



# ASEAN Guidelines for Occupational Safety and Health



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# ASEAN Guidelines for Occupational Safety and Health

The ASEAN Secretariat  
Jakarta

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States of the Association are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam. The ASEAN Secretariat is based in Jakarta, Indonesia.

For inquiries, contact:

The ASEAN Secretariat

Public Outreach and Civil Society Division

70A Jalan Sisingamangaraja

Jakarta 12110, Indonesia

Phone : (62 21) 724-3372, 726-2991

Fax : (62 21) 739-8234, 724-3504

E-mail : [public@asean.org](mailto:public@asean.org)

General information on ASEAN appears online at the ASEAN Website: [www.asean.org](http://www.asean.org)

Catalogue-in-Publication Data

ASEAN Guidelines for Occupational Safety and Health

Jakarta: ASEAN Secretariat, October 2013

363.1

1. ASEAN – Public Safety

2. Industrial – Occupational Hazards

ISBN 978-602-7643-36-9

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## TABLE OF CONTENTS

# Guidance Note on Occupational Safety & Health Management Systems for Small and Medium Enterprises

<b>FOREWORD</b>	<b>5</b>
<b>1.0 INTRODUCTION</b>	<b>6</b>
Scope	6
Concept of Occupational Safety and Health Management System	6
Workers Participation	8
Application	8
Benefit	8
<b>2.0 DEFINITION</b>	<b>9</b>
2.1 Occupational Safety and Health Management System (OSHMS)	9
2.2 Risk	9
2.3 Hazard	9
2.4 Risk Assessment	10
<b>3.0 OBJECTIVE</b>	<b>10</b>
<b>4.0 STRUCTURE OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM (OSHMS)</b>	<b>10</b>
<b>5.0 THE IMPLEMENTATION PROCEDURES OF OSHMS IN THE ORGANISATION</b>	
5.1 Occupational Safety and Health Policy	12
5.2 Identification of Hazards	14
5.3 Assessment of Risks	16
5.4 Establishments of OSH Objectives	17
5.5 Development of OSH Plan	20
5.6 Implementation of OSH Plan	22
5.7 Routine Monitoring and Improvement	23
5.8 Investigation of Work Related Accidents, Incidents and Diseases	26
5.9 Emergency Prevention, Preparedness and Response	27
5.10 Performance Monitoring and Measurement	30
5.11 System Audit	32
5.12 Preventive and Corrective Action	36
5.13 Management Review	38
5.14 Continual Improvement	39

<b>6.0 BASIC REQUIREMENT</b>	<b>40</b>
6.1 OSH Structure	41
6.1.1 Communication	41
6.1.2 Responsibility	42
6.1.3 Training	44
6.2 Worker Participation	49
6.3 Documentation	51
6.4 Recording	53

<b>CONCLUSION</b>	<b>54</b>
-------------------	-----------

## **7.0 ANNEX**

ANNEX 1 : Example of Safety and Health Policy	55
ANNEX 2 : Hazard Identification Form	56
ANNEX 3 : Risk Assessment Implementation Procedures	57
ANNEX 4 : OSH Implementation Checklist	63
ANNEX 5 : Workplace Safety Inspection Form & Checklist	66
ANNEX 6 : Accident Investigation Occupational Safety and Health Management System Checklist	71
ANNEX 7 : Emergency Management Checklist	73
ANNEX 8 : Occupational Safety and Health Management Checklist	75
ANNEX 9 : Management Review Form	80
ANNEX 10 : OSH Training Plan and Training Record Form	81

# **ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheet 2009**

<b>ACKNOWLEDGEMENTS</b>	<b>82</b>
<b>FOREWORD</b>	<b>83</b>
<b>DEFINITION</b>	<b>84</b>

<b>Chapter 1: INTRODUCTION</b>	<b>86</b>
1.1 Scope	
1.2 Coverage	
1.3 Exclusions	

<b>Chapter 2: CLASSIFICATION</b>	<b>87</b>
2.1 Duty to Classify	
2.2 Classification Process	
2.3 Use of Available Data	
2.4 Use of Cut-off/Concentration Limits	
2.5 Classification Summary	

- 2.6 Competent Classifier
- 2.7 Review of Classification

<b>Chapter 3: LABELLING</b>	<b>89</b>
3.1 Duty to Label Containers	
3.2 Information on a Label	
3.3 Precedence Principles	
3.4 Dimension of a Label	
3.5 Affixing of Labels	
3.6 Review of Labels	
<b>Chapter 4: SAFETY DATA SHEET</b>	<b>91</b>
4.1 Duty to Furnish Safety Data Sheet	
4.2 Review of Safety Data Sheet	
4.3 Format of Safety Data Sheet	
4.4 Content of SDS	
<b>Chapter 5: CONFIDENTIAL BUSINESS INFORMATION</b>	<b>98</b>
<b>Chapter 6: HAZARD COMMUNICATION</b>	<b>99</b>
<b>References</b>	<b>99</b>
Schedule I : Hazard Categories & Hazard Communication Elements	
Schedule II : Precautionary Statements	
Schedule III : Cut-Off/Concentration Limits for Health & Environmental Hazard Class	



# Guidance Note on Occupational Safety & Health Management Systems for Small and Medium Enterprises



## FOREWORD

Small and medium enterprises are an important sector and cover a large share of workers in most countries. In most economies, smaller enterprises are much greater in number. Globally SMEs account for 99% of business numbers and 40% to 50% of GDP. In many sectors, SMEs are also responsible for driving innovation and competition. More and more countries have realized the potential of the small enterprises and appreciate that employment and economic growth to a large extent depend on these enterprises.

Occupational safety and health and safety in small enterprises have, therefore, grown considerably during the last decade. Many countries have launched programs to support these enterprises. Most countries have basic requirements that employers must meet as regards the organisation of safety and health activities. It is required to establish a management system which should include a safety and health committee, election of safety representatives and periodical risk assessment in some countries. However, small and medium enterprises generally have difficulties in fulfilling these requirements.

It is thus important to develop specific small enterprise approaches to the internal health and safety and health activities. Formal structures such as safety committees are difficult to establish and sustain because of the informal culture of the small and medium enterprises. It is important to focus on simple and low cost solutions.

This guideline is intended to provide the SMEs employer with the direction and assistance in the development, implementation, evaluation and improvement of their safety and health management system.

The materials in this guideline are based upon ILO-OSH 2001: Guidelines on Occupational Safety and Health Management Systems and it is developed in relation with the conclusion of the previous ASEAN-OSHNET + 3 OSHMS Policy Dialogues. This guideline is a result of one of the resolutions made at the ASEAN-OSHNET +3 OSHMS Policy Dialogues held at Genting Highland, Malaysia on 16th – 17th December 2008. Those dialogues highlighted the necessity for some guidelines for small enterprise in dealing with OSHMS issues at their workplace.

This guideline had been prepared through the joint effort of Department of Occupational Safety and Health, Malaysia, Ministry of Health, Labour and Welfare, Japan and Japan Association of Safety and Health Consultant.

## 1. INTRODUCTION

Every owner/manager of enterprise has a responsibility to manage all aspects of their business. This includes financial affairs as well as the safety and health of themselves, workers - full-time, part-time or permanent, any contractors or members of the public while they are in the workplace.

This guideline has been developed to assist employers/ owners/ managers of SMEs manage safety and health in their work place.

Every business should take steps to improve the way they manage safety and health this can be achieved through implementation of OSHMS. This includes:



- ✓ Knowing legal responsibilities
- ✓ Writing a policy and safe work procedures
- ✓ Workers participation
- ✓ Identifying and managing hazard
- ✓ Sharing information on OSH matters
- ✓ Record keeping on OSH records
- ✓ Continual improvement

Implementing safety and health measures does not have to be expensive, time consuming and complicated. It is in fact, safer working practices often save money but most importantly can help prevent accidents and save lives.

### Scope

This document is intended for SME which stands for Small to Medium Enterprise. However, what exactly an SME or Small to Medium Enterprise depends on who's doing the defining and country. Different countries define SMEs differently. But ultimately, SMEs are companies whose headcount or turnover falls below certain limits. Size thresholds and turnover vary from country to country.

## Concept of Occupational Safety and Health Management System

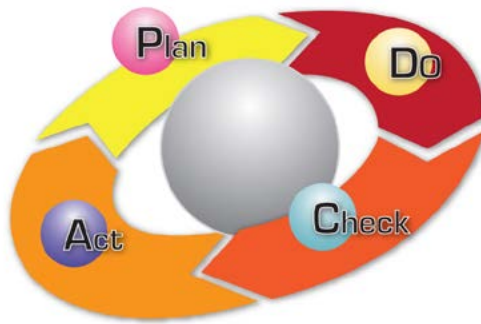
### What is an OSHMS?

We will proceed with the definition of an Occupational Safety and Health Management Systems (OSHMS). An Occupational Safety and Health Management Systems (OSHMS) is a coordinated and systematic approach to managing safety and health risks. OSHMS helps organisations to continually improve their safety performance and compliance to safety and health legislation and standard. In doing so, they establish safer working environments that protect people at work by eliminating and better managing, safety and health hazards.

### Plan-Do-Check-Act (PDCA) Cycle and Elements

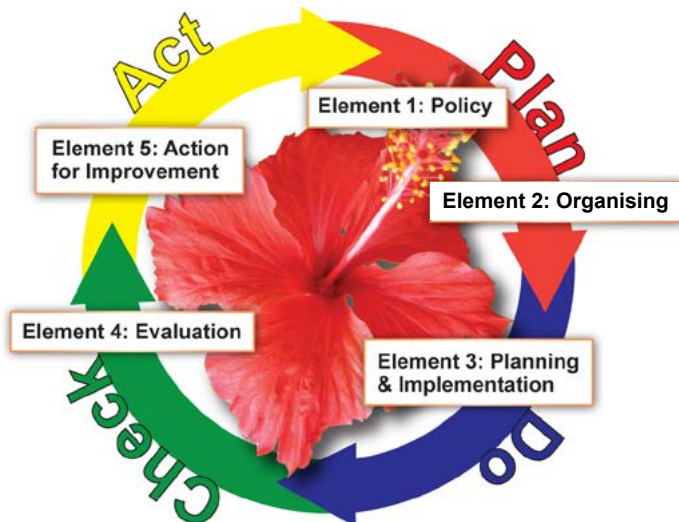
Management system generally follows a “plan-do-check-act” model or based on “improvement cycle” where the organisation sets up an OSH-target, plan how to reach the target, execute the plans, check the results and act on deviations. OSHMS is based on the Plan-Do-Check-Act (PDCA) Model. It requires a comprehensive and

systematic process for the ongoing identification and assessment of workplace hazards/risks, and implementing control measures to eliminate or mitigate these hazards/risks. Successful implementation depends on effective management leadership and employee involvement. Model is as below:



- ☐ Plan - Identify the key requirements and establish your OSH plan
- ☐ Do - Implement your OSH plan
- ☐ Check - Measure and compare result of the program against expected results
- ☐ Act - Analyse the differences to determine their cause. Then, determine where to apply changes or improvements

OSH MS is structured using the Plan-Do-Check-Act (PDCA) approach which is also common to other management system and its operation process is as follows: policy, objective, (Plan)→responsibility and operation; (Do)→execution, (Check)→monitoring, checking and auditing; (Act)→evaluation, correcting and improving. The PDCA approach provides an overall framework for managing preventive and protective measures, emergency preparedness, training, procurement issues, documentation, legal and many other safety-related requirements.



## Workers Participation

Workers participation in planning and managing OSH improvements is an effective means of tapping into the knowledge of workers about their activities and ways in which OSH management and performance can be improved. Organisations should consult with their workers to enable them to contribute to decisions that may impact on safety and health at work.



**But what does it really mean?**

**Workers should have meaningful involvement in OSH activities and arrangements.**

Workers participation in planning and managing OSH improvements is an effective means of tapping into the knowledge of workers about their activities and ways in which OSH management and performance can be improved. Organisations should consult with their workers to enable them to contribute to decisions that may impact on safety and health at work.

## Application

This guideline is intended to provide the SMEs employer with the direction and assistance in the development, implementation, evaluation and improvement of their safety and health management system.

## Benefits of Introducing an OSHMS

OSHMS is good for business as well as being a social and legal obligation (in certain country). The implementation of the OSHMS provides an effective framework to prevent or minimise accidents and ill health. Poor safety and health leads to accidents and illness and significant cost for your business.

Taking a systematic approach to management makes managing your business both easier and more effective. You work out the best way to handle each key activity and make sure that everyone uses the same approach every time.

A consistent approach like this reduces the number of mistakes and the cost of correcting problems. It also reduces the level of risk and ensures that you comply with legislation (if any). This can positively influence your business:

- ☒ Improved safety and health performance by your business will reduce the costs associated with accidents and incidents.
- ☒ If workers see that you actively looking after their safety and health, relations and morale will improve.
- ☒ The public see that you are taking a responsible attitude towards your employees workers. This improves your image and helps generate positive PR for your business.

- ✓ Improving the efficiency of your business reduces your cost.
- ✓ You can demonstrate to your insurers that you are controlling risk effectively. This may help lower your insurance premiums.
- ✓ Banks and investors will be more willing to finance your business if you show that it is well managed.
- ✓ Business partners have more confidence in your business. Larger companies and government agencies may only buy from business that can show effective management systems.
- ✓ Improve awareness of regulatory requirements (if any) reduces the chance that you will commit any offences. The regulatory body will regulate your business with a lighter touch if it is well managed.

## 2. DEFINITION

In these guidelines, the following terms have the meanings assigned to them:

### 2.1 Occupational Safety and Health Management System (OSHMS)



A set of interrelated or interacting elements to establish OSH policy and objectives and to achieve those objectives.

An Occupational Safety and Health Management System provide a framework for managing OSH responsibilities so they become more efficient. OSH Management Systems are based on standards, which specify a process of achieving continuously improved OSH performance.

### 2.2 Risk

A combination of the likelihood of an occurrence of a hazardous event and the severity of injury or damage to the health of people caused by this event.

The likelihood of injury or illness being caused by a hazard.

### 2.3 Hazard

The inherent potential to cause injury or damage to people's health.

In a simple word, hazard is a source of potential harm or a situation with a potential to cause loss. It can cause loss to:

- ✓ People - Injury
- ✓ Equipment - Breakage
- ✓ Property - Fire

## **2.4 Risk Assessment**

The process of evaluating the risks to safety and health arising from hazards at work. As explained earlier, risk assessment is a process of determine the likelihood and severity of the accidents/events so that the magnitude of the hazard can be determine and prioritised.

## **3. OBJECTIVE**

The purpose of this guideline is to provide a systematic and objective approach for the SMEs in protecting their workers from hazards and possible work-related injuries, illness, diseases, incidents and death.

This guideline is also intended to:

- a. Provide guidance on development of voluntary arrangements to improve OSH performance
- b. Provide guidance regarding the integration of OSH Management System elements in organisations
- c. Motivate all members of the organisation in applying appropriate OSH management principles and methods to continually improve OSH performance

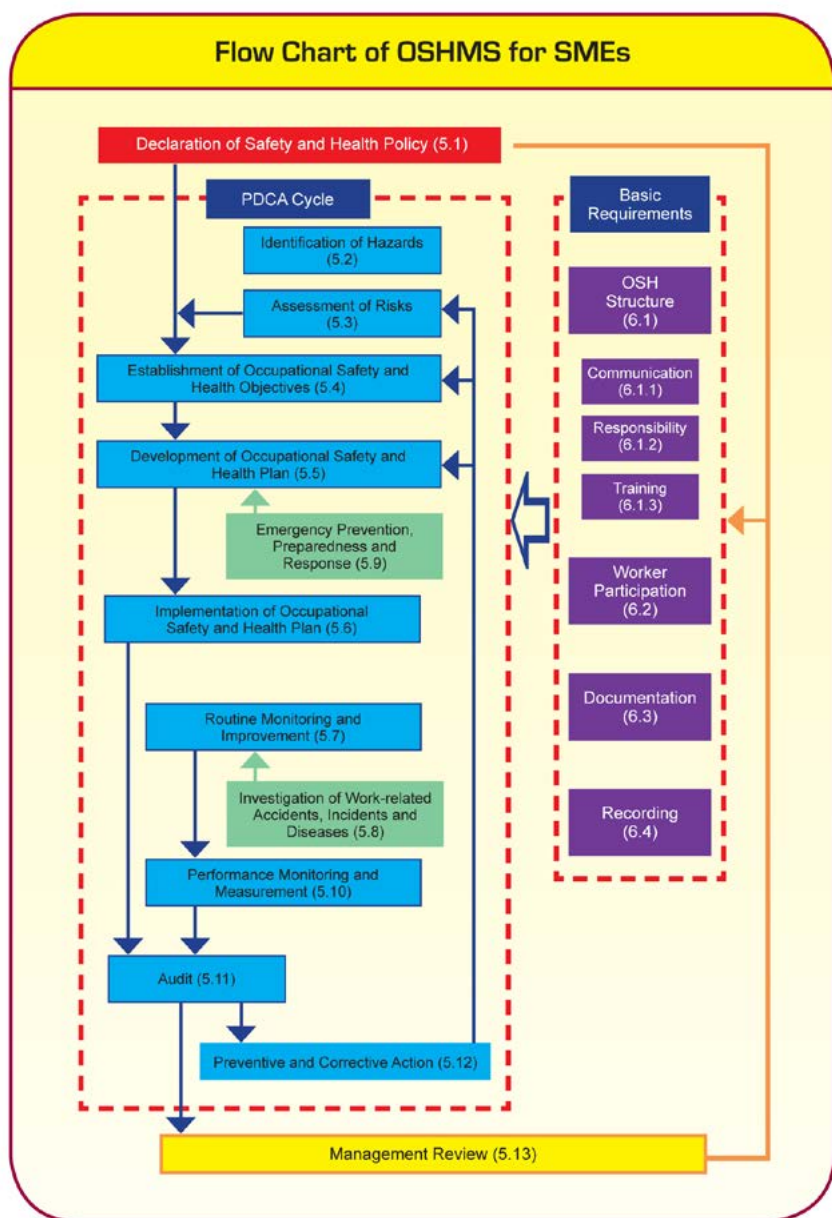
## **4. STRUCTURE OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM**

Occupational Safety and Health Management System requires a 'Plan - Do - Check - Act' approach, based on the principle of continual improvement. However, it is not sufficient to purely implement each of the clauses in isolation. Instead, they must be connected together as, for example, there is no point identifying (through risk assessment processes) that controls are needed to manage specific hazards, if the controls are not then adequately defined and effectively implemented. If it is determined that controls are needed, then there must also be provision in the system for checking that the controls are adequate, effective and also that corrective action is defined and taken if they are not.

OSHMS is structured into fourteen distinct sections as follows:

1. Occupational safety and health policy
2. Identification of hazards
3. Assessment of risks
4. Establishments of occupational safety and health objectives
5. Development of OSH plan
6. Implementation of OSH plan
7. Routine monitoring and improvement
8. Investigation of work related accidents, incidents and diseases
9. Emergency prevention, preparedness and response
10. Performance monitoring and measurement
11. Audit
12. Preventive and corrective action
13. Management review
14. Continual improvement

This guideline will take each in turn and give practical advice on the requirements contained and implementation of the processes.



## 5. IMPLEMENTATION PROCEDURES OF OSHMS IN THE ORGANISATION

This section provides the framework for applying a systematic approach to the management of OSH in the organisation. The implementation procedures of occupational safety and health management system in the organisation are as follow:

### 5.1 Occupational Safety and Health Policy

The first element of an ideal Management System is policy. This element is the basis of the OSH Management System and sets the direction for the organising to follow.



This is the starting point for establishing a system. Start by finding out regarding the OSH requirements that apply to your business.

A well-formulated OSH policy forms a basis for the objectives in the field of occupational safety and health.

The policy spells out the measures to be taken and also highlight the relationship of these measures with the other company objectives such as quality or environment policy. The policy should be short and precise, be published by the top management and made known to all workers.



#### But what is OSH Policy?

An OSH policy is a written document which expresses the company's commitment to workers safety, health and well being. It is a foundation for the efforts taken to provide a suitable working environment.

The policy should influence all the activities including the selection of people, equipment and materials, the way work is done and how you design and provide goods and services.



