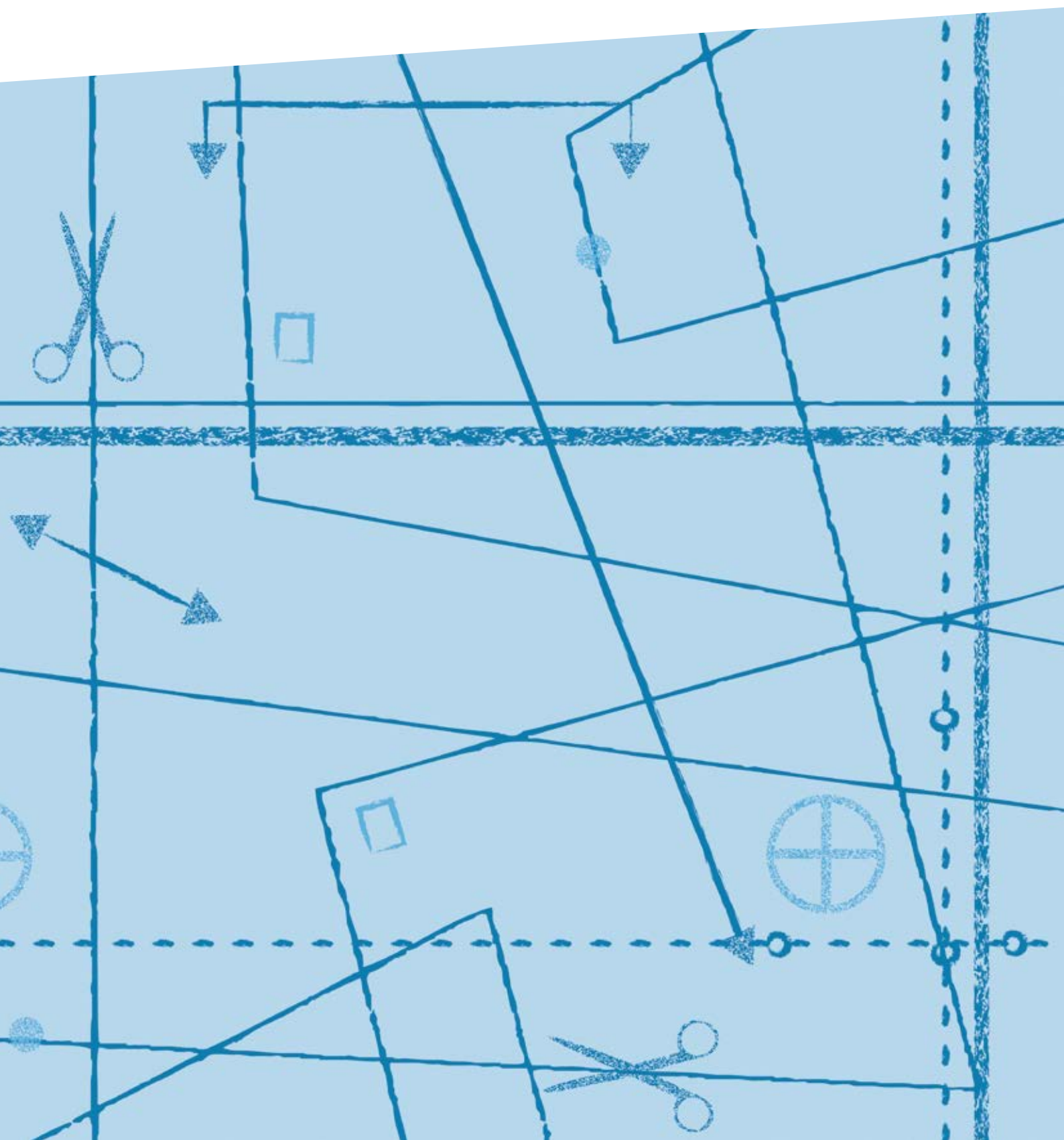


Guideline

Preventing the use of hazardous chemicals
in textile supply chains



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Content

- Publishing details 2**
- Foreword 5**
 - Partnership for Sustainable Textiles 5
- Chemical management in the textile production process..... 7**
 - Chemical management within the Partnership for Sustainable Textiles 8
 - Transparency in the supply chain 9
 - Hazardous chemicals 10
 - Recording an inventory of chemicals..... 10
 - MRSL/RSL lists of banned substances.....12
 - Wastewater management..... 14
- Chemical management in practice..... 16**
 - Checklist of Partnership requirements 16
 - Wastewater management checklist17
- Useful websites, links and videos 18**
 - Websites and documents..... 18
 - Videos..... 19
- Glossary.....20**



