

GETTING STARTED GUIDE FOR BRANDS

CHEMICALS MANAGEMENT

THIS IS A DRAFT DOCUMENT.

This guide is intended to be used as an educational tool and a starting point for action, with the goal of continuous improvement in brand sustainability practices as measured by the Higg Index Brand Environmental Module. It is each company's responsibility to apply this Guide in a way that is meaningful to their products and business. For more information or to join the Outdoor Industry Association's Chemicals Management Community of Practice, visit outdoorindustry.org/sustainable-business/chemicals-management/.

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Relevant Higg Index Brand Environmental Module (BEM) 2.0 indicators:

GEN B-4: Chemicals Management System

MAT B-2: Chemical Responsibility: RSL Content & Transparency

MAT B-3: Chemical Responsibility: RSL Verification

Note: Updated BEM 3.0 chemicals management indicators are currently in development and scheduled to be released early 2018.

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WHAT IS CHEMICALS MANAGEMENT AND WHY DOES IT MATTER?

In short, chemicals management is about managing risk, product quality and brand reputation by making better choices that maintain product integrity and protect human health and the environment. A strong chemicals management program can minimize your brand's risk of:

- Supply chain disruptions and lost sales.
- Loss of design flexibility as the scarcity of viable options increases.
- Broken consumer trust and confidence.
- Regulatory violations and fines.
- Delay of production.
- Customs prohibiting entry into country.
- Conflict with stated brand values.
- Decreased employee morale.

Your brand is at risk for the chemicals used to make your products whether you manufacture the products in your own facilities or outsource your manufacturing, as these examples show:

[Nordstrom's girls' shoes recalled due to lead paint](#)

[Patagonia terminates contract with supplier after bottles test positive for BPA](#)

[Detox protest at Nike store in Hong Kong](#)

[Formaldehyde in apparel](#)

Regulatory requirements set limits and restrictions on the chemicals that can be in your products. Non-compliance to these regulations can result in product prevented from being sold in a country, fines for non-compliance, or recalls. Legislation may require a product to be labeled if it contains substances known to cause cancer, for example. Examples of legislation include:

- [California Proposition 65 \("Prop 65"\)](#): requires warnings on product if concentrations of chemicals listed in this legislation exceed certain risk-based health limits.
- [EU REACH](#): Registration, Evaluation, Authorization, and Restriction of Chemical Substances (REACH) is a European regulation regarding safe use of chemicals. The European Chemical Agency (ECHA) maintains a list of Substances of Very High Concern (SVHC). REACH requires manufacturers and importers to report the presence of a SVHC in products which is either intentionally added at any concentration, or present as a contaminant (not intentionally added) at over 0.1% by weight (1000 ppm).
- [WA CSPA](#): The U.S. State of Washington's Children's Safe Products Act (WA CSPA) is a toxics reporting regulation. The Washington State Department of Ecology maintains a list of Chemicals of High Concern to Children (CHCC). WA CSPA requires US importers to report the presence of a CHCC that is either intentionally added at any concentration, or present as a contaminant (not intentionally added) at over 100 ppm.

Poor chemicals management at a facility can lead to adverse impacts on human health (including risk of cancer, neurological and reproductive impairments) and the environment (such as ground and surface water contamination, aquatic toxicity, air pollution). A company that proactively seeks to minimize or eliminate human health and environmental impacts in its products, in its facilities and with supply chain partners builds consumer trust, employee morale, and ensures compliance to regulatory requirements. Better chemicals management can lead to better products, in the form of improved quality and consistency. It can also position brands as leaders in [emerging efforts to publicly report and rank companies' chemicals management practices as a factor in optimizing investment strategies](#).

For many brands, “chemicals management” begins and ends with implementation of a Restricted Substances List (RSL) that specifies chemicals not allowed in the finished product. But a robust chemicals management program is much more than this list. It involves:

- a means to stay up to date with legal requirements concerning chemical use;
- a system to ensure RSL and regulatory compliance for your products and across your supply chain;
- a system for sourcing materials that ensures appropriate chemicals management practices are in place;
- awareness about the chemicals used in production processes and residing in final products, and their impacts;
- proactive steps to innovate and use “positive” chemistries, and synchronizing them with product performance needs (this a more advanced step).

