

Implementation Manual of Chemical Management

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CLOTHING INDUSTRY TRAINING AUTHORITY

Disclaimer

This Implementation Manual of Chemical Management (Manual) is prepared by referencing the related China and Hong Kong SAR regulations, major brands RSL/MRSL and chemical audit requirements without any independent verification. The Federation of Hong Kong Garment Manufacturers (FHKGM) and Clothing Industry Training Authority (CITA) do not guarantee or warrant the accuracy, reliability, completeness or currency of the information in this Manual nor its usefulness in achieving any purpose. Readers are responsible for assessing the relevance and accuracy of the content of this Manual. FHKGM and CITA will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on information in this Manual.

Prepared by CITA

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Introduction

Overview:

Recently under the pressure from Non-government Organizations (NGOs), both brands and the Government have raised concerns on the use of hazardous substances which are directly related to pollution as well as the risk of explosions in textile industry. Moreover, many global brands have their own Restricted Substances List (RSL) or Manufacturing Restricted Substances List (MRSList) and will roll out chemical audit to assess the chemical performance of their suppliers in near future. As a result, manufacturers are suffering pressure on the compliance with national regulation and brands' requirements. However, for small and medium manufacturers, they are lack of resources and knowledge on understanding and complying with these requirements because there are many specific/technical terms. At the same time, it is difficult for them to understand and identify which chemicals are hazardous or not.

Therefore, Clothing Industry Training Authority (hereafter CITA) has set up an implementation manual of Chemical Management by referencing the major elements in the Hong Kong and China regulation, major brands RSL/MRSList and chemical audit requirements. The goal is to assist manufacturer in developing their own Chemical Management system (CMS), which helps them to understand national regulation requirements and fulfil brands' requirements.

Throughout this manual, references are made to manufacturer(s), supplier(s) and sub-contractor(s). This manual defines them as follow:

Manufacturer(s) is defined as the Small and Medium Enterprises (SMEs) in textile industry who implements this manual. These SMEs include manufacturers who produce finished products, apparel or accessories.

Supplier(s) is defined as any actor in the supply chain that provides intermediate and/or final products and/or supporting services to brands and/or retailers. This includes: chemicals, materials, assembly and finished product suppliers.

Sub-contractor(s) is defined as any actor in the supply chain that provides similar supporting services to manufacturers. It may be due to capacity or lack of certain processes.

More definitions can be found in glossary section.

Structure of the manual:

This manual is structured in 8 sections and applied Plan-Do-Check-Act as a basic framework:

Section 1: Commitments to chemical management system

Section 2: Regulation compliance

Section 3: Risk assessment

Section 4: Chemical inventory

Section 5: Chemical storage and handling

Section 6: Chemical contingency plan

Section 7: Brand requirements compliance (Advanced level)

Section 8: Supplier and Sub-contractor management (Advanced level)

Each section consists of a number of sub-topics designed as a step-by-step framework that a manufacturer can follow to develop a system for managing hazardous chemicals. In addition, manufacturer can refer to “Supplementary Documents” in Appendices for the templates and glossary involved in these 8 sections.

System approach

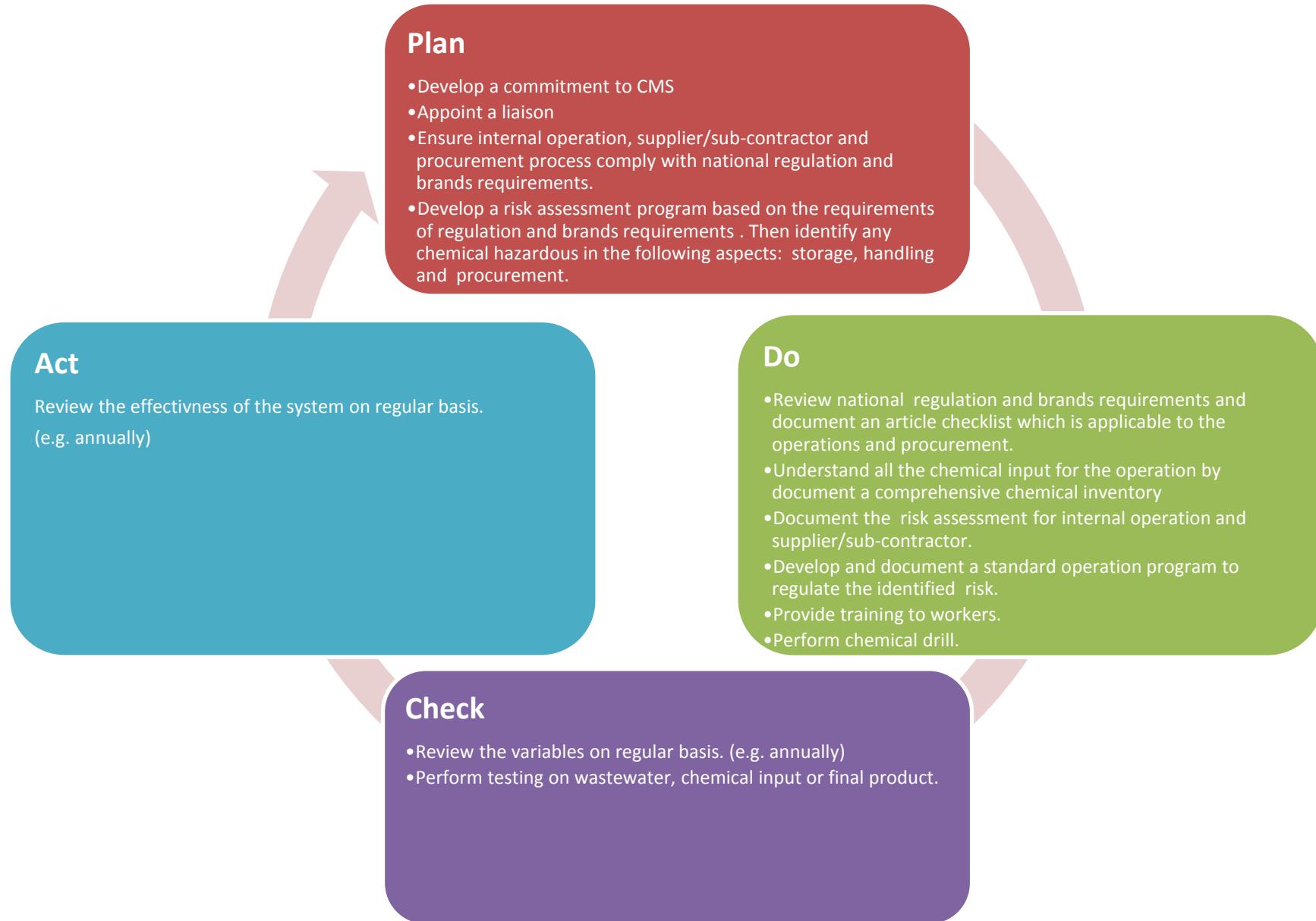


Figure 1-1 Chemical management system PDCA framework

1. Commitments to Chemical Management System (CMS)

Purpose:

Develop a commitment by top management to comply with regulations and customer requirements, reduce the negative impacts related to chemical use and continuously review the effectiveness of the whole system.

1.1 Define the scope¹

Manufacturer should define the scope at the initial stage. Manufacturer should firstly list out all the production sites and processes and then define which one needs to be included in the chemical management system. At a minimum it is suggested that the production sites and processes involving chemical handling should be included.

1.2 Determine the level of chemical risk

After the scope is defined, manufacturer needs to conduct a chemical risk assessment within the scope. Please refer to section 3 for the detailed procedure. Based on the result of the assessment, manufacturer can decide whether they need to implement a comprehensive chemical management system. Simple controls and measures can be implemented if a comprehensive system is not needed. E.g. prepare or modify existing SOP for chemical use related processes.

For a comprehensive management system, a chemical policy is essential before getting started. Please refer to section 1.3 for the procedure of setting up policy.

1.3 Set up chemical policy²

The first step in implementing chemical management system is to clearly commit to the system. Policy is written by senior leadership that clearly communicates goals and aspiration regarding chemical management.

The policy should state clear the activities within the scope in which comply with:

- National chemical regulation and brands requirements
- Reducing the negative impacts related to chemical use
- Continually reviewing the effectiveness of the whole system
- Providing training to staff who work with chemical

If manufacturer adopts an ISO standard which is typically required to develop a policy, this policy can be expanded to become a chemical management policy. Chemical policy should be reviewed if the defined scope is changed. Appendix 1 - Table 1 is an example of chemical policy.

¹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 1.2 p.1-1

² Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 1.1 p.1-1; Oeko Tex Step section 4.1.1.1, Page 16

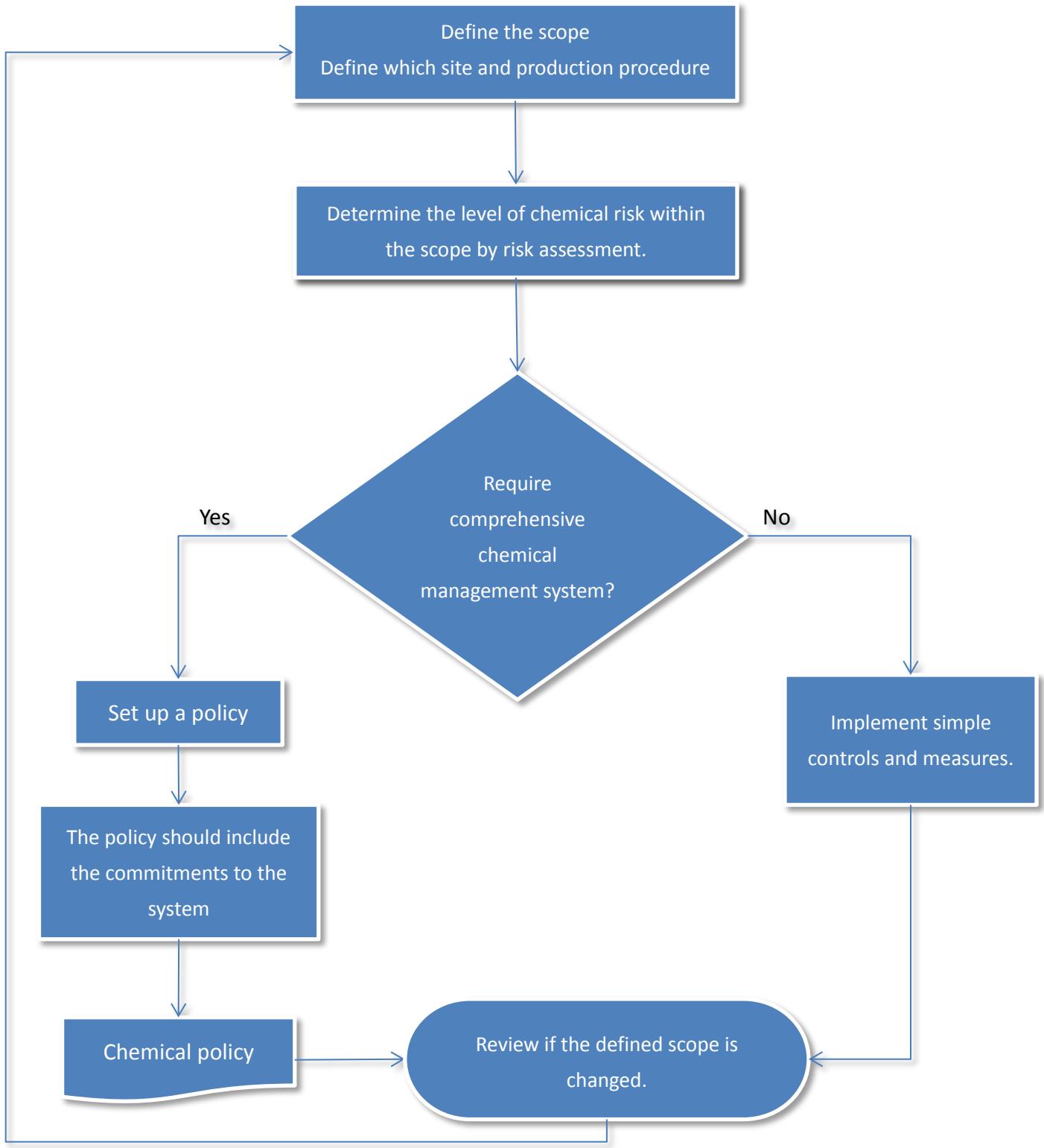


Figure 1-2 Flowchart of setting up a policy

1.4 Organization chart³

Manufacturer should prepare an organization chart and appoint a person to manage chemical system. The organization chart should clearly define the role and the name of the responsible person. If manufacturer adopts other management systems and develops an organization chart, this chart can be expanded to chemical management system.

³ Refer to Oeko Tex Step section 4.1.1.1, Page 16

2. Regulation Compliance⁴

Purpose:

In this section, the basic guidelines are provided to educate on how to identify and review the chemical related regulation corresponding to the defined scope. The ultimate goal is to ensure manufacturer's operation in compliance with regulation requirements.

Scope:

It applies to the activities in the defined scope. This may involve chemical storage, operation, procurement and chemical transportation. It can also apply to supplier/sub-contractor management after manufacturer implementing the compliance procedure.

2.1 Overall review procedure

2.1.1 Compliance check and announcement

Manufacturer should assign a specific person or team to manage the regulation compliance and look for the most updated national regulation. The responsible person reviews which articles in the regulation are suitable for the defined scope of factory. A simplified article checklist should be developed based on the result of screening. Appendix 1 - Table 2 is a summary of regulations.

After the simplified article checklist is developed, it is suggested that manufacturer should compare the simplified article checklist with the existing Standard Operation Procedure (SOP) for regulation compliance review. By reviewing the SOP one by one, manufacturer can clearly understand whether the activities within the defined scope fulfil chemical related regulations. If any non-compliance is found, manufacturer should prepare a correction action plan for improvement and update the SOP in a set timeframe. The compliance checking results should be internally communicated with top management and staff. Any critical changes should be well communicated internally. The checking results and communication minutes should be recorded and documented.

Some articles may be related to material suppliers, chemical suppliers and sub-contractors. Please refer to section 8 for more details on suppliers and sub-contractors management.

2.1.2 Regular review of the whole procedure

It is suggested that the responsible person should review if the regulation or scope is updated on a regular basis (e.g. annually). If the regulation or scope is updated, manufacturer should go through section 2.1.1 to ensure activities in the defined scope complied with new requirements.

⁴ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.2, Page 2-5; Outdoor Industry Association (OIA), Chemical Management Framework, CM 1.0, S1.F1 and S1.F2, Page 2

2.2 Regulation requirement for handling and storage

Compliance with regulation is the fundamental level for all businesses. Those requirements include handling and storage. Please refer to section 5 for details.

2.3 Supplier and Sub-contractor management

After going through section 2.2, manufacturer should consider promoting regulation compliance to suppliers and sub-contractors. This is considered as advanced level. Please refer to section 8 for details.