Foreword

**Dear Partnership members,
dear importers, manufacturers and suppliers,**

The Partnership for Sustainable Textiles brings together representatives from business, policy-making and civil society in order to strive for fairer and more environmentally friendly textile supply chains. One of the Partnership's key goals is to gradually eliminate chemicals, which impact humans and the environment negatively, from production facilities and, by extension, from the textile manufacturing process.

Effective chemical management requires the cooperation of all relevant stakeholders, as collective action is the only way to stop the use of hazardous chemicals in the textile industry.

These guidelines contain information on the Partnership's requirements in the field of chemical management and practical instructions how to implement these requirements. We encourage you to share these guidelines with business partners and all relevant upstream suppliers which particularly address suppliers with wet finishing processes.

We hope that you will find some useful ideas in this publication and we wish you every success in implementing these guidelines.

Yours sincerely,

Partnership for Sustainable Textiles

Partnership for Sustainable Textiles

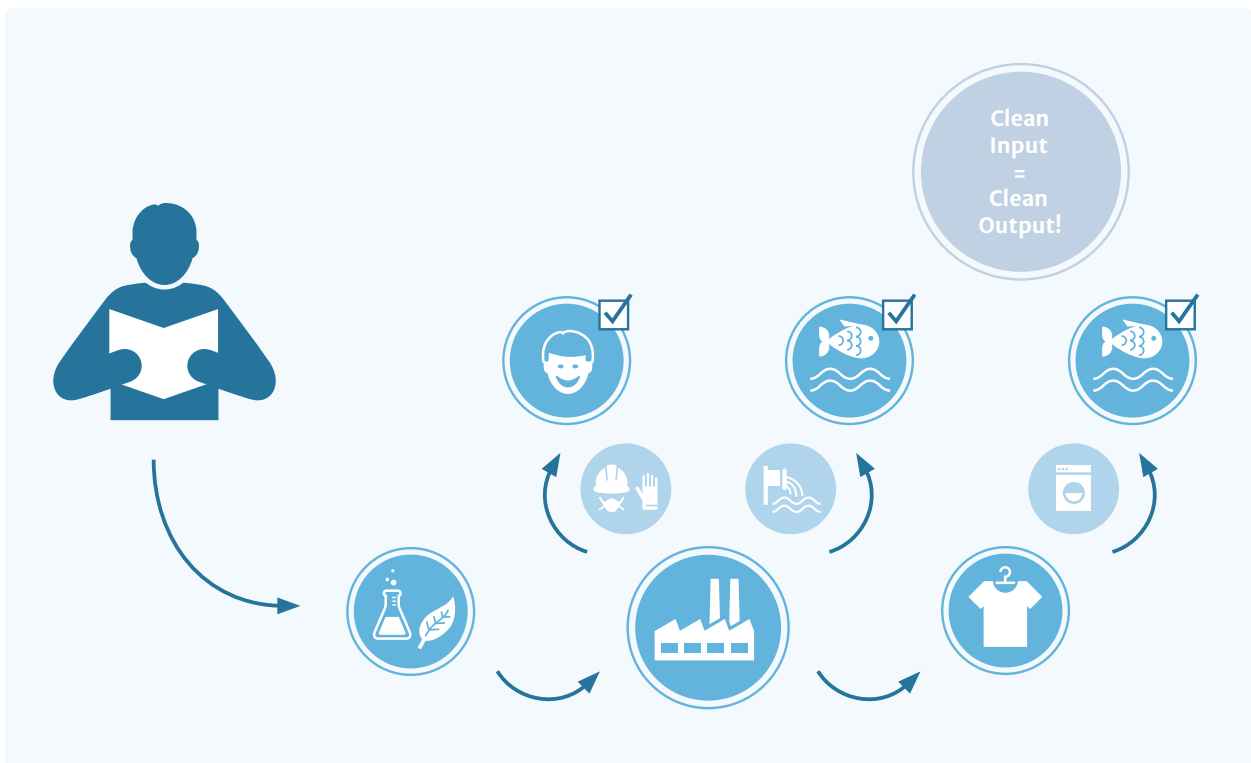
The Partnership for Sustainable Textiles is a multi-stakeholder initiative in which representatives from the fields of policy-making and business, standards organisations, trade unions and non-governmental organisations work together to improve the social, environmental and economic conditions in the textile supply chain. All Partnership members define specific, individual and common goals that become progressively more ambitious.



