bluesign

bluesign System Impact Report 2024

Contributing to a better and safer planet

About this report

bluesign

Your Choice. Your Impact.

Welcome to our Impact Report 2024

By sharing our year in review, we provide you with a glimpse at bluesign and how we work with our clients - our System Partner companies - in reducing adverse sustainability impacts across the textile value chain. Backed by primary data and case studies, this report unveils the achievements of our System Partner companies in reducing their CO_2 footprint, phasing out harmful chemicals, or simply initiating their sustainability journey.

Throughout 2025, we will be expanding the breadth of data we share and reviewing our Impact approach to suit the ever-evolving needs of our System Partner companies in a fast-moving sustainability context.

We wish you an informative read and welcome your feedback, questions and comments at impact@bluesign.com.


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Your Choice. Your Impact.

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2024 Highlights

For the last 25 years, bluesign has been working with the entire textile value chain to reduce the adverse impact of the textile industry on people and the planet.

We are proud to publish that for **the fifth consecutive year, bluesign System Partner manufacturers have reduced the intensity of their environmental footprint across KPIs:** CO_2 emissions, energy consumption and fresh water use, with an increased use of renewable energy and bluesign® APPROVED chemicals.

These results emphasize the dedication and hard work of our System Partner companies in moving sustainability forward in the textile industry, providing tangible proof of the effectiveness of the bluesign System and its focus on **continuous improvement beyond certification**.

bluesign Textile Manufacturing System Partner companies' Aggregated Environmental Performance in 2024 compared to 2019

CO_2e EMISSION ↓35% (kg CO_2e/kg textile)	ENERGY CONSUMPTION ↓27% (kWh/kg textile)	RENEWABLE ENERGY USE ↑574% (%)
FRESH WATER USE ↓22,8% (l/kg textile)	TEXTILE WASTE ↑19,7% (g/kg textile)	bluesign® APPROVED chemicals use ↑31% (%)

Data based on plausible datasets received each year from Textile Manufacturing System Partner companies, covering over 80% of reporting companies.

+900 bluesign System Partner companies

+28,000 bluesign® APPROVED chemicals in the bluesign Finder

+300 Assessments conducted in 2024

+73,000 bluesign® APPROVED articles since our foundation

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A word from our CEO

2024 marked another successful year for bluesign System Partner companies and bluesign overall. Adverse impacts were reduced across our manufacturing partner companies for another consecutive year, and the number of companies that are part of our ecosystem has increased; so has the number of approved bluesign articles and products.

This is a testimony to the effectiveness of the bluesign total solution approach, working with partners along the various stages of textile production, from chemical suppliers to fashion brands and retailers, to enable the production of safer and cleaner products for the planet and its people.

While we increased our external outreach, 2024 also witnessed internal changes within bluesign, setting us up to better serve our customer needs. Coming close together with our parent company, stems from the same purpose. Together with SGS, by reaching out to over a thousand brands, we are driving a transformative shift that is defining the future of textile production and creating lasting value for people and the planet.

Against the backdrop of the urgency of the climate crisis but also economic and political instability, focusing on where one can have the most impact on sustainability is essential, and primary data and information to that end are necessary. bluesign is the gold standard in the market for exactly that. The assessments and improvement roadmaps we offer to textile manufacturers, chemical suppliers and fashion brands that are part of our network enable sustainability, safety and integrity across the textile value chain.

Additionally, transparency and accountability in the industry are more important than ever with the increase in regulatory requirements across the European Union and more globally, but equally in the face of changing consumer expectations towards more sustainable purchases.

25 years ago, bluesign was born out of a bold idea, that sustainability could be embedded into the DNA of product creation. Twenty-five years later, we are proud to be a beacon of trust, innovation, and responsibility, and to partner with industry leaders worldwide in building a more sustainable future together.

I would like to conclude by thanking bluesign employees and our System Partner companies in making, every day, our vision of a safer and better planet a reality. I look forward to new partners joining us in our mission to create a world where textiles enrich lives without compromising health or the environment.

Wishing you a pleasant read,

Daniel Rüfenacht, Chief Executive Officer

« 2024 marked another successful year for bluesign System Partner companies and bluesign overall. »

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The Global Context

CLIMATE CHANGE AND EXTREME WEATHER EVENTS

2024 was the warmest year recorded on Earth ever, reaching the 1.5 degrees Celsius above the pre-industrial era. It also saw numerous extreme weather events such as floods or droughts causing a record number of displaced people, leading in turn to food and other types of crises. There is no doubt that the textile industry is a significant contributor to the climate crisis with greenhouse gas emissions representing close to 8% of global emissions. It is also the third-largest source of water degradation and land use [i].

At bluesign we have set ourselves the mission to create a world where the textile industry does not cause harm to human health and the environment. The ultimate objective of our services is to help our customers reduce their negative environmental footprint, be it by adhering to our strict chemical standards and thresholds, or by improving the environmental footprint of textile manufacturing. We also work with textile brands and retailers in further understanding and managing the environmental footprint of their supply chain.

CHANGING CONSUMER EXPECTATIONS

Increasingly, consumers are on the one hand demonstrating distrust in institutions and businesses, while on the other they are willing to pay more for sustainable products. The onus is on businesses to prove their sustainability credentials and to instill trust in the products and service they bring to market. A recent study points out the fact that businesses are not active enough when it comes to tackling climate change or misinformation or the concern that business leaders "purposely mislead people by saying what they know are false or gross exaggerations". [ii] Consumers are more aware of products' sustainability and will look into production methods, eco-friendly packaging, and making a positive impact on nature and water conservation. [iii]

We see it as our role to help brands market their products with a label you can trust, through our consumer product certification scheme. Within a business to business context bluesign manufacturing partners can label their textile materials or accessories as bluesign APPROVED. Articles can be found in the bluesign Guide which is publicly available, and finished products through our website.

The textile industry is a significant contributor to the climate crisis with greenhouse gas emissions representing close to **8%** of global emissions.

RAPIDLY EVOLVING SUSTAINABILITY REQUIREMENTS

Over recent years, the textile industry has witnessed a sharp increase in the volume of sustainability related regulations. Whether these requirements pertain to supply chain due diligence, reporting, green claims or climate action, they will have an impact on all the actors in the value chain globally. Many are at the forefront of their obligations, while others will have to adapt going forward. On top of legislation, new standards are appearing and investor and consumer expectations in the field of sustainability are on the rise.

As veterans and experts in this field, we assist our System Partner companies in understanding and adapting to these new requirements. From the outset, over 20 years ago, bluesign has always guided the textile industry towards becoming more sustainable and responsible, well before such legislation was implemented. On top of providing consultancy services across all these dimensions, we raise awareness, guide and train our System Partner companies on the latest sustainability developments.

GROWING INSTABILITY

2024 saw growing geo-political and geo-economic tensions. The WEF Risk Report[iv] points out many factors that give rise to global insecurity and instability: loss of faith in multilateral organizations, ongoing armed conflicts, tensions global trade relations and increases in military expenditure. The textile industry represents over 3.5% of global trade[v] and a significant portion of certain states GDP. Within the current context, trading and managing supply chains are more uncertain. Any disruption may have a significant impact on manufacturing countries.

At bluesign, we believe in long-lasting and loyal collaborations across the supply chain, and work with chemical suppliers right through to brands selling bluesign certified products.Our bluesign System enhances collaboration between brands, textile manufacturers, and chemical providers. We also work specifically with brands and retailers to help them better understand their supply chain and manage their environmental footprint, ultimately making them more resilient and risk-proof.

NEW TECHNOLOGIES AND INNOVATION

AI, new technologies and innovation have the potential to reshape the fashion and textile industry while accounting for environmental considerations. Examples include: better forecasting, replacing materials with innovative and more sustainable ones, enabling traceability of garments across the value chain, or innovatively recycling certain materials. Albeit that scalability may be an obstacle at the present time, the tools and technologies exist to allow for more circularity and sustainability within the industry.

At bluesign we are often the silent partner of such innovations that integrate sustainability considerations. We, for instance would help measure the carbon footprint of any new type of sustainable chemical feedstock with our chemical supplier partners, or any new type of manufacturing process in textile production. When it comes to the traceability of our customers' products, we are actively working on solutions enabling them to share the environmental impact of their products across various technology platforms.

At bluesign, we believe in long-lasting and loyal collaborations across the supply chain, and work with chemical suppliers all the way through to textile brands.

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Who we are and what we do

At bluesign, we have set ourselves the mission to create a world where the textile industry does not cause harm to human well-being and the environment.