## So, what measures should your organisation take to fulfill this requirement?

Set a clear policy for safety and health. The policy statement can be brief, but it should mention:

- Management's commitment to protect the safety and health of employees workers  
**Example:** The organisation is committed to ensuring the safety, health and welfare of its workers and any other people who may be affected by the organisations operations.
- The objectives of the OSH management system  
**Example:** The organisation plan to achieve worker safety and health through the following:
  - i. Using a qualified safety person
  - ii. Making regular job site safety inspections
  - iii. Enforcing the use of safety equipment
  - iv. Following safety procedures and rules
  - v. Providing on-going safety training
  - vi. Enforcing safety rules and using appropriate discipline
- The organisation's basic safety and health philosophy  
**Example:** The occupational safety and health of all persons employed within the facility, residents and those visiting the facility are considered to be of utmost importance.
- Who is accountable for occupational safety and health programs  
**Example:** It is the responsibility of management to develop, implement and review, in consultation with its workers, the organisation's OSH Program.
- The general responsibilities of all workers  
**Example:** All workers are required to co-operate with the OSH Policy and Programs to ensure their own safety and health and the safety and health of others in the work place.
- That safety and health and safety shall not be sacrificed for expediency  
**Example:** No job is to be regarded so urgent that time cannot be taken to do it in a safe manner. The welfare of the individual is our greatest concern. Disregard or willful violations of this Policy by workers at any level may be considered cause for disciplinary action in accordance with the company's policies.
- That unacceptable performance of safety and health and safety duties will not be tolerated  
**Example:** All workers, subcontractors, supervisors and visitors will be held accountable for their safety and health performance.

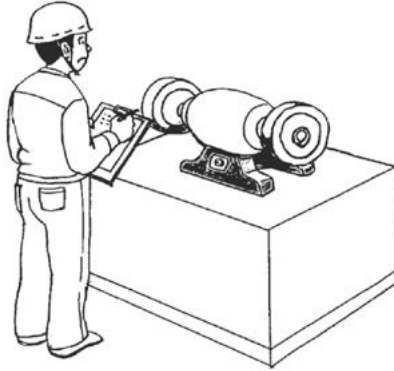
The policy should be:

- stated in clear, unambiguous, and unequivocal terms
- signed by the incumbent Chief Executive Officer
- kept up-to-date
- communicated to each employee worker
- adhered to in all work activities

The policy must demonstrate your commitment and ways to manage the safety and health matters in your organisation. There are no set rules on what you should include in your policy, but it is often only one page long. The most senior person in the business should endorse the policy.

**ANNEX 1** shows samples of the policy.

## 5.2 Identification of Hazards



Hazard identification is the process of identifying hazards in the workplace or for a work procedure. In order to understand what hazard identification involves, it is first necessary to understand the nature of hazards.

Hazards in a workplace can arise from people being exposed to hazardous substances, processes or environment. Workplace hazards can be divided into six groups:

- Physical hazards such as noise, electricity, heat and cold;
- Chemical hazards such as toxic gases, noxious fumes and corrosive liquids;
- Ergonomic hazards such as the height of a workbench, the shape of a vehicle seat and the length of a control lever;
- Radiation hazards, for example, from x-ray radiation machines, high powered lasers, radioactive materials;
- Psychological hazards such as stress from using equipment without proper training or instructions, overwork, or being coerced into using faulty equipment which carries a risk of injury; and
- Biological hazards such as syringes containing potentially infected blood, specimen containers carrying potentially infected materials and Legionella bacteria and viruses from air conditioning systems.

The hazard identification process is designed to identify all the possible situations where people may possibly be exposed to injury, illness and disease arising from all sources including the above.

Carrying out hazard identification for all existing plant, substances, processes and work practices in your workplace may require some effort. It is a good idea to split your workplace into several discrete areas for the hazard identification process and to tackle one area at a time. Priority should be given to areas with hazardous plant, substances, processes or environment.

The relevant safety and health representatives need to be consulted during the hazard identification process.

Workers working in the area have day to day experience of any hazards and should be involved in the hazard identification process. Advice should also be sought from people who are associated with the activities and processes in the area because they may provide valuable input.

Once the hazards have been identified, they should be listed for a risk assessment to be carried out.

## PROCESS OF HAZARD IDENTIFICATION

There are three effective ways to systematically identify existing hazards and they are by:

1. Examining specific areas of the worksite and the activities carried on in them.
2. Analysing different occupations and their tasks.
3. Analysing the total process used to convert raw materials into final product for sale.

But the most common method is the first method which is by examining specific areas of the worksite and activities carried on in them. The outline of the process is as below:

1. **Get an up-to-date plan of the worksite.** This must provide an accurate picture of the work area.
2. **Get a chart that shows the process of production or work flow.** If one doesn't exist, then compile such a chart.
3. **Divide the worksite into identifiable areas and number them.** This division can be based on how the production is carried out or the physical layout of a site.

Example:

Stores area — Production area — Workshops — Offices — Yards

4. **Ask staff in all areas to list what they consider is potential hazards** in the places they work and why they consider that they are hazards/potential hazards. Also get them to make a list of the chemicals/substances they use.

Use a data collection form given in **ANNEX 2** to gather the information. Be sure to attach the hazard information sheets to the form, so people know what type of hazards they are looking for. The following sources of hazard information may be utilised to identify hazards:

- Direct report from workers or employee safety and health representatives
- Industry and legislative requirement information
- Incident Reports
- Hazard Inspection Reports
- Workplace hazard inspections

- Observation of work tasks and activities
- Consultation with staff

### 5.3 Assessment of Risks

Risk assessment is the process of assessing all of the risks associated with each of the hazards identified during the hazard identification process.

In assessing the risks, **three essential steps** are taken:

1. The probability or likelihood of an incident occurring is evaluated.
2. The severity of the potential consequences is calculated or estimated.
3. Based on these two factors, the risks are assessed through the use of a risk rating.

#### Step 1: Likelihood

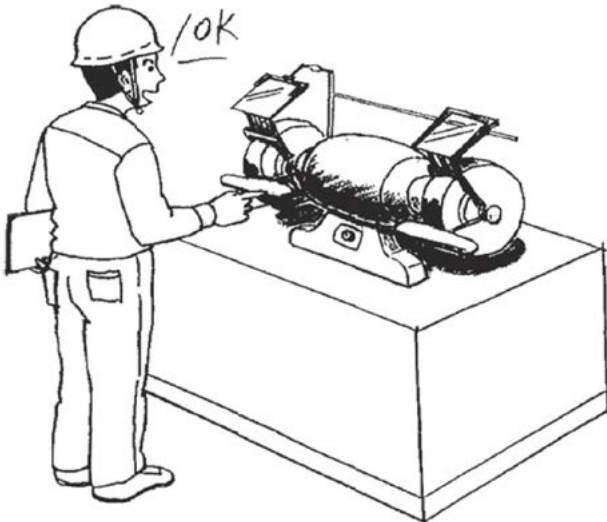
How likely is it that a hazardous event or situation will occur?

#### Step 2: Severity

What might be the consequence of a hazardous event or situation?

#### Step 3: Assessing Risk

Calculate the degree of risk and the result of the risk matrix are compared with the criteria defined.



Assessments should be done by a competent team of individuals who have a good working knowledge of the workplace. Assessments should always involve supervisors and workers who work with the process under review as they are the most familiar with the operation.

In general, to do an assessment, you should:

- Identify hazards, evaluate the likelihood of an injury or illness occurring, and its severity;
- Consider normal operational situations as well as non-standard events such as shutdowns, power outages, emergencies, etc;
- Review all available safety and health information about the hazard such as MSDSs, manufacturers literature, information from reputable organisations, results of testing;
- Identify actions necessary to eliminate or control the risk;
- Monitor and evaluate to confirm the risk is controlled;
- Keep any documentation or records that may be necessary. Documentation may include detailing the process used to assess the risk, outlining any evaluations or detailing how conclusions were made.

When doing an assessment, you must take into account:

- The methods and procedures used in the processing, use, handling or storage of the substance, etc;
- The actual and the potential exposure of workers;
- The measures and procedures necessary to control such exposure by means of engineering controls, work practices, and hygiene practices and facilities.

When the risk assessment is carried out, consultation with the relevant safety and health representatives and workers need to be done. They need to decide whether a control program is required.

Once you have completed the assessment it is important to put your results into practice. If you need to make a number of improvements, you should produce an action plan to deal with the most important first. You should review your assessment on an ongoing basis to make sure that it remains up to date and effective. It is important to remember that the assessment must take into account not only the current state of the workplace but any potential situations as well.

Result of the risk assessment can be used as a reference point in establishing the OSH objectives.

For detail explanation of the risk assessment implementation procedure and example on how to conduct a simple risk assessment, refer to **ANNEX 3**.

## 5.4 Establishments of OSH Objectives

Objectives state what the organisation is trying to achieve. This kind of clarity is essential for planning and accountability. Clear objectives assist the organisation in determining what programs and services it needs to offer. OSH objectives should be specific to the organisation and appropriate to or according to its size and nature of activity. Without clear objectives, decisions regarding what proportion of resources should be allocated to various programs, what new programs should be offered, and what modifications should be made to existing programs, can become subject to a variety of influences.

The organisation shall develop and document OSH goals and objectives, in consistent with the OSH policy. The objective shall be with due consideration of all the hazards identified. The goals and objectives shall be periodically reviewed and communicated to employees, workers and other stakeholders.

### What are OSH objectives?

Objectives are the specific, measurable, time-bound activities which the employers develop for the purpose of improving working conditions.

Example of OSH objectives:

OSH OBJECTIVES	
Company :	RM (M) Sdn. Bhd
Year :	2010
To maintain our OSH Policy, we as far as reasonably practicable will :	
<ul style="list-style-type: none"><li>a. Provide and safe a healthy working environment including safe working systems and safe plant appliances by eliminations as far as possible, unsafe working conditions.</li><li>b. Provide appropriate and adequate accident prevention education and training to all workers.</li><li>c. Provide suitable protective clothing and equipment.</li><li>d. Make available an ongoing program for monitoring the general health of staff as appropriate.</li><li>e. All affected workers shall be consulted on the safety and health considerations when planning purchases of new plant, equipment, work systems or products.</li><li>f. Workers shall be encouraged to report work related illness or injury as early as possible after the event.</li><li>g. Supervisors and managers shall be held accountable for the Occupational Safety and health of the workers working under their direction.</li><li>h. All workers are accountable and shall ensure they work in a safe and healthy manner without risk to themselves, other workers and the public.</li><li>i. Risk assessments for all work activities are to be conducted and identified hazards are either to be minimized or preferably eliminated.</li><li>j. All workers will be consulted to enable the workers to contribute to the making of decisions affecting their safety, healthy and welfare at work.</li><li>k. The safe systems of work will be identified, implemented and monitored to ensure the on going safety, healthy and welfare of all relevant parties.</li></ul>	

Clear objectives can lead to measurable goals and enable the organisation to determine whether or not it is being effective in achieving these goals.

Example of OSH objective and target:

OSH OBJECTIVES & TARGETS	
Company : RM (M) Sdn. Bhd	
<b>OBJECTIVE:</b> We will provide a workplace which continuously reduces our assessed risk levels and OSH incident and injury results by 10% each year. We will work constantly to improve our OSH management systems and our skills to support this objective.	

TARGET FOR THE PERIOD: 2010

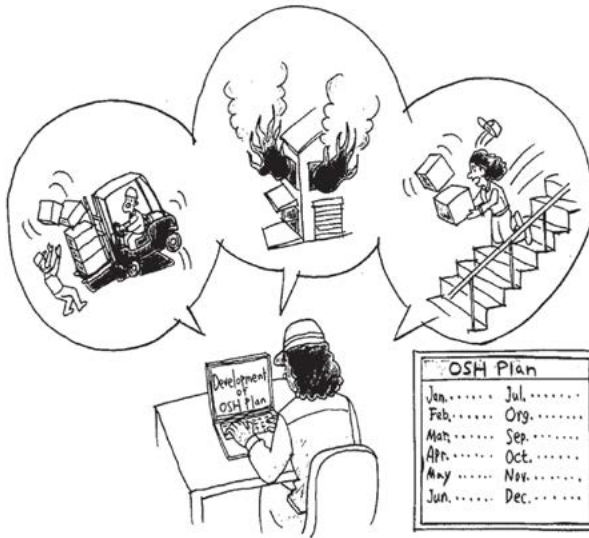
	LAST YEAR RESULT	TARGET SET
Reported Injuries	3 cases	2 cases
Reported Incidents	10 cases	9 cases
Risk Assessment Reviews completed	12 cases	14 cases
Audits Conducted	2 audits	3 audits

The intent of OSH goals and objectives is to meet OSH performance expectations, and therefore these must be measurable for each function in the organisation. Measureable could be:

- (i) reduction of risk levels;
- (ii) introduction of additional features into the OSHMS;
- (iii) steps taken to improve existing features, or the consistency of their application; and
- (iv) elimination or the reduction in frequency of undesired incident(s).



## 5.5 Development of OSH Plan



### What is OSH Plan?

A documented plan detailing a strategy or series of strategies required to be undertaken to achieve established OSH objectives and targets.

### Reasons for Safety and Health Programs in the Workplace

There are several reasons why workplaces need a safety and health policy or program, including:

- To clearly demonstrate management's full commitment to their workers safety and health;
- To show workers that safety performance and business performance are compatible;
- To clearly state the company's safety beliefs, principles, objectives, strategies and processes to build buy-in through all levels of the company;
- To clearly outline employer and workers accountability and responsibility for workplace safety and health;
- To set out safe work practices and procedures to be followed to prevent workplace injuries and illnesses.

### Development of OSH Plan

In order to achieve their safety and health objectives of their organisation, the manager/employer should prepare their OSH plan. OSH Plan can serve as a "road map". It will tell the manager/employer what has to be done, when it to be done - the logical order in which to do it, who responsible, what you have achieve and where you want to be when you finish.



When developing the plan, there are a few things that need to be taken into consideration:

- ✓ Any OSH legal requirements or other commitment and requirement (if any);
- ✓ Changes or improvements to make OSH program effective;
- ✓ Long term (more than one year) and short term (one year or less) goals for improving OSH performance;
- ✓ Consultation with workers and the views of interested parties.

The plan should not only consider the organisation's immediate needs, but should provide for ongoing employee protections. Once the plan is designed, it must be followed and supported at all levels of the organisation.

Every workplace is different. The OSH program should be designed to address the specific needs of the individual workplace. All formal OSH programs must have seven elements:

- a. An OSH policy statement of the aims of the program and the responsibilities for safety and health;
- b. Regular inspection of premises, machinery, tools, equipment and work practices;
- c. Appropriate written instructions for workers;
- d. Periodic management meetings to discuss safety and health;
- e. Investigation of accidents and other incidents in order to take action to prevent similar incidents;
- f. Records and statistics;
- g. Instruction and supervision of workers.

The organisation shall have a documented OSH management programme (strategies and plans of actions) to achieve its policy and objectives.

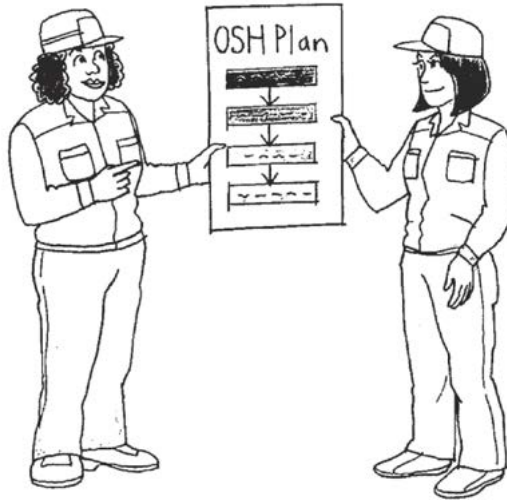
The programme should identify and allocate responsibility and authority to deliver the OSH objectives (at each relevant level). It should identify the tasks to be implemented, allocate time scales to meet the related objectives, and provide for the allocation of resources (eg. financial, human, equipment, and logistics) to each task.

Where significant alterations or modifications in working practices, processes, equipment or material are expected, the programme should provide for new hazard identification and risk assessment exercises.

Example of OSH objective and target:

OSH PLAN FOR 2010			
Company :	RM (M) Sdn. Bhd		
Year :			
HAZARD	ACTIONS REQUIRED	FINANCIAL COST	TIMESCALE
Slips, trips and falls	Wet floor warning signs required	Yes	3 months
Fire	Fire evacuation instruction signs required	Yes	1 month
Fire	Fire drills to be carried out	No	Immediately
Falling objects	Stepladder inspections	No	Immediately
Electrical appliances checks and maintenance	Records required of visual	No	Immediately

## 5.6 Implementation of OSH Plan



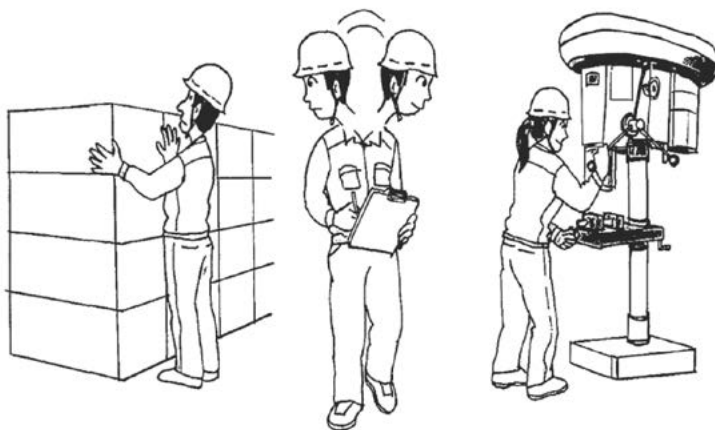
For effective implementation, organisation should develop the capabilities and support mechanisms necessary to achieve OSH policy, objectives and targets. It will depend, to a large degree, on how successfully it has been implemented and integrated into the organisation's daily business operations.

Employer/Managers should establish specific procedures to implement their safety and health plan. Among the specific procedures that need to be established (but not limited) to make sure that the safety and health plan is being implemented are such as:

- Hazard prevention and control procedures
- Training procedure
- Evaluation of program effectiveness

It is also important to have appropriate levels of human and financial resources. Management should provides the resources for program implementation and maintenance, including a sufficient budget, technical information, assigned responsibility, adequate expertise and authority and program evaluation procedures. The implementation of the OSH plan should begins with the implementation of the highest priority action step.

**ANNEX 4** is an example of OSH Implementation Checklist. The checklist provides a best practice guide to implementing a comprehensive OSH program. It is designed to provide an overview of the key steps and actions to ensure that your program operates effectively. It is recommended that you use the enclosed checklist to assess your OSH program and then develop a plan to address any weaknesses or gaps.



## 5.7 Routine Monitoring and Improvement

Routine monitoring consists of the examination and evaluation of actual practices to determine whether they comply with the procedures. The routine monitoring will be carried out by reviewing each procedure in the manual and then checking the actual practice that occurs. Where there is a discrepancy between the practice and the procedures improvement action should be taken.

Following completion of the routine monitoring, a report must be written, including any deficiencies noted, proposed improvement strategies, responsible personnel and date for review. Upon completion and review, this report must be filed and kept.

This monitoring should be carried out on a continual basis.

Workplace safety inspections are an invaluable way of identifying potential workplace hazards before they cause a safety and health problem. Carrying out workplace safety inspections is therefore one of the routine monitoring and improvement components and also one of OSH program most important functions. Workplace safety inspections help to identify where work practices have become substandard and are an excellent way of identifying potential accidents.

The extent and nature of the workplace safety inspection will be determined by the organisation condition and may look at a wide range of issues including:

- The general condition/ maintenance of the building
- Access to and egress from the building(s)/ site
- Condition of floors, passages, stairs and any coverings
- Lighting/ ventilation
- Toilet/ welfare facilities
- Cleaning standards
- Hazardous substances
- Storage of equipment/ materials

- Suitability of the fire precautions/ fire risk assessment including signage and fire extinguishers
- Electrical equipment/ power points
- Process equipment

It is good practice to use a standard report form for workplace safety inspections. The form should include (not limited to):

- a checklist of the processes, activities and parts of premises that are to be inspected
- a section for identifying hazards and potential risks
- space for comments on any remedial action that is recommended or has already been decided upon
- an agreed timetable for completing the remedial action

However, the items in the checklist will depend on your business. An example, a workplace safety inspection form and checklist is available in **ANNEX 5**. You could adapt it to suit your own needs.

You do not have to do all the workplace area at one time, you can break it up and do separate inspections. But you need to do some preparation in advance for the workplace safety inspection.

