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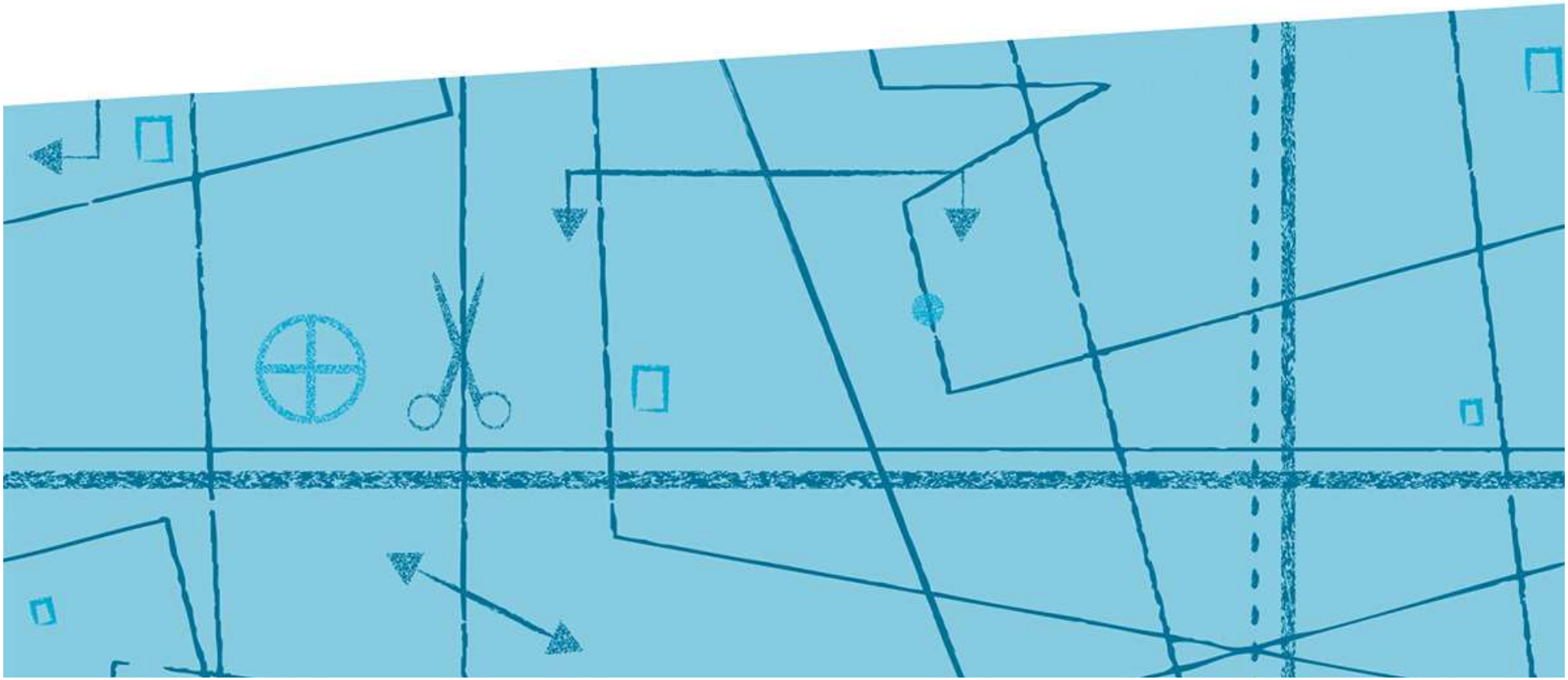
Module 6

Risk Analysis and Action Planning



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Overview and Content

Module 1: Chemicals in Textiles

Module 2: Chemical Management

Module 3: Good Housekeeping

Module 4: Wastewater and Sludge Treatment

Module 5: Health Protection and Occupational Safety

Module 6: Risk Analysis and Action Planning

Module 7: Evaluation and Possible Next Steps

- Target of the Module
- Hazards, Risk, and Hazardous Chemicals
- Assessing Hazardous Chemicals
- Performance Goals and Action Plans
- Management Performance Indicators
- Assign Roles and Assessing Training
- Possible Useful Corrective Actions
- Example and Exercise

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Targets of the Module „ Risk Analysis and Action Planning “

