

Trainers Training Program on Waste Management in Textile & Garment Industry in BGD

Promotion of Sustainability in the Textile and Garment Industry in Asia - FABRIC



GIZ FABRIC – Waste Management Course

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Presentation 2: National Legal requirements and stipulations from international agencies



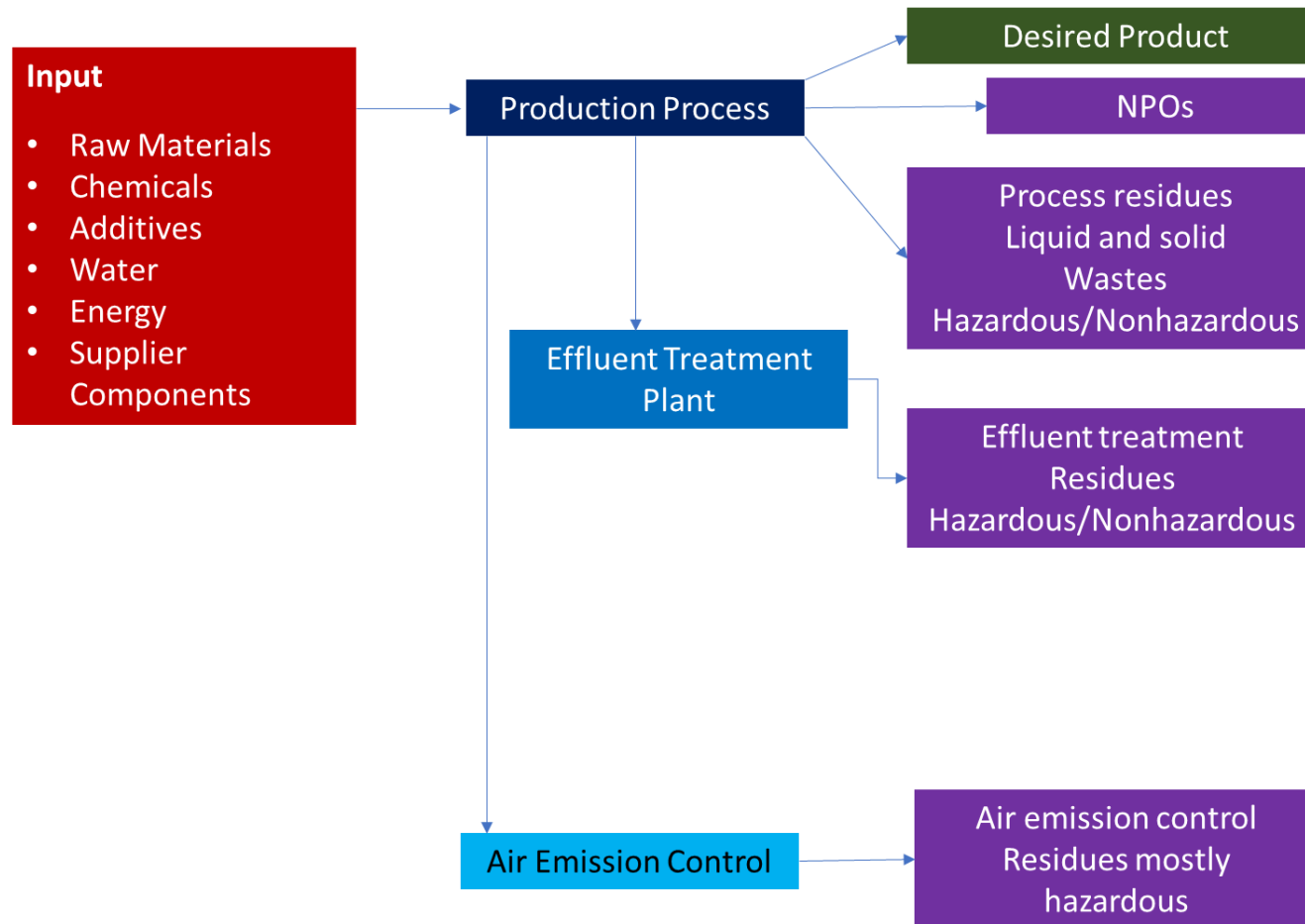
Contents

- Impact of hazardous substances on environment & health
- Waste management policy by Government
- Waste inventories and waste catalogues
- Upcoming restrictions and stipulations
- The Basel Convention Amendment
- Guidelines and requirements of ZDHC.
- Other stipulations from international agencies and buyers regarding
- Future goals?