When planning workplace safety inspections, you should ensure that:

- inspections are scheduled at an agreed date
- a routine/ systematic inspection of each work area takes place
- findings are recorded
- agreed procedures for reporting defects and informing senior management of significant findings are followed
- a system is in place to track the progress of rectifying defects

## HOW TO DO A WORKPLACE SAFETY INSPECTION

In any effective safety program, the workplace safety inspection plays a central role in identifying potentially hazardous situations, establishing clear evacuation paths and instituting preventive measures. Safety inspections should be accomplished at regular intervals. Moreover, sound policies and procedures must be in place to ensure hazard reporting and elimination. In the workplace, everyone is responsible for following good safety practices and it all begins with the safety inspection.

Generally, the workplace safety inspection could be done by following the steps mentioned below:

### STEP 1: WORKPLACE ENVIRONMENT

- ✓ Inspect the general environment.
- ✓ Assure that walking surfaces are clean and clear of obstruction or slip hazards.
- ✓ Inspect stairwells for presence of handrails, lighting and general conditions.
- ✓ Check for adequate lighting in workstations and common areas.
- ✓ Assure that electrical cords are in good condition properly grounded and free of tripping hazards.
- ✓ Make certain that all hazardous waste materials are stored in proper containers and labeled.

- ✓ Limit height of stacked materials to prevent collapse.
- ✓ Assure that floor leaders and other designated safety personnel are clearly identified.
- ✓ Ensure that exterior grounds are in good order, parking areas are well maintained and proper outdoor illumination is available. Keep walkways and roads free from obstruction.

## STEP 2: PROCESS EQUIPMENT

- ✓ Check equipment. Assure that inspection certificates are current and displayed where required, such as on elevators and boilers.
- ✓ Review preventive maintenance contracts for compliance.
- ✓ Check for leaks, exposed wires, excessive wear or other indications of potential equipment hazards.
- ✓ Be sure that the area around equipment is clear and free of obstructions.
- ✓ Assure that mechanical safeguards, such as eye guards or shields, are in place and in working order.
- ✓ Check for adequate ventilation.
- ✓ Make sure that chemical wash stations are available and clearly marked.

## STEP 3: EVACUATION ROUTES

- ✓ Inspect evacuation routes.
- ✓ Check emergency exit signs to ensure that they are visible and properly lighted.
- ✓ Assure that hallways and egress paths are free of storage or other obstructions.
- ✓ Make sure that exit doors are operable.
- ✓ Check emergency lighting.
- ✓ Ensure that evacuation floor plans are posted.
- ✓ Check for signage warning that elevators are not to be used in a fire emergency.
- ✓ Ensure that emergency phone numbers are clearly posted.

## STEP 4: FIRE SAFETY

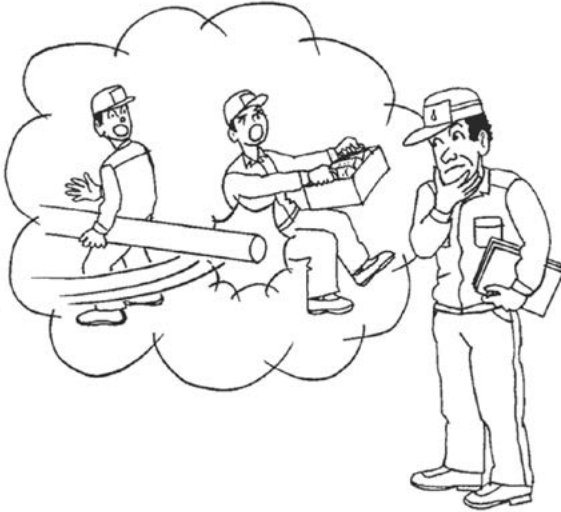
- ✓ Check for fire safety.
- ✓ Test the fire alarm system.
- ✓ Assure that fire alarms and fire extinguishers are visible and accessible.
- ✓ Check annual servicing intervals for fire extinguishers.
- ✓ Ensure adequate vertical clearance beneath sprinkler heads.
- ✓ Assure that fire doors, such as those in stairwells, are kept closed unless they are self-closing.

## STEP 5: DISASTER PREPAREDNESS

- ✓ Assess disaster preparedness.
- ✓ Be certain that assembly areas are well marked.

A written report should be compiled after the workplace safety inspection. The result should be properly recorded and evaluated. Whenever there is a need for correction action, it is important to rectify it immediately. The measures taken should be suitable for the situation.

## 5.8 Investigation of Work Related Accidents, Incidents and Diseases



The term “incident” can be defined as an unplanned and undesired event that interrupts the completion of an activity, and that may (or may not) include injury or property damage.

“Accidents” can be defined as undesired event or sequence of events causing injury, ill-healthness or property damage.

“Near miss” is described as incidents where, given a slight shift in time or distance, injury, illhealthness or damage could easily could have occurred, but did not occur.

Finally, “work related diseases” are a health problem caused by exposure to a workplace health hazard. Example of work related diseases are as follows:

AGENTS	OCCUPATIONAL DISEASES
Asbestos	<ul style="list-style-type: none"><li>■ Benign pleural diseases</li><li>■ Pleural plaques</li><li>■ Asbestosis</li><li>■ Mesothelioma</li><li>■ Lung cancer.</li></ul>
Silica	<ul style="list-style-type: none"><li>■ Silicosis (lung scarring).</li></ul>
Lead	<ul style="list-style-type: none"><li>■ Lead poisoning</li></ul>
Chemicals	<ul style="list-style-type: none"><li>■ Skin diseases</li></ul>

These workplace health hazards can cause work related disease:

- Dust, gases, or fumes
- Noise
- Toxic substances (poisons)
- Vibration
- Radiation
- Infectious germs or viruses
- Extreme hot or cold temperatures
- Extremely high or low air pressure

Most importantly accident investigations are conducted to find out the cause(s) of accidents and to prevent reoccurrence. When accidents are investigated, the emphasis should be concentrated on finding the root cause(s) of the accident rather than the investigation procedure itself.

Ideally, an investigation should be conducted by an expert person with sufficient knowledge in accident causation who is experienced in investigative techniques, fully knowledgeable of the work processes, procedures, persons, and industrial relations environment of a particular situation. Unfortunately, such persons are hard to find. Especially in smaller organisations, both workers and supervisors with little, if any, previous investigative experience maybe called upon to participate in an accident investigation.

Generally, the accident investigation process involves the following steps:

- Report the accident occurrence to a designated person within the organisation
- Provide first aid and medical care to injured person(s)
- Investigate the accident
- Identify the causes
- Report the findings
- Develop a plan for corrective action
- Implement the plan
- Evaluate the effectiveness of the corrective action

Use the following checklist, **ANNEX 6: ACCIDENT INVESTIGATION CHECKLIST**, to structure investigations and written reports. It is intended as a guide.

## 5.9 Emergency Prevention, Preparedness and Response

A workplace emergency is an unforeseen situation that threatens your workers, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage.

Emergencies may be natural or manmade and include but not limited to the following:

- Fires
- Toxic gas releases
- Chemical spills
- Radiological accidents
- Explosions
- Civil disturbances
- Evaluate the effectiveness of the corrective action

- Workplace violence resulting in bodily harm and trauma
- Floods
- Hurricanes
- Earthquake and
- Tornadoes

Emergency management is a comprehensive system set up to address and handles man-made and natural hazards. It has four phases:

1. Mitigation
2. Preparedness
3. Response
4. Recovery



But what is actually the process involved in these four phases?  
What does it mean?

Mitigation efforts attempt to prevent hazards from developing into disasters altogether, or to reduce the effects of disasters when they occur. The mitigation phase differs from the other phases because it focuses on long-term measures for reducing or eliminating risk. Mitigative measures can be structural or non-structural. Structural measures use technological solutions and non-structural measures include legislation, land-use planning (e.g. the designation of nonessential land like parks to be used as flood zones) and insurance.

Whereas emergency preparedness phase consist advance planning and preparation process for emergencies. Advance planning and preparation for emergencies is good insurance. Few people can think clearly and logically in a crisis, so it is important to do so in advance, when you have time to be thorough.

An emergency plan is the output of the emergency preparedness process. An emergency action plan covers designated actions employers and workers must take to ensure workers safety from fire and other emergencies. An emergency action plan is a good way to protect yourself, your workers, and your business during an emergency.

The organisation should actively assess potential accident and emergency response needs, develop plans, procedures and processes to cope with them, test its planned responses, and seek to improve the effectiveness of its responses.

When developing an emergency action plan, it's a good idea to look at a wide variety of potential emergencies that could occur in the workplace. It should be tailored to the worksite and include information about all potential sources of emergencies. Developing an emergency action plan means doing hazard assessment - determine what, if any, physical or chemical hazards in the workplaces could cause an emergency.

At a minimum, emergency action plan must include (but not limited) the following:

- A preferred method for reporting fires and other emergencies;
- An evacuation policy and procedure;
- Emergency escape procedures and route assignments, such as floor plans, workplace maps, and safe or refuge areas;





- Names, titles, departments and telephone numbers of individuals both within and outside the company to contact for additional information or explanation of duties and responsibilities under the emergency plan;
- Procedures for workers who remain to perform or shut down critical plant operations, operate fire extinguishers, or perform other essential services that cannot be shut down for every emergency alarm before evacuating;
- Rescue and medical duties for any workers designated to perform them;
- Designated assembly location and procedures to account for all workers after an evacuation;
- The site of an alternative communications center to be used in the event of a fire or explosion;
- A secure onsite or offsite location to store originals or duplicate copies of accounting records, legal documents, your workers' emergency contact lists, and other essential records; and
- A way to alert employees workers on how to evacuate or take other action, and how to report emergencies.

**ANNEX 7** is an example of emergency management checklist. You can refer to the checklist when you prepare for potential emergencies that could occur in your workplace.

The response phase includes the mobilisation of the necessary emergency services and first responders in the disaster area. The responders are the first wave of core emergency services, such as firefighters, police and ambulance crews.

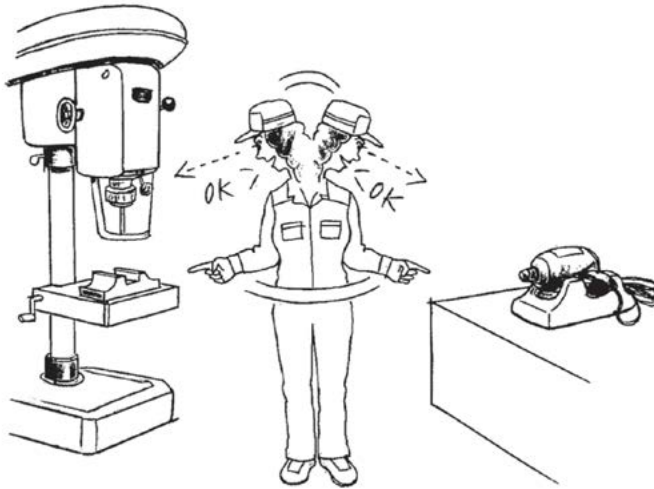
The final phase of emergency management is the recovery phase. The aim of the recovery phase is to restore the affected area to its previous state. It differs from the response phase in its focus; recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed.

Recovery efforts are primarily concerned with actions that involve rebuilding destroyed property, re-employment, and the repair of other essential infrastructure.

## 5.10 Performance Monitoring and Measurement

Indicators and performance measures are important in managing OSH issues in the organisation. They provide feedback on what is happening so that we can shape appropriate actions to respond to changing circumstances. They provide information on:

- What is happening around us;
- How well we are doing;
- What has happened so far;
- Warning of impending problems or dangers that we may need to take action to avoid.



For any performance indicators to be effective, it is important that it is:

- a) Objective and easy to measure and collect;
- b) Relevant to the organisation or work group whose performance is being measured;
- c) Providing immediate and reliable indications of the level of performance;
- d) Cost efficient in terms of the equipment, personnel and additional technology required to gather the information;
- e) Understood and owned by the work group whose performance is being measured.

The organisation should identify key parameters for its OSH performance. These should include, but not be limited to, parameters that determine whether:

- OSH policy and objectives are being achieved;
- Risk controls have been implemented and are effective;
- Lessons have been learnt from OSHMS failures, including hazardous events (accidents, near misses and illness cases);
- Awareness, training, communication and consultation programmes for workers and interested parties are effective;
- Information that can be used to review and/or improve OSHMS is being produced and used, etc.

Examples of performance indicators include:

**Example 1:** OSH Performance indicators used by RM (M) Sdn. Bhd. to measure their OSH performance

OSH OBJECTIVES, TARGETS & PERFORMANCE INDICATOR	
Company :	RM (M) Sdn. Bhd
<b>OBJECTIVE:</b> We will provide a workplace which continuously reduces our assessed risk levels and OSH incident and injury results by 10% each year. We will work constantly to improve our OSH management systems and our skills to support this objective.	

**PERFORMANCE INDICATES** on 23th March 2010

	TARGET SET	MEASUREMENT
Toolbox Meeting Conducted	40 meetings	10 meetings
Reported Hazards Rectified within the Defined Timeframe	10 cases	10 cases
Planned Risk Assessment	14 cases	5 cases
Risk Assessment Reviews Completed	14 cases	5 cases
OSH Training Conducted	12 courses	3 courses
Audits Conducted	3 audits	1 audit
Review of Audit Reported	1 audit	1 audit

**Example 2:** OSH Performance indicators used by TJZW Presicion Sdn. Bhd. in relation to "monitor their periodic assessment of training"

OSH PERFORMANCE INDICATOR				
Company:	TJZW Presicion Sdn. Bhd.			
INDICATOR: Extent of workers who pass periodic assessment of training			SCORE 6.5	
Parameter	Guideline for giving points	Weight Factor	Sorce per parameter	Weighted score
Operating staff	Percentage of workers who pass the periodic assessments	0.4	8	3.2
Maintenance staff		0.3	7	2.1
Middle management staff		0.2	6	1.2
Top management staff		0.1	0	0
				6.5

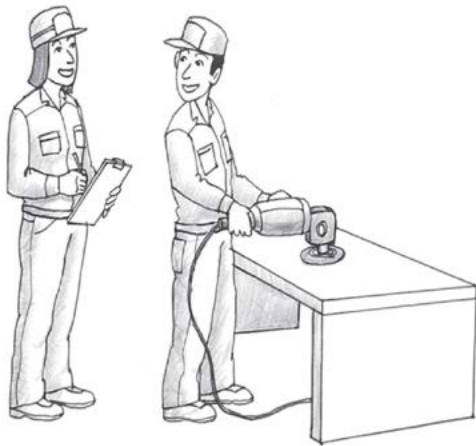
## 5.11 System Audit

The OSHMS auditing is an independent and systematic checking a process where by organisations can review and continuously evaluate the effectiveness of their OSHMS. Regular OSHMS auditing is essential for the on-going effective performance of the safety and health system.

There are three main reasons for carrying out OSHMS audits:

- To confirm that the OSHMS has been implemented and is being maintained;
- To check that the OSHMS is operating effectively, and;
- To identify weaknesses in the OSHMS so the system can be improved.

An audit is not a safety and health inspection. While an OSH audit will include inspection activities to cross check system documents and records, an inspection will never provide the degree of system analysis undertaken during an audit. Audits involve a broader analysis of performance than just looking at what is going on in the workplace at any particular time.



OSHMS audits look at policies, procedures and plans that have been put in place to achieve the safety and health goals. OSHMS audit could be done by internally or by external personnel. System records and documents will be examined by the auditor to judge how well policies, procedures and plans have been implemented. The auditor will also inspect the workplace, observe work practices and talk to people in the workplace to cross check that what is found in the records accurately reflects what is going on in the workplace.

The auditor uses all the evidence gathered to judge how well the OSH Management System has been implemented and is operating. In light of these judgments the auditor may point out weaknesses in OSH performance and suggest how performance can be improved in the future.

Planned OSHMS audits should be carried out by personnel from within the organisation and/or by external personnel selected by the organisation. An external audit is conducted by someone who has no day to day involvement in the organisation being audited. External audits are usually conducted against an agreed standard or specification. Internal audits are conducted by in-house staff. Rather than reviewing OSH Management System and procedures, the auditor is verifying that the established programme is actually being implemented. Additionally, the auditor can confirm that the procedures and systems are being implemented when and where required.

Ideally, the organisation should include both external and internal audits in their audit programme. When both external and internal audits are conducted, their effectiveness is belief to be multiplied.

The OSHMS audit process consists of series of well planned phases. Each phase is intended to achieve certain objectives and is dependent on the results of the preceding phase.

The OSHMS audit phases can be divided into:

- |                           |   |              |
|---------------------------|---|--------------|
| ■ Planning                |   |              |
| ■ Preparation             | } | Before audit |
| ■ Review Documentation    |   |              |
| ■ Interview Key Persons   | } | During audit |
| ■ Observe Work Conditions |   |              |
| ■ Closing Meeting         |   |              |
| ■ Audit Report            | } | After audit  |

Planning is the starting point of an audit process. During the planning phases, there are a number of issues that you should keep in mind. Ideally the planning should consider who, what, where, when, and how. The aim of the audit should also be kept in mind. For effective audit planning, all available information on the area to be inspected should be reviewed. The gathering of all the necessary tools that will be required during the audit is also requires and there are also a number of preparations that needs to be made in advance. This includes the following:

- The date for the audit must be arranged in advance and relevant party should be notified in advance to ensure that suitable arrangements can be made;
- The pre-inspection information required by auditor includes specific and particular information about work practices, hazards, risks and risk control measures relevant to the workplace to be inspected;
- The layout and the process flow of the places to be inspected. This will allows the auditor to picture the area and understand the work-flow in the area;
- Previous audit reports for the area to be inspected (if any);
- Audit Plan;
- Audit checklists (if any);
- Tools needed for audit ;

The example below has been designed as a guide for you to prepare your audit plan. It is not acomprehensive audit plan and you will need to modify it to suit your own needs.

AUDIT PLAN	
Company :	
AUDIT OBJECTIVE:	
DURATION OF AUDIT	
Start date	
Finish date	
RESOURCES REQUIRED	
RESOURCE	DATE REQUIRED
Requirements <if required>	<Date>
Specifications <if required>	<Date>
<include access to people, systems and tools as required>	<Date>
AREA OF AUDIT	
TENTATIVE AUDIT PROGRAMME	
TENTATIVE AUDIT PROGRAMME	

The main steps in carrying out an audit are:

- Preliminary phase – understanding the area to be audited
- Interviewing key persons
- Asking questions
- Reviewing documentation
- Observing work conditions

The example below has been designed as a guide for you to prepare your audit plan. It is not a comprehensive audit plan and you will need to modify it to suit your own needs.

The three basic audit tools are inquiry, observation and verification testing. It is not possible to speak to all workers at the particular work area, so a sample of individuals must be selected. A common technique is to draw a number of persons from each level of the organisation and seek the information from them.

The most important factors in interviewing are:

- Interview the right people
- Be well prepared
- Interview done in a relaxed atmosphere
- Interview style suits the situation

The auditor should ask questions that promote feedback and information such as open questions that use the words why, when, where, who, what and how rather than yes or no questions. These open questions will provide you with more informative answers. All answers should be recorded.

Auditor should also review documentation during the audit process. Relevant documentation includes:

- Policy statement
- Procedures
- Manuals
- Inspection records
- Safety committee agenda and minutes
- Training plans and materials
- Accident statistics and accidents investigations reports
- Safety rules
- Emergency procedures
- Maintenance records
- Previous audit results
- Records of statutory inspections ( if any )

Looking at records and procedures for completeness, availability, accuracy and reliability is useful before questioning persons who carry out the activities. There is often a gap between OSH documentation and OSH practice in the workplace.

Information gathered by reviewing documents and interviews can also be verified by observation of workplace conditions and activities. Observations are usually focused on those areas previously covered unlike workplace inspection where it looks at all activities in the workplace. However, observation and questioning of operatives is also necessary to check on the effectiveness of workplace controls.

**ANNEX 8** shows a checklist for OSHMS. This checklist is an OSHMS self assessment checklist. It can be used by your organisation to implement OSHMS in your organisation. It can also help you to measure your OSHMS status at your organisation.

This checklist can be used by employers and OSH staffs to understand the progress of OSHMS. The result of this checklist should be used for further improvement of OSHMS in the organisation.

At the end of the audit, the auditors should carry out debriefing or closing session with management representatives of the area that is being audited. The agenda of the closing session should include:

- Significant safety and health problems that require urgent attention
- Findings that will be highlighted in the audit reports
- Strengths and weakness of the organisation/workplace area

The final product of an audit is the audit report. It can be used to motivate management to correct deficiencies. A recommended format for an audit report includes:

- Executive Summary
- Background
- Scope
- Overall evaluation
- Findings, recommendations and conclusions
- Action plan

An example of the audit report form can be shown below. An executive summary transmits useful information in a condensed form while the background is a description of the organisation or workplace area along with the reason for the audit. The scope will describe which aspects of the operation and the time period covered by the audit. It should also clearly identify the areas and the depth of work done in the area.

