SCA
الهيئة السعودية للمقاولين
Saudi Contractors Authority

National Council for
Occupational Safety & Health

Guideline for Handling Hazardous Chemicals

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Introduction

Many facilities in industrial, laboratory, and service sectors use a variety of chemical substances in operational processes, maintenance, cleaning, or laboratory analysis. These materials may pose significant risks to workers' health and safety if they are misused, improperly stored, or handled in an unsafe manner.

Applying safety controls when dealing with hazardous chemicals is an essential part of the occupational safety and health system, as it contributes to protecting workers, reducing occupational accidents, and preserving the safety of facilities and the environment.

Guide Objectives

This guide aims to:

- Raise awareness of risks associated with chemicals in work environments.
- Clarify the basic requirements for safe handling of hazardous chemicals.
- Support organizations in implementing chemical safety controls.
- Reduce injuries and occupational diseases resulting from exposure to chemicals.
- Enhance compliance with relevant national regulations and standards.

Target Audience

This guide is intended for:

- Employers and facility managers.
- Occupational safety and health officers.
- Laboratory and factory workers.
- Operations and maintenance supervisors.
- Workers involved in storing and transporting chemicals.
- Contractors and personnel working at sites that contain chemicals.

Definition of Hazardous Chemicals in Work Environments

Hazardous chemicals are substances that may pose a risk to human health, the environment, or property due to their chemical or physical properties.

Occupations involving the handling of hazardous chemicals are considered high-risk professions according to the Regulations on Work in High-Risk Occupations issued by the National Council for Occupational Safety and Health.

Therefore, it is essential to comply with all occupational health and safety regulations, use appropriate personal protective equipment (PPE), and follow official procedures when storing, transporting, or using these substances.

These materials may include:

- Toxic substances.
- Flammable substances.
- Explosive substances.
- Corrosive substances.
- Oxidizing materials.
- Compressed gases.
- Irritating or sensitizing substances.

Exposure to these materials through inhalation, skin contact, or ingestion may lead to serious health effects.

Health Risks of Chemicals

Health risks associated with chemicals include:

- Respiratory diseases.
- Chemical burns.
- Skin and eye irritation.
- Chronic diseases such as cancer.
- Acute poisoning.

Causes of Chemical Accidents

The most common causes of chemical-related accidents include:

- Improper storage of chemicals.
- Mixing chemically incompatible substances.
- Failure to read safety instructions related to the material.
- Lack of proper ventilation in workplaces.
- Failure to use personal protective equipment (PPE).
- Leakage of chemicals from containers.
- Lack of training and awareness.

Control of Chemical Hazards

Chemical hazards should be managed according to the hierarchy of controls, which includes:

- Eliminating hazardous substances where possible.
- Substituting high-risk materials with less hazardous alternatives.
- Applying engineering controls
- Establishing safe work procedures and clear operating instructions.
- Using personal protective equipment (PPE) as a last line of defense.

Chemical Classification and Labeling

It is recommended to label chemicals with the following information:

- Chemical name.
- Hazard symbols and warnings.
- Basic safety instructions.
- Storage and usage guidelines.
- Manufacturer information.

Proper classification and labeling help raise worker awareness of associated risks. It is also preferable to use the Globally Harmonized System (GHS) for classification and labeling of chemicals to indicate hazards and warnings.

Basic Safety Controls

First: Safe Storage of Chemicals

- Store chemicals in designated and well-ventilated areas.
- Separate chemically incompatible substances.
- Use dedicated cabinets for flammable materials.
- Clearly label all containers.
- Do not store chemicals near heat sources.

Second: Transportation of Chemicals

- Use appropriate and tightly sealed containers.
- Secure containers during transport to prevent spills.
- Use suitable transport equipment for hazardous materials.
- Place warning labels during transport.

Safe Work Requirements

To ensure a safe work environment when using chemicals, the following should be observed:

- Provide Safety Data Sheets (SDS) for chemicals.
- Ensure adequate ventilation systems are available.
- Prohibit eating or drinking in areas where chemicals are used.
- Use only the necessary quantities.
- Ensure containers are tightly closed after use.

Emergency Response

In case of a chemical spill or incident, the following procedures should be followed:

- Evacuate the area if necessary.
- Use appropriate personal protective equipment.
- Contain the spill using designated materials.
- Prevent the substance from spreading to drains or the environment.
- Report the incident according to approved procedures.

First Aid

In case of exposure to chemicals, the following actions should be taken:

- Immediately wash skin or eyes with running water upon contact.
- Move the affected person to a well-ventilated area if vapors are inhaled.
- Remove contaminated clothing.
- Seek medical assistance when necessary.
- Refer to the Safety Data Sheet (SDS) for the substance.

Training and Awareness

- Provide workers with training on chemical hazards.
- Train workers on how to read chemical labels and safety data sheets.
- Train workers on the proper use of personal protective equipment.
- Raise workers' awareness of emergency procedures in case of a chemical spill/leak.

Common Mistakes to Avoid

- Storing incompatible chemicals together or in unsuitable locations.
- Using containers not designed for chemicals.
- Failing to read safety instructions before use.
- Not using personal protective equipment.
- Handling chemicals without adequate training.

Conclusion

Safety in handling chemicals is a fundamental element in protecting workers and the environment across various workplaces. Reducing chemical risks depends on implementing appropriate preventive measures, providing necessary training to workers, and adhering to approved instructions and controls.
Promoting a culture of safety and awareness of chemical hazards contributes to reducing occupational accidents and maintaining a safe and sustainable work environment.




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