



bluesign

bluesign
Criteria
for bluepass
Products

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1 Revision history

Document title	Version no.	Published	Remarks
bluesign Criteria for bluepass Products	v1.0	September 2026	See Changelog [6] for key changes

1.1 Changelog

This changelog lists the key changes made from **the bluesign Criteria documents listed in row 1 of the table below** to the **revision draft of bluesign Criteria for bluepass Products Version 1.0 (published 2026-09)**.

Key changes	Location
Consolidation of all requirements and recommendations from the documents	1. bluesign® SYSTEM v3.0 (2020-03) 2. bluesign® CRITERIA for approved chemical products and articles for industrial use and commission processes v3.0 (2020-03) 3. bluesign® CRITERIA for bluesign® APPROVED chemical products for end-consumer use v3.0 (2020-03) 4. bluesign® CRITERIA for bluesign® PRODUCT v4.1 (2024-07) 5. bluesign® CRITERIA for chemical assessment v3.0 (2022-11) a. ANNEX: Exceptions v1.0 (2022-11) b. ANNEX: Sustainability Attributes for bluesign® APPROVED Chemical Products v1.1 (2023-01) c. ANNEX: GHS rating matrix v1.0 (2022-11) 6. and from related guidelines and guidance sheets
Comprehensive structural shift, resulting in restart in version numbering	N/A
Amended conditions within	In order to provide greater clarity and facilitate evaluation, the wording of conditions have been amended within: • Topic: General conditions for all products • Topic: Specific conditions for chemical products • Product conditions • Chemical product for direct use in the textile manufacturing process: Consumer safety module • Consumer products: Conditions overview for bluepass Consumer Products
New conditions within	In order to align with regulations, industry norms and consumer expectations, conditions have been added in the following topics: • Topic: Specific conditions • Traceability conditions • Product conditions • Chemical intermediates (NEW topic)

2 Introduction to product registration

To help reduce adverse impact on people and the planet, *registered* products - chemical products, articles and consumer products - are produced through processes that meet bluesign Criteria for product stewardship, resource productivity, environmental protection, worker and social responsibility, including management system requirements.

They can only be produced by *System Partner* companies who have undergone a *bluesign Company Assessment* and have reached *Criteria conformance* status.

The following chapters describe what information must be available in order for a product to be registered in bluesign's databases.

2.1 Scope

Products eligible for *product registration* are:

- Consumer-facing
 - *chemical products* that will be consumer-facing, e.g. via labelling on consumer product or for end-consumer use
 - for industrial use in the textile, accessories and leather industry
 - for direct use in the textile manufacturing process
 - chemical intermediates
 - for end-consumer use in textile care
 - *articles* that will be consumer-facing, e.g. via labelling on consumer product or for end-consumer use
 - textile articles for industrial use at all processing levels (e.g. man-made fibres, yarns, woven fabrics)
 - finished leather articles for industrial use
 - accessories for industrial use (e.g. zippers, buttons)
 - textile articles and accessories for end-consumer use (e.g. repair kits)
 - *B2B and B2C consumer products* in the following categories:
 - *apparel*, including denim apparel
 - *home textiles*
 - *equipment*
 - *footwear*
- Non-consumer-facing
 - *chemical products*
 - for industrial use in the textile, accessories and leather industry
 - for direct use in the textile manufacturing process
 - chemical intermediates
 - *articles*
 - textile articles for industrial use at all processing levels (e.g. man-made fibres, yarns, woven fabrics)
 - finished leather articles for industrial use
 - accessories for industrial use (e.g. zippers, buttons)

The following products are out of scope:

- chemical products
 - in use cases other than those specified above
 - *basic chemicals*
- consumer products in the following categories

- medical supplies such as dressings and bandages
- hygiene products
- toys
- food-safe articles
- technical textiles which do not fall in the category “apparel”
- *furniture* (exclusion does not include camping equipment)

Where a product's eligibility is unclear from the categories above, bluesign shall determine scope inclusion based on documented assessment criteria, including the product's material composition, intended end-use, and alignment with bluesign's published certification criteria.

2.2 Transition period

The **bluesign Criteria for bluepass Products (bluesign Criteria)** Version 1.0 is planned to be officially released on 1 December 2026 and will be effective for all contractual partners in one year beginning 1 December 2027. The transition period starts on the day of release and lasts one year. Early adoption is permitted and encouraged for all entities before the effective date. All assessments conducted on or after 1 December 2027 shall be conducted according to bluesign Criteria Version 1.0.

2.3 Registration process

Before the registration process can be started, the following shall be fulfilled by the *bluesign System Partner* company:

1. Hold a valid System Partner agreement
2. Achieve the *bluesign Status* Criteria conformance
3. Hold a valid certificate from bluesign

Registration process steps:

1. Self-registration in *bluesign Tool* (for chemical products) or *bluesign Guide* (for articles and consumer products) following bluesign's procedure
2. Data check first by IT databases (See: [Description of requirements for product registration \[9\]](#)), then by bluesign assessment personnel
3. If the data check is unsuccessful, the registration is incomplete and the System Partner has the option to re-submit data.
If the data check is successful, registered products are displayed in the *bluesign Finder* (for chemical products) and *bluesign Guide* (for articles and consumer products).
4. Samples for monitoring testing may be requested at any time (See: [Testing \[21\]](#)).
5. No later than 3 years after registration date, a review of the data will be conducted by bluesign.



NOTE

It is the responsibility of the System Partner to ensure that information on the items registered in bluesign's databases are updated and accurate at all times.

Products are to be registered in bluesign's databases under the product range(s) and process category/ies specified to bluesign via the System Partner agreement.

Once registration process is completed, the company is authorized to use bluesign's trademarks following the instructions of the "Certification Mark and Claims Guidelines" (Available on: [bluesign.com](https://www.bluesign.com)).

2.4 Description of requirements for product registration

The requirements for product registration can lead to the following ratings:

Table 1. Categories of product ratings for bluepass Products in bluesign Criteria

Product type	Rating	Comment
Chemical product for industrial processes	pass	The chemical product is made with processes that are conformant with the bluesign Criteria for processing chemical products, and the chemical product conforms with the bluesign Criteria for bluepass Products (either <i>blue rating</i> or <i>grey rating</i>). For more details, see: Rating options [26]
	fail	The chemical product is made with processes that are not compliant with the bluesign Criteria for processing chemical products, and/or the chemical product does not conform with the bluesign Criteria for bluepass Products (<i>black rating</i>). For more details, see: Rating options [26]
Chemical product for end-consumer use	pass	The chemical product is made with processes that are conformant with the bluesign Criteria for processing chemical products, and the chemical product conforms with the bluesign Criteria for bluepass Products.
	fail	The chemical product is made with processes that are not compliant with the bluesign Criteria for processing chemical products, and/or the chemical product does not conform with the bluesign Criteria for bluepass Products.
Article	pass	The article is made with processes that are conformant with the bluesign Criteria for processing articles and B2B consumer products, and the article conforms with the bluesign Criteria for bluepass Products.
	fail	The article is made with processes that are not conformant with the bluesign Criteria for processing articles and B2B consumer products, and/or the article does not conform with the bluesign Criteria for bluepass Products.
Consumer product	pass	The consumer product is made with processes that are conformant with the bluesign Criteria for processing B2C consumer products, and the consumer product conforms with the bluesign Criteria for bluepass Products.
	fail	The consumer product is made with processes that are not conformant with the bluesign Criteria for processing B2C consumer products, and/or the consumer product does not conform with the bluesign Criteria for bluepass Products.

2.4.1 How to read this document

The following verbal forms are used to indicate requirements, recommendations, permissions, or possibilities in this document.

- **"shall", "required" or "necessary"** indicates a mandatory requirement
- **"should", "recommend" or "ought"** indicates a recommendation
- **"may"** indicates a permission
- **"can"** indicates a possibility



IMPORTANT:

Separate *Technical Guidance* documents may contain the verbal forms "shall", "required", "necessary" or other expressions conveying requirements. Such provisions in separate documents are not to be regarded as bluesign Criteria requirements. Only the requirements expressly stated in this bluesign Criteria document apply.

3 Requirements for product registration

3.1 For bluepass Chemical Products

3.1.1 For chemical products for industrial processes

3.1.1.1 General requirements

The table below outlines the data that shall be disclosed by the supplier of the product intended for registration:

Table 2. General requirements for chemical products

Product type	unique identifier for the product, specifically ...	allocation of the product to product categories and sub-categories, specifically ...	name, location and System Partnership status of ...
Chemical products	product name and Tool ID	allocation to chemical product category and chemical product sub-category	production site(s) and subcontractor(s)
Process: <i>Rebranding</i>	Finder ID of original chemical product		

3.1.1.2 Specific requirements

3.1.1.2.1 Data traceability requirements

The following data shall be made available:

- Chemical product category, Chemical product sub-category, Process category, Process sub-category, Sector of Use (See: [Categorization \[65\]](#))
- Chemical composition (See: [Chemical composition \[10\]](#))
- Documents (See: [Documents \[11\]](#))
- Testing evidences (See: [Testing evidences \[11\]](#))
- Additional data (See: [Additional data/information \[11\]](#))

3.1.1.2.1.1 Chemical composition

All substances including:

- Active substances
- Additives
- Impurities (e.g. by-products, unreacted ingredients, residual monomers, catalyst or solvent residues)
- Substances that may be released during application (e.g. blocking agents used for polyurethane, substances from product degradation during manufacturing, application and use)

Bluesign reserves the right to ask for full disclosure of formulation recipes and composition at substance level. Full disclosure means information on all unintentional ingredients above a concentration of 100 mg/kg (or lower if required to prove compliance with [BSSL](#) or [BSBL](#) limits) and intentionally added substances without any concentration limits. As a minimum all substances shall be declared which fulfill the following criteria:

- Substances of very high concern ([SVHC](#)) listed on the candidate list for authorization according to [REACH](#) ((EC) No 1907/2006)
- Substances of concern ([SoC](#)) as per definition in the Ecodesign for sustainable product regulation (ESPR)

- Substances with an occupational exposure limit according to German 'TRGS 900', US 'OSHA Permissible Exposure Limits – Annotated Tables' and Chinese 'GBZ 2.1 - Occupational exposure limits for hazardous agents in the workplace'
- Substances that are classified according to EU regulation 'Classification, Labelling & packaging, (EC) No 1272/2008' (*CLP*). Depending on availability, data may come from CLP Annex VI (harmonized substance classifications), REACH registration dossiers, self-classification or notifications to the ECHA.
- Substances listed on the *BSBL* or *BSSL*, also if likely to be present as impurities
- All intentionally added substances

All substances need to be declared according to their maximum possible concentration in the chemical products in line with the product specification

3.1.1.2.1.2 Documents

- UN GHS-compliant *Safety Data Sheet* (SDS), ideally according to *CLP*
- *Technical Data Sheet* (TDS) (See: *TDS content [64]*)
- For industrial use, optional provision: Product specification sheet
bluesign reserves the right to request the product specification sheets and composition data used for SDS writing for verification purpose.

3.1.1.2.1.3 Testing evidences

- For non-intentionally added substances, testing evidences to confirm adherence with specified limits for BSBL and BSSL listed substances shall be provided. Testing evidences shall either come from ISO 17025 accredited laboratories or from the chemical supplier's internal laboratories that operate according to ISO 17025 principles. Internal non-accredited laboratories shall either
 - regularly validate their internal test results by comparing them with the results from ISO 17025 accredited laboratories, or
 - participate annually in proficiency tests that are conducted according to ISO 17043:2023 principles

3.1.1.2.1.4 Additional data/information

- Classification data for substances shall come from the following sources as available with the subsequent priority:
 1. Use harmonized classification data according to *CLP* Annex VI
 2. Use classification data from *REACH* registration dossiers
 3. Use self-classification data with supporting evidences

In absence of above mentioned sources, the most frequent classification data notified to the ECHA may be used.

Additionally, CESIO Recommendations for the harmonized classification and labeling of surfactants should be applied when determining the appropriate GHS classification for surfactants.

- Additional information on technical application parameters can be necessary depending on the type of chemical product, such as:
 - *Add-on* in kg chemical product/kg substrate
 - Degree of fixation in weight %
 - Liquor concentration in g chemical product/L liquor
 - Liquor ratio in kg substrate/L liquor
 - Textile reference weight in g/m²
- Chemical oxygen demand (COD) in mg O₂/g chemical products (tested¹, calculated or literature)
- Biochemical oxygen demand (BOD₅) in mg O/g chemical product (tested², calculated or literature)

¹suitable testing method: DIN 38409-41

- Total phosphorus (P) content, in weight % (tested³ or calculated)
- Total nitrogen (N) content in weight % (tested⁴ or calculated)
- Adsorbable organic halogen (AOX - as Cl, Br and I) content in weight % (tested⁵ or calculated)
- Fluorine (F) content as weight % (tested⁶ or calculated)
- Total organic carbon (TOC) release (measured or calculated) in g TOC / kg chemical product (tested or calculated)
- References for all applied concepts, equations, parameters, default values, and detailed calculation paths (e.g., [MOS](#), [RCR](#), [PEC/PNEC](#)). These references should include source details such as document name, reference number, page, and links, similar to scientific publications.

3.1.1.2.2 Product requirements

3.1.1.2.2.1 For direct use in the textile manufacturing process

The product shall not receive a *black rating* in the following *bluesign Tool* modules:

- BSBL Module (See: [BSBL module](#) [28])
- SVHC Module (See: [SVHC module](#) [29])
- GHS Module (See: [GHS module](#) [29])
- Consumer Safety Module (See: [Consumer Safety module \(BSSL\)](#) [30])
- Occupational Health Module (See: [Occupational Health module](#) [31])

3.1.1.2.2.2 Chemical intermediates

The product shall not receive a *black rating* in the following *bluesign Tool* modules:

- BSBL Module (See: [BSBL module](#) [28])
- SVHC Module (See: [SVHC module](#) [29])



TIP

Refer to the glossary for the definition of a *chemical intermediate*.

3.1.2 For end-consumer chemical products

3.1.2.1 General requirements

The table below outlines the data that shall be disclosed by the supplier of the product intended for registration:

Table 3. General requirements for chemical products

Product type	unique identifier for the product, specifically ...	allocation of the product to product categories and sub-categories, specifically ...	name, location and System Partnership status of ...
Chemical products	product name and Tool ID	allocation to chemical product category and chemical product sub-category	production site(s) and subcontractor(s)
Process: Rebranding	Finder ID of original chemical product		

²suitable testing method: DIN EN 1899-1

³suitable testing method: DIN EN ISO 11885

⁴suitable testing methods: DIN EN 12260 (TNb) or DIN EN 15663 (TKN)

⁵suitable testing method: DIN EN ISO 9562

⁶suitable testing method: EN ISO 20999

3.1.2.2 Specific requirements

3.1.2.2.1 Data traceability requirements

The following data shall be made available:

- Chemical composition (See: [Chemical composition \[10\]](#))
- Documents (See: [Documents \[13\]](#))
- Testing evidences (See: [Testing evidences \[11\]](#))
- Additional data (See: [Additional data/information \[14\]](#))

3.1.2.2.1.1 Chemical composition

All substances including:

- Active substances
- Additives
- Impurities (e.g. by-products, unreacted ingredients, residual monomers, catalyst or solvent residues)
- Substances that may be released during application (e.g. blocking agents used for polyurethane, substances from product degradation during manufacturing, application and use)

Bluesign reserves the right to ask for full disclosure of formulation recipes and composition at substance level. Full disclosure means information on all unintentional ingredients above a concentration of 100 mg/kg (or lower if required to prove compliance with [BSSL](#) or [BSBL](#) limits) and intentionally added substances without any concentration limits. As a minimum all substances shall be declared which fulfill the following criteria:

- Substances of very high concern ([SVHC](#)) listed on the candidate list for authorization according to [REACH](#) ((EC) No 1907/2006)
- Substances of concern ([SoC](#)) as per definition in the Ecodesign for sustainable product regulation (ESPR)
- Substances with an occupational exposure limit according to German 'TRGS 900', US 'OSHA Permissible Exposure Limits – Annotated Tables' and Chinese 'GBZ 2.1 - Occupational exposure limits for hazardous agents in the workplace'
- Substances that are classified according to EU regulation 'Classification, Labelling & packaging, (EC) No 1272/2008' ([CLP](#)). Depending on availability, data may come from CLP Annex VI (harmonized substance classifications), REACH registration dossiers, self-classification or notifications to the ECHA.
- Substances listed on the [BSBL](#) or [BSSL](#), also if likely to be present as impurities
- All intentionally added substances

All substances need to be declared according to their maximum possible concentration in the chemical products in line with the product specification

3.1.2.2.1.2 Documents

- UN *GHS*-compliant [Safety Data Sheet](#) (SDS), ideally according to [CLP](#)
- [Technical Data Sheet](#) (TDS) (See: [TDS content \[64\]](#))
- Product specification sheet
- User instruction as shared with the consumer
- Product label as printed on packaging

3.1.2.2.1.3 Testing evidences

- For non-intentionally added substances, testing evidences to confirm adherence with specified limits for BSBL and BSSL listed substances shall be provided. Testing evidences shall either come

from ISO 17025 accredited laboratories or from the chemical supplier's internal laboratories that operate according to ISO 17025 principles. Internal non-accredited laboratories shall either

- regularly validate their internal test results by comparing them with the results from ISO 17025 accredited laboratories, or
- participate annually in proficiency tests that are conducted according to ISO 17043:2023 principles

3.1.2.2.1.4 Additional data/information

- Classification (according to [CLP](#)) of all intentionally added ingredients
- Classification data for substances shall come from the following sources as available with the subsequent priority:
 1. Use harmonized classification data according to [CLP](#) Annex VI
 2. Use classification data from [REACH](#) registration dossiers
 3. Use self-classification data with supporting evidences

In absence of above mentioned sources, the most frequent classification data notified to the ECHA may be used.

Additionally, CESIO Recommendations for the harmonized classification and labeling of surfactants should be applied when determining the appropriate GHS classification for surfactants.

- References for all applied concepts, equations, parameters, default values, and detailed calculation paths (e.g., [MOS](#), [RCR](#), [PEC/PNEC](#)). These references should include source details such as document name, reference number, page, and links, similar to scientific publications.

3.1.2.2.2 Product requirements

3.1.2.2.2.1 General

- Chemical products shall meet the threshold limits of the most recent [BSBL](#) and [BSSL](#) (Available on: bluesign.com).
- All applicable legal requirements for product compliance in the countries of sales shall be investigated and followed.
- Labeling of the product shall conform to all applicable laws and regulations and shall contain comprehensive consumer safety advice.
- Chemical products shall not be classified with any of the hazard statements listed in [Restricted H statements](#) [67].
- Ingredients that are classified with any of the H statements listed in [Restricted substance H statements, 10ppm](#) [68] shall not be intentionally added. If present as an impurity 10 ppm shall not be exceeded.
- Ingredients that are classified with any of the H statements listed in [Restricted substance H statements, 100ppm](#) [68] shall not be intentionally added. If present as an impurity 100 ppm shall not be exceeded.
- Substance classified as [SVHC](#) shall not be intentionally added. If present as an impurity the 100 ppm shall not be exceeded.
- Aromatic and chlorinated solvents shall not be used.
- EDTA, phosphonates and nitromusk, as well as polycyclic musks shall not be used
- Apart from cleaning effects, all care products used by the consumer shall have the function of restoring or improving the originally intended function of the product (garment etc.) and in this way extending the lifetime of the product.
- For all effects claimed by the producer of the care product the producer shall have evidence
- Use of preservatives shall generally be avoided but may be accepted in exceptional cases based on expert judgement.
- Dosage instructions and clear information on use and disposal shall be available on the product and/or packaging.

- Chemical products for end-consumer use shall not contain more than 0.01 % by weight of plastic microparticles meeting the following size criteria:
 - particles with all dimensions of 5 mm or less, or
 - elongated particles with a length of 15 mm or less and a length to diameter ratio greater than 3

This limitation shall not apply to microparticles made of natural polymers, polymers containing no carbon atoms in their structure, biodegradable polymers demonstrated to meet the criteria of [OECD Test Guideline 301](#) or [OECD Test Guideline 302](#), water-soluble polymers with a solubility greater than 2 g/L, microparticles permanently incorporated into a polymer matrix or other solid structure such that they are not released under normal conditions of use, film-forming polymer microparticles, or products intended exclusively for professional or industrial use.

- The packaging of the product shall fulfil the following conditions:
 - The packaging adheres to the substance limits from
 - EU Packaging Regulation (EU) 2025/40 (PPWR), and
 - [REACH](#) (Regulation EC 1907/2006) with respect to [SVHC](#) and Annex XVII (Restricted Substances).
 - If the packaging is made from polymer, it shall by 2029
 - contain at least 20% recycled content, or
 - be fully recyclable.