Chemical management in the textile production process

Due to the high usage of water and the high levels of water pollution it causes, the textile industry is contributing to the growing scarcity of clean drinking water. Chemicals used in different production steps within the textile value chain, such as wet finishing processes, can have a particularly detrimental effect on water quality and ecosystems. When contaminated wastewater enters local water bodies, it harms humans and the environment. Some chemicals used in the production process can have a considerably harmful impact on workers' health and toxic residues in the textiles pose a risk to consumer health. These are all good reasons for implementing a responsible chemical and environmental management process.

Moreover, it is in the interest of a forward-looking risk management and a systematic approach, to enhance transparency within one's own supply chain as a first step. As part of this process, it is necessary to identify factories and producers that use and store chemicals. Once businesses know where chemicals are used in their own supply chains, support in the introduction and implementation of a systematic chemical management system must be provided to the relevant actors. This requires a binding code of conduct for involved stakeholders. This code of conduct should entail specific instructions for individual work steps ensuring



conditions that protect humans and the environment from negative impacts. It is necessary to safeguard occupational health and safety and ensure the safe handling of chemicals. Furthermore, the risk analysis must screen relevant preliminary stages, products and processes for potential risks and take an inventory of all the chemicals used in order to identify which substances are used in general, which of them are authorised and which may not/no longer be used or only used on a restricted basis. As chemicals are primarily used in wet processes, a responsible chemical management process must also include the application of and compliance with wastewater standards.