This guide is primarily focused on the first three bullets above as foundational elements of a brand's overall chemicals management program.

FOUNDATIONAL ACTIONS

“Our Higg score on chemicals management is admittedly low. We have an RSL, but we struggle to keep up with the changing regulatory landscape or the latest “chemicals of concern” to ensure its comprehensive and up-to-date. We receive signed documentation from our Tier 1 suppliers acknowledging compliance with our RSL, but lack a system to confirm this. We are aware of some of the hot button issues in our industry that impact the products we make – e.g. DWRs and flame retardants. But our relationships with Tier 2 and beyond aren’t contractual – what can we really do there? We want to better manage our risk, and protect customers, workers and the environment, but we just aren’t sure how to move forward.”

If you found yourself nodding your head ... read on. Here are some steps you can take to lay the foundation for building a more robust chemicals management program. Each of these steps are explained in further detail, below.



Know

Create a chemicals management “baseline”

- Know your materials, who makes them, and where – build an inventory (see Getting Started Guide – Sustainable Materials)
- Know your suppliers’ current chemicals management practices – what are they already doing/not? (regulatory and RSL compliance, certifications, Higg Index assessment)
- Know where hazardous chemicals may be used – prioritize high-risk products/materials



Act

Build your chemicals management program

- Ensure regulatory and RSL compliance
- Choose certified materials/facilities
- Engage your supply chain on performance improvement



Track

Establish your chemicals management strategy, accountability and methods to track progress.

KNOW: CREATE A CHEMICALS MANAGEMENT “BASELINE”

To have a clear picture of where you are today with respect to chemicals management, begin an inventory of the types of materials in your products, key attributes of those materials, and the supplier(s) that produce each material. The steps to create this inventory can be found in the “Foundational Actions” section of the Getting Started Guide – Sustainable Materials.

Once you have an inventory of materials and suppliers, you can take the following actions to develop a chemical management baseline:

Reach out to your suppliers and ask:

- Do you currently validate compliance with any brand-specific or industry-wide Restricted Substance Lists (RSLs) (e.g. chemicals in the final material or product) or Manufacturing Restricted Substance Lists (MRSLs) (e.g. chemicals used in the manufacturing process)?
 - » What are the requirements from these brands?
 - » What programs or processes do you have in place to ensure compliance to the brands’ RSL and MRSL requirements?
- What programs and processes do you have in place to ensure compliance to regulatory requirements for chemicals/substances in products, and for all regulatory requirements applicable to your operations in each geographic location?
- Do you participate in any third-party verification programs or certifications for chemical management (e.g. bluesign, OEKO-TEX programs)?
- Have you completed the Higg Index Facility Environmental Module, ZDHC Audit Protocol, OEKO-TEX STeP, or another assessment/audit for the current/most recent year, and would you be willing to share results?

Develop a basic understanding your chemical “hotspots” – where are you most at risk?

Perform a high-level review of each of your brand’s product categories (e.g. adult footwear, children/infant footwear, adult clothing, children/infant clothing, beverage containers, accessories, etc.) to determine high-risk areas.

- High-risks issues for each product category can be identified by researching global regulations, industry standards, notable recalls, and campaigns by consumers watchdog groups and environmental organizations. Examples of common issues include:
 - » Lead in paints or metals
 - » Phthalates in plastics
 - » Restricted azo dyes in textiles
 - » DMF contamination
 - » Formaldehyde in textiles
 - » Chromium VI in leather
 - » Nickel release from metal

There are more than 80,000 untested chemicals in use today¹ (and an estimated 4,000 chemicals and countless formulations used in apparel and footwear). Scientists in academia, business, government, and nonprofits have identified chemicals that may pose a high risk to humans (consumers, workers) and/or the environment. Many of these chemicals of concern are listed in legislation or company specific RSLs that ban or restrict their use, but are still used in apparel, footwear and outdoor gear products and processes. The table below includes examples of high-risk chemical substances or classes and where they might show up in your materials and products. Those marked with an asterisk (*) below have been identified by scientific experts as broad “classes” or “families” of chemicals of concern. See [“Six Classes Webinar Series” from the Green Science Policy Institute](#) for more information.