3.1.2.2.2 For spray applications

- Aerosol sprays based on propellant gas and pressured gases are not allowed; only manual pump sprays are allowed.
- The particle size ([MMAD](#)) shall be at least 30 µm with no more than 1 % of the particles having an aerodynamic diameter of 10 µm or less; test reports have to be provided.
- Tests according to the [OECD 403](#) TNO testing guideline shall be carried out, if applicable and necessary to estimate the application risk.
- Active ingredients classified with H334 are not allowed (See: [Restricted H statements \[67\]](#)).

3.2 For bluepass Articles

3.2.1 General requirements

The table below outlines the data that shall be disclosed by the supplier of the product intended for registration:

Table 4. General requirements for articles

Product type	unique identifier for the product, specifically ...	allocation of the product to product categories and sub-categories, specifically ...	name, location and System Partnership status of ...
Articles	article number		
Process: Converting	Guide ID of original articles	allocation to article type and article sub-type	production site(s) and subcontractor(s)

3.2.2 Specific requirements

3.2.2.1 Data traceability requirements

In addition to the data listed in [General requirements](#), the following data shall be disclosed by the material supplier of the article intended for [product registration](#):

- information on upstream suppliers for inputs (e.g. chemicals, materials)
- specification of materials including percentage composition, production processes and usage range (See: [Technical Guidance](#) on Usage ranges)
- if the product has been [registered](#) with bluesign by another party, authorization from the material supplier for bluesign to access production data

The following data shall be made available⁷:

- direct supplier of all inputs
 - If a [registered](#) input is not purchased directly from a bluesign System Partner, the buyer shall be responsible for ensuring the product received is the registered product purchased.
 - If a non-bluesign System Partner is used for mechanical and/or thermal processes, the company shall be responsible for ensuring conformance with the [bluesign Criteria](#)
- recipe with information on
 - all applied processes,
 - all used chemical products and the quantities used, back-traceable to lot numbers for each purchase order
 - The chemical inventory list CIL is up-to date and all necessary information of all chemicals in use at the site have been submitted to bluesign (e.g. safety data sheets).
 - Banned or black rated chemicals are phased out or a plan for phase-out is set and followed.



FOR MORE GUIDANCE

Please refer to the [Technical Guidance](#): Guidance on Criteria requirements for articles

3.2.2.2 Product requirements

- Only chemicals that pass bluesign Chemical Assessments ([blue](#)- or [grey](#)-rated), or have the rating "[accepted](#)" or "[tolerated](#)", shall be used.
- Only non-chemical inputs that are controlled with Input Stream Management shall be used.
- If an additional claim is applicable (e.g. organic cotton or recycled fiber), a third-party certificate shall be provided.
- Plastic accessories or objects which meet the following size criteria according to [REACH](#), Annex XVII, Entry 78 for synthetic polymer microparticles:
 1. objects with all dimensions of 5 mm or less, or
 2. elongated objects with a length of 15 mm or less and a length-to-diameter ratio greater than 3,

shall be sold to and used at industrial sites only.

Such accessories or objects shall not be placed on the consumer market as such, except where they are made of natural polymers, biodegradable polymers meeting [OECD](#) Test Guideline 301 or 302, or water-soluble polymers with a solubility greater than 2 g/L.



FOR MORE GUIDANCE

Please refer to the [Technical Guidance](#): Guidance on Criteria requirements for articles

⁷for bluesign's eKPI service

3.3 For bluepass Consumer Products

3.3.1 General requirements

The table below outlines the data that shall be disclosed by the supplier of the product intended for registration:

Table 5. General requirements for consumer products

Product type	unique identifier for the product, specifically ...	allocation of the product to product categories and sub-categories, specifically ...	name, location and System Partnership status of ...
Consumer products sold <i>B2B</i>	Style Name or unique style identifier (e.g. <i>GMN</i>)	allocation to product type and product sub-type (See: Usage ranges [74])	production site(s) and subcontractor(s)
Trade items placed on consumer market	<i>GTIN</i> , EAN, Style Name or unique style identifier (e.g. <i>GMN</i>)		

3.3.2 Specific requirements

3.3.2.1 Data traceability requirements

In addition to the data listed in [General requirements](#), the following data shall be disclosed by the brand or another System Partner:

- information on upstream suppliers for inputs (e.g. chemicals, materials)
- if the product has been [registered](#) with bluesign by another party, authorization from the material supplier for bluesign to access production data

The following data shall be made available⁸:

- direct supplier of all inputs
 - If a [registered](#) input is not purchased directly from a bluesign System Partner, the buyer shall be responsible for ensuring the product received is the registered product purchased.
- [Bill of Materials](#) (BOM) with information on all components used, back-traceable to purchase orders for each production order
- sketch to verify BOM information
- For components that are not registered with bluesign,
 - Confirmation from the supplier of their conformance to either [bluesign RSL](#), AFIRM RSL or the brand [RSL](#)
 - Test reports and/or third-party certificates that demonstrate the conformance to either bluesign RSL, AFIRM RSL or the brand RSL

3.3.2.2 Product requirements

- The item shall have a textile character. This means that the textile part(s) of the consumer product is/are essential for the functionality of the consumer product.
 - If it is a denim product, it shall be a piece of apparel in which the outer fabric consists at least of 90% denim.
- If an additional claim is applicable (e.g. organic cotton or recycled fiber), a third-party certificate shall be provided.
- The percentage of [registered](#) articles (e.g. fabric and accessories) shall be adhered to (See: [Requirements overview for bluepass Consumer Products \[18\]](#)).
- Company shall ensure that registered consumer product was not manufactured with any process and/or substance not approved for use (See: [Requirements overview for bluepass Consumer Products \[18\]](#)).

⁸for bluesign's eKPI service

- *Embellishments* may be added to a registered consumer product by a company outside the *bluesign System* if *RSL* compliance is managed by the bluesign System Partner.
- The packaging of the product shall fulfil the following conditions:
 1. The packaging adheres to the substance limits from
 - a. EU Packaging Regulation (EU) 2025/40 (PPWR), and
 - b. *REACH* (Regulation EC 1907/2006) with respect to *SVHC* and Annex XVII (Restricted Substances).
 2. If the packaging is made from polymer, it shall by 2029
 - a. contain at least 20% recycled content, or
 - b. be fully recyclable.



FOR MORE GUIDANCE

Please refer to the *Technical Guidance*: Guidance on Criteria requirements for consumer product

3.3.2.2.1 Requirements overview for bluepass Consumer Products

Table 6. Requirements overview of registered inputs and processes for a registered consumer product

	% registered fabric	% registered accessories	Remaining components (fabric and accessories)	Out-of-scope parts	Not approved for use
Apparel	≥90%	≥40% when more than 3 accessories are used ^a .	• From <i>qualified supplier</i> • Meet brand <i>RSL</i>	N/A	1. Rubber for <i>usage range A</i> 2. For wool with shrink-proof (antifelt) finishing, chlorine-based techniques
Denim	≥90% of the textile (including main fabric, pockets, belt loops, etc.) 100% of the denim fabric is <i>registered</i>	40% when more than 3 accessories are used	• From <i>qualified supplier</i> • Meet brand <i>RSL</i>	N/A	1. Rubber for <i>usage range A</i> 2. Chlorine bleaching (i.e. with NaOCl, Ca(OCl)₂, NaClO₂) 3. Use of potassium permanganate (PP) 4. Pumice stonewashing 5. Sandblasting 6. Use of powder-based enzymes (See: bluesign Criteria / Product stewardship / Input stream management)
Home textiles	≥90%	≥40% when more than 3 accessories are used	• From <i>qualified supplier</i> • Meet brand <i>RSL</i>	• From <i>qualified supplier</i> • Meet brand <i>RSL</i> • Sustainability is considered in material selection • <i>PVC</i> is not used	For wool with shrink-proof (antifelt) finishing, chlorine-based techniques

	% registered fabric	% registered accessories	Remaining components (fabric and accessories)	Out-of-scope parts	Not approved for use
Equipment	≥90%	≥40% when more than 3 accessories are used ^b	- From qualified supplier - Meet brand RSL	- From qualified supplier - Meet brand RSL - Sustainability is considered in material selection PVC is not used	Rubber for usage range A
Footwear	≥90% skin-contact material by area (e.g. textile upper, lining, insole)	≥30% when more than 3 accessories are used	- From qualified supplier - Meet brand RSL	N/A	- Rubber for usage range A - For wool with shrink-proof (antifelt) finishing, chlorine-based techniques

^a30% for registered styles put on the market before 2027

^b20% for registered styles put on the market before 2027



SHARE OF REGISTERED INPUTS

For specific details on how to determine the share of registered inputs, please refer to [Determination of the share of registered inputs in a consumer product \[68\]](#).

4 Recommendations: Sustainability attributes

Sustainability attributes are recommendations and may be assigned to [registered](#) products on an optional basis.

If a company wishes to assign sustainability attributes to their registered products, specific conditions for sustainability attributes shall be met in addition to the general and specific requirements for [product registration](#).

This attribute will be visible on the [bluesign Finder](#) (chemical products) or [bluesign Guide](#) (articles and consumer products), supporting [B2B](#) buyers in their purchasing decisions.

4.1 For chemical products

Sustainability attributes that may be applied to chemical products are:

- Recycled content
- Renewable feedstock (bio-based or biomass)
- Renewable feedstock (bio-based or biomass) from sustainable land use
- Product carbon footprint

Further details, including the conditions that shall be met, are available here: [Sustainability attributes \[34\]](#)

4.2 For articles

Sustainability attributes that may be applied to articles are:

- Designed for durability
- Designed for recyclability
- Recycled content
- Microplastic shedding

Further details, including the conditions that shall be met, are available here: [Sustainability attributes \[71\]](#)

4.3 For consumer products

Sustainability attributes that may be applied to consumer products are:

- Designed for durability
- Designed for recyclability
- Recycled content
- Product Environmental Footprint (PEF)

Further details, including the conditions that shall be met, are available here: [Sustainability attributes \[85\]](#)

5 Annex

5.1 Testing

Samples for testing may be requested by bluesign as part of surveillance.

Testing requirements:

- Testing is conducted by a third-party lab.
- Test plans are created by bluesign based on risk approach
- When test results comply with *BSBL* and *BSSL* limit values, the product will continue to be displayed in bluesign databases.
- Should there be findings in the test results, the responsible *bluesign System Partner* company shall follow up.

5.2 For chemical products

5.2.1 Description of chemical assessment

5.2.1.1 Introduction

Chemical products play a crucial role in the manufacturing of consumer goods, helping optimize processes and impart functional as well as aesthetic properties to finished articles. However, beyond their intended benefits, these substances can pose risks to human health and the environment, which must be carefully managed. Conducting a comprehensive chemical assessment is therefore essential to evaluate their impact throughout the manufacturing, use, and disposal phases.

The bluesign chemical assessment provides a robust framework for this evaluation. It enables the identification and elimination of hazardous substances while promoting the development and adoption of safer alternatives.

5.2.1.1.1 Use of chemical product in the textile and leather supply chain

The textile and leather industry, along with its related sectors, is characterized by a wide variety of raw materials and manufacturing techniques. To achieve the functional and aesthetic qualities consumers expect - such as color, drape, and hand feel - fibers, fabrics, and leather undergo numerous physical and chemical treatments.

The textile and leather supply chain relies on a wide range of chemical products, which can generally be classified into four main categories:

- Basic chemicals (salts, acids, bases, etc.)
- Colorants (dyestuffs and pigments)
- Auxiliaries (e.g. surfactants, leveling agents)
- Finishing agents (e.g. softening agents, coatings)

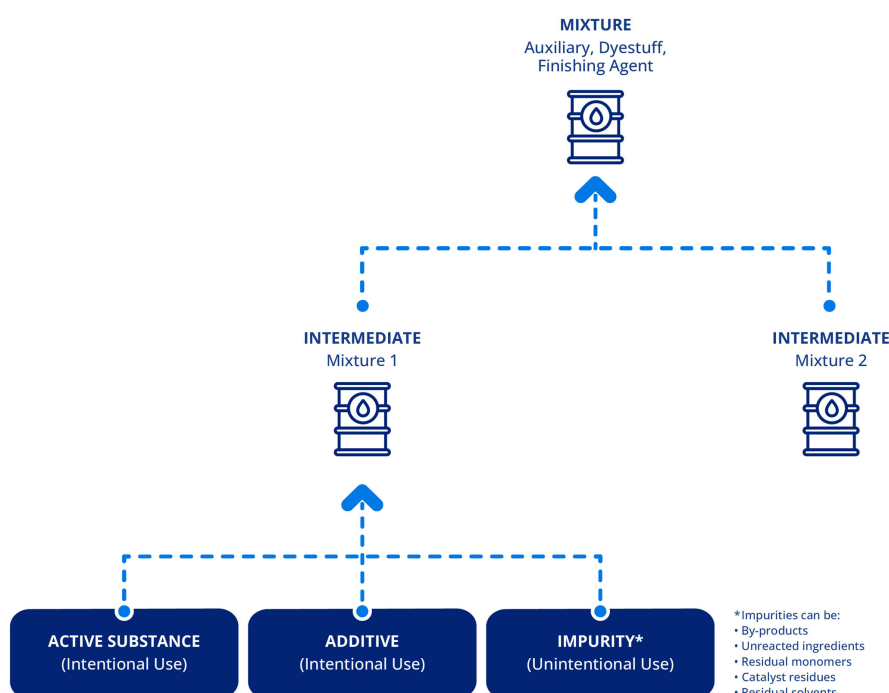
Chemical products consist of individual chemical substances, typically identified by their Chemical Abstract Service (CAS) numbers. These substances may be marketed directly as basic chemicals (e.g., sodium hydroxide, sodium chloride) or incorporated into mixtures as active ingredients, additives, or impurities. Colorants, auxiliaries, and finishing agents are all mixtures of various chemical substances. In fact, most commercial chemical products are composed of several intermediate mixtures (see [Figure 1, "Chemical mixture and its components" \[22\]](#)).

From an application perspective, chemicals used in textile and leather production generally fall into two categories:

- Functional chemical products – Designed to remain on the finished article (to “be fixed”), such as colorants or easy-care finishes. Only small amounts of these substances typically end up in wastewater or off-gas.
- Process chemicals – Used to facilitate finishing processes (e.g., leveling agents, wetting agents) or to pretreat raw materials (e.g., detergents). These chemicals are not intended to remain on the final product and may be fully discharged into wastewater during production.

The potential impact on workers, consumers, and the environment depends on both the category of the chemical product and its mode of use. In many cases, it is not the active substances themselves but rather additives (e.g., dispersing agents in dyes) and impurities (e.g., residual monomers in polymers) that pose the greatest risk. For this reason, the bluesign chemical assessment also evaluates these components to ensure comprehensive safety and sustainability.

Figure 1. Chemical mixture and its components



5.2.1.1.2 Chemical hazard and risk assessment

Every chemical substance carries an inherent hazard. The extent to which this hazard translates into a risk for humans or the environment depends on two factors: the intrinsic hazard and the level of exposure.

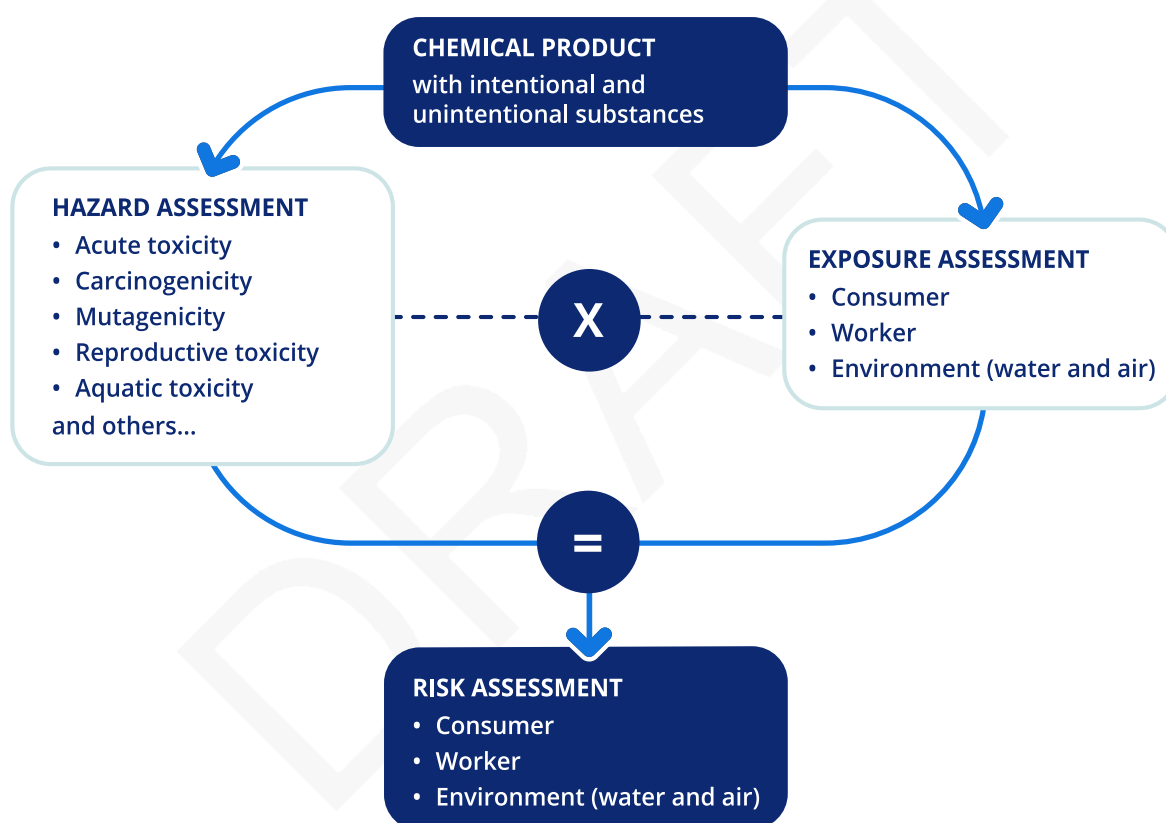
RISK = function of (HAZARD x EXPOSURE)

Under a purely hazard-based approach, risk reduction can be achieved by eliminating substances of high concern. This strategy is particularly effective for highly hazardous chemicals - such as carcinogens or mutagens - or, following the precautionary principle, when exposure data is insufficient. Bluesign applies this hazard-based methodology to support chemical suppliers and material suppliers to remove the most hazardous substances from the supply chain.

For all chemical substances that pass the initial hazard-based assessment, an additional exposure evaluation is performed to determine risk and ensure it remains at a manageable, acceptable

level. Bluesign employs a multidimensional risk assessment approach to quantify the nature and magnitude of potential health risks to workers and consumers, as well as environmental impacts (see [Figure 2, "Risk assessment block diagram" \[24\]](#)).

DRAFT

Figure 2. Risk assessment block diagram

In general, the risk depends on the following factors:

- Inherent toxicity (i.e. hazard) of the chemical substance
- Concentration of the chemical substance
- Level of exposure to the chemical substance for a person or ecological receptor



NOTE

Risk assessment related terminology used in this document is mainly based on the following article: Nordlander K, Simon C-M, Pearson H, 2010. Hazard v. Risk in EU Chemicals Regulation, *The European Journal of Risk Regulation* 3: 239-250.

5.2.1.2 Scope

This document outlines the conditions within the bluesign chemical assessment. The scope includes chemical products:

- For industrial use in the textile, footwear, and leather industries (within the sectors of use: textiles, leather, down & feathers, polymers parts, metal parts)
- For end-consumer applications like care products to treat textile and leather products (e.g., garments, apparel, equipment, and footwear)

Excluded from product registration are basic chemicals and chemicals used within manufacturing facilities that do not come into contact with finished articles (e.g. laboratory chemicals).

