Five steps to detox ecological services for sustainable chemical and supply chain management for textiles and leather

Empowering Trust®

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The 21ST century is bringing more and more focus on chemical safety.

UL supports manufacturers and retailers in all aspects of the supply chain and manufacturing process – from raw materials to sales transactions – and helps them manage their risks and supply products that are safe, socially responsible and in line with industrial standards.

Challenges for retailers and manufacturers

In today's global markets, suppliers and manufacturers across the globe are offering a wider and continuously growing selection of raw materials and goods. Over the last several years, supply chains have correspondingly become more complex and more difficult to track.

With an increasing consciousness for environmental concerns, health, security and sustainability in global supply chains, more organizations and consumers are demanding increased transparency about where and how products are manufactured and what ingredients they contain.

The textile and leather industries are under pressure to minimize their environmental effects and improve supply chain sustainability.

More companies are therefore focusing on reducing negative effects on humans and the environment throughout their value chain. However, a lack of knowledge and support often prevents the implementation of an effective Detox strategy and suitable management systems.

The ZDHC (Zero Discharge of Hazardous Chemicals) program launched in 2011 is the industry's reaction to the Greenpeace Detox Campaign launched that same year and is intended to offer companies a guideline and support in the implementation of sustainable chemical management.

The ZDHC Program: A comprehensive approach for sustainability in the value chain

The use and the leakage of dangerous chemical substances in the production of textiles and shoes harms waterways, plants and animals, as well as humans. The ZDHC Program is a global cooperation of more than 50 companies that are jointly looking for safe, sustainable chemical management along the entire value chain. The goal of the initiative is the complete removal of dangerous chemicals from textile production. The focus of the ZDHC Program is on the limitation and the exchange of certain substances in the production process and the verification of the waste water quality. Furthermore, the measures include the creation of an audit protocol that is intended to ensure consistent environmental verification throughout the entire supply chain and the joint use of the test results.

The ZDHC research list serves to identify prioritized chemicals and to initiate measures leading to their substitution. Further areas of focus are the development of standards for synchronized data collection and reporting as well as training programs for brands, chemical suppliers, manufacturers and retailers on the topic of chemical management.

THE ZDHC ROADMAP:

INPUT
ZDHC MRSL and Conformance Guidance, GATEWAY Chemical Module

PROCESS
Chemical Management System Framework, Chemical Inventory

OUTPUT
Wastewater Guidelines, Sampling and Analysis Plan, GATEWAY Wastewater Module

"Leading the textile, apparel and footwear industries toward zero discharge of hazardous chemicals"

Important for retailers and manu-facturers

ZDHC Program

Working with UL

The role of UL in the ZDHC Program

In April 2017, UL joined the ZDHC Program as an official participant and supports both manufacturers and suppliers through wastewater tests in eight provisionally ZDHC-accepted laboratories. UL provides further support through testing, audits, management services and software tools that are used in the planning and implementation of sustainable processes by companies. Today, the program is accepted by NGOs and other entities.

In addition, UL is accredited by the ZDHC Foundation as an official provider of advanced training measures in the textile, apparel and footwear industry. The advanced training consists of five main topics:

- **Introduction in chemical management**
- **Chemical dangers and risk assessment**
- **ZDHC MRSL (Manufacturing Restricted Substances List) and Best Practices for Technical Data Sheets (TDS)**
- **Storage of chemical and personal protective equipment (PSA)**
- **Minimization of environmental effects**

In order to support the industry in its challenges relating to chemical management, UL experts conduct the training in the respective local languages while using relevant, practical examples.

In the ZDHC Academy tool, participants can register for the UL advanced training seminars.

This partnership will be of fundamental importance to drive all of us toward a new sustainable culture based on a chemical management approach for the benefit of consumers, workers and the environment.

Elisa Gavazza, Global Lead for Chemistry, UL CRS

Getting ready for the **Five Steps to Detox**

1
Inform, plan and communicate

2
Establish supply chain transparency

3
Develop a chemical management program

4
Carry out a testing and auditing program

5
Implement correction and prevention measures

At UL, we understand the challenges companies face in their endeavors to meet ZDHC/Detox goals. Throughout the process, we will support you through the provision of the most diverse services. First off, here are some fundamental recommendations:

- **Plan a long-term sustainable strategy.**
- **Develop a proactive stance and demonstrate your willingness to invest in the future of your company by implementing sustainable supply chain practices.**
- **Communicate your goals throughout all levels of the supply chain and leave no one behind.**
- **Initially select the most important factories (or at least those with the highest risk factors) for the Detox measures.**
- **Bring your key suppliers on board and create a random sample strategy. This will help you in both the scheduling and budgeting process.**

Important for retailers and manu-facturers

ZDHC Program

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Step 1
Inform, plan and communicate

As an official ZDHC member and accredited provider of advanced training measures, UL can comprehensively assist you in the development of a Detox action plan.