Use the table below to flag potential high-risk product categories, materials, processes and/or suppliers (“hotspots”) in your inventory.

Table 1: High-Risk Chemical Substances/Classes and Where They May be Found

Note: This is not an exhaustive list. Brands must perform their own due diligence to determine the areas of risk.

Chemical substances/classes	May be found in these types of materials
Alkylphenol (AP)	Natural Fibers, Synthetic Fibers, Leather, Synthetic Leather, Screenprint, Inks, Heat Transfers, Adhesives
Alkylphenol Ethoxoylates (APEO)	Natural Fibers, Synthetic Fibers, Lewather, Synthetic Leather, Screenprint, Inks, Heat Transfers, Adhesives
Antimicrobials*	Anti-odor Materials: Natural Fibers, Synthetic Fibers, Plastics, Leather, Synthetic Leather, Screenprint, Inks, Heat Transfers
Azo Dyes (Restricted ones)	Natural Fibers, Synthetic Fibers, Leather, Screenprint, Inks, Heat Transfers
Biocides	Anti-Odor Fabrics
Bisphenol A (BPA)*	Beverage and Food Containers (Water bottles, etc.)
Chrome VI	Leather
Dimethyl Formamide (DMF)	Synthetic Leather
Disperse Dyes	Synthetic Fibers, Leather
Flame Retardants*	Natural Fibers, Synthetic Fibers, Leather, Synthetic Leather, Plastics
Formaldehyde	Natural Fibers, Synthetic Fibers, Plastics, Leather, Synthetic Leather, Screenprint, Inks, Heat Transfers, Adhesives
Heavy Metals (Cadmium, Lead, Mercury, Silver) *	Natural Fibers, Synthetic Fibers, Plastics, Leather, Synthetic Leather, Inks, Anti-Odor Fabrics, Screenprint, Inks, Heat Transfers
Nickel	Metal Items
Organotin	Plastics, Rubber, Leather, Synthetic Leather, Screenprint, Inks, Heat Transfers

1. Source: Green Science Policy Institute, “Six Classes.” <http://greensciencepolicy.org/topics/six-classes/>

Chemical substances/classes	May be found in these types of materials
Organic Solvents*	Natural Fibers, Synthetic Fibers, Plastics, Leather, Synthetic Leather, Inks, Anti-Odor Fabrics, Screenprint, Inks, Heat Transfers
Organophosphorus and Halogenated Flame Retardants	Flame Retardant Materials: Natural Fibers, Synthetic Fibers, Leather, Synthetic Leather
Perfluorinated and polyfluorinated chemicals (PFC) (includes: PFOA, PFOS, PTFE and PFAS)*	Durable Water Repellant (DWR) Materials - Water, Stain, Dirt and Oil Repellant or Resistant Materials: Natural Fibers, Synthetic Fibers, Leather, Synthetic Leather
Phthalates*	Plastics, Rubber, Synthetic Leather, Screenprint, Inks, Heat Transfers
Polyvinyl Chloride (PVC)	Plastics, Rubber, Leather, Synthetic Leather, Screenprint, Inks, Heat Transfers

ACT: BUILD YOUR CHEMICALS MANAGEMENT PROGRAM

1. Ensure regulatory & RSL compliance:

There are numerous local, national and international laws and regulations that dictate how retailers, brands and suppliers should manage chemicals used in manufacturing processes and in products; and these laws are constantly changing and increasing. Every retailer, brand and supplier needs a reliable system for tracking these regulations and for determining how their chemical management programs need to respond to these requirements. In-house tracking of global regulations is typically done only by the largest companies; many companies turn to third party service providers to assist them. Here are a few resources:

- » **For supply chain legal compliance** (regulations that impact facility operations and processes in the supply chain anywhere in the world; separate from product): Once you have a complete inventory of your materials and the respective supplier/location, you will need to map those locations to relevant country, state/regional and local regulations and implement mechanisms to ensure supplier compliance. Admittedly this is not an easy task as it requires an understanding of regulations at the point of manufacture. The bluesign system (more info below) fulfills this action for its system partners; a facility audit verifies compliance with bluesign criteria along with local regulations, whichever is most stringent. OEKO-TEX STeP certification (more info below) covers this as well.
- » **For material and product legal compliance** (where products are sold, e.g. consumer safety regulations): You will need to map the end-markets for your products to the landscape of consumer safety regulations globally. As a first step, it may be a worthwhile investment to enlist the services of a qualified third party to undertake this initial mapping and provide recommended actions to ensure compliance. A number of law firms offer this specialization, as do leading verification organizations such as SGS, Intertek and others. Many of these firms also offer services to assist organizations in complying with obligations of specific legislation, such as REACH. Ongoing tracking of global regulations and the implications for your products could be performed in-house using sites such as [Chemical Watch](#), which provides monitoring and news related to global and local chemical regulations for the textile sector and others. The bluesign system achieves this task by ensuring that when a material is “bluesign® approved”, it automatically meets all relevant consumer product regulations. OEKO-TEX STANDARD 100 textiles can only be certified if all components meet the specified requirements. Test criteria are updated annually and go beyond existing regulations.

A business may create its own **restricted substances list (RSL)** or adopt one or several that already exist, which were developed by another company, a trade group, a government agency or non-governmental organization. Here are three existing, widely-used, industry-relevant RSLs:



The **AAFA RSL** is intended to provide apparel and footwear companies with information related to regulations and laws that restrict or ban certain chemicals and substances in finished home textile, apparel, and footwear products around the world. The AAFA list is a good “baseline” of all relevant regulations globally.



The **AFIRM RSL** provides up-to-date limits based on newest regulations and other agreements (can be beyond regulations / precautionary), corresponding test methods and potential uses of the chemicals in an easy-to-read format. It now includes a change log as well as a risk matrix listing out materials in which restricted substances are likely to be found. The AFIRM list is a good summary of the requirements for the brands who make up the work group.

[Section 5 and Appendix C of the AFIRM Supplier Toolkit](#) provides best practice guidance on ensuring compliance with regulatory requirements and corporate RSLs, including a Model Brand Program Protocol for Testing Clothing.



The **bluesign RSL** is a comprehensive list of substances and corresponding test methods and substance limit values, based upon a complete “systems” view of the material and product supply chain. As such the bluesign RSL provides guidance that considers all aspects of the production process and consumer safety.

The bluesign RSL is product focused (what could be present in finished products). The bluesign system Substance List (BSSL), also available for download, is extremely comprehensive for all substances that may be present in the production of materials, not just those present in final materials or products.



The **OEKO-TEX STANDARD 100 RSL** includes test criteria, limit values and test methods for several hundred regulated substances as well as numerous harmful chemicals even if they are not yet legally regulated.

Chemical “Watch” Lists

There may be chemicals of concern for which concerns may have been raised, however more information is sought; or, that a brand might want to phase out over time. In this manner, a **Substances of Concern List (SoCL)** can be developed wherein chemicals may be migrated to the RSL if and when appropriate. An example is permethrin, a chemical finish applied to clothing to increase insect-repellency. While considered low-risk to human health and not currently regulated, permethrin is highly toxic to fish and other aquatic life and studies recommend it should be kept out of all bodies of water. Depending on your organization’s priorities, permethrin could be on an RSL or SoCL.

2. Choose certified materials and/or facilities

For priority products/materials/chemistries (based on your look into hotspots, above), source certified materials, from certified factories.

For example:

- » Brands who are **bluesign system partners** have access to a complete database of bluesign certified materials, which ensures both finished material and the facility in which it is produced meet stringent criteria for chemical safety. The OIA offers its member brands discounted access to join the bluesign system. Brands who are not bluesign system partners can still source bluesign-certified materials.
- » **OEKO-TEX** provides a free **online directory** (Buying Guide) of all OEKO-TEX certified products and manufacturers for the certification programs listed below:
 - **STeP (for facilities)**: A textile certification that covers the production facilities of all processing stages from fiber production, spinning mills, weaving mills, knitting mills to finishing facilities and manufacturers of ready-made textile items, STeP analyzes chemical management, environmental performance, environmental management, occupational health and safety, social responsibility and quality management at the facilities.
 - **STANDARD 100** (for materials/products): A comprehensive, third-party testing and certification system for textile products at all stages of production. Textiles can only be certified if all components meet the specified requirements. Test criteria are updated annually and go beyond existing regulations.
 - **Made In Green** combines the STANDARD 100 certification for product safety and STeP certification for facility processes into one.
 - **ECO PASSPORT** (certified chemical formulations) ensures a facility is properly managing input chemistry, and screens and approves textile chemical formulations as well as limits or eliminates 1,100 chemicals of concern.

