

CHEMICAL MANAGEMENT ACTIVITIES REPORT

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General Introduction

The commitment to “*Zero Discharge*” of Hazardous Chemicals 2020 was adopted by Inditex in November 2012. From that point on, Inditex has been continually developing programs and making progress in fulfilling the commitment assumed by supervising their implementation as well as the management of chemical substances and formulations in its supply chain.

Table 1 summarizes the different commitments assumed for “*Zero Discharge*” compliance along with Inditex answer to address them. Additionally, it also includes the specific section of this document where Inditex action is explained in detail.

Implementation	Type	Subtype	Description	Program	Document Section
Long Term	General Goal	Zero Discharge	Inditex commits to Zero Discharge of all hazardous chemicals by 01/01/2020	Sustainability Code The List by INDITEX	A.2.1; A.2.2; A.2.3; B.2.1; B.2.2; B.2.1; B.2.3; B.2.4; B.2.5; B.2.6
Long Term	General Mechanism	Systemic Change Approach	Sustained investment in moving industry, government, science and technology to deliver on systemic change and to affect system change across the industry towards this goal	Sustainability Code The List by INDITEX	A.2.2; A.2.6; B.2.1; B.2.2; B.2.3; B.2.4; B.2.5; B.2.6
Long Term	General Mechanism	Collective Action Approach	Inditex will collaborate with other companies, brands NGOs and other stakeholders to achieve this goal	Sustainability Code The List by INDITEX	A.3; A.4

Table 1. Summary of Inditex commitments into “Zero Discharge” of Hazardous Chemicals 2020.

A. Ready To Manufacture

A.1. Introduction

Ready To Manufacture (RTM) program was the main communication tool that Inditex has at production ground level to train and inform its supply chain about required and mandatory good manufacturing practices (GMPs). Its main indicators during last 2017 are shown below:

- Number of audits performed: 1,735.
- % of mills with improved audit results (follow up audits): 63 %.

However, following a common vision to all Inditex product health programs, they have moved towards sustainability issues. Thus, RTM is no longer an exclusively related product health standard program but a sustainability manufacturing code by its combination with environmental standard “*Green To Wear*” (GTW). As the consequence of this merger process, holistic approach of resulting sustainability code covers all issues related to sustainable chemicals management, manufacturing process conditions, emissions, waste water discharges and solid residues (sludge, fibers and microfibers, etc.) responsible management.

A.2. Main Novelties of Sustainability Code. Progress Report

Details of the main novelties introduced in the sustainability code are outlined below and which implementation will be checked by third party audits.

A.2.1. New Restricted Substances and Parameters

Additionally to the control of color fastness and fiber composition, parameters directly related to the longevity of the articles, new sustainability code includes mandatory requirements to control and or to prevent the restricted substances as well as other environmental related parameters not included in previous RTM manufacturing code:

Scope	RTM Manufacturing Code	Sustainability Code
Environmental	APs and APEOS	APs and APEOS)
Product Health/Environmental	Arylamines (azo dyes)	Arylamines (azo dyes)
Product Health and Quality	Colour Fastness	Colour Fastness
Product Health and Quality	Fiber Composition	Fiber Composition
Product Health/Environmental	Fluorocarbons	Fluorocarbons
Product Health/Environmental	Formaldehyde	Formaldehyde
Product Health/Environmental	pH	pH
Product Health/Environmental		Phthalates
Product Health/Environmental		Chlorophenols
Environmental		COD
Environmental		BOD
Environmental		TSS
Environmental		Conductivity
Environmental		Air Emissions
Product Health/Environmental		Chromium (VI)
Product Health/Environmental		Heavy Metals
Environmental		Responsible Water Consumption
Environmental		Responsible Fiber and Microfiber Management
Product Health/Environmental		DMF

Table 2. Comparison of main restricted substances and parameters controlled by RTM manufacturing code and sustainability code.

A.2.2. Sustainable Testing Approach

In order to test and control all restricted substances and parameters previously mentioned, new sustainability code includes a section where the different chemical risks associated to the different chemical products categories used in textile and leather manufacturing have been addressed. However, in order to make controls more effective and sustainable, risky chemistry behind the different chemical products categories is shown and shared with the mills with 2 main goals:

- To increase public availability and transparency of chemicals formulations provided by the chemical industry.
- To be more focus in real risks and optimize mills testing strategy.