- ✓ **Assess and map chemical risks**
- ✓ **Identify chemicals and processes of concerns**
- ✓ **Identify gaps and losses in current processes – e.g. hotspots**
- ✓ **MRSL and RSL process – e.g. process for verifying compliance, update and maintenance, integration of suppliers**
- ✓ **Formulate performance goals and action plans**
- ✓ **Assign roles and responsibilities**
- ✓ **Assess training needs**

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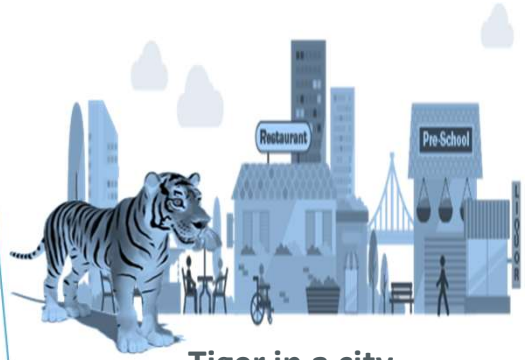
Hazards, Risk, and Hazardous Chemicals

Tiger in a cage

HAZARD

A hazard is an intrinsic property of a chemical that is independent of usage, exposure or other criteria. Property examples:

- Gasoline is flammable.
- PCBs are persistent in the environment.
- Some uranium isotopes are radioactive.



Tiger in a city

RISK

The risk also considers the exposure potential when using a chemical, the engineering controls in place, PPE, etc. Thus, in general terms: Risk is a function of:

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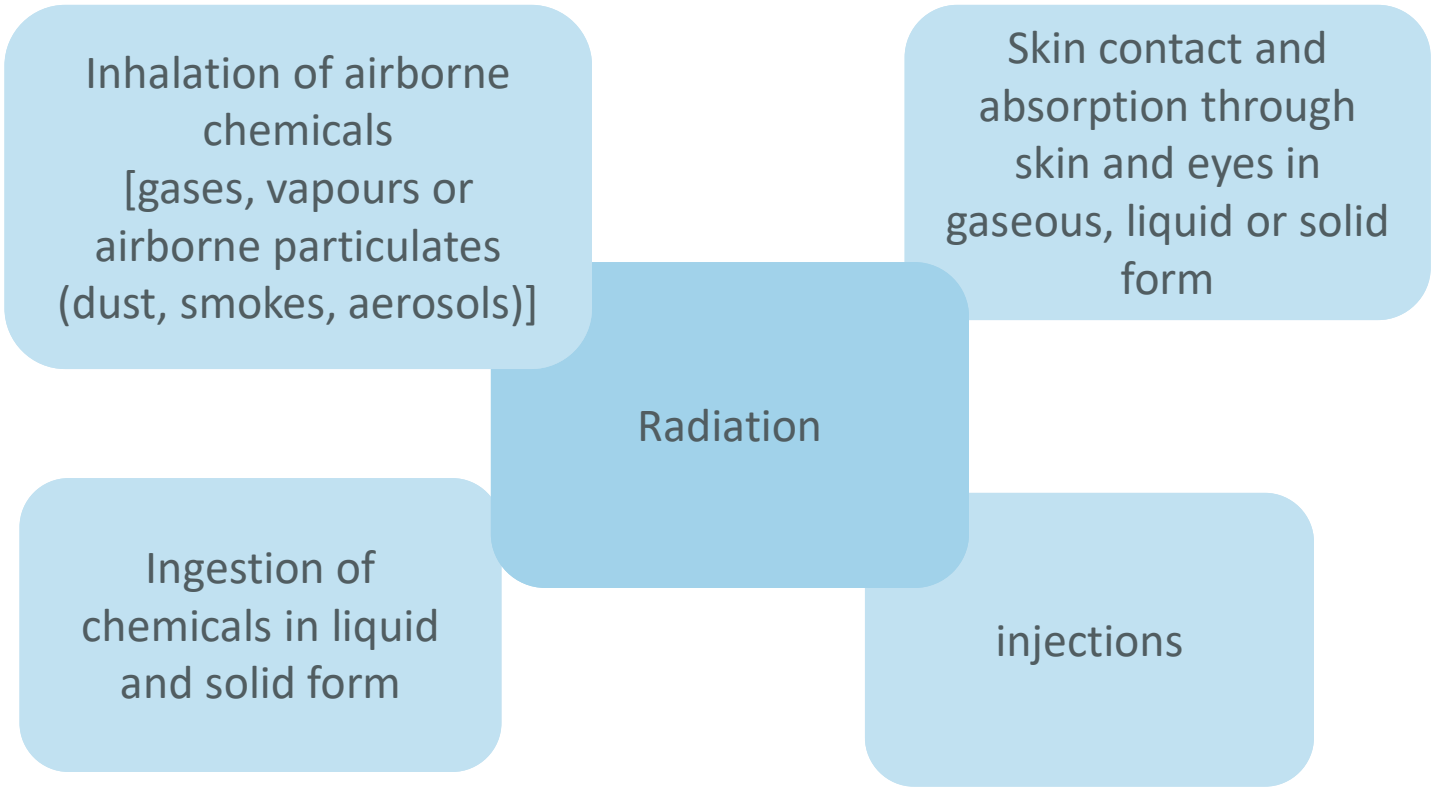
Hazards, Risk, and Hazardous Chemicals