Chemical management within the Partnership for Sustainable Textiles

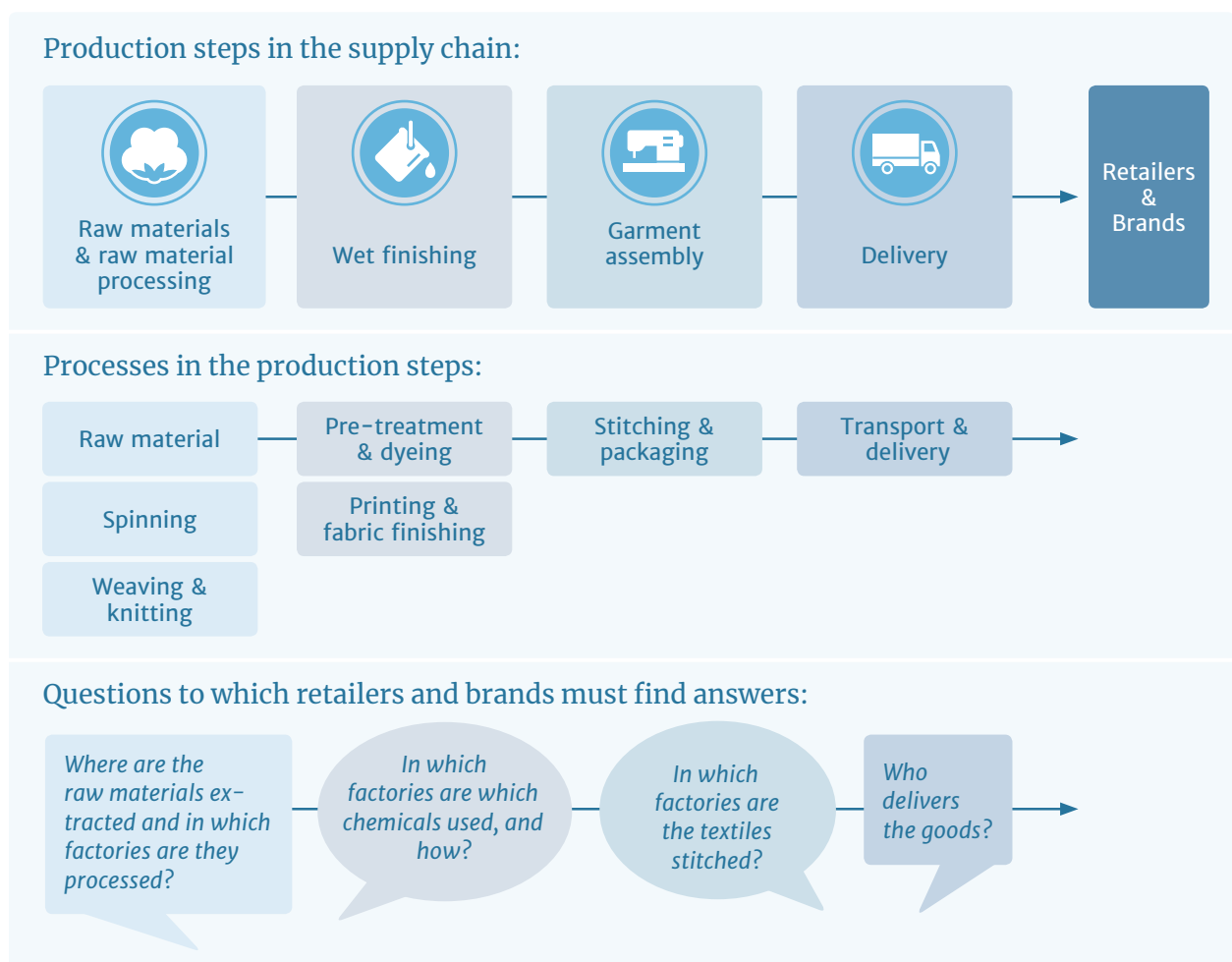
Textiles undergo numerous production steps on the way from the raw material to the finished product. This often involves that textiles are treated with chemicals that are classified as 'hazardous'. The Partnership for Sustainable Textiles has committed to enhance transparency concerning the use of chemicals and to gradually phase out the use of hazardous chemicals. To some extent, hazardous chemicals cannot be substituted permanently. In these cases it is necessary to ensure that they are handled safely. The goal is to end the use of hazardous chemicals.

In other words, gradually reduce, remove or substitute chemicals in the production process that can be for instance carcinogenic or mutagenic when used in certain dosages or specific ways.

Through its commitment to responsible chemical management, the Partnership for Sustainable Textiles is also contributing to the achievement of the 2030 Agenda – and its specified 17 global Sustainable Development Goals (SDGs) – which was agreed upon by the international community in 2015. SDG 12 'Ensure sustainable consumption and production patterns' contain an explicit target for chemical management. By 2020, chemicals and wastes should be exclusively disposed in an environmentally-friendly manner and their discharge into the air, water and soil should be significantly reduced. Greenpeace's DETOX campaign, the Zero Discharge of Hazardous Chemicals (ZDHC) initiative and the Strategic Approach to International Chemicals Management (SAICM) programme have similar goals.

Transparency in the supply chain

Achieving transparency in your own supply chain is a basic prerequisite for introducing and implementing improvements in chemical management. There are many different stages in the textile production process, from raw material extraction, processing, finishing and wet finishing (e.g. dyeing) via garment assembly (with the process steps of stitching and packaging) to the delivery of goods to retailers and brands. Most of the chemical-intensive process steps take place in the deeper supply chain, particularly when it comes to wet finishing, printing, fabric finishing (e.g. with flame retardants, and water-repellent and anti-bacterial properties), pre-treatment and dyeing. Retailers and brands should therefore record all production steps, with a particular focus on the process steps to wet finishing. Textile production involves the following production steps:



There are instruments and aids that make it easier to record the supply chain. Helpful software solutions are listed under *'Useful websites, links and videos'* on page 18.