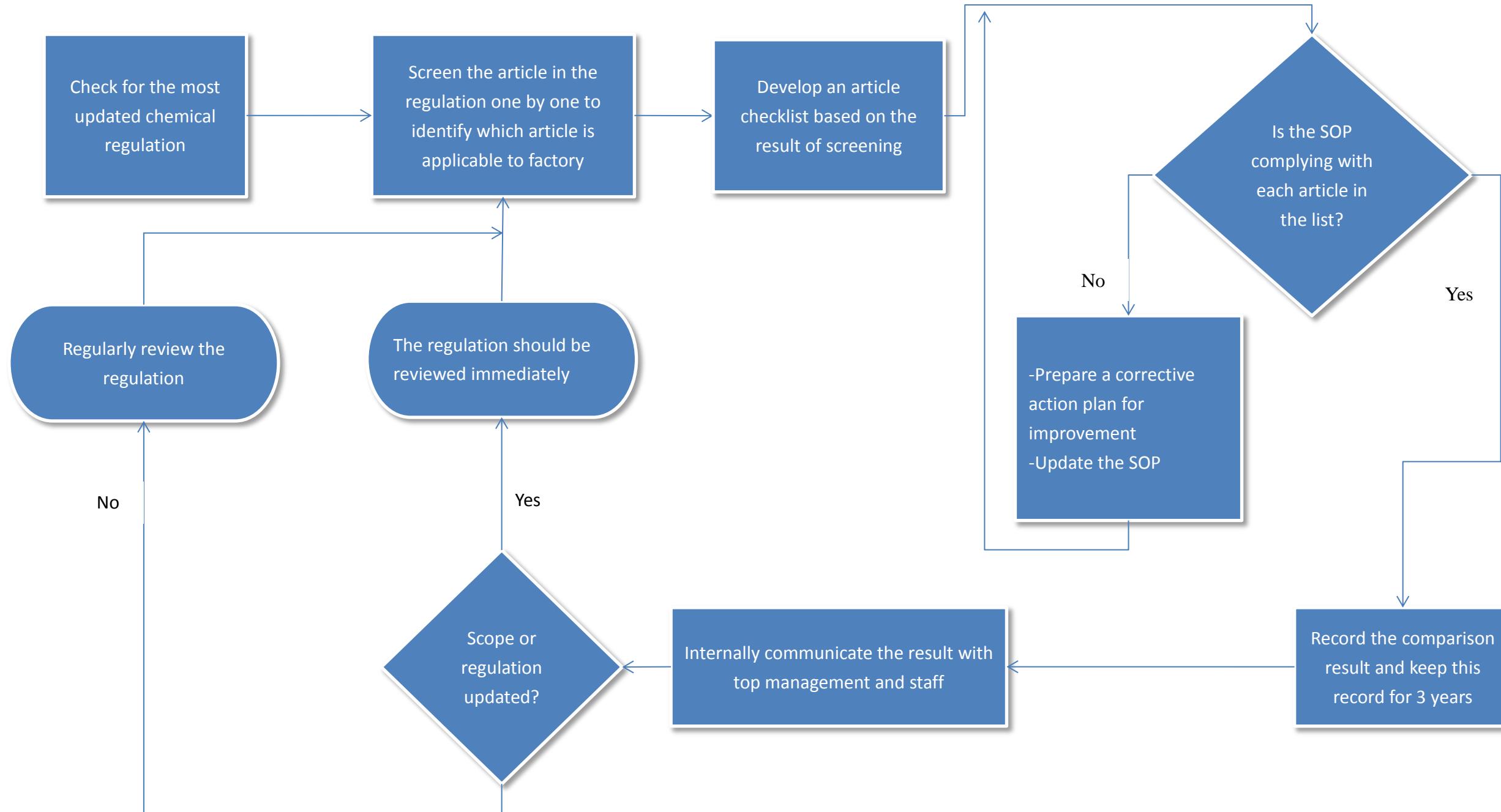


Figure 2-1 Flowchart of regulation compliance

3. Risk Assessment

Purpose:

In this section, the basic guidelines are provided to educate on how to identify and record the potential risks caused by chemicals in workplaces.

Scope:

It applies to workplaces with chemical storage and handling, which is intended to provide personnel in workplaces with practical guidelines in conducting risk assessment.

Risk assessment is the process to identify and evaluate the risks associated with them. Based on this information, measures can be determined to eliminate or control the risk.

Practically, a risk assessment in workplace is to identify any objects, situations, processes or other items that may cause harm (to environment / people) in the specific site. After identification, the likelihood and severity of risk should be evaluated, and decision will be made for the preventive or control measures for the risk. The assessment should be recorded and documented.

3.1 Identification of Risk Evaluation

By conducting a physical walkthrough, the activities involved in chemical handling and storage in each visited workplace should be clearly recorded and retained, which helps identify those workplaces that need further evaluation in risk assessment. This process should be conducted by a team of employees with abundant working experience in the workplace, including supervisors and workers who work with the operational process under review. Information from reliable sources such as SDS can also be used for references. Appendix 1 - Table 4 is an example of on-site checking sheet.

To identify and evaluate the potential risk, the responsible party should follow below steps:

1. Identify existing or potential risks associated with the work activities (including the methods / procedures used in processing, usage, handling or storage of the substance, etc.)
2. Evaluate the likelihood and severity of harm
3. Determine the level of risk

The way in which an assessment is conducted depends on the circumstances of the workplace. It has the flexibility to allow the assessment of risk associated with using or undertaking:

1. **a single chemical**, which may be risk assessed on the potential hazards for the purpose of purchasing it, storing it or using it (e.g. using inorganic lead, mercury or chromate which must be risk assessed for health monitoring purposes; preparing dilutions from stock acid; determining storage risks for flammable liquids).
2. **a specific work process involving a chemical or group of chemicals**, which may be assessed to determine how a person uses a chemical during a specific work process may be exposed or placed at risk (e.g. using corrosive or flammable products during a cleaning process).

3. **a workplace or work area**, which may be assessed for risk to identify the hazards associated with undertaking a chemical operation in the workplace and how a person using a chemical in the workplace may be exposed to chemical hazards.

An example of this type of assessment may consist of the collection of information and hazard identification of the workplace using a checklist. The assessment should be based on information on chemical labels and Safety Data Sheet (SDS), for example, precautionary phrases on labels could be used to get an idea of how a person using a chemical may be exposed. In some cases, considerably more details will be required, particularly where:

- a significant risk to health is suspected;
- there is uncertainty about the degree of risk (e.g. chemical instability, insufficient information about the chemical; uncontrolled reactions); or
- there are complex chemical processes and/or exposures involved (e.g. use of a chemical that requires health monitoring, decontamination of plant and equipment – a science prep room, an agricultural studies spray operation).

4. **a generic assessment** where the same work tasks are undertaken across similar workplaces or work areas (e.g. storage of DG6 substances in a designated storage cabinet; routine application of a horticultural chemical as part of crop production; storage of compatible chemicals in a storage area in a primary school science store). If the same chemical or process is used over a number of workplaces, the generic risk assessment may be used over all of these workplaces. When conducting a generic assessment, manufacturers should consider that the workplace, tasks and chemicals being assessed are identical in characteristics, properties, potential hazards and risks. When a generic assessment is undertaken, it is to be checked for validity at each individual workplace. Staff at alternate workplaces can make modifications to suit their individual circumstances.

3.2 Determination and Evaluation of Control Measures

Once risk is identified with its risk level, the team should work on determining appropriate control actions, as well as to monitor its effectiveness once implemented.

Generally, control measures are implemented by means of engineering controls, work practices, hygiene practices and facilities. Depending on the risk level, the team should decide if a control program is required. Once the control measures are implemented, the effectiveness of actions should be reviewed and the team should monitor if there is any improvement to be made.

If necessary, the supply chain partners can be involved as consultation in assessment. Thus, their internal contact point is needed for communication⁵.

⁵ Refer to Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S4.F1, p.8

3.3 Process for Conducting a Risk Assessment

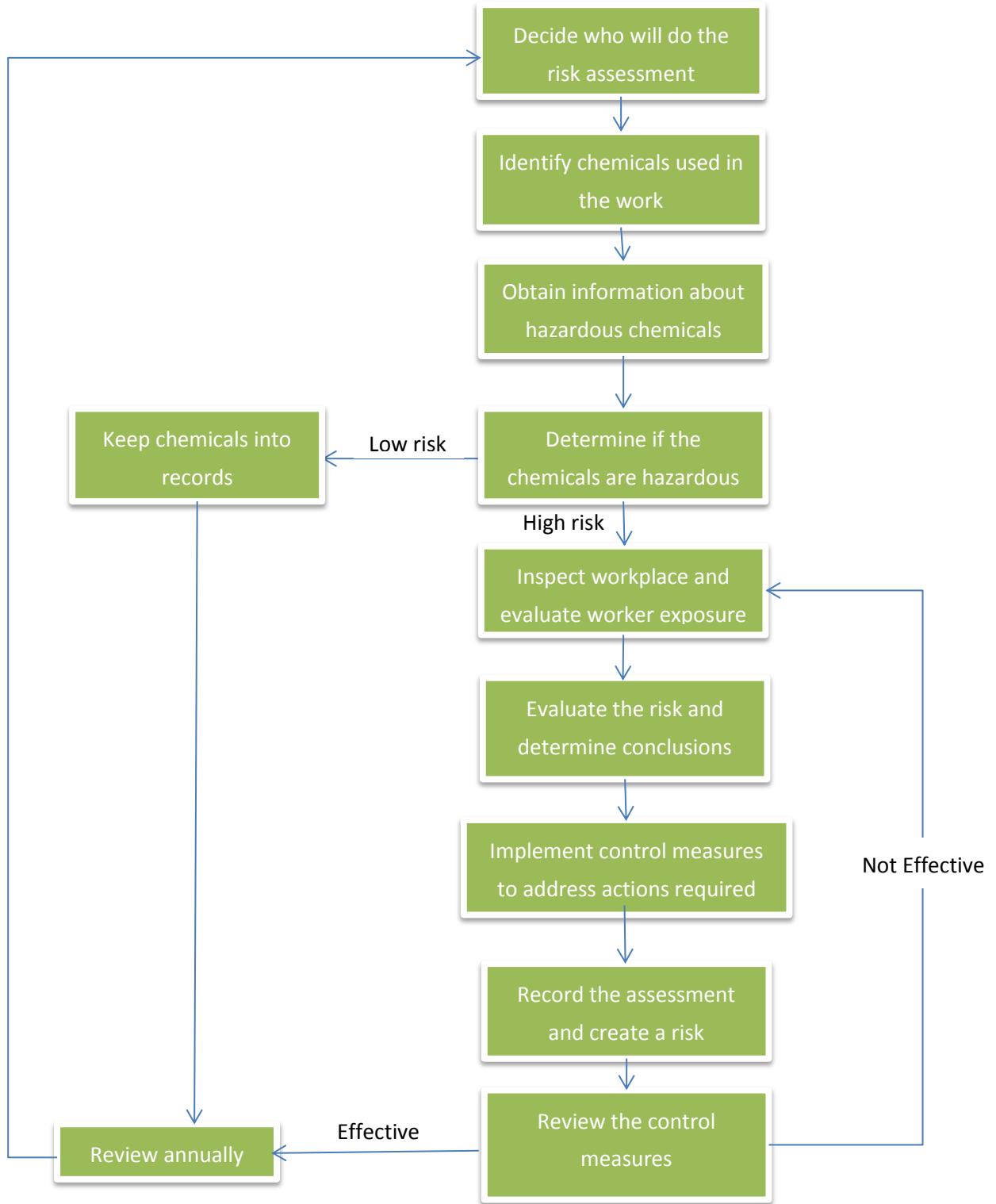


Figure 3-1 Flowchart of conducting a risk assessment

Step 1 - Decide who will do the risk assessment

The staff who conducts the assessment (assessor/s) should have sufficient knowledge and skills to evaluate the health risks to workers arising from the use of hazardous chemicals in the context that is being used.

Both the assessor and the staff using the chemicals should be able to:

- interpret the information on a safety data sheet (SDS) and labels
- observe the conditions of work and foresee potential problems
- communicate effectively
- draw all the information together to form valid conclusions about exposures and risks, and
- report the findings accurately to all parties concerned.

Step 2 - Identify chemicals used in the work

When identifying a hazardous chemical used or intended to be used, it is important to recognize that it could exist in various states or forms – solid, liquid, gas, vapour, dust, mist or fume. Chemicals used in the workplace can be identified by:

- referring to labels, stock lists, manifests, inventories and registers
- checking all locations where chemicals are used or stored, and
- considering all chemicals that are used in, or that arise from, ancillary work such as maintenance and repair, cleaning, research or testing.

Step 3 - Obtain information about hazardous chemicals

Information (e.g. from container labels and SDS) about the chemicals, routes of exposure, recommended control measures and other actions should be collected to prevent or minimize risks.

Where the nature of the hazard is very serious, or chemical processes are complex, it may be necessary to obtain more detailed information from chemical suppliers.

Step 4 - Determine if the chemicals are hazardous

SDS and chemical container labels should be used for information on whether each chemical is a hazardous substance or dangerous goods. If manufacturers are unsure whether the chemical is a hazardous chemical, they should consult with their chemical suppliers.

Step 5 - Inspect workplace and evaluate worker exposure

During inspecting and evaluating worker exposure in work processes involving hazardous chemicals, exposure assessment should be conducted to determine whether hazardous chemicals are released or emitted into working areas.

All existing control measures must be identified and consideration should also be given to any proposed control measures to minimise or eliminate the exposure of a worker to a hazardous chemical.

Step 6 - Evaluate the risk and determine conclusions about the risk

The information from the previous steps will provide the necessary information to establish:

- the nature and severity of the hazard for each hazardous chemical
- the degree of exposure of persons in the workplace
- whether existing control measures adequately control exposure

Based on the obtained information, it is now possible to make a conclusion about the acceptability of risks of using a hazardous chemical. Consultation should take place to decide if the risk is significant.

Step 7 - Implement control measures to address actions required from risk management

Document the control measures identified in the SDS. If assessment shows that there is a risk to health, further actions should be taken to implement appropriate control measures, provide training and establish emergency procedures and first aid. In some circumstances, two or more control measures may be required to reduce exposure to a level as low as is reasonably practicable. The preferred order in which control measures should be implemented is:

- Elimination
- Substitution
- Isolation
- Engineering Controls

If the risk still remains, the following can be adopted:

- Administrative Controls
- Personal Protective Equipment (PPE)

Step 8 - Record the assessment and create a risk management plan

Record the assessment for the risks including information on what decisions should be made about the risks, including how workers can be avoided and what safety measures should be used. Records of risk assessments can be kept electronically but they must be easily retrievable for use by staff, managers, auditors and external agencies when required.

In addition, manufacturers must develop a risk management plan. Manufacturers will need to update this plan regularly and make sure new chemicals are included.

Step 9 - Review the Control Measures

All measures for the control of exposure should be thoroughly examined and tested at regular intervals to ensure effective performance. Controls should be reviewed immediately if work related to ill health is reported. Routine maintenance including preventive service procedures should be established specifying:

- which control measures require servicing
- the servicing needed and who is responsible for servicing
- the frequency of servicing
- how any defects will be corrected
- performance testing and evaluation
- record of servicing

Appendix 1 - Table 3 is a risk assessment template for references.

4. Chemical Inventory

Purpose:

In this section, the basic guidelines are provided to educate on how to identify and record the chemicals in workplaces.

Scope:

It applies to the workplaces with chemical storage and handling, which is intended to provide personnel in workplaces with practical guidelines in developing the chemical inventory.

Effective chemical inventory should be developed in an organization. It is the cornerstone of an organization's operations. Properly maintaining regulated materials in inventory can help the organization to:

- Comply with complex and changing environmental regulations
- Manage chemical incompatibilities
- Reduce chemical purchasing and on-site storage
- Reduce operational costs as well as corporate liability

Chemical Inventory can help manufacturer to develop a database which identifies and eliminates specific chemicals in the product and used in the manufacturing process which are currently regulated by government or have been assigned as chemicals of concern. Manufacturers can identify and document suppliers for each of the chemicals listed in the chemical inventory. Therefore, based on the database, manufacturers can set their own compliance standards and design an agreement with suppliers to monitor their supply chains.

The identification of all chemicals at your organization will allow you to conduct a risk assessment of each chemical and rank the chemicals according to their hazard potential. Additionally, comprehensive chemical lists will help to assess chemical hazards, personal protective equipment (PPE), inventory controls and environmental risks and improve a manufacturer's management of chemical use and disposal. The chemical inventory will be used in upcoming sections to build further information and enable better chemical management.

4.1 On-Site Chemical Inventory

The chemical inventories should be created and updated with clear information of chemicals stored and used in the workplace, which plays a role in identifying hazardous chemicals⁶ in workplace to encourage proper usage and pollution prevention⁷. Chemical balance can also be included as well to track the status of chemical usage.