3. Engage your supply chain on improvements

There are a variety of business reasons a brand may choose to source from one facility vs. another; environmental and worker health & safety practices are among many criteria. For those facilities and/or materials that are not yet certified through a credible third party such as those described above, there are several pathways to drive responsible chemicals management practices:

- » As a first step, ask your strategic supply chain partners (Tier 1, 2, 3 – as identified through your hotspot analysis) to assess their chemicals management performance using the Higg Index Facility Environmental Module, and connect with you to exchange results. The Chemicals Management indicators will give both brand and supplier a clearer picture of how mature and comprehensive a facility’s chemicals management program is, and highlight opportunities to improve from which partnership strategies and specific action plans can be built. For example, does the facility have a dedicated person responsible for chemicals management? Does the manufacturer have an overall chemicals management policy,

and a process to review chemicals prior to purchase? Can the facility demonstrate EHS processes are in place to manage chemical hazards in the workplace and beyond (i.e. PPE, ventilation, hazardous waste)? Are you ready to work on targeted improvements in priority areas with your manufacturer partners? See “What’s Next” (below) for links to free chemicals management guidance and training material for manufacturers.

- » Encourage your suppliers to implement one of the third-party certifications described above. These programs provide more hands-on support to drive they types of performance improvements that are measured in the Higg Index.
- » Identify alternative suppliers and/or materials. As mentioned above, brands who are not bluesign system partners can still source bluesign-certified materials. See also: Getting Started Guide – Sustainable Materials for more information on comparing and making informed decisions on environmentally preferred materials.

TRACK: ESTABLISH A STRATEGY, ACCOUNTABILITY AND METHODS TO TRACK PROGRESS

Develop your strategy.

Creating an overall strategy ensures there is a roadmap to guide your chemical management program.

When developing a strategy:

- Determine your “North Star” objective.
 - » Consider how the objective protects and enhances your brand reputation, manages chemical use in the supply chain, works to eliminate the use of restricted chemicals, and promotes the use of sustainable chemicals.
- Set goals.
 - » When developing goals ensure they are “S.M.A.R.T.”
 - Specific
 - Measurable
 - Achievable
 - Relevant
 - Time Bound
 - » Consider setting ambitious goals (e.g., 100% bluesign approved materials by [DATE]). Setting ambitious, but realistic goals creates focus and a sense of urgency, which in turn impacts organizational priorities.
 - » Set priorities based on risk, influence and materiality.
- Determine actions required to achieve your goals.
 - » Examples include:
 - Adopt and implement the AFIRM, bluesign’s, or AAFA’s RSL
 - Roll out testing and verification programs to ensure your suppliers, materials and products meet the RSL requirements
 - Partner with organizations like bluesign and OEKO-TEX
 - Set objectives and a plan to roll out the Higg Index Facility Environmental Module with your manufacturers

Establish accountability and integrate responsibilities throughout the business.

- Who needs to be involved?
 - » Roles and responsibilities should extend to sourcing personnel, buyers, materials developers, product managers and key decision makers.
- Determine how they need to be involved
 - » Day-to-day responsibilities, overall approval, sign-offs, etc.
 - » Define the role for each persons and team/department
- Make people and teams/department accountable
 - » Build accountability into job requirements, annual reviews, department goals, etc.