Hazardous chemicals

Hazardous chemicals can be identified along the entire textile value chain, particularly where they are handled inappropriately. Especially in **wet finishing** – in particular the pre-treatment, dyeing, printing and fabric finishing – substances that can pose a health risk to humans and pollute the environment are frequently used. Chemicals also play a role in the garment assembly process, albeit to a lesser extent. This production step frequently involves the use of stain removers that often contain volatile chlorinated solvents such as tetrachloroethylene and trichloroethylene. Both substances are classified as carcinogenic chemicals. Regardless of the production step, the general goal of careful chemical management should be to prevent the use of hazardous chemicals in the textile production process.

Recording an inventory of chemicals

Keeping an inventory of the chemicals used and stored in factories is necessary in order to keep track of what chemicals are used, be able to conduct risk assessments, prevent unnecessary keeping of stocks, and to provide employees and, where relevant, operatives with information about the chemical hazards. For effective chemical management, it is necessary to identify clearly what chemicals are used, how they should be used, and what substitutes can be used in their place. This requires that established inventories are continuously updated and archived.

Here you can find a template of inventorying stored and used chemicals in textile finishing, agreed with ZDHC. The following overview shows a systematic approach that works with inventories:

Inventory of chemicals

Step 1



Draw up an inventory of the chemicals used and stored in the factory

- Trade name of the chemical
- Name of supplier & manufacturer
- Classification: substance or mixture
- Chemical composition (key components)
- CAS number
- C.I. No. for dyes
- SDS usability & SDS standard
- GHS classification
- Area of application
- Annual consumption (weight and volume)
- Material Safety stored in the factory Data Sheet (MSDS)
- Available human toxicological and ecotoxicological data



Step 2



Update the inventory continuously

- Add new chemicals
- Remove expired and obsolete chemicals from the inventory and dispose of them appropriately
- Update the inventory regularly if required



Step 3



Ensure access and archiving

- Archive the inventory and data sheets for at least 24 months
- Make the inventory and the corresponding data sheets available to anyone who enters this work area



MRSL/RSL lists of banned substances

In order to control hazardous substances and groups of substances, lists of banned substances are used. For chemicals, there are two types of lists. The Manufacturing Restricted Substances List (MRSL) contains chemicals that are either limited to specific dosages or include chemicals that are completely prohibited in the production process. The Restricted Substances List (RSL) relates to the finished product and lists substances and groups of substances that are either permitted to a limited extent or banned completely in the finished product.



For the list of groups of substances banned from the manufacturing process, the Partnership for Sustainable Textiles has agreed to adopt the rules of the Zero Discharge of Hazardous Chemicals (ZDHC) Programme. This means that members of the Partnership for Sustainable Textiles use the ZDHC MRSL or their own, even stricter, MRSL, committing themselves in the process to substituting gradually over 160 problematic chemicals in the textile production process with harmless substances. The ZDHC permits only restricted use of the following hazardous chemicals in wet finishing processes:

Overview of hazardous chemicals in wet finishing processes:



Pretreatment & dyeing

Printing & fabric finishing

Wet finishing

In which factories are which chemicals used, and how?



According to the ZDHC MRSL, use of the following substances and groups of substances is restricted

(for details of chemicals and the restrictions on individual substances, see the [ZDHC MRSL](#))

- Ethoxylates (Alkylphenols (APs) & alkylphenol PEOs): including all isomers
- Chlorobenzenes & chlorotoluenes
- Chlorophenols
- Azo dyes, which can separate carcinogenic amines
- Navy blue colourant EC No. 405-665-4
- Carcinogenic colourants
- Sensitising disperse dyes
- Short-chain chlorinated paraffins (SCCP)
- Brominated, chlorinated and phosphorous flame retardants
- Glycols
- Highly volatile chlorinated solvents
- Organotin compounds
- Polycyclic aromatic hydrocarbons (PAHs)
- Perfluorinated and polyfluorinated compounds (PFCs)
- Phthalates
- Heavy metals (arsenic, cadmium, lead, mercury, chromium (VI))
- Volatile organic compounds (VOCs)