⁶ Hazardous chemicals: Chemicals with properties to cause harm to human or the environment, and/or lead to damages by fire, explosion, corrosively to toxicity (Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.4.1, p.2-9)

⁷ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.1.4, p.2-2

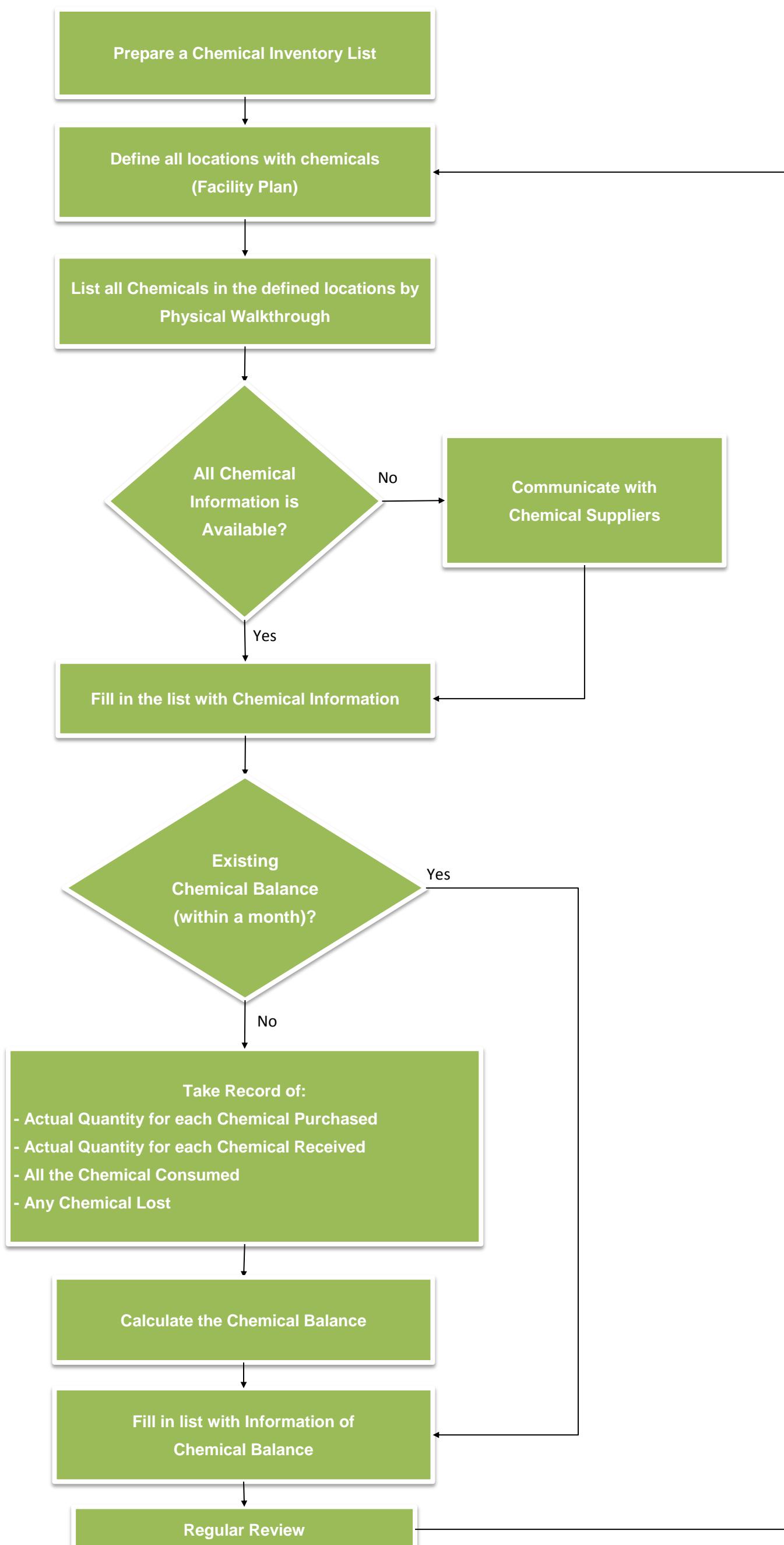


Figure 4-1 Flowchart of chemical inventory

4.1.1 Preparation of Chemical Inventory Template

In the inventory, all chemicals used to make the product should be recorded, documented and maintained with their chemical names, functional uses, respective chemical suppliers, current SDSs and other applicable information⁸. For further details, please find Appendix 1 - Table 5 for your references.

4.1.2 Record of chemical information via Physical Walkthrough

To obtain the information in the chemical inventory, a physical walkthrough in the workplace can be conducted. During this process, you can involve your employees in workplace to help identify the chemicals in use and storage.

4.1.3 Record of Chemical Usage (Chemical Balance)

A clear record should be taken to track chemical usage for production processes and non-production processes, which helps to account for material entering and leaving a system.⁹

Procedures:

1. Account the storage amount of each chemical on monthly base.
2. Record the actual quantity for each chemical purchased and received.
3. Record all the chemical consumption includes production processes and non-production processes.
4. Any chemical lost due to accident must be recorded.
5. Calculate the balance between in and out and cross check by accounting the storage amount.

4.1.4 Regular Review of Chemical Inventory

Regular review and maintenance are essential to keep the inventory list up-to-date and practical, which is suggested to be conducted at least annually. This document also helps determine whether the chemicals in products during manufacturing processes and/or residing in final product are against published lists for identifying chemicals of concern, which can be provided upon request¹⁰.

In addition, by building the chemical inventory, a list could be made for all chemicals used in production processes or production supporting processes, which records the chemical substances that are re-used, sold or discarded. Updates should be made for this list annually or upon changes in processes.¹¹

⁸ Refer to Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S3.F1, S3.F2, S3.F4 (p.5)

⁹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.1.4; Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S3.P2

¹⁰ Refer to Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S3.P4 (p.11), S4.P1 (p.8)

¹¹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.1.4.1, p.2-3

5. Chemical storage and handling

Purpose:

In this section, the basic guidelines are provided to educate on how to identify potential chemical hazards and safely store and handle dangerous chemical substances in workplaces.

Scope:

It applies to workplaces with chemical storage and handling, which is intended to provide personnel in workplaces with practical guidelines in storing and handling chemicals.

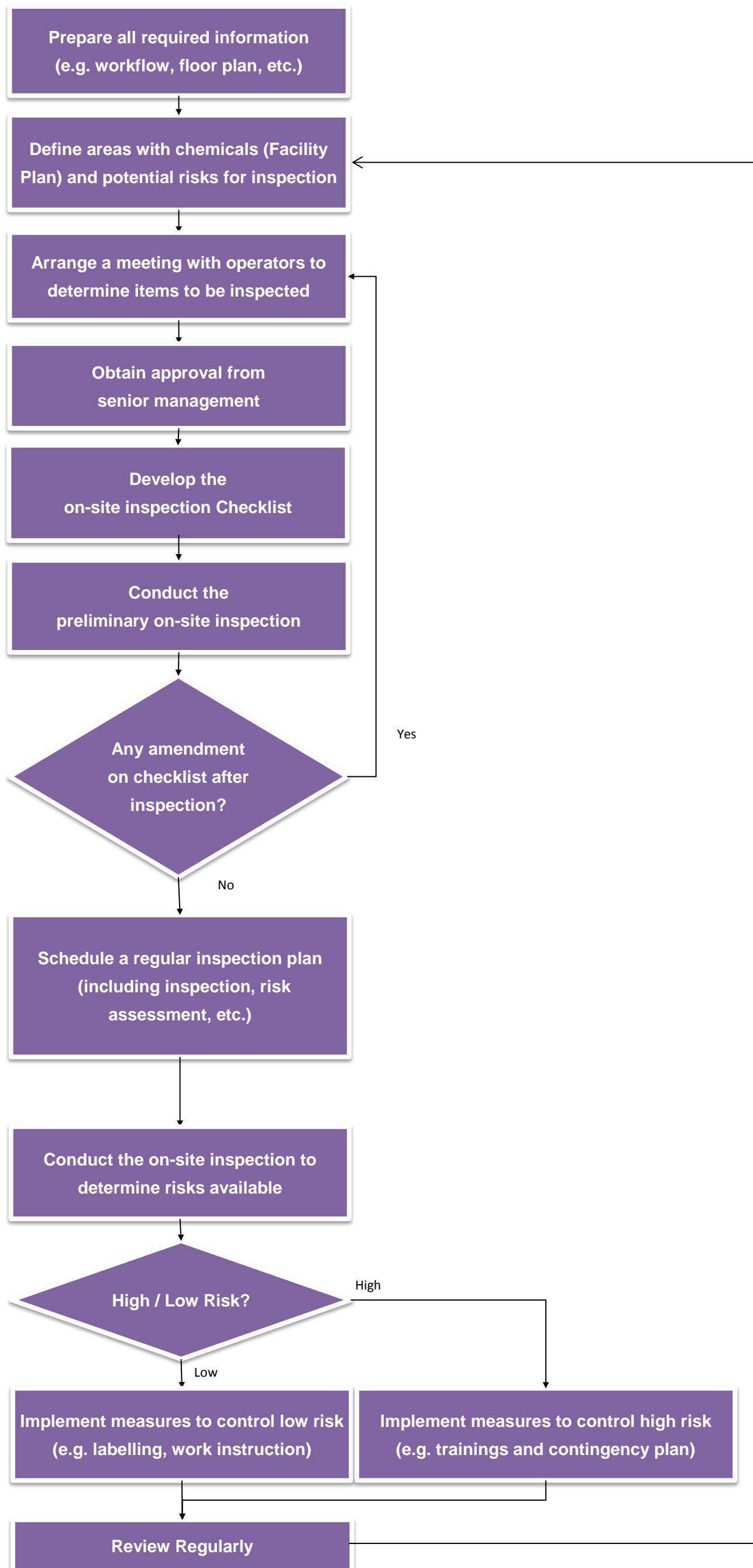


Figure 5-1 Flowchart of identifying risk and implementing relevant measures

5.1 Getting started

5.1.1 Safety Data Sheet (SDS)

Safety data sheet (SDS)¹² is useful for managing the safety of chemical use in workplaces. Each hazardous chemical should be handled with its SDS that should be:

- free of charge;
- provided no later than the first delivery or whenever there is any update / revision to all personnel who received the chemical in the previous 12 months;
- prepared by a competent person;
- be specific to the chemical;
- provided with 16 headings* for chemicals classified as hazardous; and
- be clear and understandable with the date and pages numbered.

***16 Headings in Safety Data Sheets**

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

Table 5-1 16 Headings in Safety Data Sheets

In case of missing SDS, please contact your chemical supplier and request one (available in English and native language, and under Globally Harmonized System (GHS) standard¹³) from them.

Manufacturers should ensure all SDSs of chemical to be:

- Maintained in an archive with the chemical information clearly documented
- Kept as a written guideline in the central place that is readily accessible by all employees and emergency services in need.¹⁴
- Provide corresponding trainings to all responsible employees before handling the chemicals

¹² Safety Data Sheet (SDS): A document that provides useful information on the chemical hazards, including advices on safe handling, use and storage, as well as the emergency measures to be followed in case of an accident.

¹³ Globally Harmonized System of Classification and Labelling of Chemicals (GHS): An international system created by the United Nation to classify the hazards of chemicals and communicates health and safety information such as labels and safety data sheets (SDSs). For its guidance on the SDSs' preparation, please refer to GHS - Annex 4, http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev05/English/08e_annex4.pdf

¹⁴ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 3.5.2, p.3-5; Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S3.F4 (p.5)

5.1.2 Facility Plan

A facility plan¹⁵ is used to indicate locations with chemical storage and usage, in which all of the following areas are individually labelled:

- Purchasing and delivery areas
- Product storage areas (Chemical storage areas; and Non-chemical storage areas)
- Process areas
- Manufacturing areas
- Waste storage areas (Chemical waste storage areas; Wastewater storage; and Non-chemical waste storage areas)
- Other areas with chemicals (e.g. laboratory, maintenance areas, etc.)

An annual review should be made by carrying out a physical walk through to update the plan if necessary. Once the facility plan is ready, it can be used to initially identify potential risk in workplaces. A more detailed inspection can then be done by a competent team to assess the risk with periodical review and updates (at least once a year).

For references, a simple on-site checklist is provided as an example in the Appendix - Table 4.

5.2 On-Site Chemical Inventory

The chemical inventories should be created and updated to provide clear information of chemicals stored and used in workplaces, which aims for identifying hazardous chemicals¹⁶ in workplace as well as encouraging proper usage and pollution prevention¹⁷. For details, please refer to section 4 – Chemical Inventory as well as the example in the Appendix – Table 5

5.3 Health and safety measures

The risks identified should be recorded in list, which can be provided upon request. For information, please refer to section 3 – Risk Assessment as well as the example in the Appendix – Table 3. The following table shows some examples of risk and corresponding measures. It is essential to establish relevant health and safety measures to protect workers, which includes written instruction on chemical use and storage, documented procedures in work practices such as housekeeping and chemical disposal, as well as PPE handling and chemical labelling.

Risk Level	Examples of Risks	Examples of Corresponding Measures
Low	<ul style="list-style-type: none">- Missing information (e.g. Safety Data Sheet)- Unclear indication of chemical usage	<ul style="list-style-type: none">- Instruction on chemical use and chemical storage- Proper labelling for chemical handling and storage- Training

¹⁵ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.1.2, p.2-1

¹⁶ Hazardous chemicals: Chemicals with properties to cause harm to human or the environment, and/or lead to damages by fire, explosion, corrosively to toxicity (Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.4.1, p.2-9)

¹⁷ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.1.4, p.2-2

Risk Level	Examples of Risks	Examples of Corresponding Measures
High	<ul style="list-style-type: none"> - Chemical Exposure - Chemical Spillage 	<ul style="list-style-type: none"> - Standard Operating Procedures for Safe Chemical Storage and Handling - Measures to control exposure - Maintenance and housekeeping - Proper waste collection, handling, storage and disposal - Personal protective equipment (PPE) - Contingency plan

Table 5-2 Examples of risks and corresponding measures

5.3.1 *Written Instructions on Chemical Use*

Based on the chemical inventory, written instructions of proper chemical use should be available in the location where the specific chemicals are in use. It should present information such as the main operations, chemicals and required quantities in form of:

1. Recipe card/record
2. Process adjustment instructions
3. Formulation sheets

References can be taken from technical data sheets or consultation with the chemical suppliers.¹⁸

5.3.2 *Instructions on Chemical Storage*

Regarding their properties, hazardous chemicals should be stored under proper conditions. Relevant instructions and advices can be referred to Section 7 and 10 of the Safety Data Sheet (SDS).

Consideration taken when storing chemicals

1. Types of chemicals under controls
 - Carcinogenic
 - Mutagenic
 - Toxic to reproduction
 - Flammable chemicals
 - Toxic or corrosive chemicals
 - Chemicals that emit highly toxic fumes in the event of a fire
 - Chemicals that release flammable gas when in contact with water
 - Oxidizing chemicals
 - Explosives
 - Unstable chemicals
 - Compressed gases
2. Compatibility of chemicals
3. Appropriate construction, nature and integrity of storage containers

¹⁸ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 2.1.4.1, p.2-3

4. Appropriate Temperature, humidity and ventilation arrangements
5. Adequate security of and access to storage areas
6. Prohibition or control of any potential ignition source
7. Safe location for storage areas
8. Safe transport around the workplace
9. Adequate precautions and procedures in case of spillage

5.3.3 Standard Operating Procedures for Safe Chemical Storage and Handling

With the help of chemical information in reliable sources such as section 7 and 10 in Safety Data Sheets (SDSs), procedures should be provided to employees with the safest way to handle chemicals¹⁹.

The Standard Operating Procedures (SOPs) should be written with documented procedures for workplaces with operations that involve the use of hazardous chemicals. The involved employees should indicate that they have read and understand all SOPs, and be provided with hands-on training on safe way of handling, using and disposal of chemicals used²⁰.

5.3.4 Measures to Control Exposure

To minimise risk arise from specific chemical, measures to control exposures should be implemented. Recommendations are shown as below:

1. Eliminate the hazardous chemicals
2. Replace with a safe alternative or substitute with a less hazardous chemical
3. Use technical protection measures (*obtain expert advice before any installation)
 - Process conducted in closed containers which are vented to a safe place
 - Local exhaust ventilation (LEV) at the source of the hazard
 - Isolation/containment hoods or booths
 - Control precautions and process conditions designed based on the physicochemical properties of chemical in use²¹
4. Put administrative controls in place
 - Consider how to avoid chemical exposures to workers by amending processes
 - Minimise the number of employees involved in a task by job rotation
 - Exclude employees not involved in the task from the area with chemical in use
 - Consider how to eliminate / isolate / minimise chemical hazard
 - Ensure chemicals with hazardous properties are correctly stored
 - Provide training to employees on hazards and safe use of chemicals
 - Ensure emergency procedures are in place
 - Launch a preventative maintenance program to keep engineering controls working efficiently
5. Use personal protective equipment (PPE)

¹⁹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.5.3, p.3-6

²⁰ Refer to Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S5.F3, p.10

²¹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.5.1, p.3-4

5.3.5 Measures for Maintenance and Housekeeping²²

Regular maintenance and housekeeping activities should be conducted to prevent potential hazards from occurring in workplace.