INDITEX													
Good Manufacturing Practices Best Practice Anexo Contacts													
Textile / Leather													
Function	Chemical Description	Formaldehyde	Arylamines	Chlorophenols	Phthalates	APEOs	PFCs	PAHs	Allergenic Dyes	SCCP	Organotin Compound	Organo Chlorinated Carriers	Brominated / Chlorinated Flame Retardants
Fixers for dyeing	Diciandiamide formaldehyde	•											
Wool Protector	DMHEU polymer / Glyoxal monomer / Polisiloxans	•											
Defoamer	Mineral oil / polydimethylpolysiloxane				•			•					
Binder	Self-crosslinker polyacrylates	•				•							
	Non-self-crosslinker polyacrylates					•							
	Aromatic polyurethane		•								•		
	PVC (Polyvinyl chloride)				•						•		
Fixer/Cross-linker for printing	Based on aromatic blocked isocyanate		•								•		
	Based on aromatic aziridine		•								•		
	Based on melamine-formaldehyde	•									•		
Synthetic thickener	Polyacrilates / Acrylic acid copolymer	•											

Table 3. Screenshot extracted from Inditex sustainability code where risks associated to some chemical products categories are disclosed.

A.2.3. Rejection Limits for Low Quality Chemicals

Due to the competition law, the use of a specific set of chemicals cannot be imposed. For this reason, sustainability code defines two different procedures to control chemicals:

- Chemicals included into The List by INDITEX:
 - Already controlled and classified by Inditex and that should be used according to their “A” (can be used), “B” (to be used with certain restrictions) or “C” (cannot be used) classification criteria.

- Chemicals not included in The List by INDITEX:
 - To be controlled by chemical suppliers and mills. However, based on product health criteria, sustainability code includes rejection limit for those with low quality which prevent their use in production.

This new requirement to mills will help to comply with 2 “Zero Discharge” important commitments as MRSL compliance and “Clean factory approach” concept.

A.2.4. Responsible Management of Fibers and Microfibers

Sustainability code covers not only wet processing mills but also some “dry” processes where despite chemicals are not used, their activity could have some influence in the environment. In this regard, especial emphasis has been paid to fiber and microfibers management including mandatory requirements for brushing, grinding and shearing processes into its scope.

Additionally, mandatory requirements have been also included in wet processing mills where fiber and microfibers release to waste water may happen.

A.2.5. Supply Chain Disclosure

Sustainability code audits will be focus not only in mills but in Inditex direct suppliers facilities as well. For this reason, sustainability code includes new mandatory requirements for raw materials and final articles controls. Additionally, during audits to direct suppliers special emphasis will be paid on active supply chain disclosure in order to have this information always complete and updated.

Supply chain disclosure will be also reinforced by means of an internal IT tool where all direct suppliers should disclose their supply chain and associate the mills to be used for the production of every production order. Additionally, depending on the type of article to be produces (dyed, printed, etc.), this tool will ask for the corresponding dyeing mill, printing mill, etc. associated to the article, a stage that cannot be skipped before starting the production.

A.2.6. Increase of Qualification and Awareness of Supply Chain

Sustainability code includes section “*Supporting Documents*” developed in order to share knowledge with Inditex supply chain and to increase their awareness and qualification. They will be uploaded to Inditex webpage to ease their consultation and shared during sustainability audits with the mills according to the processes they carry out.

Supporting documents will be classified in below categories:

- *Advanced Technologies by INDITEX.*
 - Innovative technological processes developed by INDITEX for sustainability requirements compliance.
- *Recommended Processes by INDITEX.*
 - Manufacturing processes or technologies already available in the market and which use could lead to solve some specific problems faced in Inditex productions.
- *Quick Wins Selected by INDITEX.*
 - *Specific actions already known by the sector and easy to put in practice which implementation could solve many problems faced during daily activity.*

Supporting documents are focus in different issues but mainly in increasing article longevity and reducing productions reprocessing. In this way, additional consumption of raw materials, chemicals and other resources such as water and energy would be avoided. Additionally, mills will benefit from costs and time savings increasing their profitability and productivity, respectively.