Wastewater management





Failure to treat wastewater or to treat it properly poses a major challenge to the water sector, especially in arid producer countries. With a water consumption level of 80 to 120 litres per kilo of textile fabric, the textile sector is one of the largest industrial users of water. Wastewater can become heavily contaminated as a result of the use of environmentally harmful chemicals. The composition of the wastewater from the textile finishing facilities depends on a range of factors – the textile substrate (cotton, polyester, rayon, polyamide, etc., and fibre blends), its product type (woven fabric, knitted fabric, yarn, flocked fabric, ready-made textiles), the process sequences used (pre-treatment, dyeing, printing and fabric finishing processes), the chemical substances employed for this purpose (e.g. types of dyes applied) and the type of wastewater treatment. Depending on the specific interaction of factors, there are special conditions that must be fulfilled.

Wastewater regulations set out how contaminated water should be handled and thus make a key contribution to protecting humans and the environment. With its wastewater management goals, the Textiles Partnership is also contributing to the achievement of the United Nations' global Sustainable Development Goals (SDGs), in particular SDG 6: '*Ensure availability and sustainable management of water and sanitation for all*'. By 2030, the United Nations expect to see improvements in water quality as pollution is reduced, fewer hazardous chemicals and materials are released into the environment, the proportion of untreated wastewater is halved and recycling levels are substantially increased worldwide.

Good wastewater management begins with preventing hazardous substances from entering water in the first place, as well as proper treatment of wastewater and the resulting sludge. Wastewater and sludge analyses are instruments for ensuring and providing evidence of proper wastewater management. Where the threshold limit values of the applicable MRSL are exceeded, it is necessary to subsequently identify the reasons for this. Production facilities are asked to publish analysis findings on the IPE platform of the Institute of Public & Environmental Affairs¹, though publication is voluntary. In this way, production facilities give local stakeholders the opportunity to identify and understand the risks in their environment.

¹ <http://www.ipe.org.cn>

Brands and retail: Four steps to good wastewater management

Step 1		Conduct wastewater and sludge analyses , including all 11 groups of chemicals in the ZDHC MRSL.	<input checked="" type="checkbox"/>
Step 2		Review the report and compare it, for example, with the ZDHC Wastewater Guidelines in order to identify where threshold limit values have been exceeded.	<input checked="" type="checkbox"/>
Step 3		Conduct a cause and effect analysis and identify reasons for the threshold limit values being exceeded in order to take effective steps to reduce or prevent contaminant influx and treat the contaminated water.	<input checked="" type="checkbox"/>
Step 4		Disclose the analysis results on the IPE platform in order to give local stakeholders the opportunity to identify and understand the risks in their environment.	<input checked="" type="checkbox"/>

The Partnership for Sustainable Textiles has agreed on a [wastewater template](#) that enables the wastewater analysis values to be classified and transparently documented.

Chemical management in practice

There are many benefits from an effective chemical management process – it addresses the needs of the market, reduces the number and quantity of harmful substances in textiles for the consumer and thus increases product safety. At the same time, it anticipates rising expectations on the part of consumers who are placing increasing value on fair and environmentally friendly production processes. It reduces health risks to workers and reduces pollution in their working environment. At the same time, companies that practice responsible chemical management are better prepared for potential tightening of regulations.

Checklist of Partnership requirements

In order to meet the Partnership for Sustainable Textiles' requirements for responsible chemical management, it is necessary for all **Partnership members and/or their suppliers** to:

- appoint an officer responsible for the topic of chemicals;
- be aware of and understand the applicable RSL and MRSL;
- be familiar with the production facilities and identify where wet processes take place (pre-treatment, dyeing, printing, fabric finishing);
- communicate the RSL and MRSL to upstream suppliers and all involved departments.



So as to meet the Partnership for Sustainable Textiles' requirements for responsible chemical management, it is necessary for all **wet finishing facilities** to:

- appoint an officer responsible for the topic of chemicals;
- be aware of and understand the applicable RSL and MRSL;
- communicate the RSL and MRSL to upstream suppliers and all involved departments and ensure their implementation;
- keep an inventory of all chemicals;
- practise good housekeeping – ensure that all chemicals are stored and used in a proper and environmentally friendly manner;
- ensure that wastewater is properly treated before it is discharged into public water bodies / ensure that there is a proper sewer system;
- gradually substitute hazardous chemicals with safe chemicals.