Impact of hazardous substances on environment & health



The size of the waste problem

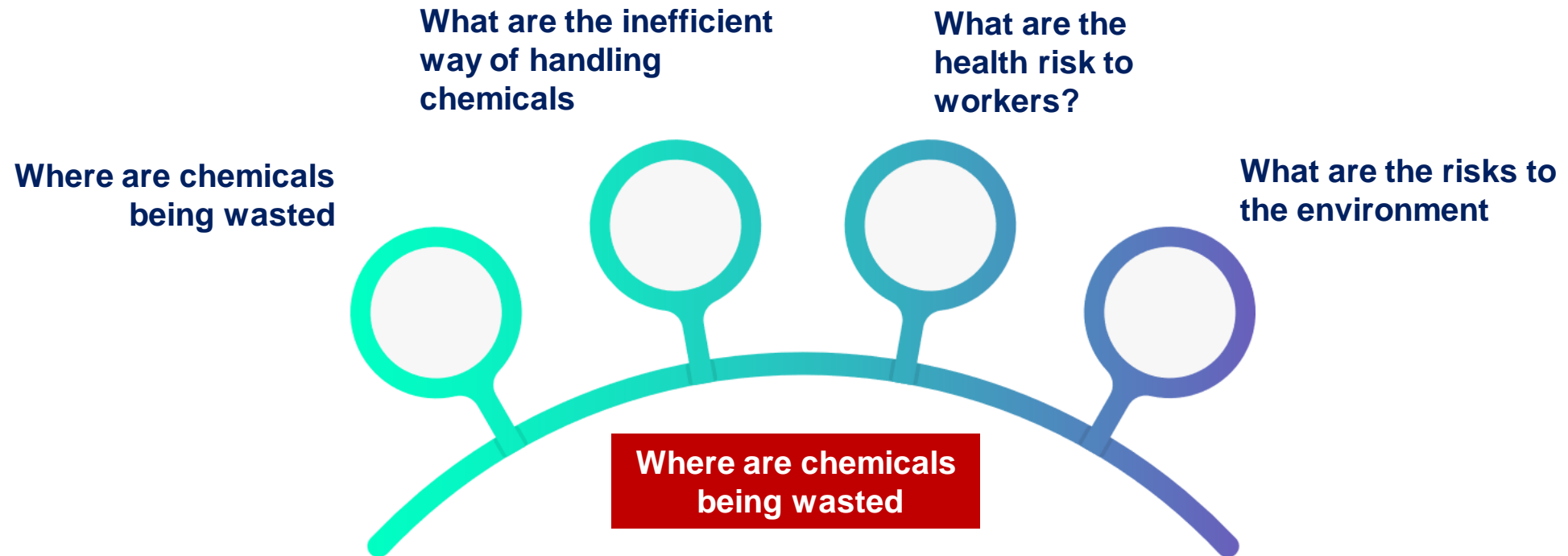


Importance of Chemical Management



- ✓ Chemicals are crucial components of major process industries (e.g. textiles)
- ✓ Effectively managed chemicals can deliver financial and environmental benefits.
- ✓ Chemicals are necessary to achieve characteristics and qualities in a product,
- ✓ However,
 - There is growing concern about harmful chemicals in the products and their adverse effects on health and environment.
 - the frameworks for standards, legal and other requirements become increasingly demanding

Elements of Chemical Management



Waste management policy by Government



Existing national policies, laws and legislations in Bangladesh

- Pesticide ordinance, 1983
- The Explosive Substance (amendment) Act, 1987
- National Environment Policy, 1992 (NEP)
- National environmental management plan, 1995
- Environmental Conservation Act (ECA), 1995
- Environmental Conservation Rules (ECR), 1997
- The environmental court act, 2000
- Lead acid battery recycling and management rules, 2006
- Hazardous waste and ship breaking waste management rule, 2011
- Bangladesh Standards and Guidelines for Sludge Management, 2016
- National 3R Strategy for Waste Management, 2018
- Hazardous e-waste management rule, 2021
- Solid waste management rules, 2021