Advisory services and advanced training

UL offers advisory services as well as current information that you require in order to adhere to the continuously evolving safety requirements for consumer products. We monitor the developments of new laws and standards on both European and national levels and support you in terms of technical issues, chemical requirements and compliance demands.

Step 2
Establish supply chain transparency

To fulfil the ambitious ZDHC/Detox requirements – or to even just understand how far your company is from fulfilling them – it is imperative to get a closer look at the supply chain. Improvements to your supply chain can then be identified, corporate guidelines can be developed and alternative solutions can be processed.

Factory audits

UL offers audits for a thorough assessment of the supply chain. We audit the quality control processes and production capacities of a facility to determine any possible effects that the ZDHC strategy can have on product quality, the processes or the capacities in order to assess if long-term continuous quality can be ensured.

Software tools

The UL PURE® software tools enable efficient data collection, analysis and reporting regarding the supply chain and enable a simple and transparent management of the supply chain.

Environmental audits

The audits are performed by specially trained UL social partners and focus on the most important environmental components:

- Environmental management system
- Management of air, water, energy and greenhouse gases (THG = Treibhausgase)
- Wastewater/wastewater management
- Disposal of industrial and hazardous wastes
- Contaminated ground/soil and ground water contamination
- Land use and biodiversity
- Planning of emergency measures and environmentally related emergency measures
- Training diversity

Companies can use this new understanding to develop a roadmap that enables them to improve from basic compliance to top performance.

Step 3
Develop a chemical management program

A chemical management system is a systematic approach to procurement, storage, usage and recycling of chemicals within a system or plant. The chemical experts at UL can support you in all aspects of chemical management – from the development of a list of the restricted substances, the inventory of chemicals and on to the implementation of a suitable test program that takes the entire supply chain into consideration.

It is important to ensure that trained chemical product managers are available on site – an often-overlooked component of an effective management system.

Development of a Manufacturing Restricted Substances List (MRSL)

UL supports you in compiling a MRSL as well as implementing it throughout your supply chain to help ensure the conformity with the respective provisions.

Verification of the chemical products inventory

One of the key components of a chemical product management system is the existence of a chemical product inventory in the factory. Technical verification of the chemical products inventory and Material Safety Data Sheets (MSDS) can help identify chemicals to avoid and standardize raw materials management. In addition, communication programs can demonstrate correct handling to employees as well as provide information that keeps the workplace environment safe.

Compliance of chemicals through certification and testing

Compliance of chemicals used in the production process can be evaluated in different ways. One way is to certify that chemicals adhere to a specific MRSL, such as to the ZDHC MRSL. Another way is to substantiate through testing. Both approaches are most commonly used to demonstrate chemical compliance.

UL offers Level 1 certification to ZDHC MRSL, helping to demonstrate that chemical formulations used in a product's manufacturing do not contain any restricted ZDHC MRSL banned substances.

Step 3
Develop a chemical management program

The purchasing policy

A correct chemical purchasing policy allows you to screen the required details and information on chemicals prior to the actual purchase and the subsequent use. Poor communication is often one of the most frequent reasons for failure in the development of an adequate and correct chemical management program. It's important that employees and suppliers are familiar with and know the MRSL. It is also necessary to conduct a regular check and examination of the documents received from your supplier.

Chemical management as a way to improve health and safety

Good chemical management is crucial to reduce the impact of chemicals on the environment and improve health and safety. People working with chemicals in the production process should use the most appropriate Personal Protective Equipment (PPE) and have in place effective emergency procedures.

