



Issue No.: 01

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Date of issue: 13.05.2022

Doc. No: HSE/Standard/07

TITLE: Hazardous Chemical Handling

Hazardous Chemical Handling

Introduction-

Himadri Speciality Chemical Limited (HSCL) introduced this Standard is to establishes a framework of HSE Management System to address the Hazards and potential risks during decanting, handling, dealing with Hazardous Chemicals. The standard derived having intention to decrease the hazard potential while working with Hazardous chemical complying statutory guideline as well.

Purpose:

To describe how the business will protect the health, safety and environment of HSCL employees and contract workmen when working with Hazardous Chemicals at a HSCL facility.



In addition, this Procedure aims to describe the processes that must be followed in order to adhere with legislative requirements relating to the safe storage and handling of Hazardous Chemicals in the workplace. This Procedure covers chemicals previously known (or still referred to in some legislation) as Hazardous Substances and Dangerous Goods.

Scope:

This Standard is mandatory and applies to all HSCL Employees and Work force dealing with Hazardous chemicals as an integral part of their day-to-day activities at various section across all over HSCL premises which includes manufacturing sections, R&D Centers, Warehouses and Laboratories etc.

Chemicals exempted from this procedure include:

- Hazardous chemicals in batteries when incorporated in plant.
- Fuel, oils or coolants in a container fitted to a vehicle, mobile plant, other device, if the fuel, oil or coolant is intended for use in the operation of the device.
- Hazardous chemicals in portable firefighting or medical equipment (at OHC) for use at the workplace.
- Hazardous chemicals that form part of the integrated refrigeration system.
- Food and beverages within the meaning FASSAI.
- Standards Code that are in a package and form intended for human consumption.
- Tobacco or products made of tobacco.
- Therapeutic goods within the meaning of the Therapeutic Goods Act 1989 at the point of intentional intake by, or administration to, humans at OHC.
- Personal products (shampoo, soap, sun screen, insect repellent, etc.), medications;
- Radioactive chemicals

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Terms and Definition

Barrier	Barrier A risk reduction measure that prevents a cause developing into a risk event or mitigates the consequences (impacts) of a risk event once it has occurred. Barriers are fully functional and independent of each other
Chemicals register	Chemicals register A documented list of workplace chemicals used on the facility (must include hazardous chemicals as a minimum).
Class	A category system for classifying Hazardous Chemicals based on the nature of a physical, health or environmental hazard under the GHS. For example: Class 1 – Explosive; Class 2 – Gases; Class 3 – Flammable Liquid; Class 4 – Flammable solid; Class 5 – Oxidizing Agent; Class 6 – Toxic; Class 7 – Radioactive; Class 8 – Corrosive; and Class 9 – Miscellaneous (eco-toxic)
Competent person	Competent person Someone who because of relevant qualifications and experience would be recognized by government authorities or professional bodies as competent to carry out particular work
Facility	A Bulk Fuel Terminal, Tank Farm.
GHS	GHS Globally Harmonized System of Classification and Labelling of Chemicals
Hazardous Chemical	A substance, mixture or article that satisfies the criteria for a hazard class in the GHS but does not include a substance, mixture or article that satisfies the criteria solely for one of the following hazard classes: <ul style="list-style-type: none"> • acute toxicity - oral - category 5; • acute toxicity - dermal - category 5; • acute toxicity - inhalation - category 5; • skin corrosion / irritation - category 3; • serious eye damage / eye irritation - category 2B; • aspiration hazard - category 2; • flammable gas - category 2; • acute hazard to the aquatic environment - category 1, 2 or 3; • chronic hazard to the aquatic environment - category 1, 2, 3 or 4; • Hazardous to the ozone layer.
HSE	The Health Safety & Environment team that report to the AVP Operations
Impact	Impact The harm to people, the environment, HSCL's reputation, assets or business impact if a risk event should occur
PPE	PPE Personal Protective Equipment

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SDS	Safety Data Sheet (previously known as a Material Safety Data Sheet (MSDS))
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Roles and Responsibilities

