

Fostering and Advancing Sustainable Business and Responsible Industrial Practices in the Clothing Industry in Asia (FABRIC)

29 July, 2021



Agenda

Part	Topic
1	SPECIFIC REQUIREMENTS OF ZDHC (PROCESS)
2	LINKING ZDHC WITH HIGG FEM
3	Q&A

Holistic Systems Approach to Sustainable Chemical Management



Input



Process

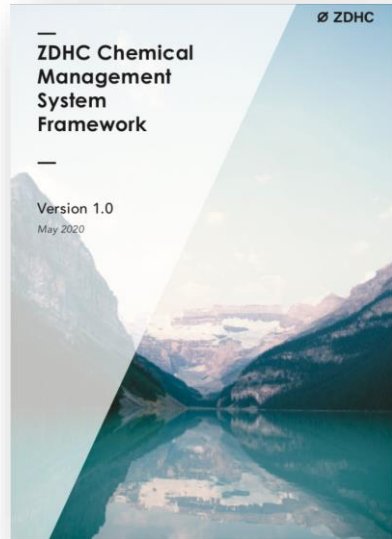


Output

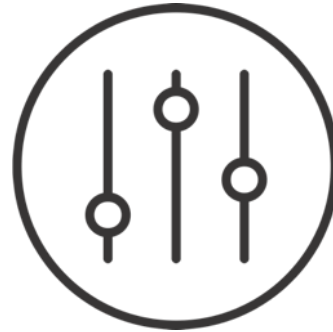


A Holistic Approach

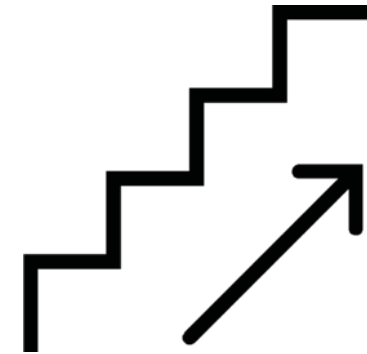
Process Management



"How to ZDHC"
Chemical
Management System
Guidance

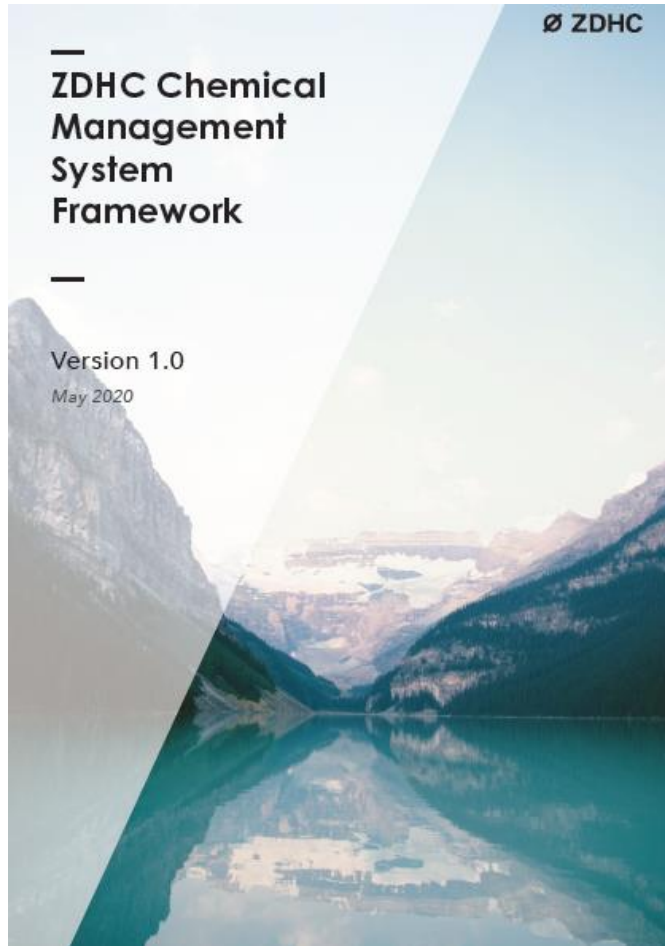


SAC - Higg FEM
amfori BEPI
Leather Working
Group
Harmonisation with
assessment and
audit schemes



Supplier and Brand to
Zero Programme

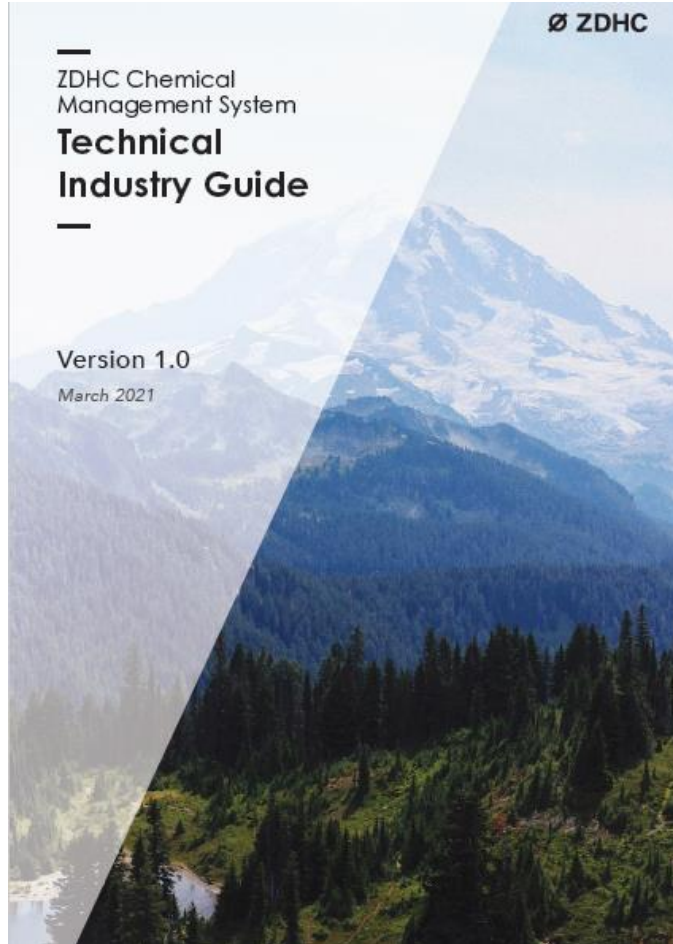
ZDHC Chemical Management System Framework