The textile industry's resource demand and hazardous chemicals usage along the supply chain leaves behind a significant negative impact on the environment and society alike. Latest studies point out that the fashion industry is responsible for up to 8% of global greenhouse gas emissions.[vi] This trend is intensifying with projections showing an increase of 55% by 2030 versus 2019 if nothing is done to address the negative sustainability impacts of the industry.

Water usage in the industry is another cause of concern as over 4% of freshwater withdrawal globally is associated with the textile industry.

The chemical impact on the industry is equally worrisome. The Swedish chemical agency studied 2,450 textile related Chemicals and found out that 5% are a potential concern for the environment due to their capacity to spread globally and bioaccumulate, causing diseases and increased risk of cancer.

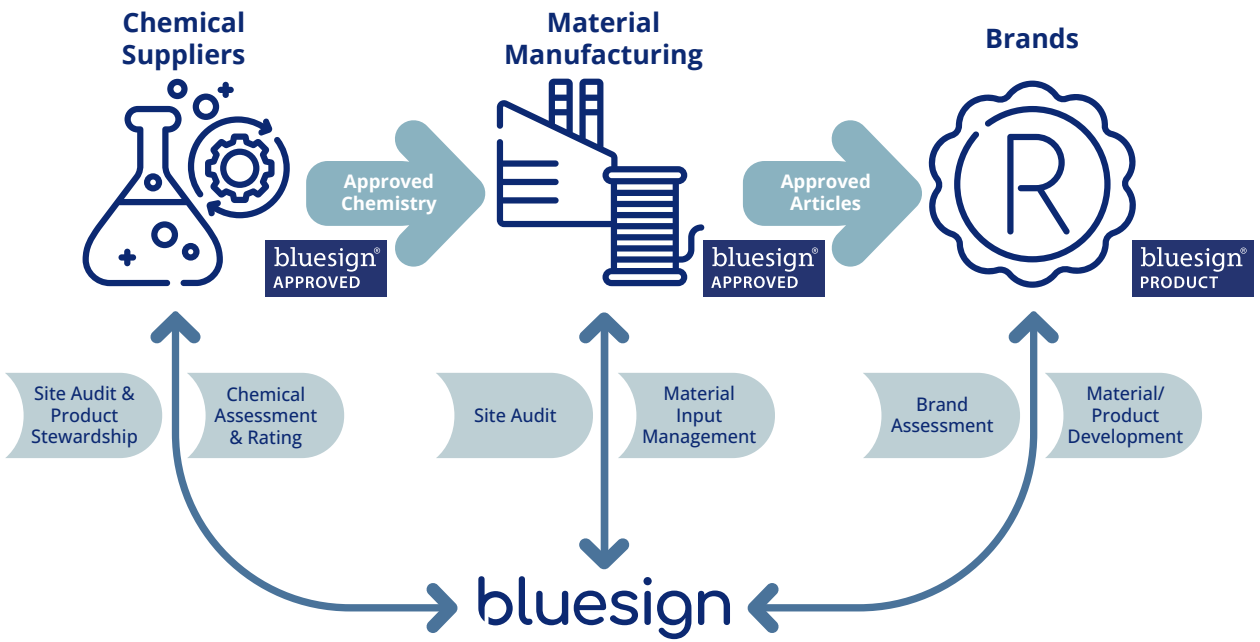
When it comes to waste or recycling, a recent study points out that only 1% of clothes are made out of recycled textile.[vii]

To reduce these negative impacts on people and the environment, bluesign provides the necessary tools for the promotion, adoption, and implementation of safe chemical usage and responsible environmental practices amongst chemical suppliers, textile and accessory manufacturers, and brands and retailers.

By tackling these negative impacts from the outset through our work with chemical suppliers to our collaboration with textile manufacturers, right through to end-consumer products sold by brands and retailers, we can significantly help reduce the overall negative environmental footprint of the textile industry.

Only **1%** of clothes are made out of recycled textile.

The bluesign System



Over the past years, we have expanded the textile and apparel categories covered by our system to include **denim**, **footwear,** and **leather products**.

bluesign System Partner companies are the actors of that ecosystem. It operates as a virtuous circle whereby chemical suppliers can list in the Finder their bluesign® APPROVED chemicals, which can in turn be used by manufacturing System Partner companies whose facilities have been successfully assessed by bluesign, and can declare their fabrics as approved by bluesign. These bluesign® APPROVED fabrics and accessories are available in the bluesign Guide and are made available to brands and retailers.

Brands who wish to join the bluesign System will undergo a sustainability assessment including a review of their supply chain's sustainability, and can encourage their suppliers to become bluesign System Partner companies, enabling cleaner and safer products from the outset. System Partner brands can also decide to market bluesign® APPROVED products once these products comply with our relevant criteria.

Our Criteria

Our criteria are a set of strict standards used to evaluate the safety and sustainability of chemicals, materials, or products, as well as manufacturing facilities' or brands' sustainability management. They cover the following topics: chemical safety, resource efficiency (water and energy), pollution control (air emissions, wastewater, waste), occupational health and safety as well as legal compliance.

Materials (fabrics and accessories) that meet these standards can be bluesign® APPROVED.

Final consumer products made with approved components may carry the bluesign® PRODUCT label.

In order to become a bluesign System Partner, the various actors of the textile supply chain must successfully undergo an audit based on a set of stringent criteria pertaining to their role in that chain. Chemical products and textile products also have respective set of criteria that are assessed by bluesign.

These criteria are reviewed regularly to ensure they meet stringent regulatory and societal expectations. 2025 will see the next revision of our criteria take place.

CHEMICALS AND CHEMICAL SUPPLIERS

Our criteria pertaining to chemical products are the most stringent in the market, based on strict toxicity thresholds, whether these chemicals are to be used for the manufacturing of consumer end-product or for industrial use.

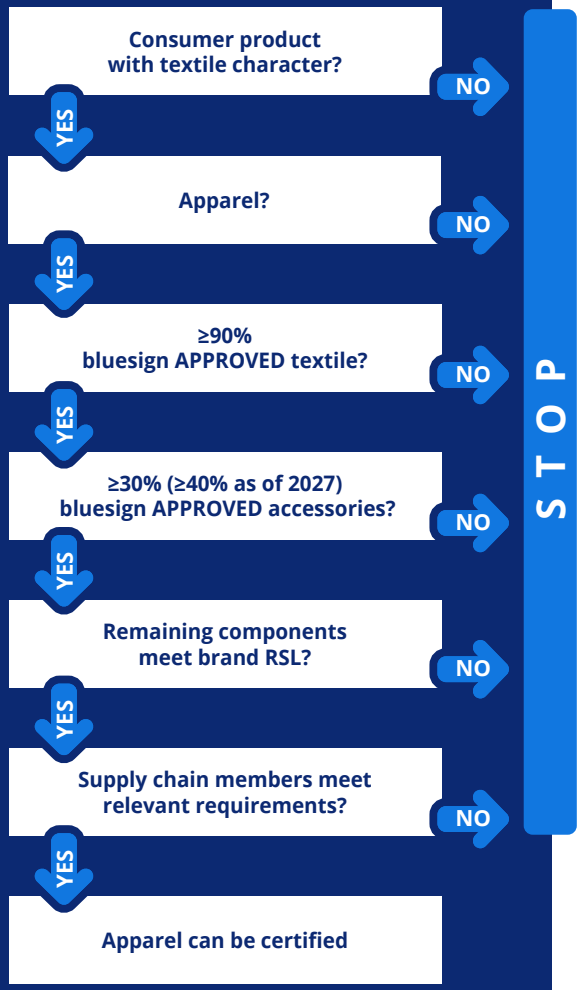
bluesign has produced and maintains three types of substance lists that are essential to reduce the impacts of harmful chemicals for end consumers, textile workers, and ultimately the environment.

The bluesign System Substances List (BSSL), specifies consumer safety limits for chemical substances in articles. It covers the AFIRM RSL and the AAFA RSL.
The BSSL is revised at least once a year.

The bluesign System Black Limits (BSBL) specify threshold limits for chemical substances in finished chemical products, such as auxiliaries or dyes. The substances that are part of the BSBL should not be used in the manufacturing of textile products. It is a subset of the bluesign System Substances List (BSSL) and covers the ZDHC Manufacturing Restricted Substance List (MRSL).

The bluesign Restricted Substance List (RSL) is an extract of the BSSL, and contains consumer safety limits and recommended testing methods for the most important and legally restricted substances in textile/leather articles and accessories. Brands and retailers can use this RSL as an orientation for the terms and conditions of purchase, and together with a testing matrix as a guide for appropriate testing of articles (such as textiles).