HoD Production	<p>Implementing this Procedure within their business area by delegating specific responsibilities to personnel within the business (e.g. HSE Team, Line Managers, etc.) including:</p> <ul style="list-style-type: none"> Ensuring that responsibilities are defined and documented. This includes describing how Hazardous Chemicals are stored, handled and disposed of within their business. Ensuring local requirements relating to the development and maintenance of a Chemicals Register are met for facilities under their area of responsibility. Ensuring Facility Risk Registers contain up to date risks for the stored and handled Hazardous Chemicals at the facility. Approving barriers and ensuring appropriate resources are allocated to implement any required barriers. Ensuring that facilities that store Hazardous Chemicals have submitted the necessary Government Notices to the Regulator / licensed in accordance with local regulations.
HSE	<ul style="list-style-type: none"> Provide technical HSE advice to both the HoD Production and Line Manager to manage health, safety and environmental risks and meet statutory requirements related to hazardous chemicals, Determine when and how health monitoring is to be conducted and maintain results and reasons for initiating in accordance with HSCL. Notify the worker of the results of any related health exposure information (e.g. exposure monitoring results).
Line Manager and/or Person in charge of work (excluding where contractors are engaged by a non-HSCL Principle Contractor)	<ul style="list-style-type: none"> Ensure that all persons who handle Hazardous Chemicals at a facility have access to the relevant current SDS, risk assessments and Risk Register. Ensure that all Hazardous Chemicals used routinely on the facility are included on the facility Chemicals Register of Hazardous Chemicals. Ensure the introduction of new Hazardous Chemicals to HSCL facilities are risk assessed and approved prior to entry on the Facility. Ensure that persons handling Hazardous Chemicals are trained to understand and follow the requirements of the SDS and risk assessments before handling the chemical. Ensure all Hazardous Chemicals stored are labelled clearly and accurately in accordance with the procedure. Ensure any risks arising from the storage and handling of hazardous substances are controlled as far as is reasonably practicable. Ensure the effectiveness of controls are regularly reviewed and updated. Dispose of Hazardous Chemicals in accordance with the procedure. Ensures an Emergency Management Plan is in place and is effective.

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Methodology

1. General

The management of Hazardous Chemicals at HSCL aligns with the risk management approach. HSE Risk Management Procedure – with assessed risks included in the Risk Registers (HIRA Register).

All employees that potentially handle hazardous chemicals on HSCL premises will be provided adequate instruction and training, while those that visit sites where they are stored will be provided with an induction and supervision to ensure their safety. Third parties involved in the delivery or other handling of dangerous goods are to adhere to relevant contractor management requirements.

No person at the workplace should be exposed to chemicals in an airborne concentration that exceeds its exposure standard as listed in the West Bengal Factories Rules 1958 and OSHA Guideline.

2. Hazard Identification

All Hazardous Chemicals that are stored, handled, used or generated at HSCL workplaces shall be identified to enable associated risks to be effectively managed. The identity of chemicals in the workplace can usually be found by reading the SDS and label of each product.

The identification of hazardous substances should consider chemicals generated at site (such as by products) and chemicals introduced to site (such as in project or maintenance work).

3. Chemical Register/ Inventory

All hazardous chemicals used on HSCL premises should be identified and listed on the workplace chemical register, or a chemical register established for works conducted on site.

Exceptions are:

a. Substances that are consumer products to be used in quantities, and ways, consistent with household use. Also includes hazardous chemicals used in the office (i.e. toner, whiteboard cleaners).

The chemical register must be readily accessible to anyone likely to be affected by the hazardous chemical at the workplace including employees, contractors and visitors.

4. Safety Data Sheets and Product Labels

Any hazardous chemical on site must have an SDS that is less than 5 years old, as per its date issued. The SDS must be readily accessible to any person likely to be exposed to the hazardous chemical and be kept in a known and identifiable location.