Maintenance and Housekeeping Activities

- Maintenance of chemical stored in good organization
- Removal of dust, dirt or even hazardous substances
- Adequate cleaning of employee facilities (preferably once per shift)
- Appropriate cleaning of surfaces such as floors and walls
- Clear obstacles in aisles and stairways
- Cleaning machines and equipment
- Maintenance of machines and equipment in safe, efficient working order and in good repair
- Waste Disposal with regular collection, grading and sorting of scrap

These activities can be conducted under established procedures, one of which is shown below as an example of how to identify chemicals to be disposed:

Procedure of identifying chemicals to be disposed

1. Determine and record which chemical containers are:
 - Unlabelled
 - In poor condition
 - Expired
 - Not essential
2. Put the chemicals that meet one of the conditions in step 1 into the candidate list for disposal.
3. Determine if the chemical in candidate list should be disposed by taking below factors into consideration:
 - The approximate usage amount of chemical per type each year
 - The duration of chemical supply that are currently on hand
4. If disposal is determined, four steps should be taken as below:
 - I. Create a Disposal List²³ with chemical to dispose in order
 - II. Identify a qualified professional to help carrying out a chemical cleanout and disposal process
 - III. Prepare for the chemical cleanout and disposal
 - IV. Determine and take action steps to minimise the need for future chemical cleanouts (such as purchasing controls and inventory management)

5.3.6 Measures for Proper Waste Collection, Handling, Storage and Disposal

Waste may be generated during processes, some of which cannot be discharged to air, water or soil directly. This type of chemical waste should be collected onsite and then disposed of as per corresponding rules and

²² Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.5.10, p.3-8

²³ Refer to the [APPENDIX 1 TABLE 6](#)

regulations²⁴. In this case, please refer to section 13 of SDS to confirm if the disposal procedures for your chemicals are appropriate. If a hazardous waste disposal contractor is needed, please make sure they are the licensed ones.

When managing the wastes, it is important to ensure that the processes comply with local regulations. Below are some of the guides or laws on handling chemical wastes in Hong Kong and China for references.

HONG KONG
A Guide to the Chemical Waste Control Scheme ²⁵
CHINA
Law of the People's Republic of China on Prevention and Control of Environmental Pollution by Solid Waste ²⁶

Table 5-3 Guides / laws on handling chemical wastes

If there is any question about the safety of any chemical disposal procedure, please contact the local environmental protection party for further advice.

5.3.7 PPE, eye washer and shower in workshop

To ensure protection of employees when accident or incident occurs, all appropriate Personal protective equipment (PPE) should be well-prepared in the workplaces. Section 8 of SDS can be used to find the appropriate PPE for each chemical.

Below are several main categories of PPE²⁷:

Category	Description
Eyes/ Face	Protective eyeglasses, chemical safety goggles, face shields. It is suggested to prepare them as per U.S. Occupational Safety and Health Administration's (OSHA's) eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.
Skin	Protective gloves to avoid skin exposure Protective footwear(e.g. chemical resistant shoes/ boots) Protective clothing to avoid skin exposure (e.g. aprons)
Respirator	It is suggested to follow the OSHA respirator regulations in 29CFR 1910.134 or European Standard EN149, and always use the respirator that is approved by U.S. National Institute for Occupational Safety and Health (NIOSH) or European Standard EN149 if necessary.

Table 5-4 Personal Protective Equipment (PPE)

²⁴ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section2.1.4.4, p.2-5

²⁵ http://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentinhk/waste/guide_ref/files/guide_e.pdf (Eng)
http://www.epd.gov.hk/epd/sites/default/files/epd/tc_chi/environmentinhk/waste/guide_ref/files/guide_c.pdf (Chi)

²⁶ http://www.npc.gov.cn/englishnpc/Law/2007-12/12/content_1383723.htm (Eng)
<http://www.customs.gov.cn/publish/portal0/tab2747/info11114.htm> (Chi)

²⁷ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.5.8, p.3-7

5.3.8 Proper labelling for chemical storage and handling area²⁸

All containers and packaging for chemical handling should be presented with:

- A clear identification of the corresponding chemical substances
- Indication whether the substance is hazardous and has risk to humans or the environment by means of contact or accidental release.

Information of proper labelling should be referred to hazard information on the label or Section 2 and 3 of the SDS for an overview of the hazardous properties. Manufacturer can use labels standardized by local regulation or internationally standard, markings, symbols, risk-phrases or hazard statements. The following labelling practices are for references:

- Adopt a labelling procedure standard for chemicals and waste
- Use labels that prevents fade-out
- Designate a team to handle the labelling and inventory control
- Use tags, barcodes or RFID to keep tracking of chemicals
- Review all facility areas to ensure labelling compliance

For the details of labelling requirement, please follow below national guides or standards for references:

HONG KONG

Guide to the Factories and Industrial Undertakings (Dangerous Substances) Regulations from Hong Kong Government, Occupational Safety and Health Branch of Labour Department²⁹, 2.3.1-2.3.4, P.5-7

A Guide to the Chemical Waste Control Scheme - 2.3 Packaging, Labelling and Storage of Chemical Wastes³⁰, 3. Labelling, P.8-11

CHINA

GB 15258-2009 – “General rules for preparation of precautionary label for chemicals”³¹

GB 190-2009 -“Packaging Labels for Dangerous goods”

GB/T 22234-2008 - “Labelling of Chemicals Based on GHS”

Globally Harmonized System (GHS)

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)³²

Table 5-5 Guides / standards of labelling requirement

²⁸ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.5.6, p.3-7

²⁹ Refer to <http://www.labour.gov.hk/eng/public/os/A/DSR.pdf>

³⁰ Refer to http://www.epd.gov.hk/epd/english/environmenthk/waste/guide_ref/guide_cwc_sub1_2-3.html

³¹ Refer to

http://www.cirs-reach.com/China_Chemical_Regulation/GB15258-2009_General%20_Rule_for_Preparation_of%20_Precautionary_Label_for_%20Chemicals.pdf

³² Refer to http://www.unece.org/trans/danger/publi/ghs/rev02/02files_e.html

The following examples are the labels of chemicals in Hong Kong and China:

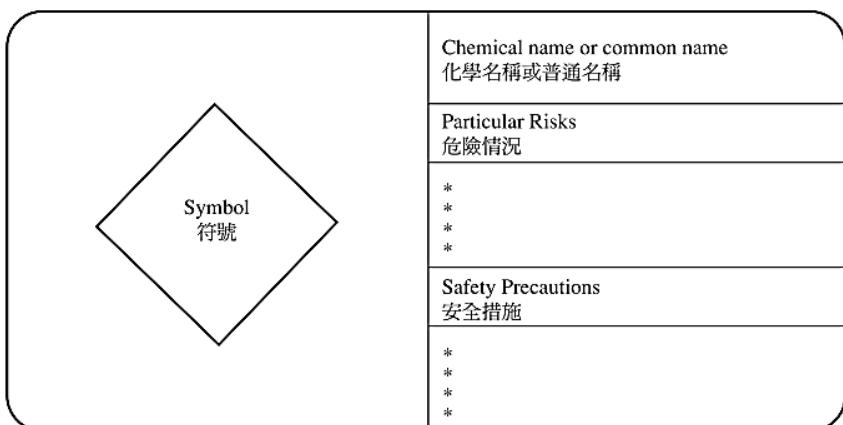


Figure 5-2 Prescribed form of Chemical Label in Hong Kong³³

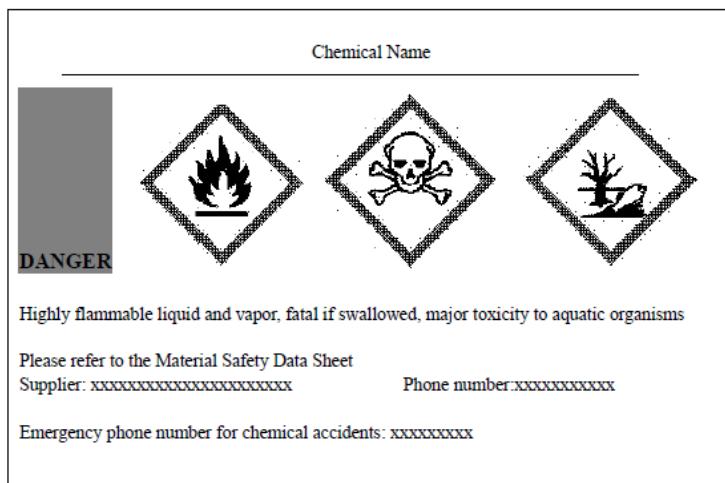


Figure 5-3 Example of simplified chemical label in China (in English)³⁴



Figure 5-4 Example of simplified chemical label in China (in Chinese)³⁵

³³ Refer to A Guide to the Factories and Industrial Undertakings (Dangerous Substances) Regulations from Hong Kong Government, Occupational Safety and Health Branch of Labour Department, <http://www.labour.gov.hk/eng/public/os/A/DSR.pdf>

³⁴ Refer to GB15258-2009 General Rule for Preparation of Precautionary Label for Chemicals, Appendix A2

³⁵ Refer to GB15258-2009 General Rule for Preparation of Precautionary Label for Chemicals, Appendix A2

Chemical Name	Ingredient A: 40%;	Ingredient B: 60%	
DANGER			
Highly flammable liquid and vapor, fatal if swallowed, major toxicity to aquatic organisms			
<p>[Prevention measures]</p> <ul style="list-style-type: none"> a) Keep away from heat/spark/open flame/hot surface, use only non-sparking tools; b) Keep container tightly closed; c) Use electrostatic prevention measures, ground/bond container and receiving equipment; d) Use explosion-proof electrical/ventilating/lighting and other equipment; e) Wear protective gloves/eye protection/face protection; f) Wash contracted body parts thoroughly after handling; g) Do not eat, drink and smoke at the workplace; and h) Avoid release into the environment. 			
<p>[Accident response]</p> <ul style="list-style-type: none"> a) If on skin (or hair): immediately remove (take off) all contaminated clothing. Rinse skin with water/shower; b) If swallowed, induce vomiting, get immediate medical advice/attention; c) Collect spillage; and d) In case of fire, use dry chemical, foam, or carbon-dioxide for extinction. 			
<p>[Safety storage]</p> <ul style="list-style-type: none"> a) Store in well-ventilated place. Keep cool; and b) Store locked up. 			
<p>[Discard disposal]</p> <ul style="list-style-type: none"> a) Dispose of contents/containers by incineration. 			
Please refer to the Material Safety Data Sheet			
Supplier: xxxxxxxxxxxxxxxxxxxxxxxx Phone Number:xxxxxxxxxxxxxxxxxxxxxx			
Address: xxxxxxxxxxxxxxxxxxxxxxxx Postcode:xxxxxxxxxxxxxxxxxxxxxx			
Emergency phone number for chemical accidents: xxxxxxxxx			

Figure 5-5 Example of precautionary chemical label in China (in English)³⁶

³⁶ Refer to GB15258-2009 General Rule for Preparation of Precautionary Label for Chemicals, Appendix A1

化学品名称

A组分: 40%; B组分: 60%

危 险



极易燃液体和蒸气，食入致死，对水生生物毒性非常大

【预防措施】

- 远离热源、火花、明火、热表面。使用不产生火花的工具作业。
- 保持容器密闭。
- 采取防止静电措施，容器和接收设备接地、连接。
- 使用防爆电器、通风、照明及其他设备。
- 戴防护手套、防护眼镜、防护面罩。
- 操作后彻底清洗身体接触部位。
- 作业场所不得进食、饮水或吸烟。
- 禁止排入环境。

【事故响应】

- 如皮肤（或头发）接触：立即脱掉所有被污染的衣服。用水冲洗皮肤、淋浴。
- 食入：催吐，立即就医。
- 收集泄漏物。
- 火灾时，使用干粉、泡沫、二氧化碳灭火。

【安全储存】

- 在阴凉、通风良好处储存。
- 上锁保管。

【废弃处置】

- 本品或其容器采用焚烧法处置。

请参阅化学品安全技术说明书

供应商: XXXXXXXXXXXXXXXXXXXXXXX

电话: XXXXXX

地 址: XXXXXXXXXXXXXXXXXXXXXXX

邮编: XXXXXX

化学事故应急咨询电话: XXXXXXXX

Figure 5-6 Example of precautionary chemical label in China (in Chinese)³⁷

³⁷ Refer to GB15258-2009 General Rule for Preparation of Precautionary Label for Chemicals, Appendix A1

5.4 Training

Training should be provided for employees to be well prepared for and be capable of handling chemical substances and accidents.

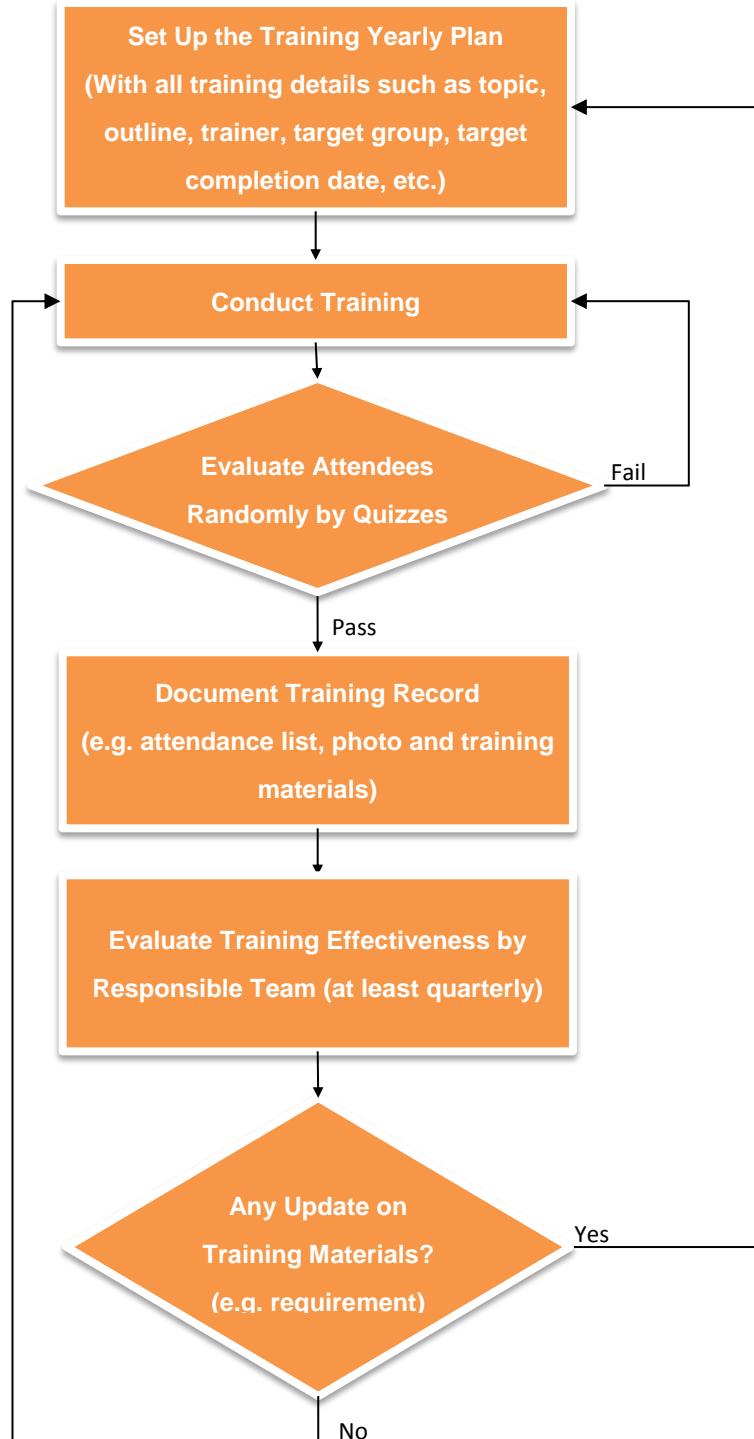


Figure 5-7 Flow chart of training

Below table are the activities / items that employees should be trained to get familiarise with:

Training Contents	
Operational Level	<p>Basic knowledge:</p> <ul style="list-style-type: none"> - Chemical hazards - Potential risks to health <p>Daily Safety Practices³⁸:</p> <ul style="list-style-type: none"> - Standard Operating Procedures (SOP) regarding safe chemical handling - Preventive environmental and work safety controls in place - Proper use of engineering controls - Proper use of PPEs (e.g. goggles and face shields to prevent eye and skin contact; and protective clothing to prevent skin contact with chemicals) - Selecting appropriate gloves and removing gloves to avoid skin contact with chemicals - Proper hand washing - Proper way to safely clean up spills - How to report hazard - What to do during emergency. <p>Regulatory:</p> <ul style="list-style-type: none"> - A training process should be provided to relevant staff about the knowledgeable of legal requirements associated with chemicals in the manufacturer's inventory.³⁹
	<p>Training from Brands / Retailers</p> <ul style="list-style-type: none"> - Engage in these training opportunities provided from brands / retailers (for example, education on their Restricted Substance List (RSL)/ Substances of Concern List (SoCL) for better compliance to the chemical requirements.⁴⁰
Top Management Level	<p>Basic knowledge:</p> <ul style="list-style-type: none"> - Chemical hazards - Potential risks to health <p>Chemical management in manufacturer:</p> <ul style="list-style-type: none"> - Trained to understand their roles in managing chemicals in organization - Be informed of information about the hazards and risks related to the existing chemical inventory, the organizational improvement goals and the human and financial resource required for CMS implementation.⁴¹

Table 5-6 Training content for different employees

³⁸ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.2.3, p.3-2, Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S5.F3, p.10

³⁹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.2.2, p.3-2

⁴⁰ Refer to Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S2.F4, p.3

⁴¹ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.2.1, p.3-2

To ensure the training effectiveness, it is recommended to test the trainees by quizzes or appropriate activity for learning demonstration. Most importantly, all employees should fully understand the importance of their activities and their contribution to achieving organization's chemical objectives.⁴²

As usual, the training program should be reviewed at least once a year to suit the changing requirements and be updated upon changes.