The ZDHC CMS Framework is intended to –

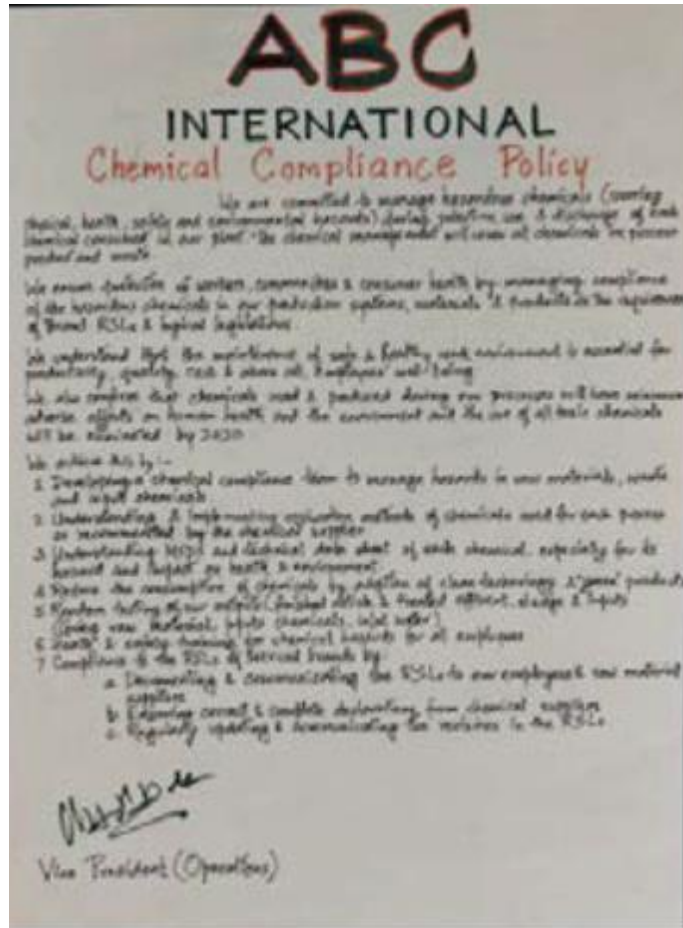
- either replace brand-specific requirements for chemical management
- and/or to be supportive or complimentary to such requirements.

ZDHC Technical Industry Guide (TIG)



1. Policy
2. Strategy
3. Assessments
4. Health & Safety
5. Chemical Inventory
6. Storage and Handling
7. Output Management
8. Process Control
9. Continuous Improvement

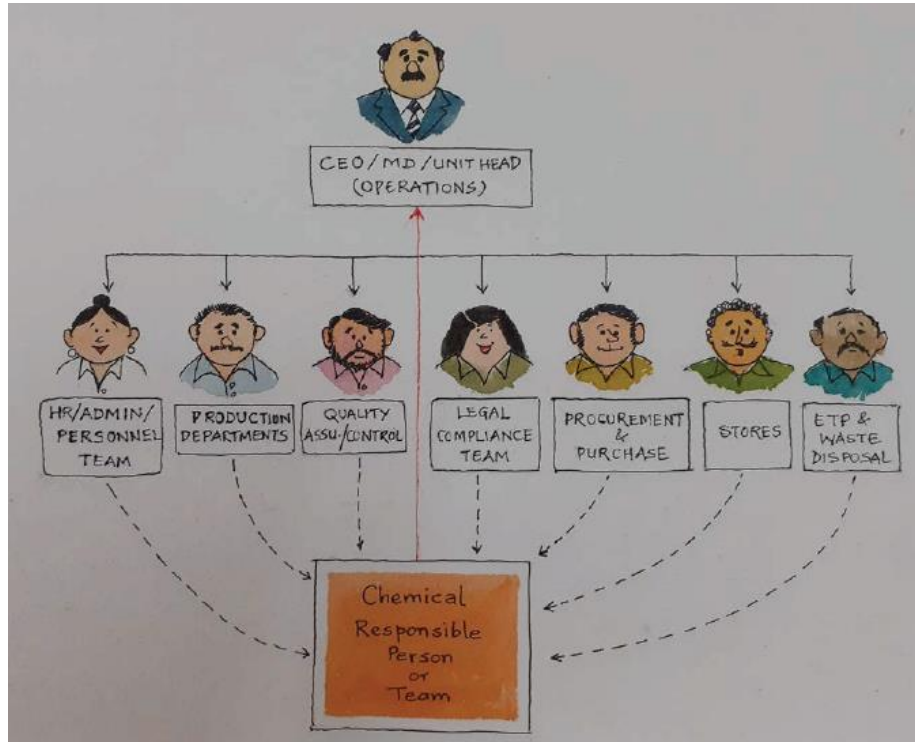
ZDHC Technical Industry Guide (TIG) - Policy



- How to Write a Chemical Management Policy
 - Policy Statement
 - Communicating your Policy Statement
- Practices & Procedures for Chemical Management
 - Chemical Purchasing Policy
 - Transparency Policy
 - Traceability Policy
- How do the different elements of a Chemical management policy fit together?