Findings usually take the form of brief comments while recommendations should be in the forms of improvements and specific correction. Recommendations should be practical, feasible and effective.

AUDIT REPORT
Company :
EXECUTIVE SUMMARY:
BACKGROUND
SCOPE
OVERALL EVALUATION
FINDING
RECOMMENDATION
CONCLUSION
ACTION PLAN

## 5.12 Preventive and Corrective Action

The organisation should have effective procedures for preventive and corrective action. Corrective action is an action taken to both respond to the effect of a detected non-conformity and to eliminate the recurrence of the non-conformity through identifying and addressing the root cause of the non-conformity while preventive action is a proactive approach to identify the most likely cause of a potential non-conformity in order to prevent it from initially occurring or to initiate an improvement to the OSHMS.

Corrective action is divided into two sets of actions. The first, which can be termed as remedial action deals with the immediate problems, i.e. an instrument that has not been calibrated needs to be calibrated or a members of staff's training record that is not up to date should be updated. The second action is defined as cause analysis. This action requires the question "Why did it go wrong?" to be asked rather than "What has gone wrong?" Often the non-conformance is merely the symptom of an underlying problem. The process includes:





- Reviewing and defining the problem or non-conformity;
- Finding the cause of the problem;
- Developing an action plan to correct the problem and prevent a recurrence;
- Implementing the plan;
- Evaluating the effectiveness of the correction.

Corrective actions can be identified from:

- workplace inspections and testing, inspection, and monitoring;
- OSH consultation;
- OSH audits;
- Accident, incident and hazard reporting and investigation;
- Safe work procedures;
- Non-conforming product prior to purchase and use;
- OSH complaints and system failures.

As for preventive action, there are also two aspects to it. The first is risk assessment and the second is continuous improvement. The process includes:

- Identify the potential problem or non-conformance;
- Find the cause of the potential problem;
- Develop a plan to prevent the occurrence;
- Implement the plan;
- Review the actions taken and the effectiveness in preventing the problem.

Root cause is the fundamental breakdown or failure of a process which, when resolved, prevents a recurrence of the problem or in other words root cause is the factor that when you fix it, the problem goes away and doesn't come back.

The prime purpose of the corrective action and preventive procedure(s) is to prevent further occurrence of the situation by identifying and dealing with the root cause(s). Furthermore, the procedures should enable the detection, analysis and elimination of potential causes of non-conformities.

The process used for corrective actions and preventive actions is very similar. However, it is important to understand the differences and also be aware of the implications involved in performing and documenting each.

A corrective action is a reaction to a problem that has already occurred. It assumes that a non-conformance or problem exists and has been reported by either internal or external sources.

The actions initiated are intended to fix the problem and modify the system to prevent a reoccurrence. The documentation for a corrective action provides evidence that the problem was recognised, corrected, and proper controls installed to make sure that it does not happen again. Example of corrective procedure is as follows:

RESPONSIBILITY	ACTION
IDENTIFYING A PROBLEM OR POSSIBLE IMPROVEMENT	
PLANNING THE ACTION REQUIRED	
TAKING THE ACTION	
FOLLOW-UP	

A preventive action is initiated to stop a potential problem from occurring. It assumes that adequate monitoring and controls are in place to assure that potential problems are identified and eliminated before they happen. The documentation for a preventive action provides evidence that an effective system has been implemented that is able to anticipate, identify and eliminate potential problems.

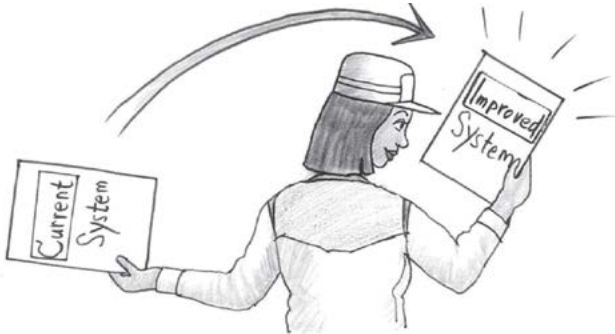
Progress in the completion of corrective and preventive actions should be monitored and the effectiveness of such actions reviewed.

### 5.13 Management Review

The top management should review the operations of the OSHMS to assess whether it is being fully implemented and remains suitable for achieving the organisation's stated OSH policy and objectives. The review should also consider whether the OSH policy continues to be appropriate, and whether changes are needed to any elements of the OSHMS. Management reviews evaluate the overall performance of the OSHMS. In this context the OSHMS is analysed in relation to the overall organisation and to the environment or third parties. This also involves assessing the OSHMSs' ability to correspond to the needs and requirements of the employers, the workers and the inspection.

The variable of management review is often dealt with in connection with continual improvement or the evaluation. The evaluation process and the procedure of continual improvement are in these cases more concise, more differentiated and in full detail.

Management review needs to be done regularly in order for the top management to evaluate the effectiveness of the OSH system and also to ensure that the system complies with regulatory and legal requirements.



#### 5.14 Continual Improvement



Continual improvement can be initiated through the use of policy, objectives, audit results, analysis of data, corrective and preventive actions and management review.

This requirement covers both the reactive and proactive actions of improvement.

The reactive actions are those actions taken to address non-conformities of products, processes and systems such as the correction taken on non-conformity or a defect and the follow-up corrective action to remove the root cause(s) of the non-conformity. This is referred to as problem-solving or problem resolution process and is a reactive action.

Continual improvement, however, refers to actions taken to optimise a specific characteristic or a set of characteristics even though performance of the characteristic(s) may be at the acceptable level. This is a very important concept in management practices as it is a way to prevent an organisation from becoming complacent when all outcomes are acceptable.

A strategy for continuous improvement should be developed through:

- Monitoring and evaluation of the efficiency and effectiveness of the implemented prevention program
- Monitoring of OSHMS activities
- Bench marking with other organisations addressing the same OSH issues of concern
- Arranging an OSH audit by an independent professional

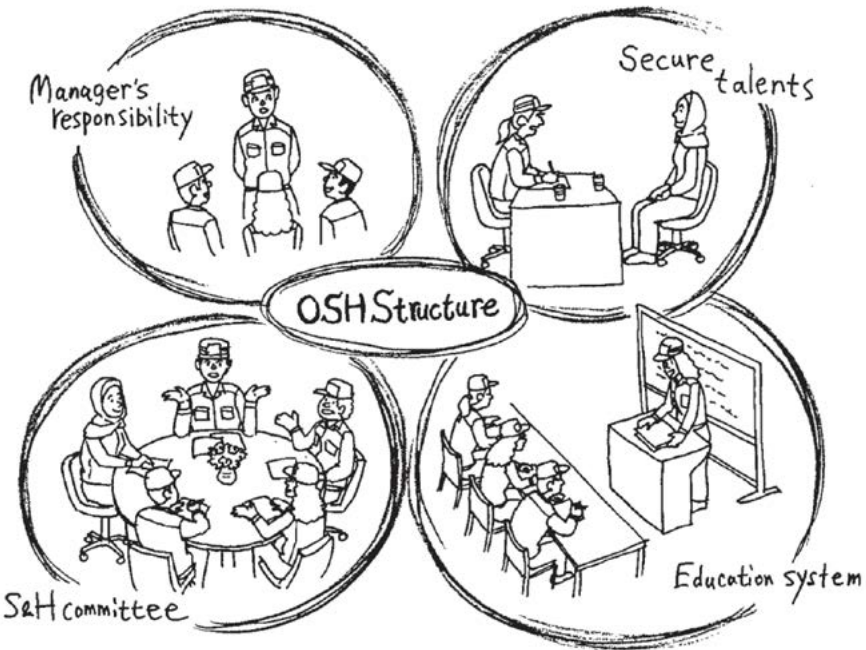
The form below can be use to list all the initiatives taken to continuously improve the system.

OCCUPATIONAL SAFETY AND HEALTH CONTINUAL IMPROVEMENT			
COMPANY :			
DIVISION	INITIATIVES	UNDERTAKEN ACTION	FUTURE PLANS

Continual improvement drives the organisation to continually address ways to improve organisational safety performance and accident rate. The organisation should continually strive to improve upon past performance. They should always be alert to any opportunities for enhancing working conditions and reduction of risk. However, these opportunities should be aligned with the organisation goals and objectives.

### 6. BASIC REQUIREMENTS

Apart from explaining the structure of the OSHMS, this guideline will also discuss on the basic requirement of the OSHMS system. They are:





## 6.1 OSH Structure

### 6.1.1 Communication

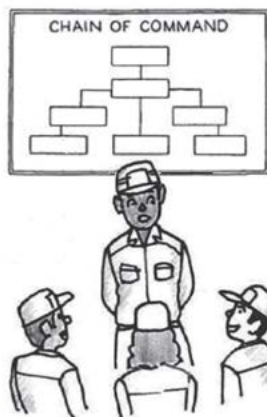
No system is effective unless it is supported by an effective two-way flow of information both up and down the organisational hierarchy and across the different parts of the organisation.

Communication system includes all communications channels whether verbal, written or electronic communication. Communication can be in the form such as:

- OSH briefings for workers and other interested parties, eg. contractors or visitors; and
- Notice boards containing OSH performance data, newsletter, poster, etc;
- Providing coaching session(s) and demonstrations;
- Company's booklets;
- Sending memos; and
- Intranet/ internet.

However, the communication tasks include the drafting, dissemination, updating and checking of OSH documents.

In order for the communication to be effective, processes of information flow need to be established and relevant workers need to be trained. The employer should set up a communication system to draft, update and disseminate OSH related information across the organisation.



### 6.1.2 Responsibility

The role and responsibilities shall be documented in manuals/procedures/training packages, including the process to communicate roles and responsibilities to all workers and other relevant parties.

The organisations shall define the responsibility, authority and relationship of personnel who manage, identify, evaluate and control OSH hazards. An organisation having multiple departments of OSH functions (e.g., budget, safety and health committee, medical services, emergency preparedness, training and awareness) should define the authority and responsibility of each function and describe how each relates with the other.

The executive ownership and accountability of OSH performance is a critical feature, where the owner is held directly accountable for each aspect of the OSH programme, e.g., anticipation, recognition, evaluation, and control of OSH hazards.

#### But what does it really mean?



Every members of the organisation should understand their respective responsibility, authority and accountability for OSH issues.

**So, what measures should your organisation take to fulfill this requirement?**

The organisation should ensure that every workers is accountable for their safety and health matters and also of their co-workers. Should also consider incorporating this accountability into job descriptions (where they exist) and make a point of reviewing it during performance appraisals.

An example of supervisors OSH responsibilities is as follow:

WORKERS RESPONSIBILITIES FOR OSH	
Company :	RM (M) Sdn. Bhd
Year :	2010
SUPERVISORS RESPONSIBILITY	
<p>Supervisors are to undertake effective OSH measures to ensure compliance with all related legislative requirements.</p>	
<p><b>PERFORMANCE CRITERIA:</b></p>	
<p>■ <b>Provide OSH information, training and supervision</b></p>	
<ul style="list-style-type: none"><li>• Disseminate OSH information to workers relevant to the specific work hazards of the area;</li><li>• Provide induction and refresher training to ensure ability of workers to discharge allocated OSH responsibilities including: hazards within the workplaces, safe operating procedures, use and maintenance of Personal Protective Equipment (PPE) and safety equipment and emergency response procedures;</li><li>• Supervise the OSH aspects of work undertaken by workers within the work area; and</li><li>• Facilitate consultative processes regarding OSH issues between management and staff.</li></ul>	
<p>■ <b>Undertake risk assessments</b></p>	
<ul style="list-style-type: none"><li>• Participate or directly supervise the undertaking of, the identification of hazards, evaluation of risks and design and implementation of hazard control measures ;</li><li>• Ensure risk assessments are recorded ;</li><li>• Incorporate OSH considerations into the design specification, purchase, hire, lease and supply of new plant including equipment, materials, products and substances used in the workplace; and</li><li>• Monitor the performance and effectiveness of the risk management program within the work area.</li></ul>	
<p>■ <b>Ensure application of appropriate risk control measures</b></p>	
<ul style="list-style-type: none"><li>• Implement hazard specific policies/guidelines and develop and periodically update OSH procedures for management of risks specific to the work area;</li><li>• Ensure the provision of plant, safety systems and personal protective equipment required to control the risk of hazards in the work area; and</li><li>• Ensure the maintenance of plant, safety systems and personal protective equipment required to control the risk of hazards in the work area.</li></ul>	
<p>■ <b>Implement a scheme for hazard and accident follow-up</b></p>	
<ul style="list-style-type: none"><li>• Undertake investigations of injuries and illnesses arising from workplace activities. Recommend corrective actions to prevent or minimise the chance of recurrence;</li><li>• Ensure all workplace hazards are reported in a timely manner to the person(s) who are responsible for implementing corrective action;</li><li>• Oversee the implementation of corrective action arising from accident investigation and hazard reports; and</li><li>• Ensure all incidents/accidents or injuries are signed off on and actioned within 6 weeks of incident.</li></ul>	



#### WORKERS RESPONSIBILITY

Workers are to comply with requirements of the related legislative and related OSH procedures developed by employers/management.

##### **PERFORMANCE CRITERIA:**

##### **■ Comply with safe working procedures**

- Follow safe work procedures established by the management; and
- Follow the OSH directions of the management.

##### **■ Use of appropriate personal protective equipment and safety systems**

- Where PPE is required to control exposure to hazards in the workplace, wear and maintain the PPE as directed, as indicated in a risk assessment or as required in OSH procedures.;
- Use other safety and emergency equipment provided in the workplace as directed or as required in OSH procedures.

##### **■ Assist with the preparation of risk assessments**

- Before commencing work, a risk assessment should be conducted to identify, assess and control the hazards associated with the work. This should be conducted in conjunction with other relevant worker and the supervisor.

##### **■ Report OSH problems**

- Report workplace hazards to the supervisor as possible after they occur; and
- Report injury or illness arising from workplace activities as soon as possible after incident.

The level of supervision needed will depend on the experience of individual worker and the risk associated with the work. It is important to make sure that workers, particularly new employees, are shown and coached in how to do their jobs safely and correctly.

The manager/employer has overall responsibility and is accountable for the safety of all activities conducted at their workplace and is responsible and accountable for providing adequate resources and an organisation to meet the aims and objectives contained in the OSH Policy and its procedures.

Workers must take reasonable care of the safety and health of themselves and others and must co-operate with employers/managers in their efforts to comply with occupational health and safety requirements.

### 6.1.3 Training

Training is a fundamental requirement for any workplace to achieve success in achieving OSH goals and targets and includes:

- **Generic OSH Training** - OSH skills and knowledge which is commonly required, e.g. induction training, risk management training, evacuation;
- **Risk Specific OSH Training** – OSH training required for those persons conducting OSH verification activities, e.g. OHS committee training, first aid training, bio-safety and radiation safety training.

The purpose of OSH training is to increase workers awareness of OSH issues which can help secure their own safety and health and that of others in the workplace and assist in building a culture of compliance to improve OSH outcomes.





Through training, managers, supervisors and workers will be able to understand and deal with worksite hazards. Regardless of the size of the organization, training should be used as a tool to prevent workplace accidents and possible injuries and illnesses.

Management is responsible for the approval and allocation of training resources.

### **Who should receive OSH?**

All workers should receive occupational safety and health training. Up-to-date training records should be kept for legal purposes, and to identify readily training needs. Workers training should generally include:

- General induction training;  
Job-specific training e.g. manual handling, hazardous substances, plant, noise, office ergonomics, accident reporting;
- Refresher training as needed.

### **What should the training include?**

To determine what the training content should be, training needs should be assessed. Means for assessing training needs should include:

- Talking with employees about what they need to perform their work safely — this improves their acceptance of and compliance with the training;
- Identifying the risk areas that require the most attention — this can be done by observing the tasks, liaising with other people in the district, and reviewing injury records.

## What should the training method be?

The most effective means of delivering the message needs to be carefully considered in terms of who the audience is and how it will understand, learn and remember best. Consider discussions, posters, case studies, videos etc. and invite suggestions on preferred methods from the audience itself. The method must be based on the tasks perform in the workplace.

## Evaluation, follow-up and review of training

- Training evaluation can be done with a feedback form and by observing workpractices for compliance with the training;
- A schedule of refresher training needs to be determined because training is an ongoing process;
- Make changes to the training program as it progresses to improve its effectiveness and to ensure it reflects current legislative requirements.

## How can you do your training?

You can follow the following approach:

### Step 1: Determine what training your organisation need or prepare OSH Training matrix

The OSH Training matrix is a tool which can be use to assist managers/ employers and supervisors to identify what OSH competency are required for their workers. The matrix aims to compile a list of OSH training modules necessary to equip workers with the skills, knowledge and information to effectively manage hazard exposures during their working day.

OSH TRAINING MATRIX																		
RM (M) Sdn. Bhd																		
Year 2010																		
POSITION	PROJECT MGR	CONST MGR	SITE MGR	SUPERVISORS	FOREMEN	WELDERS	PIPE-FITTERS	GRINDERS	RIGGERS	SCAFFOLDERS	DRIVERS	CRANE OP'S	MACHINE. OP'S	NDT TECH	MECHANICS	ELECTRICIANS	LABOURERS*	TEACHING MATERIAL TO BE USED
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Video + PPT Presentation
					X	X		X			X	X	X	X	X	X	X	Video + PPT Presentation + Drill
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Drill
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Video Drill
		X	X	X	X						X	X	X	X	X	X	X	Lecture
	X	X	X	X	X													Lecture

OSH TRAINING MATRIX																		
POSITION	PROJECT MGR	CONST MGR	SITE MGR	SUPERVISORS	FOREMEN	WELDERS	PIPE-FITTERS	GRINDERS	RIGGERS	SCAFFOLDERS	DRIVERS	CRANE OP'S	MACHINE. OP'S	NDT TECH	MECHANICS	ELECTRICIANS	LABOURERS*	TEACHING MATERIAL TO BE USED
PERMIT TO WORK SYSTEM				X	X													Lecture
WORK PLACE INSPECTION AND SITE AUDITING		X	X	X	X													Lecture
ENVIRONMENTAL AWARENESS				X	X	X	X	X		X	X		X		X		X	Video + PPT Presentation
PERSONAL PROTECTIVE EQUIPMENT		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Video + PPT Presentation
SAFETY SIGNS				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Video + PPT Presentation
MANUAL HANDLING				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Video + PPT Presentation
HAZARD AWARENESS AND COMMUNICATION			X	X	X													Video + PPT Presentation
SAFETY RULES FOR WELDING AND GRINDING						X	X	X									X	Video + PPT Presentation
GENERAL SAFETY ELECTRICAL AWARENESS						X	X	X	X	X			X	X	X	X	X	Video + PPT Presentation
SAFETY RULES FOR WORKING AT HEIGHTS						X	X	X	X	X				X	X	X	X	Video + PPT Presentation
GENERAL RADIOACTIVE SAFETY AWARENESS		X				X	X	X	X					X				Video
SAFETY RULES FOR DRIVERS	X	X				X					X			X				Video + PPT Presentation
GENERAL NOISE SAFETY AWARENESS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Video + PPT Presentation

## Step 2: Prepare your training plan

Prepare your training plan by prioritising the training modules and develop a training schedule for your organisation. It is recommended that the legislation and hazard management training modules are delivered first. The other modules listed within the OSH Training matrix can be delivered in an order appropriate to the worker's need. Example format of OSH Training plan can be referred to **ANNEX 10**.

## Step 3: Deliver the training

Once you have developed your training plan, train your workers in accordance with your training plan and schedule. You may require to develop your training modules for the topics covered within the workers specific elements. You must ensure that the information is easy to understand and try using variety of training methods to deliver your message. Also, ensure

Record the training particular (e.g. name and date) on the training form when training has been completed. Example of training record form is as in **ANNEX 10**. Maintain the training records on file in a hard copy form or electronically.