Possible ways of getting exposed to chemical substances



Hazards, Risk, and Hazardous Chemicals

Definition Hazardous Chemicals

Hazardous chemicals are defined as chemicals which have an inherent property to cause harm…

…either to humans

…or the environment

and/or cause damage through…

…fire,

…explosion

…corrosiveness or toxicity,

with local or global effects.

Reference: ZDHC Chemical Management for the Textile Industry, Module 2

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Assessing Hazardous Chemicals

Assess and map chemicals

- Hazardous chemicals usually require special procedures for **safe handling** and **disposal**

- This module deals with the question of how to systematically **identify** hazardous chemicals and their hazard properties as well as to **categorise** these in form of hazard bands.

Video Risk Assessment:
http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2 & video_id=10052

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Assessing Hazardous Chemicals

1. Assess and map chemical risks

Once you have identified the process flows, taken inventory of your chemicals and wastes, and gained a better understanding of the hazard properties associated with the same, you can identify and assess their risks and possible control gaps.

2. Identify chemicals and processes of concerns

The hazard analysis and classification provides answer on what intrinsic hazard properties may be associated with the chemical substances used or present in your production. The question whether and to which extent the use of this chemical will result in actual negative impact, harm to health, environment and/or damage to property is answered with the help of a risk assessment.

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Assessing Hazardous Chemicals

Questions for a chemical Risk assessment

1. **What potential exposure may occur?**
   - Use chemical inventory, consider all persons who may be affected
   - Review PPE in use, is it appropriate?
   - Review environmental controls to ensure they are adequate
2. **What hazards are indicated for the chemicals?**
   - Information can be found on packaging labels, from SDS, supplier or specialist in your factory

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Assessing Hazardous Chemicals

Questions for a chemical Risk assessment

3. What activities can give rise to exposure?

- When is it possible for Spills or splashes to occur?
- Are there steps in the process that increase the potential for exposure? Can these steps be eliminated or changed?

4. What risks need to be controlled?

- Significance depends on duration and frequency of exposure as well as the concentration of the involved substances.

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Assessing Hazardous Chemicals

Identify chemicals and processes of concern

- Processes where gaps between recommended and existing control exists as well as processes for which you have assigned a high-risk rating during the risk assessment process.
- Establish, document and implement a procedure for verifying compliance with lists of restricted substances according to the ZDHC CMS.
- Your company needs to maintain records (e.g. chemical inventory) and indicate how you conduct the compliance verification and the results.

  → In case restricted substances are identified, specific action plans are to be drawn up on how to eliminate them from your production.

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Performance Goals and Action Plans

1. Establish, enhance or fine-tune the CMS elements as described

e.g. completing the chemical inventory, establishing procedures and processes and/or compilling data

2. Enhance Chemical Management performance of your company

e.g. by adressing risk control gaps and/or reducing hazards and risks

3. Develop action plans for reducing environmental impacts

(with particular reference to ZDHC CMS)

4. Reducing health and safety impacts (ZDHC CMS)

5. Phasing out the intentional use of priority hazardous chemicals

(using clear target dates to deal with chemicals and processes of concerns and achieve conformance with ZDHC MRSL)

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Performance Goals and Action Plans

Define objectives and targets

Your selection of specific objectives and targets will build on the information collected in the previous steps such as:

- process flow diagrams
- chemical inventory
- map of hotspots
- hazard and risk analysis records (e.g. chemicals and process of concerns)

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Performance Goals and Action Plans

Define objectives and targets

- The objectives and targets, and subsequent your action plan, may initially focus on the establishment or fine-tuning of your basic chemical management systems elements

  → addressing “hotspots” (those areas which pose an immediate impact on health and safety, environment, costs)

- Improve systematically the performance of your company.
- Together with the key performance indicators, objectives, and selected control measures, your action plans establish the basis for implementing measures, making improvements, monitoring progress, and evaluating results.