CERTIFYING A BLUESIGN PRODUCT



TEXTILE ARTICLES, ACCESSORIES AND MANUFACTURERS

To be part of the bluesign System, textile or accessory manufacturers must comply with bluesign Criteria for production sites, as well as those relevant to the type of product they manufacture (fiber, leather, down etc.) Follow-up assessments take place on a yearly basis, focusing on the implementation of the audit action plan. Compliance with these criteria is re-assessed every three years in a full audit. Manufacturers need to report environmental data yearly to monitor the environmental footprint of the facility and ultimately the produced material. When the site assessment has been successfully completed, the manufacturer can become a bluesign System Partner, and the articles emanating from the audited facility are considered bluesign APPROVED.

PRODUCTS, TEXTILE BRANDS AND RETAILERS

Specific criteria cover bluesign's requirements with regard to textile brands and retailers. Brand System Partner companies will have undergone an on-site assessment focusing on their sustainability approach, governance, activities, and targets as well as an in-depth assessment of their supply chain. This part of the assessment is key in understanding the sustainability and impact of the brands' supply chain. It will typically focus on the brand's visibility into material origins and supplier relationships, the oversight of fabric, trim, and chemical inputs, the identification of critical chemical risks and current controls, the evaluation of Restricted Substance List (RSL) compliance systems and an analysis of the Bills of Materials (BOM).

The brand assessment is a pre-condition for a brand to bring a bluesign APPROVED product to market. Such a product needs to conform to a specific set of criteria covering chemical and environmental aspects. bluesign® PRODUCTS can be found through our website.

Integrity

ACTING WITH INTEGRITY

At bluesign, the integrity of our work is the foundation on which sustainable textile production stands. Through rigorous standards and meticulous monitoring, we are committed to upholding the highest levels of integrity and impartiality across every facet of our operations.

As part of the SGS Group, we follow the Group's Code of Integrity and approach to integrity. The Code applies to all bluesign employees and must be adhered to by our contractors, consultants, freelancers, joint-venture partners, agents, subcontractors, and anyone acting on behalf of, or representing, bluesign. All employees follow a yearly integrity training. Conflict of interest, particularly material to our industry, is covered by the Code and annual training. All bluesign staff must declare on a yearly basis any perceived or actual conflicts of interest.

The integrity and compliance approach offers the possibility for employees and broader stakeholders to raise questions or report concerns and violations through a dedicated third-party helpline.

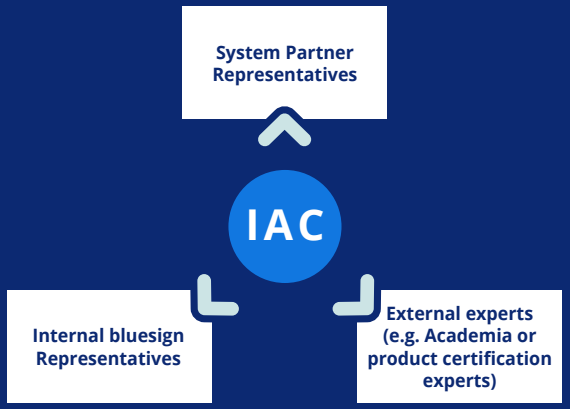
THE INTEGRITY OF THE BLUESIGN SYSTEM

bluesign owns and assesses certification schemes; as such impartiality is of the utmost importance. We define impartiality as "not having prejudice towards or against any particular side or party". We undertake to act impartially in our interactions with customers and broader stakeholders. Our impartiality statement is publicly available. We have set control measures to help guarantee impartiality across our daily work. As such, our standards (bluesign Criteria) and the conformity assessment scheme, and their review are the responsibility of the bluesign Academy which is distinct from our daily commercial and operational work. Our on-the-ground auditors have to complete thorough onboarding and consistent training pertaining to their daily work.

Our System Integrity team at bluesign, manages the integrity of our bluesign System, and reports into the bluesign Academy.

For safeguarding impartiality and integrity of the bluesign System an Impartiality Advisory Committee (IAC) was established. It ensures a balanced representation of significant internal and external stakeholders. The IAC members provide expertise to advise bluesign Management Team on policies, principles, operations, and risks on impartiality.

The Committee meets twice a year, with thereof one being face-to-face as well as on an ad-hoc basis when requested. Topics such as projects and their influence on the integrity of the bluesign System, or organizational changes and resulting risks to impartiality, form part of the agenda. All these aspects are compiled in the Impartiality Risk Assessment and actions for managing these risks are defined by the bluesign management



MONITORING COMPLIANCE TO THE BLUESIGN SYSTEM

Since its inception, bluesign has approved over 28,000 chemical products, 40,000 consumer products and 70,000 textile articles (fabrics and accessories).

Monitoring compliance of certified products is important to the integrity of our bluesign System. This requires a systematic approach, through regular re-assessments and yearly follow-up assessments pertaining to product stewardship, coupled with a testing program focused on high-risk substances and certified products.

Our main findings point out to impurities in material inputs especially in recycled materials (e.g., bisphenols). But there are also contaminations caused by improper manufacturing of samples (e.g., residual solvent content) or originating from the chemicals used (e.g., chlorinated phenols). Most findings are not critical for consumer safety. Findings are shared with the concerned System Partner companies, and corrective actions are agreed upon.

COMPLAINT AND APPEAL MECHANISM

Processing complaints and disputes is an integral part of bluesign's work as a certifier and central to earning the trust of our customers. The process is open to companies, individuals, or other stakeholders who wish to raise a complaint concerning certified products, bluesign services, misuse of bluesign trademarks or more. It also allows for appeals against bluesign decisions. Furthermore, it addresses concerns, complaints or appeals on bluesign conformity assessment schemes and on the bluesign Criteria.

Complaints are handled within a reasonable timescale and as transparently as possible, whilst fully respecting principles and requirements of confidentiality and impartiality. They will not result in any discriminatory actions.

bluesign's involvement in complaints concerning certified products is limited to reviewing and evaluating their compliance with bluesign Criteria. It is ultimately of the responsibility of bluesign System Partner companies to fulfill certification requirements.

Any complaint or appeal should be submitted in writing, with supporting evidence to systemIntegrity@bluesign.com.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Reducing Impacts

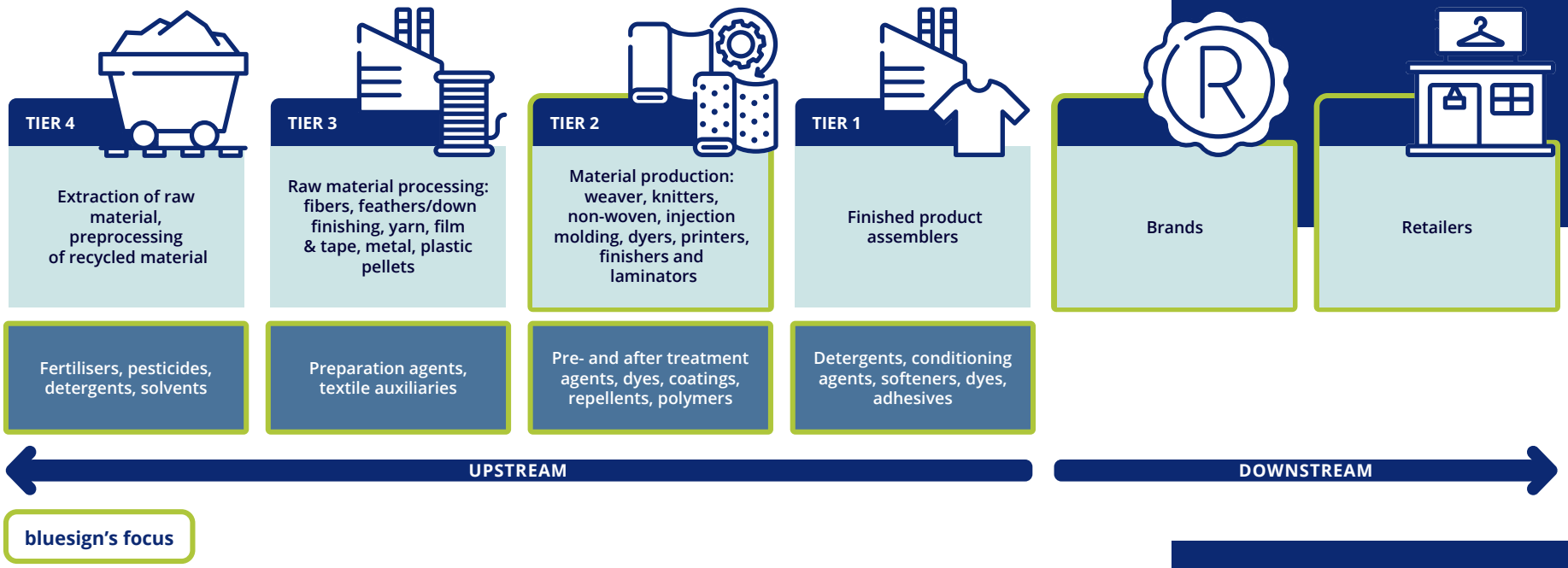
At bluesign, we provide tailored solutions to help our customers reduce their environmental footprint, based on their specific role within the textile value chain.