ZDHC Technical Industry Guide (TIG) - Strategy

- How to Build Your Chemical Management Strategy
 - Defining the Scope
 - Designing the Infrastructure and Resources for Chemical Management
 - Developing an Action Plan



ZDHC Technical Industry Guide (TIG) - Assessments

No.	Title	Descriptions	Applicable to		Area of Applicability	Licenses / Compliance Records Required	Reviewed by
			Company	Contractor / Supplier			
01	Environment Conservation Act 1996 (section xx)	Regulates air pollution from stationary sources and motor vehicles.	✓	✓			
02	Environment Conservation Act 1996 (section xx)	Regulates water pollution, including reference to specific discharge standards.	✓	X	Discharge of wastewater from production and other sources in the company.		

Template 1: Regulatory Requirements Inventory (Source: GIZ, 2014)

- How to Conduct Assessments
 - Regulatory Assessment
 - Chemical Hazard and Risk Assessment
 - Supply Chain Assessment
 - Alternative Chemicals Assessment

ZDHC Technical Industry Guide (TIG) – Health & Safety

- How to Ensure Health & Safety For Chemical Hazards

- Controlling exposure through a hierarchy of control measures

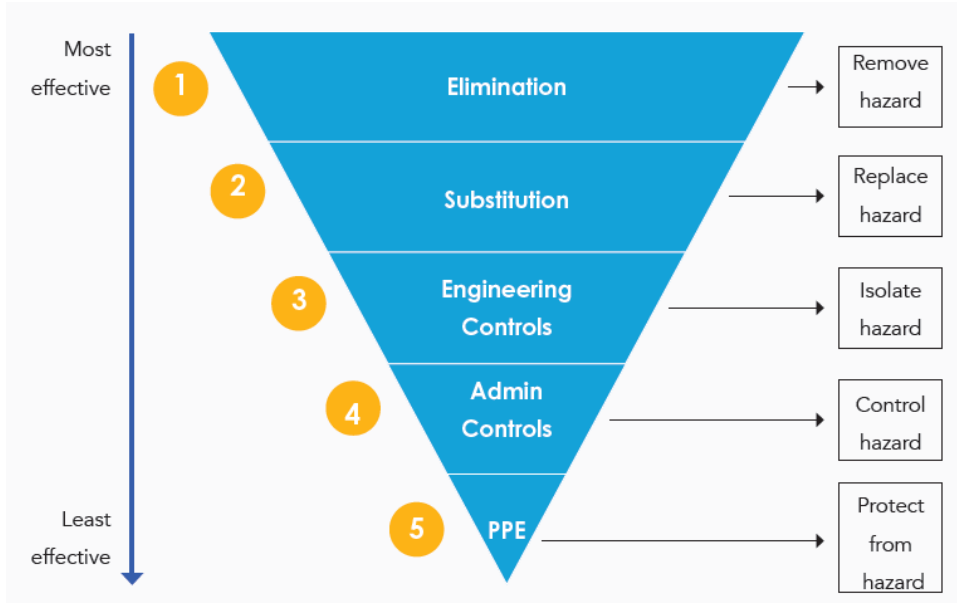
- ✓ Elimination
 - ✓ Substitution
 - ✓ Engineering Controls
 - ✓ Administrative Controls
 - ✓ Personal Protective Equipment (PPE)
 - ✓ Creating a Standard Operating Procedures (SOP) on Exposure Control

- Personal Protective Equipment (PPE)

- ✓ Selection on PPE
 - ✓ Training for staff on PPE
 - ✓ PPE Signage

- Emergency Response Procedures

- ✓ Fire Management
 - ✓ Chemical Spill Management
 - ✓ First-Aid Management
 - ✓ Eye Wash and Body Shower Stations Management



