



## **LEAFLET 5**

# **MANAGEMENT OF HAZARDOUS SUBSTANCES**

**AMENDMENT RECORD**

Amendment No.	Date	Text Affected	Authority and Date
01	04/02/10	Inserted new paragraph 6.4 to include requirements of The Control of Lead at Work Regulations.	04/02/10 SSDC-Safety3
02	09/02/10	Annex A & B, Tables 2, 3 & 4 corrected and reformatted	09/02/10 SSDC-Safety3
03	10/03/10	R phrases added to Table 1 in MOD Form 5011	10/03/10 SSDC-Safety3
04	10/03/10	Drop down menus in MOD Form 5011 Part 2 (Quantity) improved	10/03/10 SSDC-Safety3

**REVISION NOTE**

Leaflet 5 has been extensively revised and now contains only information pertaining to the assessment and management of risks from exposure to hazardous substances.

Asbestos is no longer covered in the scope of this leaflet but has been incorporated into leaflet 54 (the Management of Asbestos).

**HISTORICAL RECORD**

The leaflet was introduced in 1995  
Reviewed in 1998, 2003.

Leaflet 5, Management of Hazardous Substances (COSHH) has been extensively revised placing greater emphasis on health risk assessment using existing and improved information sources and replacing the tick box assessment with a 3x3 risk matrix.

## LEAFLET 5

# MANAGEMENT OF HAZARDOUS SUBSTANCES

### Contents

#### Foreword

1. Scope
2. Introduction
3. Roles and Responsibilities
4. Assessing the Risk
5. COSHH Essentials
6. Control Measures
7. Review
8. Related Documents

#### Annexes

- A COSHH Assessment Record (MOD Form 5011)
- B Completing the COSHH Assessment Form 5011
- C COSHH Master Register (MOD Form 5011a)
- D COSHH Assessment Process Flowchart
- E Identifying Control Approaches
- F Principles of Good Control Practice
- G Competence
- H Safety Data Sheet Terminology

### FOREWORD

This leaflet is published under the authority of the Defence Occupational Health and Safety Board (OHSB). This leaflet is for application across all areas of MOD and the Armed Forces and reflects recent changes in legislation and or MOD practices.

#### 1. SCOPE

1.1 This leaflet provides guidance for all MOD staff, both Service and civilian, who have day to day responsibility for specification and management of the procurement, transport, supply, use, storage and disposal of hazardous substances (including natural or artificial substances and mixtures) on MOD Establishments, vessels, aircraft and land vehicles. It informs acquisition teams as well as downstream users how the risk assessment process works and the responsibilities for implementing the resulting actions to reduce the risk to a level which is as low as is reasonably practicable at the point of use.

1.2 When used within this Leaflet, the term “Line Manager” refers to the person (Service or civilian) with direct responsibility for the safe conduct of the work activity; for military activities this will usually lie within the chain of command.

## 2. INTRODUCTION

2.1 The objective of the Control of Substances Hazardous to Health Regulations (COSHH) is to prevent, or where this is not reasonably practical, adequately control, exposures to substances hazardous to health so as to prevent ill health. Failure to assess the health risks or to prevent exposures where reasonably practicable to do so is a breach of the regulations. A template for a COSHH assessment and for a COSHH master register are provided, these are optional and should be regarded as the minimum standard.

2.2 It is the activity involving the hazardous substance where personnel may be exposed that dictates the need for a COSHH assessment not just the presence of the substance, this is typically in:

- Transport
- Use
- Maintenance
- Storage
- Final disposal.

2.3 Hazardous substance should also be risk assessed:

- In the design and development process to design out or minimise their use.
- When substances (e.g. dust or vapours) result from a process or activity or which arise as a result of an accident or emergency;
- When substances arise as wastes or residues from processes or activities, including scrap material;
- When substances arise as a result of interaction with another process or activity in the vicinity.

2.4 In simple terms, Hazardous substances can be defined as falling into at least one of the following groups:

- Substances classified by legislation as very toxic, toxic, harmful, irritant or corrosive.
- Substance that have been assigned a Workplace Exposure Limit (WEL).
- Clinical waste (including animal tissue, animal waste, body parts etc.)
- Any biological agent if it is work related e.g. fungi, bacteria (including legionella), moulds, parasites etc.
- Dust of any kind (except those covered in bullets 1 & 2) if it is present in airborne concentrations;
  - equal to or greater than 10 mg/m<sup>3</sup> 8 hour time weighted average, of inhalable dust; or
  - 4 mg/m<sup>3</sup> 8 hour time weighted average of respirable dust.

- Any substance that is not classified in the above bullet points but because of its chemical or toxicological properties and the way it is used or is present in the workplace could create a risk to health.

2.5 The Health and Safety Executives' COSHH Essentials on-line tool can be used in conjunction with this leaflet to aid the process of risk assessment.

2.6 REACH is a European Union regulation concerning the Registration, Evaluation, Authorisation and restriction of CHEMicals. It operates alongside COSHH and is designed so that better information on the hazards of chemicals and how to use them safely will be passed down the supply chain by chemical manufacturers and importers through improved safety data sheets.

### **3. ROLE & RESPONSIBILITIES**

#### **3.1 Procurement or Acquisition**

3.1.1 Early identification within the supply chain of the potential use or generation of hazardous substances will have a significant impact on the hazard analysis, relevant safety cases and overall project risk management. It is at this stage that decisions are made about whether a substance can be eliminated or an alternative, less hazardous substance can be specified whilst maintaining capability. It is also from this point that an adequate flow of information shall be maintained to enable end users to produce their local COSHH assessments.

3.1.2 As 'suppliers' or 'importers' defence acquisition teams have the responsibility to ensure that equipment procured is safe to use and an evaluation of risk at project level is required i.e. is there a hazardous substance present; why we need it; whether there is a safer alternative and why we can't use that. Hazard analysis carried out at project level has the benefit of being able to consider prevention or control measures at an early stage allowing design alterations or the management of exposure to be designed into process/user instructions. This may have the added benefit of improving the user interface and user acceptance of equipment.