- Implementation of procedures for handling hazardous materials;
- Procedure and standards for recycling of hazardous materials;
- Conditions for sale or transfer of hazardous materials for recycling;
- Treatment, storage and disposal facilities for hazardous wastes;
- Monitoring packaging labeling and storage of hazardous materials;
- Transportation of hazardous materials and manifest systems;
- Verifying reporting, records and returns;
- Legal liabilities, legal provisions and appeals
- Certified professional support for hazardous waste management service/facilities

Addressing the gaps



- By identifying and updating the rigorous list of hazardous waste that are being imported and generated in Bangladesh,
- Preparing an updated guidelines for making sure of proper management of those waste,
- Handling, recycle, storage or, disposal methods are to be established for each type of waste,
- Inspecting the storage facilities at the factories and ensuring their usability before issuing waste chemical import certificate

Addressing the gaps

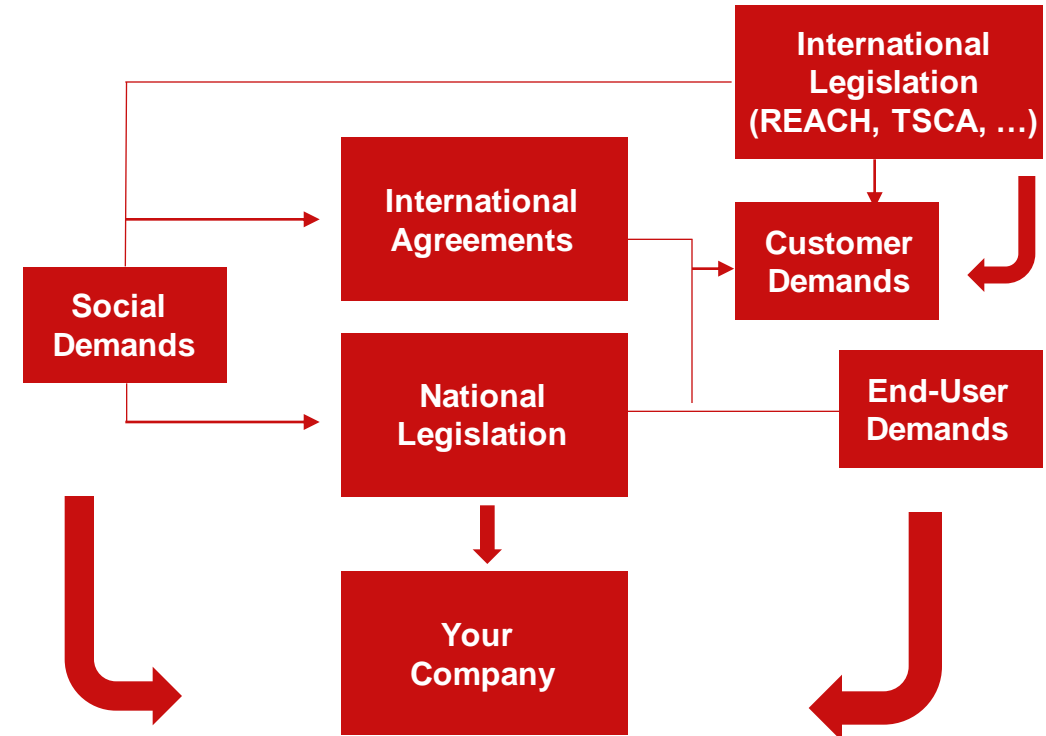


- Training of professional in the field of waste management (to provide accredited services to the factories who will need support regarding hazardous waste management),
- Detail Record keeping and maintaining standard safety practices at the industries,
- Making rules easier to understand for implementation.

Regulatory Requirements

- Apart from the national legislation in the country of the company's residence, you may also be obliged to comply with or be at least aware of regulations outside your country, such as with those of your export markets (for example, the European chemical regulations REACH).
- Legal requirements include, but are not limited to national requirements, state and local requirements, permit conditions but also other requirements such as industry codes of practice, pledges or commitments made voluntarily by your company or customers' requirements (e.g. supplier code of conducts)

Chemical Management-Legislative and Regulatory Changes



Source: GIZ, 2014



Waste inventories and waste catalogues

Chemical and Waste Inventories



Provides a comprehensive list of the chemicals entering the production facility.