ZDHC Technical Industry Guide (TIG) – Chemical Inventory

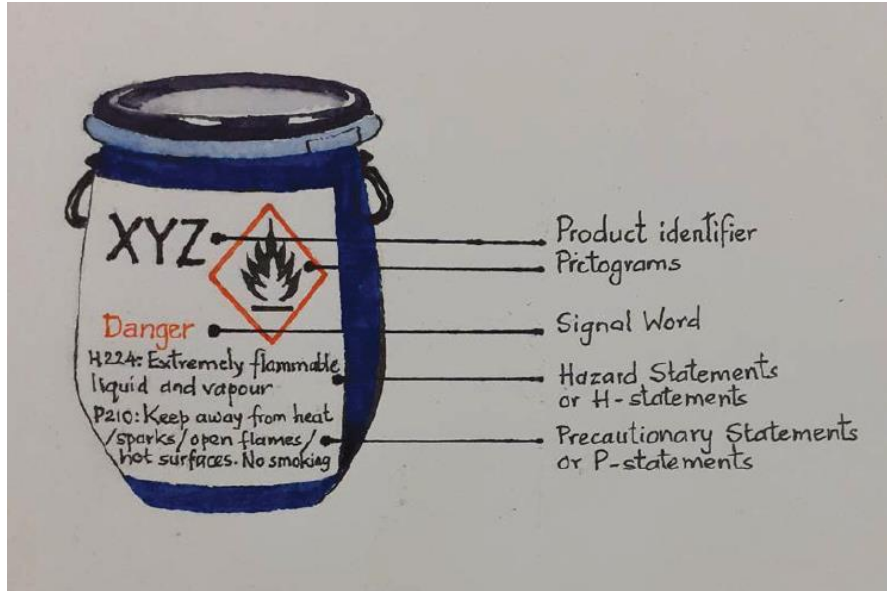
FOUNDATIONAL												
Information on chemical product				Usage related information		ZDHC MRSL	ZDHC MRSL 3rd party certification (optional)	Storage Location	LOT Number	Expiry Date- OPTIONAL	SDS information	
Chemical formulation	Chemical formulator (Manufacturer)	Chemical supplier	ZDHC use category	Monthly usage (amount)	Monthly usage (unit)	ZDHC MRSL compliance level, if required	Name/type of certification	Valid until			SDS date of issue	
Insert the full name of the formulation, including any trade name if the user. This is the formulation used at the beginning of the campaign and on any accompanying documents (Safety Data Sheet etc.)	Insert the name of the chemical manufacturer of the formulation as stated in the SDS. If possible, add the ZDHC use category.	Insert name of the supplier of the formulation as stated in the purchase order.	Choose from the options menu. The use category that best describes the intended use of the formulation.	Insert the amount of the chemical formulation used within the month of the DC.	Define the unit of monthly usage e.g. kg, liter, etc.	Choose from the options menu. Registered, Registered, U.S. from production.	Insert certification number.	Insert the date of validity of the certificate (dd/mm/yyyy).	Add location of storage on site.	Add the lot number of the product as printed on storage.	Expiry date of the chemical product (dd/mm/yyyy).	Insert date of issue on the SDS document (dd/mm/yyyy). If there is no issue date, insert SDS is pending.
NETTO - DT	WEGAN ALCOCHEM GmbH	Wega Marketing Partners	U.S. Bleaching	300	kg	Level 1	W015.3.2 Tox P02	20.10.2020 01.01.2022			15.10.2018	

- Chemical Inventory List (CIL)
 - Foundational Level CIL
 - Progressive Level CIL
 - Aspirational Level CIL

- Safety Data Sheet Management

Source: ZDHC Chemical Management System Technical Industry Guide

ZDHC Technical Industry Guide (TIG) – Storage and Handling



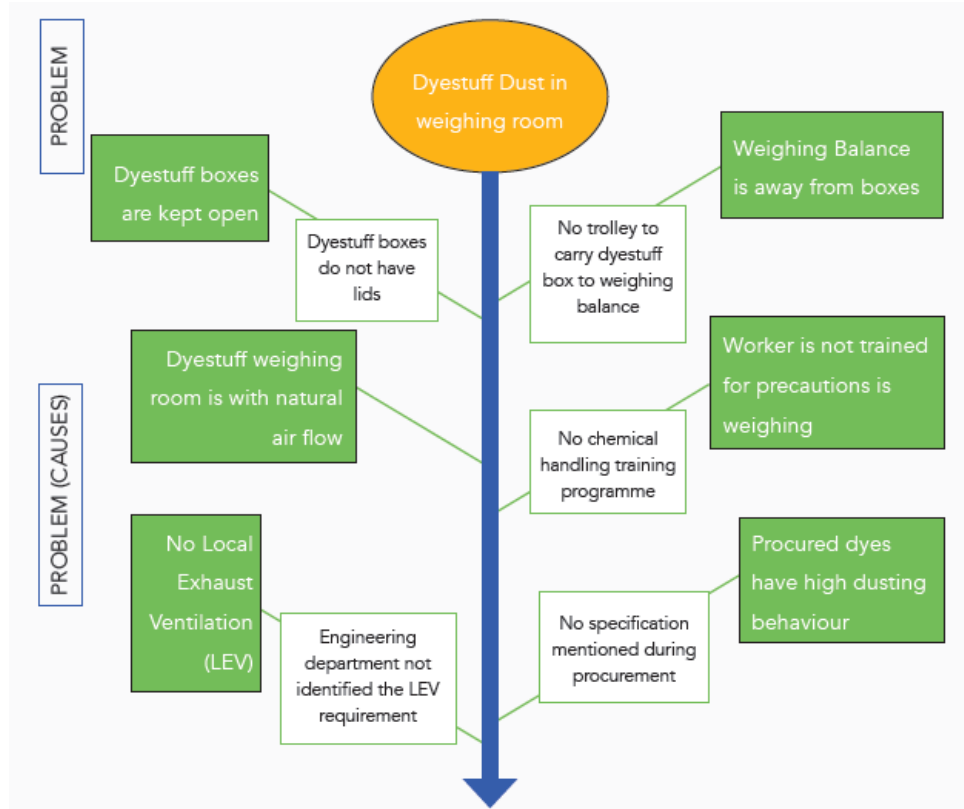
- Chemical Labelling
- Chemical Handling
 - Safe Chemical Storage
 - Safety considerations recommended for storage of chemicals

ZDHC Technical Industry Guide (TIG) – Output Management

Sample point	Flow rate (m ³ /day)	Key parameters								
		Colour (visual)	pH	Temp (°C)	TSS (mg/L)	TDS (mg/L)	BOD (mg/L)	COD (mg/L)	DO (mg/L)	MLSS (mg/L)
1										
2										
3										
4										
5										
6										