5.5 Periodical Review of Regulations

Manufacturers should review its chemical storage and handling practices by regularly monitoring the applicable regulations for each legal jurisdiction (in which manufacturer has its own manufacturing processes and/or sells their products) to identify new or changing requirements to ensure compliance⁴³.

To keep track of the updates of national and market regulations, it is suggested to have a list of regulations documented for periodical review at least once a year. Please refer to the Appendix 1 - Table 2: Regulation list for further details.

⁴² Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section3.2, p.3-2

⁴³ Refer to Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S1.F1, p.2

6. Chemical contingency planning

Purpose:

In this section, the basic requirements of a contingency plan are indicated for identifying and responding to potential and foreseeable chemical incidents.

Scope:

It applies to manufacturing sites where potential chemical accidents and contingency cases may occur.

6.1 Contingency plan

A written and up-to-date contingency plan should cover all workplaces, which aims to minimise the potential influences of any dangerous accidents caused by improper hazardous chemical storage and handling. Once established, the contingency procedures must be reviewed regularly and kept updated after practice drills and actual emergencies.

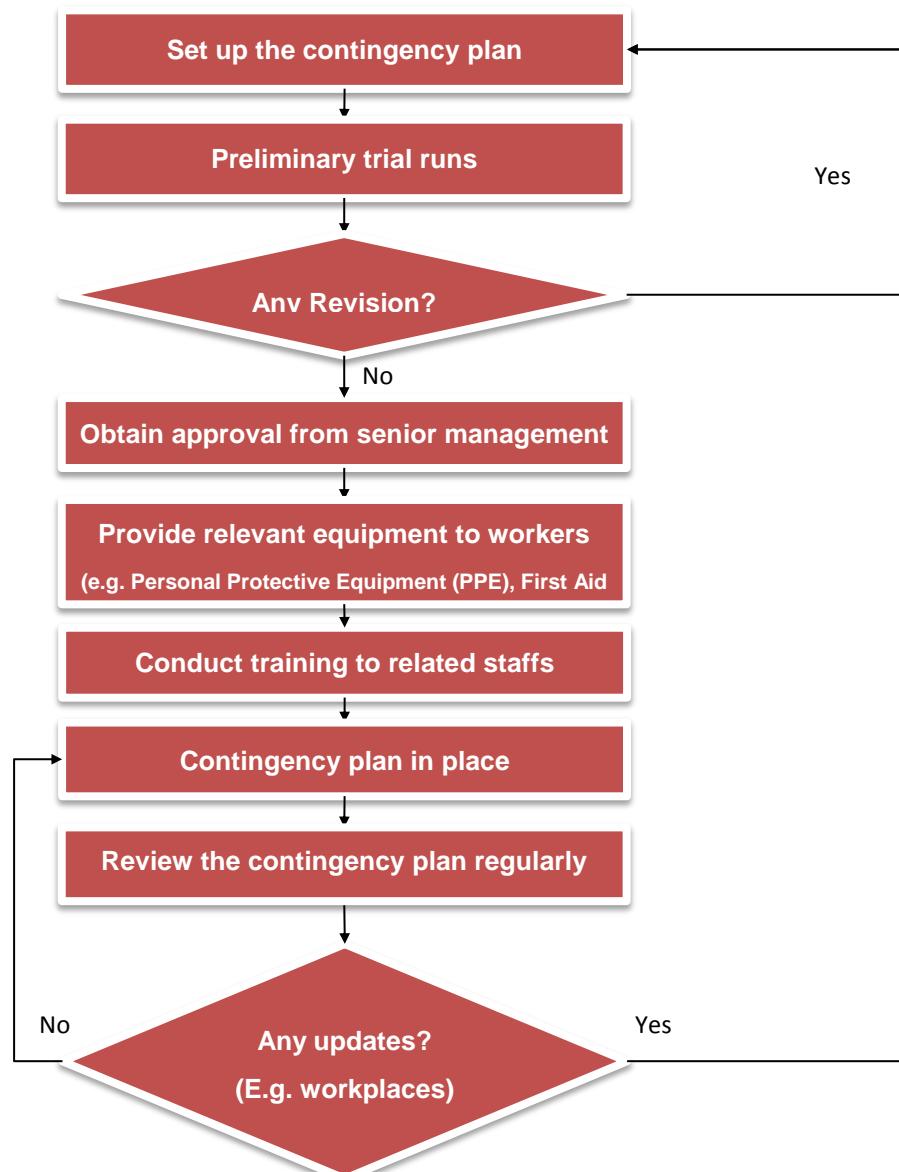


Figure 6-1 Flowchart of implementing a contingency plan

1. Evaluate the Workplace Condition

To develop a site-specific contingency plan, the following elements must first be evaluated:

- the nature of work being carried out at the workplace
- the nature of hazard at the workplace
- the size and location of the workplace
- the number of workers and other people at the workplace

2. Determine the items included in Contingency Plan

Based on the workplace conditions, items in the contingency plan should be determined by the competent team which involves workers, the contingency services organizations and neighbouring premises. It helps to ensure the feasibility and effectiveness of the plan.

Generally, a contingency plan must include below items⁴⁴:

A. Contingency Procedures	
1. Information to ensure an effective response to an contingency	<ul style="list-style-type: none">• Definition of Contingency• The number of people involved and what areas of response are required technically
2. Detailed evacuation instruction and procedures	<ul style="list-style-type: none">• Contact names and information for individuals in charge of the evacuation (contingency response leaders)• Useful telephone numbers (e.g. call number for contingency, fire department and internal contingency response leaders) that should be posted close to any phone in workplaces• Primary and secondary escape routes with simple instructions that must be posted at the entrance, close to the lifts and telephones as well as any other eye-catching spots• Duties to guide disabled workers and those with a history of certain medical conditions to safety (a contingency response leader should be assigned to complete this mission).• Specific duties assigned to the contingency response leaders (e.g. to verify that all workers have been evacuated)• Medical treatment and assistance• Notification procedures to advise contingency services organizations at the earliest convenience• Communication procedures between the person coordinating the contingency response and all people at the workplace

⁴⁴ Refer to ZDHC 2015 Chemical Management System Guidance Manual, Section 3.6, p.3-9

<p>3. Maintenance and Housekeeping Practices to prevent the occurrence of contingency</p>	<ul style="list-style-type: none"> • Keep stairways free of materials that could block an evacuation • Maintain contingency equipment such as contingency shower and eyewash station • Ensure all first aid kits are: <ul style="list-style-type: none"> - clearly labelled - protected from water and dust - placed in easily accessible spots - checked monthly and documented with an inspection tag equipped with a written instruction in local language of how to use the kit
<p>B. Drills</p>	
<p>1. Drill Procedures for identifying problems before an actual incident happens</p>	<ul style="list-style-type: none"> • Regular fire drills
<ul style="list-style-type: none"> • Regular drills for chemical spillage • Others (if applicable) 	
<p>C. Testing Plan</p>	
<p>1. Plan to ensure effectiveness of contingency plan</p>	<ul style="list-style-type: none"> • A regular schedule to determine the time for conducting regular drills
<ul style="list-style-type: none"> • A standard procedures to test the effectiveness of current contingency plans 	
<p>D. Employee Engagement</p>	
<p>1. Plan to ensure the contingency plan are well-known by all relevant parties</p>	<ul style="list-style-type: none"> • Determination of how relevant workers will be provided with information, drill and instruction about implementing the contingency procedures

Table 6-1 Contingency plan content

A clear contingency procedure document can be one-page long with items in point form. The contingency procedure in an effective plan should be:

- Easily located by all workers, with hard copies available at all times
- Clearly displayed on signs in workplaces to show the evacuation procedures, assembly areas, location of first aid officers and contingency wardens, and the contact numbers of contingency services organizations.
- Printed on pocket cards for workers or visitors.

3. Implement the Contingency Plan

During implementation, it is important for an organization to:

- Report to relevant parties upon occurrence of chemical accident based on local regulations
- Maintain the contingency equipment
- Record all the incidents occurred, the reasons of occurrences and the actions taken

4. Conduct Drills on the Contingency Plan

Once the plan is well implemented, all involved workers should be well-trained. To ensure the plan is up-to-date and well-implemented by each party in workplaces, practice drills and simulated emergencies should be undertaken at a regular interval in a year (at least half a year), which involve the participation of all workers as well as other related staffs and parties such as the first aiders and health and safety officer.

For each conducted drill, a summary record should be written and maintained for references (with retention time of 3 years). Please check the Appendix 1 - Table 7 for references.

5. Review the Contingency Plan

The contingency plan should be reviewed:

- within 1 years of its development
- in intervals of no more than 1 years
- upon any change of risk at or in the proximity of the workplace
- upon any updated information
- when any possible deficiency is identified in regular testing.

During each update and review, discussion should be made together with the contingency services organizations.

6.1.1 Contingency Plan for Environment

Contingency procedures should be designed with processes to prevent and mitigate contingency situation that causes significant environmental impact, such as fires and chemical spillage. Below is an example of instructions and procedures made for incident of chemical spillage to control the chemical release.

Contingency Procedure for Spillage of Hazardous Chemicals

1. *Ensure that any spillage of chemical should apply sand / sawdust to absorb the spilled chemical, in order to control the spilled area. Wear protective clothing and appropriate equipment to handle any chemical spillage situation.*
2. *After cleaning, any used absorbent (e.g. sand / sawdust) should be treated as chemical waste material.*
3. *Record the occurrence of chemical spillage in the accident report, in order to discuss the preventive action for future.*
4. *Arrange at least once a year of chemical spillage drill.*

When setting the contingency procedure for risk caused by specific chemical, section 6 in SDSs can be used as reference, which indicates the actions to be taken in case of an accidental release of chemicals.

6.1.2 Contingency Plan for Health and safety

Apart from environmental concerns, manufacturer should also beware of risks to workers' health and safety.

Emergency kits

All worksites must be equipped with emergency kits, where all staffs are familiar with the storage location and capable of accessing and using the kit in case of contingency.

Take chemical spills as an example, a chemical spill control kit should be able to control a spill of any hazardous material on the site. In the kit, an organized collection of absorbent pads, corrosive neutralizers, handheld broom and dustpan should be included with other equipment suitable for addressing manageable spills to minimize the damage to workers' safety.

Safety devices and first aid kit

In sites where hazardous chemicals are used and/or stored, devices of eye-face wash and drench hose should be equipped to provide a continuous stream of clean, flushing fluid to rinse the eyes or body in the situation of exposure to hazardous substance. Laboratory personnel shall perform a weekly test by activating the device for a period long enough to verify operation and ensure that clean flushing fluid is available.

When setting the contingency health and safety procedure for risk caused by specific chemical, section 4, 5 and 6 of the Safety Data Sheet (SDSs) can be taken as references that describe respectively the necessary first aid measures in case of accident and specific information on fighting a fire caused by chemicals.

On-site first aiders

An organization should ensure that there is an adequate number of first aider on-site. It is generally recommended that one first aider should be present for every 25 workers in a workplace. All the contact number of each first aider should be posted in the accessible areas in a factory.

All first aiders should possess the certificate of competency in first aid issued by the registered training organization (for example, St. John Ambulance Association in Hong Kong) or equivalent level of qualification for the endorsed first aid units of competency, which acknowledges that they are capable of:

1. Providing Advanced First Aid	<ul style="list-style-type: none">- Recognize and respond to common injuries or illnesses that is life-threatening, which includes competencies such as life-support by cardiopulmonary resuscitation (CPR)- Manage the casualty and incident until the arrival of ambulance, medical or other assistance.- Apply advanced first aid procedures
2. Managing First Aid Resources	<ul style="list-style-type: none">- Manage the first aid room, materials and equipment.
3. Providing First Aid in Remote / Isolated Situations	<ul style="list-style-type: none">- Administer first aid in a remote or isolated situation to cope with a major delay in accessing emergency services.

7. Brand requirements compliance⁴⁵ (Advanced level)

Note: This section is considered as advanced level. Make sure you have fulfilled the national requirements mentioned in section 2 before implementing this section.

Purpose:

The purpose of this section is to help manufacturer understanding and monitoring major brands' requirements on a regular basis to ensure all the activities within the defined scope as well as chemical hazardous of end products complied with those requirements.

Scope:

Basically, there are two common types of requirement:

1. Restricted substance list (RSL): It applies to material procurement, chemical consumption and end product.
2. Manufacturer restricted substance list (MRS): It applies to chemical procurement and consumption.

The purpose of these requirements is to restrict the use of hazardous substances in the textile and apparel supply chain. A brand RSL clearly sets forth for manufacturers those chemicals that are restricted. Brands publish RSLs to ensure that manufacturers can follow corporate restricted substance requirements.

7.1 Review RSL and MRS

There are many types of restricted substances in these lists. It is important to review which restricted substances are applicable to your manufacturer. Please refer to Appendix 1 - Table 8 for a suggested list. This table includes common substances, the potential use and which one is applicable to your manufacturing type.

7.2 Compliance with RSL and MRS

After reviewing the RSL and MRS, a compliance check between the existing chemical inventory and the substances in RSL/MRS should be carried out. If any restricted substance is found, manufacturer should have a procurement procedure to make sure all the input purchased does not exceed the requirement. Please refer to figure 7-1 as an example on how to go through RSL/MRS.

RSL refers to material itself so the procurement procedure is applicable to material suppliers and sub-contractors. On the other hand, MRS refers to chemical itself so the procurement procedure refers to chemical supplier. Figure 7-2 shows the flow of the procedure.

For procurement procedure related to supplier and sub-contractor management, please refer to section 8 for more details. The compliance should be carried out if there is new requirement from brand or updated inventory.

⁴⁵ Refer to Outdoor Industry Association (OIA), Chemical Management Framework, CM 2.0, S2.F2, S2.F3, S2.F4, S2.P2, Pages 3 to 4; ZDHC 2015 Chemical Management System Guidance Manual, section 2.5.2 and section 2.6, Pages 2-13 to 2-14

CHAPTER 1: MRSI for Textiles and Synthetic Leather Processing

CAS No.	Substance	Group A: Raw Material and Finished Product Supplier Guidance	Group B: Chemical Supplier Commercial Formulation Limit	Potential Uses in Apparel and Footwear Textile Processing	General Techniques for Analysing Chemicals
Alkylphenols (AP) and Alkylphenol Ethoxylates (APEOs), including all isomers					
104-40-5 11066-41-2 25154-52-3 84852-15-3	Nonylphenol (NP), mixed isomers	No intentional use	250 ppm	APEOs can be used as or found in: detergents, scouring agents, spinning oils, wetting agents, softeners, emulsifier/dispersing agents for dyes and prints, impregnating agents, degumming for silk production, dyes and pigment preparations, polyester padding and down/feather fillings.	Liquid chromatography-mass spectrometry (LC-MS), gas chromatography-mass spectrometry (GC-MS)
140-66-9 1806-26-4 27193-28-6	Octylphenol (OP), mixed isomers		250 ppm		
9002-93-1 9036-19-5 68987-90-6	Octylphenol ethoxylates (OPEO)		500 ppm		
9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0	Nonylphenol ethoxylates (NPEO)		500 ppm		
Chlorobenzenes and Chlorotoluenes					
95-50-1 Other isomers of mono-, di-, tri-, tetra-, penta- and hexa-chlorobenzene and mono-, di-, tri-, tetra- and penta- chlorotoluene	1,2-dichlorobenzene	No intentional use	1000 ppm Sum = 200 ppm	Chlorobenzenes and chlorotoluenes (chlorinated aromatic hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/polyester fibres. They can also be used as solvents	GC-MS

Step 1

Compare CAS number and substance with the existing chemical inventory

Step 2

If any restricted substance is found in the inventory, please set up procurement procedures

Ensure the concentration of restricted substance for the existing chemical does not exceed the requirement.