In the context of resource efficient management of chemicals, the purpose of chemical inventory goes beyond warehousing requirements:

- It serves as key reference
- It can be used for identification and assessment of environment, health & safety hazards and risk
- It can be used as chemical management information tool

Elements of Inventories



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

Chemical Inventory Template

Template 1: Chemical Inventory List

Factory Location:

Location:

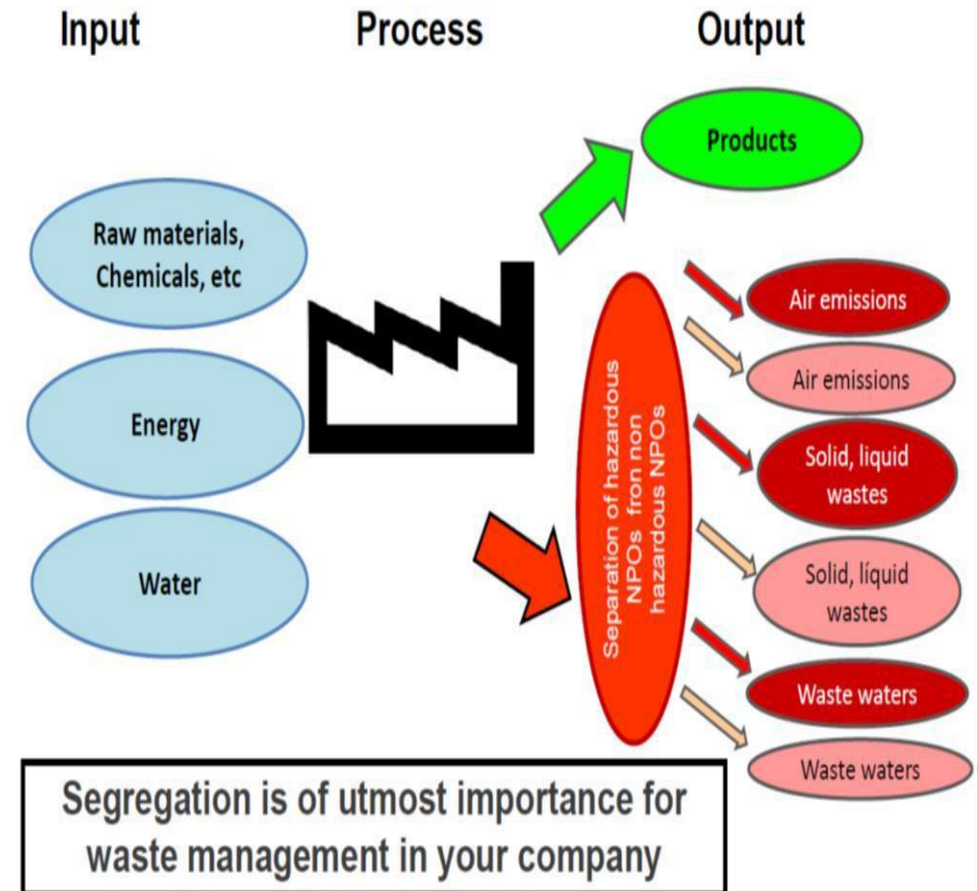
Update by:

Date:

Area/Process	Chemical/ Trade name	Manufacturer/ Supplier name	Formulator/ supplier name	Purchase Info			CAS/EC member	MRSL/RSL compliant (Yes/No)	SDS Available (Yes/No)	Function/Use of the chemical	R-phrases Hazard statement	Hazard type			PPE required (as per SDS)	Storage condition (as per SDS)	Chemical in-stock	Chemical Used
				Date of Purchase	Date of expiration	Batch/Lot number						P	H	E				

NPO / Waste Inventory

- Chemical process flow charts and eco-maps document and account for materials (chemicals) entering and leaving a system.
- The chemical inventory provides a comprehensive list of the chemicals entering your production. Not all of these chemical inputs end up in the final product, for example for technical/production process reason, fabrics will absorb only part of a dye stuff. These remaining chemicals (non-product outputs - NPO) leave the system as discharge into the air, water or residuals in solid or liquid form.
- According to **ZDHC CMS**, factories are expected to plan how and where to safely store such chemical waste as well as to document where it is generated and how it will be disposed.