A.3. Collective Action Approach

In order to reduce the environmental impact of mills into the textile business, no matter they are working for local suppliers or international retailers, we would like to expand the influence of our sustainability code and to turn it into a sectorial standard. **For this reason, key associations were already identified/contacted at the different Inditex production clusters in order to share with them the benefits of our code and to discuss about its implementation:**

Location	Association Name
Turkey	Turkish Clothing Manufacturers' Association (TGSD)
Portugal	Associação Textil e vestuário de Portugal (ATP)
Portugal	Associação Portuguesa dos Engenheiros e Tecnicos Texteis (APETT)
Bangladesh	PaCT Bangladesh
Bangladesh	Bangladesh Garment Manufacturers and Exporters Association (BGMEA)
India	Apparel Export Promotion council
China	China National Textile and Apparel Council (CNTAC)
China	China Dyeing and Printing Association (CDPA)

Table 4. Main associations already identified/contacted at the different Inditex clusters.

B. The List by INDITEX

B.1. Introduction

The List by INDITEX was developed in collaboration with the chemical industry in order to improve the quality of chemicals and to accelerate their answer to the need of phasing out hazardous substances from global supply chains of the textile, apparel, leather and footwear industry. Additionally, it encourages alternatives to harmful substances containing products and scalable innovations. Main indicators to show the evolution of the program in time are summarized below:

Indicator	I Edition	II Edition	III Edition	IV Edition ¹
Companies	10	15	22	26
Nº Requests (% acceptance)	10 (100 %)	5 (100 %)	77 (13 %)	> 100 ^(*) (< 4 %)
Chemical Products	4,224	8,258	~19,780	~24,000
Substances Controlled	4	4	8	16
Tests Performed	1,774	8,289	34,605	N/A
“B” and “C” Chemicals (%)	710 (17 %)	1,548 (19 %)	6,615 (34 %)	N/A

Table 5. Evolution of main indicators of The List by INDITEX program.

B.2. Main Novelty of Sustainability Code. Progress Report

Current edition (III edition) was officially released last March 2017 including almost 20,000 chemicals and banning 3,593 (18 % of “C” products) following both the precautionary principle and legal bans from Inditex Manufacturing Restricted Substance Lists (MRSL) and/or Restricted Substance Lists (RSL). Since then, many novelties have been included in the program which details are explained below:

B.2.1. New Restricted Substances

Chemical products listed in the IV edition of The List by INDITEX will be tested and classified according to 8 new restricted substances. Thus, The List by INDITEX facilitates our supply chain MRSL compliance by

¹ IV edition is in progress and figures shown may change.

sharing a list of commercially available chemicals tested according to almost all regulated substances included in Inditex MRSL.

III Edition	IV Edition
Formaldehyde	Formaldehyde
Heavy metals	Heavy metals and metalloids ²
Chromium (III)	Chromium (III)
Arylamines	Arylamines
Chlorophenols	Chlorophenols
Phthalates	Phthalates
Fluorocarbons	Fluorocarbons
Others (dioxins, furans, PAHs, SCCPs)	Others (dioxins, furans, PAHs, SCCPs)
	Alkylphenols (APs) and Alkylphenol Ethoxylates (APEOs)
	Allergenic dyes
	Organotin compounds
	Organic chlorinated compounds
	Brominated/chlorinated flame retardants
	VOCs
	DMF
	Chlorinated solvents

Table 6. Comparison of restricted substances included in the III and IV editions of The List by INDITEX.

B.2.2. New Participants

Despite more than 100 audits were carried out to potential new members of The List by INDITEX, only 5 new chemical companies were able to comply with official procedure requirements and consequently, accepted into the program.

B.2.3. Scope Widening

In addition to current two existing sections into The List by INDITEX (“Dyestuffs and auxiliaries for textiles and leather” and “Auxiliaries for water repellency”), IV edition will include a new section for glues and adhesives for footwear. These chemicals will be tested for those restricted substances they may contain such as:

² Along with heavy metals, different metalloids have been included into this category to be aligned with INDITEX MRSL.

