KEMENTERIAN SAINS, TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

KIMIA MALAYSIA

INSTITUT KIMIA MALAYSIA

Chemical Handling, Storage, and Waste Management in KIMIA Malaysia

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To share about KIMIA Malaysia Laboratory Safety Manual Version 4 (2022) Part 4 : Chemical Safety

03

To introduce KIMIA Malaysia ISO 45001:2018 Policy and Objective

01

02

To share about KIMIA Malaysia Standard Operating Procedure JKM-OHS-SOP-07 (Safe handling of chemicals and wastes) (8.1 Operational Planning and Control)

CHAPTER 1: SAFETY AND HEALTH POLICY & OBJECTIVE

DEPARTMENT OF CHEMISTRY MALAYSIA

SAFETY AND HEALTH POLICY

The Department of Chemistry Malaysia, an organisation providing analytical, investigatory and advisory scientific services is committed to the protection of the safety and health of its workers and authorised visitors on its premises. To fulfil this commitment, the management will, so far as is practicable:

- Provide and maintain a safe and healthy working conditions aiming to prevent all work-related injuries and ill health
- Comply with all applicable health and safety laws and regulations of the country, OH&S directives, and other requirements
- Conduct all operation in responsible manner by eliminating hazards and reduce health risks.
- Ensure that the policy, procedures and practices are documented, implemented and maintained
- Communicate its policy, procedures and practices to all its workers so as to encourage their active participation and consultation
- Demonstrate continual OH&S improvement through upgrading of OHSMS, attainment of objectives and implementation of effective program

HALIMAH BINTI ABDUL RAHIM
Director-General of Chemistry Malaysia
25 JANUARY 2023

Figure 1: KIMIA Malaysia Safety and Health Policy

KIMIA Malaysia is committed, as far as is practicable, to the protection of the health and safety of its workers through the following objectives:

1

ZERO INCIDENT

2

ZERO OCCUPATIONAL RELATED ILL HEALTH

3

100% COMPLIANCE WITH APPLICABLE LEGISLATIONS

CHAPTER 2: STANDARD OPERATING PROCEDURE FOR SAFE HANDLING OF CHEMICALS AND WASTES

Safety Procedure

Proper Storage

To ensure that appropriate controls

To comply with the relevant legislation

CHEMICAL

Design

- ✓ Shall be designated for storage of chemicals according to hazard classifications or compatibility.
- ✓ Shall be ventilated to ensure safety of personnel.

Quantities

- ✓ Minimum quantities of chemicals shall be kept in the laboratory to minimize risk to exposure, spillage or fire.

Storage

- ✓ Chemicals shall be stored in appropriate containers and labelled properly.
- ✓ Labels shall have appropriate hazard signs.

CHEMICAL WASTES

- Chemical wastes containers shall be clearly labelled
- There must be at least 1 inch of headspace to reduce overpressure of container
- The collection store should display the hazard warning signs appropriate to the type of wastes being stored
- Ensure containers are not leaking
- Ensure that different types of wastes are properly segregated
- All chemical wastes shall be sent to Kualiti Alam or approved waste treatment plant for disposal
- Never mix incompatible chemicals in a waste container
- Do not store waste containers in the fume cupboard permanently
- Assigned staff shall monitor the inventory of the wastes monthly