PRO TIP:

The personnel assigned responsibilities for the chemical management program at your company can have a variety of backgrounds and skill-sets. An ideal background may include experience and expertise in some or all of the following:

- Material & product sourcing and development
- Manufacturing processes (knitting, weaving, dyeing, tanning, treating, finishing, coatings, etc.)
- Textile Chemistry
- Product Safety
- Product Regulatory Requirements
- Sustainability programs
- Environment, Health and Safety (EHS) programs

Chemical Management expertise and skills can be enhanced through training and seminars offered by AFIRM, SAC, ZDHC, bluesign, OEKO-TEX, SGS, Intertek, Green Chemistry & Commerce Council (GC3)

Consider how to integrate chemicals management into business systems, processes and decision making, including integration into:

- Material and product data management systems
 - » Integrate additional fields into your company's existing material and product tracking systems and databases such as PDMs, PLMs, spreadsheets, etc. These may include:
 - RSL test results (Pass/Fail, description of failure, and link or attachment to test results)
 - Standard/certifications such as bluesign or OEKO-TEX (link or attachment to standard/certification)
 - High-risk and/or positive chemistry attributes
- Supplier data systems
 - Keep an updated list of all suppliers. Consider including:
 - Location(s)/address(es) of production facilities
 - Types of processes on site
 - Chemical management programs, certifications, assessments, standards etc.
 - KPIS from the Higg Index Facility Environmental Module (FEM)
- Sourcing decisions and tracking
 - » Integrate suppliers' chemical management performance, compliance, certifications, and standards into new supplier requirements and reviews of current suppliers.
- Material selection, purchasing and developing decisions
 - » Integrate chemical management program (e.g. RSL testing) into key dates and gates for material selection and development

Track and report on progress. Tracking progress over time enables you to assess your programs, materials, product teams, and suppliers and make adjustments based on successes and challenges. Integrating metrics into existing internal reports (known as balanced scorecards) ensures these topics stay top of mind.

Create policies and document procedures. Formalize policies and procedures in written documents. Policies and procedures ensure consistency through the business and that programs continue to thrive after personal changes.

- Procedures should document the steps to manage, improve, and track materials and suppliers – expanding on and expanding the steps outlined in this guide.
- Policies summarize aspirations and time-bound expectations and may include requirement (e.g., Elimination of specific high-risk chemicals from materials or processes)
- Consider having leadership sign the policies to give them more weight

WHAT'S NEXT?

Ready to go further? Here are some progressive actions you can take:

Build capacity for continued improvements. Once you have a strategy in place and are clear on specific actions / areas for performance improvement in your supply chain, you can provide guidelines and targeted trainings for your manufacturers on chemicals management fundamentals, best practices and common challenges. The OIA has partnered with Sumerra and several collaborating brands to produce a Chemicals Management Guide & Training for Manufacturers. This free and publicly available guide includes a reference manual, training modules and activities and can be used in whole or in part, by brands and suppliers anywhere, for any product and in any "tier," either independently or in collaboration with qualified third-party trainers.

Partner to build chemical data knowledge on priority products/materials. As part of an overall robust chemicals management program, brands may encourage manufacturers to maintain a comprehensive chemical inventory for all chemicals used on site, including GHS compliant SDS. If you are working with a third party such as bluesign or OEKO-TEX to certify materials, then detailed chemical data (to the CAS level) is already being collected and assessed as part of the certification process. If you are not working with a third party, you can prepare to gather your own data on chemicals used, and to assess them for known hazards and risk in order to determine appropriate actions, including prioritizing chemicals for possible phase out/alternatives assessment.

KEY RESOURCES

American Apparel & Footwear Association (AAFA):

AAFA represents more than 1,000 brands, retailers, and manufacturers. AAFA is a public policy and political voice of the apparel and footwear industry. AAFA provides expertise in supply chain management, trade policy, and brand protection, to help members navigate the complex regulatory environment and lower costs.

AAFA Restricted Substance List (RSL): The RSL provides apparel and footwear companies with information related to regulations and laws that restrict or ban certain chemicals and substances in finished home textile, apparel, and footwear products around the world.

AFIRM:

The AFIRM Group was established with the mission “to reduce the use and impact of harmful substances in the apparel and footwear supply chain. AFIRM has developed an industry RSL, seminars and toolkits.