3.1.3 Defence acquisition teams and persons responsible for the local procurement of hazardous substances must ensure that any hazard analysis, hazard data information, Material Safety Data Sheets (MSDS) and information on proposed control measures are provided to the users for inclusion in their COSHH assessments. The COSHH assessment shall take into account any variation due to local conditions, changes in use and staff issues.

3.1.4 Suppliers to MoD may have carried out COSHH risk assessments as part of development studies and for their own use during commissioning, trials, maintenance, repair and overhaul. These assessments should be provided to users as assistance to subsequent COSHH risk assessments.

## 3.2 Assessors

3.2.1 Wherever there is a potential for exposure, the risk must be assessed and evaluated by a competent assessor who must have adequate knowledge, training and expertise in the assessment, evaluation and control of risks arising from exposure to substances hazardous to health together with knowledge of the process/equipment, how and in what environment the hazardous substance or material is to be used/produced. The assessor must bring to the attention of the line management the findings of the assessment and, if appropriate, explain the risks and the required control measures to manage those risks. The competences required of assessors are described in Annex G.

## 3.3 Line Managers of End Users

3.3.1 Line managers of end users of hazardous substances are to ensure that the users have access to all of the relevant information about the materials, exposure routes, the potential health effects and the types of control to be implemented (if not already incorporated into process/user instructions). Where the information is inadequate to allow a suitable and sufficient assessment to be carried out at the point of use, the users' line manager in conjunction with the supplier (e.g. acquisition team) must obtain the required information to ensure the risks are assessed and the control measures to be applied agreed. This information must be recorded both at the point of use and copied into the safety case documentation. Where actions or controls are identified to reduce exposure there is a statutory requirement to implement those controls.

3.3.2 The line manager shall ensure that monitoring of exposure to hazardous substances within an activity or process shall be undertaken where an assessment concludes that:

- there could be serious risks to health if control measures failed or deteriorated;
- exposure limits might be exceeded
- control measures might not be working properly; or
- when employees are exposed to certain substances and processes specified in Schedule 5 to the COSHH Regulations

3.3.3 The line manager shall ensure that those undertaking and interpreting exposure monitoring are competent to do so; where there is any doubt advice should be sought from the Service Medical Officer or a competent occupational hygienist.

3.3.4 There may also be a requirement for persons exposed to certain substances to undergo health surveillance, See JSP 375 Leaflet 2 – Health Surveillance and Health Monitoring.

3.3.5 All control measures identified by the COSHH assessment including any additional arrangements to the emergency procedures shall be implemented, monitored and reviewed by the line manager.

### 3.4 Staff

3.4.1 Staff shall ensure that they comply with all instructions provided for the safe use, handling or storage of substances as defined in the COSHH assessment or as otherwise communicated by line management including the correct use of control measures. Staff shall undertake such training as is required to understand the information and instruction provided on the potential health risks and the exposure controls to be implemented for the safe use, handling and storage of substances and processes used therein.

## 4. ASSESSING THE RISK

4.1 Procurers and importers of hazardous substances must understand the requirement for manufacturers and suppliers to provide information to enable the assessment process to be completed. This information is usually included in the MSDS.

4.2 The MSDS for most substances procured by the MOD and classified as 'hazardous' are available from JSP 515 The MOD Hazardous Stores Information System (HSIS) which is fully e enabled via the [www.transportsafety.dii.r.mil.uk](http://www.transportsafety.dii.r.mil.uk) website. Any changes or updates to the substances used should be passed to the Defence Movements and Transport Policy Division so that the HSIS database can be updated.

4.3 The MSDS is the principle source of information for most substances and forms the basis of the assessment process and therefore assessments can not be easily completed if this information is not available. Manufacturers and suppliers within the European Union (EU) have a legal requirement to provide that information.

4.4 Where substances are purchased from outside the EU or the hazard is a by-product of a process (e.g. fume from welding or wood dust from machining), this information may not be a readily accessible (HSE advice sheets cover some processes but not all). In these cases assistance/advice shall be sought from a competent person (e.g. an occupational hygienist) on the properties of the substance or process. It is not acceptable to allow substances or processes into use without proper assessment of the health risks.

4.5 COSHH risk assessments must be conducted by 'competent' persons who have working knowledge of the processes and activities to be assessed. These persons are be placed throughout the organisation and shall be involved at all stages in the process or activity.

4.6 The assessment should consider activities and processes and should NOT just be substance specific. Whilst substance specific assessment may appear an easier way of doing the assessment it does not enable consideration of the interfaces and additive effects where more than one substance is used in a task. Therefore the assessment shall:

- Fully identify the activity or process,

- identify all substances or products being used or produced,
- Consider who and how many are likely to be exposed, how and for how long.
- Consider exposure resulting from accidents, incidents and emergencies.

4.7 The management of COSHH risks should be controlled using the following in order of priority:

- Elimination of the hazard
- Substitution of the hazard (alternative substances or procedures)
- Hazard control (e.g. physical protective measures, engineering control),
- Provision of safety procedures or safe systems of work,
- Provision of personal and/or respiratory protective equipment.

4.8 The assessment must consider all routes by which exposures to hazardous substances may occur (inhalation, skin contact, ingestion, eye contact etc) and under all circumstances, hence assessors must have working knowledge of these processes and activities in order to complete the required 'suitable and sufficient' assessment. It should also consider if any end users might be more vulnerable i.e. pregnant workers, young persons.

4.9 There are a number of inter-related factors that can affect the risk from exposure;

- The type of damage or harm that the substance can cause and the amount needed to cause it
- How much of the substance is likely to be: ingested, get airborne and breathed in, or come into contact with the skin or eyes
- The duration of exposure and environmental conditions
- The amount being used and its physical properties i.e. its dustiness or volatility
- Interaction with other substances (synergistic effects, simultaneous or sequential exposure)

4.10 The completed assessment must be recorded (Annex A) and passed to the Line Manager or Project Leader for implementation of the control measures and inclusion on the establishment/unit COSHH master register (Annex C).