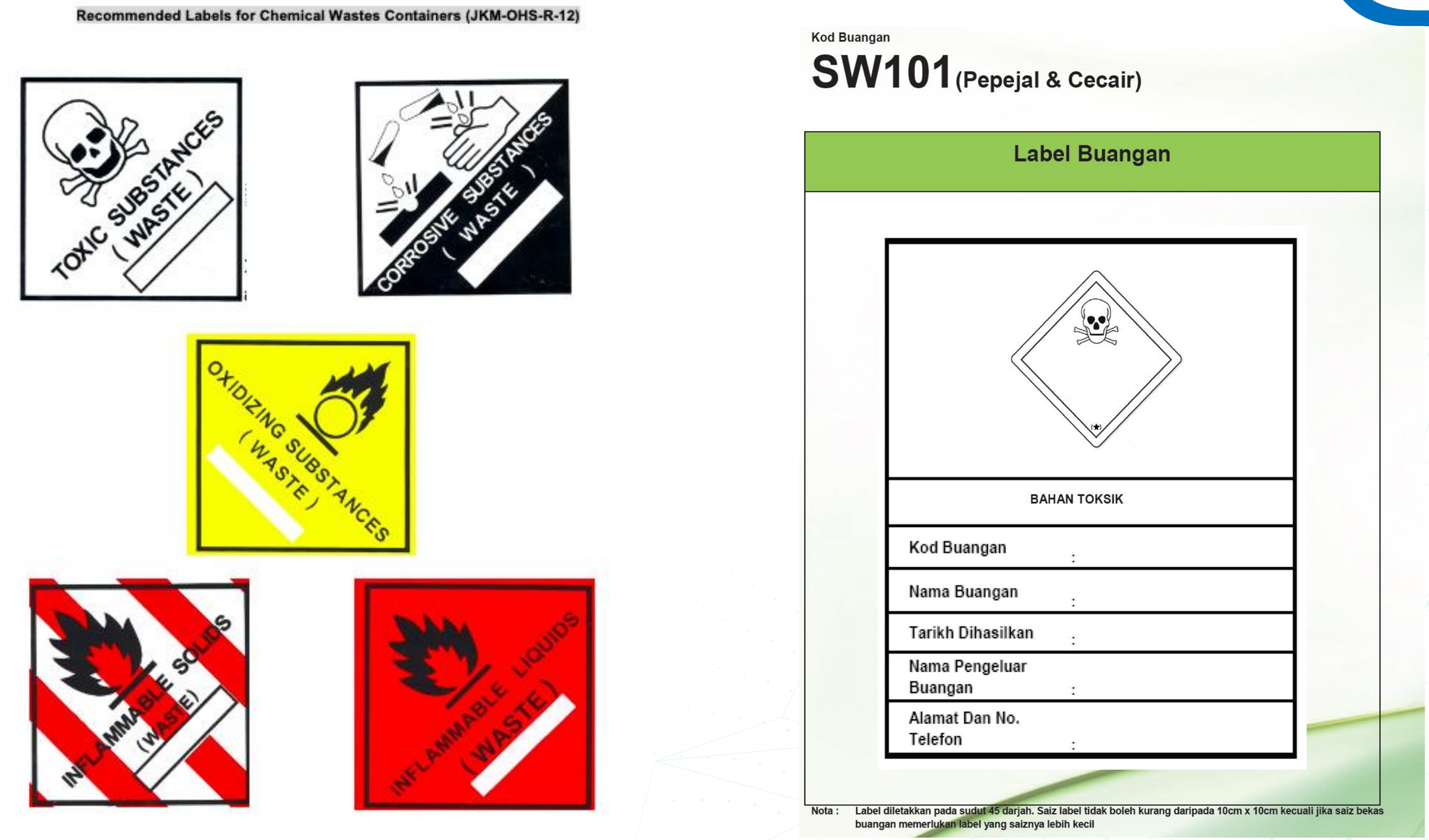


Figure 2: Labels for chemical wastes container according to ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 2005 (AMENDMENT 2007).

CHEMICAL

01 Shall prepare a *“Register of Chemicals Hazardous to Health” for all the chemicals hazardous to health used at the workplace

02 The chemical register shall contain information according to current SDS

03 The chemical register shall be accessible to all staff at the place of work who may exposed or are likely to exposed to chemicals hazardous to health.

04 The chemical register shall be updated

*GUIDELINES FOR THE PREPARATION OF A CHEMICAL REGISTER under the occupational safety and health (Use and Standard of Exposure of Chemical Hazardous to Health Regulation 2000)

SECTION B: LIST OF CHEMICALS HAZARDOUS CHEMICAL TO HEALTH

Location:	No. of Hazardous Chemical	No. of Workers: Male: / Female:
Process Operation:		