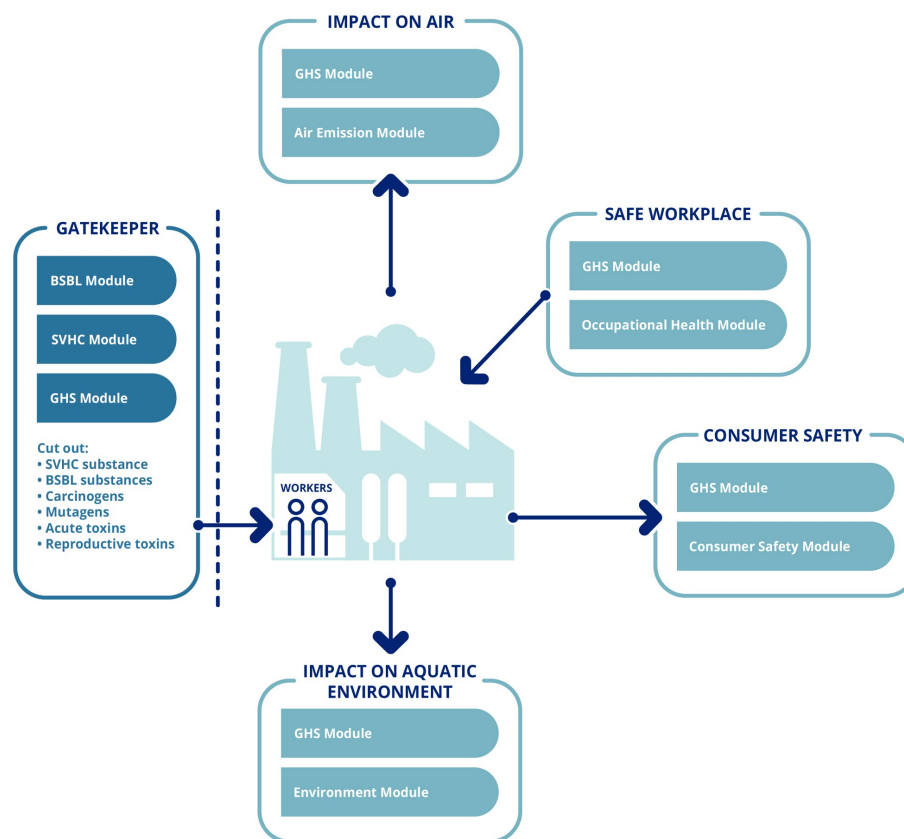
5.2.1.3 Assessment of chemical products for industrial use

5.2.1.3.1 Overview of assessment modules

The bluesign chemical assessment is performed with the expert software bluesign Tool. It contains seven assessment modules (see also [Figure 3, "Chemical assessment modules in context with impacts on factory level" \[26\]](#)) that determine the certification status and the chemical product rating. Those are:

- BSBL module (hazard based)
- SVHC module (hazard-based)
- GHS module (hazard and risk- based)
- Consumer Safety module - BSSL module (risk-based)
- Occupational Health module (risk-based)
- Air emission module (risk-based)
- Environment module

Figure 3. Chemical assessment modules in context with impacts on factory level



Optionally the assessment of sustainability attributes may be conducted which do not impact the product rating (See: [Table 1, "Categories of product ratings for bluepass Products in bluesign Criteria" \[9\]](#)). The modules are

- Recycled content module
- Renewable content module
- Product Carbon footprint

5.2.1.3.2 Rating options

The hazard- and risk-based assessment modules described in [Overview of assessment modules \[25\]](#) can result in different product ratings (see [Figure 4, "'Blue', 'grey' and black rating options depending on the hazard and risk assessment conducted by bluesign" \[27\]](#)). A 'blue' or 'grey' rating meets the conditions for product registration. Grey-rated products include additional recommendations for safe handling during manufacturing. Products rated 'black' do not adhere to the conditions for product registration and cannot be registered in bluesign Finder. The rating options within each assessment module are shown in [Figure 5, "Rating options in each assessment module" \[28\]](#), and the overall product rating is determined by the lowest rating among the individual modules.

Example: If a chemical product is rated blue in six assessment modules, but rated grey in one assessment module, the overall product rating is 'grey'.

Figure 4. 'Blue', 'grey' and black rating options depending on the hazard and risk assessment conducted by bluesign

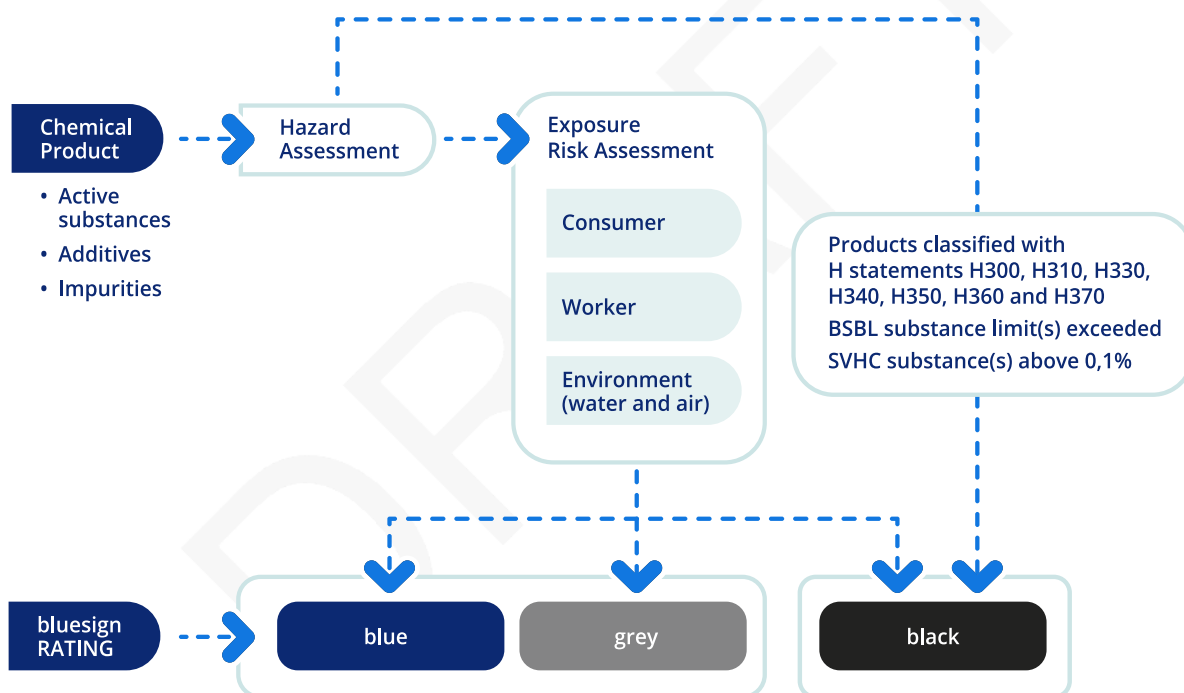
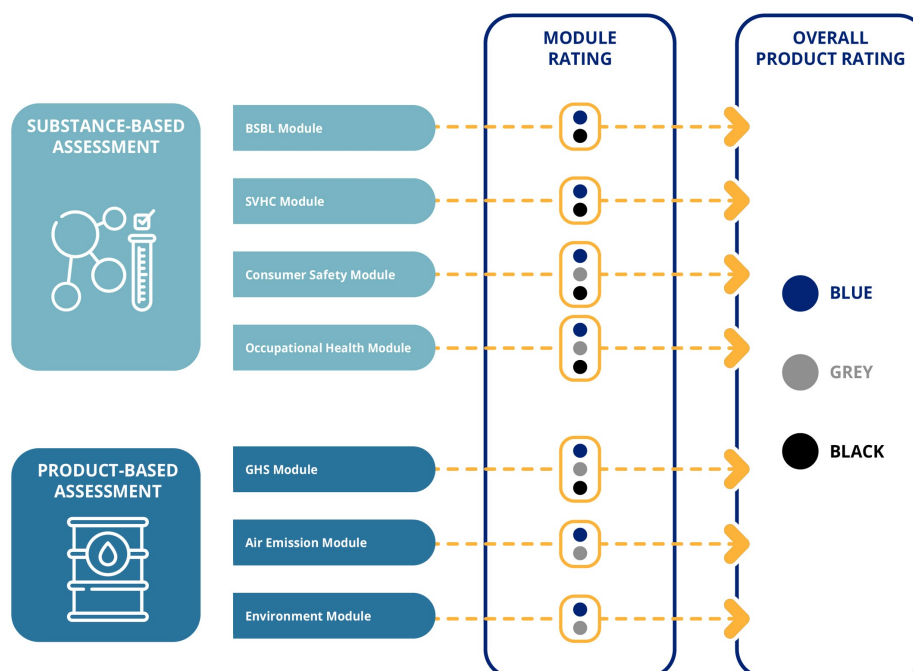


Figure 5. Rating options in each assessment module

5.2.1.3.3 Product information and traceability

The following information shall be provided by the chemical company in order to facilitate the chemical assessment

5.2.1.3.3.1 General

(See: [General requirements](#) [10])

5.2.1.3.3.2 Data traceability requirements

(See: [Data traceability requirements](#) [10])

5.2.1.3.4 Assessment modules

5.2.1.3.4.1 BSBL module

The BSBL module evaluates and rates the declared substance concentrations against the applicable limits defined in the latest BSBL (See: [Table 7, "BSBL module rating rules" \[28\]](#)). The rating is determined by the type of limit assigned in the BSBL: 'usage ban,' 'usage restriction,' or 'monitoring.'

Table 7. BSBL module rating rules

Limit type	Substance concentration	Rating
'Usage ban' or 'Usage restriction'	≤ BSBL limit	blue
'Usage ban' or 'Usage restriction'	> BSBL limit	black
'Monitoring'	≤ BSBL limit	blue
'Monitoring'	> BSBL limit	grey

5.2.1.3.4.2 SVHC module

The SVHC module evaluates and rates declared substance concentrations against the applicable SVHC threshold values, as shown in the following table.

Table 8. SVHC module rating rules

SVHC concentration	Rating
≤ 100 mg/kg	blue
> 100 mg/kg and ≤ 1000 mg/kg	grey
> 1000 mg/kg	black

5.2.1.3.4.3 GHS module

The GHS module addresses health hazards, environmental hazards and physical hazards and covers a purely hazard based (for most severe hazard classes/categories) and an exposure dependent risk-based assessment. Hazard classifications come with the relevant hazard statement (H statement) as defined in the UN GHS. The rating is determined as a function of the H statement only or as a function of H statement and the level of exposure that depends on the manufacturing process in which the chemical products are applied. All hazard classes and categories with the relevant H statements according to UN GHS version 11 and CLP are covered by the bluesign chemical assessment.

5.2.1.3.4.3.1 Level of exposure and release

Exposure level values are separately defined for physical hazard, health hazards (with subsets of oral, dermal and inhalative exposure route) and environmental hazards (release to water and air). The levels are as follows

	Physical hazard	Health hazard Oral exposure	Health hazard Dermal exposure	Health hazard Inhalative exposure	Environmental hazard (release to water)	Environmental hazard (release to air)
Exposure values	Industrial ^a	Industrial ^b	Low	Low	No release	No release
			Moderate	Moderate	Low	Low
			High	High	Moderate	High
					High	

^aFor physical hazards the only exposure value is 'industrial', hence exposure is defined to be independent of the process and will not affect the rating. Physical hazards need to be controlled by adequate industrial safety measures (e.g. sufficient ventilation and explosion-proof machinery when working with flammable liquids or gases).

^bFor health hazards with oral exposure, the only exposure value is 'industrial', hence exposure is defined to be independent of the process and will not affect the rating. It is normal industrial practice/hygiene not to ingest chemical products, i.e. the likelihood of exposure does not depend on the process.

5.2.1.3.4.3.2 Exposure as a function of process and sub-process

The level of exposure is a function of the process category (e.g. Dyeing) and the process sub-category (e.g. batch processing). Dependencies are defined in [Process-exposure matrix \[39\]](#).

5.2.1.3.4.3.3 Rating

In the GHS module chemical products are rated according to the GHS rating matrix which is broken down into physical hazards (See: [GHS matrix - physical hazards \[39\]](#)), health hazards (See: [GHS matrix - health hazards \[41\]](#)) and environmental hazards (See: [GHS matrix - environmental hazards \[44\]](#)). The rating is a function of the hazard statement ("H statement") and the level of exposure. Certain H statements representing most severe health and environmental hazards lead to a 'black' rating independent of the exposure scenario.

5.2.1.3.4.3.4 Exceptions

A few exceptions have been defined for particular scenarios where the standard assessment within the GHS module would lead to a 'black' rating. Rationales of the exception may be

- Process and chemistry are industrial state of the art without feasible commercial alternative
- A reasonable qualitative risk estimation based on expert judgement

For those cases a 'grey' rating is assigned. Examples are:

- Isocyanates in reactive hotmelts
- DMF/DMAC in solvent coating applications
- Respiratory sensitizing dyes in textile and leather dyeing
- Substances (e.g. cyanides) in galvanic processes

Safe handling of those chemical products is to be assured by adequate risk management at the manufacturing facility. Details of the conditions for granted exceptions are described in [GHS exceptions I \[46\]](#) and [GHS exceptions II \[47\]](#).

If a chemical product receives a grey rating due to H-statement H317 ("May cause an allergic skin reaction"), its use in usage range A is prohibited to protect consumers from sensitizing substances on textiles. Exceptionally, usage in range A may be permitted if:

- The sensitizing substance is not intended to remain on the fiber and does not remain (as with process chemicals);
- The sensitizing substance is permanently bonded to the fiber in a way that eliminates its sensitizing effect (e.g., reactive dyes).

The conditions of the exception are defined in [GHS exceptions III \[47\]](#).

5.2.1.3.4.4 Consumer Safety module (BSSL)

The goal of the consumer safety module is to predict whether articles that are treated with a chemical product comply with the consumer safety limits (BSSL). The module calculates predicted concentrations of relevant restricted substances on or in an article and compares them to the substance-specific limits laid down in the BSSL. Substance concentrations on or in an article depend on multiple factors, such as:

- How much chemical product is used per kg material (AddOn)
- Substance concentration in the chemical product
- Applied process (e.g. exhaust, pad application, extrusion)
- Function of the applied chemical (effect chemicals or process chemicals)
- Affinity of the substance to the fiber
- Other process parameters (e.g. temperature)

5.2.1.3.4.4.1 Calculation of BSSL substance concentration on/in the article

Three different process scenarios are considered with separate calculation models to yield the final predicted BSSL substance concentration $C_{Sub,final}$. The models reflect

- Textile application - Batch (exhaust) or continuous
- Textile application - Pad application or coating
- Direct application - Chemical product directly processed into an article (e.g. extrusion, spinning)

The calculation models and how they are assigned is described in [Consumer safety application models \[48\]](#).

5.2.1.3.4.4.2 Rating

Calculated substance concentrations are expressed as a percentage of the BSSL limit i.e. $C_{Sub,final}/BSSL\ limit \cdot 100$. The final rating ('blue', 'grey' or 'black') depends on two main factors.

- The BSSL limit type ('usage ban', 'usage restriction', 'monitoring')
- Whether there are individual limits for usage range A, B and C

The following rating decision logics are applied. The choice of the decision logic depends on whether limits for usage ranges A/B/C are the same (see Figure 6, "Consumer safety rating with one limit for usage ranges A/B/C" [31]) or different (see Figure 7, "Consumer safety rating with individual limits for usage ranges A/B/C" [31]).

Figure 6. Consumer safety rating with one limit for usage ranges A/B/C

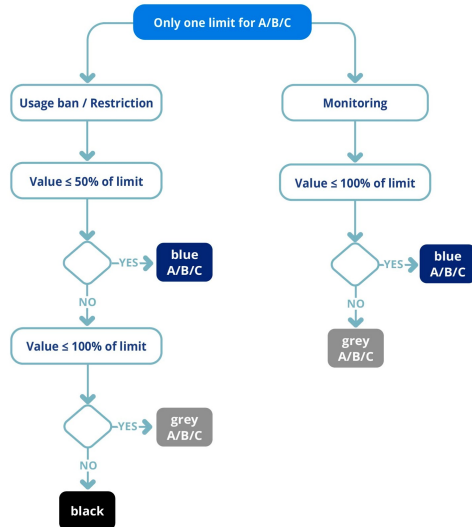
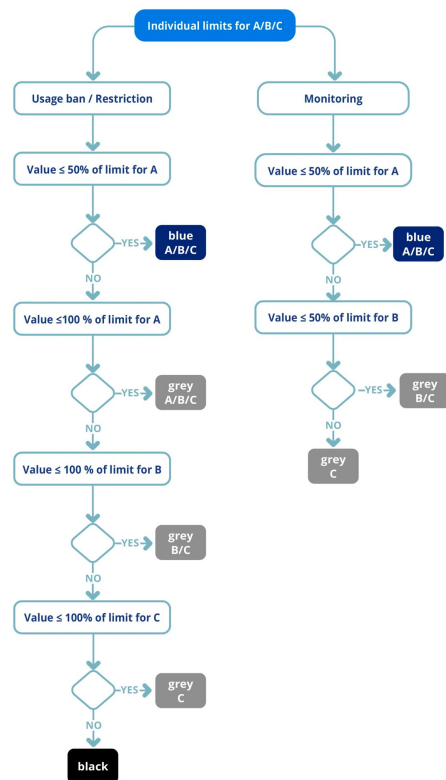


Figure 7. Consumer safety rating with individual limits for usage ranges A/B/C



5.2.1.3.4.4.3 Exceptions

In certain cases, the consumer safety model does not yield realistic substance concentrations on materials - for example, with reactive or solvent-based systems. For these applications, testing the finished material is required to confirm compliance with BSSL limits. These exceptions are detailed in the [Consumer safety exceptions](#) [52].

5.2.1.3.4.5 Occupational Health module

Protecting workers is a core principle of the bluesign System. While the risk to consumers is often minimal, it can be significant for workers - particularly when handling volatile substances. The occupational health module aims to evaluate whether occupational exposure limits are maintained when chemical products are used according to their standard application practices.

Predicted concentrations of chemical substances in workplace air are estimated for selected industrial exposure scenarios and verifies compliance with international occupational exposure limits (OELs). These limits are based on regulatory lists from China (GBZ 2.1), Germany (TRGS 900 and 910), and the USA (OSHA). When multiple applicable limits exist, the lowest value is used for the assessment.

5.2.1.3.4.5.1 Calculation of predicted workplace substance concentration

Five scenarios, primarily related to the textile industry, have been defined in which workers, following standard operating procedures, may come into contact with chemical substances. Depending on the specific application, one or more scenarios are assessed for relevant substances with established OEL limits. These scenarios include:

- Opening barrel
- Opening batch machine
- Batch application with drying process at stenter
- Pad application with drying process at stenter
- Coating application with drying process

The models are based on physicochemical rules for evaporation, using the vapor pressure (at different temperatures), Raoult's law or diffusion from wet surfaces. The calculations result in a value $C_{\text{sub,workplace}}$, the substance concentration in the workplace atmosphere. The detail calculations are documented in [Occupational exposure calculations \[53\]](#). Applicability of the models is a function of 'Sector of Use', 'Process Category' and 'Process Sub-Category' and is assigned according to the matrix in [Occupational exposure models \[58\]](#).

All models are valid exclusively for water-based systems and do not apply to solvent-based or solid products. For such products, no calculation is performed.

5.2.1.3.4.5.2 Rating

Different types of exposure limits apply depending on the duration of worker exposure (See: [Table 9, "Relevant limit types according to the exposure scenario in the occupational health module" \[32\]](#)). For the scenarios 'Opening barrel' and 'Opening dyeing machine,' results for $C_{\text{sub,workplace}}$ are compared against short-term exposure limits (STEL). For the three scenarios involving drying processes, results are evaluated against time-weighted average limits (TWA), based on an eight-hour workday.

Table 9. Relevant limit types according to the exposure scenario in the occupational health module

Scenario	Exposure	Limit type
Opening barrel	Short	STEL (TRGS 900/910, OSHA, GB/Z)
Opening dyeing machine	Short	STEL (TRGS 900/910, OSHA, GB/Z)
Batch application with drying process at stenter	Long	TWA (TRGS 900/910, OSHA, GB/Z)
Pad application with drying process at stenter	Long	TWA (TRGS 900/910, OSHA, GB/Z)
Coating application with drying process at stenter	Long	TWA (TRGS 900/910, OSHA, GB/Z)

A chemical product is classified as 'black' if any calculated concentration exceeds the corresponding STEL or TWA limit (See: [Table 10, "Rating rules for the occupational health module" \[32\]](#)). When multiple STEL or TWA limits apply, the lowest value is used for comparison. A 'grey' rating is assigned when the calculated concentration reaches 50% of the 'black' threshold. In the bluesign Finder, a comment highlights the need to control occupational exposure limits. For substances classified as carcinogenic, the 'grey' rating threshold is extended down to 25%, as illustrated in [Table 10, "Rating rules for the occupational health module" \[32\]](#) below.

Table 10. Rating rules for the occupational health module

Substance type	Calculated workplace concentration in % of strictest limit	Rating
Non-carcinogenic substances	≤ 50	blue
	> 50 ≤ 100	grey
	> 100	black

Substance type	Calculated workplace concentration in % of strictest limit	Rating
Carcinogenic substances	≤ 25	blue
	> 25 ≤ 100	grey
	> 100	black

5.2.1.3.4.6 Air emission module

Certain textile industry processes carry a risk of air emissions. The air emission module evaluates whether the release of *volatile organic compounds* (VOC), expressed as *total organic carbon* (TOC), could pose a concern when using a chemical product. Applicable processes include:

- Coating
- Finishing

The amount of organic carbon likely to be released from a chemical product is compared to an organic carbon threshold value. Exceeding the threshold value should trigger additional measures to reduce organic carbon emission at facility level.

5.2.1.3.4.6.1 Determination of released TOC

The part of the TOC that is released from the chemical product during heat treatment steps can be determined by using the *TEGEWA emission factor model* (chapter 10.2 "Calculation of emissions to air") or by applying a worst-case approximation according to *Technical guidance: Estimation of released TOC (TOC_{est})* [59].