Figure 7-1

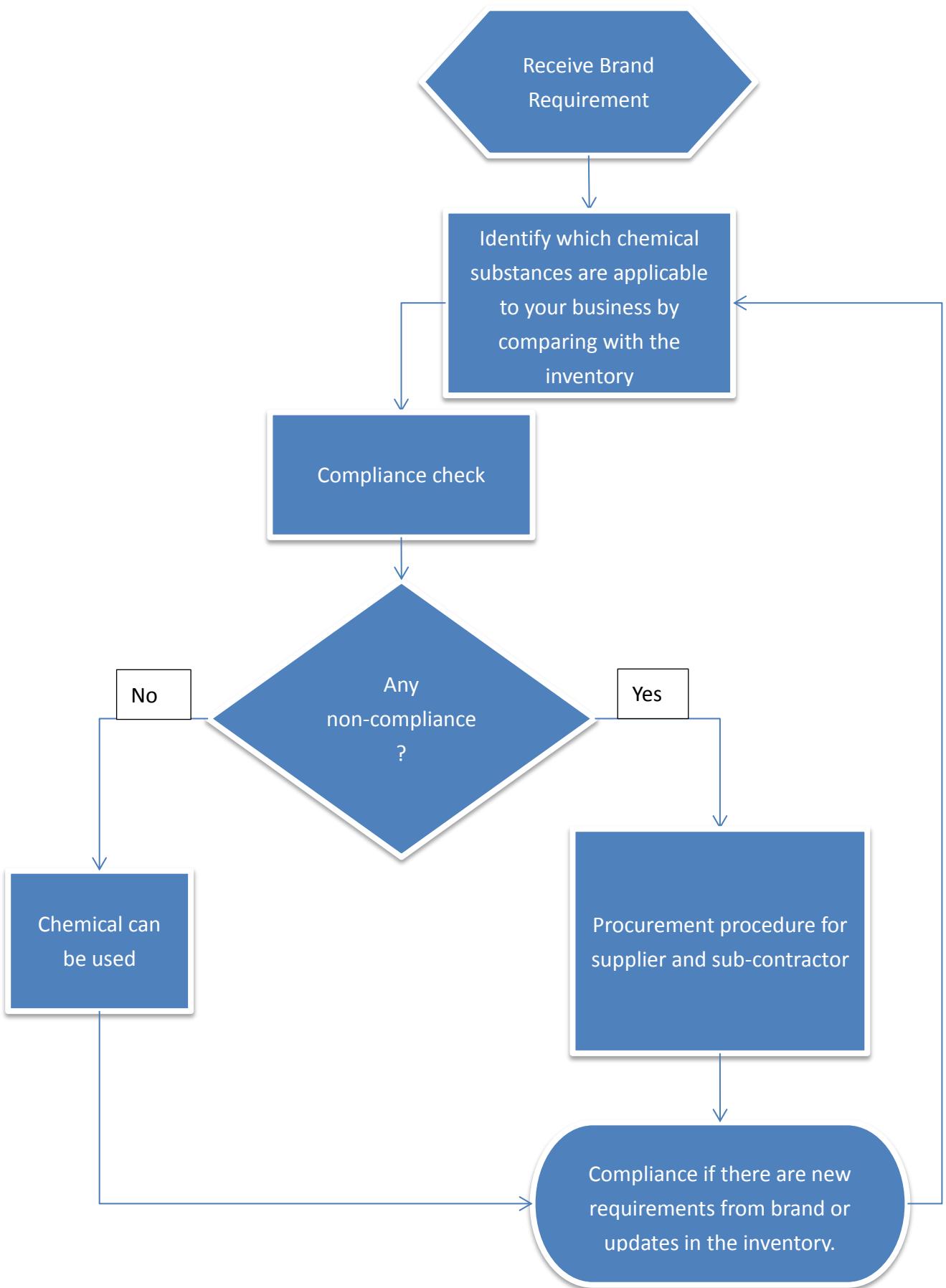


Figure 7-2 Brand requirement compliance check flow chart

8. Supplier and sub-contractor management (Advanced Level)⁴⁶

Note: This section is considered as advanced level. Make sure you have fulfilled the national requirements mentioned in section 2 before implementing this section.

8.1 Supplier/ Sub-contractor selection procedure and evaluation

Purpose:

1. Establish and improve collaboration with your supply chain partners, especially for suppliers and sub-contractors, to set mutual expectations and commitments in order to prevent any hazardous chemicals purchased or used in the production.
2. Establish a formal review process to evaluate the supply chain partners' chemical performance for continuous improvement.

Scope:

It applies to the management of supplier and sub-contractor (if any) of a manufacturer.

8.1.1 Supplier / Sub-contractor Selection Procedures

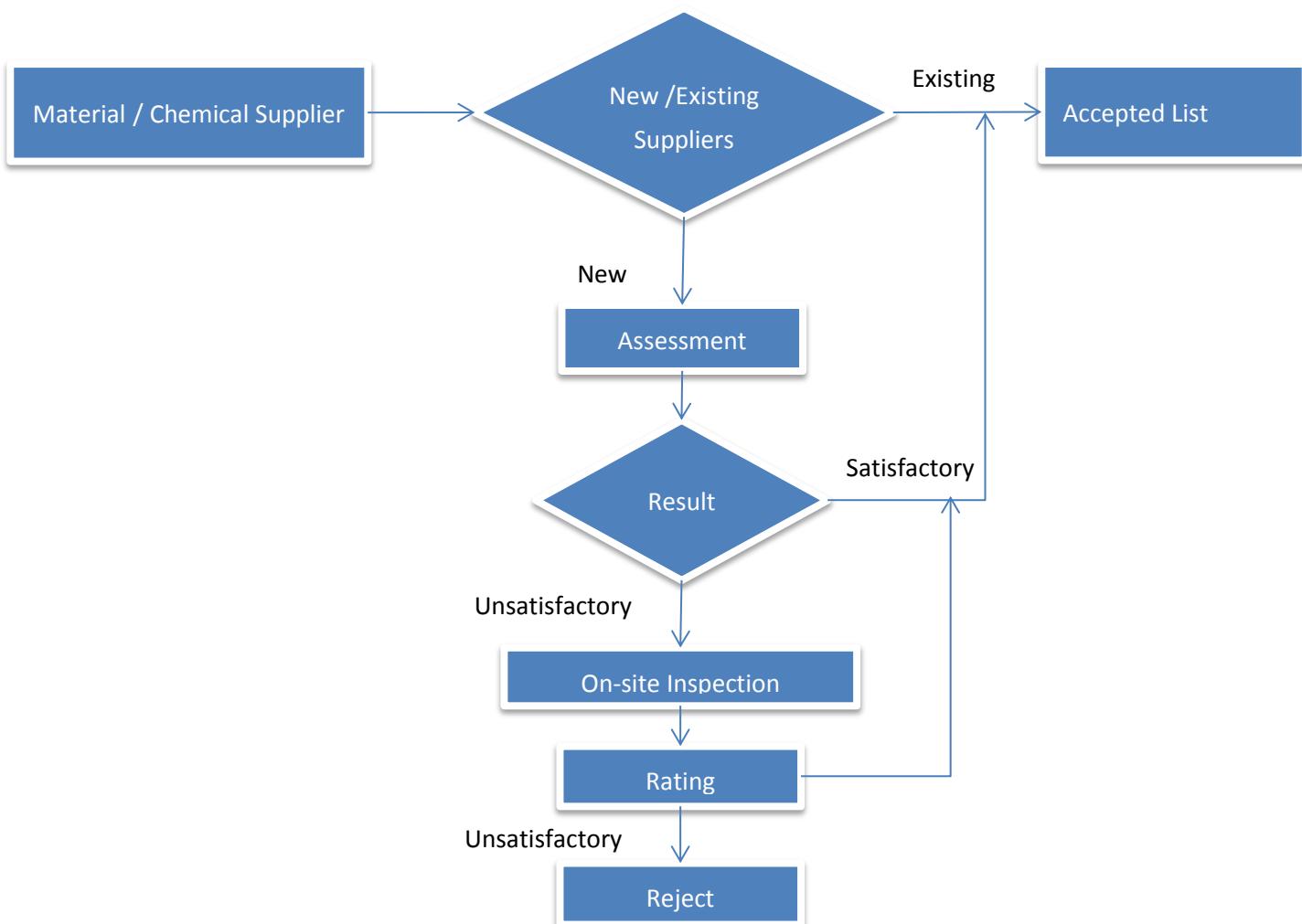


Figure 8-1 Flowchart of selection of new suppliers

⁴⁶ Refer to Outdoor Industry Association (OIA), Chemical Management Framework, CM 2.0, S4 A2, Pages 17

8.1.2 Preparation

Develop Own Chemical Inventory

Chemical Inventory can help manufacturer to develop a database which identifies and eliminates specific chemicals in products and used in manufacturing processes which are currently regulated by government or have been assigned as chemicals of concern. Manufacturers can identify and document suppliers/sub-contractors for each of the chemicals listed in the chemical inventory. Therefore, based on the database, manufacturers can set their compliance requirements and prepare an agreement to suppliers/sub-contractors to monitor supply chains.

8.1.3 Identify Department Representatives to Participate in the Review Process

One or group of representatives should be identified to participate in the development and implementation of the supplier selection policy and review criteria for the selection process. This representative must have the requisite skills and authority to oversee budget issues and approve purchases across all departments and who has an understanding of chemical issues.

The representatives should include members from research and development, purchasing, marketing, quality assurance and any other area of your organization that touches the supplier / sub-contractors selection process.

8.1.4 Procurement Assessment

Self-evaluation assessment for new supplier/sub-contractor

For new suppliers/ sub-contractors, manufacturers should conduct assessment to measure the performance of new suppliers/ sub-contractors. A self-evaluation form including regulation requirements and elimination of hazardous chemicals can be provided for new suppliers/ sub-contractors to fill in before procurement. The supplier/ sub-contractor self-assessment can be used to identify performance gaps, as well as to discover how the suppliers/ sub-contractors understand their own operation. Please refer to section 2, 5 and 7 on how to understand regulation requirement and hazardous chemical. There are extra regulation requirements for supplier or sub-contractor. Please also refer to section 8.2.

Based on the received feedback in the form, manufacturers can reduce the likelihood of supplier/ sub-contractor non-performance, and ensure that the supplier/ sub-contractor will be a responsible and responsive partner in the business relationship.

Rating Supplier

Suppliers/ sub-contractors should be audited against requirements and be rated according to their performance. Manufacturers can rate the supplier/sub-contractor on their ability to deliver compliance commitment in an effective manner. Manufacturer can evaluate their chemical management such as management commitment, the quality of management systems in place, worker-management communication, training delivered, reporting and measurement of compliance activities. According to the results, suppliers/ sub-contractors are assessed and clustered into three categories:

- Lowest-performing suppliers/ sub-contractors** include those suppliers/ sub-contractors that cannot respond to the basic regulation compliance requirements. Manufacturers should reject the commercial relationship with them.
- Acceptable suppliers/ sub-contractors with improvement** include those suppliers/ sub-contractors that can partially fulfil the regulation compliance requirements. Manufacturers can conduct factory inspections, assess risks and identify root cause of non-compliance to help suppliers/ sub-contractors to solve the problems. Manufacturers can require them to submit the correction plan for achieving cooperative requirements and conduct the assessment again to evaluate their performances. For suppliers/ sub-contractors with satisfied improvement, they could be added in supplier/ sub-contractors list for future consideration.
- Preferred suppliers/ sub-contractors** include those suppliers/ sub-contractors with internal compliance policy and practice that are in compliance with laws and brand's RSL/MRSL. Those suppliers/ sub-contractors are qualified to be included in supplier lists as business partnership consideration.

Category	Decision
<i>Lowest-performing</i> Suppliers/ Sub-contractors	Reject
<i>Acceptable</i> Suppliers/ Sub-contractors with Improvements	Required to submit correction plan for improvement. With good performance, suppliers/ sub-contractors can be included in supplier lists.
<i>Preferred</i> Suppliers/ sub-contractors	Accept

Table 8-1, Performance rating for suppliers/sub-contractors

All accepted supplier/sub-contractor were put into accepted list.

8.1.5 Criteria of selection of suppliers/sub-contractors as service providers

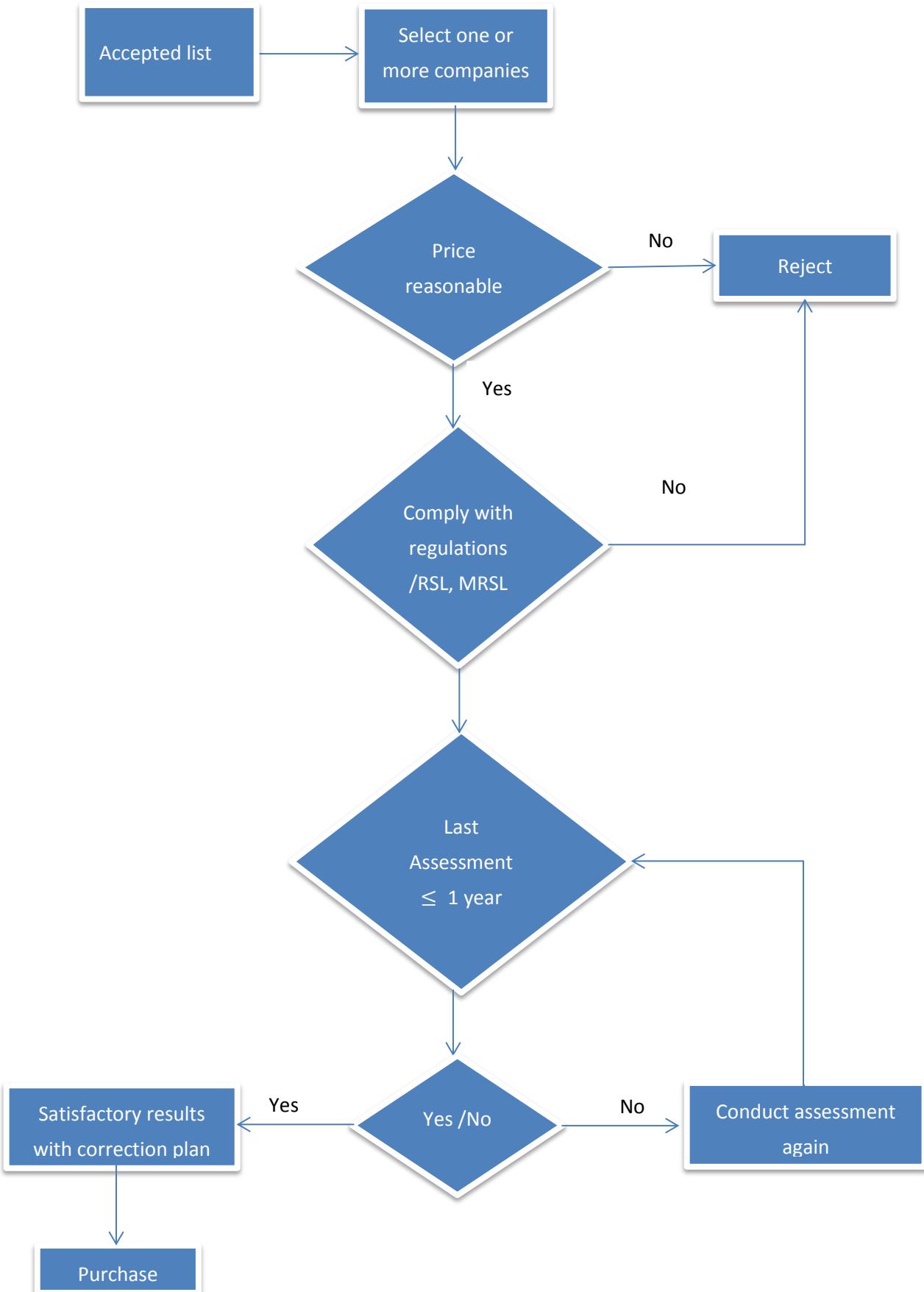


Figure 8-2 Flowchart of selection of supplier as product/service provider

Cost-based approach

To select one or more suppliers/ sub-contractors in supplier list, price is always the first priority in consideration. Manufacturers can use the cost-based approach to compare those suppliers/ sub-contractors which provide similar products/ services and then filter the suppliers/ sub-contractors with reasonable pricing for further selection.