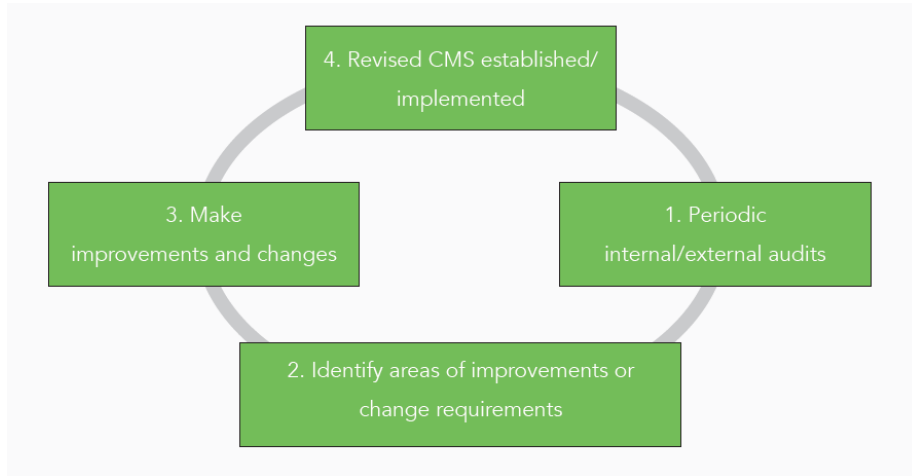
- Wastewater Management
 - ZDHC Wastewater Guidelines
 - In-house monitoring
 - ZDHC Wastewater Guidelines Testing
 - Root Cause Analysis for Non-Conformities
- Sludge Management
- Air Emission
 - Air Emission Control
- Solid Waste Management and disposal
 - Managing waste in the Manufacturing Facility
 - Storage conditions for hazardous waste

ZDHC Technical Industry Guide (TIG) – Process Control



- How to Implement Process Control
 - Document and Record Control
 - Incident & Non-compliance Management
 - General Maintenance and Housekeeping

ZDHC Technical Industry Guide (TIG) – Continuous Improvement



- How to Ensure Continuous Improvement
 - CMS Performance Review
 - Training

Links between ZDHC TIG and GIZ REMC E-learning

GIZ REMC E-learning ZDHC CMS (Based on TIG)	1. Introduction to Chemical Management	2. Mapping of chemicals and chemical flows	3. Using chemical information sources and ensuring traceability	4. Assessing chemical hazards, exposure and risks	5. Identifying and documenting priority chemicals	6. Streamlining chemical purchase Practices	7. Preparing for chemical risk Management	8. Controlling chemical hazards and Risks	9. Managing chemical wastewater and waste	10. Streamlining chemical management system and Organisation	11. Monitoring and reporting CM performance
1. Policy	√		√			√					√
2. Strategy	√										
3. Assessments			√	√				√			√
4. Health and Safety								√		√	
5. Chemical Inventory		√	√		√						
6. Storage and Handling			√								
7. Output Management					√		√		√	√	√
8. Process Control							√				
9. Continuous Improvement	√									√	√

Precisely Right.

Q & A

Agenda

Part	Topic
1	SPECIFIC REQUIREMENTS OF ZDHC (PROCESS)
2	LINKING ZDHC WITH HIGG FEM
3	Q&A

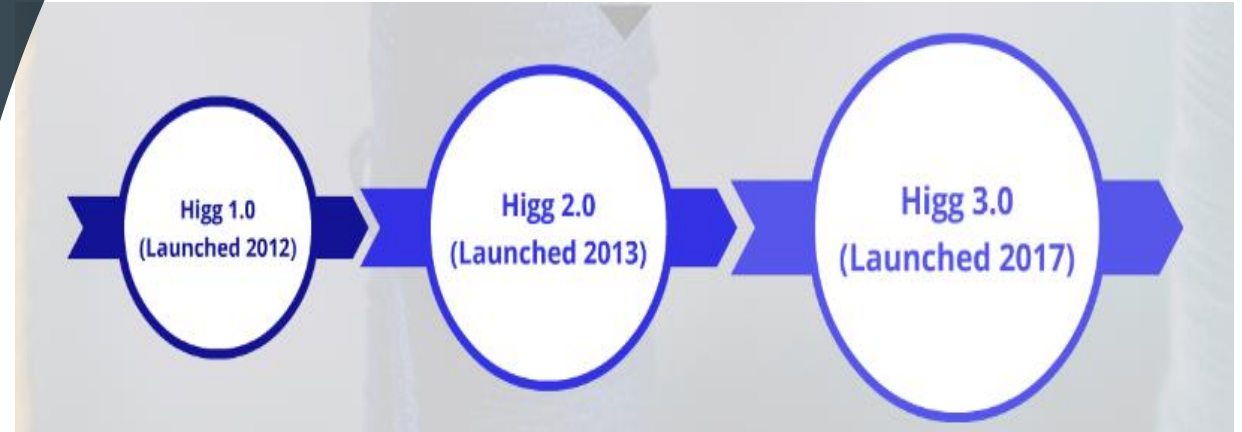
Higg Index

a self-assessment tools empowers brands, retailers and facilities of all sizes, at every stage in their sustainability journey, to measure their environmental and social impacts and identify areas for improvement.