5.2.1.3.4.6.2 Rating

The product's TOC release values (TOC_R) are assessed against a threshold limit of 20 g C per kg chemical product (See: *Table 11, "Rating rules for the air emission module"* [33]). The threshold is defined to keep the specific TOC emission value of 0.8 g C per kg textile⁹ when assuming a liquor concentration of 50 g chemical product per kg liquor and a Pick-up of 75 %.

Table 11. Rating rules for the air emission module

Parameter	Abbreviation	Calculated TOC release in g C per kg chemical product	Rating
Total organic carbon release	TOC _R	≤ 20	blue
		> 20	grey

5.2.1.3.4.7 Environment module

The environment module collects common environmental data that characterizes a chemical product and influences its impact at the facility level, particularly regarding wastewater emissions. While most parameters do not directly affect the product rating (See: *Table 12, "Required minimum parameters for the environment module"* [33]), they are essential for calculating environmental performance indicators (eKPIs) for manufacturing facilities - such as textile producers - which are regularly assessed through bluesign company assessments. The minimum data required to evaluate a chemical product within the environment module is summarized in the table below.

Table 12. Required minimum parameters for the environment module

Parameter	Abbreviation	Unit	Source
Chemical oxygen demand	COD	mg O ₂ /g chemical product	Measured, calculated or literature - not rating relevant

⁹Calculation reference according to TA Luft, chapter 5.4.10.23a: TOC concentration limit of 40 mg/m³ and an air/textile ratio of 20 Nm³/kg textile.

Parameter	Abbreviation	Unit	Source
Biochemical oxygen demand (after 5 days)	BOD ₅	mg O ₂ /g chemical product	Measured, calculated or literature - not rating relevant
Total phosphorus content	P, total	wt %	Measured or calculated - not rating relevant
Total nitrogen content	N, total	wt %	Measured or calculated - not rating relevant
Adsorbable organic halogen content	AOX	wt %	Measured or calculated ^a
Fluorine content (organically bound)	F	wt %	Measured or calculated

^aSee: [Calculation of Adsorbable Organic Halogens \(AOX\) \[59\]](#)

5.2.1.3.4.7.1 Rating

Of the parameters listed in [Table 12, “Required minimum parameters for the environment module” \[33\]](#), only two influence the chemical product rating: ‘Adsorbable Organic Halogen’ and ‘Fluorine Content’. Exceeding the defined threshold limits for either parameter (See: [Table 13, “Rating rules for the environment module” \[34\]](#)) results in a grey rating.”

Table 13. Rating rules for the environment module

Parameter	Abbreviation	Reported concentration in wt %	Rating
Adsorbable organic halogen content	AOX	≤ 0.1	blue
		> 0.1	grey
Fluorine content (organically bound)	F	≤ 0.1	blue
		> 0.1	grey

5.2.1.3.4.8 Sustainability attributes

5.2.1.3.4.8.1 Recycled content module

5.2.1.3.4.8.1.1 Definitions

Recycled content is the proportion, by mass, of recycled material in the dry content of a chemical product. Only materials that have been recovered or otherwise diverted from the waste stream, either during the manufacturing processes (pre-consumer), or after consumer use (post-consumer) are accepted as recycled content.

Post-consumer materials are materials generated by households or by commercial, industrial, and institutional facilities in their roles as end users of the product that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain.

Pre-consumer materials are materials diverted from the waste stream during manufacturing processes. Excluded is the reutilization of materials such as those reworked, re-grinded, and scrap-generated in a process and capable of being reclaimed within the same process that generated it.

5.2.1.3.4.8.1.2 Conditions

The sustainability attribute “Recycled content” can be claimed for [registered](#) chemical products that contain at least 20% recycled content by weight. The recycled content refers to the dry content of the chemical product excluding water.

5.2.1.3.4.8.1.3 Data provision & evidences

Evidence for the recycled content attribute can be provided by two distinct ways

- Option 1: Provide a third-party certificate
- Option 2: Provision of additional evidence to bluesign

Details for option 1:

Bluesign acknowledges third-party certifications such as the ISCC plus certification or equivalent. Both, segregation and mass balance approach are accepted. The information must be visible on the certificate. The certificate shall be provided to bluesign. The validity of the claim is connected to the validity of the third-party certificate.

Details for option 2:

A material declaration form shall be provided including the following information

- Name of the chemical product(s) (as appeared in the bluesign Finder) intended to be registered for the corresponding sustainability product attribute
- Description of the type and composition of the recycled raw material(s)
- Identification as pre- or post-consumer materials
- Calculated recycled content in the final chemical product in percent, considering loss factors during production. Calculation shall be provided.
- Country of origin and supplier name (of the direct supplier) and accompanying papers (e.g., invoices, transport documents)
- Valid supplier confirmation attesting that the supplied material is a reclaimed material that would have otherwise gone to the waste stream.

For option 2 only the segregation approach is accepted. Additional document checks (e.g. production records, bookkeeping checks) to verify the recycled claim status may be conducted during regular on-site assessments conducted by bluesign.

5.2.1.3.4.8.2 Renewable feedstock (biomass or bio-based)

5.2.1.3.4.8.2.1 Definitions

Biomass refers to material(s) of biological origin, excluding material embedded in geological formations or transformed to fossilized material, and excluding peat. This includes organic material (both living and dead) from above and below the ground, e.g., trees, crops, grasses, tree litter, algae, animals, and waste of a biological origin, e.g., manure.

Bio-based materials are derived, in whole or in part, from biomass resources.

5.2.1.3.4.8.2.2 Conditions

The sustainability attribute “Renewable feedstock (biomass or bio-based)” can be claimed for *registered* chemical products that contain at least 20% bio-based carbon expressed as percentage of total carbon. The biomass content shall be derived from biomass sources that are replenished at a rate equal to or greater than the rate of depletion and shall originate from a legal source.

The bio-based content shall be determined using the radiocarbon method (C14 method) in accordance with acknowledged testing standards. A product’s biobased content can be reported as a fraction of total organic carbon content (TOC) according to ASTM D6866 or as a fraction of total carbon content (TC) according to standardized methods such as ISO 16620-02 or EN 16640. To assure analytical accuracy the lab shall be informed about the product’s inorganic carbon content.

5.2.1.3.4.8.2.3 Data provision & evidences

The following data and evidences shall be provided

- The name of the *registered* chemical product for which the renewable feedstock content shall be claimed
- Type of biomass or bio-based raw material(s) used to manufacture the product(s) including, but not limited to:
 - Algae
 - Aloe

- Animal fat or tallow
- Cassava, including Yuca and Tapioca
- Castor
- Citrus
- Corn
- Forestry / wood
- Microbes
- Municipal solid waste
- Olive oil
- Other plant-derived oils (specify type)
- Palm, including coconut
- Rapeseed, including canola oil
- Rice
- Seaweed / kelp
- Shea nuts, including shea butter
- Soy
- Sugar beets
- Sugarcane
- Wheat
- Country of origin, supplier name and accompanying documents for the raw materials contributing to the bio-based carbon content. (e.g., SDS, invoices, transport documents)
- Up to date test report for the bio-based content in accordance with ISO 16620-02, EN 16640 or ASTM D6866 either for the chemical product itself or the used raw materials
- Calculated bio-based content in the final chemical product (bio-based carbon as percentage of total carbon) considering loss factors during production. Calculations shall be provided.
- Recipe information
- Alternatively third-party certificates may be provided e.g. ISCC Plus or equivalent. For third-party certificates both, segregation and mass balance approach are accepted if the certificate is issued for the finished chemical product. The information must be visible on the certificate. The validity of the claim is connected to the validity of the third-party certificate.
- In case the third-party certificate is only issued for the raw material(s) all above points (apart from the bio-based content test) shall be addressed.

The company shall make sure that the claims are valid on a continuous basis. Additional document checks (e.g. production records, bookkeeping checks) to verify the recycled claim status may be conducted during regular on-site assessments conducted by bluesign.

5.2.1.3.4.8.3 Renewable feedstock (biomass or bio-based) from sustainable land use

5.2.1.3.4.8.3.1 Definitions

Sustainable land use in the context of sourcing renewable feedstock refers to managing land resources to replenishable raw materials, like crops or biomass without depleting soil, biodiversity or ecosystems over time. This approach prioritizes avoiding deforestation, habitat loss and competition with food production by focusing on degraded lands, residues, or agroecological practices.

5.2.1.3.4.8.3.2 Conditions

In addition to the conditions laid out in [Conditions \[35\]](#) for “renewable feedstock (biomass or bio-based)”, the biomass content shall originate from a certified sustainable land use. This can be substantiated through internationally recognized voluntary certification standards such as FSC, PEFC, ISCC Plus, REDcert², or RSPO.

5.2.1.3.4.8.3.3 Data provision & evidences

In addition to the information described in [Conditions \[36\]](#) a valid certificate to proof that the biomass or bio-based feedstock originate from a sustainable land use shall be provided.

5.2.1.3.4.8.4 Product carbon footprint

5.2.1.3.4.8.4.1 Definitions

A product carbon footprint (PCF) is the total [greenhouse gas](#) emissions from a product's life cycle—measured and reported in carbon dioxide equivalent (CO₂e) according to standardized LCA-based rules aimed at consistent, transparent, and credible carbon accounting. LCA rules are described in the international standards ISO 14040 and ISO 14044 that together define how Life Cycle Assessment (LCA) studies should be structured and performed. ISO 14067 specifically describes how LCA principles are specifically applied for the calculation of a product carbon footprint.

Important initiatives that aim to establish a unified, interoperable standard for calculating, sharing, and using product-level carbon footprint data within supply chains are [PACT](#) and [TfS](#). TfS has suggested a sector-specific methodology for chemical products aligned with ISO 14040, ISO 14044 and ISO 14067 principles. TfS and PACT focus on the 'cradle-to-gate' approach.

According to the PACT Methodology, a PCF is defined as the cradle-to-gate greenhouse gas emissions (i.e. CO₂e) associated with a specific product. This includes all upstream emissions—from raw material extraction through production, processing, storage, and transportation—up to the point the product leaves the production facility.

5.2.1.3.4.8.4.2 Conditions

The attribute "Product carbon footprint" can be claimed for [registered](#) chemical products if a cradle-to-gate product carbon footprint calculation is provided. The calculation shall be conducted in line with ISO 14067, [PACT](#) and [TfS](#) guidelines. Either the company's product carbon footprint program and/or the product carbon footprint itself shall be verified by an accredited third-party.

5.2.1.3.4.8.4.3 Data provision & evidences

The following data and evidences shall be provided

- Cradle-to-gate product carbon footprint calculation according to ISO 14067, [PACT](#) and [TfS](#) methodologies
- CO₂e and data quality rating shall be reported
- Valid certificate - either for the company's product carbon footprint program or for the specific chemical product – issued by an accredited third-party. The issuing third-party shall have a valid accreditation according to ISO 14067.

5.2.1.3.5 Specific conditions for chemical products with biocidal activity

For the certification of biocidal products, additional conditions beyond those outlined in [Assessment modules \[28\]](#) and its subchapters must be met. A biocidal product can only be registered if its active substance is listed under the Biocidal Products Regulation ((EU) No 528/2012, BPR) and holds one of the following approval statuses for product type "PT09 – Fibre, leather, rubber and polymerized materials preservatives": "Approved," "Initial application for approval in progress," or "Approved – Renewal in process." Exceptions may be granted for active substances meeting the conditions of Article 25 of the BPR. Listing under the U.S. EPA may also be accepted, subject to expert judgment.

The registrant shall conduct and provide a risk assessment including the subsequent information/ aspects (in addition to data already requested in [Product information and traceability \[28\]](#)).

- Regulatory compliance status (according to EU BPR and/or US EPA)
- Claimed effects
- Full disclosure of all intentionally added substance and impurities with percentage and GHS classification data

- Chemical and physical data (See: [Chemical and physical data of the chemical product \[61\]](#))
- Toxicological and Ecotoxicological data (See: [Toxicological data for the active substance \[61\]](#) and [Ecotoxicological and ecological data for the active substance \[62\]](#))
- Evidence for claimed biocidal effect (See: [Evidence for claimed biocidal effect \[62\]](#))
- Evidence for fastness properties (See: [Fastness properties \[63\]](#))
- Human health risk assessment including life cycle stages (See: [Human health risk assessment \[63\]](#))
 - Manufacturing
 - Transport
 - Application
 - Consumer use (Calculation of the margin of safety (*MOS*))
- Environmental risk assessment including life cycle stages (See: [Environmental risk assessment \[64\]](#))
 - Manufacturing
 - Transport
 - Application (Calculation of *PEC/PNEC*)
 - Consumer use (Calculation of *PEC/PNEC*)
 - Disposal (Calculation of *PEC/PNEC*)

The risk assessment template provided by bluesign should be used. If the active substance(s) qualify for a simplified authorization procedure under Article 25 of the BPR, a full risk assessment may not be necessary, provided all conditions of Article 25 are met. Risk assessments previously submitted to ECHA for BPR PT09 applications or to the U.S. EPA for an equivalent scope may also be accepted by bluesign, subject to expert judgment.

5.2.1.3.6 Specific conditions for rebranded products (rebranding of already registered chemical products)

In this scenario, both the chemical products and their original manufacturer have already been evaluated and the chemical product is *registered* with bluesign. All conditions regarding product information and traceability outlined in [Product information and traceability \[28\]](#), as well as the assessment modules in [Assessment modules \[28\]](#) and its subchapters, are fully met. The chemical product is rated as either 'blue' or 'grey'. For rebranded products, the chemical supplier applying for rebranding shall provide the following information to bluesign.

- Original product name and bluesign Tool ID
- Original chemical supplier name and address
- SDS and TDS of original registered product
- SDS and TDS of rebranded product
- Permission letter (template available) signed by the person responsible for product stewardship at the original chemical supplier to allow bluesign to use the data of the original product (to be sent by the original supplier)

5.2.1.4 Assessment of chemical products for end-consumer use

5.2.1.4.1 Product information and traceability

The following information shall be provided by the chemical company in order to facilitate the chemical assessment.

5.2.1.4.1.1 General

(See: [General requirements \[10\]](#))

5.2.1.4.1.2 Data traceability requirements

(See: [Data traceability requirements \[10\]](#))

5.2.1.4.2 Conditions

5.2.1.4.2.1 General

(See: [General \[14\]](#))

5.2.1.4.2.2 For spray applications

(See: [For spray applications \[15\]](#))

5.2.1.5 Related reading

5.2.1.5.1 GHS module

5.2.1.5.1.1 Process-exposure matrix

Table 14. Process-exposure matrix (excerpt)

Process categories (PROC)	Process subcategories (PROSC)	Physical hazard exposure type	Oral exposure type	Dermal exposure	Inhalative exposure	Release to water	Release to air
Dyeing	Batch processing	industrial	industrial	moderate	moderate	high	low
Dyeing	Continuous processing	industrial	industrial	low	low	high	high
Dyeing	Pad processing	industrial	industrial	low	moderate	low	high
Finishing	Batch processing	industrial	industrial	moderate	moderate	high	high
Finishing	Continuous processing	industrial	industrial	low	low	high	high
Finishing	Pad processing	industrial	industrial	low	moderate	low	high
Finishing	Spray processing	industrial	industrial	high	high	no release	high

5.2.1.5.1.2 GHS matrices

5.2.1.5.1.2.1 GHS matrix - physical hazards

Table 15. GHS matrix - physical hazards

H-code	Hazard statement	Exposure	Rating
H200	Unstable explosives	Industrial	grey
H201	Explosive; mass explosion hazard	Industrial	grey
H202	Explosive; severe projection hazard	Industrial	grey
H203	Explosive; fire, blast or projection hazard	Industrial	grey
H204	Fire or projection hazard	Industrial	grey
H205	May mass explode in fire	Industrial	grey
H206	Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced	Industrial	grey

H-code	Hazard statement	Exposure	Rating
H207	Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced	Industrial	grey
H208	Fire hazard; increased risk of explosion if desensitizing agent is reduced	Industrial	grey
H209	Explosive	Industrial	grey
H210	Very sensitive	Industrial	grey
H211	May be sensitive	Industrial	grey
H220	Extremely flammable gas	Industrial	grey
H221	Flammable gas	Industrial	grey
H222	Extremely flammable aerosol	Industrial	grey
H223	Flammable aerosol	Industrial	grey
H224	Extremely flammable liquid and vapour	Industrial	grey
H225	Highly flammable liquid and vapour	Industrial	grey
H226	Flammable liquid and vapour	Industrial	grey
H227	Combustible liquid	Industrial	blue
H228	Flammable solid	Industrial	grey
H229	Pressurized container: may burst if heated	Industrial	grey
H230	May react explosively even in the absence of air	Industrial	grey
H231	May react explosively even in the absence of air at elevated pressure and/or temperature	Industrial	grey
H232	May ignite spontaneously if exposed to air	Industrial	grey
H240	Heating may cause an explosion	Industrial	grey
H241	Heating may cause a fire or explosion	Industrial	grey
H242	Heating may cause a fire	Industrial	grey
H250	Catches fire spontaneously if exposed to air	Industrial	grey
H251	Self-heating; may catch fire	Industrial	grey
H252	Self-heating in large quantities; may catch fire	Industrial	grey
H260	In contact with water releases flammable gases which may ignite spontaneously	Industrial	grey
H261	In contact with water releases flammable gases	Industrial	grey
H270	May cause or intensify fire; oxidizer	Industrial	grey
H271	May cause fire or explosion; strong oxidizer	Industrial	grey
H272	May intensify fire; oxidizer	Industrial	grey

H-code	Hazard statement	Exposure	Rating
H280	Contains gas under pressure; may explode if heated	Industrial	grey
H281	Contains refrigerated gas; may cause cryogenic burns or injury	Industrial	grey
H282	Extremely flammable chemical under pressure; May explode if heated	Industrial	grey
H283	Flammable chemical under pressure; May explode if heated	Industrial	grey
H284	Chemical under pressure; May explode if heated	Industrial	grey
H290	May be corrosive to metals	Industrial	grey

5.2.1.5.1.2.2 GHS matrix - health hazards

Table 16. GHS matrix - health hazards

GHS data					Rating			
H-code	Hazard statement		Hazard class	Exposure route	Low	Moderate	High	Industrial
H300	Fatal	if swallowed	Acute toxicity	oral	N/A	N/A	N/A	black
H300 + H310	Fatal	if swallowed or in contact with skin	Acute toxicity	oral, dermal	black	black	black	N/A
H300 + H310 + H330	Fatal	if swallowed, in contact with skin or if inhaled	Acute toxicity	oral, dermal, inhalative	black	black	black	N/A
H300 + H330	Fatal	if swallowed or inhaled	Acute toxicity	oral, inhalative	black	black	black	N/A
H301	Toxic	if swallowed	Acute toxicity	oral	N/A	N/A	N/A	grey
H301 + H311	Toxic	if swallowed or in contact with skin	Acute toxicity	oral, dermal	grey	grey	black	N/A
H301 + H311 + H331	Toxic	if swallowed, in contact with skin or if inhaled	Acute toxicity	oral, dermal, inhalative	grey	grey	black	N/A
H301 + H331	Toxic	if swallowed or inhaled	Acute toxicity	oral, inhalative	grey	grey	black	N/A
H302	Harmful	if swallowed	Acute toxicity	oral	N/A	N/A	N/A	blue
H302 + H312	Harmful	if swallowed or in contact with skin	Acute toxicity	oral, dermal	blue	grey	grey	N/A
H302 + H312 + H332	Harmful	if swallowed, in contact with skin or if inhaled	Acute toxicity	oral, dermal, inhalative	blue	grey	grey	N/A
H302 + H332	Harmful	if swallowed or inhaled	Acute toxicity	oral, inhalative	blue	grey	grey	N/A

GHS data				Rating				
H-code		Hazard statement	Hazard class	Exposure route	Low	Moderate	High	Industrial
H303		May be harmful if swallowed	Acute toxicity	oral	N/A	N/A	N/A	blue
H303 H313	+	May be harmful if swallowed or in contact with skin	Acute toxicity	oral, dermal	blue	blue	blue	N/A
H303 H313 H333	++	May be harmful if swallowed, in contact with skin or if inhaled	Acute toxicity	oral, dermal, inhalative	blue	blue	blue	N/A
H303 H333	+	May be harmful if swallowed or inhaled	Acute toxicity	oral, inhalative	blue	blue	blue	N/A
H304		May be fatal if swallowed and enters airways	Aspiration hazard	oral	N/A	N/A	N/A	grey
H305		May be harmful if swallowed and enters airways	Aspiration hazard	oral	N/A	N/A	N/A	blue
H310		Fatal in contact with skin	Acute toxicity	dermal	black	black	black	N/A
H310 H330	+	Fatal in contact with skin or if inhaled	Acute toxicity	dermal, inhalative	black	black	black	N/A
H311		Toxic in contact with skin	Acute toxicity	dermal	grey	grey	black	N/A
H311 H331	+	Toxic in contact with skin or if inhaled	Acute toxicity	dermal, inhalative	grey	grey	black	N/A
H312		Harmful in contact with skin	Acute toxicity	dermal	blue	grey	grey	N/A
H312 H332	+	Harmful in contact with skin or if inhaled	Acute toxicity	dermal, inhalative	blue	grey	grey	N/A
H313		May be harmful in contact with skin	Acute toxicity	dermal	blue	blue	blue	N/A
H313 H333	+	May be harmful in contact with skin or if inhaled	Acute toxicity	dermal, inhalative	blue	blue	blue	N/A
H314		Causes severe skin burns and eye damage	Skin corrosion/irritation	dermal	grey	grey	grey	N/A
H315		Causes skin irritation	Skin corrosion/irritation	dermal	blue	grey	grey	N/A
H315 H319	+	Causes skin and eye irritation	Skin corrosion/irritation & Serious eye damage/eye irritation	dermal/eye	grey	grey	grey	N/A
H315 H320	+	Causes skin eye irritation	Skin corrosion/irritation & Serious eye damage/eye irritation	dermal/eye	blue	grey	grey	N/A
H316		Causes mild skin irritation	Skin corrosion/irritation	dermal	blue	blue	blue	N/A