However, the lowest price is not always the best value for money. If manufacturers have got expectations on reliability and quality from suppliers/ sub-contractors, manufacturers have to balance cost, reliability, quality and service in consideration.

Verify compliance

Manufacturers should require the preferred suppliers/ sub-contractors to verify that all chemicals used to make their products meet regulation compliance requirements in all legal jurisdictions where their products are manufactured and sold. Also, their operations have to comply with applicable local, state and national regulation and contractual obligations. A declaration letter is suggested to be prepared and signed by suppliers / sub-contractors for record. This procedure is for existing supplier/ sub-contractor. Please refer to section 8.1.4 for new supplier/ sub-contractor. Please also refer to section 8.2 for extra regulation requirement for supplier and sub-contractor.

Preferred chemical suppliers should provide a SDS in local language (For details of SDS, please refer to section 5.1.1)

Verify Brand's RSL/MRSL

Manufacturers should collect and review those requirements from brands which are applicable to their business or products. Please refer to section 7 for the details of this part. Then manufacturers should inform their suppliers/ sub-contractors with these requirements and check whether they comply or not. Manufacturers can conduct laboratory testing to determine any hazardous chemicals in products or require their suppliers/ sub-contractors to provide testing reports of products for verification.

Suppliers/ sub-contractors should provide written documentation of their business processes to ensure they comply with brands' RSL / MRSL. Suppliers/ sub-contractors should also be able to show corrective actions taken as a result of RSL/MRSL non-compliance. Suppliers/ sub-contractors can collaborate with manufacturers to identify and manage chemicals used to make final products that go beyond a list of regulated chemicals. This procedure is for existing supplier/ sub-contractor. Please refer to section 8.1.4 for new supplier/ sub-contractor.

Annual assessment for suppliers

It is important for manufacturer to review their suppliers' / sub-contractors' performance regarding health and safety, and all compliance requirement at regular intervals to ensure their products or services meet your requirements consistently. Annual assessment with random on-site visit can be conducted by manufacturer to measure the performance of existing suppliers/ sub-contractors. If there are

non-compliance parts for suppliers'/ sub-contractors' production, manufacturer should require suppliers/ sub-contractors to provide corrective action plan for improvement.

For health and safety program, please refer to section 5. It is suggested manufacturer should implement health and safety program before requiring supplier/ sub-contractor to follow.

And suppliers/ sub-contractors should submit the following documents for updating manufacturer.

1. Article list for product
2. Article list for supplier/ sub-contractors operation
3. Regulation/ Brand requirements compliance self-assessment form
4. Corrective action plan
5. SDS
6. Testing reports of products (if any)

Manufacturer should purchase the products or services from suppliers/ sub-contractors who fulfil all requirements.

8.2 Regulation compliance

8.2.1 Handling and storage

The requirements for manufacturer are also applicable to suppliers and sub-contractors, Please refer to section 5 for details.

8.2.2 Transportation

The transport of chemicals by road and rail is governed by legislation which means that manufacturers have specific legal responsibilities they must uphold when using transportation companies to transport hazard chemicals for work purposes. The following requirements are specifically for transporter. If manufacturers do not directly deal with transporter, it is suggested to discuss the following requirements to the one who deal with transporter.

8.2.2.1 Transport requirements

Containers and tankers

Containers and tankers used for bulk chemical transportation must be designed, manufactured and tested in accordance to internationally-acceptable standards. Tankers must be certified by an approved third party inspection body in order to meet the stipulated standards before they can be used for transportation on roads.

The containers, tankers and vehicles must be properly labelled with appropriate hazard warning panels.

Tanks of road tankers and tank containers used for transporting hazardous substances must meet approved standards of design, construction and testing. The design of the tanks must be reviewed and its construction should be surveyed by an approved third party inspection body. Once the third party inspection body is satisfied that the tank or tank container meets the approved standards, it will issue an initial inspection certificate. Under the approved standards, the tank and tank container must undergo periodic inspections.

Labels are given for each class of hazardous substances and should be affixed on packaging and vehicles. Road tankers and vehicles carrying hazardous substances in tank containers should have Emergency Information Panels. These are hazard warning panels containing the following emergency information:

- the appropriate class label and subsidiary risk label, if any
- the accurate technical name of the substance
- the UN/ CAS number of the substance
- the Hazchem code number
- contact numbers and names of company and emergency response authorities

Transporting vehicles are required to display diamond-shaped placards that indicate the hazard categories of materials being transported.

8.2.2.2 Legislation for Control of Hazardous Chemicals in HK

Pursuant to Dangerous Goods Ordinance, Cap.295, Laws of Hong Kong, conveyance of any Category 2 (other than liquefied petroleum gas) and/or Category 5 dangerous goods in excess of the prescribed exempted quantity on land by a mechanically propelled vehicle shall require a dangerous goods vehicle licence issued by the Director of Fire Services. And mixed conveyance of dangerous goods in different categories is not allowed.

Unless specified, all dangerous goods licenses are valid for 12 months from the date of issue. Application for renewal of licenses shall be made to the controlling authority upon expiry.

8.2.2.3 Legislation for Control of Hazardous Chemicals in China⁴⁷

Pursuant to Regulations on the Safe Management of Hazardous Chemicals in China, Decree 591 of the State Council of China in 2011, Chapter 5 Safety Management of Transportation, the enterprises that engage in the transportation of hazardous chemicals by road and waterway shall obtain transportation permit for hazardous chemicals by road and waterway according to the provisions of laws and regulations, register themselves with the Industrial and Commercial Bureau, and get equipped with specialized safety management personnel. The drivers, loading and unloading management personnel, transport escorts, declarers and on-site container inspectors shall pass the examination by the administrative department of transportation and obtain job qualifications.

⁴⁷ Regulations on the Safe Management of Hazardous Chemicals in China, Section 5, P.14-19

For the transportation of hazardous chemicals by road, consignors shall entrust transportation enterprises that are licensed to transport such chemicals in accordance with laws regarding transport of these specific chemicals.

8.2.2.4 Emergency Response Plan for Transportation

Notwithstanding the controls and precautions taken, one cannot rule out the possibility of spillages and accidental releases of hazardous substances during transportation. With well-drawn up emergency plans and proper training, such releases can be effectively contained and damages to the environment and dangers to the health and safety of public can be minimised.

As a condition for granting licences and transport approvals, companies are required to set up emergency response plans.

The plan must be comprehensive and should contain the following key elements:

- notification procedures; (persons and authorities to contact and how to contact)
- emergency procedures to contain and decontaminate spills; (immediate actions to be taken by driver/ground staff and actions to be taken by the company upon being informed)
- emergency equipment to be carried on the vehicle and at base such as personal protection equipment, absorbents, neutralizing solutions and salvage drums;
- Material Safety Data Sheets of the hazardous substances transported.

8.2.2.5 Criteria for Subcontracting

To select transportation companies as subcontractors that are fit for the transport service, it should ensure that sub-contractor should be in compliance with all relevant national and international regulations and laws. For chemical transport operations, special attention to compliance by the sub-contractors in the following areas is essential:

1. The sub-contractors should have the required operating licences;
2. Drivers should hold valid licences and certificates, in relation to the carried goods;
3. The company and its drivers should comply with relevant regulations on parking and routing, e.g. National Routing and Tunnel Regulations, Parking Restrictions on Dangerous Goods, etc. ;
4. All relevant transport and customs documentation supporting the operation should be carried in the house-to-house chain with the utmost attention and care, e.g. CMR, Railway Bill, Dangerous Goods Declaration, Bill of Lading, custom documents, etc.;
5. The sub-contractors shall document the arrangements regarding Emergency Response, including the Emergency Response telephone number to be used and Emergency Response Plan for transportation of the hazardous substances.
6. Drivers employed for the transportation of dangerous goods should have valid training certificates and should be provided with the appropriate personal protective equipment.

For Subcontracting, non-conformance and incident reporting are very important. The sub-contractor should at least report to the manufacturers in a timely manner about: any equipment damages or irregularities during the transport and loading/unloading, unsafe situations, accidents and incidents, cargo damage or discrepancies.

To follow up on the performance of the sub-contractors, regular meetings between the manufacturers and the sub-contractor should take place to exchange advice and agree on action plans to improve the cooperation and the performance. Manufacturers should either be granted access to audit the subcontractors on technical aspects and requirements on-site himself or be authorized by any other third party.

8.3 Brand RSL/MRSL requirement

Please refer to section 7 for how to understand brands' requirements.

Refer to section 7.2, this section is applicable if a procurement procedure for brand requirement compliance is required. An example of analyse list for RSL/MRSL is attached in appendix 1 table 8.

8.3.1 Supply Chain procurement procedure (RSL)

For the details of Brands' RSL requirements and procedures, manufacturers can ask brands directly. Manufacturers are responsible for whether products provided by suppliers fulfil brand RSL requirements.

The followings are suggested as a process for monitoring procurement:

- A. Aware of the brand's specific RSL restrictions and make sure the latest updated version is available.
- B. Use and encourage use of dyestuffs, pigments and textile auxiliaries from reputable suppliers only.
- C. For existing supplier/ sub-contractor, if restricted substance was found in their products, ask them to provide testing report to prove that the formulation or the product does not exceed the requirement. If they cannot provide testing reports or if the limit exceeds the requirements, manufacturers are suggested to test the **final product** used on their own or seek chemical substitution. Sample should be picked by shipment or by production order. At the same time, wastewater should be tested for cross checking.
- D. Chemical cannot be used if results show that the limitation exceeds the requirement. A timeframe should be set up to phase out the chemical. Communication with brands is also suggested.
- E. The whole process should be recorded and reviewed annually if RSL is updated.

8.3.2 Supply Chain procurement procedure (MRSI)

For the details of Brands' MRSI requirements and procedures, manufacturers can ask brands directly. Manufacturers are responsible for ensuring chemicals provided by suppliers fulfilled brand MRSI requirements.

The followings are suggested as a process for monitoring your supply chain:

- A. Aware of the brand's specific MRSI restrictions and ensure the latest updated version is available.
- B. Encourage the use of dyestuffs, pigments and textile auxiliaries from reputable suppliers only.
- C. For existing chemical supplier, if restricted substance is found, ask them to provide testing report to prove that the formulation does not exceed the requirement. If chemical suppliers cannot provide testing reports, factory should test the **chemical** on their own or seek for chemical substitution. Chemical cannot be used if the result shows that the limitation exceeds the requirement. A timeframe should be set up to phase out such chemical. Communication with brand is also suggested.
- D. Chemical cannot be used if the result shows that the limitation exceeds the requirement. A timeframe should set up to phase out the chemical. Communication with brand is also suggested.
- E. The whole process should be recorded and reviewed annually or when MRSI is updated.

8.3.3 Laboratory RSL Testing

In the apparel supply chain, there are certain types of fibres and materials that are more likely to contain restricted substances. Many brands require testing of products prior to shipment to assure that the shipment does not contain restricted chemicals that are not in compliance with their RSL/MRSI.

And many brands have specific testing requirements. If brand does not have testing requirements, it is recommended to develop a testing program of your own and manufacturers are encouraged to verify that suppliers are RSL compliant through a testing program.

Approved Laboratories

Typically, each brand has its own list of approved laboratories and thus samples must be sent only to laboratories approved by the brand. If brand does not have a list of approved laboratories, considerations to be kept in mind when choosing a laboratory for your own testing are as follows:

Considerations	Yes
Does the lab hold certifications or accreditations? From whom?	
Does the lab follow GLP (Good Laboratory Practices) or ISO 17025 guidelines?	
Does the lab have a Quality Policy Statement or other document stating general quality procedures?	
What was the date and result of a recent external audit? Is a report available?	
Does the lab belong to any private quality assurance organization?	
Does the lab regularly participate in any round-robin or blind sample testing?	

Is the lab open to a site visit or audit?	
Are in-house protocols written and in manuals? Are they available?	
Has the lab ever been denied or lost certification?	
Is a list of key scientists, including degrees, certifications, etc., available?	
Is a list of major, on-site analytical equipment available?	
Is a list of reference methods the lab routinely performs available?	
Is a list of sample handling and preparation capabilities available?	
Approximately how many analyses are conducted per month or year?	
What percentage of the lab's analyses is subcontracted to a third party?	
In what languages are reports available?	
Are data processed by hand or computer?	
Does the lab have information management system to monitor the laboratory?	

Table 8-2, Checklist for choosing a laboratory for testing

Testing and Reporting Results

For testing the products, manufacturers should identify and communicate their needs to the testing laboratories identified by brands, determine how often the manufacturers will test for restricted substances in finished products, identify which chemicals will be tested for based on brands' requirements and methods used to test chemical content of products.

Chemical testing of components and products is preferable to be testing of upstream materials. Any testing should prioritize components that pose the highest risk. To confirm that products are compliant with brand RSL/MRSL, testing reports of products can be provided for brands to declare that products are compliant with brand RSL/MRSL.

Appendix 1

Tables

Table 1 Chemical policy example

(Company Name)

Chemical Policy

To reduce the impact on the environment, our company is committed to:

1. Comply with national chemical regulation and brands requirements
2. Reduce the negative impacts related to chemical use
3. Provide training to staff who work with chemicals
4. Continually review the effectiveness of the whole chemical management system

The policy apply to all chemical related process which was defined in risk assessment

Top management:

Position:

Date:

Signature:

Table 2 Summary of regulations

Description	Link
China 中國	
Regulations on the Safe Management of Hazardous Chemicals in China - Decree 591 of the State Council of China in 2011 中國危險化学品安全管理條例 - 国务院令第 591 号	- English: http://www.cirs-reach.com/China_Chemical_Regulation/Regulations_on_safe_management_on_hazardous_chemicals_China_2011.pdf Chinese: http://www.gov.cn/flfg/2011-03/11/content_1822902.htm
Chapter 1: General Provisions 第一章 : 總則	
Chapter 2: Safety Management of Manufacture and Storage 第二章 : 生產、儲存安全	
Chapter 3: Safety Management of Use 第三章 : 使用安全	
Chapter 4: Safety Management of Operation and Marketing 第四章 : 經營安全	
Chapter 5: Safety Management of Transportation 第五章 : 運輸安全	
Chapter 6: Registration of Hazardous Chemicals and Emergency Response 第六章 : 危險化學品登記與事故應急救援	
Chapter 7: Legal Liabilities 第七章 : 法律責任	
Chapter 8: Supplementary Provisions 第八章 : 附則	

Hong Kong 香港	
Legislation for Control of Hazardous Chemicals (Cap. 595) 《有毒化學品管制條例》(第595章)	http://www.epd.gov.hk/epd/english/laws_regulations/envir_legislation/leg_chc.html
Hazardous Chemicals Control Ordinance Control, through a permit system, the import, export, manufacture and use of non-pesticide hazardous chemicals that have potentially harmful or adverse effects on human health or the environment.	<u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/DB88C67DA1DBC710482575EF00205A4D/\$FILE/CAP_595_e_b5.pdf <u>Chinese:</u> http://www.legislation.gov.hk/blis_pdf.nsf/CurAllChinDoc/52D990C927D91921482575EF00205180/\$FILE/CAP_595_c_b5.pdf
有毒化學品管制條例 通過許可證的制度，規管進口、出口、製造和使用可能對人類健康或環境有潛在危害或不良影響的非除害劑有毒化學品。	
Hazardous Chemicals Control (General) Regulation Set out the requirements relating to permit applications made under the Ordinance.	<u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/D6CAB5828B0333AB482575EF00206564/\$FILE/CAP_595A_e_b5.pdf <u>Chinese:</u> http://www-legis.3dns.info.gov.hk/blis_pdf.nsf/CurAllChinDoc/469FEFD9BC00EBB1482575EE006F1506/\$FILE/CAP_354C_c_b5.pdf
Hazardous Chemicals Control (Fee) Regulation Prescribe the application fees that are payable for applications made under the Ordinance.	<u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/4f0db701c6c25d4a4825755c00352e35/C43EBC86D6F822F3482575EF00206D7F/\$FILE/CAP_595B_e_b5.pdf <u>Chinese:</u> http://www.legislation.gov.hk/blis_pdf.nsf/4166a7b64e6c796d4825755c00352e37/739D975BC6025932482575EE006F47F5/\$FILE/CAP_354J_c_b5.pdf
有毒化學品管制(費用)規例 訂明根據本條例提出申請應繳付的費用。	