Starting with chemical suppliers, we provide a framework to assist them in the formulation of less harmful chemicals, and enabling them to propose and promote approved bluesign chemicals to their customers. In turn, our work with textile manufacturers emphasizes a responsible use of resources, from water to energy sources, as well as a responsible use of chemical products in their processes, in order to produce more sustainable fabrics and accessories. Our work with brands focuses on responsible sourcing, traceability, and more sustainable products. Our role as a third-party certifier aims to instill trust in our customers' sustainability credentials amongst their stakeholders, and especially consumers. But we also go the extra mile, requiring in our standards, that bluesign System Partner companies improve their sustainability performance over time, setting us apart from other certification bodies.

In the following pages, we detail each of these approaches, with concrete examples and data.

Our role as a third-party certifier aims to instill trust in our customers' sustainability credentials among their stakeholders, particularly consumers.

THE TEXTILE SUPPLY CHAIN



The textile industry uses many different chemical products. These can either remain on the finished product or be removed during production as they only support certain finishing processes.

Working with Chemical suppliers

As consumers, we are aware of the significant environmental damage caused by the textile industry, driven by fast fashion, overproduction, waste, and pressure on natural resources. However, we are often less aware of the adverse effects of chemicals used in the industry.

For a textile product to have certain functionality or effects such as color, drape or hand feel, a fiber, a fabric, or a leather undergo different types of physical and chemical treatments. The textile and leather supply chains use many different chemical products that can be categorized into four groups: basic chemicals (salts, acids, bases, etc.); colorants (dyestuffs and pigments); auxiliaries (e.g., surfactants, leveling agents); and finishing and coating agents (e.g., softening agents, repellents). Additionally, in the footwear industry, one also finds adhesives and polymers. These chemicals can either remain on the finished product such as colorants, or they can be removed during the production process as they are only necessary to support finishing production processes or to pretreat the raw material, such as wetting agents or detergents. The latter are commonly referred to as process chemicals and the former as functional chemicals. Either can affect textile workers, consumers and the environment to varying degrees. At bluesign we have set ourselves to work with the chemical industry to reduce these impacts from the outset by providing chemical suppliers as well as downstream users with the tools to reduce or even eliminate harmful chemical substances in consumer goods, to mitigate the impact on workers in production facilities, and to minimize emissions to the environment.

HOW WE WORK WITH CHEMICAL SUPPLIERS

Assessing chemicals suppliers

We follow a two-pronged approach when working with chemical suppliers: first we assess the chemical supplier and its production site, and in the event of a successful assessment outcome, conducting a chemical assessment focusing on the chemical products themselves. Our assessments are based on a set of criteria described on p. [17].

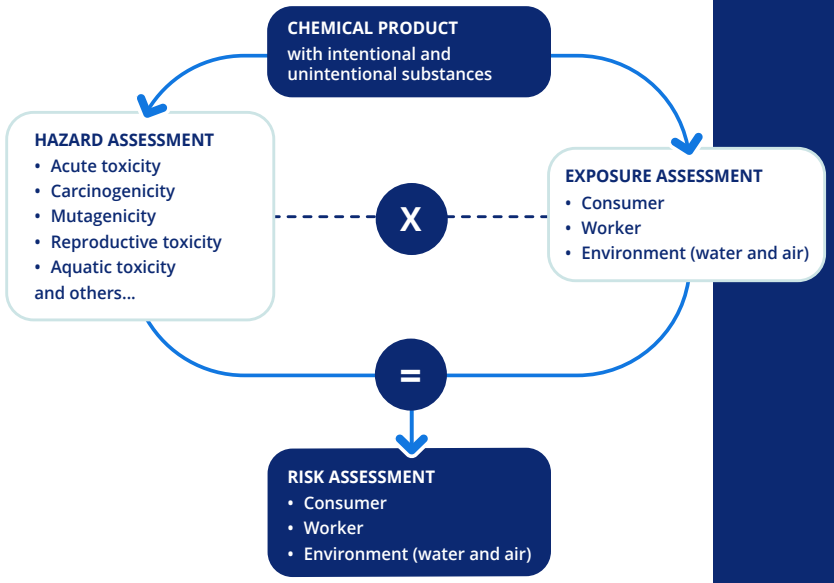
The on-site assessment takes approximately two days to complete. It is carried out by bluesign auditors specialized in chemistry and focuses on aspects such as oversight and management of environmental and safety considerations, product stewardship, or quality control. Product stewardship is particularly important as it requires chemical suppliers to take responsibility for the manufactured products with the aim of minimizing any negative impact they may exert on the health and safety of workers or consumers or on the environment.
The outcome of the audit determines a four-level grading rating from foundational level to aspirational level.

Chemical suppliers undergo such an assessment every three years. Only when they have successfully passed the on-site audit, can they initiate the chemical assessment of their products.

Assessing chemicals

The potential impact of chemicals on workers, consumers and the environment depends on the chemical product category and how it is used in the textile production process. In many cases it is not the active substances, but instead additives (e.g., dispersing agents in a dye) and/or chemical impurities (e.g., monomer residue in polymers) that are responsible for a potential negative impact on people and the environment. For this reason, the bluesign Chemical assessment also considers these types of substances.

All chemical substances have an inherent hazard. The degree to which that hazard may present a risk to human health, or the environment is a function of the inherent hazard and the exposure to the consumer, to the textile worker, or more broadly to the environment. In other words, a chemical product can pose a risk to workers of a textile plant, based on the way and the purpose for which the chemical is used, but ultimately may not pose a risk to the end consumer wearing the textile garment. Context and purpose are key factors in determining the risks of chemical products.



+140
assessments of chemical suppliers conducted in 2024

bluesign applies a multidimensional risk assessment approach to calculate the nature and magnitude of possible health risks to workers and consumers and the negative impact on the environment.

Following a purely hazard-based principle, risk reduction can be done by simply eliminating substances of high concern. This approach is useful in the case of highly toxic substances such as carcinogens, mutagens and reprotoxic substances (CMR), or chemicals that are hazardous to aquatic life or persistent or bio-accumulative in the environment. It is also useful when insufficient information on the possible exposure is available. bluesign uses the hazard-based approach to eliminate the most critical substances from the supply chain. For all chemical substances that pass the purely hazard-based assessment, an additional exposure assessment is conducted to calculate the risk and keep it at a manageable and acceptable level. bluesign applies a multidimensional risk assessment approach to calculate the nature and magnitude of possible health risks to workers and consumers and the negative impact on the environment.

Chemical assessments are conducted using the bluesign Tool, a web-based application developed by bluesign in which customers enter composition data, application data for safe chemical use, and much more. The Tool then calculates the behavior of the chemical on the textile as well as in the working environment. Chemical products are evaluated according to the hazard and exposure method described above and are given a rating: black, blue and grey. In addition to the color rating, bluesign provides information on the usage the product is deemed for:

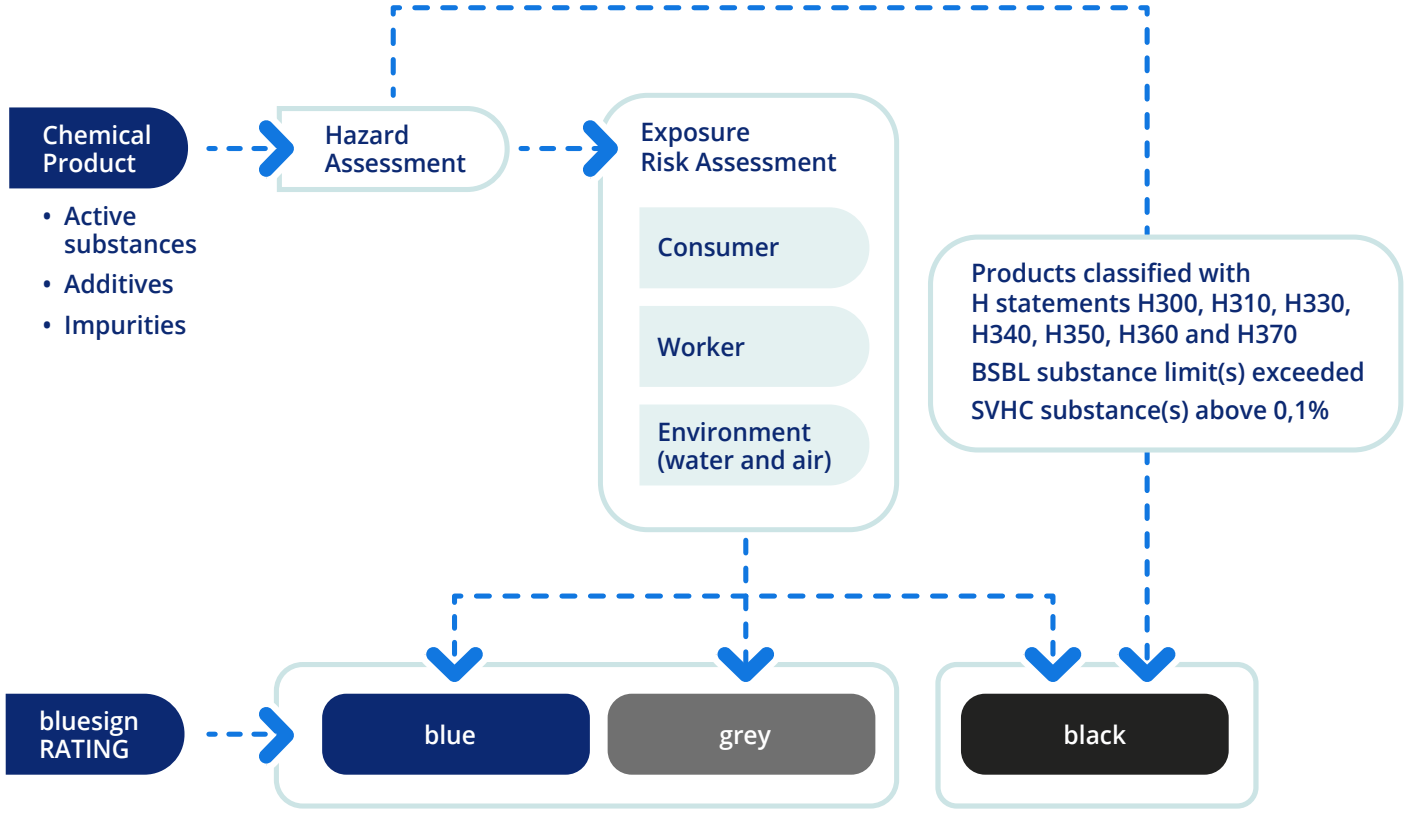
- A: Next-to-skin use and baby-safe (0 to 3 years);
- B: Occasional skin contact; and
- C: No skin contact.

Blue-rated products: superior chemicals that exceed standard requirements and outperform competitors in safety and sustainability.

Grey-rated products: they meet compliance standards and can be safely used in production. For certain products, additional guidance on safe use during the production process may be necessary.

Black-rated products: non-compliant chemicals that must be removed from textile manufacturing processes. They fail to meet essential safety requirements.

Blue and grey products are considered bluesign® APPROVED chemicals and can be listed on our positive substance list: the Finder. They can also be used to manufacture bluesign® APPROVED articles such as fabrics or accessories by partner manufacturing companies.



It is important to remember that depending on the intended application of the product, one same chemical can be rated differently as per the scheme below. Hence the importance of not only assessing hazards but understanding the context in which the product will be used.

Product	H411	
Relevant Path	**Water** (Toxic to aquatic life with long lasting effects)	
Application	**Finishing/ Pad**	**Finishing/ Batch**
Release to Water	**Low**	**High**
Rating	**Grey**	**Black**

Many of our chemical System Partner companies use our Tool to create less harmful products right from an R&D stage.

REDUCING NEGATIVE IMPACTS IN PRACTICE

Phasing out harmful chemicals before they enter the textile supply chain equates to phasing out an adverse effect before it can actually occur.

It is effective through its overall positive impact on people and the planet, albeit difficult to measure and quantify. We realize that chemical management is a complex field and can at first seem daunting for certain customers, so we provide relevant coaching, guidance and training helping them on their journey. While we aim to be a beacon of trust in this field we are also mindful of the work required from our System Partner companies, and intend to remain pragmatic and accessible in our approach to responsible chemistry.

We are proud of the work conducted with chemical partner companies to date and we always seek to go further in providing sustainability solutions to our customers. Hereafter are examples of the impact related work with chemical suppliers.

Sustainability by design

Our standards for chemical assessment were reviewed in 2022. At the time we made them more transparent and clarified our expectations around hazard assessment and risk exposure assessments. In parallel we adapted our bluesign tool, to align it with our reviewed criteria. In doing so we noticed that more and more of our chemical customers were using the tool to create more sustainable chemical products rather than assessing final products. Indeed, the bluesign Tool is also used in the development phase, when a chemical company designs a “recipe” for the finished chemical, before bringing it to market. Thanks to the transparent architecture of the bluesign Tool, chemists can check whether recipe components meet the bluesign chemical products assessment requirements.

Our customers thus gain time and efficiency in their sustainability endeavors. It also demonstrates that sustainability considerations are accounted for right from the product development stage.

Sustainability Attributes of Chemical Products

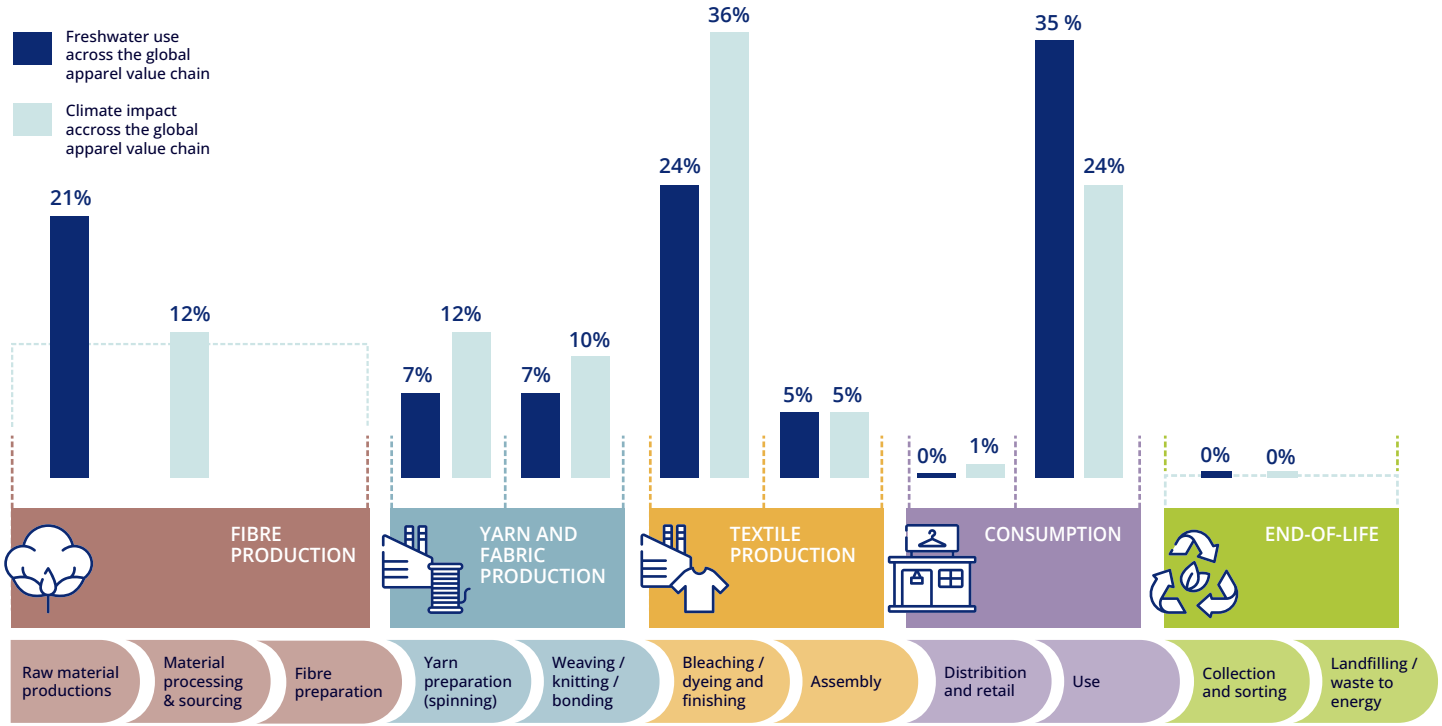
To provide our stakeholders with the possibility to select ever more sustainable chemical products, we have developed criteria to assess what we call “sustainability attributes” for chemical products. Sustainable chemistry goes beyond remediating or minimizing the negative impacts of a chemical product. It looks at a product’s whole life cycle and enhances positive impacts on the environment and on society. Sustainable chemicals are fit for a circular economy approach, encourage the use of sustainable feedstock (raw material), improve resource efficiency in downstream applications, and contribute to the longevity of consumer products, while avoiding inherent properties that are harmful to human health and the environment. bluesign System Partner chemical suppliers can claim selected sustainability attributes for their approved chemicals such as whether the chemical feedstock is renewable (biomass or bio-based), certified renewable, or whether the chemical is made of recycled content, based on our criteria. Such products are publicly listed in our Finder.