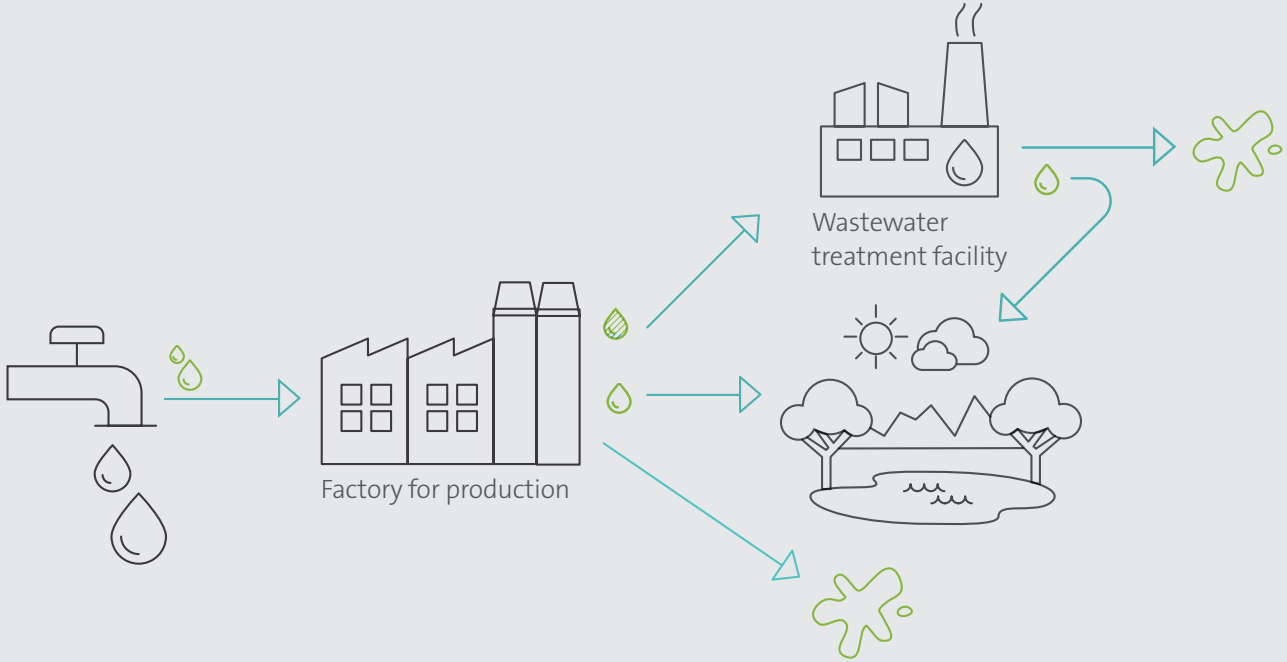
Other chemical management practices to consider

- Development of test programs for raw materials and finished goods within the entire supply chain
- Standardization of the raw material and chemical approval process
- Creation of supplier selection criteria
- Chemical auditing of production sites

Step 4
Carry out a testing and auditing program

Water in textile manufacturing

- **Incoming water** supplied to a manufacturing process
- **Untreated raw wastewater** from direct or indirect system discharge
- **Treated wastewater** that can be reintroduced to the environment
- **Sludge,** a residual product from the treatment of urban and industrial wastewater



Important for retailers and manu-facturers

ZDHC Program

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Step 4
Carry out a testing and auditing program

UL wastewater testing

The testing of wastewater requires specific knowledge, experience and the corresponding equipment. The correct sampling is the first phase of the analysis process and has great significance to the assessment of wastewater quality as per the specific technical standards of the ZDHC wastewater regulations.

UL is provisionally accepted by ZDHC for wastewater and sewage sludge analysis via the ZDHC GATEWAY Wastewater Module. Wastewater tests, which are conducted by UL laboratories in Europe and in the Asia Pacific region, determine the safety measures against the use of prohibited and high-risk chemicals.

UL's proprietary processes and special equipment helps to analyze wastewater samples with reliable results. Only dedicated and specially-trained employees are authorized to perform wastewater testing.

All UL wastewater assessments and protocols are conducted and developed locally, and align with ZDHC's requirements.