4.11 Where specialist advice is required, or training identified, specialist groups (e.g. establishment safety advisers, TLB safety focal points, area safety groups, relevant CESO organisations) should be contacted who have access to MOD Occupational Hygiene support and Environmental Health Professionals.

## **5. COSHH ESSENTIALS**

5.1 COSHH essentials is a simple to use on line system that is menu led using the information provided in the MSDS to produce generic advice. It can be used as a simple initial assessment to identify and record significant findings. However as it is a legal requirement that the risk assessment must be 'suitable and sufficient', MOD policy is that the generic information provided must only be used as guidance to assist in completing the full risk assessment.

5.2 Information on the COSHH Essentials process is available on the HSE website at [www.hse.gov.uk](http://www.hse.gov.uk). Access to the HSE Web tool is available on [www.coshh-essentials.org.uk/](http://www.coshh-essentials.org.uk/)

NOTE: USERS OF THE ON LINE SYSTEM SHOULD NOTE THAT COSHH ESSENTIALS ASSESSMENTS ARE ONLY HELD ON THE DATABASE FOR 30 DAYS FROM COMPLETION. ASSESSMENTS MAY BE DOWNLOADED AND STORED ELECTRONICALLY.

5.3 COSHH Essentials follows a step by step process resulting in a recommended control approach. Supporting this are Control Guidance Sheets that the HSE have produced. Whilst it is not expected that these approaches will apply in all cases, the principles shall be used with suitable adjustments to enable appropriate controls to be implemented. The assessment summary and Control Guidance Sheets should provide the user with enough information to identify if specialist help is required to complete a full COSHH risk assessment.

5.4 If COSHH Essentials has been used the output should be saved and if necessary kept with the MoD Form 5011.

## 6. CONTROL MEASURES

6.1 The 'principles of good control practice' are shown in Annex F and should be used at all stages of the risk assessment process as a checklist to help plan through life controls and to help reduce the risks from exposure to hazardous substances in the MOD.

NOTE: KNOWN CARCINOGENS OR MUTAGENS SHALL, IF AT ALL POSSIBLE, BE ELIMINATED OR SUBSTITUTED

6.2 The Health and Safety Executive guidance is explicit that where there is a practical cost effective solution, then the solution should be adopted. Where specific controls have been identified but it is not practicable to implement them, the justification for rejection shall be recorded and included in the activity, process or project documentation. However if such controls are not practicable given the working environment or where adequate control of exposure cannot be achieved by other means or if there is a temporary failure of control measures, then Personal Protective Equipment (PPE) and /or Respirator Protective Equipment (RPE) will need to be used. The use of PPE and /or RPE will often be required for maintenance operations for which the risk of exposure shall be COSHH assessed.

6.3 Any additional emergency procedures specific to the assessment must be clearly documented and recorded on the COSHH assessment form; these are in addition to the existing emergency arrangements.

6.4 Although the use of lead in the workplace can be assessed using the COSHH process, The Control of Lead at Work Regulations (CLAW) specifies its own control requirements that differ slightly to those in the COSHH regulations. One of the control measures specific to CLAW is the need for MOD to ensure that, so far as is reasonably practicable, that staff do not eat, drink or smoke in any place which is, or is liable to be, contaminated by lead and that staff do not eat, drink or smoke in any place which the MOD has reason to believe to be contaminated by lead. For any COSHH assessment that includes the use or exposure to lead, the requirements of CLAW shall take primacy to those of the COSHH regulations.

## 7. REVIEW

7.1 An initial review should take place shortly after implementation, in order to check the effectiveness of control measures.

7.2 Subsequent reviews should be undertaken:

- Should an accident or incident occur.
- When there has been a significant change in the activity or process (location, duration, quantity, etc).
- There is reason to suspect that the assessment is no longer valid.
- A minimum of annually.

NOTE: EACH REVIEW SHOULD INCLUDE THE LINE MANAGER'S ASSESSMENT OF THE EFFECTIVENESS OF CONTROL MEASURES, AND ANY FURTHER CONTROLS THAT MAY BE REQUIRED.

## 8. RELATED DOCUMENTS

### MOD Policy:

- a. Secretary of State's Policy Statement on Safety, Health, Environmental Protection and Sustainable Development.

### JSP 375 Volume 2:

- a. Leaflet 2 – Health Surveillance and Health Monitoring
- b. Leaflet 13 – Personal Protective Equipment
- c. Leaflet 39 – Risk Assessment
- d. Leaflet 49 – Respiratory Protective Equipment

### Legislation:

- a. Health and Safety at Work etc. Act
- b. Control of Substances Hazardous to Health Regulations
- c. Control of Lead at Work Regulations (CLAW)

**Guidance:**

- a. HSE COSHH Essentials HSG 193 Web version only  
[www.hse/coshhessentials.gov.uk](http://www.hse/coshhessentials.gov.uk)
- b. JSP 515 – Hazardous Stores Information System via  
[www.transportsafety.dii.r.mil.uk](http://www.transportsafety.dii.r.mil.uk) following HSIS Public link
- c. HSE HSG 97 – A Step by Step guide to COSHH Assessments
- d. HSE EH40 Workplace Exposure Limits
- e. HSE HSG 258 Controlling airborne contaminants at work – A guide to local exhaust ventilation (LEV)
- f. HSE HSG 53 Respiratory Protective Equipment at Work
- g. HSE HSG 205 Managing skin exposures at work
- h. Why do I need a safety data sheet? [www.hse.gov.uk/pubns/indg353.pdf](http://www.hse.gov.uk/pubns/indg353.pdf)
- i. HSE Control Guidance Sheets [www.hse.gov.uk/pubns/guidance/index.htm](http://www.hse.gov.uk/pubns/guidance/index.htm)
- j. L5 - The Control of Substances Hazardous to Health Approved codes of practice and guidance.