GHS data				Rating			
H-code	Hazard statement	Hazard class	Exposure route	Low	Moderate	High	Industrial
H317	May cause an allergic skin reaction	Skin sensitization	dermal	grey	grey	black	N/A
H318	Causes serious eye damage	Serious damage/eye irritation	dermal/eye	grey	grey	grey	N/A
H319	Causes serious eye irritation	Serious damage/eye irritation	dermal/eye	grey	grey	grey	N/A
H320	Causes eye irritation	Serious damage/eye irritation	dermal/eye	blue	blue	blue	N/A
H330	Fatal if inhaled	Acute toxicity	inhalative	black	black	black	N/A
H331	Toxic if inhaled	Acute toxicity	inhalative	grey	grey	black	N/A
H332	Harmful if inhaled	Acute toxicity	inhalative	blue	grey	grey	N/A
H333	May be harmful if inhaled	Acute toxicity	inhalative	blue	blue	blue	N/A
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	Sensitization	inhalative	grey	grey	black	N/A
H335	May cause respiratory irritation	Specific target organ toxicity - SE	inhalative	blue	grey	grey	N/A
H336	May cause drowsiness or dizziness	Specific target organ toxicity - SE	valid for all	blue	grey	grey	blue
H340	May cause genetic defects	Germ cell mutagenicity	valid for all	black	black	black	black
H341	Suspected of causing genetic defects	Germ cell mutagenicity	valid for all	grey	grey	black	grey
H350	May cause cancer	Carcinogenicity	valid for all	black	black	black	black
H350i	May cause cancer by inhalation	Carcinogenicity	inhalative	black	black	black	N/A
H351	Suspected of causing cancer	Carcinogenicity	valid for all	grey	grey	black	grey
H360	May damage fertility or the unborn child	Reproductive toxicity	valid for all	black	black	black	black
H360D	May damage the unborn child	Reproductive toxicity	valid for all	black	black	black	black
H360F	May damage fertility	Reproductive toxicity	valid for all	black	black	black	black
H360Df	May damage the unborn child. Suspected of damaging fertility	Reproductive toxicity	valid for all	black	black	black	black
H360FD	May damage fertility. May damage the unborn child	Reproductive toxicity	valid for all	black	black	black	black

GHS data				Rating			
H-code	Hazard statement	Hazard class	Exposure route	Low	Moderate	High	Industrial
H360Fd	May damage fertility. May damage the unborn child	Reproductive toxicity	valid for all	black	black	black	black
EUH380	May cause endocrine disruption in humans	Endocrine disruption for human health	valid for all	black	black	black	black
EUH381	Suspected of causing endocrine disruption in humans	Endocrine disruption for human health	valid for all	grey	grey	black	grey
H361	Suspected of damaging fertility or the unborn child	Reproductive toxicity	valid for all	grey	grey	black	grey
H361d	Suspected of damaging the unborn child	Reproductive toxicity	valid for all	grey	grey	black	grey
H361f	Suspected of damaging fertility	Reproductive toxicity	valid for all	grey	grey	black	grey
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child	Reproductive toxicity	valid for all	grey	grey	black	grey
H362	May cause harm to breast-fed children	Reproductive toxicity	valid for all	grey	grey	black	grey
H370	Causes damage to organs	Specific target organ toxicity - SE	valid for all	black	black	black	black
H371	May cause damage to organs	Specific target organ toxicity - SE	valid for all	grey	grey	grey	grey
H372	Causes damage to organs through prolonged or repeated exposure	Specific target organ toxicity - SE	valid for all	grey	black	black	grey
H373	May cause damage to organs through prolonged or repeated exposure	Specific target organ toxicity - SE	valid for all	grey	grey	grey	grey

5.2.1.5.1.2.3 GHS matrix - environmental hazards

Table 17. GHS matrix - environmental hazards (release to water)

GHS data			Release to water			
H-code	Hazard statement	Hazard class	No release	Low	Moderate	High
H400	Very toxic to aquatic life	Hazardous to the aquatic environment, short-term (Acute)	grey	grey	grey	black

GHS data			Release to water			
H-code	Hazard statement	Hazard class	No release	Low	Moderate	High
H401	Toxic to aquatic life	Hazardous to the aquatic environment, short-term (Acute)	blue	blue	grey	grey
H402	Harmful to aquatic life	Hazardous to the aquatic environment, short-term (Acute)	blue	blue	blue	grey
H410	Very toxic to aquatic life with long-lasting effects	Hazardous to the aquatic environment, long-term (Chronic)	grey	grey	grey	black
H411	Toxic to aquatic life with long-lasting effects	Hazardous to the aquatic environment, long-term (Chronic)	blue	grey	grey	black
H412	Harmful to aquatic life with long-lasting effects	Hazardous to the aquatic environment, long-term (Chronic)	blue	blue	grey	grey
H413	May cause long-lasting harmful effects to aquatic life	Hazardous to the aquatic environment, long-term (Chronic)	blue	blue	blue	grey
EUH430	May cause endocrine disruption in the environment	Endocrine disruption for the environment	grey	black	black	black
EUH431	Suspected of causing endocrine disruption in the environment	Endocrine disruption for the environment	grey	black	black	black
EUH440	Accumulates in the environment and living organisms including in humans	PBT (persistent, bioaccumulative, toxic)	black	black	black	black
EUH441	Strongly accumulates in the environment and living organisms including in humans	vPvB (very persistent, very bioaccumulative)	black	black	black	black
EUH450	Can cause long-lasting and diffuse contamination of water resources	PMT (persistent, mobile, toxic)	grey	black	black	black
EUH451	Can cause very long-lasting and diffuse contamination of water resources	vPvM (very persistent, very mobile)	grey	black	black	black

Table 18. GHS matrix - environmental hazards (release to air)

GHS data			Release to air			
H-code	Hazard statement	Hazard class	No release	Low	Moderate	High
H420	Harms public health and the environment by destroying ozone in the upper atmosphere	Hazardous to the ozone layer	grey	grey	N/A	grey
H421	Harms public health and the environment by contributing to global warming	Hazardous by contributing to global warming	grey	grey	N/A	grey

5.2.1.5.1.3 GHS exceptions

5.2.1.5.1.3.1 GHS exceptions I

Table 19. GHS exceptions I

Conditions for exception					
Reason for exception	H-codes	Product category	Product subcategory	Sector of use	Rating
In galvanic processes, some toxic substances (e.g. cyanides) cannot be avoided and are state of the art.	H300, H310, H311, H330, H331, H400, H410, H411	Metal treatment and surface treatment products, including galvanic and electroplating products	N/A	Manufacture of basic metals, including alloys; Manufacture of fabricated metal products	grey
When respiratory sensitizing dyes (H334) are used in textile (or leather) mills a low health risk in process is given, because they are always applied in a liquor and the risk of inhalation is negligible.	H334	Dyes and pigment preparations	All colorant classes	Textile, Leather	grey
Chemical products with H400, 410 or 411 that are not intended to be released to the waste water, because they are fixed on the article (e.g. dyestuffs, coatings).	H400, H410, H411	Dyes and pigment preparations	All colorant classes	Textile, Leather, Down/feather, Polymer parts	grey
	H400, H410, H411	Inks and process auxiliaries (for all uses)	All ink categories	Textile, Leather, Polymer parts, Metal parts	grey
	H400, H410, H411	Adhesives, sealants (for all uses)	Several water based adhesives or curing agents	Textile, Leather, Polymer parts, Metal parts	grey
	H400, H410, H411	Coating compounds, paints, lacquers, coats, thinners, paint removers and process aids	Multiple	Textile, Leather, Polymer parts, Metal parts	grey
	H400, H410, H411	Textile auxiliaries and functional agents	Aftertreatment agents for fastness improvement (affinity to fibre)	Textile	grey
	H400, H410, H411	Leather preparation	Aftertreatment and fixing agents	Leather	grey

5.2.1.5.1.3.2 GHS exceptions II

Table 20. GHS exceptions II

Conditions for exception								
Reason for exception	Substance	H-codes	Solvent type	Chemical function	Process categorization	Product categorization	Max. allowed concentration (%)	Rating
Reactive system, substance consumed	Formaldehyde	H317, H350	N/A	Reactive component (free content)	N/A	Textile auxiliaries and functional agents	3	grey
Reactive system, substance consumed	Isocyanates (as listed in BSSL)	H317, H330, H334, H351	N/A	Reactive component (free content)	Laminating	Reactive hotmelts	5	grey
State of the art for process	N,N-Dimethylacetamide (DMAc) N,N-Dimethylformamide (DMF)	H360, H360D	Solvent	Solvent (intended)	Coating, Laminating, Spinning	N/A	90	grey
State of the art for process	n-Hexane Toluene	H361, H361d	Solvent	Solvent (intended)	Coating, Laminating, Painting/lacquering	N/A	90	grey
Preservatives with very low limits for classification, but required as in-can preservatives in water-based (solvent-free) systems	Isothiazolones with strong sensitizing property but no usage ban. (OIT, CIT, CIT/MIT (3:1), MIT, BIT, MBIT)	H317	N/A	Preservative (intended)	N/A	N/A	0.1	grey

5.2.1.5.1.3.3 GHS exceptions III

Table 21. GHS exceptions III

Conditions for exception				
Product category	Product subcategory	Process category	Sector of use group	Precondition
Dyes and pigment preparations (for all uses)	All colorant classes except disperse dyes and mixtures containing disperse dyes	Dyeing Printing	Textile, Down/feather, Leather	No

Conditions for exception				
Product category	Product subcategory	Process category	Sector of use group	Precondition
Dyes and pigment preparations (for all uses)	Disperse dyes; Mixture: Disperse and acid/ metal complex dyes	Dyeing Printing	Textile, Down/ feather, Leather	Usage range A possible when the disperse dyesuff is not H317 (proven by specific test)
Textile auxiliaries and functional agents	Multiple	Bleaching	Textile, Down/ feather, Leather	No
Textile auxiliaries and functional agents	Multiple	Dry cleaning	Textile	No
Textile auxiliaries and functional agents	Multiple	Pretreatment	Textile, Down/ feather	No
Textile auxiliaries and functional agents	Multiple	Scouring	Textile, Down/ feather	No
Textile auxiliaries and functional agents	Wetting agents; Anti-foaming agents	Sizing	Textile	No
Textile auxiliaries and functional agents	Wetting agents; Anti-foaming agents	Weaving	Textile	No

5.2.1.5.2 Consumer safety module

5.2.1.5.2.1 Consumer safety application models

5.2.1.5.2.1.1 Model assignment

Model assignment is done according to a categorization matrix by defining the Sector of Use, Process Category and Process Subcategory. Model selection is done according to the conditions in following table

Model	Conditions			
	Textile application	Direct application	Substance release to water	Substance release to air
Textile application - Batch (exhaust) or continuous	yes	no	yes	yes
Textile application - Pad application or coating	yes	no	no	yes
Direct application - Chemical product directly processed into an article (e.g. extrusion, spinning)	no	yes	no	no

The full categorization matrix which defines 'Textile application', 'Direct application', 'Substance release to water' and 'Substance release to air' depending on Sector of Use, Process Category and Process Subcategory is documented in [Consumer safety application model assignment \[48\]](#).

5.2.1.5.2.1.1.1 Consumer safety application model assignment

Table 22. Consumer safety application model assignment (excerpt)

Sector of use (SU)	Process categories (PROC)	Process subcategories (PROSC)	Textile application	Direct application	Substance release to water	Substance release to air
Manufacture of plastic products and compounding (e.g. membranes, buckles)	Extrusion	No process subcategory available	No	Yes	No	No

Sector of use (SU)	Process categories (PROC)	Process subcategories (PROSC)	Textile application	Direct application	Substance release to water	Substance release to air
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Batch processing	Yes	No	Yes	Yes
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Continuous processing	Yes	No	Yes	Yes
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Pad processing	Yes	No	No	Yes
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Spray processing	Yes	No	No	Yes
Manufacture of textile products including fabrics, laminates and non-wovens	Dyeing	Batch processing	Yes	No	Yes	Yes
Manufacture of textile products including fabrics, laminates and non-wovens	Dyeing	Continuous processing	Yes	No	Yes	Yes
Manufacture of textile products including fabrics, laminates and non-wovens	Dyeing	Pad processing	Yes	No	No	Yes

5.2.1.5.2.1.2 Textile application - Batch (exhaust) or continuous

This model builds on the assumption that substances are fully ab/adsorbed by the substrate and then released through wet processing to the water phase and released to the air through a drying process.

In a first step the initial theoretical substance concentration $C_{Sub,initial}$ on the dry material is calculated. It is determined by multiplying the *add-on* of the chemical product (CP) per kg material with the substance concentration in the chemical product. A correction factor is introduced to account for the weight increase of the fabric by fixation of a certain percentage of the chemical product.

$$C_{Sub,initial} = AddOn \cdot C_{Sub,CP} \cdot F_{corr} \quad (1)$$

With the correction factor being

$$F_{corr} = \frac{1}{\left(1 + AddOn \cdot \frac{Fix}{100}\right)} \quad (2)$$

The correction factor depends on the share of chemical product intended to remain on the material after processing (Fix) and reflects the dry weight increase of the article after it was treated with the chemical product. The factor can be significant in case of a high AddOn to material (e.g. coating); for process chemicals or other products that remain mainly in the water path the factor is very close to 1.

The initial concentration is then reduced by estimated substance-specific release rates. Release rates are either based on experience from industrial processes or are estimated based on the physicochemical properties of the substance, considering also relevant process parameters. Within bluesign model calculations, release rates to water ($R_{\text{release,water}}$) are assumed to depend on the substance parameters 'hydrogen bonding potential' with the substrate and the distribution coefficient between octanol and water ($\log K_{\text{OW}}$). Release rates to the air depend on the hydrogen bonding potential with the substrate and on the vapor pressure. Pre-calculated release rates for each BSSL substance are available in the bluesign Tool. The reference temperature for release rate calculation is chosen to be 150°C for drying steps. Release rates to air are distinguished between natural fibers (represented by cotton) and man-made fibers (represented by PES). If release rates for specific substances can be derived from experimental studies, these may replace the release rates determined via model calculations.

Depending on the selected process and sub-process, there can be one or two wet processing/drying steps. For each relevant process step the substance concentration is reduced according to the substrate-specific (natural or synthetic fiber) release rates ($R_{\text{release,water}}$ and $R_{\text{release,air}}$). A possible sequence would be as follows (e.g. for batch process dyeing) where the calculated substance concentration after the wet processing step is $C_{\text{Sub,wet}}$ and the final substance concentration after drying is $C_{\text{Sub,final}}$.

Wet processing step:

$$C_{\text{Sub,wet}} = C_{\text{Sub,initial}} \cdot \left(1 - \frac{R_{\text{release,water}}}{100}\right) \quad (3)$$

Drying step:

$$C_{\text{Sub,final}} = C_{\text{Sub,wet}} \cdot \left(1 - \frac{R_{\text{release,air}}}{100}\right) \quad (4)$$

The final concentration $C_{\text{Sub,final}}$ is used for comparison with the BSSL limit values as described in chapter 5.4.5.

If the substance is a metal and the relevant limit in the BSSL is related to an 'extractable' method where the recovery rate of extraction is known, the substance concentration needs to be corrected as follows:

$$C_{\text{Sub,corr}} = C_{\text{Sub,final}} \cdot F_{\text{corr,met}} \quad (5)$$

In [Equation 5 \[50\]](#), $F_{\text{corr,met}}$ is the extraction rate of a particular metal according to the referenced analytical method as given in the BSSL. This correction is necessary for adequate comparison of the calculated substance concentration with the limit value for the extractable amount.

5.2.1.5.2.1.3 Textile application - Pad application or coating

This model builds on the assumption that substances are fully ab/adsorbed by the substrate and then released to the air during a drying processes according to the applicable substance- and substrate-specific release rate ($R_{\text{release,air}}$). Only one drying step is considered in this module. Module assignment is made based on process and sub-process categorization (e.g. process: coating, sub-process: roll coating). The initial substance concentration $C_{\text{Sub,initial}}$ on the material is calculated as per [Equation 1 \[49\]](#) with consideration of the correction factor as per [Equation 2 \[49\]](#). After drying the final substance concentration on/in the material $C_{\text{Sub,final}}$ is

$$C_{Sub, final} = C_{Sub, initial} \cdot \left(1 - \frac{R_{release, air}}{100}\right) \quad (6)$$

If the substance is a metal and the relevant limit in the BSSL is related to an 'extractable' method a correction factor is applied as per [Equation 5 \[50\]](#).

5.2.1.5.2.1.4 Direct application

Direct application is a process where a chemical product is only converted into another shape (e.g. an extruded polymer), thereby becoming an article. The substance concentrations before and after the process are assumed to be identical; release is not considered. Module assignment is made based on process and sub-process categorization. If the substance of concern is a metal and the relevant limit in the BSSL is related to an 'extractable' method a correction factor is applied as per [Equation 5 \[50\]](#).

5.2.1.5.2.1.5 Parameters for calculation of residual substance concentration on articles

Table 23. Parameters for calculation of residual substance concentration on articles

Parameter	Unit	Description
AddOn	kg CP/kg material	Weight of chemical product (CP) applied per weight of material to be treated
CP	-	Chemical product
C _{Sub,CP}	mg/kg	Concentration of a substance in a chemical product
C _{Sub,corr}	mg/kg	Substance concentration corrected by correction factor F _{corr,met} . Only relevant for metals
C _{Sub,initial}	mg/kg	Substance concentration in or on material (e.g. a fabric) without consideration of release to water or air
C _{Sub,wet}	mg/kg	Substance concentration after a wet processing step (exhaust)
C _{Sub,final}	mg/kg	Substance concentration after subtraction of relevant releases to water (wet processing) and air (drying) as applicable
Fix	wt %	Expected maximum percentage of the chemical product to increase the substrate weight
F _{corr}	-	Correction factor for high AddOn based on amount of fixed active substance; factor to consider the weight increase after treatment
F _{corr,met}	-	Correction factor to account for incomplete extraction of metals from a substrate
Liquor	-	The liquid/fluid that is used to treat a material (e.g. a fabric). The liquid is usually a solvent such as water in which the active substance (e.g. a dyestuff) and auxiliary substances (e.g. dispersing agent) are dissolved.
R _{release,water}	wt %	Substance specific release rate to the water phase in weight percentage during wet processing
R _{release,air}	wt %	Substance specific release rate to the air from a synthetic or natural fiber in weight percentage during drying process

5.2.1.5.2.2 Consumer safety exceptions

Table 24. Consumer safety module - exceptions

Reason for exception	BSSL substance	Solvent type	Conditions for exception		
			Chemical function	Process category	Product categorization
Metal complex dyes are intended to stay on the fiber. A limit for BSSL listed metals is defined as extractable content. BSSL conformance shall be confirmed by article testing.	Chromium - as content Cobalt - as content Copper - as content Nickel - as content	N/A	Metal content of metal complex dye	N/A	All colorant classes that may contain metal complex dyes
Reactive components, where the chemical substance is modified in a chemical reaction or released during the process cannot be calculated with the existing models. BSSL conformance shall be confirmed by article testing.	Formaldehyde Isocyanates	N/A	Reactive component (free content)	N/A	N/A
Exception defined in BSSL BSSL conformance shall be confirmed by article testing.	ε-Caprolactam	N/A	Ingredient (intended)	N/A	Polycaprolactam (PA 6), adhesives, hotmelts
Reactive components, where the chemical substance is modified in a chemical reaction or released during the process cannot be calculated with the existing models. BSSL conformance shall be confirmed by article testing.	2-Butanone oxime	N/A	Blocking agent (free content)	N/A	N/A
If the chemical product is solvent based, the calculation is not possible, because the models are only valid for water based systems and a model calculation would never be precise enough to determine the residual solvent content on the finished article. BSSL conformance shall be confirmed by article testing.	N,N-Dimethylacetamide (DMAc) N,N-Dimethylformamide (DMF)	Solvent	Solvent (intended)	Coating, Laminating, Spinning	N/A
	Tetrachloroethylene	Solvent	Solvent (intended)	Dry cleaning	N/A
	Acetone, Cyclohexane, n-Hexane, Toluene, Xylene, all isomers	Solvent	Solvent (intended)	Coating, Laminating, Painting/lacquering	N/A
	Trimethylbenzene isomers	Solvent	Solvent (intended)	Coating, Laminating, Painting/lacquering	N/A
	n-Pentane	Solvent	Solvent (intended)	Coating, Laminating, Painting/lacquering	N/A

5.2.1.5.3 Occupational health module

5.2.1.5.3.1 Occupational exposure calculations

5.2.1.5.3.1.1 Scenario: Opening barrel

This scenario describes the situation of a worker opening a barrel of a chemical product and being exposed to the substance concentration in the supernatant gas phase. The model assumptions are:

The barrel is partly empty and when opening, a volume of 50 liters from the gas phase above the liquid disperses into the working area. Outside the barrel the volume of 50 liters is diluted to 2500 liters.