Working with textile and accessories manufacturers

Our work with textile manufacturers focuses mainly on tier 2 of the textile supply chain.

The vast majority of greenhouse gas emissions occur in tier 2 of the textile supply chain, when textile fabrics are processed. That stage of production is also highly intensive in water.

We work with textile manufacturers and accessories manufacturers so they can propose to their customers bluesign APPROVED materials which meet the strict safety and environmental requirements of our criteria.



Sustainability and Circularity in the Textile Value Chain, Global Stocktaking, UNEP 2020, drawn from FICCI (FICCI, 2018)

HOW WE WORK WITH MANUFACTURING COMPANIES

Manufacturers aiming for their fabrics or accessories to be bluesign APPROVED must first undergo an onsite assessment, which will determine how they comply with the bluesign Criteria for production sites. Specific criteria are applicable depending on the type of production at each facility, such as down, fiber, textile, or leather for instance.

The on-site assessment carried out by bluesign auditors takes place over two days, following a preparatory phase. The findings are shared as part of the assessment-report, which grades the suppliers' maturity in managing environmental and chemical impacts (foundational, developing, progressive, aspirational levels). If any non-conformities are found, a remedial action plan is agreed upon between bluesign and the manufacturing company to be completed within a defined timeframe. Any critical non-conformity will prevent a manufacturer from becoming a bluesign System Partner company.

On top, the manufacturer will also receive an impact report covering its environmental and chemical performance. The performance covers primary data and information pertaining to water consumption, energy consumption, CO_2 emissions, the use of chemical products as well as pollution to air and water and waste (wastewater COD, AOX, TOC and VOC). It is detailed and thorough including a benchmark versus peers, a sustainability improvement roadmap as well as cost saving options.

In 2024, we have conducted over 150 manufacturer assessments. Over the years we are proud to see the level of improvement of bluesign System Partner companies. Our long-standing experience in running these audits has enabled us to identify the key challenges faced by manufacturers in their sustainability efforts, including resource constraints in overseeing chemical management. On top of it being a complex topic requiring dedicated expertise and teams in place, we have noticed that often manufacturers are only a small customer of broader chemical suppliers and have limited leverage in asking for the relevant information required for assessing their chemical products. A certain audit and reporting fatigue is also noticeable amongst our System Partner companies, especially in uncertain economic times when business considerations often take over the resources needed to focus on impact management.

Assessed manufacturing facilities are provided with an improvement road map detailing impact reduction opportunities.

PRIMARY VERIFIED DATA FROM A MANUFACTURER SITE ASSESSMENT

INPUT

- Raw material
- Process water
- Sanitary water
- Dyes
- Auxiliaries
- Basic chemicals
- Electricity purchased
- Electricity produced on site
- Primary energy
- Secondary energy
- Type of energy (renewable, fossil, coal)

OUTPUT

- Production volume
- Wastewater quantity
- Wastewater quality:
  - Chemical oxygen demand
  - Halogenated organic compounds
  - Nitrogen
- CO_2 emissions
- Others air emissions:
  - Volatile organic compounds
  - Total organic compounds
- Manufacturing waste (textile)
- Waste streams (recyclable, composted, waste to energy, landfilled)

Through our work with partner organizations, we strive to align audit processes and requirements, such is the case with Higg FEM or ZDHC.

Assessments must be conducted every three years for a manufacturer to remain a System Partner. Additionally, we have introduced in 2024, a yearly follow-up assessment to ensure more constant criteria conformance, focusing on the implementation of the action plan, any chemical change, and impact data. Our manufacturing partner companies are also provided with a secure platform for self-reporting environmental data on a yearly basis, including electricity consumption, energy consumption per type, production levels, water and wastewater, and waste. Based on this input, bluesign checks the plausibility of the data and prepares an impact report for its manufacturing customers. The impact data is key for understanding the environmental footprint of the articles produced by the manufacturer. It also allows brands who work with bluesign manufacturing companies to have an aggregate overview of the environmental impact of part of their supply chain.

The articles produced in a System Partner manufacturing facility are included in what we

call the Guide, that lists all the fabrics, downs, insulation, accessories, and other types of articles that are approved by bluesign, based on our standards.

Manufacturers' impacts within the bluesign System

Our criteria require that our manufacturing System Partner companies improve their sustainability performance over time. To this end, measuring and reporting environmental data and KPIs is essential. Our Manufacturing System Partner companies report yearly such data, as well as information pertaining to the safe use of chemicals. The aggregation of this data provides bluesign with a helicopter view of the overall environmental footprint of textiles and production sites within our system over time.

In 2024, we are happy to report that compared to last year, our System Partner companies have reduced their CO_2 emissions intensity by 17%, their energy consumption intensity by 14% and their freshwater use by 8% (intensity based). When comparing to the 2019 baseline, we notice year on year improvements across KPIs except for textile waste. In the field of responsible chemical usage, we observe a 5% increase versus last year and 31% versus 2019.

17%
reduction in CO_2e emissions intensity ($kgCO_2e$ /kg textile) in 2024 by our manufacturing System Partner companies versus 2023

bluesign Textile Manufacturing System Partner companies' Environmental Performance in 2024 compared to 2019

CO_2e EMISSION ↓35% (kg CO_2e/kg textile)	ENERGY CONSUMPTION ↓27% (kWh/kg textile)	RENEWABLE ENERGY USE ↑574% (%)
FRESH WATER USE ↓22,8% (l/kg textile)	TEXTILE WASTE ↑19,7% (g/kg textile)	bluesign® APPROVED chemicals use ↑31% (%)

Data based on plausible datasets received each year from Textile Manufacturing System Partner companies, covering over 80% of reporting companies.

REDUCING NEGATIVE IMPACTS IN PRACTICE

There are many examples of how our System Partner companies become more energy efficient, water resilient or, of what they have undertaken to include cleaner chemicals in their production process.

Individual companies will focus their impact reduction efforts where it is most material to do so. To this end, the impact reports and assessment results are key, pointing out potential hotspots. They will also consider return on investment, regulatory requirements as well as potential incentives. Here are a couple of examples of recent achievements.

Phasing out PFAS in consumer products

PFAs, often called “forever chemicals”, are widely used in clothing and textiles for water and stain resistance. Often found in raincoats, outdoor gear, activewear, uniforms, and even household textiles, PFAS in clothing can help fabrics repel moisture, oil, and dirt. While these chemicals enhance performance, their impact on human health and the environment is alarming. PFAS persist in the environment indefinitely, contaminating drinking water, soil, and wildlife. Studies link PFAS exposure to immune system suppression, hormonal disruptions, fertility issues, and increased cancer risk. As a result, regulators and consumers alike are pushing for PFAS-free alternatives in fashion and textiles.

We are proud to be working with manufacturing System Partner companies who have actively worked in the last few years to phase out PTFE, commonly known as Teflon, a type of PFAS, from their consumer products. This highlights bluesign’s unique approach in reducing negative impacts across the textile value chain: a comprehensive sustainability management approach, focusing on environmental impacts on the one hand, and those related to consumer safety, from a chemical perspective on the other. It also highlights bluesign’s “input stream management” approach whereby understanding and sustainably managing inputs at each stage of the textile production, allows for end-products to be overall more sustainable for the planet and the people.

Decarbonizing textile manufacturing

With the textile industry being one of the prime emitters of greenhouse gas globally, focusing on CO_2 reduction is a critical necessity, especially considering the tier 2 supply chain stage where most of these emissions occur. This is particularly challenging, as this part of the textile value chain is very fragmented, made of multiple small businesses with limited investment means. The approach to carbon reduction must thus be multifaceted and collaborative.

At bluesign we work with manufacturers wanting to reduce their carbon footprint and this starts by measuring it. We assess the energy efficiency of the manufacturing facility, along with the type of processes it implements, its machinery and equipment as well as its energy source, amongst other factors. The improvement plan we provide to the manufacturer would typically look into best available techniques (BAT) to reduce energy consumption and costs. While these efforts are key to reduce the carbon footprint of these facilities they are not sufficient to fully decrease CO_2 emissions. This is where the source of energy used, renewable energy, comes into play. The primary data of our textile manufacturers regarding CO_2 emissions and energy type, reveals systematically that even a slight increase in the use of renewable energy will have a significant positive impact on the carbon footprint of that facility. Over the years, we have found this to be particularly the case for manufacturing facilities in Vietnam where the government has in its Power Development plan VIII (PDP8) committed to reaching net-zero by 2050 and increasing the share of renewable energy to over 39% by 2030, notably through solar and wind power.