<b>COSHH ASSESSMENT</b>		<b>MOD Form 5011</b> 3/10						
Assessment N <sup>o</sup> :		Issue Number:						
		Date:						
<b>PART 1 – What is the Process/Activity</b>								
Process:								
Location:		Frequency/day:	Time/operation (mins):					
Operating Temp °C		Flash Point °C	Boiling Point °C					
Who and how many are likely to be exposed :								
Are any high risk groups likely to be exposed (give details):								
How is exposure likely to occur:								
<b>Can the substance or process be eliminated or a substitute used:</b> <input type="checkbox"/> Yes / <input type="checkbox"/> No / <input type="checkbox"/> Don't Know If Yes give details where appropriate:  If No or Don't Know give details as to why this is not a practicable solution to reduce exposure:								
<b>PART 2 – What is being used/produced/stored/transported/disposed (Attach all data sheets)</b>								
Products produced / Substances used	Solid	Liquid	Fume / Vapour	Mist / Aerosol	Gas	WEL ppm/mg.m <sup>-3</sup>	Quantity (Table 2)	Hazard Group – (Table 1)
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Highest values:								
Are biological agents used: Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes: classification: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> exposure route:								
Hazardous properties of the substance(s) and effect of exposure:								
<b>PART 3 – RISK ASSESSMENT</b>								
Quantity (Table 2)	x	Inhalation (Table 3)	x	Volatility (Table 4)	=		=	Likelihood of Exposure
<b>Likelihood of Exposure</b>		<b>1-4</b>			<b>6-8</b>		<b>9-27</b>	
<b>Hazard Group D E &amp; S</b>		<input type="checkbox"/> <b>Med</b>			<input type="checkbox"/> <b>High</b>		<input type="checkbox"/> <b>High</b>	
<b>Hazard Group C</b>		<input type="checkbox"/> <b>Low</b>			<input type="checkbox"/> <b>Med</b>		<input type="checkbox"/> <b>High</b>	
<b>Hazard Group A &amp; B</b>		<input type="checkbox"/> <b>Low</b>			<input type="checkbox"/> <b>Low</b>		<input type="checkbox"/> <b>Med</b>	
<b>High Risk - Control Approach 4</b>		<b>Medium Risk - Control Approach 2 or 3</b>			<b>Low Risk - Control Approach 1</b>			
<b>PART 4 – Required Control Approach</b>								
1. General ventilation		<input type="checkbox"/> See also HSE Control Guidance sheets series 100						
2. Engineering Control		<input type="checkbox"/> See also HSE Control Guidance Sheets series 200						
3. Containment		<input type="checkbox"/> See also HSE Control Guidance Sheets series 300						
4. Special *		<input type="checkbox"/> See also HSE Control Guidance Sheets series 400 * contact the Specialist Group for advice						
In addition for substances noted with (S) e.g. R21		<input type="checkbox"/> Protecting skin and eyes. Control Guidance Sheet S100 <input type="checkbox"/> Selecting and using PPE. Control Guidance Sheet S101						
Activity Specific guidance sheets (give numbers):								

**PART 5 – Selection of PPE and RPE**

PPE select hazard protection required;	Gloves:	Eye Protection:	Coveralls:	RPE	Other
Chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Abrasion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liquid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fume	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Impact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recommended item or NSN Ref N°					

Note: RPE Fit Testing must be completed in accordance with HSE guidance OC 282/28

Is fit testing required

**PART 6 – Summary of Control Measures**

	EXISTING CONTROLS	ADDITIONAL CONTROLS REQUIRED
Engineering controls		
Statutory examination & test i.e. LEV, fume cupboards, etc.		
Supervision Instruction and training		
First aid precautions and emergency arrangements		
Health surveillance		
Exposure monitoring		

Date: Assessor: Signature:

**PART 7 – ACCEPTANCE OF COSHH ASSESSMENT**

I agree with the above COSHH assessment: YES  NO

If No state why:

Date: Line Manager: Signature:

**PART 8 – ASSESSMENT SIGN OFF**

All required control measures have been implemented

Date: Line Manager: Date: Assessor:

**PART 9 - REVIEW RECORD When review completed update Issue Status on front page.**

Line Manager: Date: Issue:  
Line Manager: Date: Issue:

**HAZARD**

Hazard groups A – E (chemicals causing harm when breathed in)				
A - Low	B - Low	C - Medium	D - High	E - High (Special)
R 36 R 36/38 R 38	R 20 R 20/21 R 20/21/22 R 20/22	R 23 R 23/24 R 23/24/25 R 23/25	R 26 R 26/27 R 26/27/28 R 26/28	Muta cat 3 R40
And all substances that do not have risk phrases in groups B - E	R 21 R 21/22	R 24 R 24/25	R 27 R 27/28	R 42 R 42/43
	R 22	R 25	R 28	R 45
		R 34	Carc cat 3 R 40	R 46
		R 35	R 48/23 R 48/23/24 R 48/23/24/25 R 48/23/25 R 48/24 R 48/24/25 R 48/25	R 49
		R 36 R 36/37 R 36/37/38	R 60 R 61 R 62 R 63 R 64	R 68
		R 37 R 37/38 R 38		
		R 41		
R 43				
R 48/20 R 48/20/21 R 48/20/21/22 R 48/20/22 R 48/21 R 48/21/22 R 48/22				

**HAZARD GROUP 'S' (Chemicals causing harm in contact with skin and eyes) – High (Special)**

R 21 R 20/21 R 20/21/22 R 20/22	R 27 R 27/28 R 26/27/28	R 38 R 37/38	R 48/24 R 48/23/24 R 48/23/24/25 R 48/24/25
	R 34	R 41	
R 24 R 23/24 R 23/24/25 R 24/25	R 35	R 43 R 42/43	Sk
	R 36 R36/37 R 36/38 R 36/37/38	R 48/21 R 48/20/21 R 48/20/21/22 R 48/21/22	

Table 1

**LIKELIHOOD**

<b>Quantity</b>		<b>Hazard rating</b>
Small	grams/ millilitres	1
Medium	kilograms/ litres	2
High	tonnes/ cubic metres	3

Table 2

<b>Inhalation</b>		<b>Hazard rating</b>
Low	solid, pellets, little dust, liquid	1
Medium	crystalline, settles quickly	2
High	fine light powders, Vapour, fumes, gas, remains airborne	3

Table 3

<b>Volatility</b>		<b>Hazard rating</b>
Low	Flash/Boiling Point above 150 °C	1
Medium	Flash/Boiling Point between 50 °C and 150 °C	2
High	Flash/Boiling Point below 50 °C	3

NOTE: use default hazard rating of 1 (above 150°C) if no value is stated on the material safety data sheet.