Higg Index is not

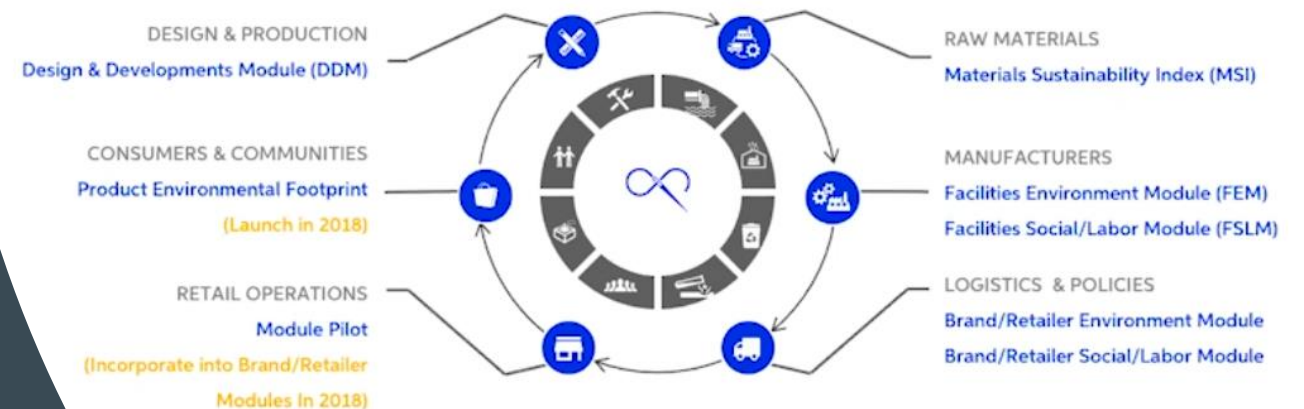
- An audit. The higg Index and assessment process is not an audit. The term “assessment” should e used when referring to the Higg.
- A pass/fail assessment.
- A process-based environmental Life Cycle Assessment (LCA).

Evolution of Higg Index



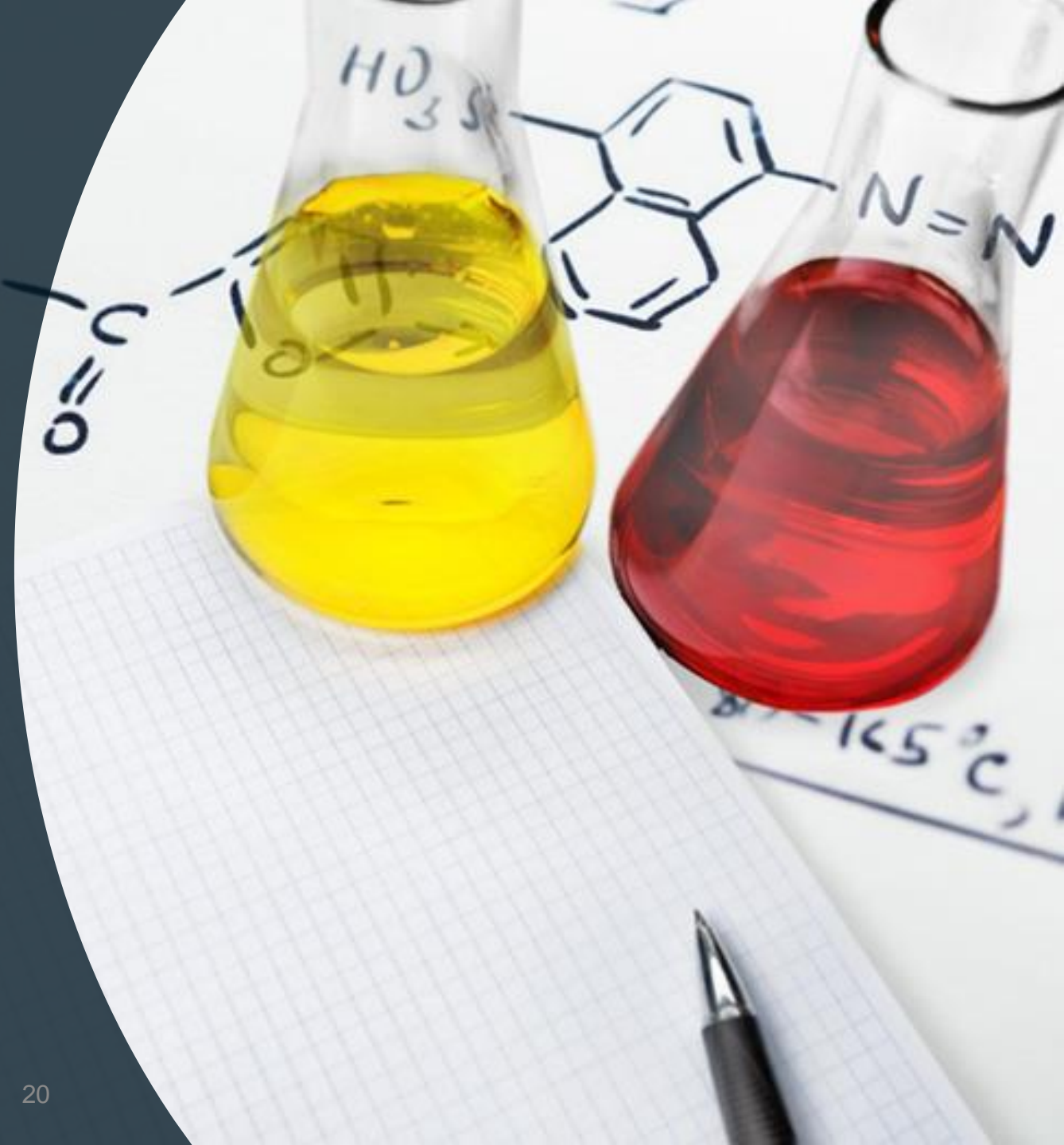
Modules of Higg Index

Higg Tools for each step along the Supply Chain



Higg FEM (Facility Environmental Module)

- Environmental Management System
- Energy
- Water*
- Waste
- Air Emission*
- Wastewater*
- Chemicals*



Higg FEM - Section Weights and Level Weights

- All sections are worth an equal portion (14.3%) of the total points assigned to the FEM Higg Index score.
- Unlike sections, levels are not weighted equally.