Based on the molecular weight, vapor pressure (at 25°C) and concentration of the substance in the chemical product, the concentration in the gas phase is calculated using Raoult's law and the ideal gas law.

5.2.1.5.3.1.1.1 Model assumptions

- For the calculation of each substance, the system is regarded as a two-component system (substance and water; $C_{\text{water}} = 1 \text{ kg/L} - C_{\text{sub}}$), independent of whether further substances are contained in the product.
- The density of the chemical product is set by default to 1 kg/L.
- Dilution factor $f_{\text{dil}} = 50$
- Temperature: 25°C (298 K)

5.2.1.5.3.1.1.2 Calculation

1. Calculation of the partial pressure of the substance $p_{\text{sub,part}}$

$$p_{\text{sub, part}} = p_{\text{sub}} \cdot \text{mole fraction} = p_{\text{sub}} \cdot \frac{C_{\text{mole, sub}}}{C_{\text{mole, sub}} + C_{\text{mole, water}}} \quad (7)$$

with:

$$C_{\text{mole, sub}} = \frac{C_{\text{sub, CP}}}{MW \cdot 1000} \quad (8)$$

$$C_{\text{mole, water}} = \frac{(1000000 - C_{\text{sub, CP}})}{MW \cdot 1000} \quad (9)$$

(1000 and 1000000 are factors for unit correction g/kg and mg/kg)

2. Calculation of the substance concentration in the surrounding using ideal gas equation

$$p \cdot V = \text{constant} = n \cdot R \cdot T = \frac{m_{\text{sub}}}{MW} \cdot R \cdot T \quad (10)$$

$$\frac{m_{\text{sub}}}{V} = \frac{p \cdot MW}{R \cdot T} = C_{\text{sub, air}} \quad (11)$$

with factors for unit correction this becomes:

$$C_{\text{sub, workplace}} = \frac{p_{\text{sub, part}} \cdot MW \cdot 1000}{R \cdot T \cdot f_{\text{dil}}} \quad (12)$$

5.2.1.5.3.1.2 Scenario: Opening dyeing machine

This scenario describes the situation of a worker opening a dyeing machine after the dyeing process and being exposed to the substance in the supernatant gas phase expanding to the surroundings. The amount of gas escaping from the dyeing machine is defined to be 2000 liters, the dilution in the workplace area is defined to be 5000 liters.

The calculation is performed in the same way as for the opening barrel scenario, but considering the substance concentration in the liquor, the vapor pressure at a temperature of 60°C and the different dilution factor in the working area.

The liquor concentration is important for this calculation but varies in practice depending on the equipment/machine used. Therefore, the concentration is normalized to a worst-case liquor ratio of 1:4

5.2.1.5.3.1.2.1 Model assumptions

- For the calculation of each substance, the system is regarded as a two-component system (substance and water; $c_{\text{water}} = 1 \text{ kg/L} - c_{\text{sub}}$), independent of whether further substances are contained in the product
- The density of the chemical product is set by default to 1 kg/L
- Temperature: 60°C (333 K)
- Dilution factor $f_{\text{dil}} = 2.5$
- Liquor ratio for normalization $LR_{\text{norm}} = 1:4$

5.2.1.5.3.1.2.2 Calculation

1. Calculation of the substance in the liquor with standardized liquor ratio, depending on the input data

$$C_{\text{sub, liq}} = \text{AddOn} \cdot C_{\text{sub, CP}} \cdot LR_{\text{norm}} = \text{AddOn} \cdot \frac{C_{\text{sub, CP}}}{4} \quad (13)$$

$$C_{\text{sub, liq}} = C_{\text{liquor}} \cdot C_{\text{sub, CP}} \cdot \frac{LR_{\text{norm}}}{LR} = C_{\text{liquor}} \cdot C_{\text{sub, CP}} \cdot \frac{1}{LR \cdot 4} \quad (14)$$

2. Calculation of the partial pressure of the substance $p_{\text{sub, part}}$: see [Equation 7 \[53\]](#), with $c_{\text{sub, CP}}$ replaced by $c_{\text{sub, liq}}$
3. Calculation of the substance concentration in the surroundings using the ideal gas equation: similar to [Equation 12 \[53\]](#), using the model-specific parameter

5.2.1.5.3.1.3 Scenario: Batch application with drying process at stenter

This scenario describes the situation of the wet textile after a batch process at the inlet area of a stenter for a drying process. Diffusion of chemical substances from the wet textile surface occurs and is used to calculate the substance concentration in the surrounding workplace atmosphere. For the calculation this scenario requires as additional substance parameter the diffusion coefficient in air.

5.2.1.5.3.1.3.1 Model assumptions

- 1 kg textile takes 1 kg of liquor after batch application
- Textile area considered for diffusion: 20 m² textile, in total 40 m² (due to diffusion from both sides of the textile)
- Exposed area (V_{exp}): 500 m³
- Air exchange rate (λ): 4 times per hour

This model is only valid for water-based systems (solvent-based processes need exhaust ventilation in place).

5.2.1.5.3.1.3.2 Calculation

1. Calculation of the substance concentration in the wet phase on the article (after batch application). The concentration of substances in the wet phase on an article is not the same as the starting concentration in the liquor. Substances show different behavior regarding their tendency to remain on the textile or in the water. To consider this in the calculation, release

rates are used, the same as used in the consumer safety module. The model assumption has two steps:

- All chemical substances from the liquor are taken up by the wet phase on the textile
- This concentration is reduced by using the release rate as an indicator of how much of a substance (in percent) goes into the wastewater path

In a first step the initial substance concentration in the liquor is calculated and corrected with the release rate.

$$C_{sub, wet, article} = C_{liquor} \cdot \frac{1}{LR} \cdot C_{sub, CP} \cdot \left(1 - \frac{R_{release, water}}{100}\right) \quad (15)$$

or:

$$C_{sub, wet, article} = AddOn \cdot C_{sub, CP} \cdot \left(1 - \frac{R_{release, water}}{100}\right) \quad (16)$$

If no release rate can be determined for a substance or group, a worst-case calculation with release rate 0 takes place.

- Calculation of substance in the workplace atmosphere. A diffusion model is used to calculate the substance concentration in the workplace atmosphere.¹⁰

$$C_{sub, workplace} = \frac{Emission\ mass\ flow \cdot MW \cdot (1 - F2) \cdot OF \cdot 1000}{Air\ volume\ flow} \quad (17)$$

with:

The factor 1000 (g/mg) is used for unit correction

OF = Location factor = 2 (affected workplace directly located at source)

$$F2 = \frac{1 - e^{(-\lambda \cdot \Delta t)}}{\lambda \cdot \Delta t} \quad (18)$$

$$Air\ volume\ flow = V_{exp} \cdot \lambda \quad (19)$$

$$Emission\ mass\ flow = \frac{mole\ fraction \cdot \gamma \cdot p_{sup} \cdot \beta \cdot A}{R \cdot T} \quad (20)$$

$$\beta = 0.0111 \cdot \frac{\left(v_{air} \cdot 3600 \frac{s}{h}\right)^{0.96} \cdot D_{air, sub}^{0.19}}{v_{air}^{0.14} \cdot x_{liq}^{0.04}} \quad (21)$$

5.2.1.5.3.1.4 Scenario: Pad application with drying process at stenter

This scenario is similar to the scenario 'Batch application with drying process at stenter' and describes evaporation from a wet textile at the stenter before it comes to the drying compartments. It differs from the former module in the different calculation of the substance concentration in the wet textile. In contrast to the former model, no release rate is considered. It is assumed that the concentration of substances in the wet phase on the textile is the same as the concentration in the liquor. The liquor pick-up is a relevant parameter in this model, but can vary depending on the process, equipment, kind of textile and adjustments. In the model calculations the pick-up is standardized to a value of 50% (worst-case).

The textile has passed the foulard for pick-up of liquor and afterwards a rolling system and the inlet area. In these areas evaporation driven by diffusion from wet surfaces takes place. The calculation model is based on the release amount of a substance to the surrounding in relation to a defined surrounding area of 500 m³ combined with an air exchange rate of 4 times per hour. The

¹⁰BIA Report 3/2001, *Berechnungsverfahren und Modellbildung in der Arbeitsbereichsanalyse*, HVBG, 2001

ambient conditions are set to 30/25/20°C depending on the availability of vapor pressure data. The evaporation surface is set to 40 m².

5.2.1.5.3.1.4.1 Model assumptions

- 1 kg textile takes up 0.5 kg of liquor after pad application (relates to a pick-up normalization of 50%)
- Textile area considered for diffusion: 20 m² textile, in total 40 m² (due to diffusion from both sides of the textile)
- Exposed area: 500 m³
- Air exchange rate (λ): 4 times per hour

5.2.1.5.3.1.4.2 Calculation

1. Calculation of the substance in the wet phase on the article (after pad application)

$$C_{sub, wet, article} = C_{liquor} \cdot C_{sub, CP} \cdot \frac{liquor\ pick - up}{50} \quad (22)$$

$$C_{sub, wet, article} = AddOn \cdot C_{sub, CP} \cdot 2 \quad (23)$$

Factor 2 in Equation 23 [56] relates to a liquor pick-up of 50% (textile:liquor ratio = 2:1).

2. Calculation of the substance concentration in the workplace atmosphere. This part of the calculation is exactly the same as in the scenario 'Batch application with drying process at stenter' (Equation 17 [55] onwards).

5.2.1.5.3.1.5 Scenario: Coating application with drying process

This scenario is similar to the scenario 'Pad application with drying process at stenter' and describes evaporation from a wet textile at the stenter before it comes to the drying compartments. It differs from the former module in that diffusion/evaporation takes place only from one side (coated side) of the textile

Chemical products that are applied undiluted (ready to use) form a special case. In that scenario, the calculation step for the concentration of the substance in the liquor is no longer relevant.

5.2.1.5.3.1.5.1 Model assumptions

- 1 kg textile takes up 1 kg of liquor after coating application
- Textile area considered for diffusion: 20 m² textile (diffusion only from coated side)
- Exposed area: 500 m³
- Air exchange rate (λ): 4 times per hour

5.2.1.5.3.1.5.2 Calculation

1. Calculation of the substance on the article (after coating application):

$$C_{sub, wet, article} = AddOn \cdot C_{sub, CP} \quad (24)$$

$$C_{sub, wet, article} = \frac{AddOn_{area}}{Reference\ weight\ textile} \cdot C_{sub, CP} \quad (25)$$

2. Calculation of the substance concentration in the workplace atmosphere. This part of the calculation is exactly the same as in the scenario 'Batch application with drying process at stenter' (Equation 17 [55] onwards).

5.2.1.5.3.1.6 Parameters for calculation of residual substance concentration on articles

Parameter	Unit	Description	Default values
A	m ²	Evaporation surface textile	40 m ² (20 m ² for coating)
AddOn	kg CP/kg material	Weight of chemical product (CP) applied per weight of material to be treated	
AddOn _{Area}	kg CP/m ² material	Weight of chemical product applied per area of material to be treated	
Air volume flow	m ³ /h	Total air volume flow in exposed area	
C _{liquor}	kg CP/kg liquor	Concentration/addition of a chemical product (CP) to the liquor	
C _{mole,sub}	mole/L	Molar concentration of a substance in a liquid system	
C _{mole,water}	mole/L	Molar concentration of water (as solvent) in a liquid system	
C _{sub,CP}	mg/kg	Concentration of a substance in a chemical product	
C _{sub,wet,article}	mg/kg	Concentration of a substance in the wet phase of an article after a wet application step before drying	
C _{sub,liq}	mg/L	Concentration of a substance in the liquor	
C _{sub,air}	mg/m ³	Concentration of a substance in the atmosphere above a liquid (equilibrium, e.g. in the air phase of a closed barrel).	
C _{sub,workplace}	mg/m ³	Concentration of a substance in the workplace atmosphere.	
CP	-	Chemical product	
D _{air,sub}	m ² /h	Diffusion coefficient of a substance in air	
Emission mass flow	mol/h	Molar mass flow of a substance evaporating from a wet surface	
f _{dil}	-	Dilution factor. Dilution occurs when the gas phase from a barrel or vessel expands to the working environment; the factor is model specific.	
(1 - F ₂)	-	Factor considering the temporal development of the substance concentration in the workplace atmosphere during the shift with: $F_2 = \frac{1 - e^{-(\lambda \bullet \Delta t)}}{\lambda \bullet \Delta t}$	
Liquor	-	The liquid/fluid that is used to treat a material (e.g. a fabric). The liquid is usually a solvent such as water in which the active substance (e.g. a dye stuff) and auxiliary substances (e.g. dispersing agent) are dissolved.	
liquor _{pick-up}	%	Portion of liquor picked up by a textile in a wet process, in weight percentage of the textile weight.	
LR	-	Liquor ratio, ratio between substrate and liquor in a batch process. Usually between 1:4 and 1:10 (example: 1 kg textile to 4 liter of dyeing liquor)	
LR _{norm}	-	Depends in practice on process and equipment. To make calculations comparable a value of 1:4 used as realistic worst case	1:4
m _{sub}	g	Mass of substance	
mole fraction	-	Mole fraction of a substances in a substance mixture	
MW	g/mol	Molecular weight of a chemical substance	
n	mol	Number of moles of a substance (m _{sub} /MW)	
OF	-	Location factor, relates the substance concentration at the workplace to the calculated average concentration in the whole area (here: affected workplace directly located at source)	2 (worst case)
p _{sub}	mbar	Vapor pressure of a substance at a specific temperature	

Parameter	Unit	Description	Default values
$p_{\text{sub,part}}$	mbar	Partial vapor pressure of a substance in a mixture, based on mole fraction	
R	mbar*m ³ /(mol*K)	Universal gas constant, 8.314 J/(mol*K) or 0.08314 mbar*m ³ /(mol*K).	0.08314 mbar*m ³ /(mol*K)
$R_{\text{release,water}}$	wt %	Substance-specific release rate to the water phase in weight percentage during wet processing	
Reference weight textile	kg/m ²	Weight of a material per unit area	
T	K	Temperature in Kelvin	
Δt	h	Time period of emission (one shift of 8 h)	8
V	m ³	Volume (gas volume in ideal gas equation)	
V_{exp}	m ³	Exposed area at stenter inlet area considered for calculation	500 m ³
vel_{air}	m/s	Air flow velocity over liquid/wet surface (here wet textile at inlet area of stenter)	0.1 m/s
x_{liq}	m	Length overflowed liquid surface	1 m
b	m/h	Mass transfer coefficient of a substance into the gas phase	
γ	-	Activity coefficient of a chemical substance in a liquid phase	2
λ	1/h	Air exchange rate at workplace	4/h
n_{air}	m ² /h	Kinematic viscosity air	0.055 m ² /h

5.2.1.5.3.2 Occupational exposure models

Table 25. Occupational exposure models (excerpt)

Sector of use (SU)	Process categories (PROC)	Process subcategories (PROSC)	Opening barrel	Opening closed batch	Batch application with drying process	Pad application with drying process	Coating application with drying process
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Batch processing	Yes	Yes	Yes	No	No
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Continuous processing	Yes	No	Yes	No	No
Manufacture of textile products including fabrics, laminates and non-wovens	Finishing	Pad processing	Yes	No	No	Yes	No

Sector of use (SU)	Process categories (PROC)	Process subcategories (PROSC)	Opening barrel	Opening closed batch	Batch application with drying process	Pad application with drying process	Coating application with drying process
Manufacture of textile products including fabrics, laminates and non-wovens	Dyeing	Batch processing	Yes	Yes	Yes	No	No
Manufacture of textile products including fabrics, laminates and non-wovens	Dyeing	Continuous processing	Yes	No	Yes	No	No
Manufacture of textile products including fabrics, laminates and non-wovens	Dyeing	Pad processing	Yes	No	No	Yes	No

5.2.1.5.4 Air emission module

5.2.1.5.4.1 Technical guidance: Estimation of released TOC (TOC_{est})

Emission factors can be determined by analytical testing on different substrates in suitable labs. However, if no analytical data is available, the following sequence can be applied to yield a worst case TOC_{est} from a chemical product in thermal treatment steps after coating and finishing:

1. Calculate the TOC per ingredient of the chemical product
2. Allocate each ingredient to one of the following categories (See: [Table 26, "Ingredient categorization for TOC estimation" \[59\]](#))
3. Calculate the contribution to the total emissions of the mixture by using the TOC factor and concentration in the mixture to yield TOC_{est}

Table 26. Ingredient categorization for TOC estimation

Type	Intended to remain on fabric	Type of substance	TOC factor
Organic	Yes/no	VOC substances (vapor pressure ≥ 0.01 kPa at 20°C or boiling point $\leq 240^\circ\text{C}$)	100% of TOC
Organic	No	Released substances (e.g. blocking agent)	100% of TOC
Organic	Yes	Polymers	1% of TOC
Organic	No	Polymers (e.g. ethoxylates)	20% of TOC
Organic	Yes/no	Nonvolatile substances (vapor pressure < 0.01 kPa at 20°C or boiling point $> 240^\circ\text{C}$)	20% of TOC
Organic	No/unclear	All other substances (unclear vapor pressure/boiling point)	100% of TOC
Inorganic	Yes/no	All kinds of inorganic substances	No TOC

5.2.1.5.5 Environment module

5.2.1.5.5.1 Calculation of Adsorbable Organic Halogens (AOX)

The AOX content in a chemical product can be derived by calculation based on molecular formula and recipe information, as shown below.

1. Determine the molecular weight and number of halogen atoms for all ingredients/substances in the mixture
2. Count every halogen atom as Cl (always take the molar mass of Cl) and divide by the total molar mass of the ingredient to determine the AOX content of the substance
3. Calculate the AOX content of a mixture based on the concentration of ingredients in the mixture and the AOX content of each ingredient

**NOTE**

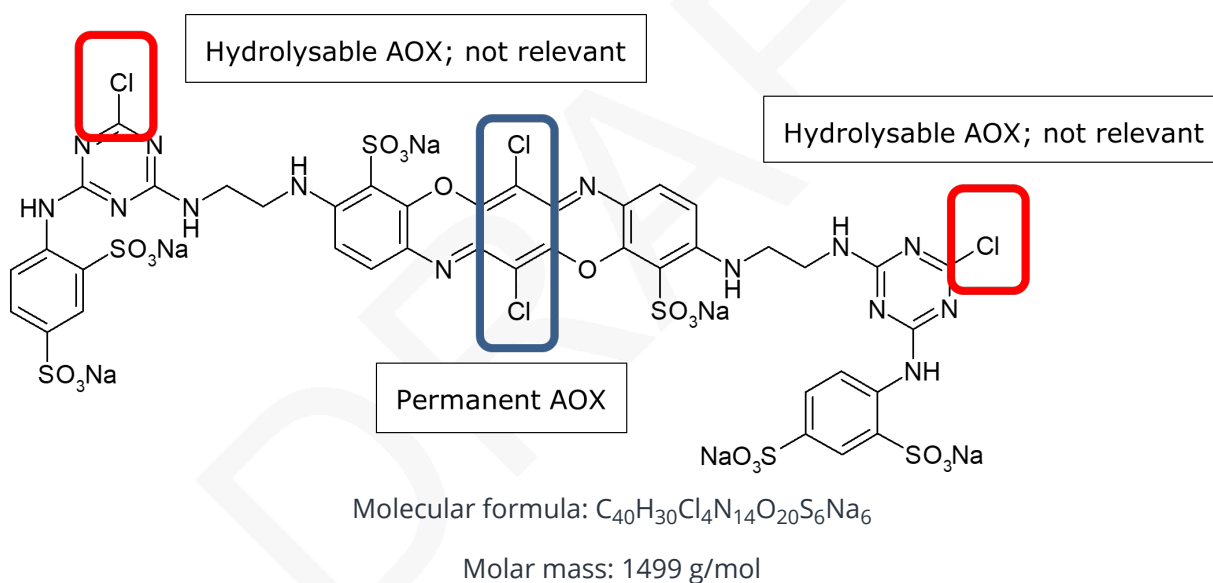
The value for AOX (Cl, Br and I) + F must be entered in the bluesign Tool.