Checklist of Wastewater management

Business partners of Partnership members must comply with at least one of the following wastewater regulations:

- ZDHC Wastewater Guidelines (see information on page 12);
- Certification by means of a standard, e.g. STeP by OEKO-TEX or bluesign® criteria;
- National standard in the country of origin, if this is higher than the aforementioned standards.

Useful websites, links and videos

Websites and documents

Textiles Partnership

What is the Textiles Partnership?	http://www.textilbuendnis.com/en/
How do I become a member?	http://www.textilbuendnis.com/en/become-a-member/

Transparency

Software solutions: CPI2 (Carbon Performance Improvement Initiative)	http://www.cpi2.org/
Software solutions: BEPI (Business Environmental Performance Initiative)/ Amfori since 2018	http://www.amfori.org/
German Fashion Association, Germany	http://www.germanfashion.net

Chemical management

Wastewater standards: ZDHC Wastewater Guidelines	http://www.roadmaptozero.com/fileadmin/pdf/Files_2016/ZDHC_Wastewater_Guidelines_Print.pdf
Wastewater standards: STeP by OEKO-TEX® standard	https://www.oekotex.com/en/business/certifications_and_services/step_by_oeko_tex/step_start.xhtml
Wastewater standards: bluesign®	https://www.bluesign.com/de/industry/infocenter/downloads
Wastewater standards: German Wastewater Ordinance (Appendix 38)	http://www.bmub.bund.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/wastewater_ordinance.pdf
Analysis results: IPE (Institute of Public & Environmental Affairs)	http://www.en.ipe.org.cn/IndustryRecord/Regulatory.aspx
Substitution of hazardous chemicals: bluefinder by bluesign®	https://www.bluesign.com/
Substitution: Subsport	https://www.subsport.eu/
Marketplace by ChemSec	https://marketplace.chemsec.org/
Textile Guide by ChemSec	http://textileguide.chemsec.org/
Chemical Footprint	https://www.chemicalfootprint.org/assess/for-mfgs

MRSL & RSL

MRSL: Manufacturing Restricted Substances List by ZDHC	http://www.roadmaptozero.com/fileadmin/pdf/MRSL_v1_1.pdf
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Videos

Chemical management systems	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10042
Risk assessment of chemicals	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10052
Understanding and interpreting the Material Safety Data Sheet (MSDS)	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10044
Chemical safety and handling training	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10046
Wastewater treatment	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10048
Hazardous waste management	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10050
Understanding restricted substances	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10033
Understanding and interpreting RSL	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10040
Best practices for RSL compliance	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10035
Introduction to MRSL	http://chemicals.cita.org.hk/mod/mediagallery/cita_video_item.php?g=2%20&%20video_id=10038

Glossary

Agenda 2030 & SDG



Under the title ‘Transforming our world: the 2030 Agenda for Sustainable Development’, the United Nations (UN) agreed on principles for sustainable development and derived 17 universal Sustainable Development Goals (SDGs).

Applicable to all UN member states, the SDGs cover all three dimensions of sustainable development and seek among other things to fight hunger and poverty, ensure decent work, encourage sustainable patterns of consumption and production, promote equal opportunities, conserve resources, and reduce inequality in standards of living.

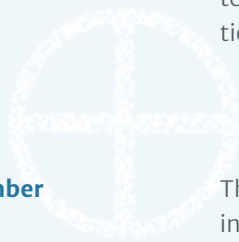
BEPI/Amfori since 2018

The Business Environmental Performance Initiative (BEPI), Amfori since 2018, is a business-driven initiative that assists companies with improving the environmental performance of factories in producer countries.

bluesign®

bluesign® is a system that uses a range of measures to prevent the use of hazardous chemicals along the textile value chain. These measures include physical assessments at the premises of manufacturers of preparations (e.g. textile auxiliaries, dyes), including checking and evaluation of all chemical substances and certification of semi-finished textile products such as yarns and fabrics, threshold value lists for chemical substances in chemical products and for textiles, positive lists for chemical products, certification of finished clothing, and assessments of brands.