While access to renewable energy is very country-dependent, there are ways to overcome this hurdle by cross-industry collaboration through PPA agreements for instance. Examples of such projects include the Renewable Energy Initiative by the Global Fashion Agenda (GFA), launched in December 2023.

We assess the energy efficiency of manufacturing facilities by looking at the types of processes they use, the machinery and equipment in place, their sources of energy, and other relevant factors.

Working with brands and retailers

Apparel brands and retailers are faced with increasing expectations and requirements pertaining to their sustainability credentials. The sustainability regulatory landscape is under constant evolution globally, consumers are asking for safer and more environmentally and socially responsible products, and traceability of their purchases. Investors are also pressing companies on their sustainability efforts.

We work with brands to help them face this rapidly changing environment by equipping them to understand, manage, and reduce their sustainability impacts across their value chain, but also improve traceability and better manage due diligence. While the sustainability maturity of our brand partners may vary, our solutions are tailored to cater to all needs: from assessing overall sustainability approaches and policies to deep-diving into responsible sourcing practices or producing bluesign certified products.

HOW WE WORK WITH BRANDS AND RETAILERS

**Our work with textile brands and retailers comprises two parts: System Partnership completion and subsequently, the certification of their products, that can carry a bluesign® APPROVED label.
Specific criteria cover each of these aspects.**

Becoming a bluesign System Partner entails for brands to undergo a sustainability assessment, determining whether they meet our bluesign Criteria, and their level of sustainability maturity. Before the assessment itself, the customer completes a comprehensive questionnaire and shares relevant supporting documents. The assessment then takes place over a day.

It covers three main aspects: the overall approach to sustainability, including governance, strategy, and objectives; supply chain analysis with an emphasis on materials and chemical management; and impact management such as air emissions, health and safety, resource consumption, and management across operations and the supply chain.

The result of the assessment is documented in a gap analysis, with a ranking ranging from foundational to aspirational, from which a strategic improvement plan is derived. This action plan is owned and managed by the brand or retailer. It is a key instrument for an ongoing dialogue between brands and bluesign and is checked by the latter.

The supply chain analysis is an essential element of the assessment as it enables brands and retailers to uncover blind spots or gaps in the field of responsible sourcing, supplier data and impact management, or product stewardship. It also enables brands to understand which of their suppliers are already part of the bluesign System and as such have had their sustainability credentials verified. Subsequently on a yearly basis they receive an impact report covering the CO_2, energy, water and waste impacts covering the bluesign part of their supply chain. Based on primary data, the reports help identify any potential sustainability hotspots downstream.

At bluesign we are keen to work with very different brands at very different levels of sustainability maturity, as we believe the assessment is always an eye-opening exercise. Over the years, we have come to find out that some of the main challenges brands face in furthering their sustainability journey pertain to:

- Chemistry management: establishing and communicating a formal chemical management program and requirements to suppliers, as well as having a deep understanding of chemical materiality for their specific materials and products.
- Supply chain management: knowing the details of tier 2 suppliers as well as having the means and processes to assess them.
- Supply chain impact management at facility level, as well as health and safety oversight in tier 2 suppliers.

We understand that managing corporate sustainability is a complex endeavor: often various teams within a company tackle sustainability issues disconnectedly (corporate sustainability, procurement, materials). There is also reluctance or fear in disclosing supply chain information. We notice a lack of alignment between frontline teams working with suppliers on the ground and executive teams, as well as uncertainty caused by the evolving regulatory and political landscape.

These are all aspects we can assist with, and our successful approach is backed by data: 50% of assessed brands have improved their performance when re-assessed.

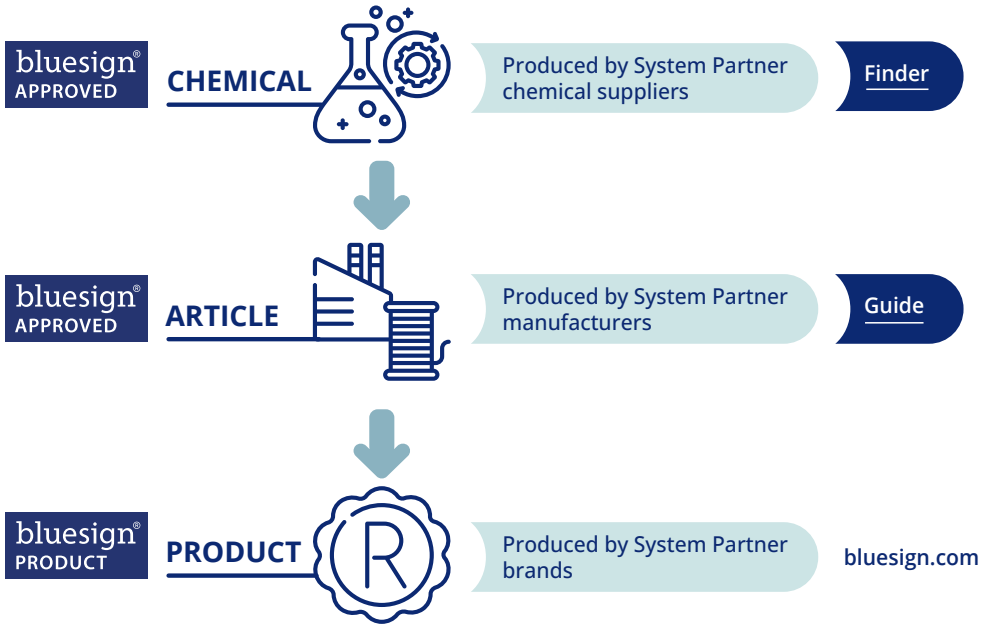
bluesign labeled product requirements

- At least **90%** of the fabric used for the apparel must be bluesign APPROVED
- At least **30%** of the accessories used in the apparel must be bluesign APPROVED (40% as of 2027)
- All components (fabrics or accessories) that are not bluesign APPROVED must meet the brand's Restricted Substance List (RSL).

BLUESIGN CERTIFIED PRODUCTS

Brands wanting to take their bluesign partnership to the next level can certify their consumer products as bluesign® PRODUCTS.

These are made with a responsible use of resources, the highest level of consumer safety and a reduced impact on people and the environment. The traceability of such products is guaranteed as the majority of components come from bluesign System Partner companies.
While other labeling schemes focus at testing finished products, at bluesign we consider all input streams from raw materials to chemical components, to water and energy resources from the outset. Components are assessed against our criteria before production even begins. The bluesign PRODUCT certification covers various categories of items including apparel, denim, home textiles, equipment, and footwear (excluding brown shoes). bluesign® PRODUCTS can be found on our website.



REDUCING NEGATIVE IMPACTS IN PRACTICE

As illustrated above, working with brands and retailers is the last link in the chain: if their suppliers are bluesign System Partner companies and if the components of their products are bluesign APPROVED then it will be easier for them to bring to market safer and less environmentally impactful products. The bluesign System Partnership also helps brands in understanding the environmental performance of their supply chain over time through access to primary data, with a view to improving it. It can also form part of a due-diligence exercise and assist with regulatory requirements.

Measuring the supply chain Impact of Brands

In the textile and fashion industry, it is known that most environmental impacts occur upstream, notably across the following four areas: the weaving, dyeing and finishing processes in textile manufacturing; energy use; textile waste associated with garment assembly; and the transport emissions throughout the supply chain as materials and final products are shipped globally. [viii]
At bluesign we work with textile manufacturers and brands to tackle the former three types of impact. By collecting and verifying data at factory level, we have access to primary data, enabling manufacturers and ultimately brands to understand their environmental footprint and to reduce it. On top of primary data gathering and verification during bluesign Assessments, we also request manufacturers to report environmental data on a yearly basis. This data is compiled in the yearly impact report we provide to manufacturers. It also serves as the basis for the Supply Chain Impact report for our brand System Partner companies. The report compiles data across five dimensions: greenhouse gas, energy, water, chemical usage and waste amongst suppliers that are part of the bluesign System. On top of providing valuable information to identify environmental hotspots in the supply chain, it helps brands with due-diligence activities as well as reporting requirements through the provision of direct primary data mapped to reporting requirements.