Table 4

(Table 2)	x	(Table 3)	x	(Table 4)	=		=	Likelihood of Exposure
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## COMPLETING THE COSHH ASSESSMENT FORM 5011

### Part 1 – What is the process/activity

Part 1 provides an overview to the process or activity and must be completed.

### Part 2 – What is being used/produced/stored/transported/disposed

Each substance or product produced or used must be recorded and all relevant columns completed. Table 1 identifies the Risk (R) Phrases assigned to the substances or products produced and the assigned Hazard Group, this must be recorded against each product/substance. All substances/products produced or used must be identified and material safety data sheets etc collated.

### Part 3 – Risk assessment

To calculate the 'likelihood of exposure', a rating is allocated to each of Tables 2, 3 and 4 depending upon the properties of the substances; and the values multiplied together to give an overall value. The 'likelihood of exposure' value is then multiplied by the highest value 'Hazard Group' recorded in part 2 of the form on the matrix in part 3 (replicated as Table 5 below) to calculate the overall risk and identify the appropriate Control Approach.

### Part 4 – Required control approach

Record the required control approach identified by the risk assessment in part 3 and any additional information including activity specific guidance sheet numbers into part 4.

### Part 5 – Selection of PPE and RPE

Identify and record the type of Personal and/or Respiratory Protective Equipment that shall be required when all control measures have been implemented.

### Part 6 - Summary of control measures

Summarise the existing and additional control measures required (these must be incorporated into the activity work instructions)

### **Part 7 - Acceptance of COSHH Assessment**

The line manager must sign the assessment in part 7 to confirm that they understand and accept the findings and requirements of the COSHH assessment.

### **Part 8 – Assessment sign off**

Part 8 allows the line manager and the assessor to confirm that all necessary requirements of the assessment have been implemented and are effective.

### **Part 9 – Review record**

The review ensures that the assessment reflects the process and health risks identified. Any significant changes in either the activity, products or materials, numbers involved, or location etc. may invalidate the assessment. It is therefore important that the assessments are reviewed at suitable intervals. The intervals will be dependent upon the level of health risk identified.

**Worked example for calculation**

<b>Hazard groups A – E (chemicals causing harm when breathed in)</b>				
<b>A - Low</b>	<b>B - Low</b>	<b>C - Medium</b>	<b>D - High</b>	<b>E - High (Special)</b>
R 36 R 36/38 R 38	R 20 R 20/21 R 20/21/22 R 20/22	R 23 R 23/24 R 23/24/25 R 23/25	R 26 R 26/27 R 26/27/28 R 26/28	Muta cat 3 R40
And all substances that do not have risk phrases in groups B - E	R 21 R 21/22	R 24 R 24/25	R 27 R 27/28	R 42 R 42/43
	R 22	R 25	R 28	R 45
		R 34	Carc cat 3 R 40	R 46
		R 35	R 48/23 R 4823/24 R 48/23/24/25 R 48/23/25 R 48/24 R 48/24/25 R 48/25	R 49
		R 36 R 36/37 R 36/37/38	R 60 R 61 R 62 R 63 R 64	R 68
		R 37 R 37/38 R 38		
		R 41		
		R 43		
		R 48/20 R 48/20/21 R 48/20/21/22 R 48/20/22 R 48/21 R 48/21/22 R 48/22		
<b>HAZARD GROUP 'S' (Chemicals causing harm in contact with skin and eyes) - High (Special)</b>				
R 21 R 20/21 R 20/21/22 R 20/22	R 27 R 27/28 R 26/27/28  R 34  R 35  R 36 R36/37 R 36/38 R 36/37/38	R 38 R 37/38  R 41  R 43 R 42/43  R 48/21 R 48/20/21 R 48/20/21/22 R 48/21/22	R 48/24 R 48/23/24 R 48/23/24/25 R 48/24/25  Sk	

Table 1

Quantity		Hazard rating
Small	grams/ millilitres	1
Medium	kilograms/ litres	2
High	tonnes/ cubic metres	3

Table 2

Inhalation		Hazard rating
Low	solid, pellets, little dust, liquid	1
Medium	crystalline, settles quickly	2
High	fine light powders, Vapour, fumes, gas, remains airborne	3

Table 3

Volatility		Hazard rating
Low	Flash/Boiling Point above 150 °C	1
Medium	Flash/Boiling Point between 50 °C and 150 °C	2
High	Flash/Boiling Point below 50 °C	3

NOTE: use default hazard rating of 1 (above 150°C) if no value is stated on the material safety data sheet.

Table 4

Likelihood of exposure		1-4	6-8	9-27
Hazard Group D & E	3	Med	High	High
Hazard Group C	2	Low	Med	High
Hazard Group A & B	1	Low	Low	Med
<b>High</b>	Risk of ill health is high, controls required		Control Approach 4	
<b>Medium</b>	Risk of ill health is likely if not controlled		Control Approach 2 or 3	
<b>Low</b>	Risk of ill health arising from use is low		Control Approach 1	

Table 5

A substance being used in large quantities with a value of 3 (Table 2), has a low Inhalability with a value of 1 (Table 3) and a flash/boiling point between 50–150 °C with a value of 2 (Table 4).