All hazardous chemicals, the containers of hazardous chemicals or hazardous chemicals in pipe work on site must be labelled in English, be legible and contain risk and safety phrases. Substances transferred into a second container where the contents are not used immediately must also be labelled. Substances of

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uncertain identity must be disposed of from site in accordance with relevant waste management requirements as per the CPCB/SPCB (WB) guideline.

5. Hazardous Chemical Manifest and Placard

The principle purpose of the manifest and placards is to provide the emergency services organizations with information on the quantity, classification and location of hazardous chemicals at the workplace.

a. Manifests & Placards:

Hazardous Chemicals handled or stored on site in quantities that exceed the manifest threshold amounts outlined in local legal and regulatory requirements (As per the MSIHC Rules 1989) shall be recorded in a Hazardous Chemical Manifest (Form - 23A, Quarterly Return of Factories Act and Schedule - 07 of MSIHC Rules 1989). The manifest must adhere to any local legislative requirements. As a minimum the manifest should contain the following information:

- Product name;
 - Proper shipping name
 - UN number
 - Supplier Name
- Emergency contact details for at least 2 people in the event of an emergency at site.
- Container size & type and number of containers.
- Site plan, showing location of containers.
- Where placards are required, they shall display the relevant dangerous good label (or NFPA diamond), not the corresponding GHS pictogram.

6. Risk Assessment

A separate risk assessment is not required for hazardous chemicals used on site where the hazards and associated risks are well known and have well established and accepted control measures. However, where such hazards and risks are not understood it is recommended that a risk assessment is conducted by a competent person in consultation with relevant members of the workforce. The SDS and product labels provide the technical information required for the risk assessment. Where the workplace, tasks and hazardous chemicals are identical in characteristics, properties, potential hazards and risks, the same basic risk assessment can be applied across multiple similar work activities and sites.

Note – If Risk Assessment is done then the following points must be taken into consideration –

- Health risks to those exposed- These can be short or long term risks associated with the toxicological properties of the chemical.
- Safety risks to persons or property due to the physiochemical hazards.
- The routes of entry by which the chemical can impact health,
- The physical form (dust/ solid etc) and concentration,
- The chemical and physical properties of the substance,
- Determining who could be exposed, and when this could occur,
- How often is exposure likely to occur and for how long?

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- What is the estimated exposure to the hazardous chemical?

Considerations when assessing physiochemical risks

- Potential for fire and explosion (combination of flammable or combustible substance with oxygen source and ignition source)
- Offsite risks (activities, systems of work, structures and equipment not directly involved in the handling or storage of hazardous chemicals may create risks)
- Risks from Corrosive substances
- Compressed gases (risks of fire, explosion, toxicity, asphyxiation, oxidation or uncontrolled release of pressure).
- Asphyxiation hazards (lack of oxygen arising from consumption of oxygen in the air, accumulation of gases that displace oxygen or inhalation of chemicals that affect the body's ability to use oxygen)
- Compressed Air (sudden release can cause risks to hearing and cardiovascular issues if the skin is penetrated)

7. Risk Controls

a. General Approach to Controls

Risks must be reduced as far as is reasonably practicable, and at least to a level below the Statutory guideline of Exposure Standard.

Controlling the risks associated with Hazardous Chemicals shall follow the hierarchy of controls:

- Elimination of the hazard and associated risk is always the first aim (i.e. purchasing practices).
- Substitution (of a hazardous chemical with a chemical that presents a lower risk), isolation (of the chemical from workers or segregation of one chemical from another).
- Implementing engineering controls (such as those to minimize the generation of chemicals, suppress or contain chemicals or limit the area of contamination in the event of spills and leaks) are next to minimize the risk if elimination is not possible.
- Administrative controls (such as work instructions, signage, restricted area policies and cleaning facilities) must be implemented as far as reasonably practicable if a risk remains. These controls should always be supported by training and supervision to ensure they are effectively implemented.
- Suitable Personal Protective Equipment (PPE) must be used to minimize any remaining risk. All PPE must be fit for purpose and maintained in clean, hygienic working order.

b. Specific Control Measures

- Take steps to prevent ignition sources into a hazardous area where there is a possibility of it causing a fire or explosion. This can be achieved by:
 - Separating and segregating incompatible materials
 - Reducing quantities of flammable and combustible materials.
 - Eliminating ignition sources (such as from hot work, electrical safety controls)
 - Reducing vapor emissions
- Take steps to ensure that hazardous chemicals do not become unstable, decompose or change to create a new hazard (i.e. follow SDS instructions on proportions of ingredients such as solvents, use of stabilizing agents, storage temperatures, exposure to moisture etc).