Example of training schedule and training record form are as follows:

OSH TRAINING PLAN AND SCHEDULE												
Company: RM (M) Sdn. Bhd												
YEAR 2010												
OSH TRAINING MODULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Legislation												
Hazard Management												
Manual Handling												
Slips, Trips and Falls												
Emergency Procedures												
First Aid												
Accident / Incident Reporting												
Safe Operating Procedures												
Electrical												
Working at Height												
Noise												
Personal Protective Equipment												
Housekeeping and Storage Practices												

OSH TRAINING RECORDS												
Company: RM (M) Sdn. Bhd												
YEAR 2010												
DATE	WORKERS NAMES	Legislation	Hazard Management	Manual Handling	Slips, Trips and Falls	Emergency Procedures	First Aid	Accident/Incident Reporting	Safe Operating Procedures	Electrical	Working at Height	Noise
24 Jan 2010	Muhammad Azlan Bin Tajul Azwa	x										
24 Jan 2010	Muhammad Azam Bin Mohd Nor	x										
24 Jan 2010	Mokhzani Bin Mohamed	x										
24 Jan 2010	Tajul Azwa Bin Mohd basri	x										
18 Feb 2010	Dalilah Aliah Binti Tajul Azwa		x									
18 Feb 2010	Azalia Binti Mohamed		x									

#### Step 4: Evaluation of training same as above

Check whether the training has worked or not. To make sure that the training program is accomplishing its goals, an evaluation of the training can be valuable. Training should have, as one of its critical components, a method of measuring the effectiveness of the training. A plan for evaluating the training session(s), either written or thought-out by the employer, should be developed when the course objectives and content are developed. It should not be delayed until the training has been completed. Evaluation will help employers or supervisors determine the amount of learning achieved and whether an employee's performance has improved on the job. Among the methods of evaluating training are:

##### 1. Student opinion

Questionnaires or informal discussions with employees can help employers determine the relevance and appropriateness of the training program.

##### 2. Supervisors' observations

Supervisors are in good positions to observe a worker's performance both before and after the training and note improvements or changes.

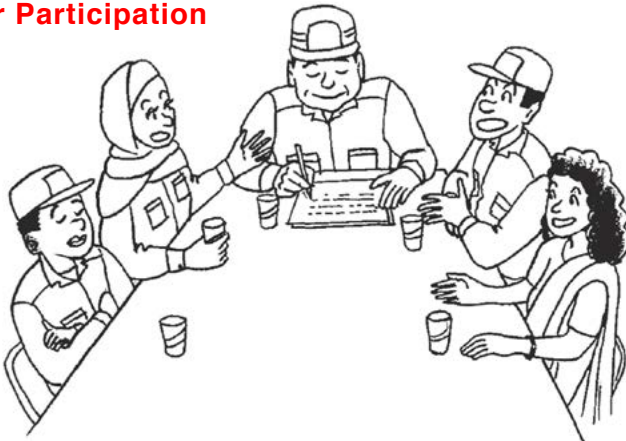
##### 3. Workplace improvements

The ultimate success of a training program may be changes throughout the workplace that result in reduced injury or accident rates.

However it is conducted, an evaluation of training can give employers the information necessary to decide whether the workers achieved the desired results and whether the training session should be offered again at some future date.

Finally, review your OSH Training needs, plan and training module from time to time.

## 6.2 Worker Participation



Situation where workers are involved in some way with decision-making regarding safety and health issues in a business organisation is known as workers participation. Worker participation should be strongly encouraged by management because it establishes ownership of safe behavior at the execution level, where it is most appropriate.

Workers participation can take many forms. There might be through consultation or through a safety circles which meet regularly in small groups to discuss ways in which safety and health issue could be improved.

### **What is OSH consultation?**

OSH consultation involves:

- The sharing of relevant information about OSH and welfare with workers;
- Giving workers the opportunity to express their views and to contribute to the resolution of OSH and welfare issues; and
- Valuing the views of workers and taking them into account.

Consultation enables workers to contribute to the decisions that affect their safety, health and welfare. It helps employers and workers to work together to seek solutions that lead to safer and healthier workplaces.

The organisations should encourage participation in good OSH practices, and support for its OSH policy and objectives, from all those affected by its operations, by a process of consultation such as:

- Formal management and workers consultations through OSH councils and similar bodies;
- Workers involvement in hazard identification, risk assessment and risk control;
- Initiatives to encourage workers OSH consultations, review and improvement activities in the workplace, and feedback to management on OSH issues;
- Workers OSH representatives with defined roles and communication mechanisms with management;
- Including, for example, involvement in accident and incident investigation, site inspection, etc.

### **How consultation is to be undertaken**

The way you consult with your workers may depend on the size of your business. If there is any legislation on how to undertake workers participation in your country then you need to follow those legislative requirement. However, if there is none, in any case you can choose any of these three methods below. Consultation may take place via three methods:

- OSH Committee - where workers are elected to an OSH Committee
- OSH Representatives - representative are elected by other workers of the business
- Other agreed arrangements such as:
  - ✓ Holding regular staff meetings where workers have their concerns considered by employer (OSH could be made a regular agenda item)
  - ✓ Holding specific OSH meetings when concerns are discussed
  - ✓ Holding 'tool box' meetings which are informal meetings, where the employer and workers can discuss OSH concerns and issues

## What are the main benefits of consultation?

- For the business
  - ✓ Greater workers commitment to OSH
  - ✓ Greater openness, respect and trust between management and workers
  - ✓ Higher worker morale and job satisfaction
  - ✓ Increased productivity
- For the employee
  - ✓ Safer working environment
  - ✓ Sense of belonging
- For the community
  - ✓ Reduced costs of insurance
  - ✓ Sense of working together for a common good

The consultation process between the employer and worker is a very important part of OSHMS. It can be extremely useful for employers to talk things over with their workers, seek and listen to their advice and ask them for information. OSHMS work best if everyone, including management and workers, are actively involved in their development and implementation.

Effective consultation can be achieved in many ways and you should choose the style that best suits your business.



## 6.3 Documentation

As a general rule, the OSHMS documentation followed three levels of documentation in a pyramidal structure:

- The top level is the OSHMS Manual, referring to the policies of OSH management.
- The second level is made up of the standard operating procedures (SOPs) — task procedures, safety and health procedures, and specific instructions to the processes and products. The third level is referred to as forms and format that essentially mean the documented.
- Evidence of OSH performance (records and data).

OSHMS documents also include work instructions, checklist and forms. The OSHMS documentation depends on the structure adopted. Importantly, it must outline the scope of the management system applicable to the organisation. However, the extent of the application varies with the OSH policy of the organisation, the nature of its activities and the risks and complexity of its operations.

### **But what is OSH Manual?**

The manual broadly describes how the organisation will comply with each system element and will refer to the other system documents for descriptions of the processes required.

### **But what are work procedures?**

Work procedures address work-related activities. Examples are plant maintenance procedures, Safe Work Method Statements and site safety inspection procedures.

### **But what are work instructions?**

Work instructions are written instructions for a particular task and they describes the steps to be taken in performing tasks.

The organisation should maintain up-to-date documentation to ensure that its OSHMS can be adequately understood, and effectively and efficiently operated. This may include:

- (i) OSHMS documentation; overview document or manual;
- (ii) document registers, master lists or indexes; and
- (iii) procedures and work instructions.

All documents and data critical to the operation of the OSHMS and the performance of the organisation's OSH activities should be identified and controlled. The written procedures should define the controls for the identification, approval, issue and removal of OSH documentation, together with the control of OSH data.

Typically, it should include:

- (i) document control procedure, including assigned responsibilities and authorities;
- (ii) document master lists or indexes, and list of controlled documentation and its location; and
- (iii) archive records.

OSHMS documents must also be made available at all appropriate locations and to all applicable personnel.

### **So, what measures should your organisation take to fulfill this requirement?**

Identify and effectively file essential paperwork (e.g. material safety data sheets, training records, accidents reports, etc) which you may need for legal, certification or other purposes.



## 6.4 Recording

Keeping records of your activities such as policy statements, training sessions, safety and health meetings, information distributed to workers and medical arrangements made greatly encouraged.

OSH records include but are not limited to completed copies of forms, checklists, risk assessments contained in the OSHMS. Also, OSH records may include externally produced documentation such as but not limited to material safety data sheets, external OSH audit reports, health surveillance records or workplace monitoring reports.

### Why keep records?

Maintaining essential records will demonstrate sound and also good faith of business management. Records also are the means by which an organisation can demonstrate compliance with its OSHMS.

Records are also necessary to demonstrate compliance with your legal obligations. They can be used to assist you in the implementation and operation of your OHSMS and provide useful information that can assist you when you are reviewing your safety performance.

Records are proof or evidence that certain actions have been undertaken. Often these records are required to be presented to verify that certain conditions and actions have been met.

The records should be kept to demonstrate that the system operates effectively, conforming to the requirement and that processes have been carried out under safe conditions and according to the procedures.

### What records should be kept

There are different types of records that may be kept by your organisation, including those that:

- Are required by legislation;
- Assist in the operation of the OSHMS;
- Pertain to the day to day operation of your business.

The OSH records that document the management system and conformance to the requirements should be prepared, maintained, legible, and adequately identified.

### OSH OHSMS RECORDS

- Accident/incidents/near misses;
- Audits and reviews;
- First aid assessment;
- First aid treatment;
- Permits to work, licenses;
- Preventative and corrective action;
- Reporting of incidents and system failures;

- Responsibilities e.g. job descriptions;
- OSH committee minutes/toolbox meetings minutes;
- Training;
- Worker's compensation claims;
- Rehabilitation records.

### OPERATIONAL RECORDS

- Engineering certification;
- Environmental monitoring;
- Inspection, calibration and equipment maintenance;
- Operator licenses /certification;
- Plant/machinery maintenance;
- Structural steel reports;
- Supplier and contractor information.



### What form should they take?

Records should be useful to your organisation and not necessarily designed to suit an auditor. They should contain sufficient detail to ensure their accuracy and usefulness. The focus should be on what is of benefit to the organisation and not on producing unnecessarily complex documents. It may also be a case of adapting and using a form already in existence.

### MAINTAINING RECORDS

The first step in maintaining records is determining who is going to be responsible for them and then training those responsible in their use. There should also be procedures for records identification, collection, indexing, filing, storage, maintenance, retrieval, retention, disposition and access.

Records should be:

- Kept so that they can be readily located and retrieved;
- Periodically reviewed;
- Approved for adequacy by responsible persons;
- Kept in locations where they are used.

Periodically review records to look for any patterns or repeat situations. Records can help you to identify high-risk areas that require immediate attention.

By maintaining these records in an orderly manner, the organisation can quickly respond to the demands of regulators and certification auditors as well as control their operations more effectively through the identification of trends or inappropriate activities which result in non-conformances.

## CONCLUSION

Now that the concept and elements of OSHMS had been briefly explained, it is hoped that the organisation will be able to understand and applied the content of this guideline at their workplace.

## ANNEX 1: EXAMPLE OF SAFETY AND HEALTH POLICY

Sample 1:

### Statement of Policy

[Company Name] is committed to providing a safe workplace for all of its workers.

We recognise that all workers have the right to work in a safe and healthy environment, consistent with the Occupational Safety and Health Act and any other applicable legislation.

Our company is committed to take every reasonable effort to eliminate the hazards that cause accidents and injuries.

Disregard or willful violations of this Policy by workers at any level may be considered cause for disciplinary action in accordance with the company's policies.

[Name and Signature]

President / Chief Executive Officer

[Company Name]

[Date]

Sample 2:

### Policy Statement

[Company Name] is committed to a safe and healthy work environment for all workers, sub-contractors, clients and the public at large.

I, \_\_\_\_\_, as President of [Company Name] give my personal promise to ensure a safe workplace for all parties. I realize that all workers have the right to work in a safe and healthy work environment.

All Management, Superintendents, Supervisors and workers are required to make every effort to ensure that [Company Name] meets all legislative requirements and maintains the highest safety standards.

I invite all personnel to co-operate and participate in achieving a safe and healthy work environment for all.

\_\_\_\_\_  
President

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

## ANNEX 2: HAZARD IDENTIFICATION FORM

HAZARD IDENTIFICATION FORM	
Company:	Conducted by:
	Name:
Process / Location:	Designation:
	Date:

HAZARD	LIKELIHOOD (FREQUENCY)	SEVERITY

FACTORS AGGRAVATING OR LESSENING RISKS

Signed: .....

Date: .....

## ANNEX 3: RISK ASSESSMENT IMPLEMENTATION PROCEDURE

Hazard is something that can cause harm, e.g. electricity, chemicals, working up a ladder, noise, a keyboard, a bully at work, stress.

A risk is the chance, high or low, that any hazard will actually cause somebody harm.



Risk assessment is the process of assessing all of the risks associated with each of the hazards identified during the hazard identification process.

In assessing the risks, three essential steps are taken:

1. The probability or likelihood of an incident occurring is evaluated.
2. The severity of the potential consequences is calculated or estimated.
3. Based on these two factors, the risks are assigned priority for risk control through the use of a risk rating.

Risk assessment involves examining and evaluating the likelihood and severity (or consequence) of the potential outcomes in order to prioritise risks for control.

### STEP ONE: LIKELIHOOD

How likely is it that a hazardous event or situation will occur?

Descriptor	Description
Remote	Not likely to occur
Occasional	Possible or known to occur
Frequent	Common or repeating occurrence

### STEP TWO: SEVERITY

What might be the consequence of a hazardous event or situation?

Descriptor	Example Detail Description
Minor	No injury, injury or ill-health requiring first aid treatment only (includes minor cuts and bruises, irritation, ill-health with temporary discomfort)
Moderate	Injury requiring medical treatment or ill-health leading to disability (includes lacerations, burns, sprains, minor fractures, dermatitis, deafness)
Major	Fatal, serious injury or life-threatening occupational disease (includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning and fatal diseases )

### STEP THREE : RISK TABLE

Calculate the degree of risk from the risk table.

Likelihood ↑ What is the chance it will happen?	Frequent	Medium Risk	High Risk	Extreme Risk
	Occasional	Low Risk	Medium Risk	High Risk
	Remote	Low Risk	Low Risk	Medium Risk
		Minor	Moderate	Major
		Severity →		

### STEP FOUR: RISK ASSESSMENT OUTCOME

The result of the risk matrix is compared with the criteria defined below and the required control strategies are implemented as outlined in the Risk Control section below.

#### Extreme Risk:

For new machinery or process, work should not be started until the risk has been mitigated. If it is not possible to mitigate even with limited resources, the work should remain prohibited.

For ongoing process, work should not be continued until the risk has been mitigated. Immediate action required; notify supervisor or safety personal. If possible, the activity should be ceased immediately.

#### High Risk:

Work should not be started until the risk has been mitigated. Significant resources may have to be located to mitigate risk.

Where risk involves work in progress, urgent action should be taken. Notify supervisor and safety and health representative and implement immediate action to minimise injury.

#### Medium Risk:

Effort should be made to mitigate the risk. Risk should be tolerated for a short term. Implement immediate action to minimise injury e.g. signs or notify; supervisor. Remedial action required within five working days.

#### Low Risk:

Largely acceptable, subject to reviews periodically or after significant changes. Remedial action within one month (if possible), supervisor attention required.

### RISK CONTROL

Risk control provides a means by which risks can be systematically evaluated against a set of control options (the hierarchy of controls) to determine the most effective control method(s) for the risk(s) associated with each hazard. This process involves analysing the data collected during the hazard identification and risk assessment processes, and developing a strategic plan to control the risks identified.

The risk control process starts by considering the highest ranked risks, working down to the least significant. Each risk should be examined having regard to the "hierarchy of controls". This provides a method of systematically evaluating each risk to determine, firstly, if the causal hazard can be eliminated, and otherwise, to find the most effective control method for each risk.

The “Hierarchy of Controls” should be used at all times when implementing controls to eliminate the hazard or reduce the risk of a hazard causing loss at the organisation.

### Hierarchy of controls

The hierarchy of controls is as follows:

1. Eliminate the hazard.
2. Substitute with a lesser hazard.
3. Use engineering controls to reduce hazard
4. Administrative controls such as workplace procedures.
5. Personal Protective Equipment.

In many cases, it will be necessary to use more than one control method. Back-up controls (such as personal protective equipment and administrative controls) should only be used as a last resort or as a support to other control measures.

### Worked Example: Operation of a fork lift

First, you need to accurately assess the hazard and its potential associated risks. Consideration should be given to:

- the specific use of the fork lift
- the number of people in the area of the fork lift use
- the design and set-up of the event area in which the fork lift is used
- experience of and licence requirements for people operating fork lift

Hazard assessed: Collision hazard

Risk Assessment: Having considered the above matter, then you should consider the likelihood of the accident to be happening and what is the damage it can cause. Referring to the table below (Example1), you can see that if the likelihood of the accident to be happening is **unlikely**, the risk level can be either **Low Risk** or **Medium Risk** depending on its severity.

Another example (Example 2), if there is **no possibility of an injury**, the level of the risk will be in the medium risk region even though the chance of the accident is **frequent**.

Hazard Control: Starting at the top of the hierarchy, the most appropriate control is ‘eliminate the hazard’ but this is not the most appropriate control so other method should be chosen. Administrative controls such as workplace procedures are the most appropriate control measures and this should be use to control the hazard.

	How likely is it to be that bad?			
How severely could it hurt someone or how ill could it make someone?	Frequent could happen anytime	Occasional could happen at some time	Remote won't happen	
Kill or cause permanent disability or ill health	High Risk	High Risk	Medium Risk	<div>Example 1</div> <div>Possible risk level</div>
Medical attention and several days off work	High Risk	Medium Risk	Low Risk	
No injury, only first aid needed	Medium Risk	Low Risk	Low Risk	
	Example 2			

## HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL (HIRARC) FORM

HIRARC FORM			
Company:	Conducted by: (Names, designations)		
Process/ Location:	Date :		
Approved by: (Name, designation) (Date)	Last Review Date:		Next Review Date:

1. Hazard Identification				2. Risk Analysis			3. Risk Control		
No.	Work Activity	Hazard	Which can cause / effect	Existing Risk Control (if any)	Likelihood	Severity	Risk	Recommended Control Measures	PIC (Due date / status )



### Scenario 1: Wood panel cutting process

A team of two workers operates a cross-cut saw machine. Their work includes loading wood panel onto the machine, cutting the wood and unloading the cut wood. They also need to repair and maintain the machine regularly as well as to change the blades of the machine. (Caution: This example may not be applicable to similar work in your workplace)

HIRARC FORM									
Company:		2F Furniture Entp		Conducted by: (Names, designations) Date : (from ... to ...)		Mr. S (Supervisor), Miss M & Mr L (Operator) 24 Jun 2007 to 28 July 2007			
Process/ Location:		Wood cutting /Panel Sect.		Review Date: 1. 2.					
Approved by: (Name, designation) (Date)		Mr. K (Manager) 25 Julai 2007							
1. Hazard Identification				2. Risk Analysis			3. Risk Control		
No.	Work Activity	Hazard	Which can cause / effect	Existing Risk Control (if any)	Likelihood	Severity	Risk	Recommended Control Measures	PIC (Due date / status )
1	Loading the machine	Cutting blades	Cut / first aid type injury	Safe work practice	3	1	Medium Risk	Use leather hand glove	Andy (26 July 2007) completed
2	Operating the machine	Unguarded machine	Hand get caught into rotating parts / amputation	Safe work practice, daily pre-use check and regular maintenance	3	2	High Risk	To fix L-guard	Chia (26 August 2007) in progress
		Flying fragments	Serius cuts & eye injuries by flying fragments of blades that break during cutting	Warning signs; Training, Safety goggles	3	2	High Risk	Use stronger blades; To fix L-guard Install	Multi (26 August 2007) completed
3	Unloading cut wood	Heavy load	Muscular strain / back pain	Manual lifting procedure	3	1	Medium Risk	Use mechanical lifter	Ali (20 August 2007) KV
4	Repair & maintenance of the machine	Unguarded machine; unsafe work practice	Serious cuts from blade & getting caught in rotating parts if machine is accidentally started	Cover 'on button' Safe work practice	3	3	Extreme Risk	To make delay start button	Ahmad (16 August 2007) completed

**EXAMPLE:****Scenario 2: Wall exterior plastering work**

A group of three workers was instructed to do plastering work at exterior wall at first floor of the building. Their work includes erecting working platform, wall plastering with concrete and do clearing work. (Caution: This example may not be applicable to similar work in your workplace).