Level 1: 25% (Unless the applicability questions stop you at Level 1, then Level 1 is worth 100% of total possible points)

Level 2: 50%

Level 3: 25%

Level 1: 25%
Understanding &
Tracking performance

Level 2: 50%
Baselining, Managing,
setting Targets/Goals

Level 3: 25%
Leading Practices

Links between ZDHC TIG and SAC Higg FEM

ZDHC CMS (Based on TIG)	1. Policy	2. Strategy	3. Assessments	4. Health and Safety	5. Chemical Inventory	6. Storage and Handling	7. Output Management	8. Process Control	9. Continuous Improvement
SAC Higg FEM									
EMS	<u>2</u> , Partially - 11,	<u>2.9</u> Partially - 8	<u>4, 5, 10, 12</u> Partially - 10, <u>12</u>	-	-	-	-	<u>3, 6</u> Partially - 1-12	<u>7, 11</u>
Energy & GHG	-	-	-	-	-	-	-	-	-
Water Use	-	-	-	-	-	-	-	-	-
Wastewater	-	-	-	-	-	-	<u>1, 2, 4, 7, 8</u>	<u>3, 7, 8</u> Partially - 1-9	<u>9</u>
Air Emissions	-	-	-	-	-	-	<u>1-7</u>	<u>3, 4, 5, 6, 7</u> Partially - 1-7	<u>7</u>
Waste	-	-	-	-	-	<u>3, 4, 5</u>	<u>1, 2, 3, 4</u>	<u>12, 13, 14, 15</u> Partially - 1-17	<u>8, 9, 10, 11,</u> <u>12, 13, 14, 15,</u> <u>16, 17</u>
Chemicals	<u>7, 13, 18</u>	<u>14, 15</u>	<u>17, 19, 20</u> Partially - 3, 4, <u>5, 6, 7, 8, 9,</u> <u>10, 11, 12</u>	<u>8</u> , Partially - 3, 4, <u>5, 6, 7, 8, 9,</u> <u>10, 11, 12, 17,</u> <u>19, 20,</u>	<u>1</u> Partially - 2	<u>3, 4, 5, 6, 9</u>	-	<u>21</u> Partially - 1-23	<u>14, 15, 23</u> Partially - 10, <u>11, 12, 16, 17,</u> <u>19, 20</u>

Reference ID	Question
Level 1	
EMS-1	Are one or more employees at your facility responsible for coordinating your facility's environmental management activities?
EMS-2	Does your facility have a company environmental management strategy that guides long-term decision-making on environmental management?
EMS-3	Has your facility identified the significant environmental impacts associated with current operations within the factory premises?
EMS-4	Does your site have a program or system in place to review and monitor environmental permit status and renewal (where appropriate) and ensure compliance?
EMS-5	Does your facility maintain a documented system to identify, monitor and periodically verify all laws, regulations, standards, codes and other legislative and regulatory requirements for your significant environmental impacts?
EMS-6	Does your facility have a process and schedule to maintain all equipment?
Level 2	
EMS-7	Does your facility review the environmental management strategy with your facility's managers each calendar year?
EMS-8	Do employees at your facility responsible for environmental management have the technical competence required to do their job?
Level 3	
EMS-9	Does your facility promote awareness of the environmental strategy to employees?
EMS-10	10. Does your facility monitor, evaluate, and/or engage with your subcontractors on their environmental performance using the Higg Index?
EMS-11	11. Does your facility engage in environmental improvement in your local context?
EMS-12	12. Does your facility monitor, evaluate, and/or engage with your upstream suppliers using the Higg Index?

SAC Higg FEM - Wastewater

[Back](#)

Reference ID	Question
Level 1	
Wastewater-1	Does your facility track its industrial wastewater volume? (Industrial/Domestic/Combined)
(New)	Does your facility have a mechanism to prevent wastewater from mixing with storm water in the storm drain systems?
Wastewater-2	Do you have the name and contact information of the offsite wastewater treatment plant?
Wastewater-3	Does your facility have a back-up plan if there is an emergency situation related to wastewater?
(New)	Can you confirm that there is no leaking or bypassing of wastewater?
Wastewater-4	Is hazardous sludge (chemical / industrial) disposed of properly?
Wastewater-5	Is non-hazardous sludge disposed of properly? (Domestic wastewater only)
Wastewater-6	Does your facility treat wastewater using Septic before it is discharged?
Level 2	
Wastewater-7	Are you reporting against a wastewater standard?
Wastewater-8	Have you requested wastewater quality test results from the offsite wastewater treatment plant?
Level 3	
Wastewater-9	Does your facility reuse and/or recycle process wastewater as process water (closed loop)?

SAC Higg FEM - Air Emissions

[Back](#)

Reference ID	Question
Level 1	
Air Emissions-1	Do you track your air emissions from operations?
Air Emissions-2	Do you track your air emissions from productions?
Air Emissions-3	Did your facility add additional refrigerants to any existing equipment during this reporting year?
Air Emissions-4	Does your facility have control devices or abatement processes for on-site point source air emissions? If yes, select all point sources of air emissions that have control devices or abatement processes.
Air Emissions-5	Does your facility have control devices or abatement processes for on-site fugitive/non-point source air emissions? If yes, select all fugitive/non-point sources of air emissions that have control devices or abatement processes.
Level 2	
Air Emissions-6	Has your facility gone beyond permit requirements to achieve a higher level of air performance in Nitrogen Oxides (NOx), Sulfur Oxides (SOx), and Particulate Matter (PM)?
Level 3	
Air Emissions-7	Do you have a process for implementing modernized equipment to reduce or eliminate air emissions and indoor air quality issues at your facility?