(Table 2)	x	(Table 3)	x	(Table 4)	=		=	Likelihood of exposure
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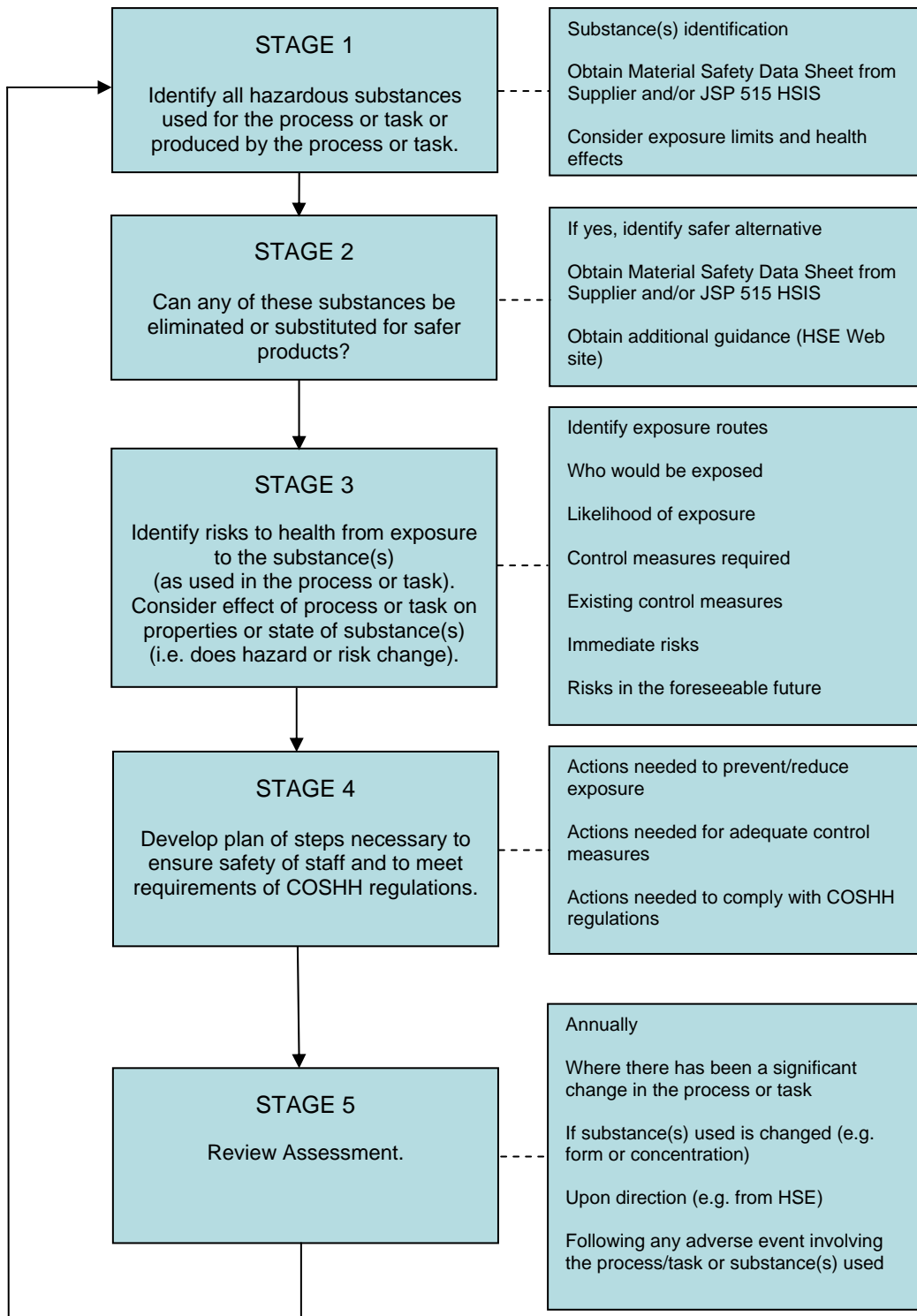
Therefore: 'Likelihood of exposure' = 3 x 1 x 2 = 6

The Hazard Group for substances assigned R 24 when breathed in = Medium (C in Table 1). (Note: if in physical contact with skin or eyes R24 = High (S in Table 1))  
Hazard Group C has a risk value of 2 (Table 5).