HIRARC FORM				
<b>Company:</b>		3D Construction Eng. Entp		<b>Conducted by:</b> (Names, designations) Date : (from ... to ...)  <b>Review Date:</b>
<b>Process/ Location:</b>		Plastering Work / Exterior Wall		
<b>Approved by:</b> (Name, designation) (Date)		Mr. J (Site Manager) 25 Julai 2007		
				<b>1.</b>
				<b>2.</b>

1. Hazard Identification				2. Risk Analysis			3. Risk Control	
No.	Work Activity	Hazard	Which can cause / effect	Existing Risk Control (if any)	Likelihood	Severity	Risk	PIC (Due date / status )
1	Erect working platform	Unguarded floor	Head injury / fatal	Safety helmet, housekeeping	3	3	Extreme Risk	1) Muthu / 2 Aug 07 in progress 2) Ravi / 2 Sept 07 in progress
2	Loading concrete onto platform	Uneven floor	Fall of person / broken leg	Housekeeping, safety shoes	3	2	High Risk	Muthu / 26 July 07 completed
		Heavy load	Muscular strain / Back pain	Manual lifting procedure	3	1	Medium Risk	Muthu / 26 July 07 completed
3	Plastering	Defective platform Fall	Fall from height / fatal	Safety belt	3	1	Medium Risk	Muthu / 26 July 07 completed
		Hot weather	Dehydrate	Nil	3	1	Medium Risk	Ahmad to purchase / 07 / in progress
4	Clearing unused materials	Sharp objects	Finger cut	Nil	3	1	Extreme Risk	Ahmad to purchase / 7 July 07 in progress

## ANNEX 4: OSH IMPLEMENTATION CHECKLIST

ELEMENT	STEP NO.	ACTION REQUIRED	STATUS
OSH Policy	1	Do you have a written and signed OSH Policy?	<input type="checkbox"/>
	2	Is your OSH Policy readily available to workers (e.g. mounted on the wall)?	<input type="checkbox"/>
Workers Participation	1	Have you held a meeting with your workers to discuss on OSH issues?	<input type="checkbox"/>
	2	Are all workers aware of this discussion?	<input type="checkbox"/>
Training	1	Have you conducted a training needs assessment to determine the training required to ensure that workers have the appropriate skills and qualifications to do their jobs safely?	<input type="checkbox"/>
	2	Have you scheduled and provided appropriate OSH training for all workers?	<input type="checkbox"/>
	3	Do new worker receive OSH induction training that outlines the company's OSH requirements?	<input type="checkbox"/>
	4	Is all training documented?	<input type="checkbox"/>
	5	Do you hold copies of any licences and qualifications required by workers for their job?	<input type="checkbox"/>
Hazard Identification and Workplace Inspections	1	Has all staff received training on hazard identification and are they encouraged to report any hazards?	<input type="checkbox"/>
	2	Are regular workplace inspections conducted for all areas of the company's premises and operations? (i.e. monthly)	<input type="checkbox"/>
	3	Have you done your hazard identification?	<input type="checkbox"/>
	4	Is the level of risk assessed for identified hazards? (eg. using a risk matrix)	<input type="checkbox"/>
	5	Are appropriate measures implemented to control identified hazards?	<input type="checkbox"/>
	6	Are staff familiar with any identified hazards and the related safety procedures?	<input type="checkbox"/>
	7	Do you periodically follow-up to ensure that control measures have been implemented effectively? Have all control measures been documented?	<input type="checkbox"/>
Visitors and Contractors	1	Are appropriate OSH measures in place to protect visitors from any hazards?	<input type="checkbox"/>
	2	Are appropriate OSH measures in place when using contractors?	<input type="checkbox"/>
Emergency Preparedness	1	Are person(s) trained to safely evacuate all workers and visitors in the event of an emergency?	<input type="checkbox"/>

ELEMENT	STEP NO.	ACTION REQUIRED	STATUS
<b>Emergency Preparedness</b>	2	Are evacuation drills conducted on a regular basis? (i.e at least annually).	<input type="checkbox"/>
	3	Are all workers aware of emergency procedures and related information?	<input type="checkbox"/>
	4	Are evacuation diagrams displayed at key locations throughout the premises including all major exits?	<input type="checkbox"/>
	5	Do you review and update your emergency procedures at least annually?	<input type="checkbox"/>
<b>First Aid</b>	1	Are there an appropriate number and type of first aid kits available?	<input type="checkbox"/>
	2	Is there appropriate signage to designate the location of first aid kits?	<input type="checkbox"/>
	3	Are your first aid kits inspected to ensure that they are complete and the contents are within the expiry dates? Are the names of first aiders made known to workers?	<input type="checkbox"/>
	4	Do all first aiders renew their certification?	<input type="checkbox"/>
<b>Accident and Incident Reporting</b>	1	Are workers aware of accident and incident reporting procedures?	<input type="checkbox"/>
	2	Are these procedures followed in the event of an accident or incident?	<input type="checkbox"/>
<b>Equipment Safety</b>	1	Have you identified any equipment that presents an increased risk to workers if defective?	<input type="checkbox"/>
	2	Is there a regular maintenance schedule and documentation for all required inspections /servicing?	<input type="checkbox"/>
	3	Do workers have appropriate training to operate equipment?	<input type="checkbox"/>
	4	Is a procedure in place for defective equipment to be tagged and removed from service?	<input type="checkbox"/>
<b>Hazardous Substances</b>	1	Have all hazardous substances used on the premises been identified and documented?	<input type="checkbox"/>
	2	Do you have Material Safety Data Sheets (MSDS) for all required substances?	<input type="checkbox"/>
	3	Have all required safety precautions for each substance including PPE, appropriate storage cabinets, etc been identified and implemented?	<input type="checkbox"/>
	4	Have all workers received adequate training for the substances they use?	<input type="checkbox"/>

ELEMENT	STEP NO.	ACTION REQUIRED	STATUS
Health Surveillance	1	Have you noted whether any hazardous substances from the list of designated substances are used on your premises?	<input type="checkbox"/>
	2	Have you identified any other substances that are known to have a reasonable likelihood of causing disease or illness?	<input type="checkbox"/>
	3	If required, have you investigated the health surveillance requirements for the identified substances and developed monitoring procedures?	<input type="checkbox"/>
Personal Protective Equipment	1	Is appropriate PPE available for each workers/job?	<input type="checkbox"/>
	2	Are workers aware of the correct use and limitations of the PPE?	<input type="checkbox"/>
Safe Work Practices	1	Have you identified activities that present a potential risk to workers and developed safe work procedures for these activities?	<input type="checkbox"/>
	2	Do all affected workers have appropriate equipment, instructions and training to perform the work safely?	<input type="checkbox"/>
Purchasing	1	Have procedures been implemented that consider OSH issues when purchasing new equipment?	<input type="checkbox"/>
	2	Have procedures been implemented to identify any faults or hazards with the equipment before use?	<input type="checkbox"/>
Program Monitoring	1	Do you conduct periodic reviews to assess whether your OSH program is being implemented effectively and to identify ways to make further improvements?	<input type="checkbox"/>
	2	Are these findings provided to senior management for review?	<input type="checkbox"/>
<b>SPECIFIC OSH TOPIC</b>			
Ergonomics	1	Are all office/other equipment appropriate to suit the task and the user?	<input type="checkbox"/>
	2	Is all workers trained in the proper use and adjustment of equipment to avoid working in difficult postures?	<input type="checkbox"/>
	3	Have you developed purchase specifications that consider ergonomic requirements for new equipment?	<input type="checkbox"/>
Manual Handling	1	Have all routine manual handling tasks been identified? Has the level of risk associated with each task been assessed?	<input type="checkbox"/>
	2	Have any particular problem areas been identified by referring to reported incidents, completed risk assessments, etc?	<input type="checkbox"/>
	3	Have appropriate control measures been implemented to reduce the likelihood /consequences of injuries?	<input type="checkbox"/>
	4	Have you provided training for all relevant workers in manual handling techniques and use of equipment to facilitate manual handling?	<input type="checkbox"/>



## **ANNEX 5: WORKPLACE SAFETY INSPECTION FORM AND CHECKLIST**

<b>WORKPLACE SAFETY INSPECTION FORM</b>	
Company :	
Date and time of inspection :	
Area or workplace inspected :	
Name(s) and signature(s) of personal taking part in the inspection :	
Name(s) and signature(s) of employer (or their representative) taking part in the inspection (if appropriate):	
<b>Record of receipt form by the employer (or their representative)</b>	
Signature:	Date:

**WORKPLACE SAFETY INSPECTION REPORT FORM****PURPOSE :**

Notification to the employer (or their representative) of conditions and working practices considered to be unsafe or unhealthy and of arrangements for welfare at workplace considered to be unsatisfactory.

Company :

Date and time of inspection :

Area or workplace inspected :

Particulars of matter(s) notified to employer or their representative

*(This column to be completed by the employer)*

Remedial action taken (with date) or explanation if not taken.

Record of receipt form by the employer (or their representative)

Signature :

Date:

The following workplace safety inspection checklist is only example. It is always best to design checklists or inspection sheets that are specific to your firm or operation.

WORKPLACE SAFETY INSPECTION CHECKLIST
Company :
Date and time of inspection :
Area or workplace inspected :
<p>Inspections should be divided into two categories:</p> <p>(1) What to “look at” and</p> <p>(2) What to “look for”</p>
<b>WHAT TO LOOK AT:</b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Atmospheric surroundings: hazardous conditions of dust, gases, fumes, sprays etc.</li> <li><input type="checkbox"/> Chemical substances: all liquids and solids those are toxic in nature.</li> <li><input type="checkbox"/> Containers: all objects for storage of materials, e.g., barrels, boxes, bottles, cans etc.</li> <li><input type="checkbox"/> Electrical conductors and apparatus: wires, cables etc.; switches, controls, transformers, lamps, batteries, fuses, etc.</li> <li><input type="checkbox"/> Engines and prime movers: sources of mechanical power.</li> <li><input type="checkbox"/> Firefighting equipment: all firefighting equipment and early detection systems, plus related structures such as sprinklers, fire plugs etc.</li> <li><input type="checkbox"/> Guards and safety devices: all removable and fixed guards, and safety devices or attachments, excluding personal protective apparel.</li> <li><input type="checkbox"/> Hand tools-all kinds: equipment that is held or carried when in use.</li> <li><input type="checkbox"/> Hoisting equipment: air hoists, hydraulic lifts, jacks, electric hoists, wire ropes, chains.</li> <li><input type="checkbox"/> Flammables and explosives.</li> <li><input type="checkbox"/> Machinery and its parts: power equipment that processes or modifies materials, i.e. agitators, grinders, forging presses, pulverizing machines, drilling machines etc.</li> <li><input type="checkbox"/> Mechanical and power transmission systems: shafts, bearings, gears, pulleys, drums, cables, belts, sprockets, ropes, chains etc., when used to transmit power.</li> <li><input type="checkbox"/> Overhead structures and equipment: any structural part of equipment that may fall from above.</li> <li><input type="checkbox"/> Personal protective apparel: goggles, gloves, aprons, leggings, etc.</li> <li><input type="checkbox"/> Pressure vessels, boilers and pipes: objects subject to internal pressure from compression of liquids or gases. (if any)</li> <li><input type="checkbox"/> Pumps, compressors, blowers and fans: objects that move or compress liquids, air, or gases.</li> <li><input type="checkbox"/> Shaftways, pits, sumps and floor openings: any type of opening into which a person may stumble or fall.</li> <li><input type="checkbox"/> Walking or standing surfaces: floors, aisles, stairs, platforms, ramps, roads, scaffolds, ladders etc.</li> </ul>



## WORKPLACE SAFETY INSPECTION CHECKLIST

- ☐ Warning and signal devices: direct communication systems such as radio, telephones, buzzers, bells, lights etc.
- ☐ Vehicles and carrying equipment: trucks, cars, motorized carts, and non-motorized equipment for transporting materials.
- ☐ Miscellaneous: other potentially hazardous objects or conditions that do not fall into the above categories.

### WHAT TO LOOK FOR:

#### **GUARDS**

- ☐ Missing guards on gears, belts, pulleys and shafts
- ☐ Missing guards on power saws
- ☐ Missing point of operation guards on all machines
- ☐ Grinding wheels guarded and tool rests adjusted
- ☐ Pinch points guarded against inadvertent contact

#### **SUPPORT AND STRUCTURE**

- ☐ Faulty bracing, shoring
- ☐ Sharp-edged, jagged splinters
- ☐ Worn, cracked, broken conditions
- ☐ Slippery walking and gripping surfaces
- ☐ Uneven surfaces
- ☐ Missing hand rails and platform guardrails
- ☐ Broken steps
- ☐ Crating potential for worker or equipment to trip, fall, roll, collapse, slide etc
- ☐ Protruding objects

#### **ELECTRICAL**

- ☐ Ungrounded machines and equipment
- ☐ Low voltage leaks
- ☐ Obstructed switch panels
- ☐ Use of "lockouts" for mechanics and electricians
- ☐ Close proximity to stop buttons on all machines
- ☐ Defective cords, plugs, receptacles
- ☐ Overloaded circuits
- ☐ Use of light duty extension cords instead of approved wiring
- ☐ Power cords across aisles, under rugs etc.
- ☐ Use of low voltage systems or ground fault interrupters in wet locations

#### **VENTILATION, ILLUMINATION, NOISE, RADIATION**

- ☐ Excessive heat
- ☐ Use of unshielded X-rays (if any)
- ☐ Arc-flash without shielding

## WORKPLACE SAFETY INSPECTION CHECKLIST

- ☐ Excessive dust
- ☐ Exposure to toxic dust, fumes, gases
- ☐ Gas leaks
- ☐ Excessive noise
- ☐ Poor ventilation for chemical use and storage
- ☐ Failure to protect workers from the above hazards

### **MISCELLANEOUS ITEMS**

- ☐ Poor housekeeping
- ☐ Proper storage of flammable liquids
- ☐ Exits clear for emergencies
- ☐ Adequate first aid supplies
- ☐ Fire extinguisher in working condition
- ☐ Damaged rigging
- ☐ Vehicle neglect
- ☐ Eye protection, head protection, breathing protection available
- ☐ Warning devices for work in streets
- ☐ New workers informed of work hazards

### **WORK PRACTICES**

- ☐ Failure to use PPE
- ☐ Horseplay
- ☐ Failure to follow safety/health rules and procedures
- ☐ Misuse of tools and equipment
- ☐ Failure to follow safe working procedures
- ☐ Poor housekeeping

### **OTHER?**

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## **ANNEX 6: ACCIDENT INVESTIGATION OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM CHECKLIST**

Use the following checklist to structure investigations and written reports. It is intended as a guide. It is not comprehensive and it will not always be necessary to consider all the points in the checklist.

Be guided by the significance of the accident when deciding how deeply to investigate it. Consider not only the actual outcome, but also what the potential outcome might have been. Could things have turned out a lot worse? The more serious the event or the greater its potential, the more effort that needs to be put into the investigation.

<b>ACCIDENT INVESTIGATION CHECKLIST</b>	
<b>Company :</b> _____	
<b>Date and time of investigation :</b> _____	
<b>OBTAIN BASIC FACTS</b>	
<input type="checkbox"/> Names of injured / ill worker(s) / witnesses / people early on the scene Names of injured: _____ Name of witnesses: _____ Name of people early on the scene: _____	
<input type="checkbox"/> Condition of any equipment: _____	
<input type="checkbox"/> Any chemicals / substances in use or present: _____ _____	
<input type="checkbox"/> Layout of area: _____	
<input type="checkbox"/> Place, time, conditions: _____	
<input type="checkbox"/> Extent of any injury / ill health / damage / disruption: _____	
<input type="checkbox"/> Make use of camera, sketches, measurement to record the undisturbed scene	
<b>ESTABLISH CIRCUMSTANCES</b>	
<input type="checkbox"/> What was being done at the time and what happened? What was being done? _____ What happened? _____	
<input type="checkbox"/> Immediate causes : _____	
<input type="checkbox"/> Events leading up to the incident : _____	
<input type="checkbox"/> Any evidence linking case of ill health to work: _____	
<input type="checkbox"/> Competence, e.g. what instructions and training were given before the event and how much experience in the job did the people involved (including supervisors) have? Were they aware of the dangers associated with the activity? What instructions and training were given before the event: _____ How much experience in the job did the people involved (including supervisors) have? _____ Were they aware of the dangers associated with the activity? _____	
<input type="checkbox"/> What were the established methods of carrying out the task? <input type="checkbox"/> Yes <input type="checkbox"/> No Were they adequate? <input type="checkbox"/> Yes <input type="checkbox"/> No Were they being followed? <input type="checkbox"/> Yes <input type="checkbox"/> No	

## ACCIDENT INVESTIGATION CHECKLIST

- ☐ Behaviour and actions of individuals : \_\_\_\_\_
- ☐ Role of supervisors. Had those involved in the accident been told to carry out the particular task/activity or were they acting on their own initiative?  
\_\_\_\_\_
- ☐ What was the worst that could have happened? \_\_\_\_\_
- ☐ Has something similar happened before? \_\_\_\_\_
- ☐ Could it happen again? \_\_\_\_\_

### IDENTIFY PREVENTIVE MEASURES

- ☐ Review the risk assessment for the activity.  
What precautions should have been in force? \_\_\_\_\_  
What training should those carrying out the activity have received?  
\_\_\_\_\_
- ☐ What precautions were actually taken? Compare them with those which should have been taken.  
\_\_\_\_\_
- ☐ What training was actually given? Compare it with training which should have been given. \_\_\_\_\_

### ESTABLISH WHETHER THE INITIAL RESPONSE TO THE ACCIDENT WAS ADEQUATE

- ☐ Was prompt and appropriate action taken (such as making safe and dealing with any continuing risks, electrical isolation, suitable fire fighting, effective first-aid response and correct spillage procedures)? \_\_\_\_\_

### IDENTIFY THE UNDERLYING CAUSES

These might include:

- ☐ Management or supervision failure
- ☐ Lack of competence
- ☐ Inadequate training
- ☐ Shortcomings in original design of equipment of facilities
- ☐ Absence of a system for maintenance

### DETERMINE ACTION NEEDED TO PREVENT A RECURRENCE

In deciding on the right course of action, think whether the outcome could have been more serious and what prevented this from happening.

Reappraise the precautions derived from the risk assessment - Do they satisfy the intentions of the organization safety and health policy?

If the intended precautions appear adequate but they were not fully implemented, why was this? What needs to be done to ensure necessary precautions are taken in the future? Actions to prevent a recurrence might include

- ☐ Improve physical safeguards
- ☐ Introduce better test and maintenance arrangements
- ☐ Improve work methods
- ☐ Provide and use personal protective equipment
- ☐ Make changes to supervision and training arrangements
- ☐ Review procedures involving outside contractors
- ☐ Improve inspection systems

## ANNEX 7: EMERGENCY MANAGEMENT CHECKLIST

The following checklist can be used to help organise your emergency management and response plan. Be sure to customise this list with items specific to your needs.

### ACCIDENT INVESTIGATION CHECKLIST

Company :

#### GENERAL ISSUES

Prepare plan for emergency management : ☐ Yes ☐ No

Does the plan consider all potential natural or man-made emergencies that could disrupt your workplace? ☐ Yes ☐ No

Common sources of emergencies identified in emergency action plans include :

Fires ☐ Explosions ☐ Floods ☐ Hurricanes ☐ Tornadoes ☐

Toxic gases releases ☐ Radiological Accidents ☐ Chemicals Spills ☐

Civil disturbances ☐ Workplace Violence ☐

Does the plan consider all potential internal sources of emergencies that could disrupt your workplace? ☐ Yes ☐ No

Does the plan consider the impact of these internal and external emergencies on the workplace's operations and is the response tailored to the workplace? ☐ Yes ☐ No

Does the plan contain a list of key personnel with contact information as well as contact information for local emergency responders, agencies and contractors? ☐ Yes ☐ No

Does the plan contain the names, titles, departments, and telephone numbers of individuals to contact for additional information or an explanation of duties and responsibilities under the plan?

☐ Yes ☐ No

Does the plan address how rescue operations will be performed? ☐ Yes ☐ No

Does the plan address how medical assistance will be provided? ☐ Yes ☐ No

Does the plan identify how or where personal information on workers can be obtained in an emergency? ☐ Yes ☐ No

#### EVACUATION POLICY AND PROCEDURE

Does the plan identify the conditions under which an evacuation would be necessary?