NPO / Waste Inventory



- The information/data gathered during the process flow analysis and mass/material balancing will provide key inputs in compiling an inventory of the non-product outputs in your factory and developing a (chemical) waste management plan and/or decide on measures to reduce non-product outputs, for example use of good basic manufacturing practices, process optimization, increase in chemical uptakes.
- The remaining non-product outputs need to be managed and disposed. The on-site or off-site treatment processes themselves can produce chemical containing waste, for example treatment sludge, or used air filters.

Waste Inventory: Typical Template

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

Example: Textile Industry

EWL Code	European waste list (EWL) Classification	H	H	Y
		(EU)	(Basel)	(Basel)
04 02	Wastes from the textile industry			
04 02 09	Wastes from composite Mats (impregnated textile, elastomer, plastomer)			
04 02 10	Organic matter from natural products (for example grease, wax)			
04 02 14*	Wastes from finishing containing organic solvents	H3, H5	H3, H4.1	Y42
04 02 15	Wastes from finishing other than those mentioned in 04 02 14			
04 02 16*	Dyestuffs and pigments containing dangerous substances	H7, H3, H5, H8	H3, H11, H4.1	Y12
04 02 17	Dyestuffs and pigments other than those mentioned in 04 02 16			

Example: Textile Industry

EWL Code	European waste list (EWL) Classification	H	H	Y
		(EU)	(Basel)	(Basel)
04 02 19	Sludges from on-site effluent treatment containing dangerous substances	H4, H7, H10, H6	(H11, H6.1)	Art. 1 (1) b
04 02 20	Sludges from on-site effluent treatment other than those mentioned in 04 02 19			
04 02 21	Wastes from unprocessed textile fibres			
04 02 22	Wastes from processed textile fibres			
04 02 99	Wastes not otherwise mentioned			



Upcoming restrictions and stipulations

Some trends and initiatives



- EU Textile Regulation on fibre names and related labelling and marking of the fibre composition of textile products.
- EU laws will focus on reducing the amount of resources used across supply chains.
- Promote circular concepts, upcycling concepts and repairable textiles.
- Promotion of changes towards the reduction of Fast fashion's linear and exploitative business model.



The Basel Convention Amendment

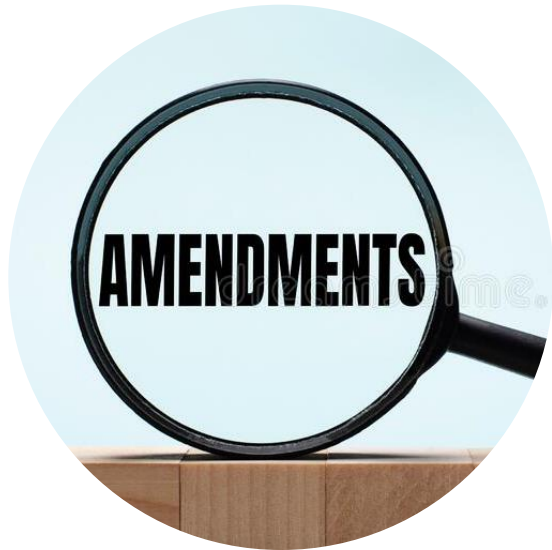
Basel Convention

- On The Control Of Transboundary Movements between nations
- Of Hazardous Wastes And Their Disposal
- Protocol On Liability And Compensation For Damage Resulting From Transboundary Movements Of Hazardous Wastes And Their Disposal
- Adopted On 22 March 1989 By The Conference Of Plenipotentiaries In Basel, Switzerland. The Convention Entered Into Force On 5 May 1992.