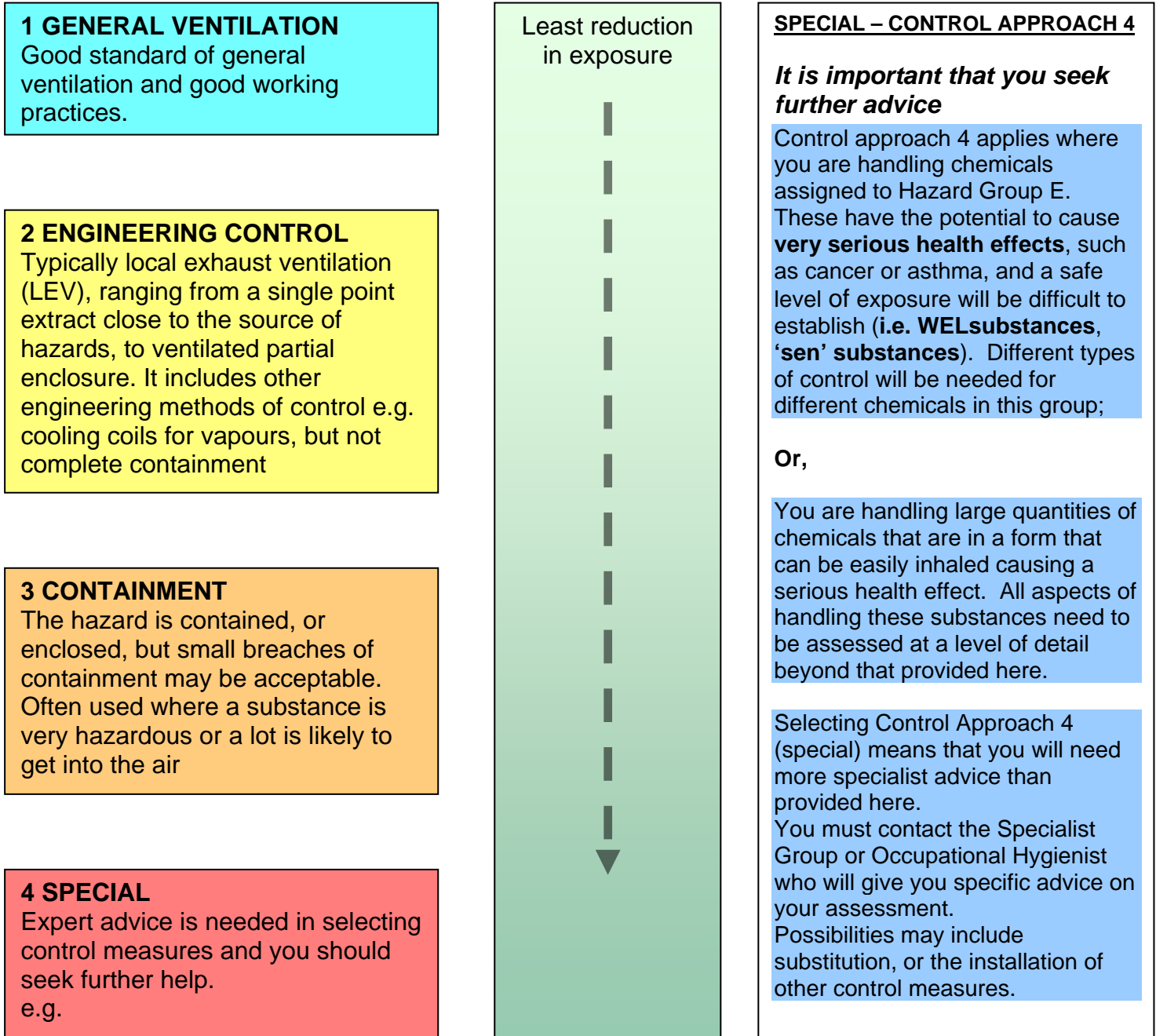
Therefore the resulting control approach is determined by reading 'Likelihood of exposure' along the top of Table 5 with a score = 6 and reading down to intersect the row for Hazard Group C (value 2) which results in a medium risk, and control approach 2 or 3 would be appropriate (See Annex E)



## COSHH Assessment Process Flowchart



## IDENTIFYING CONTROL APPROACHES



**If you have any doubts about which categories to use contact the Specialist Groups or Occupational Hygienist for additional advice.**

source: HSE COSHH Essentials

**PRINCIPLES OF GOOD CONTROL PRACTICE**

<p>1. Design and operate processes and activities to minimise emission, release and spread of substances hazardous to health</p>	<ul style="list-style-type: none"> <li>- Consider ways to achieve and maintain control of exposures where prevention is not deemed practicable (decisions must be recorded) e.g. ventilation systems, containment, substituting materials.</li> <li>- Disposal and other similar issues following an incident have been considered and documented.</li> <li>- This information may also inform the final equipment disposal requirements allowing the risk from such activities to be considered and planned for early on the equipment life cycle.</li> <li>- Identify all potentially exposed groups (including cleaners &amp; maintenance)</li> <li>- List significant sources of exposure and how people exposed</li> <li>- Reduce number of sources</li> <li>- Reduce emission rate</li> <li>- Segregation of large sources</li> <li>- Enclosure of sources</li> <li>- Local Exhaust Ventilation (LEV)</li> <li>- Alter work process- Arrangements if controls fail</li> <li>- Organise the work to to minimise the number of people exposed and the duration, frequency and level of exposure</li> </ul>
<p>2. Take into account all relevant routes of exposure - inhalation, skin absorption and ingestion - when developing control measures.</p>	<ul style="list-style-type: none"> <li>- How does contaminant get into the air</li> <li>- How does contaminant get onto skin</li> <li>- Looking at the process which is the greater exposure risk (consider environment process is in)</li> </ul>

**PRINCIPLES OF GOOD CONTROL PRACTICE**

<p>3. Control exposure by measures that are proportionate to the health risk.</p>	<ul style="list-style-type: none"> <li>- What are the long and short term health effects</li> <li>- Is there a need for measuring exposures to ensure that assessments are valid and that the control measures implemented are effective in reducing exposures</li> <li>- Is there enough information to decide the risk to health</li> <li>- Have Workplace Exposure Limits been assigned</li> <li>- Is health surveillance indicated</li> <li>- Are the proposed control measures likely to be sufficient to control exposure adequately i.e. below the WELs</li> <li>- How often will the control measures be reviewed and by whom</li> </ul>
<p>4. Choose the most effective and reliable control options which minimise the escape and spread of substances hazardous to health.</p>	<ul style="list-style-type: none"> <li>- Can the process or substance be eliminated/substituted</li> <li>- Can process be modified to reduce spread, emissions, use less</li> <li>- Minimising numbers involved the activity,</li> <li>- Maintaining good hygiene practices e.g. cleaning of workplaces to reduce the potential for exposures via ingestion for example;</li> <li>- Are the working methods compatible with the control measures</li> <li>- Have the control measures been integrated with the work process</li> </ul>
<p>5. Where adequate control of exposure cannot be achieved by other means, provide, in combination with other control measures, suitable personal protective equipment.</p>	<ul style="list-style-type: none"> <li>- List types and performance</li> <li>- Respiratory Protective Equipment must fit the process workers to ensure protection. (Fit testing required)</li> <li>- Is it compatible with the task</li> <li>- Have the wearers received training and information about the equipment and how to look after it</li> <li>- Correct storage will be needed to reduce the risk of contamination and further incidental exposure</li> <li>- Who is going to be responsible for checking and maintaining the equipment</li> </ul>