CAS Number



The CAS (Chemical Abstracts Service) Number is an international standard for identifying chemical substances. All chemical substances are specified using a precise, three-part CAS Number. Water, for example, has the number: CAS 7732-18-5.

CICN

The CICN (Colour Index Constitution Number) classifies all common chemical colourants based on their chemical properties. CICNs can be used to make statements on chemical characteristics. This classification is separate from the CAS classification. The Colour Index (CI) is a reference database listing all common dyes and basic dye chemicals.

CPI2

The CPI2 (Carbon Performance Improvement Initiative) seeks to minimise negative social and environmental impacts in the global supply chain. The CPI2 Know-How Tool, an online platform, provides producers and companies with a comprehensive toolkit that enables them to improve their own production processes independently.

Detox Campaign

A Greenpeace initiative to combat the use of hazardous chemicals in the textile industry. With the Detox Commitment, international fashion brands, retailers and suppliers provide assurance that they will eliminate hazardous chemicals from their operations by 2020.

German Fashion

The German Fashion Association, Germany represents the German fashion industry and the interests of its members. It offers the member companies communications platforms and provides information on current developments in the textile sector.

GHS

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is a standardised system for classifying and labelling chemicals and their safety data sheets (see MSDS, p.17). The internationally recognised pictograms and the standardised system for classifying and labelling chemicals are used to avert hazards.

Good house-keeping

A range of practical measures that companies can implement in order to improve productivity, cut costs and reduce the harmful effects of production on the environment and on the health and safety of workers. These include measures such as the conscientious handling of raw materials, the reduction of toxic substances, energy-saving initiatives and the improvement of working conditions (e.g. occupational health and safety).

Hazardous chemicals

Substances that exhibit 'hazardous properties'. These include, for example, persistent, bioaccumulative and toxic substances (PBTs), very persistent and very bioaccumulative substances (vPvBs), carcinogenic, mutagenic and reprotoxic substances (CMRs), endocrine disruptors (EDs – hormone-active substances), and other substances with properties which equally give rise to concern.

Highly volatile chlorinated solvents

Chlorinated carbon compounds that demonstrate good degreasing properties. In the textile production process they are used to clean textiles and remove dyes. Their low boiling point and high vapour pressure mean that they escape easily into the environment. Highly volatile chlorinated solvents include tetrachloroethylene (PERC) and trichloroethylene (TCE).

MRSL

The Manufactured Restricted Substances List defines chemicals which must not be used or may only be used on a restricted basis in product manufacturing.

OEKO-TEX

A standardised, independent testing and certification system for textiles at all stages of processing and with all accessories.

RSL

The Restricted Substances List defines chemicals which must not be used or may only be used on a restricted basis in finished products.

SAICM

The Strategic Approach to International Chemicals Management (SAICM) is a political framework agreement on promoting chemical safety around the world. The goal is to achieve a solid chemical management system throughout the entire life cycle so that by 2020 chemicals are manufactured and used in such a way that significant detrimental impacts on the environment and human health are minimised.

SDS & MSDS

Safety Data Sheets (SDS) and Material Safety Data Sheets (MSDS) are key sources of information for chemical management. They provide safety information on the handling and organisation (procurement, storage, use and disposal) of chemicals, hazardous substances and mixtures.

SteP

Sustainable Textile Production by OEKO-TEX is a certification system designed to enable brands, manufacturers and trading companies to transparently and credibly communicate to the outside world their achievements with regard to sustainable production conditions.

The Chemical Footprint Project

Initiative that uses a benchmarking tool to provide information on chemical management in practice. It seeks to promote careful handling of chemicals and reduce the use of hazardous chemicals.

Wet finishing

The pre-treatment of textiles, involving the use of many different chemicals. This includes washing processes using bleaching agents, dyeing, printing and finishing, for example by adding water-repellent and antibacterial properties to fabrics.

ZDHC

The Zero Discharge of Hazardous Chemicals (ZDHC) Programme is a coalition of over 50 international companies working together to eliminate hazardous chemicals from the textile production process. Resources such as the list, the threshold limit values and the bans on the use of chemicals classified as hazardous serve as the basis for their cooperation.



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