Hong Kong 香港	
<i>Legislation for the Management of Wastes</i> 管理廢物的法例	
Waste Disposal (Chemical Waste) (General) Regulation 1992 Provides for control of all aspects of chemical waste disposal, including storage, collection, transport, treatment and final disposal.	<u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/897C4EC786B2EA10482575EE006F1BEA/\$FILE/CAP_354C_e_b5.pdf <u>Chinese:</u> http://www.legislation.gov.hk/blis_pdf.nsf/01790b2805f0cb5c4825755c00352e34/6363C22A75B553F6482575EE005A6DCA/\$FILE/CAP_295_c_b5.pdf
1992 年《廢物處置（化學廢物）（一般）規例》 管制所有化學廢物的處置，包括儲存、收集、運送、處理及最終棄置。	
Waste Disposal (Charges for Disposal of Chemical Waste) Regulation 1995 Requires payment of charges for disposal of chemical waste at the Chemical Waste Treatment Centre thus creating an economic incentive towards waste minimisation.	<u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/4f0db701c6c25d4a4825755c00352e35/7A6FA284EB2FC296482575EE006F4AFC/\$FILE/CAP_354J_e_b5.pdf <u>Chinese:</u> http://www.legislation.gov.hk/blis_pdf.nsf/4166a7b64e6c796d4825755c00352e37/739D975BC6025932482575EE006F47F5/\$FILE/CAP_354J_c_b5.pdf
1995 年《廢物處置（化學廢物處置的收費）規例》 規定凡利用化學廢物處理中心處置化學廢物均須繳費，藉此利用經濟負擔因素誘導市民減少廢物。	
Dangerous Goods Ordinance (Cap.295) 1956 Defines dangerous goods by category. Provides for control on storage and transport of dangerous goods.	<u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/4f0db701c6c25d4a4825755c00352e35/865F4F6D06D44941482575EE005A718B/\$FILE/CAP_295_e_b5.pdf <u>Chinese:</u> http://www.legislation.gov.hk/blis_pdf.nsf/01790b2805f0cb5c4825755c00352e34/6363C22A75B553F6482575EE005A6DCA/\$FILE/CAP_295_c_b5.pdf
1956 年《危險品條例》（香港法例第 295 章） 界定危險品的類別，管制危險品的儲存和運送。	

<p>Hong Kong 香港</p>	
<p>Controlled Chemicals</p> <p>受管制化學品</p>	
<p>Control of Chemicals Ordinance (Chapter 145)</p> <p>To fulfil an international obligation under the "United Nations Convention Against Illicit Traffic in Narcotic Drugs And Psychotropic Substances, 1988", the Government of the Hong Kong Special Administrative Region exercises control on 27 chemicals which can be used for the manufacture of dangerous drugs or psychotropic substances. The Customs and Excise Department is responsible for the enforcement of this Ordinance.</p> <p>香港法例第 145 章《化學品管制條例》</p> <p>為履行「1988 年聯合國禁止非法販運麻醉藥品和精神藥物公約」規定的國際義務，香港特別行政區政府對 27 種可以用於製造危險藥物或精神藥物的化學品實施管制。香港海關則負責執行這條條例。</p>	<p><u>English:</u> http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/2FCE00CE7347F747482575EE0044BEC1/\$FILE/CAP_145_e_b5.pdf</p> <p><u>Chinese:</u> http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/566F5F93649CBFCB482575EE0044B965/\$FILE/CAP_145_c_b5.pdf</p> <p><u>Link:</u> http://www.customs.gov.hk/tc/trade_facilitation/chemicals/index.html</p>

Europe 歐洲

REACH - Registration, Evaluation, Authorisation and Restriction of Chemical substances https://www.tid.gov.hk/english/trade_relations/eu_reach.html

Chemical substances

REACH is a European Community Regulation on chemicals and their safe use. It deals with the registration, evaluation, authorisation and restriction of chemical substances.

Hong Kong suppliers of chemicals or suppliers of articles containing substances subject to the provisions of the Regulation, whether as manufacturers or exporters, may be required to provide information to assist their EU importers in the preparation of registration, authorisation or notification. The information may include the use of substance and chemical safety report.

化學品註冊、評估、授權和限制法規（REACH 法規）

REACH 法規是歐洲共同體有關化學物品及其安全用途的規例，旨在規管化學物質的註冊、評估、授權和限制等事宜。

香港的化學品供應商或含有有關物質的物品供應商須受該規例條文限制，因此無論製造商或出口商可能須提供資料，以協助其歐盟進口商就註冊、授權或通報事宜作準備。有關資料可能包括物質用途和化學安全報告。

Table 3 Risk assessment template

Activity	Person Involved	Risk	Risk Level	Personal Protective Equipment (PPE)	Action to be taken	Action Date	Action By
<i>E.g. Pouring NaOH solution from bulk tank</i>	<i>Employees in Workshop #2</i>	<i>Splashing that leads to skin or eye burns</i>	<i>Very high</i>	<i>face shield, gloves</i>	<i>1. Eliminating the action of pouring 2. Restructuring the process.</i>	<i>Immediate</i>	<i>Management</i>

Assessed by: (Name) _____ (Job Title) _____

Signature: _____

Assessment Date: _____

**This template is for illustrative purposes only. Competent persons undertaking chemical risk assessments may amend this template to suit site-specific work activities.*

REFERENCES:

1. ZDHC 2015 CHEMICAL MANAGEMENT SYSTEM GUIDANCE MANUAL - Appendix D
2. Outdoor Industry Association (OIA) Chemical Management Framework Indicators, S4.F1 (p.8)"

Table 4 On-site Checking Sheet

Items to check	Yes / No / N/A
Checked that there is sufficient information of existing chemicals (e.g. types, quantities, conditions and storage locations)	
Remarks:	
Checked that there is sufficient information of existing hazardous wastes (e.g. types, quantities, conditions and storage locations)	
Remarks:	
Checked that the chemical storage area is in good condition	
Remarks:	
Checked that the equipment and environmental controls (such as ventilation systems) are in good condition	
Remarks:	
Checked the presence of chemical inventories for storage areas, status of these inventories and who maintains them	
Remarks:	
Checked that there is appropriate personal protective equipment (PPE) in place and ensured that there is sufficient information of these PPE (e.g. the location, condition and amount).	
Remarks:	
Checked the location, condition, amount and appropriateness of the emergency response supplies and equipment (e.g. fire extinguisher, fire host) for the amount and type of chemicals stored.	
Remarks:	
Ensured that there is an effective system in place for chemical emergency response.	
Remarks:	
Checked that the complete Safety Data Sheets (SDSs) are available and readily accessible in each location with chemical in use	
Remarks:	
Ensured that competent staff are designated to be in charge of each location	
Remarks:	

Location: _____

Inspected by:

(Name) _____

(Job Title) _____

Signature: _____

Inspection Date: _____

*This template is for illustrative purpose only. The user may amend this form to suit his needs.

Table 5 Chemical inventory template

Person in charge of the area: (Name) (Job Title)

Completed by: (Name) (Job Title)

Signature:

Completed Date:

Reviewed by: (Name) (Job Title)

Signature:

Reviewed Date:

**This template is for illustrative purpose only. The user may amend this form to suit his needs.*

Table 6 Disposal list template

Storage Date	Chemical Name	CAS No.	Concentration	Expiry Date	Amount / Container Size	Container Type	Amount (estimated)	Storage Location
Example: 4/2/2008	1-Propanol	71-23-8	100%	N/A	2 x 500	Poly	750 mL	Flammable Cabinet Room 202
Example: 6/5/2008	Aluminium	7429-90-5	100%	N/A	500 g	Glass	200 g	Chemical Storage MA Room 110

Written by: (Name) _____ (Job title) _____

Signature: _____

Date: _____

*This template is for illustrative purpose only. The user may amend this form to suit his needs.

Table 7 Drill record

Drill Information

Date of Emergency Drill	
Type of Emergency Drill	<input type="checkbox"/> Fires <input type="checkbox"/> Chemical Spillage <input type="checkbox"/> Equipment failure <input type="checkbox"/> Others (please specify): _____
Department	
Starting Time	
Completion Time	
Number of participants	
Participation Rate	

Participant List

Name	Job Title	Signature

Prepared by: (Name) _____ (Job Title) _____

Signature: _____

Date: _____

**This template is for illustrative purpose only. The user may amend this form to suit his needs.*

Table 8 Reference information for RSL and MRSI

Substance	Potential use	Applicable to supplier chain				
		Spinning mill	Weaving mill	Knitting mill	Wet processing mill	Garment mill
AP & APEOs	Detergents, scouring agents, spinning oils, wetting agents, softeners, emulsifier/dispersing agents for dyes and prints, impregnating agents, de-gumming for silk production, dyes and pigment preparations, polyester padding and down/feather fillings.	v	-	-	v	v
Chlorobenzenes and Chlorotoluenes	Can be used as carriers in the dyeing process of polyester or wool/polyester fibres. They can also be used as solvents.	-	-	-	v	-
Chlorophenols	Can be used as preservatives or pesticides. Used in the past to prevent mould when storing/transporting, raw hides and leather.	v	V (not applicable if do not apply prevent mould substance on finished product)	V (not applicable if do not apply prevent mould substance on finished product)	V (not applicable if do not apply prevent mould substance on finished product)	V (not applicable if do not apply prevent mould substance on finished product)
Azo dyes (forming restricted amines)	Those azo dyes that can degrade to form cleavable amines are restricted	-	-	-	v	-
Dyes – Navy Blue	Restricted dyestuff	-	-	-	v	-

Colorant						
Dyes- Carcinogenic or equivalent concern	Restricted dyestuff	-	-	-	V	-
Dyes – Disperse (sensitizing)	Some disperse dyes are suspected of causing allergic reaction which are restricted	-	-	-	V	-
Flame retardants	Retard textile product to catch fire	-	-	-	V	V
Glycols	Wide range of uses including as solvents for finishing/cleaning, printing agents, and dissolving and diluting fats, oils and adhesives (e.g., in degreasing or cleaning operations).	-	-	-	V	V
Halogenated Solvents	Wide range of uses including as solvents for finishing/cleaning, printing agents, and dissolving and diluting fats, oils and adhesives (e.g., in degreasing or cleaning operations).	-	-	-	V	V
Organotin Compounds	Biocide, associated with plastics/rubber, inks, paints, metallic glitter, polyurethane products and heat transfer material.	-	-	-	V	V
Polycyclic Aromatic Hydrocarbons (PAHs)	PAHs are often found in the outsoles of footwear and in printing pastes of screen prints.	-	-	-	V	-
Perfluorinated and Polyfluorinated Chemicals (PFCs)	Durable water, oil and stain repellent finishes and soil release finishes (fluorinated polymers) based on long-chain technology are banned (http://www.oecd.org/ehs/pfc/)	-	-	-	V	V
Phthalates –	Phthalates can be found in:	-	-	-	V	V

including all other esters of ortho - Phthalic acid	• Flexible plastic components" (e.g. PVC)					
	• Print pastes					
	• Adhesives					
	• Plastic buttons					
	• Plastic sleeveings					
	• Polymeric coatings					
Total Heavy Metals (Arsenic)	Preservation, pesticides and defoliant for cotton. It is also associated with synthetic fibres, paints, inks trims and plastic.	v	-	-	v	v
Total Heavy Metals (Cadmium)	Pigments, stabilizer for PVC plastic and in fertiliser, biocide and paint. (Paints on zipper or buttons)	v	-	-	v	v
Total Heavy Metals (Mercury)	Pesticide, contamination in NaOH. May be used in paint (zipper or buttons)	v	-	-	v	v
Total Heavy Metals (Lead)	Plastic, paint, ink, pigment and surface coating	-	-	-	v	v
Total Heavy Metals (Chromium)	Leather tanning, wool dyeing	-	-	-	v	-
VOC	Solvent based polyurethane coatings and glues/adhesives. Facility cleaning or spot cleaning.	v	v	v	v	v

Appendix 2

Glossary

Glossary	Abbreviation	Description
Brand		The originator of the final product and owner of any associated label/trademark. "Brand" includes a retailer's private label/private brand products. A retailer with private label/private brand products should use the Brand indicators to evaluate that portion of its business.
Chemical Abstracts Service (CAS) Registry Number	CAS	A unique identification number assigned to each chemical
Chemical name		Identify the proper chemical name.
Dangerous Goods	DG	Dangerous goods are substances, mixtures or articles that, because of their physical, chemical (physicochemical) or acute toxicity properties, present an immediate hazard to people, property or the environment.
Globally Harmonized System of Classification and Labelling of Chemicals	GHS	GHS is a system created by UN to address the classification of chemicals by types of hazard and harmonized hazard communication elements, including labels and safety data sheets. It aims at providing a basis for harmonization of rules and regulations on chemicals at national, regional and worldwide level, an important factor also for trade facilitation.
Hazard code		Hazard classification provides information concerning adverse reactions of the chemical and proper storage. Chemical material is generally assigned to a class based upon the characteristic that poses the highest degree of danger in transportation.
Hazardous chemicals		Chemicals with properties to cause harm to human or the environment, and/or lead to damages by fire, explosion, corrosively to toxicity
Manufacturer		Entity that makes a good through a process involving raw materials, components, or assemblies, typically with different operations divided among different workers. Commonly used interchangeably with producer.
Manufacturing Restricted Substances List	MRSList	A list of substances banned from intentional use in processing
Occupational Safety & Health Administration	OSHA	A part of the United States Department of Labour to assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance.
Outdoor Industry Association	OIA	A leading trade association of the outdoor recreation industry, serving more than 1200 manufacturers,

		distributors, suppliers, sales representatives and retailers.
Packaged form		The dangerous goods are (a) pre-packed; or (b) contained directly without any form of intermediate containment in a specified receptacle.
Personal protective equipment	PPE	An equipment worn to minimize exposure to serious workplace injuries and illnesses, including items like gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.
Product name (Refer to section 4 chemical inventory)		Identify the common name of the chemical
Restricted Substance List	RSL	A list, compiled by a business, trade group or other organization, of chemicals to be actively managed and informed on. A RSL may contain chemicals for controlled use, targeted for elimination/substitution, and those that may be totally banned or may be regulated.
Safety Data Sheet	SDS	A document of hazardous chemicals, which provides useful information on the chemical hazards, advice on safe handling, use and storage, and the emergency measures to be followed in case of an accident.
Sub-contractor		Any actor in the supply chain that provides similar supporting services to manufacturer. It may be due to capacity or lack of certain process. For example, an apparel manufacturer may sub-contract to another apparel manufacturer.
Substances name (Refer to section 4 chemical inventory)		List out all the substances name if the chemical is a mixture
Supplier		Any actor in the supply chain that provides intermediate and/or final products and/or supporting services to brands and/or retailers. This includes: chemicals, materials, assembly, and finished product suppliers. For example, in the case of apparel, this would include garment makers (cut & sew operations), fabric mills (fabric formation, bleaching, dyeing, printing, laundering, finishing), fibre/fabric suppliers, and accessories suppliers.
The National Institute for Occupational Safety and Health	NIOSH	Part of the Centre for Disease Control and Prevention (CDC) within the U.S. Department of Health and Human Services, and the United States federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness.

Zero Discharge of Hazardous Chemicals	ZDHC	A group of apparel and footwear brands and retailers signed up to lead the industry towards zero discharge of hazardous chemicals by 2020.
R phase		Short form of Risk phase. It was defined in Annex III of the European Union Directive 67/548/EEC.

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