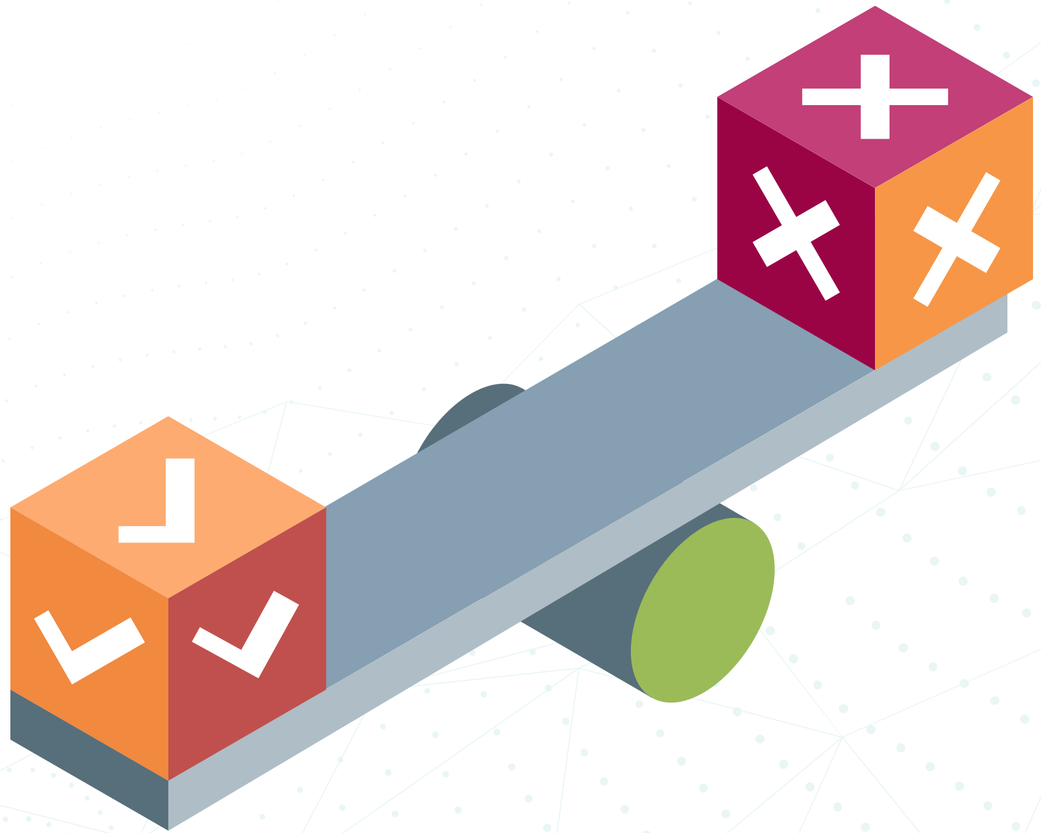
Product Name	Name of Chemical	Physical Form of Chemical	No. of Worker Exposed	Type of Control Measures		Usage of Chemical		CAS No.	Name of Active Ingredients	Comply with CLASS 2013			Name, Address of Supplier and Contact No (Tel. No/e-mail)
				Engineering control	PPE	Type[a]	Quantity[a][b]			SDS (Y/N)	Class	Label (Y/N)	

Figure 3: Checklist of chemical according to USECHH 2000 Chemical Registry Guideline.

CHEMICAL WASTES

REGULATION 11: ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 2005 (AMENDMENT 2007)

The laboratory shall keep accurate and up-to-date inventory in accordance with the Fifth Schedule of the categories and quantities of scheduled wastes being generated, treated and disposed.



Inventory of Scheduled Wastes (JKM-OHS-R-11)

FIFTH SCHEDULE

(Regulation 11)

ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 2005 (AMENDMENT 2007)

INVENTORY OF SCHEDULED WASTE AS AT : _____

*[a]Date	*Waste Category Code	*Name of waste	*Quantity Generated (Litre / Kg)	*Waste Handling		
				Method[b]	Quantity in Litre / Kg	Place[c]

Note:

* Inventory of the current generation of scheduled wastes

a. Date when the scheduled wastes are first generated

b. Stored, processed, recovered for material or product from such scheduled wastes, incinerated, exchanged or other method (specified)

c. Give name and address of facility

I hereby declare that all information given in this form is to the best of my knowledge and belief true and correct in all respect.

Name of Reporting officer: _____

Signature: _____ Date : _____

Figure 4: Chemical waste inventory form accordance to the Fifth Schedule of the categories and quantities of scheduled wastes being generated, treated and disposed. (ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 2005 (AMENDMENT 2007)).