For reactive dyes, only the "permanent AOX" must be mentioned in the bluesign Tool (not the hydrolysable AOX).

5.2.1.5.5.1.1 Example A

Reactive dye containing 50% Reactive Blue 198

Figure 8. AOX relevant groups in a Reactive Blue 198 molecule



Identify the permanent AOX (2 Cl atoms) and calculate the amount of permanent AOX:

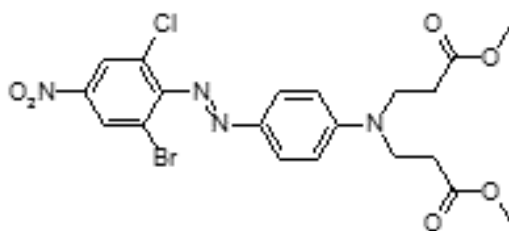
$$\text{Permanent AOX} = 2 \times 35.45 \text{ g/mol} / 1499 \text{ g/mol} \times 100\% = 4.7\%$$

If 50% dyestuff is used in the recipe and no other AOX relevant ingredient is present:

$$>> 4.7\% \times 0.5 = 2.4\% \text{ total AOX}$$

5.2.1.5.5.1.2 Example B

Dye containing 100% Disperse Brown 19

Figure 9. Disperse Brown 19

Molecular formula: C₂₀H₂₀BrClN₄O₆

Molecular mass: 527.7 g/mol

Two halogen atoms are contained (one bromine and one chlorine). For the AOX calculation, count the number of halogens and use the molecular mass of chlorine – also for the bromine atom - for your calculation:

If no other AOX relevant ingredient is present:

$$\text{AOX} = 2 \times 35.45 \text{ g/mol} / 527.7 \text{ g/mol} \times 100\% = 13.4\%$$

>> The amount of 13.4% is the AOX value to be entered in bluesign® TOOL.

**NOTE**

If fluorine is contained in the molecule you must calculate the AOX content similarly.

5.2.1.5.6 Data for biocidal risk assessment

5.2.1.5.6.1 Chemical and physical data of the chemical product

- Appearance
- Melting point
- Boiling point
- Solubility in water
- Density
- pH-value
- Flashpoint
- Potentially dangerous chemical reactivity
- Stability (chemical and physical)

5.2.1.5.6.2 Toxicological data for the active substance

Mandatory:

- Acute oral LD50 (OECD 423)
- Acute dermal LD50 (OECD 402)
- Mutagenicity (OECD 471), Ames test (can be replaced by other mutagenicity test methods)
- Skin sensitization (OECD 406) or Local Lymph Node Assay (OECD 429)
- Skin irritation (OECD 404)
- Acute eye irritation (OECD 405); mandatory if OECD 404 negative

Strongly recommended:

- Chromosome aberration (OECD 473)
- Carcinogenicity
- Cytotoxicity (EN ISO 10993-5)
- Human repeated patch test or closed single patch test

Data on the above toxicological endpoints for the product can be derived from substance data applying GHS mixture classification rules.

5.2.1.5.6.3 Ecotoxicological and ecological data for the active substance

Mandatory:

- Daphnia (OECD 202)
- Fish (OECD 203)
- Bacteria (OECD 209)
- Algae (OECD 201)

Recommended:

- Biodegradability - Preferably OECD 302 B; also possible OECD 301 A–F, 303A, 310
- COD (Chemical Oxygen Demand) or TOC (Total Organic Carbon)

5.2.1.5.6.4 Evidence for claimed biocidal effect

5.2.1.5.6.4.1 Antibacterial efficacy

- Count test JIS L 1902:2008 or its equivalent ISO EN DIN 20743
- Count test ASTM E 21-49 (shake flask test)
- AATCC 147-2011 (Antibacterial Activity Assessment of Textile Materials), Parallel Streak Method
- SN 195 920 (agar diffusion test)

For biocidal products claiming an odor control effect in treated textiles agar plate-based tests are not recommended to prove microbial inhibition. For such products suspension tests are more suitable but still can be misleading due to their high concentration of nutrients in the suspending medium. Adapted methods using lower concentration of nutrients are:

- OECD tier 1 method for treated articles (porous materials) according to OECD ENV/JM/MONO(2014)18
- IBRG Textile Method (IBRG TEX/13/005)

Tests have to be carried out against the relevant test bacteria (mostly given in the method). The bacteria's spectra in the compound should be known. Examples of relevant bacteria are:

- Staphylococcus aureus ATCC 6538
- Klebsiella pneumoniae ATCC 4352
- Escherichia coli ATCC 11229
- Pseudomonas aeruginosa ATCC 15442

5.2.1.5.6.4.2 Antimycotic efficacy (fungi, mould and mildew)

- SN 195 921 (agar diffusion plate test)
- AATCC 30 (agar diffusion plate test)
- ASTM G 21-96 (resistance to mould - fungi)
- EN ISO 11721-1 (Determination of resistance of cellulose-containing textiles to micro-organism)
- BS 6085, Section 5 (saturated atmosphere test)

Tests have to be carried out against the relevant test fungi (mostly given in the method). The fungi's spectra in the compound should be known. Examples of relevant fungi are:

- *Aspergillus niger* ATCC 6275 (mould causing black marks)
- *Penicillium funiculosum* EMPA 112 (mould)
- *Trichophyton mentagrophytes* EMPA 334 (athlete's foot)
- *Candida albicans* ATCC 10231 (yeast)

5.2.1.5.6.4.3 House dust mites

- AFNOR NF G 39-011

5.2.1.5.6.4.4 Other organisms

- Ticks, carpet beetles, moths, bed bugs, mosquitoes and other organism have to be tested under an internationally accepted quality control standard.

5.2.1.5.6.5 Fastness properties

To avoid release of an active substance during use, fastness properties must be at a high level. Fastness properties shall be testing according to internationally recognized standard testing methods. Different substrates (e.g. Polyester or Cotton) need to be tested separately. The following tests shall or may be conducted.

Mandatory:

- Washing and drying test according to EN ISO 6330
- Leaching tests e.g. with synthetically made sweat (or urine) (add standard method)

Recommended

- Light or UV-stability (add standard method)
- Dry cleaning resistance (add standard method)
- Foam cleaning resistance (add standard method)

Fastness is proven by a subsequent evaluation of the biocidal activity. The claimed biocidal effect shall be observed after 20 wash cycles. The Wash Resistance Index (WRI) shall be at least 80 % after 20 washing cycles. The WRI is calculated as the active substance concentration after washing divided by the initial active substance concentration multiplied with 100.

Substrate, recipe and application process, load test methods and efficacy test methods and results have to be disclosed to bluesign.

5.2.1.5.6.6 Human health risk assessment

A human health risk assessment shall be conducted that encompasses the products exposure during manufacturing, transport, application and consumer use.

5.2.1.5.6.6.1 Manufacturing

The relevant exposure scenarios during product manufacturing and related risks shall be identified. Measures to reduce the risk (if required) to an acceptable level shall be demonstrated.

5.2.1.5.6.6.2 Transport

The relevant exposure scenarios during transport of the product and related risks shall be identified. Measures to reduce the risk (if required) to an acceptable level shall be demonstrated. Measures to comply with the UN Dangerous Goods Regulation shall be demonstrated.

5.2.1.5.6.6.3 Application

The relevant exposure scenarios during product application and related risks shall be identified. Measures to reduce the risk (if required) to an acceptable level shall be demonstrated.

5.2.1.5.6.6.4 Consumer use (Calculation of the margin of safety (MOS))

The relevant exposure scenarios (at least chronic dermal and chronic oral exposure) during consumer use and related risks shall be addressed. A calculation of the expected daily uptake (per kg bodyweight) of the active substance shall be conducted. The margin of safety (MOS) is calculated by dividing the NOAEL (No observed adverse effect level) value with the expected daily uptake. The resulting MOS shall be at least 1000.

5.2.1.5.6.7 Environmental risk assessment

An environmental risk assessment shall be conducted that encompasses the product's exposure during manufacturing, transport, application, consumer use and disposal.

5.2.1.5.6.7.1 Manufacturing

The relevant exposure scenarios during product manufacturing and related risks shall be identified. Measures to reduce the risk (if required) to an acceptable level shall be demonstrated.

5.2.1.5.6.7.2 Transport

The relevant exposure scenarios during transport of the product and related risks shall be identified. Measures to reduce the risk (if required) to an acceptable level shall be demonstrated. Measures to comply with the UN Dangerous Goods Regulation shall be demonstrated.

5.2.1.5.6.7.3 Application

The relevant exposure scenarios during product application and related risks shall be identified. Measures to reduce the risk (if required) to an acceptable level shall be demonstrated.

In addition, the PEC (Predicted Environmental Concentration) considering the applied application processes shall be calculated and divided by the PNEC (Predicted No Effect Concentration) of the active substance. The ratio of PEC/PNEC shall be < 1 .

5.2.1.5.6.7.4 Consumer use

The PEC (Predicted Environmental Concentration) considering common consumer use exposure scenarios (e.g. garment washing) shall be calculated and divided by the PNEC (Predicted No Effect Concentration) of the active substance. The ratio of PEC/PNEC shall be < 1 .

5.2.1.5.6.7.5 Disposal

The PEC (Predicted Environmental Concentration) considering the expected disposal exposure scenario (e.g. landfill) shall be calculated and divided by the PNEC (Predicted No Effect Concentration) of the active substance. The ratio of PEC/PNEC shall be < 1 .

5.2.1.5.7 TDS content

The *Technical Data Sheet* (TDS) shall be in English and include as a minimum:

1. Intended application
 - Fiber/fabric types
 - End-use sectors
 - Compatibility (what it works with and without)
2. Application instructions
 - Exhaust / pad / spray / coating
 - Where applicable, details on multistep processes
 - Dosage range
 - Liquor ratio
 - Liquor concentration
 - Temperature and time
 - pH range
 - Fixation / curing conditions

- Expected degree of fixation

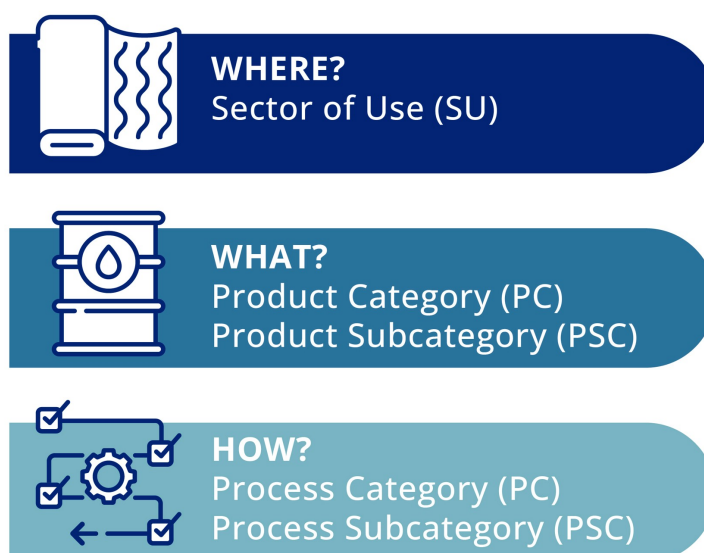
5.2.1.5.8 Categorization

In order to apply the correct model calculations, a categorization needs to be assigned that essentially describes WHERE (sector of use, e.g. textile, leather, plastic articles), WHAT (what function does the chemical product have) and HOW (in which process the chemical product is used).

The following categorization must therefore be made (refer also to [Figure 10, "Categorization dimensions \(WHERE, WHAT, HOW\)" \[65\]](#)):

- Assign the sector of use (WHERE)
- Assign the product category (WHAT)
- Assign the product subcategory (WHAT)
- Assign the process category (HOW)
- Assign the process subcategory (HOW)

Figure 10. Categorization dimensions (WHERE, WHAT, HOW)



Examples of the categories are listed in [Table 27, "Categorization examples" \[66\]](#). The full set of values in each category is documented as an Annex to the bluesign Tool user manual.

Table 27. Categorization examples

Sector of use (SU)	Product category (PC)	Product subcategory (PSC)	Process categories (PROC)	Process subcategories (PROSC)
Manufacture of textile products including fabrics, laminates and non-wovens	Dyes and pigment preparations	Disperse dyes	Dyeing	Batch processing
Manufacture of textile products including fabrics, laminates and non-wovens	Textile auxiliaries and functional agents	Softening agents	Finishing	Pad processing
Manufacture of leather products	Coating compounds, paints, lacquers, coatings, thinners, paint removers and process aids (for all uses)	Crosslinking agents for coating compounds; water-based	Leather finishing	Roll coating

The categorization controls the relevance of modules to a chemical product, the validity of calculation models, the risk characterization for exposure and release as well as the application of special rules, specific limits and necessary exceptions in BSSL and BSBL. Proper categorization is therefore mandatory for the correct outcome of the chemical assessment. Besides, the categorization allows chemical assessment to be extended to other industries. The bluesign categorization system is similar to the descriptor system used in the [REACH](#) regulation, but is adapted to the needs of the bluesign chemical assessment.

Depending on the scope of application, the same chemical product could be rated differently (see [Figure 11, “Different ratings for one product in two applications”](#) [66]). In other words, a particular rating is only valid for a specific application. Application parameters are usually defined in the technical data sheet for a chemical product. The same chemical product can be registered for different applications with different ratings.

Figure 11. Different ratings for one product in two applications

5.2.1.5.9 Restricted H statements

Table 28. Restricted H statements

H-code	Hazard statement
Health hazards	
H300	Fatal if swallowed
H301	Toxic if swallowed
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H317	May cause an allergic skin reaction
H330	Fatal if inhaled
H331	Toxic if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H340	May cause genetic defects
H341	Suspected of causing genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H360F	May damage fertility
H360D	May damage the unborn child
H360FD	May damage fertility. May damage the unborn child
H360Fd	May damage fertility. Suspected of damaging the unborn child
H360Df	May damage the unborn child. Suspected of damaging fertility
H361f	Suspected of damaging fertility
H361d	Suspected of damaging the unborn child
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child
H362	May cause harm to breast-fed children
H370	Causes damage to organs
H371	May cause damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
EUH380	May cause endocrine disruption in humans
EUH381	Suspected of causing endocrine disruption in humans
Environmental hazards	
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long-lasting effects
H411	Toxic to aquatic life with long-lasting effects
H412	Harmful to aquatic life with long-lasting effects
H413	May cause long-lasting harmful effects to aquatic life
EUH430	May cause endocrine disruption in the environment
EUH431	Suspected of causing endocrine disruption in the environment
EUH440	Accumulates in the environment and living organisms including in humans
EUH441	Strongly accumulates in the environment and living organisms including in humans
EUH450	Can cause long-lasting and diffuse contamination of water resources
EUH451	Can cause very long-lasting and diffuse contamination of water resources

5.2.1.5.10 Restricted substance H statements

5.2.1.5.10.1 Restricted substance H statements, 10ppm

Table 29. Restricted substance H statements, 10ppm

H-code	Hazard statement
Health hazards	
H340	May cause genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H360F	May damage fertility
H360D	May damage the unborn child
H360FD	May damage fertility. May damage the unborn child
H360Fd	May damage fertility. Suspected of damaging the unborn child
H360Df	May damage the unborn child. Suspected of damaging fertility
EUH380	May cause endocrine disruption in humans

5.2.1.5.10.2 Restricted substance H statements, 100ppm

Table 30. Restricted substance H statements, 100ppm

H-code	Hazard statement
Health hazards	
H341	Suspected of causing genetic defects
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H361d	Suspected of damaging the unborn child
H361f	Suspected of damaging fertility
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child
EUH381	Suspected of causing endocrine disruption in humans

5.3 For articles

5.3.1 Determination of the share of registered inputs in a consumer product

5.3.1.1 Share of registered textiles

The share of registered textiles shall be calculated using a bill of materials. Variations of +/- 5 % are acceptable for products put on the market before 2027. An area-based calculation of the share shall be carried out.

If relevant, the inner and outer surface area of the registered consumer product shall be taken into account.

Use percentage by weight if evaluation of the surface area is not applicable (e.g. ropes).

The evaluation of the share of registered textiles shall be performed on a representative consumer product of medium size with the best possible accuracy.

5.3.1.2 Share of registered accessories

Because the availability of registered accessories is currently limited, a minimum share of registered accessories has been defined, with the aim of it increasing over time.

The minimum requirements regarding the share of registered accessories will be increased gradually after reviewing the availability of suitable accessories. Changes will be announced in a timely manner and will be accompanied by suitable transition periods.

Accessories shall be counted by item or by type. An item is defined as an article coming from the same supplier, with the same function, the same composition, and the same color¹¹. Typically, each entry in a bill of materials is counted as one item. Variations of +/- 5 % are acceptable for products put on the market before 2027

5.3.1.3 Component classification

Table 31. Component classification of fabric, yarn and accessory

Accessory	In scope	Out of scope	Comments
Fabric/yarn			
Coated fabric	X		
Elastic knits	X		
Non-woven fabric, woven and knit	X		
Laminated fabric	X		
Lining fabric	X		
Mesh	X		
Print/ heat transfer/ flock: fabric	X		
Print/ heat transfer/ flock: garment	X		Large area e.g. t-shirt or carousel print
Tarpaulin	X		e.g. for luggage
Webbing ^a .	X		e.g. webbing is main part of harness
Yarn	X		
Accessories			
Buckles (plastic or metal)	X		
Buttons (plastic or metal)	X		
Carabiner		X	
Cuffs	X		
Draw cords - strings	X		
Elastic trim / cord	X		
Electronic components		X	
Embroidery motif	X		
Foam		X	
Hangtag		X	Not part of the consumer product; sustainability aspects should be considered
Hook and loop	X		
Insulation, down	X		Must be registered
Insulation, fiber fill	X		Must be registered
Interlining	X		Interlining must be embedded between inner and outer layers
Handles		X	
Labels; fixed and heat transfer	X		
Laces; as decoration	X		
Membrane	X		Must be registered
Padding, non-woven	X		
Poles		X	

¹¹Exception: Threads made with the same material and from the same supplier can be counted as 1 item, even if they are not the same colour.

Accessory	In scope	Out of scope	Comments
Print/ heat transfer/ flock: small print (max. 50 cm ²)	X		Related to the printed surface
Reflector		X	
Reflex material - textile	X		
Reinforced back system		X	e.g. aluminum
Ribbons	X		
Rod		X	e.g. part of umbrellas
Screws		X	
Seam sealing tapes	X		
Snap	X		
Stabilizing panels		X	e.g. plastic plates
Tape	X		
Thread (sewing & embroidery)	X		
Trims	X		
Webbing ^b	X		
Wheels		X	e.g. luggage
Zipper	X		Tape, slider, teeth, stoppers
Zipper puller	X		

^aIf main part of product

^bIf not main part of product

5.3.1.4 Example

A consumer product contains:

1. insulation,
2. a care label,
3. a woven label,
4. a logo print,
5. 2 small buttons and 5 large buttons of the same material from the same supplier,
6. sewing thread in 2 colors and 1 embroidery thread from the same supplier,
7. 1 embroidery thread from a different supplier, and
8. foam.

Table 32. Example for counting accessory items

Item no.	Accessory item	Supplier	Quantity	Guide ID	Status
1	Insulation ^a	InsLtd.	1	GA123460	registered
2	Care label	LabelComp	1	N/A	qualified supplier
3	Woven label	LabelComp	1	GA123458	registered
4	Logo print, 37 cm ^{2b}	Assemb Ltd.	1	N/A	qualified supplier
5	Buttons POM small	PlastSup	2	GA123459	registered
6	Buttons POM large	PlastSup	5	GA123459	registered
7	Sewing thread, black	ThreadSup	1 ^c	N/A	qualified supplier
	Sewing thread, red	ThreadSup			
	Embroidery thread, red	ThreadSup			
8	Embroidery thread, white	EmbSup	1	N/A	qualified supplier
9	Foam	FoamLtd	1	N/A (out-of-scope ^d)	qualified supplier
Total count			9 items		

Item no.	Accessory item	Supplier	Quantity	Guide ID	Status
	In-scope count		8 items		registered = 4 / 8 items = 50%

^aInsulation must be registered.

^bPrints from qualified supplier are accepted only up to 50cm² printed surface

^cThreads made with the same material and from the same supplier can be counted as 1 item

^dOut-of-scope components shall comply with RSL requirements although they are not considered in the calculation.

5.3.2 Shedding limits for articles

Table 33. Shedding limits for articles with >5% synthetic content^a.