**PRINCIPLES OF GOOD CONTROL PRACTICE**

<p>6. Check and review regularly all elements of control measures for their continuing effectiveness.</p>	<ul style="list-style-type: none"> <li>- Arrange exposure monitoring and health surveillance where identified</li> <li>- Checks of LEV systems in between statutory testing and examination</li> <li>- Maintenance of control measures including statutory examination and testing (HSG 258) by competent engineers. Special arrangements for dealing with the aftermath of any incident are included in the user instructions.</li> <li>- Review written instructions, do they encourage use of controls and training</li> <li>- Check process regularly for signs of control effectiveness e.g. visible dust on surfaces = possible leakage.</li> </ul>
<p>7. Inform and train all employees on the hazards and risks from the substances with which they work and the use of control measures developed to minimise the risks.</p>	<ul style="list-style-type: none"> <li>- Ensure information about the health risks, the control measures etc are communicated to those carrying out the task, that any training required to carry out the task has been completed and recorded</li> <li>- Use of control measures by employees ensuring it is part of work instructions;</li> </ul>
<p>8. Ensure that the introduction of control measures does not increase the overall risk to health and safety</p>	<ul style="list-style-type: none"> <li>- Emergency procedures are in place and demonstrated on a regular basis.</li> <li>- Assess proposed control measures to ensure that no new risks are introduced or that they are adequately controlled such that the overall risk of exposure is minimised</li> </ul>

Source: Control of Substances Hazardous to Health Approved Code of Practice; Schedule 2A

## COSHH ASSESSOR COMPETENCE REQUIREMENTS

Those persons most likely to be competent assessors will need to:

1. Understand the basic requirements of the Regulations – **or have access to someone who does**. The assessor or their adviser will need a good working knowledge of the content and principles of the Approved Code of Practice (ACOP) and relevant guidance.
2. Systematically gather relevant information about exposures and the risks. This requires the ability to:
  - observe and appreciate the significance of what is being observed, particularly if it is different from written procedures;
  - predict possible departures from the observed practice and realise their significance
  - ask relevant questions of supervisors, managers, advisers etc and realise the implications of the responses
  - identify and review relevant technical literature
  - draw all the information together from all sources in a systematic way, to estimate likelihoods and consequences
  - form valid and justifiable conclusions about the risks to health
3. Specify the steps that need to be taken to comply with the regulations. This involves:
  - asking fundamental questions about whether exposures need to occur
  - having an appreciation of the range of possible control measures and the measures to sustain control, and the relative reliability of each
  - ability to look critically at existing arrangements
  - ability to identify in broad terms the changes required (some of these may need to be referred to specialists)

#### 4. Understand their limitations

The assessor must know or be aware of the area of expertise that is likely to be required during the assessment process, and to know at what stage that expertise will need to be involved, e.g. air monitoring (exposure monitoring) should only be carried out by professionally trained persons.

Where respiratory protective equipment is being used, it is important to involve someone who has knowledge of occupational hygiene principles, including the importance of fit testing of face pieces.

#### 5. Make a report

The findings about the risks and precautions must be communicated to all who need to know. Therefore the assessor should be in such a position that all stakeholders can be identified and the information provided.

**SAFETY DATA SHEET TERMINOLOGY**

Absorption	Uptake of material into the body, e.g. the blood, cells, organs, etc. Materials are inhaled into the lungs and ingested into the digestive tract from where they are absorbed to other parts of the body.
Acute Effects	Health effect which appears within a short period of exposure to the causative agent. Usually associated with short term, high level exposure.
Additive/Synergistic	Substances are said to be synergistic in their effects when they act either on the same organs or by the same mechanisms so that the overall effect is considerably greater than the sum of the individual effects. This may arise from mutual enhancement of the effects of the constituents or because one substance 'potentiates' another causing it to act in a way it would not if used on its own.
Approved Supply List	The list published by the Health & Safety Commission under the Chemicals (Hazard Information & Packaging for Supply) Regulations 1994. It details the information approved for the classification of labelling of substances and preparations dangerous for supply.
Carcinogenic	A substance is said to be carcinogenic if, after inhalation, ingestion or penetration of the skin occurs, it may induce cancer in man or increase its incidence.
Chronic Effect	Health effect which appears some time after first exposure to the causative agent. Usually associated with repeated, prolonged exposure.
Control Measure	A method for reducing exposure to external influences, e.g. substitution, engineering control, respiratory protective equipment.
DSEAR	Dangerous Substances and Explosive Atmospheres Regulations
Dust	Created when solid materials are broken down into fine particles. The smaller the dust, the longer it remains in the air and the easier it is to inhale
Fume	Created when solid materials (usually metals) vapourise when subjected to high temperatures. The metal vapour rapidly cools and condenses into an extremely small particle, with particle size generally less than one micrometer in diameter

**SAFETY DATA SHEET TERMINOLOGY**

Gas	Substance similar to air which becomes airborne at room temperature and, because they are able to diffuse or spread freely, can travel very far, very quickly
Health surveillance	Systematic, close overview of an individual's health
Ingestion	Taking in of material via the mouth
Mist	Tiny liquid droplets that are formed from liquid materials by atomisation and condensation processes such as spraying. Many mists are a combination of several hazardous ingredients.
Mutagenic	A substance is said to be mutagenic if, after inhalation, ingestion or penetration of the skin, it may involve a risk of hereditary genetic defects.
'Sen' Notation	Substances assigned this notation are capable of causing occupational asthma. Risk phrases used include R42 or R42/43
'Sk' Notation	Substances assigned a 'sk' notation in EH40 indicate the ability of such substances to be absorbed through intact skin. There is concern that the substance is absorbed and transported to other parts of the body (systemic toxicity).
Teratogenic	A substance is said to be teratogenic if, after inhalation, ingestion or penetration of the skin, it may involve a risk of subsequent non-hereditary birth defects in offspring.
Time Weighted Average (TWA)	This term applies to exposure to airborne concentrations of substances averaged over a time period. The two periods used are: long term (8 hours) and short term (15 minutes). Short term exposure limits (STEL) are set to help prevent effects, such as eye irritation, which may occur after exposures of a few minutes.
Vapour	Gaseous state of substances that are either liquids or solids at room temperature. They are formed when solids or liquids evaporate.
Workplace Exposure Limits (WELs)	Are occupational exposure limits (OELs) set under COSHH in order to help protect the health of workers. They are concentrations of hazardous substances in the air averaged over a specified period of time referred to as a time weighted average (TWA).