Basel Convention

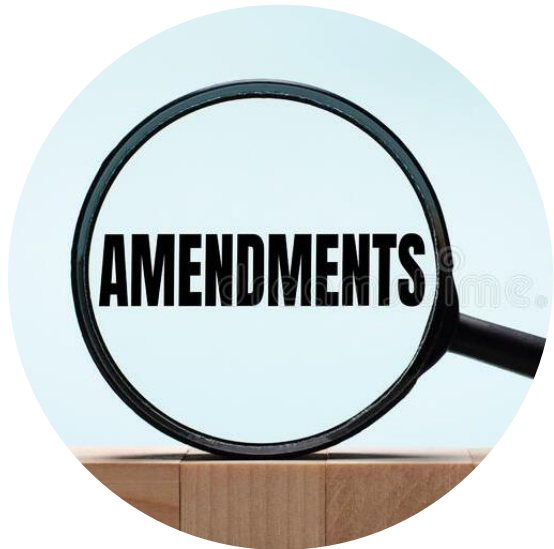
- Specifically, to prevent transfer of hazardous waste from developed to less developed countries
- However, it does not address the radioactive wastes
- It also intends to minimize the amount and toxicity of wastes generated
- To ensure environmentally sound management and help LDCs to manage wastes more efficiently
- As of February 2018, 185 states and the European Union are parties to the Convention

Basel convention amendments



- **1st amendment** (Annex VIII): insertion of a new entry A3210, clarifies the scope of plastic wastes presumed to be hazardous and therefore subject to the Prior Informed Consent (PIC) procedure.
- **2nd amendment** (Annex IX): new entry B3011 replacing existing entry B3010, clarifies the types of plastic wastes that are presumed to not be hazardous and, as such, not subject to the PIC procedure.

Basel convention amendments



- (includes a group of cured resins, non-halogenated and fluorinated polymers, mixtures of plastic wastes consisting of polyethylene (PE), polypropylene (PP) or polyethylene terephthalate (PET) provided they are destined for separate recycling of each material and in an environmentally sound manner, and almost free from contamination and other types of wastes).

Basel convention amendments



- **3rd amendment:** insertion of a new entry Y48 in Annex II which covers plastic waste, including mixtures of such wastes unless these are hazardous (as they would fall under A3210) or presumed to not be hazardous (which would fall under B3011).
- The new entries become effective as of 1 January 2021.



Guidelines and requirements of ZDHC

Objectives and Benefits



- Safeguard the environment by preventing the discharge of harmful wastewater.
- Unified monitoring and testing programme - reducing supplier operating costs and increase efficiency.
- Defines pass/fail reporting limits.
- Helps to estimate and control chemical concentration loads and loads discharged for treatment.
- Better understand the root cause of any hazardous chemicals or residue that poses a risk to WWTP.

Out of scope



- Wastewater management beyond the property boundaries of facility.
- Wastewater treatment or pre-treatment systems that are not owned & operated by facilities.
- Centralised or common wastewater treatment plant.
- Cotton field, cattle range, slaughterhouse, chemical synthesis industry, and polymer industry.

Three Level Approach to Wastewater Limits

The guidelines provide a three-level approach for wastewater discharge limits, with the intent that suppliers actively execute a continuous improvement plan to reach the next level.

The three levels are:

- **Foundational:** At a minimum, meets legal discharge requirements and ensures effective control of ZDHC MRSL chemicals.

Three Level Approach to Wastewater Limits

- **Progressive:** Demonstrates increasing knowledge of chemical management and applies advanced wastewater treatment processes.
- **Aspirational:** Demonstrates best-in-class performance and strives for continuous improvement in both chemicals and wastewater treatment process knowledge; creates industry best practices.

Wastewater Parameters - Two Categories

- **Conventional Parameters:** Their limits are defined on the next slide and for standard methods for analysis refer to 2016 Wastewater Guidelines.
- **ZDHC MRS� Parameters:** These parameters, their reporting limits, and standard methods for analysis are defined for wastewater Tables 2A - 2N in 2016 Wastewater Guidelines.

Wastewater Parameters - Two Categories

The list includes:

- Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): Including All Isomers.
- Chlorobenzenes and Chlorotoluenes.
- Chlorophenols.
- Dyes – Azo (Forming Restricted Amines).
- Dyes – Carcinogenic or Equivalent Concern.
- Dyes – Disperse (Sensitising).
- Flame Retardants.
- Glycols.
- Halogenated Solvents.
- Organotin Compounds.
- Perfluorinated and Polyfluorinated Chemicals (PFCs).
- Phthalates – Including all other esters of phthalic acid.
- Polycyclic Aromatic Hydrocarbons (PAHs).
- Volatile Organic Compounds (VOC).