☐ Yes ☐ No



## ACCIDENT INVESTIGATION CHECKLIST

Does the plan address the types of actions expected of different workers for the various types of potential emergencies? ☐ Yes ☐ No

### EVACUATION POLICY AND PROCEDURE

Does the plan designate who, if anyone will stay to shut down critical operations during an evacuation? ☐ Yes ☐ No

Does the plan outline specific evacuation routes and exits and are these posted in the workplace where they are easily accessible to all workers? ☐ Yes ☐ No

Does the plan address procedures for assisting people during evacuations, particularly those with disabilities or who do not speak your language? ☐ Yes ☐ No

Does the plan identify one or more assembly areas where workers will gather and a method for accounting for all workers?  
☐ Yes ☐ No

Does the plan address how visitors will be assisted in evacuation and accounted for?  
☐ Yes ☐ No

### REPORTING EMERGENCIES AND ALERTING WORKERS IN AN EMERGENCY

Does the plan identify a preferred method for reporting fires and other emergencies?  
☐ Yes ☐ No

Does the plan describe the method to be used to alert workers, including disabled workers, to evacuate or take other action? ☐ Yes ☐ No

### EMPLOYEE TRAINING AND DRILLS

Does the plan identify how and when employees will be trained so that they understand the types of emergencies that may occur, their responsibilities and actions as outlined in the plan?  
☐ Yes ☐ No

Does the plan address how and when retraining will be conducted? ☐ Yes ☐ No

Does the plan address if and how often drills will be conducted? ☐ Yes ☐ No

## ANNEX 8: OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM CHECKLIST

Items to be Checked		Judgment	Reference documents, person, etc.	Date	Reason for the Judgment
Items with ☆ are ones which should be confirmed through on-site visits, interviews, etc.					

<b>Declaration of OSH Policy (5.1)</b>	<b>1. Does the employer establish OSH policy in written form? (An electronic document is also acceptable.)</b>				
	<b>2. Does the employer inform workers, contractors and other person involved of the OSH policy?</b>	☆			
	The way of announcement can be as follows;				
	a. Communicate the OSH policy with oral, documents, e-mails or other relevant ways.				
	b. The OSH policy need to be accessible at any time by a bulletin board, intranet or other means.				
	<b>3. Does the OSH policy include the following items?</b>				
	a. Prevention of industrial accidents				
	b. Implementation of safety and health activities with the cooperation of workers				
<b>Identification of Hazards (5.2)</b>	c. Compliance with the Act, any orders under the Act, all rules pertaining to safety and health established at workplaces				
	d. Proper implementation of measures to be taken in accordance with OSHMS				
	<b>1. Are the procedures for identifying hazards established in written form? (Identification of hazards should be implemented in accordance with the established classification of hazards.)</b>				
	<b>2. Are the hazards identified in accordance with the procedures above?</b>	☆			
<b>Assessment of Risks (5.3)</b>	<b>1. Are the procedures for risk assessment, including the following items, established in written form?</b>				
	<b>a. Identification of work-related risks</b>				
	<b>b. Estimation of severity and possibility of occurrence of injuries or diseases identified by (a).</b>				
	Risk should be estimated in either of the following ways.				
	(a) Risk should be estimated taking into consideration of both the severity and the possibility of the occurrence of injuries or diseases that may be caused by hazards.				
	(b) In case of diseases caused by chemical substances, risk should be estimated taking into consideration of the level of toxicity and the amount of exposure respectively.				
(c) Examination of the contents of the priority of reducing risks and risk reduction measures.					
	<b>2. Are the risk assessment performed in accordance with the procedures above?</b>	☆			

Items to be Checked		Judgment	Reference documents, person, etc.	Date	Reason for the Judgment
Items with ☆ are ones which should be confirmed through on-site visits, interviews, etc.					

Assessment of Risks (5.3)	<b>3. Based on the result of the risk assessment, in order to determine the measures to prevent injury or health impairment of workers, are the procedures including following items provided in written form?</b>				
	a. Determination of the measures to be implemented in accordance with the OSH legislation and the workplace OSH regulations.				
	b. Determination of risk reduction measures in accordance with the priorities set by the risk assessment.				
	<b>4. Are the measures to be taken determined based on the procedures above?</b>	☆			
Establishment of Safety and Health Objectives (5.4)	<b>1. Is OSH objective established in written form?</b>				
	<b>2. Are the following items considered when establishing OSH objectives?</b>	☆			
	a. Results of risk assessment				
	b. Status of achievement of the past OSH objectives and the latest status of work - related injuries and diseases				
	<b>3. Is the level of achievement during a specific period for each objective clarified?</b>				
Development of OSH Plan (5.5)	<b>4. Are all their workers, related contractors and other persons involved fully informed of the objectives?</b>	☆			
	<b>1. Is an OSH plan established in written form?</b>				
	<b>2. Does an OSH plan include specific measures and an associated schedule as follows?</b>		—	—	—
	a. The contents of the measures determined in accordance with OSH legislation and the results of risk assessment and the time of implementing such measures				
	b. Routine OSH activities				
	c. The contents of OSH education and training, and the time of providing such education and training				
	d. The contents of measures to be taken for related contractors and the time of implementing such measures				
	e. The period of an OSH plan				
Implementation of OSH Plans (5.6)	f. Matters related to reviews of an OSH plan				
	<b>1. Are the procedures to properly implement OSH plans provided in written form?</b>				
	<b>2. Is the OSH plan implemented in accordance with the procedures above?</b>	☆			
<b>3. Are all workers, related contractors and other persons involved well informed of measures necessary to properly implement OSH plans?</b>					



Items to be Checked		Judgment	Reference documents, person, etc.	Date	Reason for the Judgment
Items with ☆ are ones which should be confirmed through on-site visits, interviews, etc.					

Routine Monitoring and Improvements (5.7)	1. Are the procedures for conducting routine monitoring and making improvements with respect to the implementation of an OSH plan provided in written form?				
	Routine monitoring and improvements may be conducted as follows.				
	a. Monitoring on the achievement level of the OSH objectives and the progress of the OSH plan				
	b. Investigation on the cause of problems and improvements				
	2. Are the routine monitoring and improvements with respect to the implementation of the OSH plan properly conducted in accordance with the procedures above?	☆			
Investigation of Causes of Work-related Accidents, Incidents and Diseases (5.8)	3. Is the OSH policy developed after considering following items?				
	a. Results of routine monitoring and improvements				
	b. Investigation of the cause when work - related accidents or diseases occurred				
Emergency Prevention, Preparedness and Response (5.9)	1. Are the procedures to determine a cause, identify problems and to take corrective actions when work-related accidents or diseases occur provided in written form?				
	2. Are the investigation of a cause, identification of problems and corrective actions properly conducted in accordance with the procedures above?				
	1. Does the employers assess in advance the possibility of an occurrence of emergent situation?	☆			
	2. Does the employer provide measures to prevent the occurrence of an industrial accident if such an emergent situation takes place?	☆			
	The measures to prevent the occurrence of an industrial accident in an emergent situation should include the following items.				
	a. Measures to prevent damage to the minimum and also to prevent the expansion of the damage				
System Audit (5.11)	b. Setting up the roles of each division and section, and the system of supervision and order				
	c. Implementation of evacuating drill				
	1. Is a plan for periodic system audits developed which includes following items?				
	a. System audits should be conducted at least once a year.				
	b. Procedures to conduct system audits				

Items to be Checked		Judgment	Reference documents, person, etc.	Date	Reason for the Judgment
Items with ☆ are ones which should be confirmed through on-site visits, interviews, etc.					

	2. Are system audits properly conducted in accordance with the procedures above?	☆				
	3. Does the person who conduct system audits not belong to objective departments or divisions of the system audits?	☆				
	4. Where it is deemed necessary as a result of system audits, are corrective actions for measures to be taken in accordance with the OSHMS?	☆				
	"Where it is deemed necessary" refers to the situations when the results of system audits concluded and reported that improvements are necessary.					
Management Review (5.13)	1. Are periodical overall reviews of the OSHMS (eg. OSH policy, procedures established, etc.) conducted based on the results of system audits?	☆				
	"Review" should be conducted after employers themselves evaluate the validity and effectiveness of the OSHMS and conclude its necessity.					
Establishment of OSHMS Implementation Structure (6.1)	1. Are the roles, responsibilities and authority of a general manager who supervise overall operations stipulated in written form?					
	2. Are the roles, responsibilities and authority of a managerial or supervisory personnel in production, safety and health, etc. who are in charge of OSHMS stipulated in written form?					
	3. Are all workers, contractors and other persons involved fully informed of the roles, responsibilities and authority of said parties?	☆				
	4. Are the designation of workers who engage in system management at each organisational level clearly announced, for example, by designating individual's name on structure list of OSHMS, etc.?					
	5. Are the workers provided with education and training on OSHMS?	☆				
	The contents of the education and training may include following items.					
	a. Significance of OSHMS					
	b. Rules and notice for the implementation of measures to be taken in accordance with OSHMS					
	c. Roles of workers who engage in system management at each organisational level					

Items to be Checked		Judgment	Reference documents, person, etc.	Date	Reason for the Judgment
Items with ☆ are ones which should be confirmed through on-site visits, interviews, etc.					

	6. When an OSH committee is established, are the items on the implementation of measures to be taken in accordance with OSHMS investigated and discussed?	☆			
Incorporation of Workers' Opinions in Safety and Health Measures (6.2)	1. Does the employer establish specific procedures for incorporating workers' opinions in setting OSH objectives and in formulating, implementing, evaluating and improving the OSH plan? (The procedures need to include when, by whom, what and how it is implemented.)				
	2. Based on the procedures above, are the workers' opinions incorporated enough? The way of incorporating workers' opinion can be as follows;				
	a. Discussion at OSH committees				
	b. When OSH committee is not established, an occasion to hear workers' opinion should be taken.				
Documentation (6.3)	Documentation shall be checked at each item on the check list.	—	—	—	—
	1. Are specific procedures to maintain the documents (keeping, revising, rejecting, etc.) specified?				
	2. Are the documents maintained in accordance with the procedures above?	☆			
Recording (6.4)	1. Are the implementation status of OSH plans and necessary items for the implementation of measures to be taken in accordance with the OSHMS properly recorded and maintained?				

## ***ANNEX 9: MANAGEMENT REVIEW FORM***

The following form can be used to get feedback for your management review.

<b>MANAGEMENT REVIEW FORM</b>	
<b>COMPANY :</b>	
<b>COMMENTS:</b>	
<b>RECOMMENDATIONS:</b>	
<b>REVIEW COMPLETED BY:</b>	
<b>NAME:</b>	
<b>TITLE:</b>	<b>DATE:</b>

## ANNEX 10: OSH TRAINING PLAN & TRAINING RECORD FORM

The following format is an example of OSH training plan and training record form.

OSH TRAINING PLAN AND SCHEDULE												
COMPANY : < Insert Company's Name>												
OSH TRAINING MODULE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
< Insert OSH Training Module Title>												
< Insert OSH Training Module Title>												
< Insert OSH Training Module Title>												
< Insert OSH Training Module Title>												
< Insert OSH Training Module Title>												

OSH TRAINING RECORDS												
<Insert Company Name>												
<Insert Year>												
DATE	WORKERS NAMES	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>	< Insert OSH Training Module Title>
<Insert Date>	< Insert Training Participant Name>											
<Insert Date>	< Insert Training Participant Name>											
<Insert Date>	< Insert Training Participant Name>											
<Insert Date>	< Insert Training Participant Name>											
<Insert Date>	< Insert Training Participant Name>											
<Insert Date>	< Insert Training Participant Name>											

# ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheet 2009



## ACKNOWLEDGEMENTS

The ASEAN Guidelines on Chemical Classification, Labelling & Safety Data Sheet has been prepared by the Department of Occupational Safety and Health, Malaysia with the valuable contributions from ASEAN Member States.

Special thanks to participants of the ASEAN-OSHNET Workshop on the Draft ASEAN Guidelines on Classification, Labeling and Packaging (CLP) of Chemicals held on the 6<sup>th</sup> to 8<sup>th</sup> March 2006:

No.	Name	Country
1.	Haji Rambli Trokie	Brunei Darussalam
2.	Shahriman Haji Besar	Brunei Darussalam
3.	Dr. Leng Tong	Cambodia
4.	Dr. Pok Vanthat	Cambodia
5.	Roland Hutapea	Indonesia
6.	Tumbur Saut Parulian	Indonesia
7.	Dr. Bounma Sitthisom	Lao PDR
8.	Khamphat Onlasy	Lao PDR
9.	Buhairah Ismail	Malaysia
10.	Fadzil Osman	Malaysia
11.	Habibah Supoh	Malaysia
12.	Mohd Fadhil Haji Abu Yazid	Malaysia
13.	Prema Arasan	Malaysia
14.	Sukati Sakka	Malaysia
15.	Soa Win Sein	Myanmar
16.	U Thein Win	Myanmar
17.	Chow Li Yee	Singapore
18.	Dan Liu	Singapore
19.	Chana Charnmongkol Sumalee	Thailand
20.	Suksuntichai Kanokkarn	Thailand
21.	Dang Chan Thong	Viet Nam
22.	Ngo Ke Nghiep	Viet Nam



## FOREWORD

These guidelines may be cited as the ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheet (hereinafter referred to as “the guidelines”).

The purpose of the guidelines is to give guidance to ASEAN Member States on how to comply with the Globally Harmonized System on Chemical Classification & Labelling (GHS) with respect to the classification of chemical, labelling of chemical containers and the provision of safety data sheet for every chemicals supplied to the workplace.

To keep up with changes to the GHS, this guideline should be updated from time to time according to the latest revised edition of the purple book.

I would like to thank the staffs of the Chemical Management Division for their effort in the preparation of the draft and organising the workshop.

I would also like to thank the United Nations Institute for Training and Research (UNITAR) for their financial support of the GHS Workshop. Special thanks to the GHS experts and resource person:

- Dr Burkhard Wagner from Germany,
- Mr. Wayne Creaser from Australia,
- Dr. Hiroshi Jonai from Japan, and
- Mr. Barry Dyer from New Zealand

Last but not least, I would like to thank the ASEAN member countries for their support in participating in the Workshop and giving valuable inputs into the drafting of the ASEAN Guidelines.

Director General  
Department of Occupational Safety and Health  
Malaysia

April 2009

# ASEAN GUIDELINES ON CHEMICAL CLASSIFICATION, LABELLING AND SAFETY DATA SHEET 2009

## DEFINITIONS

“aerosols” means any non-refillable receptacles made of metal, glass or plastics and containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state. Aerosol includes aerosol dispensers;

“alloy” means a metallic material, homogenous on a macroscopic scale, consisting of two or more elements so combined that they cannot be readily separated by mechanical means. Alloys are considered to be mixtures for the purpose of classification under this guideline;

“article” means a particular item or separate thing such as a lead acid battery, a dry cell battery or a cigarette lighter, that are not normally considered as a chemical substance per se;

“boiling point” means the temperature of a liquid at which the vapour pressure ( i.e the pressure characteristic at any given temperature in °C of a vapour in equilibrium with its liquid form) is equal to or slightly greater than ambient atmospheric pressure;

“carcinogen” means a chemical substance or a mixture of chemical substances which induce cancer or increase its incidence;

“chemical identity” means a name that will uniquely identify a chemical. This can be a name that is in accordance with the nomenclature systems of the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS), or a technical name;

“exothermic reaction” means a chemical reaction which resulted in the production of heat energy;

“flash point”, in relation to extremely flammable, highly flammable and flammable chemicals, means the lowest temperature in degrees Celsius at which the liquid will produce enough vapour to ignite;

“foodstuff” means food or drink intended for consumption;

“hazard category” means the division of criteria within each hazard class, e.g. oral acute toxicity includes five hazard categories and flammable liquids includes four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally;

“hazard class” means the nature of the physical, health or environmental hazard, e.g. flammable solid, carcinogen, oral acute toxicity;

“LC<sub>50</sub>” means the concentration of a chemical in air or of a chemical in water which causes death of 50% of a group of test animals;

“LD<sub>50</sub>” means the amount of a chemical, given all at once, which causes death of 50% of a group of test animals;

“mixture” means mixtures or solutions composed of two or more substances in which they do not react;

“mutagen” means an agent giving rise to an increased occurrence of mutations in population of cells and/or organisms;

“mutation” means a permanent change in the amount or structure of the genetic material in a cell;

“precautionary statement” means a phrase (and/or pictogram) that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product, or improper storage or handling of a hazardous product;

“product identifier” means the name or number used for a hazardous product on a label or in the safety data sheet. It provides a unique means by which the product user can identify the substance or mixture within the particular use setting e.g. transport, consumer or workplace;

“purple book” means the current revised edition of the Globally Harmonized System of Classification and Labelling (GHS) documentation published by the United Nations;

“signal word” means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. ‘Danger’ and ‘Warning’ are used as signal words with ‘danger’ being of higher severity than ‘warning’;

“substance” means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

## **CHAPTER 1: INTRODUCTION**

### **1.1 Scope**

1. This guideline is applicable to all persons who formulate, manufacture, import, retail, supply, and distribute chemicals for use at work.

### **1.2 Coverage**

2. Chemicals covered by this guideline are industrial chemicals and pesticides. Chemicals refer to pure chemical substances, their dilute solutions or to mixtures of chemical substances.

### **1.3 Exclusions**

3. Pharmaceutical products, consumer products, food additives, cosmetics, and pesticide residues in food are not covered for if use for intentional intake.
4. Articles are outside the scope of this guideline.

## CHAPTER 2: CLASSIFICATION

### 2.1 Duty to classify

5. It is the duty of any persons who supplies chemicals for use at work to classify them according to the specific hazard class as laid down in **Schedule I**.

### 2.2 Classification process

6. Hazard classification incorporates 3 steps, i.e.:
  - a) Identification of relevant data regarding the hazards of a substance or mixture;
  - b) subsequent review of those data to ascertain the hazards associated with the substance or mixture; and
  - c) a decision on whether the substance or mixture will be classified as a hazardous substance or mixture and the degree of hazard, where appropriate, by comparison of the data with agreed hazard classification criteria.
7. The recommended process of classification of mixtures is based on the following sequence:
  - a) where test data are available for the complete mixture, the classification of the mixture will always be based on that data; and
  - b) where test data are not available for the mixture itself, then bridging principles included and explained in each specific chapter of the purple book should be considered to see whether they permit classification of the mixture;

In addition, for the health and environmental classes,

- c) If (i) test data are not available for the mixture itself, and (ii) the available information is not sufficient to allow application of the above mentioned bridging principles, then the agreed method(s) described in each chapter of the purple book for estimating the hazards based on information known will be applied to classify the mixture.

### 2.3 Use of available data

8. Test data already generated for the classification of chemicals under previous systems should be accepted when classifying these chemicals under this system.

### 2.4 Use of cut-off/concentration limits

9. Normally, the generic cut-off values/concentration limits adopted in the GHS should be applied uniformly in all jurisdictions and for all sectors. However, if the supplier has information that the hazard of an ingredient will be evident below the generic cut-off values/concentration limits, the mixture containing that ingredient should be classified accordingly.

## 2.5 Classification Summary

10. Summary of classification criteria and hazard communication elements can be found in **Schedule I**. For details on the classification criteria please refer to the references given under the Criteria column.

## 2.6 Competent Classifier

11. The classification of products should be done by a person who is trained to classify chemicals according to the GHS.

## 2.7 Review of Classification

12. Classification of chemical should be reviewed periodically or when there is new and significant information that can affect the classification.

## CHAPTER 3: LABELLING

### 3.1 Duty to Label Containers

13. A supplier should label containers of hazardous chemical supplied to any person for use at work based on the generic cut-off values/concentration limits indicated in **Schedule III**.

### 3.2 Information on a Label

14. A supplier should ensure that every packaging is labelled clearly and indelibly with the following information -
  - (a) the name of the chemical product and component;
  - (b) pictograms or symbols depicting the danger as stipulated in **Schedule I**;
  - (c) signal word “danger or warning”;
  - (d) hazard statements associated with the use of the chemicals as stipulated in **Schedule I**; and
  - (e) precautionary statements as stipulated in **Schedule II**; and
  - (f) name, address and telephone number of the principal supplier.
15. The hazard pictograms signal word and hazard statements should be located together on the label.
16. Indications such as “non-toxic”, “non-harmful” or any other similar indications must not appear on the label or packaging of chemicals even though the chemical has been classified into hazard categories other than toxic or harmful, or has not been classified into any of the hazard category.

### 3.3 Precedence Principles

17. The precedence of symbols for physical hazards should follow the rules of the UN Model Regulations on the Transportation of Dangerous Goods.
18. For health hazards the following principles of precedence applies:
  - (a) if the skull and crossbones applies, the exclamation mark should not appear;
  - (b) if the corrosive symbol applies, the exclamation mark should not appear when it is used for skin or eye irritation;
  - (c) if the hazard symbol appears for respiratory sensitisation, the exclamation mark should not appear where it is used for skin or eye irritation;
  - (d) if the signal word “danger” applies, the signal word “warning” should not appear; and
  - (e) all assigned hazard statements should appear on the label, with the hazard statements corresponding to the “danger” signal word to appear before the hazard statements corresponding to the “warning” signal word.

### 3.4 Dimension of a Label

19. The dimension of a label may be determined by the competent authority.

### 3.5 Affixing of Label

20. The label should be firmly affixed to one or more surfaces of the packaging so that the label can be read horizontally when the package is set down normally.
21. Where labelling on the container surface is not possible due to its size or unevenness, the containers should be tagged.