- Formaldehyde.
- Arylamines.
- Phthalates.
- DMF.
- VOCs.³
- Chlorinated solvents.⁴

B.2.4. Improvement in Participants Quality Productions

In the same way that every new edition of The List by INDITEX, all participants included in the IV edition are committed to update and propose new quality production improvements. Final commitments will be agreed between Inditex and each one of the participants and included in a business collaboration agreement.

B.2.5. Promotion of Sustainable Chemicals

In the same way that our manufacturing code, the IV edition of The List by INDITEX is not only focus on product health issues but also on promoting sustainable chemicals. To do so, an internal procedure has been developed in order to evaluate sustainability of chemicals listed according to below requirements:

- **Toxicology:** Sustainable chemicals will never classified as “C” into the current edition of The List by INDITEX at the moment of their evaluation. In the same way, CMRs, SVHC and PBTs chemicals will never be considered.
- **Water saving:** Sustainable chemicals should reduce total water consumption during the manufacturing process at least 30 % when they are compared with the standard of the sector.
- **Energy saving:** Sustainable chemicals should reduce total energy consumption during the manufacturing process at least 20 % when they are compared with the standard of the sector.
- **“Slowing the flow of materials”:** Use of sustainable chemicals should extend final article lifetime by different approaches such as:
 - Increase of fastness properties.
 - Reduction of peeling.

³ Xylenes (isomeric mixture); Methyl acrylate; Methyl methacrylate; Styrene; Methyl alcohol; Butyl alcohol; Phenol and total phenols; Acetaldehyde; Vinyl acetate; Toluene.

⁴ Trichloroethylene; Dichloromethane; Chloroform; Tetrachloromethane; 1,1,2-Trichloroethane; 1,1-Dichloroethane; 1,2-Dichloroethane; Perchloroethylene; 1,1,1-trichloroethane; 1,1,1,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethane; Pentachloroethane; 1,1-Dichloroethylene; 1,2,3-trichloropropane.

- Reduction of shrinkage.
- *Increase Mill Productivity*: Sustainable chemical should increase mill productivity by means of:
 - Reducing manufacturing total time.
 - Reducing the amount of chemical products used.

B.2.6. Promotion of Clean Chemistry

A new testing strategy has been developed in order to promote clean chemistry. Thus, chemicals which provided no detection results during the testing procedure will benefit from important savings related to testing costs.

B.3. Collective Action Approach

Similarly to the actions taken for the expansion of the scope of our sustainability code and trying to get a bigger and more effective approach, below key associations were already identified/contacted in main chemical production locations:

Location	Association Name
India	The Dyestuff Manufacturer Association of India (DMAI)
China	China National Textile and Apparel Council (CNTAC)
China	China Dyestuff Industry Association (CDA)
Turkey	Turkish Textile Finishing Industrialists Association

Simultaneously, we would like to lead the convergence of the sector in terms of chemical management providing a clear and understandable guideline to reach the “*clean factory approach*”. For this reason, we have established an open dialogue with ZDHC group as a first step of a collaboration with other international retailers in order to share with them The List by INDITEX and to turn it into a sectorial standard. Following this approach, mills could define their chemical portfolio in compliance with all their customers, to reduce the costs associated to their chemical inventory and to ensure the use of safer and higher quality chemicals.

C. Root Cause Analysis

Every time a RSL or MRSL non compliance is detected at the final article stage or in water discharges, respectively, a root cause analysis (RCA) audit is allocated to identify the source of the incidence and to prevent its recurrence in the future by providing the corresponding corrective action plan.

The investigation is carried out by experts in textile/leather manufacturing and the tools employed to establish the root causes include auditing all the processing units involved in the manufacture of the non compliant articles, especially their chemical inventories and the manufacturing processes used.

Non compliance found in RCAs carried out during last 2017 could be mainly grouped according to below sources:

- Chemical products: 85 %
- Manufacturing process conditions: 10 %
- Raw materials: 5 %.

Finally, it should be highlighted that RCA non compliance sources are used to provide feedback to Ready To Manufacture and The List by INDITEX programs in order to ensure their continuous improvement and to improve their efficiency.