CHAPTER 3: KIMIA MALAYSIA LABORATORY SAFETY MANUAL VERSION 4 (2022) PART 4 : CHEMICAL SAFETY

1. Numerous chemicals are toxic, corrosive, carcinogenic, pyrophoric, or explosive.

2. Mixing chemicals, whether intentionally or accidentally, can make them exceedingly hazardous.

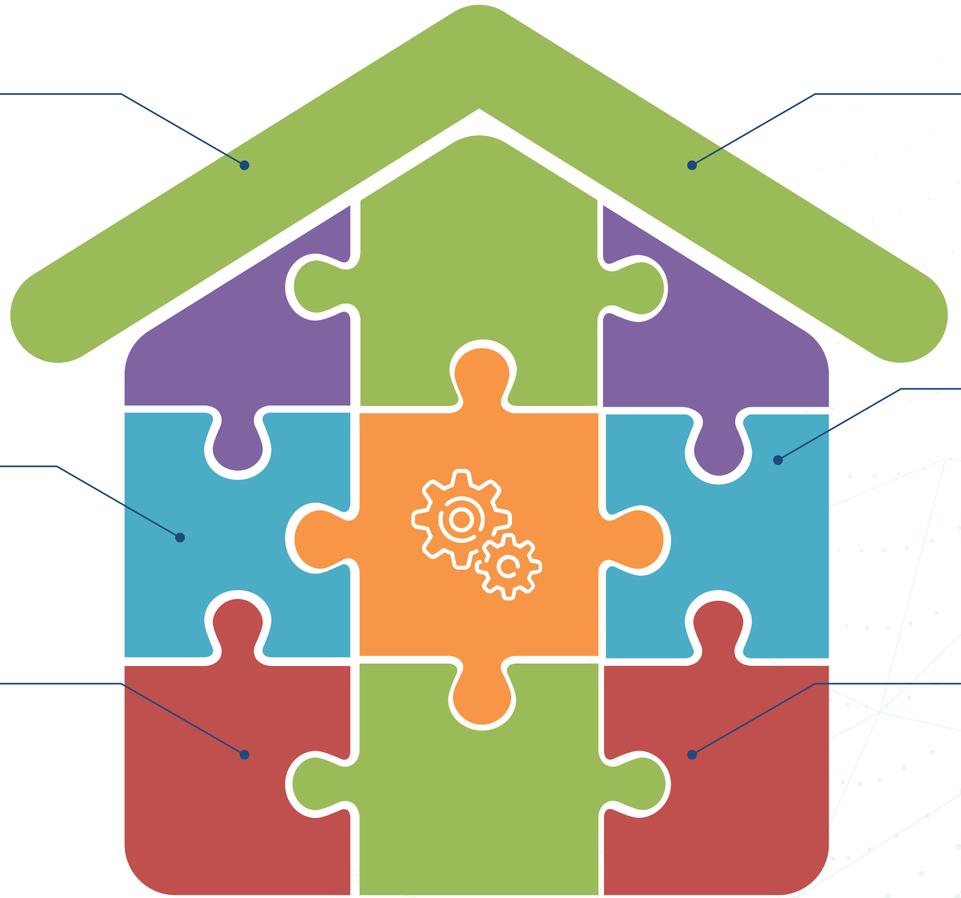
3. Use appropriate safety measures and controls while handling chemicals.

General Handling of Chemicals

1. Laboratory reagents and chemicals should be tightly capped and placed on the appropriate shelves immediately after use, with their labels to the front

2. Expired chemicals should be safely disposed

3. Food and beverages should not be stored in refrigerators used for chemical storage.

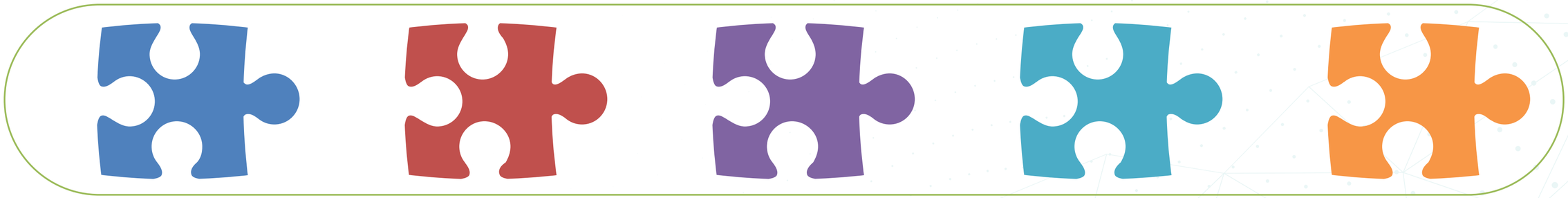


4. PPE should be used when handling chemicals

5. Bottle carriers or trolleys should be used as secondary containers to contain spillage in case of breakage.

6. All chemical wastes from the laboratory should be disposed of safely and in the designated waste containers

Storage of Chemicals



01 Only small working quantities of chemicals are allowed to be kept in laboratories

02 Each chemical storage container should be labelled clearly

03 Flammable solvents should be stored in chemical safety storage cabinet

04 Liquid samples stored in refrigerator should be in closed vessels and should be placed in drip-trays

05 Incompatible chemicals must not be stored together

Corrosives Chemicals

Use splash goggles and heavy weight gloves resistant to the chemical used and its concentration

An eyewash fountain and a safety shower must be present in the laboratory

A face shield, resistant apron and boots may also be appropriate

Perchloric acid procedures must only be performed in approved laboratory fume hoods

Slowly add acids or bases to water

Store large bottles low to the ground-at least below eye level

Flammable Chemicals

Vapour from these materials can reach remote ignition sources, causing flashback fires

Store flammable liquids in approved flammable storage cabinets

Use flammable liquids in a fume hood

Keep away from heat, sun, flame, and spark sources.