Step 4
Carry out a testing and auditing program

Wastewater test parameters

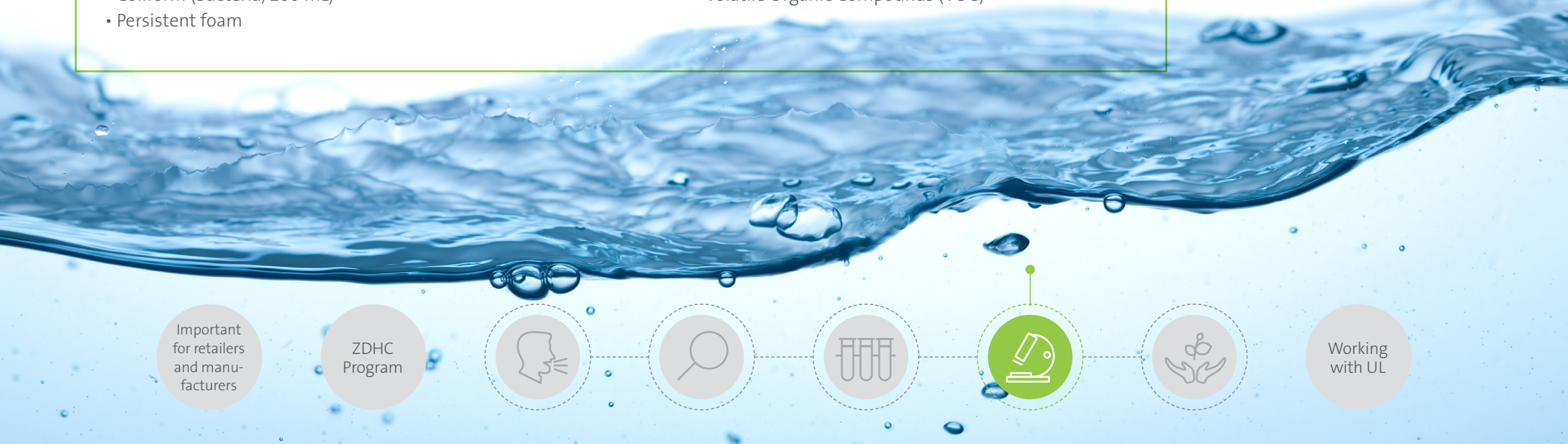
Conventional parameters
- Temperature
- TSS
- COD
- Total-N
- pH
- Colour
- BOD5
- Ammonium-N
- Total-P
- AOX
- Oil and Grease
- Phenol
- Coliform (bacteria/100 mL)
- Persistent foam

Anions
- Cyanide
- Sulphide
- Sulphite

Metals
- Antimony
- Arsenic
- Silver
- Cadmium
- Chromium total
- Chromium (VI)
- Cobalt
- Mercury
- Nickel
- Lead
- Copper
- Zinc

Organic chemicals of the MRSL such as:
- Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs)
- Chlorobenzenes, Chlorotoluenes
- Chlorophenols
- Dyes – Azo (forming restricted amines), carcinogenic or equivalent concern, disperse (sensitising)
- Flame retardants
- Glycols
- Halogenated solvents
- Organotin compounds
- Perfluorinated and Polyfluorinated Chemicals (PFCs)
- Ortho-Phthalates
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOC)

The UL laboratories noted here, which have been provisionally accepted by ZDHC for the wastewater and sewage sludge analysis, are in the position to implement tests for ZDHC and to upload the results to the GATEWAY Wastewater Module.



Step 4
Carry out a testing and auditing program

Additional focus points for UL services

In addition to the testing activity carried out by trained staff, UL can be a partner for the implementation of a chemical management strategy through audit activities that can focus several environmental related topics such as:

- **Chemical management systems**
- **Environmental management systems and adherence to environmental regulations**
- **Wastewater management**
- **Existence of suitable treatment systems**
- **Water consumption**
- **Quality and monitoring**
- **Emergency response**
- **Advanced training**

Detailed analyses help in the identification of improvement areas and clean-up strategies.

Step 5
Implement correction and prevention measures

Supported by a centralized data management system, we support you in the administration of comprehensive supply chain risk management programs and in the implementation of correction and prevention measures, for example:

- **MRSL implementation planning for the entire supply chain**
- **Training of employees and suppliers in relation to the responsible procurement of raw materials and production processes**
- **Sustainability services**
- **Substitution of dangerous chemicals through more sustainable alternatives**