Reference ID	Question
Level 1	
Waste-1	Which non-hazardous waste streams does your site produce?
Waste-2	Which hazardous waste streams does your site produce?
Waste-3	Does your facility segregate all waste streams into non-hazardous and hazardous waste, and store them separately?
Waste-4	Does your facility have well-marked, designated hazardous waste storage areas and containers?
Waste-5	Does your facility have well-marked, designated non-hazardous waste storage areas and containers?
Waste-6	Does your facility forbid open burning and dumping on-site?
Waste-7	Does your site provide training to all employees whose work involves hazardous waste handling (such as maintenance and custodial staff)?
Level 2	
Waste-8	Has your facility set a baseline for solid waste?
Waste-9	Did you set a baseline for waste disposal methods for your facility's overall waste?
Waste-10	Does your facility set formal targets to reduce waste quantity?
Waste-11	Did you set a target for improving waste disposal methods for your facility's overall waste?
Waste-12	Does your facility have an implementation plan to reduce waste quantity or improve type of treatment?
Waste-13	Has your facility reduced waste quantity or improve type of treatment in this reporting year, compared with the established baseline?
Waste-14	Has your facility improved waste disposal methods for overall waste in this reporting year, compared with the baseline?
Level 3	
Waste-15	Does your facility validate the final disposal and treatment of all hazardous wastes?
Waste-16	Has your factory diverted at least 90 percent of all discarded materials from landfills, incinerators and the environment?
Waste-17	Does your facility upcycle some of its waste or insert its waste into a circular economy system?

Reference ID	Question
Level 1	
Chemicals-1	Does your facility keep an inventory of chemicals used and the suppliers of each chemical product?
Chemicals-2	Does your facility make Safety Data Sheets (SDS) available to employees for all chemicals used?
Chemicals-3	Does your facility train all employees who use chemicals on chemical hazards, risk, proper handling, and what to do in case of emergency or spill?
Chemicals-4	Does your facility have a chemical spill and emergency response plan that is practiced periodically?
Chemicals-5	Does your facility have appropriate and operable protective and safety equipment, as recommended by the Global Harmonization System compliant (or equivalent) Safety Data Sheet, in all areas where chemicals are stored and used?
Chemicals-6	Does your facility have chemical hazard signage and safe handling equipment in the areas of the facility where chemicals are used?
Chemicals-7	Does your facility select and purchase chemicals based on their hazards and MRSL / RSL requirements?
Chemicals-8	Does your facility have an environmental and occupational health and safety program specific to chemicals management?
Chemicals-9	Does your facility have well marked, designated chemical storage and temporary storage areas?
Chemicals-10	Does your facility train employees responsible for the chemical management system on Restricted Substance Lists (RSLs) and Manufacturing Restricted Substance Lists (MRSLs)?
Chemicals-11	Does your facility have a documented process to systematically identify, monitor and verify compliance with all product Restricted Substance Lists (RSLs), and segregate chemical formulations materials and products which are non-compliant with RSL?
Chemicals-12	Does your facility have a documented process to systematically monitor, update and demonstrate compliance with Manufacturing Restricted Substance Lists (MRSLs), and segregate chemical formulations materials and products which are non-compliant with MRSL?
Chemicals-13	Can all of your production chemicals be traced from the manufacturing process back to chemical inventory?

Reference ID	Question
Level 2	
Chemicals-14	Does your facility have an implementation plan to improve your chemicals management program?
Chemicals-15	Does your facility have an implementation plan to reduce the use of hazardous chemicals beyond chemicals specified by regulations and/or Restricted Substance Lists / Manufacturing Restricted Substance Lists?
Chemicals-16	Does your facility source already-approved or preferred chemicals from a positives list beyond chemicals specified by regulations and/or Restricted Substance Lists / Manufacturing Restricted Substance Lists?
Level 3	
Chemicals-17	Does your facility collaborate with brands and/or chemical suppliers to select chemicals for alternatives assessment?
Chemicals-18	Does your facility contribute a chemical analysis against human and environmental hazard criteria (e.g., persistent, bio-accumulative, and toxic) to this alternatives process?
Chemicals-19	Does your facility contribute an analysis of lifecycle impacts to this alternatives process?
Chemicals-20	Can your manufacturing process chemicals be traced from product lot number back to chemical lot number?
Chemicals-21	Does your facility have a documented Quality Assurance (QA) Program that includes performance of chemicals?
Chemicals-22	Do your contractors/subcontractors source already-approved or preferred chemicals from a positives list to replace chemicals not already included in RSL/MRSL?
Chemicals-23	Does your facility have documented business goals, processes and actions showing commitment (e.g., equipment, process, choice of substitute chemicals) to new sustainable chemistry innovation?

Agenda

Part	Topic
1	SPECIFIC REQUIREMENTS OF ZDHC (PROCESS)
2	LINKING ZDHC WITH HIGG FEM
3	Q&A

Q & A

Thank you !

LEGAL DISCLAIMER

This document remains the property of TÜV Rheinland. It is supplied in confidence solely for information purposes for the recipient. Neither this document nor any information or data contained therein may be used for any other purposes, or duplicated or disclosed in whole or in part, to any third party, without the prior written authorization by TÜV Rheinland. This document is not complete without a verbal explanation (presentation) of the content.

TÜV Rheinland AG