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Management Performance Indicators

Monitoring and measuring performance will help you to:

- Compare performance over time
- Highlight improvement and organization potentials;
- Identify and follow up on targets
- Discover opportunities and cost-reduction potentials
- Communicate your results to external stakeholders
- Involve, educate and motivate staff
- Promote organizational learning
- Support decision-making by providing concise information about the current status and trends with regard to resource use and performance
- Implement environmental management systems or generate information needed for your current environmental management system

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Management Performance Indicators

The selection of (key) performance indicators helps you to:

- mark whether or not you are making wanted progress
- further define/frame objectives and targets in your action plans
- to communicate your company`s performance to relevant stakeholders

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Management Performance Indicators

How and how frequently would you like to assess the performance?

- It is important that you tailor the selection of indicators to your type of operations.

Make sure that the selected indicators are:

(a) understandable

(b) relevant

(c) reliable

(d) comparable

- **These should reflect the management efforts chemical management, operational performance aspects and combine leading and lagging indicators**

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Management Performance Indicators

The right mix of indicators may reflect:

1. **Chemical inputs**
2. **Chemical wastes**
3. **Chemical management efforts**
   - e.g.: number of chemical safety trainings or emergency drills conducted, percentage of safety data sheets available, number of inspections conducted
4. **Chemical management performance**
   - e.g. number of incidences/accidents involving over period of time, incident/accident free days worked or non-product outputs reduced

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Management Performance Indicators

Indicators related to chemical inputs and waste can be

Absolute Indicators	Ratio Figures	Productivity/Intensity Indicators
• such as total quantity of chemicals used (overall, or specific type in kg, liters per day month, year) • total amount of chemical containing waste water (hazardous/non-hazardous) generated (liters, cubic meter per day , month or year)	• percentage of hazardous chemicals • percentage of hazardous waste	• chemical productivity (product output per unit of chemical used) or chemical hazardous waste intensity (hazardous waste generation per unit of product output)

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Assigning Roles and Assessing Training

Assigning roles and responsibilities

In order to make the CMS operational, the company needs to:

- ✓ establish an organisational structure
- ✓ clearly assign the roles and responsibilities under the CMS

Company's management will have to make available:

- human resources
- specialised skills
- organisational infrastructure
- technology
- financial resources available

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Assigning Roles and Assessing Training

For assigning the roles and responsibilities ask yourself following questions:

- Which roles are there in the CMS?
- What are the respective responsibilities?
- Which sections/department/organisation units would be responsible for what role?
- What are the specific related tasks?
- What roles and responsibilities already exist in your company's management system? Where are the opportunities for integration and linking the CMS?

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Assigning Roles and Assessing Training

Assess training needs to successful adopt new concepts and practices

1. What are the competences the staff/workers need (competence profile) in implementing chemical management in your company?
2. What is the current education, training and/or experience of staff/workers?
3. Are there gaps between the competence profile and staff/workers' competences at the different levels?
4. Have you introduced new or changed procedures or work instructions?

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Assigning Roles and Assessing Training

You have to ensure that your personnel is competent through appropriate education, training or experience on:

- Preventive environmental and work safety practices
- Saving resources
- Use of personal protective equipment
- Personal hygiene measures

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Possible Useful Corrective Actions

- Assess and map chemical risks
- Identify chemicals and processes of concern
- Decide on objectives, targets and performance indicators
- Prepare action plan with specific measures, as well as
- Set up an organizational structure
- Assess training needs and develop training plans

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Literature, Sources and Further Reading

- ZDHC Chemical Management System Guidance Manual: https://www.roadmaptozero.com/fileadmin/layout/media/downloads/en/CMS_EN.pdf
- ZDHC CMS 2.4 Chemical Risk Assessment:
- ZDHC CMS 2.5 Chemicals and Processes of Concern
- ZDHC CMS Appendix D Risk Assessment Template

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Exercise and Example

Exercise:

“ZDHC- Chemical Management Assessment Questionnaire“

Example:

“Tool - Chemical Control Action Plans”

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Questions ?