keep wetted with.
S49	Keep only in the original container.
S50	Do not mix with .....
S51	Use only in well ventilated areas.
S52	Not recommended for interior use on large surface areas.
S53	Avoid exposure - obtain special instructions before use.

SAFETY PHRASES FOR SUBSTANCES DANGEROUS FOR THE ENVIRONMENT

SYMBOL	EXPLANATION
S35	This material and its container must be disposed of in a safe way.
S56	Dispose of this material and its container to hazardous or special waste collection point.
S57	Use appropriate containment to avoid environmental contamination.
S59	Refer to manufacturer/supplier for information on recovery/recycling.
S60	This material and/or its container must be disposed of as hazardous waste.
S61	Avoid release to the environment. Refer to special instructions/safety data sheet.

COSHH RISK ASSESSMENT FORM

ASSESSMENT REFERENCE NO:	
LOCATION/BUILDING/ROOM:	PROCESS
What is the process?	
Where is it carried out?	
How long does it take?	
Explain each stage of the process?	
How many people are involved? a. Directly b. Indirectly	
What equipment is used?	

SUBSTANCE:				
MANUFACTURER:				
Stores Reference Number/ Code:				
Quantity:				
Classification:				
Risk/Safety Phrase:				
MEL*	YES		NO	
OES*	YES		NO	
CARCINOGEN	YES		NO	
SKIN	YES		NO	
SENSITISER	YES		NO	

Which routes of entry apply:				
Inhalation	YES		NO	
Skin	YES		NO	
Eye	YES		NO	
Ingestion	YES		NO	
Other				
Are any other hazardous substances produced during the process:				

CONTROLS

	Required Controls	Actual Controls	Deficiency
Ventilation			
Respiratory Protection			
Personal Protection			
Other Control Measures			

RISK		
1.	Do you have all the information needed to complete the assessment? If no obtain information	YES [ ] NO [ ]
2.	Are the potential risks to health inherent in the process significant?	YES [ ] NO [ ]
3.	Could the risks to health become significant: If YES then review assessments.	YES [ ] NO [ ]
4.	Are the control measures adequate: If NO review control measures.	YES [ ] NO [ ]

CONCLUSION			
Assessors Signature:	Name: (block capitals)	Grade:	Date:

LINE MANAGERS/SUPERVISORS ACTIONS

Can the process or any hazardous substance be eliminated:	If YES state which:
Can any substance be substituted by a less hazardous substance:	If YES state which:

I have noted the above assessment and will take any appropriate action.

Line Manager Signature:	Name: (block capitals)	Grade:	Date:
Review Date:			

EXPLANATION FOR ABBREVIATIONS USED

MEL - Maximum Exposure Limit

The maximum concentration of a substance average over a reference period to which employees may be exposed. These can be found in EH/40 Schedule 2.

OES - Occupation Exposure Standard

The concentration of a substance, daily exposure to which over a given period, is not, according to present knowledge, likely to have injurious results on employees.

Information to complete the COSHH Risk Assessment may be obtained from a safety data sheet. Suppliers of dangerous substances/preparations must provide recipients with dated safety data sheets, updated as and when necessary which should contain the following information:

1. identification of substance
2. manufacturing company
3. composition/information on ingredients
4. hazards identification
5. first aid measures
6. fire-fighting measures
7. accidental release measures
8. handling and storage
9 exposure controls
10. personal protection
11. physical/chemical properties
12. stability and reactivity
13. toxicological data
14. ecological data
15. disposal considerations
16. transport information
17. regulatory information
18. other matters