AFIRM RSL: The RSL provides up-to-date limits based on newest regulations and other agreements (beyond regulations); corresponding test methods; and potential uses of the chemicals in an easy-to-read format. It includes a change log as well as a risk matrix listing out materials in which restricted substances are likely to be found.

AFIRM Toolkit: This chemical guidance document details technical information about restricted substances in apparel and footwear production processes.

bluesign:

The bluesign system brings the entire textile supply chain together to reduce the impact on people and the environment. Their vision is to unite the textile supply chain in a proactive manner, eliminate substances posing risks to people and the environment at the beginning of the supply network, ensure responsible use of resources throughout the value chain, and ensure safety for people and the environment.

Bluesign bluefinder: Available to suppliers, this is a database of sustainable textile preparations that meet bluesign evaluation criteria for both the material itself along with the organization that produced it. This includes dye systems, finishes, detergents and other process chemicals used in the manufacturing process.

Bluesign blueguide: Ensures both finished material and the facility in which it is produced meet stringent criteria for chemical safety. For the facility, it includes all potential methods of emission (water, air, waste) which are regularly found in textile production. Approved materials are listed in the bluesign blueguide, the database available to brands.

Bluesign production site screening: The screening includes evaluation of complexity of production site (processes and chemistry), evaluation of inputs (fibers, chemicals, dyes, energy, water), analysis of production processes regarding resource efficiency, control of occupational health and safety aspects, evaluation of outputs (air, water, waste) including end of pipe situation, control of compliance to local laws and regulations, and report of all findings including action plan to comply with bluesign criteria.

Green Chemistry & Commerce Council (GC3)

The Green Chemistry & Commerce Council (GC3) is a cross sectoral, business-to-business network of companies and other organizations working collaboratively to advance green chemistry across sectors and supply chains. GC3 provides trainings, tools and assessments of existing systems for chemical data management.

Intertek:

Intertek provides quality assurance, testing, inspection and certification services. Intertek offers businesses identification and testing services for restricted substances in products to comply with various regional regulatory requirements. Intertek also helps companies develop and enhance business-specific RSLs or comply with existing RSL requirements.

OEKO-TEX:

Buying Guide: A free online directory of OEKO-TEX certified products and manufacturers

STeP (for facilities): A textile certification that covers the production facilities of all processing stages from fiber production, spinning mills, weaving mills, knitting mills to finishing facilities and manufacturers of ready-made textile items, STeP analyzes chemical management, environmental performance, environmental management, occupational health and safety, social responsibility and quality management at the facilities.

STANDARD 100 (for materials/products): A comprehensive, third-party testing and certification system for textile products at all stages of production. Textiles can only be certified if all components meet the specified requirements. Test criteria are updated annually and go beyond existing regulations.

Made In Green combines the STANDARD 100 certification for product safety and STeP certification for facility processes into one.

ECO PASSPORT (certified chemical formulations) ensures a facility is properly managing input chemistry, and screens and approves textile chemical formulations as well as limits or eliminates 1,100 chemicals of concern.

Sustainable Apparel Coalition (SAC):

The SAC is an organization representing approximately 40% of the global apparel, footwear, and home textiles market. It is comprised of over 175 brands, retailers, manufacturers, academic experts, government, and non-governmental organizations that are working to lead the industry towards a more sustainable future.

The SAC has created a suite of Higg Index Tools. The Higg Index tools can be found at <http://product.higg.org/product-tools> and <http://apparelcoalition.org/facility-tools/>. This includes the FEM:

SAC's Higg Facility Environmental Module (FEM): The FEM assesses and measures the environmental performance of suppliers. The FEM assesses chemical use and management, as well as environmental management systems, energy use and greenhouse gas emissions, water use, wastewater, air emissions, and waste management at production facilities.

SGS:

SGS provides verification, testing and certifications. They operate a network of more than 2,000 offices and laboratories around the world. SGS offers chemical tests to ensure materials and products meet regulatory limits and are safe for customers.

Zero Discharge of Hazardous Chemicals (ZDHC):

The ZDHC Program takes a holistic approach to tackling the issue of hazardous chemicals in the global textile, leather and footwear value chain. ZDHC's goal is to eliminate the use of priority chemicals by focusing on the following areas: Manufacturing Restricted Substances List (MRSL) & Conformity Guidance, Wastewater Quality, Audit Protocol, Research, Data and Disclosure, and Training.