### 3.6 Review of Labels

22. Labels should be reviewed every 5 years or earlier if there are 'new and significant' information about a chemical hazard. New and significant information is any information that changes the classification of the substance or mixture and leads to a resulting change in the information provided on the label or any information concerning the chemical and appropriate measures that may affect the safety data sheet.



## CHAPTER 4: SAFETY DATA SHEET

### 4.1 Duty to Furnish Safety Data Sheet

23. A supplier should furnish the current Safety Data Sheet for each hazardous chemical supplied to any person for use at work based on the generic cut-off values/concentration limits indicated in **Schedule III**:

### 4.2 Review of Safety Data Sheet

24. Safety data sheet should be reviewed every 5 years or earlier if there are 'new and significant' information about a chemical hazard. New and significant information is any information that changes the classification of the substance or mixture and leads to a resulting change in the information provided on the label or any information concerning the chemical and appropriate measures that may affect the safety data sheet.

### 4.3 Format of Safety Data Sheet

25. The Safety Data Sheet should contain the following information in the following order:

- Section 1 : Identification of the chemical and of the supplier
- Section 2 : Hazards identification
- Section 3 : Composition/information on ingredients
- Section 4 : First aid measures
- Section 5 : Fire fighting measures
- Section 6 : Accidental release measures
- Section 7 : Handling and storage
- Section 8 : Exposure controls/personal protection
- Section 9 : Physical and chemical properties
- Section 10 : Stability and reactivity
- Section 11 : Toxicological information
- Section 12 : Ecological information
- Section 13 : Disposal considerations
- Section 14 : Transport information
- Section 15 : Regulatory information
- Section 16 : Other information

## 4.4 Content of Safety Data Sheet

26. Section 1 should contain the following information:

### Product Details

i. Product Identifier

The product identifier used should be the same as used in the label. Where a substance or a mixture is covered by the UN Model Regulations on the Transport of Dangerous Goods, the UN proper shipping name should also be used on the package.

ii. Other means of identification

This includes the trade name, the chemical name, and / or the chemical formula. For substances, the chemical family could also be stated. The manufacturer's code could also be included.

iii. Recommended Use

This sub-section should state the common uses of the product and it should be given in descending order of importance. The method of application should also be included. For example, "Use: A spray on paint stripper". Restrictions on use should also be stated.

### Supplier's Identification

i. Supplier's Name:

This subsection should state:

- a) the names of overseas or local manufacturers and;
- b) the names of local supplier (formulator or importer or distributor).

ii. Supplier's Telephone Number:

This subsection should state the supplier (local supplier) company's telephone number, including the area code, where advice on the hazardous chemical can be obtained. The information given should not be a general switchboard number, but should direct a caller to someone who can clarify information or provide further information and/or a bibliography. The titles of a position or department should be inserted. This contact point refers to the local supplier company.

iii. Emergency phone number:

State the emergency telephone number where advice on an emergency could be given 24 hours.

27. Section 2 on hazard identification is important for emergency overview purpose.

The supplier should state the classification of the substance or mixture. The label elements, including precautionary statement should be stated. Hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol e.g. flame, skull and crossbones. Other hazards which do not result in classification (e.g. dust explosion) or are not covered by the GHS could be stated as well.

28. Section 3 on the composition information on ingredient should describe the actual composition of the hazardous chemical. It should be completed both for pure entities and for mixtures. The information should allow users to identify clearly the risks associated with a particular chemical so that they may conduct a risk assessment. Ingredient details should be listed in a column format under the following headings, i.e: chemical identity; common name, synonyms, etc.; and/or the (Chemical Abstract Service) number, if available. The description of information required under section 3 should be as follows:-

i . Chemical identity

The substance or each ingredient present in a mixture, including impurities and stabilising additives that are themselves classified and which contribute to the classification of the substance itself, should be listed by its chemical name (preferably according to the IUPAC naming system). For mixtures, the proportion of all ingredients that are present above their cut-off levels should be stated. Ingredients should be listed with the ingredient representing the highest proportion first and so on in descending order. Solvents (including water) should be listed last. It is not possible to set a lower limit of chemicals included in this list as an entity at 0.01 % may be more than 10 times more toxic than one at 0.1%. (Please note that only the composition of the hazardous ingredient(s), need to be stated).

ii. Common name, synonym

The common name for the substance or mixture should be given as well as synonyms.

iii. CAS No.

The substance or in the case of mixture, each ingredient should be listed with its Chemical Abstract Service (CAS) Number (if available).

29. Section 4 on first aid measures should describe the necessary measures according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion. This section should also describe the most important symptoms or effects whether acute or delayed. Immediate medical attention and special treatment needed, if necessary, should also be indicated.

Examples of suitable instructions are (if appropriate for the chemical):

- Give water or milk to drink and induce vomiting;
- Irrigate with very generous quantities of water for 15 minutes;
- Urgently seek medical assistance;
- Seek medical advice. Show this CSDS to a medical practitioner; or
- Transport to a hospital or medical centre.

Advice to Doctor: Specific antidotes should be indicated where they are available. Where no specific antidote is available, the doctor should be advised to contact a poison information centre. This should also, if possible, indicate whether delayed effects can be expected after exposure.

30. Section 5 on fire-fighting measures should indicate the suitable (and unsuitable) extinguishing media. Specific hazards arising from the chemical should be indicated (Fire hazards in presence of various chemical, explosion hazards in presence of various chemical & any dangerous decomposition products).

This section should specify the special protective equipment and precautions for firefighters.

31. Section 6 on accidental release measures is to provide information on the actions to be taken in the event of an accidental release (including leaks and spills) of a chemical. This section should address personal precautions, protective equipment and emergency procedures in the event of accidental release of chemicals into the environment. Indicate also the methods and materials for containment and cleaning of spills or leakages.

This section should also include environmental precautions to prevent or minimise environmental pollution.

32. Section 7 on handling and storage to describe the precautions for safe handling and the conditions for safe storage, including any incompatibilities.

This section should include all data required for the safe handling and storage requirements of the chemical, including, where appropriate:

- Location/siting of store;
- Fire separation distances;
- Ventilation;
- Temperature conditions;
- Protection from weather, sun light, etc;
- Type of container;
- Types of products near which the material should not be stored;
- Type of flooring;
- Bunding;
- Security;
- Emergency facilities, e.g. showers, eye washes.

33. Section 8 on exposure controls/personal protection should focus on the exposure limit relevant to the product or any or all of its ingredients and the requirements for engineering measures and/or protective equipment. Control parameters such as the occupational exposure limit values or the biological limit values should be included where applicable. Emphasis in the safety data sheet should be on engineering methods of minimising and controlling exposure rather than on the need for protective equipment.

This section should recommend appropriate engineering measures and indicate whether special ventilation requirements are necessary and specify which type to be used, e.g. use in a well-ventilated area, ensure ventilation is adequate to maintain air concentrations below the occupational exposure limits, local exhaust ventilation required etc.

Information on personal protection should be specific both about when protection is required and the type required. This information may not be relevant for emergency services. The specific types of respirators etc. should be defined e.g. 'approved face mask' will not be sufficient information whereas 'approved half-face cartridge respirator suitable for organic vapours' could be sufficient. Special requirements may exist for gloves or other protective clothing to prevent skin exposure, so that specifics of material are needed; that is 'impervious gloves' is not sufficient whereas 'PVC gloves' or 'nitrile gloves' could be used. Similarly, eye protection if required should be described as 'general use industrial safety glasses' or other specific requirements.

34. Data provided under section 9 on physical and chemical properties should apply to the product. If the product is a mixture, the data should describe the mixture. The information is useful for estimating exposure potential; handling leaks and spills; designing ventilation system; and aiding in design, development and checking of safety controls and procedures. The data provide should include, where appropriate, the following:

- i. Appearance : should be described in terms of colour and form(e.g. brown liquid, grey powder)
- ii. Odour : should be mentioned whether the odour of the product is detectable or not. Include its odour threshold where applicable.
- iii. pH : give the pH of the product
- iv. Melting / freezing point : melting or freezing point at 760 mm Hg to be indicated in degrees Celsius (°C)
- v. Boiling point : initial boiling point and boiling range at 760mm Hg should be indicated in degrees Celsius (°C)
- vi. Flash Point : flash point should be expressed in °C. It should indicate the method that the data is established, either by closed or open cup methods.
- vii. Evaporation Rate : should state the reference liquid the ratio refers to.
- viii. Flammability : whether the solid and gas are flammable, combustible or inert. The upper/lower flammability / explosive limits should be expressed where applicable.
- ix. Vapour Pressure : vapour pressure should be expressed in mm Hg at 25 °C
- x. Vapour Density : the density of the vapour compared to the density of air

- xi. Specific Gravity : the density of the product compared to water with density of water being equal to one g/cm<sup>3</sup>
- xii. Solubility : when describing solids or powders, solubility in water in grams per litre or parts per million parts of water may be included
- xiii. Partition coefficient : log n-octanol/water partition coefficient (logK<sub>ow</sub>)
- xiv. Autoignition Temperature : the minimum temperature required to start or cause self sustained combustion in any substance
- xv. Decomposition temperature: in °C
- xvi. Other Information : other information such as volatility, penetration, percent volatiles, viscosity @ 40 °C could be inserted

35. Section 10 on stability and reactivity should provide information on chemical stability.

This section should also state the possibility of hazardous reactions under certain conditions and indicate incompatible materials or conditions to be avoided such as static discharge, shock or vibration. Examples: ‘Avoid physical conditions e.g. temperature, pressure, light, shock, and contact with moisture or air’ or ‘Avoid proximity to other chemicals e.g. acids, bases, oxidising agents or any other specific substance that may cause a dangerous reaction’. Where hazardous decomposition products are given off, these should be specified along with the necessary precautions.

36. Section 11 should provide toxicological information on the substance or mixture. Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects should be given. These include:

- a) information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);
- b) symptoms related to the physical, chemical and toxicological characteristics;
- c) delayed and immediate effects and also chronic effects from short- and longterm exposure; and
- d) numerical measures of toxicity (such as acute toxicity estimates).

Reference should be made for overexposure effects both acute and chronic. Reference should also be made to health hazards as a result of possible reaction with other chemicals including any known interactions, for example, resulting from the use of medication, tobacco and alcohol.

37. Section 12 should provide ecological information that includes ecotoxicity (aquatic and terrestrial, where available); persistence and degradability; bioaccumulative potential; and mobility in soil. Other adverse effects should also be included, e.g. effects on water treatment works.

38. Section 13 on disposal considerations should describe the waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

- This section should contain specific recommendation on;
- Disposal containers;
- Disposal method;
- The need to check local statutory requirements; and
- Special precautions for incineration or landfill.

Recommendations on disposal methods are considered essential. Disposal into sewerage systems should be discouraged. Recommendation for small- and large- scale disposals should be distinguished from each other.

39. Section 14 should provide transport information that includes the UN number; UN proper shipping name; transport hazard class(es); and packing group (if applicable).

This section should indicate whether the chemical is a marine pollutant or not. Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises should be mentioned, e.g. "precautions on hazard such as shock sensitivity".

40. Section 15 should provide information on safety, health and environmental regulations specific for the product in question.
41. Section 16 to provide any information not specified in other sections which the manufacturer could provide. Information on preparation and revision of the SDS should be included in this section. References could also be listed in this section.

## CHAPTER 5: CONFIDENTIAL BUSINESS INFORMATION

42. Where the name of the chemical constitute confidential information, the name of the chemical may be omitted from the label or SDS but the actual chemical name must be disclosed upon written request to a medical practitioner or to any person who uses or handles the chemical provided that the information is to be used only for the protection of the safety and health of employees.

The name of the chemical may be omitted and replaced by its generic name if the chemical is either:

- Classified as harmful or irritant; or
  - Below the relevant concentration limit/cut-off level.
43. If the exact amount of ingredient in the formulation cannot be specified, then the proportion ranges of each ingredient contained in the product should be indicated so as to provide as much information as possible about the potential hazards of a formulation.

The following proportion ranges should be indicated as:

Very High > 60 %; High (30% -60%); Medium (10 % - 30%); Low < 10%

44. The following three examples below show how ingredients should be presented taking into consideration the concern on confidentiality of information.

Example 1: Full disclosure of ingredients and composition of mixture.

xylene	[1330-20-7]	67 %
trichloroethylene	[79-01-6]	23%
ethanol	[64-17-5]	8%
benzene	[71-43-2]	0.9 %
other impurities		

Example 2: If the exact composition of the mixture is confidential.

xylene	[1330-20-7]	very high
trichloroethylene	[79-01-6]	medium
ethanol	[64-17-5]	low
benzene	[71-43-2]	low
other impurities		

Example 3 : If the identity of trichloroethylene is commercially confidential.

xylene	[1330-20-7]	67%
chlorinated alkyl hydrocarbon		23%
ethanol	[64-17-5]	8%
benzene	[71-43-2]	0.9%
other impurities		



## CHAPTER 6: HAZARD COMMUNICATION



45. The information to be used on labels and safety datasheets should be written in the language(s) as determined by the competent authority.
46. The translation of the label elements and safety data sheets should be done by competent translators with relevant technical background.
47. Workers should be trained to read and understand labels, safety data sheets and any other specific communication systems used in a workplace.











### References:











- 1) Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Second Revised Edition, United Nations, 2007
- 2) Guidelines on Labelling of Hazardous Chemicals, Department of Occupational Safety and Health, Malaysia, 1997
- 3) Guidelines on the Formulation of Chemical Safety Data Sheets, Department of Occupational Safety and Health, Malaysia, 1997











## Schedule 1: HAZARD CATEGORIES & HAZARD COMMUNICATION ELEMENTS






### Physical Hazards:

HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
1.	Explosives	Unstable Explosives		Danger	Unstable explosive
		Division 1.1		Danger	Explosive; mass explosion hazard
		Division 1.2		Danger	Explosive; severe projection hazard
		Division 1.3		Danger	Explosive; fire, blast or projection hazard
		Division 1.4		Warning	Fire or projection hazard
		Division 1.5		Danger	May mass explode in fire
2.	Flammable gases	Category 1		Danger	Extremely flammable gas
		Category 2	No symbol	Warning	Flammable gas
3.	Flammable aerosols	Category 1		Danger	Extremely flammable aerosol





HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
		Category 2		Warning	Flammable aerosol
4.	Flammable liquids	Category 1		Danger	Extremely flammable liquid and vapour
		Category 2		Danger	Highly flammable liquid and vapour
		Category 3		Warning	Flammable liquid and vapour
		Category 4	No symbol	Warning	Combustible liquid
5.	Flammable solids	Category 1		Danger	Flammable solid
		Category 2		Warning	Flammable solid
6.	Oxidizing gases	Category 1		Danger	May cause or intensify fire; oxidizer
7.	Oxidizing liquids	Category 1		Danger	May cause fire or explosion; strong oxidizer
		Category 2		Danger	May cause or intensify fire; oxidizer
		Category 3		Warning	May cause or intensify fire; oxidizer






HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
8.	Oxidizing solids	Category 1		Danger	May cause fire or explosion; strong oxidizer
		Category 2		Danger	May cause or intensify fire; oxidizer
		Category 3		Warning	May cause or intensify fire; oxidizer
9.	Gases under pressure	Compressed gas		Warning	Contains gas under pressure; may explode if heated
		Liquefies gas		Warning	Contains gas under pressure; may explode if heated
		Refrigerated gas		Warning	Contains refrigerated gas; may cause cryogenic burns or injury
		Dissolved gas		Warning	Contains gas under pressure; may explode if heated
10.	Self-reactive chemicals	Type A		Danger	Heating may cause an explosion
		Type B	 	Danger	Heating may cause a fire or explosion

HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
		Type C and D		Danger	Heating may cause a fire
		Type E and F		Warning	Heating may cause a fire
11.	Pyrophoric liquids	Category 1		Danger	Catches fire spontaneously if exposed to air
12.	Pyrophoric solids	Category 1		Danger	Catches fire spontaneously if exposed to air
13.	Self-heating chemicals	Category 1		Danger	Self-heating; may catch fire
		Category 2		Warning	Self-heating in large quantities; may catch fire
14.	Chemicals which, in contact with water, emit flammable gases	Category 1		Danger	In contact with water releases flammable gases which may ignite spontaneously
		Category 2		Danger	In contact with water releases flammable gases
		Category 3		Warning	In contact with water releases flammable gases
15.	Organic peroxides	Type A		Danger	Heating may cause an explosion







HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
		Type B	 	Danger	Heating may cause a fire or explosion
		Type C and D		Danger	Heating may cause a fire
		Type E and F		Warning	Heating may cause a fire
16.	Corrosive to metals			Warning	May be corrosive to metals

## Health Hazards:

HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
1.	Acute toxicity: Oral	Category 1		Danger	Fatal if swallowed
		Category 2		Danger	Fatal if swallowed
		Category 3		Danger	Toxic if swallowed
		Category 4		Warning	Harmful if swallowed


HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
		Category 5	No symbol	Warning	May be harmful if swallowed (oral)
2.	Acute toxicity: Skin	Category 1		Danger	Fatal in contact with skin
		Category 2		Danger	Fatal in contact with skin
		Category 3		Danger	Toxic in contact with skin
		Category 4		Warning	Harmful in contact with skin
		Category 5	No symbol	Warning	May be harmful in contact with skin (dermal)
3.	Acute toxicity: Inhalation	Category 1		Danger	Fatal if inhaled (gas, vapour, dust, mist)

		Category 2		Danger	Fatal if inhaled (gas, vapour, dust, mist)
		Category 3		Danger	Toxic if inhaled (gas, vapour, dust, mist)
		Category 4		Warning	Harmful if inhaled (gas, vapour, dust, mist)
		Category 5	No symbol	Warning	May be harmful if inhaled (gas, vapour, dust, mist)
4.	Skin corrosion/irritation	Category 1 (skin corrosion)		Danger	Causes severe skin burns and eye damage




HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
		Category 2 (skin irritation)		Warning	Causes skin irritation
5.	Serious eye damage/ eye irritation	Category 1		Danger	Causes serious eye damage
		Category 2		Warning	Causes serious eye irritation
6.	Respiratory sensitizer	Category 1		Danger	May cause allergic or asthmatic symptoms or breathing difficulties if inhaled
7.	Skin sensitizer	Category 1		Warning	May cause allergic skin reaction
8.	Germ cell mutagen	Category 1		Danger	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).



		Category 2		Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
9.	Carcinogen	Category 1		Danger	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
		Category 2		Warning	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard*)

HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
10.	Reproductive toxicant	Category 1		Danger	May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
		Category 2		Warning	Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
11.	Effects on or via lactation	Category 1	No symbol	No signal word	May cause harm to breast-fed children
12.	Target organ systemic toxicant – single exposure	Category 1		Danger	Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
		Category 2		Warning	May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

		Category 3		Warning	(Respiratory tract irritation) May cause respiratory irritation or (Narcotic effects) May cause drowsiness or dizziness
13.	Target organ systemic toxicant – repeated exposure	Category 1		Danger	Causes damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
		Category 2		Warning	May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
14.	Aspiration hazard	Category 1		Danger	May be fatal if swallowed and enters airways
		Category 2		Warning	May be harmful if swallowed and enters airways

## Environmental Hazards:

HAZARD CATEGORY			HAZARD COMMUNICATION ELEMENTS		
			Symbol	Signal Word	Hazard statement
1.	Acute	Category 1		Warning	Very toxic to aquatic life
2.	Chronic	Category 1		Warning	Very toxic to aquatic life with long lasting effects
		Category 2		No signal word	Toxic to aquatic life with long lasting effects

## Schedule II: PRECAUTIONARY STATEMENTS

Please refer to Annex 3 of the purple book.

## Schedule III: CUT-OFF/CONCENTRATION LIMITS FOR HEALTH & ENVIRONMENTAL HAZARD CLASS

Hazard Class	SDS & Labelling
Acute Toxicity	1.0%
Skin Corrosion/Irritation	1.0%
Serious Damage to Eyes/Eye Irritation	1.0%
Respiratory Sensitization (gas)	0.2%
Respiratory Sensitization (others)	1.0%
Skin Sensitization	1.0%
Mutagenicity: Category 1	0.1%
Mutagenicity: Category 2	1.0%
Carcinogenicity	0.1%
Reproductive Toxicity	0.1%
Target Organ Systemic Toxicity (Single Exposure)	1.0%
Target Organ Systemic Toxicity (Repeated Exposure)	1.0%
Hazardous to the Aquatic Environment	1.0%

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