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- Ensure that structures or plant used for the storage or handling of hazardous chemicals are protected from damage. This can be achieved by locating them away from trafficable areas, preventing vehicle access or installing crash protection measures (such as bollards).
- Ensure that there is a spill containment system in place wherever there is the risk of a leak or spill of a hazardous chemical. The spill containment system must:
 - Describe how to clean up and dispose of the spill or leak safely (i.e. not use incompatible chemicals).
 - Be large enough to ensure that spills can be held safely until cleaned up
 - Where bunding/dyke is required, adhere to the relevant Standard specific to the type of hazardous chemical (Like OISD/PESO guideline) and in consultation with the emergency services authority.
- Take steps to mitigate the risks associated with transferring hazardous chemicals from one storage container to another. The risk is often elevated in these scenarios as the chemical will often be unconfined and can be controlled using many of the measures above. Additional control considerations are:
 - Steps to avoid overflow or spillage
 - Providing emergency shut-offs to contain any loss of containment
 - Reducing static electricity and vapor generation
 - Installing flow and pressure regulators
 - Implementing systems for detecting losses from pipe works and fittings
- Ensure that risks associated with compressed gases are controlled. This includes steps to maintain the integrity and safety of the cylinders in how they are stored and transported. Information relating to controlling risks from compressed and liquefied gasses can be found in the storage and handling of gasses in cylinders.
- Take steps to minimize the risk of asphyxiation by:
 - Avoiding work carried out in oxygen-depleted (<19%) atmospheres- i.e. by testing the atmosphere using a gas monitor.
 - Keeping the work area well ventilated
 - Purging
 - Using an air supplied respirator- particularly in confined spaces
 - Checking the integrity of cylinders, fittings, hoses and connections that may leak gases.

8. Disposal

Hazardous Chemicals must be disposed in accordance with relevant safety and environmental legislative (CPCB/SPCB) requirements. For disposal requirements, refer to the SDS or local applicable hazardous waste management procedures.

9. Monitoring and Review

a. Health Monitoring

Health Monitoring will be provided to workers whose health is placed at significant risk due to exposure to:

- Hazardous chemicals referred to in Schedule 2 of Factories Act 1948.

b. Reviewing Control Measures

Controls associated with Hazardous Chemical risks will be reviewed when the Risk Register is reviewed annually and / or when indicated, such as:

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- The risk assessments/ controls are identified as inadequate following an investigation (such as post incident/ safety observation/ inspection/ health monitoring findings) or
- Atmospheric monitoring indicates that the airborne concentration of a hazardous chemical exceeds the exposure standard.

c. Emergency Management

HSCL has establish an emergency management plan for that facility that stores and handles Hazardous Chemicals. The purpose of the emergency plan is to plan for, and thus minimize the effects of any dangerous occurrence at the workplace resulting from handling of hazardous chemicals. For any site that uses hazardous chemicals emergency equipment should be provided, maintained and readily available to respond to an emergency, contain and clean up spills and assist workers in conducting emergency procedures safely. Fire protection and firefighting equipment and systems are designed in consideration of the hazardous chemicals and associated risks on site, and this is properly installed, tested and maintained.

10. Verification/Audit/inspection

A verification shall be implemented to ensure compliance with the requirements of this procedure. Findings of the verification will in turn be used to drive risk reduction and performance improvement. Verification activities will involve meeting with concerned Departments once in a year at least.

That requirements of this procedure are captured in local procedures/ tools:

- a) Control of Work Procedures and supporting verification tools/ processes
- b) Contractor management procedures and supporting

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