



**Understand the situation at hand**  
**INVENTORYING CHEMICALS AND**  
**WASTE IN YOUR COMPANY**



# Purpose of inventorying chemicals

- Create key reference and **management information tool** beyond your warehousing requirements
- Compile baseline for **assessing conformance** with restricted substances lists and planning of corrective actions
- **Reporting** to your company stakeholders (e.g. buyers)



# ZDHC CMS references (Example)

## ZDHC CMS 2.1.4 - Creating a Comprehensive Chemical List

- All chemicals in the facility to identify name of the chemical, hazard class, container size, locations of containers and dates on which solutions were prepared or expire, if applicable and chemicals of concern for your customers

## ZDHC CMS 2.1.4.3 Chemicals as discharge

- Inventory of chemical discharges with hazardous identification

## ZDHC CMS - 2.3.2 - Identify chemical suppliers in inventory

- Identify and document suppliers for each chemicals listed in the chemical inventory.



# ZDHC CMS references (Example)

## ZDHC CMS 2.4.1 - Hazard and Risk Assessment

- Use chemical inventory to consider all persons who may have contact or exposure

## ZDHC CMS 2.4.2 - Environmental Hazards and risk

- Establish, document and implement a process for identifying and controlling the potential environmental impacts from use of their chemical inventory.

## ZDHC CMS 2.4.3 - Health and Safety

- Establish, document and implement a process for identifying and controlling the potential health and safety impact from chemicals stored, used and discarded at your site. The chemical inventory previously developed (Section 2.1.4) should be supplemented with this information.



# ZDHC CMS references (Example)

## ZDHC CMS - 2.5.2.1 and 2.6.1 Verification of Compliance (RSL/MRSL)

- Expected CMS Deliverable: Chemical inventory with Column identifying ZDHC MRSL compliant formulations

## ZDHC CMS Appendix C

- Template of proposed chemical inventory



# ZDHC audit questions (Example)



- Does the facility have an up-to-date chemical inventory (on paper, electronic)? (CRS 1.1.3)
- Does the facility calculate the amount of chemicals used in its facility by mass balance? (CRS 1.2.6)

# Finding information



- **Eco-map:**
  - Type and location of chemicals and chemical (containing) waste
- **Process flow diagram and mass-balancing**
  - Types of chemicals
  - Processes involving chemicals
  - Quantities of inputs and non-product outputs
- **Safety data sheets/technical data sheets/labels and markings**
  - Hazardous/non-hazardous
  - Type of hazards



# Identifying your chemicals

- Read labels and markings on chemical containers
- Consult safety data sheet
- Cross-check

**CAS number** => unique numerical identifier assigned by Chemical Abstracts Service (CAS)

Example:

Reactive Black 5 dye - CAS 10095-24-8

**UN Number** => four-digit numbers identifying hazardous materials, and articles (such as explosives, flammable liquids to oxidizing solid or toxic liquids, etc.) in framework of international transport.

Example:

Acetone - UN1090



# Handling unknown chemicals



Source: [www.epa.gov](http://www.epa.gov)

- Try identifying them by asking supplier and workers who handle these substances (where?, what for?)
- Have it analysed in a laboratory
- If you don't get necessary information dispose it as hazardous waste using precautionary principle



# Chemical inventory formats

As per ZDHC CMS Appendix C (Example)

Depart./ location/ building	Product name	Chemical name	Chemical supplier	CAS	Quantity	Units	SDS on file	.....
Dye house 1	Hydrochloric acid (37%)	Hydrochloric acid	XYZ Company	7647-01-0	2	Litres	YES	.....
Dye house 1	Glauber's salt	Sodium sulfate	ABC Cooperation	7757-82-6	1000	Kg	YES	
.....								

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## Chemicals that MUST be included

- All chemicals with hazard indication or pictogram on container label
- All chemical materials used in laboratory, pilot facilities and other locations
- All compressed gases
- Any flammable paints, solvents, glues, fuels and other petroleum product
- Material that create an explosive or toxic vapour hazard to unprotected personnel during fire emergencies

# Chemical inventory formats

As per ZDHC CMS Appendix C (Example)

Product name	Chemical name	...	SDS on file	Hazard class	R-phrases/H-statements	11 ZDHC Priority Chemical Class	On factory/ZDHC MRSL	On brand's RLS	Shelf life	.....
Hydrochloric acid (37%)	Hydrochloric acid	...	Yes	Class 8	H290 H314 H335	N/A	No	No	May.xx	
Glauber's salt	Sodium sulfate	...	Yes	Non-hazardous	H317	N/A	No	No	Jun.xx	
		...								



Outdated  
Preferred



## Physical hazard (P)

- R phrases R1 - R19
- Hazard statements H200 - H290

## Health hazard (H)

- R phrases R20 – R49 and R 60 - R68
- R 60 - R 64 specific for human reproduction
- R 68 and its combinations specific for irreversible processes
- Hazard statements H300 – H373

## Environmental Hazard (E)

- R phrases R50 – R59
- Hazard statements H400 – H413

# Chemical inventory formats

As per ZDHC CMS Appendix C (Example)

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		...								



Change or add columns depending which lists your company is referring to e.g. REACH Substance of very High Concern or High Concern, ZDHC MRSL and RSL, bluesign, Oekotex 100,.....





# Waste inventory formats

As per GIZ REMC Toolkit

Waste Name	Category / Type	Source Process	Storage Area	Yearly Quantity	Associated Hazards	Disposal Method (actual/recommended)	Waste Disposal Vendor Address	License Number	License Validity Time

# Waste inventory formats

As per GIZ REMC Toolkit

Waste Name	Category / Type	Source Process	Storage Area	Yearly Quantity	Associated Hazards	Disposal Method (actual/recommended)	Waste Disposal Vendor Address	License Number	License Validity Time

Refer to waste classification system in REMC company manual

In most cases same or similar to corresponding chemical



# Benefits of doing a chemical inventory

1. Create structured base of information (storage & chemical, environment, health & safety management)
2. Systematically identify all chemicals stored and in use
3. Identify unknown substances and use or dispose them
4. Verify shelf life and expiry of stored substances
5. Investigate properties



# Typical audit questions



- Does the facility have an up-to-date chemical inventory? (CRS 1.1.3)
- Does the facility record quantities of chemical products used for each work order/production order? (CRS 1.1.6)
- Does the facility regularly identify the quantity of chemicals lost due to accidents (e.g., spillages, poor labelling, accidental mixtures)? (CRS 1.1.10)
- Does the facility have a document retention procedure that requires retention of key chemical inventory records for at least one year? (CMD 2.1.2)
- Does your facility have a documented inventory of chemicals purchased (including your supplier's manufacturing locations), stored (including their location) and used at your facility?
- ...



# Next step!