Working with brands at all stages of their sustainability journey

Since its inception 25 years ago, bluesign has been working with pioneering brands in terms of sustainability. Often associated with the outdoor industry, these brands have sustainability as their ethos and part of their DNA. We welcome working with such brands who push the boundaries of sustainable production ever further. The growth in the share of bluesign APPROVED products on the market is a testimony to their sustainability efforts over time. Working with long-standing partners over many years has also further equipped us in assisting brands who are at the initial stage of their sustainability journey. Wanting to address their environmental impacts right from the start, we would typically focus our work on helping them understand and map their supply chain, guiding them in what is considered robust responsible sourcing practices, and measuring impacts as soon as possible in order to set ambitious yet realistic impact reduction targets in collaboration with suppliers. Our work with brands and retailers is multifaceted and adapts to all types of brands, across geographies and sustainability maturity.

6

Our System Partner Companies' Impact Performance

bluesign provides manufacturers with a secure platform to report, track and manage key environmental performance indicators such as water, energy, and chemical consumption, greenhouse gas emissions, and textile waste.

This data is compiled in a yearly impact report, which enables manufacturers to track their sustainability performance over time, identify hotspots, and report their impacts according to existing frameworks and standards.

The table below presents the aggregated environmental performance of bluesign Manufacturing System Partner companies over time. It comprises primary data that has been checked for plausibility for 2024 and beyond. This year, we have reviewed our CO_2 calculations, emission factors and calorific values and restated previous years' data to allow for comparison.

		2024	2023	2022	2019 Baseline	Δ versus 2023 (%)	Δ versus Baseline (%)	Sustainability disclosures mapping
Emissions	CO_2e emissions – intensity ($kgCO_2/kg$ textile)	**2.6**	3.1	3.3	4.0	**-17.3**	**-34.9**	GRI 305 ESRS E1-6 IFRS S2 29 ai1,2 SDGs 12, 13
Energy	Energy consumption – intensity (kWh/kg textile)	**8.2**	9.5	9.6	11.2	**-14.2**	**-27.0**	GRI 302 ESRS E1-5 SDG 7
	Renewable energy use (%)	**13.7**	7.7	4.8	2.0	**78.5**	**574.1**	
Water	Fresh water use - intensity (l/kg textile)	**72.1**	78.3	76.6	93.3	**-7.9**	**-22.8**	GRI 303 ESRS E3-4 SDG 6
Textile waste	Textile waste – intensity (g/kg textile)	**35.2**	42.0	36.6	29.4	**-16.3**	**19.7**	GRI 306 ESRS E5-5 SDG 12
Chemicals	bluesign® APPROVED chemicals use (%)	**56.7**	53.9	33.5	43.2	**5.2**	**31.3**	GRI 301 ESRS E2-5 SASB CG-AA250a.1,2 SDGs 8, 12

Data based on plausible datasets received each year from Textile Manufacturing System Partner companies, covering over 80% of reporting companies.

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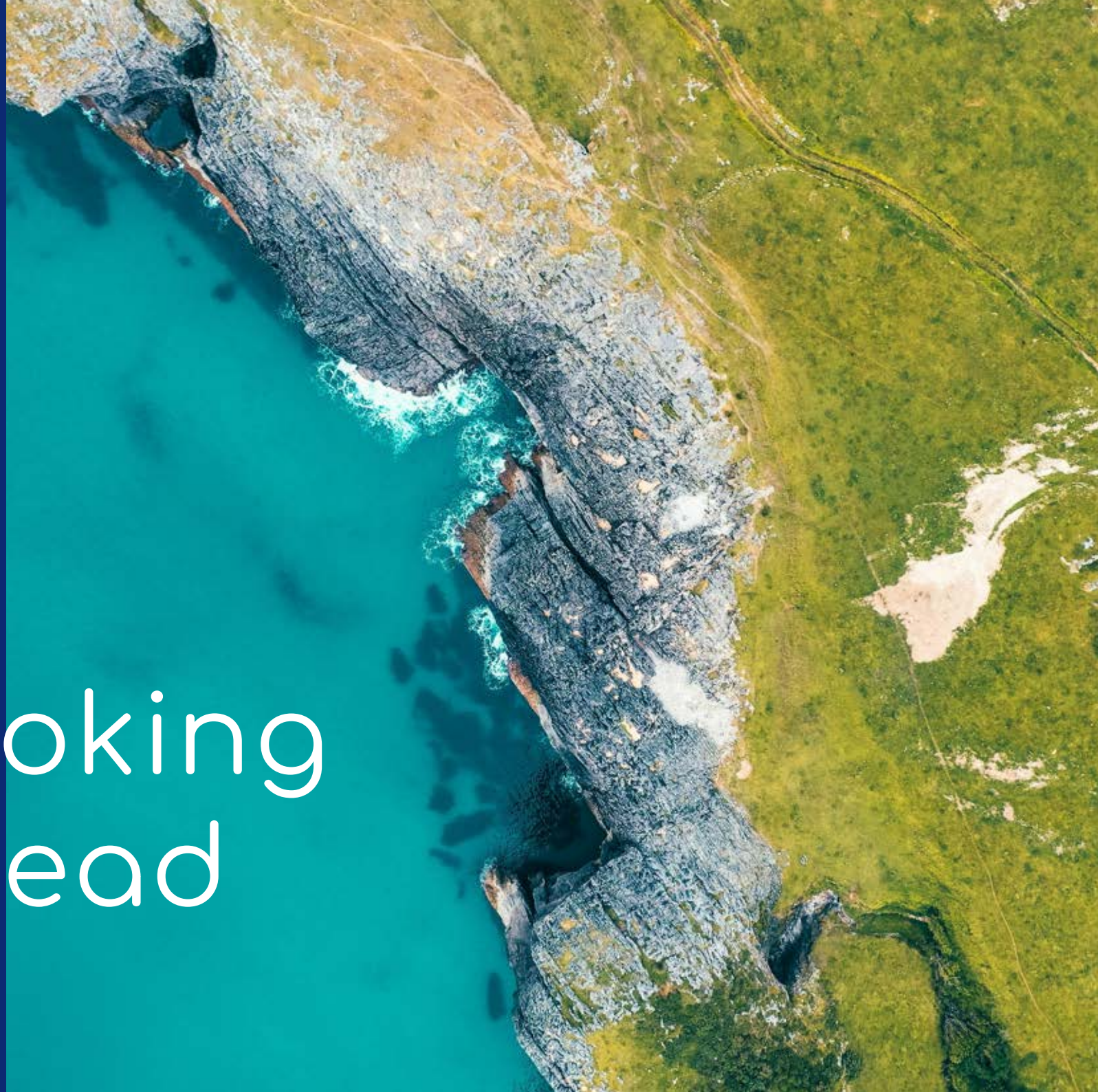
Looking ahead



A WORD FROM OUR CHIEF COMMERCIAL OFFICER AND OUR CHIEF OPERATING OFFICER

2024 saw bluesign further grow on its transformation journey, from an innovative start-up founded more than 20 years ago to an increasingly relevant established expert in its domain.

While contributing to a better and safer planet remains at the core of who we are, in 2024, we embarked on a journey to adapt our internal structures and become more accessible and transparent to our external stakeholders.

This transformation meant reorganizing and strengthening our business teams as well as consolidating our operational teams to better serve our existing and new customers. We further diversified our customer base, venturing in the denim, footwear, and promotional wear segments and took the initial steps to become more transparent and vocal about our work and overall impact.

This transformation was inherent to the company maturing and equally fueled by an evolving external context of changing consumer and customer expectations, increased regulation and overall climate urgency. We are a key player in enabling a more sustainable textile industry and are keen to push the boundaries of our work further. Our success to date is attested by the work conducted with our System Partner companies and supported by their impact reductions over time. It does not stop there.

With 2025 marking the 25th anniversary of bluesign, we are striving to go further. With our dedicated colleagues globally, we are implementing our new digital strategy, adapting to the latest customer and market needs; designing our new look and feel; further expanding our customer base, reaching out to the fashion industry and consolidating our new venture in denim and footwear categories. We are also crafting new services to assist our customers in a more demanding regulatory environment.

Reducing negative environmental impacts from the outset by managing material inputs right at the beginning of the textile production process has always been the cornerstone of our work. While we witness an uncertain economic political and legislative landscape, the environmental crisis remains an urgency and will not shy away. Our work with existing System Partner companies and future clients, supported by two decades of experience and expertise remains more relevant than ever, and we look forward to working with you along this journey.

Barbara Oswald and Makeba Kampara

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[v] WTO, Global Value Chains Sectoral Profiles, 2024, gvc_sectoral_profiles_textiles_clothing24_e.pdf

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[viii] Assessing the impact, Environmental Impact Assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia and Viet Nam. ILO working paper, 51, ILO, February 2022

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