Conventional Parameters

Zero discharge cannot be applied to conventional parameters, such as pH, COD. Hence foundational, progressive and aspirational limits are applied.

Where local legislation and/or permits do not cover one or more conventional parameters listed in these guidelines, the foundational level stated in these guidelines shall apply.

Conventional Parameters + sum anions + metals (mg/L unless otherwise noted)	Limits		
	Foundational	Progressive	Aspirational
Temperature [°C]	Δ15 or 35	Δ10 or 30	Δ5 or 25
TSS	50	15	5
COD	150	80	40
Total-N	30	10	5
pH	6-9		
Colour [Pt-Co]	150	50	10
BOD ₅	30	15	5
Ammonium-N	10	1	0.5
Total-P	3	0.5	0.1
AOX	5	1	0.1
Oil and Grease	10	2	0.5
Phenol	0.5	0.01	0.001
Coliform [bacteria/100 ml]	400	100	25
Persistent Foam	Not visible		

ZDHC Guideline Document Draft Version

Conventional parameters showing foundational, progressive and aspirational limits.

Conventional Parameters + sum anions + metals (mg/L unless otherwise noted)	Limits		
	Foundational	Progressive	Aspirational
Anions			
Sulfide	0.5	0.05	0.01
Sulfite	2	0.5	0.2
Metals			
Antimony	0.1	0.05	0.005
Chromium, total	0.2	0.05	0.005
Cobalt	0.05	0.01	0.005
Copper	2	0.1	0.05
Nickel	0.2	0.02	0.005
Silver	0.1	0.01	0.001
Zinc	5	1	0.1
Arsenic	0.05	0.01	0.005
Cadmium	0.1	0.005	0.001
Chromium (VI)	0.05	0.005	0.001
Lead	0.1	0.01	0.005
Mercury	0.01	0.001	0.0005

EU laws should focus on reducing the amount of resources used across supply chains and on boosting the market for second-hand and repairable textiles. Fast fashion's linear and exploitative business model must become a thing of the past."



What are the three levels of ZDHC wastewater limits?

A large black pipe is shown discharging a dark, viscous liquid into a grassy area. The liquid is flowing out of the pipe and creating a small stream on the ground. The background is filled with green grass and some dry twigs.

Other stipulations from international agencies and buyers regarding hazardous waste discharge

Extended producer responsibility

Definition:

Environmental policy approach in which a producer's responsibility for a product is extended beyond the use phase.

An EPR policy is **characterized by:**

- The shifting of responsibility (fully or partially) upstream towards the producer;
- The provision of incentives for producers to consider environmental consequences when designing or deciding on their products;
- EPR can be applied to different waste streams but is not suitable for all types of waste.

