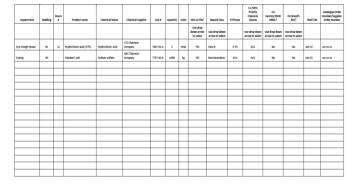


Understand the situation at hand INVENTORYING CHEMICALS AND WASTE IN YOUR COMPANY



In this session ...

- Purpose of inventorying chemicals
- ZDHC CMS requirements
- Finding information on chemicals used and present in your company
- Inventory formats for chemicals and waste
- Exercise
 - Chemical inventory
 - Waste inventory
- Plan your next steps





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

- 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



As per ZDHC CMS Appendix C

| Department | Building | Room # | Product name | Chemical Name | Chemical Supplier | CAS# | Quantity | Units | SDS on file? | Hazard Class | R Phrase | 11 ZDHC Priority Chemical Classes | On Factory/ZDHC MRSL? | On Brand's RSL? | Shelf Life | Catalogue Order Number/Supplier Order Number |
|-----------------|----------|-----------|-------------------------|-------------------|-------------------------|-----------|----------|--------|-------------------------------------|----------------------------------|----------|--|-------------------------------|-------------------------------|------------|--|
| | | | | | | | | | Use drop down arrow to select | Use drop down arrow to select | | Use drop down arrow to select | Use drop down arrow to select | Use drop down arrow to select | | |
| Dye Weigh House | #1 | 12 | Hydrochloric acid (37%) | Hydrochloric Acid | XYZ Chemical Company | 7647-01-0 | 2 | litres | YES | Class 8 | R 35 | N/A | No | No | Jun-15 | X001-X01-X0X |
| Dyeing | #3 | | Glauber's salt | Sodium sulfate | ABC Chemical Company | 7757-82-6 | 1000 | kg | YES | Non-hazardous | N/A | N/A | No | No | Jun-15 | XXX-XX |
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As per ZDHC CMS Appendix C (Example)

| Depart./ location/ building | Product name | Chemical name | Chemcial 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 | |
| | | | | | | | | |



As per ZDHC CMS Appendix C (Example)

| Depart./ location/ building | Product name | Chemical name | Chemcial supplier | CAS | Quantity | Units | SDS on file | |
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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 orther petroleum product
- Material that create an explosive or toxic vapour hazard to unproctected personnel during fire emergencies







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 | |
|--------------------------------|-------------------|-----------------------|------------------------|--------------------------------|--|--------------------------------|----------------------|------------|--|
| Hydrochlori c acid (37%) | Hydrochloric acid | Yes | Class 8 | H290 H314 H335 | N/A | No | No | May.xx | |
| Glauber's salt | Sodium sulfate | Yes | Non- hazard- ous | 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



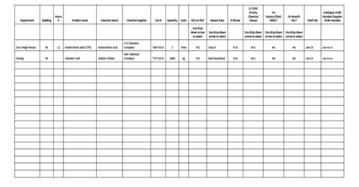
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| Product name | Chemical name | SDS on file | Hazard class | R-phrases/ H- statements | 11 ZDHC Priority Chemical Class | On factory/ ZDHC MRSL | On brand's RLS | Shelf life | |
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| Glauber's salt | Sodium sulfate | Yes | Non- hazard- ous | H317 | N/A | No | No | Jun.xx | |
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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,.....



Practical tips



- Decide on standard format for inventory
- Add columns as per your or your buyers` requirements

For example

- Type of PPE required
- Type of fire extinguisher recommended
- 0 ...



Waste inventory formats

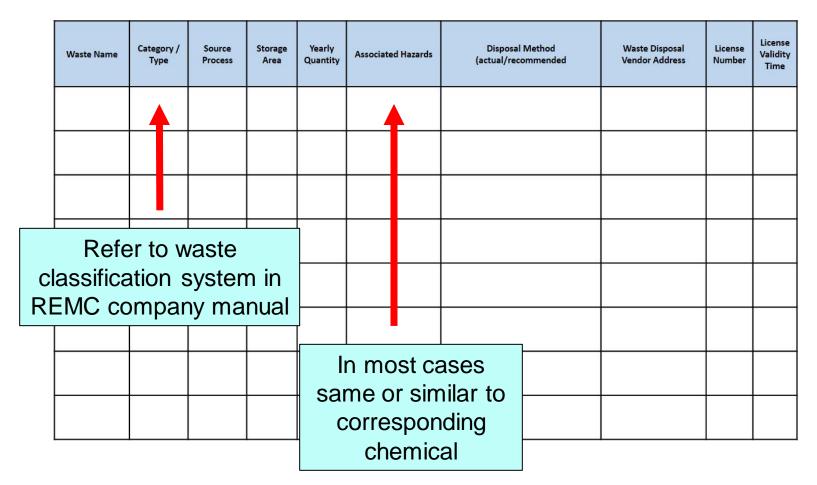
As per GIZ REMC Toolkit

| 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 |
|------------|--------------------|-------------------|-----------------|--------------------|--------------------|--|----------------------------------|-------------------|-----------------------------|
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Waste inventory formats

As per GIZ REMC Toolkit





Benefits of doing a chemical inventory

- 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 shelve 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!