Important for retailers and manu-facturers

ZDHC Program

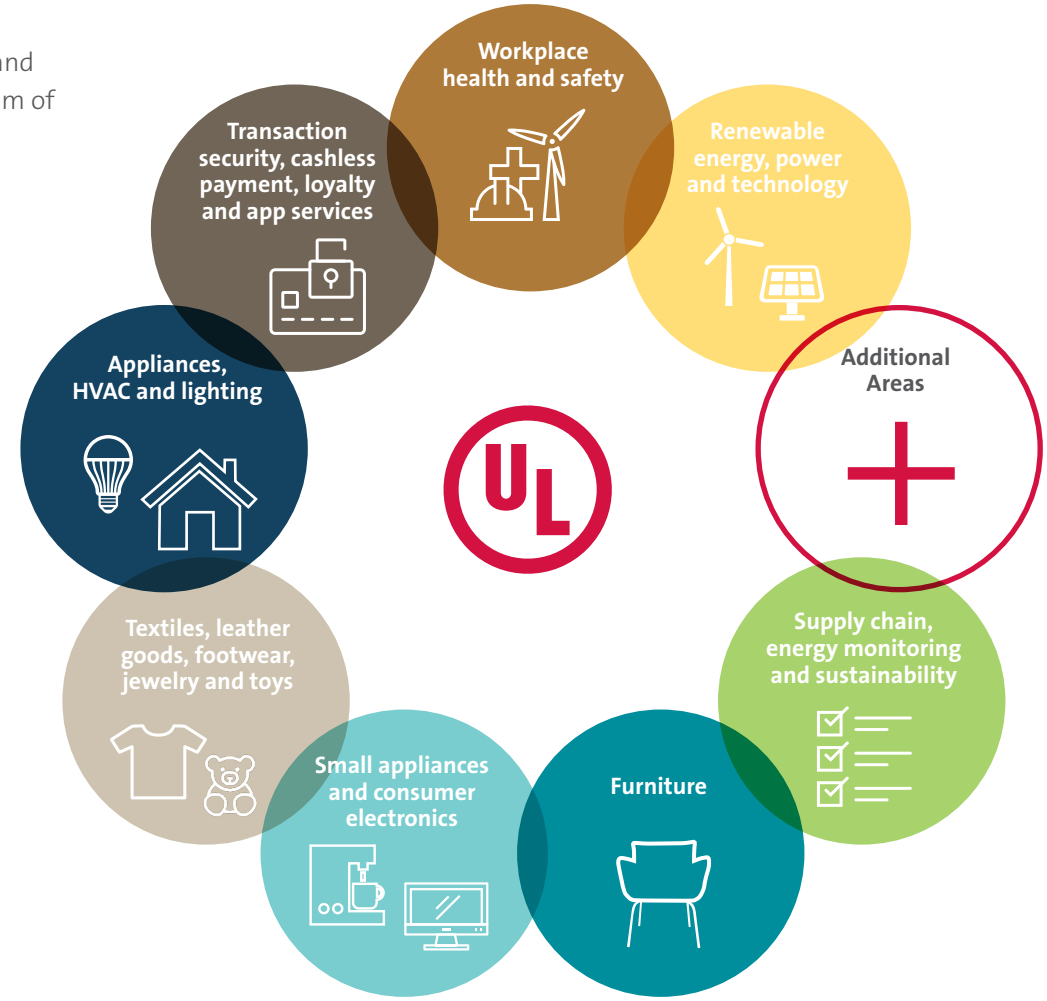
Working with UL

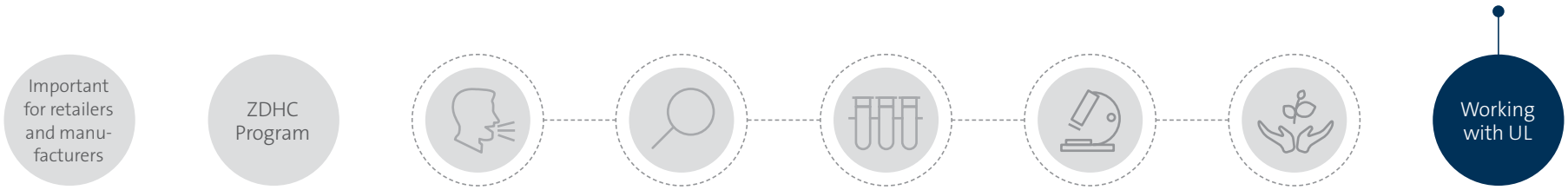
Benefit from our unique experience

Services for the retail industry

UL offers manufacturers and the retail industry flexible solutions to quickly and safely introduce quality products to global markets. We offer a broad spectrum of services that are aligned to the most important challenges of the industry:

- **Responsible sourcing and CSR reporting**
- **Supply chain management**
- **Quality assurance**
- **Chemical management**
- **Verification of marketing statements**
- **Brand protection**
- **Support for compliance requirements**
- **Global Market Access**
- **Cybersecurity**
- **Payment security and mobile payments**
- **Process management for more sustainability**
- **Product and production tests**
- **Private label services**





LET'S GET STARTED

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