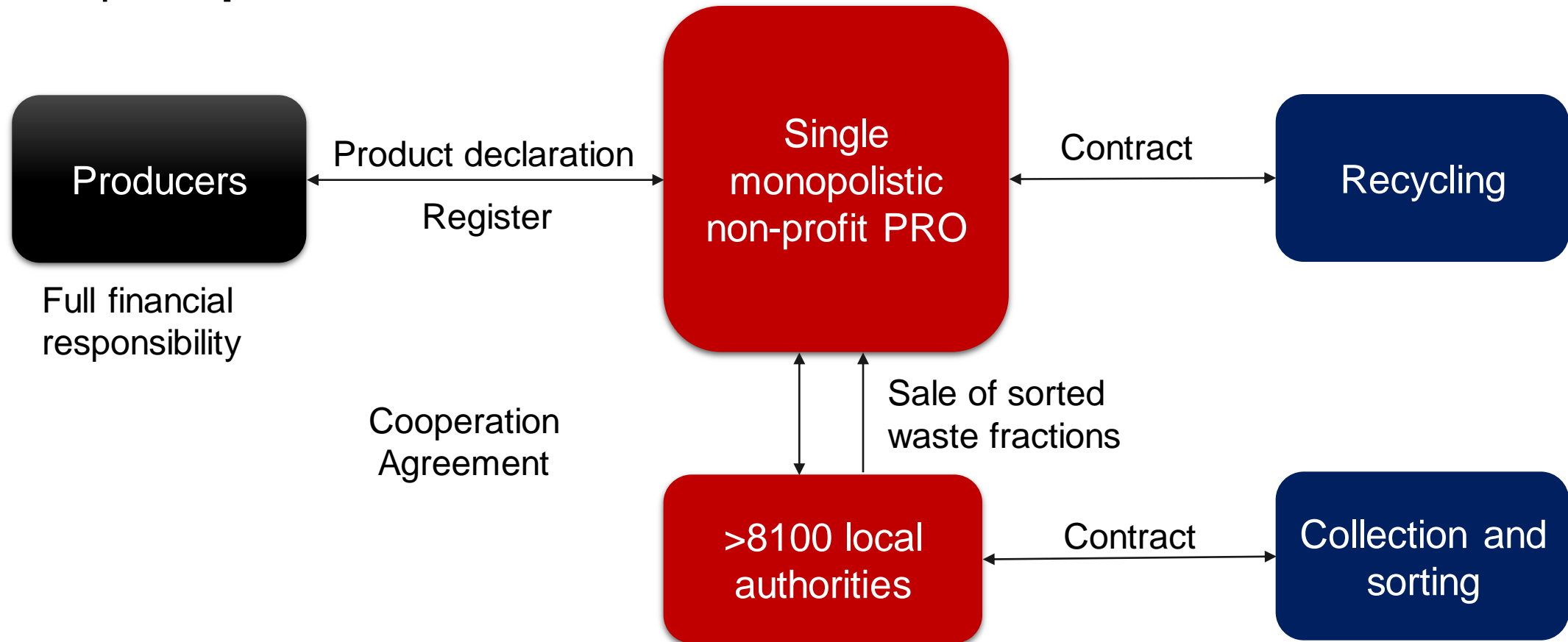
Implementation of EPR by PRO

Producer Responsibility Organization (PRO):

- Is a legal entity which organizes the compliance of producers with EPR obligations and/or targets.
- Funded by producers, generally in proportion of each producer's market share for the products or streams under EPR.

Implementation Extended producer responsibility

Example: Spain



Due Diligence Guideline, OECD



The OECD Due Diligence Guidance for responsible Supply Chains in the Garment and Footwear sector describes objectives for Corrective Action Plans (CAP's) to cease, prevent or mitigate harm in the enterprise's own operations.

Recommendation - Be sustainable: Long term solutions should lead to long term outcomes. In many cases this means that processes should be embedded into management systems.

Risk: Handling and disposal of hazardous chemicals.

Example: Training for workers on how to handle and dispose of chemicals safely is incorporated into worker orientation and ongoing refresher courses.

OECD Due Diligence Guidance for responsible Supply Chains, 2018, p. 69

German Supply Chain Due Diligence Act, (Duty of Care Act)



The Supply Chain Due Diligence Act, will go into force on 1. January 2023.

The Act primarily means that companies will need to adapt and update their compliance, purchasing and contract drafting processes.

The companies concerned must make reasonable efforts to ensure that there are no violations of human rights in their own business operations and in the supply chain.

Binding for: German companies with 3000 or more employees (from 2024: 1000 or more employees) and their direct suppliers (in some cases also indirect suppliers)

EU Due Diligence Act



The EU is working on an EU Due Diligence Act which may be in effect in 2024.

Binding duty of care for companies in relation to human rights, environmental protection and working conditions

Liability under public law and perhaps criminal law

Broader duty of care, companies obligated to conduct active analysis of potential risks throughout entire value chain – not just for their own operations and direct suppliers, but also for subsidiaries

Import ban on products associated with forced labour

Future goals?



Future policy options to reduce the textile waste production



- Eco-design Directive
- Mandatory recycled content
- (Eco-)modulated Extended Producer Responsibility
- Correct disposal/collection/take-back systems
- Circular business model pathways should support the shift towards a circular textiles system and underline how the design phase plays a critical role.
- The circular business model should focus on longevity and durability, optimised resource use, collection and reuse, and recycling and material use.

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