Oxidizers Chemicals

Oxidizers may react with organic materials resulting in fires or explosions.

Common laboratory oxidizers include perchloric and nitric acids, sodium and ammonium nitrates, and hydrogen peroxide.

Keep separate from flammables and other organic materials

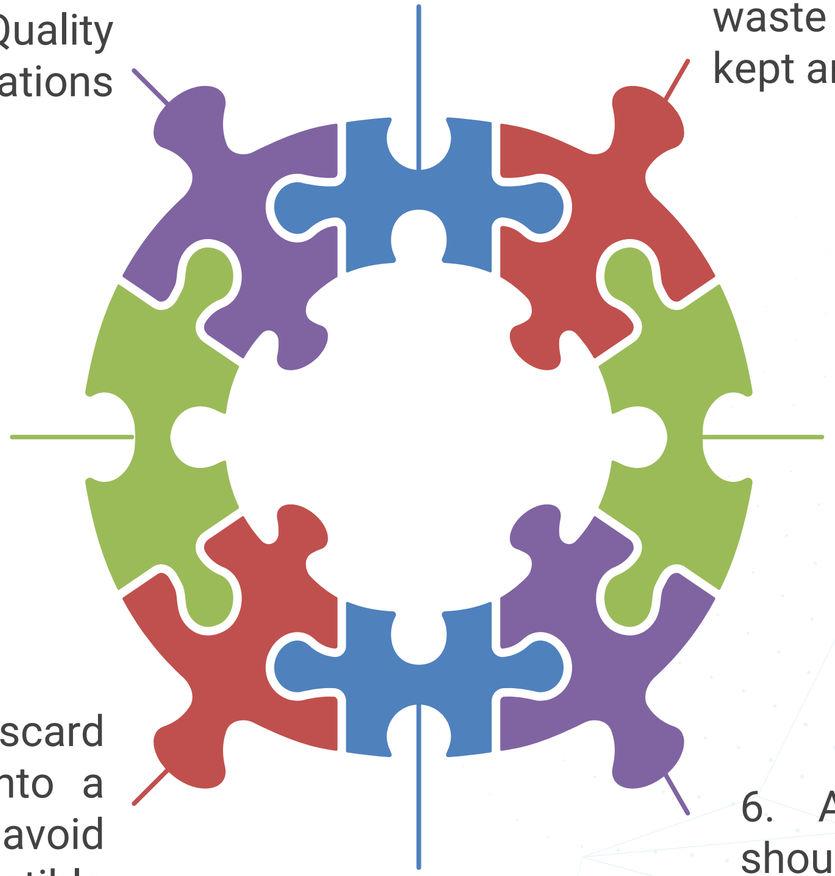
Keep separate from reducing agents (i.e., zinc, alkaline metals, formic acid)

Chemical Waste Disposal

1. The handling, collection, treatment and disposal of chemical waste are controlled by the Environmental Quality (Schedule Wastes) Regulations 2005.

2. Chemical waste should be stored in containers of suitable design

3. Check the label and discard the appropriate waste into a designated container to avoid any mixing of incompatible waste

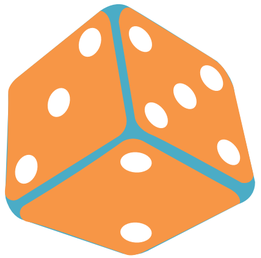


4. An inventory of the types and quantities of chemical waste being stored should be kept and regularly updated

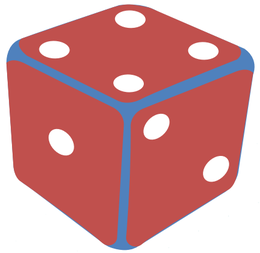
5. A suitable area should be provided for temporary storage of chemical waste before collection

6. A hazard warning notice should be displayed for the attention of users at the chemical waste storage area.

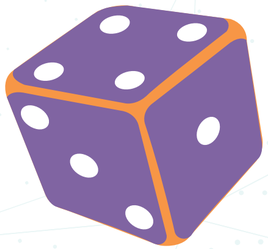
CHAPTER 4: SUMMARY



The active participation of all personnel within the organisation is crucial in protecting the well-being and safety of employees against potentially chemical hazards.



The ISO 45001:2018 standard provides significant support in the effective management of chemicals within an organizational context.



Ensuring the safe management of chemicals requires necessary adherence to acts, laws, and guidelines pertaining to the handling, storage, and disposal of these chemicals.

Acknowledgements

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Thank You