ZDHC Chemicals Management System: (CMS) Guidance Manual: The CMS Guidance Manual focuses on the approach, structure and documentation needed to create and support a chemical management program to meet the ZDHC goals. The CMS is an effective framework for improving overall environmental and chemical performance while achieving the goal of zero discharge.

ZDHC Manufacturing Restricted Substances List (MRSL) & Conformance Guidance: The MRSL V1.1 is a list of chemical substances banned from intentional use in facilities that process textile materials and trim parts in apparel and footwear. The MRSL establishes acceptable concentration limits for substances in chemical formulations used within manufacturing facilities. The limits are designed to eliminate the possibility of intentional use of listed substances. The intent of the MRSL is to manage the input of chemicals to the suppliers and remove those hazardous substances from the manufacturing process

ZDHC Audit Protocol: The ZDHC Audit Protocol provides brands with the capability to initiate and self-assess safe handling of chemicals with objectives at foundational, progressive and aspirational levels. The ZDHC Audit Protocol work is supported by the ZDHC Chemical Management System (CMS) Guidance Manual and the ZDHC Audit Tool Package.

DEFINITIONS

Bioaccumulative: Bioaccumulative is property causing the substances to build up (accumulate) in the body. Such substances build up in fat tissue in the body and cannot be excreted by the body.

Chemical Abstract Service (CAS) Number: The CAS number is a unique number that identifies a particular chemical structure. While there may be various synonyms and different naming conventions for a chemical, there is only one CAS number. Mixtures of chemicals do not have CAS numbers; only individual chemical components have CAS numbers. When there is doubt about the chemical name, always check the CAS number.

Chemicals in Manufacturing Processes: The chemicals used in the manufacturing of a product, including chemicals that may or not reside in the final product. An example is an industrial cleaning product (a mixture of chemicals or a formulation) that is used to clean a metal part before it is painted or plated. While the chemicals in the cleaning product are not part of the product, and may not pose a risk to the consumer, they may pose a risk to workers and to the environment.

Chemicals in Products: The chemicals that are intended or anticipated to be part of the finished product. Examples include dyes, silicone finishes, screen printing, inks, labels, a durable water repellent chemical formulation, and other chemical enhancements.

Detection Limit: The detection limit specifies the test method sensitivity that a laboratory must be able to achieve when measuring the respective substance.

Limit Value: The concentration limit is set for each substance as measured on the final product and represents the maximum allowable amount of the respective substance which is allowable in a product. The limit is typically specified as the amount of the substance found in a specified amount of substrate, by weight (or more specifically, in milligrams of the substance per kilogram of product [mg/kg], percentage (%), or parts per million (ppm)). Concentration limits are applicable to any single part, or homogeneous part, of a product.

Manufacturing Restricted Substance List (MRSL): A list of chemicals - compiled by businesses, trade groups or other organizations - which are either completely prohibited from use in manufacturing processes, or are prohibited above certain threshold levels (often stated in milligrams of the substance per kilogram of product [mg/kg], percentage (%), or parts per million (ppm)).

Persistent: A persistent substance will not break down or degrade in humans, animals or nature. This means that they will stay for a very long time once produced.

Restricted Substance List (RSL): A list of chemicals - compiled by businesses, trade groups or other organizations - which are either completely prohibited in products, in packaging or are prohibited above certain threshold levels (often stated in milligrams of the substance per kilogram of product [mg/kg], percentage (%), or parts per million (ppm)).

Substances of Concern List (SoCL): A documented list which identifies specific substances which, for reasons of increasing concern for suspected toxicity, incomplete and/or insufficient toxicity information, pending regulation, other environmental harm and/or market shift, are prioritized for one or more of the following actions: demand for sufficient relevant toxicological information, alternatives assessment, and/or target for replacement. Substances on the SoCL are not necessarily restricted by an organization. They do, however, indicate a need for some type of action. For some organizations, a SoCL may simply be an addendum to their RSL.

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