Material type	Low shedding limit	Moderate shedding limit	Max. shedding limit
Wovens	<20 mg/kg	<100 mg/kg	<500 mg/kg
Knits	<50 mg/kg	<200 mg/kg	<500 mg/kg
Fleece and other raised-surface fabrics	<150 mg/kg	<500 mg/kg	<1000 mg/kg

^ato be tested using the ISO 4484-1:2023 method

Results are to be reported in mg/m² in addition to mg/kg.

5.3.3 Sustainability attributes

5.3.3.1 Designed for durability

5.3.3.1.1 Definitions

Durability can be defined as the duration of service or the lifetime of the product with appropriate use for its intended function.

5.3.3.1.2 Conditions

The sustainability attribute “designed for durability” can be claimed for *registered* articles that demonstrate performance against recognized industry standards for any of the following durability parameters:

- Dimensional stability
- Pilling resistance
- Colour fastness to washing
- Colour fastness to perspiration
- Colour fastness to rubbing
- Colour fastness to light

5.3.3.1.3 Data provision and evidences

The following data and evidences shall be provided:

- Name of the article (as registered in the bluesign Guide) that the sustainability attribute is to be applied to
- Test reports verifying the claim for the respective durability parameter (See: [Table 34, “Test methods for durability parameters” \[72\]](#))

Table 34. Test methods for durability parameters

Durability parameter	Condition for sustainability attribute	Test method
Dimensional stability	After three washing/drying cycles according to the care label: • $\pm 3\%$ for wovens • $\pm 6\%$ for knits • $\pm 8\%$ for socks, hosiery	ISO 15797 dimensional change Wash according to: • EN ISO 6330 for home laundry • EN ISO 5077 for industrial laundry
Pilling resistance	• ≥ 3 for wovens • ≥ 3 for knits • ≥ 2 for synthetic tights, leggings, hosiery	ISO 12945-2, Martindale for wovens ISO 12945-1, pilling box for knits ISO 12945-2, synthetic tights / leggings / hosiery
Colour fastness to washing	$\geq 3-4$	ISO 105-C06
Colour fastness to perspiration	$\geq 3-4$	ISO 105-E04
Colour fastness to rubbing	≥ 4 dry rubbing ($\geq 3-4$ for indigo dyed denim) $\geq 2-3$ wet rubbing (≥ 2 for indigo dyed denim)	ISO 105-X12
Colour fastness to light	≥ 4 for dyed or printed apparel ≥ 5 for outdoor apparel and products with significant sunlight exposure (i.e. upholstery, curtains)	ISO 105-B02

5.3.3.2 Designed for recyclability

5.3.3.2.1 Definitions

According to Waste Framework Directive, recyclability is defined as the ability of products after becoming waste to be reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material, but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

5.3.3.2.2 Conditions

The sustainability attribute "designed for recyclability" can be claimed for registered articles that fulfil all of the following conditions:

1. Single polymer/fiber fabric
2. Free of coating and laminating (Exception: coating is of the same material as the base fabric in order to create a mono-material system)
3. Free of sequins or similar decorative accessory

5.3.3.2.3 Data provision and evidences

The following data and evidences shall be provided:

- Name of the article (as registered in the bluesign Guide) that the sustainability attribute is to be applied to
- Fibre composition of the article
- Production process(es)

5.3.3.3 Recycled content

5.3.3.3.1 Definitions

According to the ISO 14021, recycled content is the proportion by mass of recycled material in the article. Only materials that have been recovered or otherwise diverted from the waste

stream, either during the manufacturing processes (pre-consumer), or after consumer use (post-consumer) are accepted as recycled content.

Post-consumer materials are materials generated by households or by commercial, industrial, and institutional facilities in their roles as end users of the product that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain.

Pre-consumer materials are materials diverted from the waste stream during manufacturing processes. Excluded is the reutilization of materials such as those reworked, re-grinded, and scrap-generated in a process and capable of being reclaimed within the same process that generated it.

5.3.3.3.2 Conditions

The sustainability attribute "recycled content" can be claimed for registered articles that contain **at least 5% recycled content by weight**.

5.3.3.3.3 Data provision and evidences

Evidence for the "recycled content" attribute can be provided by third-party certifications such as:

- Materials Matter Standard (formerly GRS or RCS certification)
- ISCC PLUS
- SCS Recycled Content Certification
- UL Recycled Content Validation

Both segregation and mass balance approaches are accepted; the information shall be visible on the certificate provided to bluesign. The validity of the claim is connected to the validity of the third-party certificate.

5.3.3.4 Fiber shedding

5.3.3.4.1 Definitions

Fiber shedding is defined as the release of fibers and fiber fragments from textiles during laundering, irrespective of their size. It includes material released from synthetic, natural and regenerated cellulosic fibers. For this sustainability attribute, shedding is assessed as total material loss according to ISO 4484-1:2023.

5.3.3.4.2 Conditions

If the [registered](#) article is a fabric with >5% synthetic content, the sustainability attribute "minimal microplastic shedding" can be claimed for adhering to the shedding limits (See: [Shedding limits for articles \[73\]](#)).

5.3.3.4.2.1 Shedding limits for articles

Table 35. Shedding limits for articles with >5% synthetic content^a.

Material type	Low shedding limit	Moderate shedding limit	Max. shedding limit
Wovens	<20 mg/kg	<100 mg/kg	<500 mg/kg
Knits	<50 mg/kg	<200 mg/kg	<500 mg/kg
Fleece and other raised-surface fabrics	<150 mg/kg	<500 mg/kg	<1000 mg/kg

^ato be tested using the ISO 4484-1:2023 method

Results are to be reported in mg/m² in addition to mg/kg.

5.3.3.4.3 Data provision and evidences

The following evidence shall be provided:

- Test report(s) using the ISO 4484-1:2023 method

5.3.4 Guidance on Criteria requirements for articles

5.3.4.1 Traceability

5.3.4.1.1 Identification

Identification of the product is done by:

- For articles, article number

After registration of the article in the [bluesign Guide](#), a Guide ID is allocated. Material suppliers are to use the article identifier and Guide ID in communication on [registered](#) articles, especially in order processing.

The article number is allocated by the material supplier and should be aligned with the common procedures in the company.

Instead of article numbers, it may be appropriate to use generic descriptions that ensure proper distinction between registered and non-registered items. This approach may be more convenient for the material supplier and their customers for accessories in particular.

5.3.4.1.2 Categorization

Materials are managed in a Material Inventory List (MIL) and must comply with the input stream management requirements.

Production processes are grouped to [workflows](#) which are the basis for impact calculation e.g. pretreatment – dyeing – finishing – coating. Each workflow is bound to the applied chemicals.

Usage range depends on the intended purpose, but also on the usage range of the chemicals used for production. (See: [Usage ranges \[74\]](#))

5.3.4.1.3 Recipe

A recipe for each production lot/purchase order is to be provided to bluesign upon request.

It contains information on:

- all applied processes,
- all used chemicals and the quantities used (in the form of a [CIL](#)), back-traceable to lot numbers

5.3.4.2 Supply chain

5.3.4.2.1 Production site

Articles are to be traceable to the production site(s) and the manufacturing processes.

They are registered by the production. Other parties may refer to these items.

5.4 For consumer products

5.4.1 Usage ranges

v1.3.0 (11 November 2025)

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Apparel	Other	Other	Not defined	Depending on the intended use
Apparel	Other	Headdress	Usage range A	NULL
Apparel	Other	Tie	Usage range B	NULL
Apparel	Other	Scarf	Usage range A	NULL

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Apparel	Other	Hat	Usage range A	NULL
Apparel	Other	Cap	Usage range A	NULL
Apparel	Baby wear	Other	Usage range A	NULL
Apparel	Baby wear	Baby wear and textile articles (0 – 3 years)	Usage range A	NULL
Apparel	Garment	Other	Not defined	Depending on the intended use
Apparel	Garment	Jacket	Usage range B	NULL
Apparel	Garment	Coat	Usage range B	NULL
Apparel	Garment	Suit	Usage range B	NULL
Apparel	Garment	Shirt	Usage range B	NULL
Apparel	Garment	Blouse	Usage range B	NULL
Apparel	Garment	Dress	Usage range B	NULL
Apparel	Garment	Pants / Trousers	Usage range B	NULL
Apparel	Garment	Shorts	Usage range B	NULL
Apparel	Garment	Skirt	Usage range B	NULL
Apparel	Garment	T-Shirt	Usage range A	NULL
Apparel	Garment	Long sleeve T-Shirt	Usage range A	NULL
Apparel	Shirt (Knit)	Other	Not defined	Depending on the intended use
Apparel	Shirt (Knit)	T-Shirt	Usage range A	NULL
Apparel	Shirt (Knit)	Sweatshirt	Usage range B	NULL
Apparel	Shirt (Knit)	Pullover	Usage range B	NULL
Apparel	Shirt (Knit)	Long sleeve T-Shirt	Usage range A	NULL
Apparel	Outdoor wear / Ski wear	Other	Not defined	Depending on the intended use
Apparel	Outdoor wear / Ski wear	Outdoor jacket	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Hardshell jacket	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Softshell jacket	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Midlayer jacket	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Ski jacket	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Outdoor pants / Outdoor trousers	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Hardshell pants	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Softshell pants	Usage range B	NULL

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Apparel	Outdoor wear / Ski wear	Ski pants / Ski trousers	Usage range B	NULL
Apparel	Outdoor wear / Ski wear	Outdoor gloves / Outdoor mittens	Usage range A	NULL
Apparel	Outdoor wear / Ski wear	Ski gloves / Ski mittens	Usage range A	NULL
Apparel	Outdoor wear / Ski wear	Insulation jacket	Usage range B	NULL
Apparel	Sportswear	Other	Not defined	Depending on the intended use
Apparel	Sportswear	Sports T-Shirt	Usage range A	NULL
Apparel	Sportswear	Sports shirt (next to skin)	Usage range A	NULL
Apparel	Sportswear	Long sleeve sports T-Shirt	Usage range A	NULL
Apparel	Sportswear	Sports shorts	Usage range B	NULL
Apparel	Sportswear	Sports shorts with underpants	Usage range A	NULL
Apparel	Sportswear	Sports skirt	Usage range B	NULL
Apparel	Sportswear	Sports skirt with underpants	Usage range A	NULL
Apparel	Sportswear	Sports pants / Sport trousers	Usage range B	NULL
Apparel	Sportswear	Sports pants / Sport trousers (next to skin)	Usage range A	NULL
Apparel	Sportswear	Sports shirt	Usage range B	NULL
Apparel	Sportswear	Sports blouse	Usage range B	NULL
Apparel	Sportswear	Sports dress	Usage range B	NULL
Apparel	Sportswear	Sports jacket	Usage range B	NULL
Apparel	Sportswear	Sports gloves / Sports mittens	Usage range A	NULL
Apparel	Workwear	Other	Not defined	Depending on the intended use
Apparel	Workwear	Jacket	Usage range B	NULL
Apparel	Workwear	Pants / Trousers	Usage range B	NULL
Apparel	Workwear	Suit	Usage range B	NULL
Apparel	Workwear	Gloves / Mittens	Usage range A	NULL
Apparel	Workwear	Shirt	Usage range B	NULL
Apparel	Workwear	Blouse	Usage range B	NULL
Apparel	Workwear	Shorts	Usage range B	NULL

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Apparel	Workwear	T-Shirt	Usage range A	NULL
Apparel	Workwear	Long sleeve T-Shirt	Usage range A	NULL
Apparel	Bikewear	Other	Not defined	Depending on the intended use
Apparel	Bikewear	Bike trouser, long	Usage range B	NULL
Apparel	Bikewear	Bike trouser, long with underpants	Usage range A	NULL
Apparel	Bikewear	Bike shorts	Usage range B	NULL
Apparel	Bikewear	Bike shorts with underpants	Usage range A	NULL
Apparel	Bikewear	Bike shirt, long sleeve	Usage range A	NULL
Apparel	Bikewear	Bike shirt	Usage range A	NULL
Apparel	Bikewear	Bike jacket	Usage range B	NULL
Apparel	Bikewear	Bike underpants (next to skin)	Usage range A	NULL
Apparel	Hosiery	Other	Usage range A	NULL
Apparel	Hosiery	Tights	Usage range A	NULL
Apparel	Hosiery	Socks	Usage range A	NULL
Apparel	Underwear	Other	Usage range A	NULL
Apparel	Underwear	Shorts	Usage range A	NULL
Apparel	Underwear	Bra	Usage range A	NULL
Apparel	Underwear	Underpants, short	Usage range A	NULL
Apparel	Underwear	Underpants, long	Usage range A	NULL
Apparel	Underwear	Undershirt	Usage range A	NULL
Apparel	Underwear	Leggings	Usage range A	NULL
Apparel	Lingerie	Other	Usage range A	NULL
Apparel	Lingerie	Lingerie	Usage range A	NULL
Apparel	Swimwear	Other	Usage range A	NULL
Apparel	Swimwear	Swimsuit	Usage range A	NULL
Apparel	Swimwear	Swimming trunks	Usage range A	NULL
Apparel	Swimwear	Bikini	Usage range A	NULL
Denim	Other	Other	Not defined	Depending on the intended use
Denim	Jeans	Other	Usage range B	NULL
Denim	Jeans	Jeans	Usage range B	NULL
Denim	Denim garment	Other	Usage range B	NULL
Denim	Denim garment	Denim jacket	Usage range B	NULL
Denim	Denim garment	Denim dress	Usage range B	NULL
Denim	Denim garment	Denim shirt	Usage range B	NULL

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Denim	Denim garment	Denim blouse	Usage range B	NULL
Home textiles	Other	Other	Not defined	Depending on the intended use
Home textiles	Linen	Other	Not defined	Depending on the intended use
Home textiles	Linen	Bed linen (bed sheets, blankets)	Usage range A	NULL
Home textiles	Linen	Table linen (tablecloths, napkins)	Usage range B	NULL
Home textiles	Linen	Bath linen (towels, mitts)	Usage range B	NULL
Home textiles	Linen	Cushion covers	Usage range B	NULL
Home textiles	Linen	Cleaning cloth	Usage range B	NULL
Home textiles	Curtain	Other	Usage range C	NULL
Home textiles	Curtain	Curtain	Usage range C	NULL
Home textiles	Pillow	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range A: Materials with skin contact
				Usage range C: Materials without skin contact
Home textiles	Pillow	Cushion	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range A: Materials with skin contact
				Usage range C: Materials without skin contact
Home textiles	Pillow	Pillow	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range A: Materials with skin contact
				Usage range C: Materials without skin contact
Home textiles	Mat / Mattress	Other	Usage range B	NULL
Home textiles	Mat / Mattress	Pad	Usage range B	NULL
Home textiles	Mat / Mattress	Mattress	Usage range B	NULL
Home textiles	Mat / Mattress	Mat	Usage range B	NULL
Home textiles	Carpet	Other	Usage range B	NULL
Home textiles	Carpet	Carpet	Usage range B	NULL
Home textiles	Carpet	Rugs	Usage range B	NULL
Equipment	Other	Other	Not defined	Depending on the intended use
Equipment	Other	Mosquito net	Usage range C	NULL
Equipment	Other	Hammock	Usage range B	NULL
Equipment	Bag	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range A: Materials with skin contact
				Usage range C: Materials without skin contact

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Equipment	Bag	Bag	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Materials with skin contact Usage range C: Materials without skin contact
Equipment	Bag	Tote	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Materials with skin contact Usage range C: Materials without skin contact
Equipment	Backpack	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Shoulder straps, harness and backrest materials with skin contact Usage range C: Other materials
Equipment	Backpack	Backpack	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Shoulder straps, harness and backrest materials with skin contact Usage range C: Other materials
Equipment	Luggage (with rolls)	Other	Usage range C	NULL
Equipment	Luggage (with rolls)	Luggage (textile based with rolls)	Usage range C	NULL
Equipment	Sleeping bag	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Lining materials with skin contact Usage range B: Other materials
Equipment	Sleeping bag	Sleeping bag	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Lining materials with skin contact Usage range B: Other materials
Equipment	Mat	Other	Usage range B	NULL
Equipment	Mat	Mat	Usage range B	NULL
Equipment	Mat	Yoga mat	Usage range B	NULL
Equipment	Mat	Sleeping pad	Usage range B	NULL
Equipment	Rope	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range B: Materials with occasional skin contact Usage range C: Materials without skin contact

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Equipment	Rope	Sling	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range B: Materials with occasional skin contact Usage range C: Materials without skin contact
Equipment	Rope	Rope	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range B: Materials with occasional skin contact Usage range C: Materials without skin contact
Equipment	Rope	Rep cord	Several usage ranges valid	Different usage ranges valid related to skin contact and usage
				Usage range B: Materials with occasional skin contact Usage range C: Materials without skin contact
Equipment	Harness / Belt	Other	Usage range B	NULL
Equipment	Harness / Belt	Harness	Usage range B	NULL
Equipment	Harness / Belt	Belt	Usage range B	NULL
Equipment	Tent	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage of materials
				Usage range B: Tent floor with occasional skin contact given Usage range C: All other materials
Equipment	Tent	Tent	Several usage ranges valid	Different usage ranges valid related to skin contact and usage of materials
				Usage range B: Tent floor with occasional skin contact given Usage range C: All other materials
Equipment	Tent	Rooftop tent	Several usage ranges valid	Different usage ranges valid related to skin contact and usage of materials
				Usage range B: Tent floor with occasional skin contact given Usage range C: All other materials
Equipment	Camping equipment	Other	Not defined	Depending on the intended use
Equipment	Camping equipment	Camping chair	Usage range B	NULL
Equipment	Camping equipment	Picnic blanket	Usage range B	NULL

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Equipment	Umbrella / Parasol	Other	Usage range C	NULL
Equipment	Umbrella / Parasol	Umbrella	Usage range C	NULL
Equipment	Umbrella / Parasol	Parasol	Usage range C	NULL
Equipment	Personal Flotation Device (PFD)	Other	Usage range B	NULL
Equipment	Personal Flotation Device (PFD)	Personal Flotation Device (PFD)	Usage range B	NULL
Equipment	Kids equipment	Other	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Materials with skin contact Usage range B: All other materials
Equipment	Kids equipment	Stroller	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Materials with skin contact Usage range B: All other materials
Equipment	Kids equipment	Car seat (for kids)	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Materials with skin contact Usage range B: All other materials
Equipment	Kids equipment	Bicycle trailer	Several usage ranges valid	Different usage ranges valid related to skin contact and usage Usage range A: Materials with skin contact Usage range B: All other materials
Footwear	Open-toed shoes	Other	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Footwear	Open-toed shoes	Sandals	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Open-toed shoes	Sport sandals	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Closed-toed shoes	Other	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Closed-toed shoes	Sport shoes	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Closed-toed shoes	Sport shoes, special	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Footwear	Closed-toed shoes	Low shoes	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Closed-toed shoes	Hiking shoes	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Closed-toed shoes	Climbing shoes	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Closed-toed shoes	Work shoes	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Boots	Other	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)

Consumer product category	Consumer product group	Consumer product type	Usage range allocation	Comment
Footwear	Boots	Boots	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Boots	Sport boots	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Boots	Sport boots, special	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Boots	Hiking boots	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Footwear	Boots	Work boots	Several usage ranges valid	Different usage ranges valid for materials in the shoe construction depending on skin contact and usage Usage range A: Insole, Upper and Lining articles (skin contact given) Usage range B: Midsole foams Usage range C: Outsole, trims and accessories, outer part of upper (no skin contact given)
Not defined	Not defined	Not defined	Not applicable	NULL
Not applicable	Not applicable	Not applicable	Not applicable	NULL

5.4.2 Sustainability attributes

5.4.2.1 Designed for durability

5.4.2.1.1 Definitions

Durability can be defined as the duration of service or the lifetime of the product with appropriate use for its intended function.

5.4.2.1.2 Conditions

The sustainability attribute “designed for durability” can be claimed for [registered](#) consumer products that demonstrate performance against recognized industry standards for any of the following durability parameters:

- Dimensional stability
- Pilling resistance
- Colour fastness to washing
- Colour fastness to perspiration
- Colour fastness to rubbing
- Colour fastness to light
- Seam and trim integrity
- Seam strength
- Seam slippage

5.4.2.1.3 Data provision and evidences

The following data and evidences shall be provided:

- Name of the consumer product (as registered in the bluesign Guide) that the sustainability attribute is to be applied to
- Test reports verifying the claim for the respective durability parameter (See: [Table 36, “Test methods for durability parameters” \[85\]](#))

Table 36. Test methods for durability parameters

Durability parameter	Condition for sustainability attribute	Test method
Dimensional stability	After three washing/drying cycles according to the care label: • $\pm 3\%$ for wovens • $\pm 6\%$ for knits • $\pm 8\%$ for socks, hosiery	ISO 15797 dimensional change Wash according to: • EN ISO 6330 for home laundry • EN ISO 5077 for industrial laundry
Pilling resistance	• ≥ 3 for wovens • ≥ 3 for knits • ≥ 2 for synthetic tights, leggings, hosiery	ISO 12945-2, Martindale for wovens ISO 12945-1, pilling box for knits ISO 12945-2, synthetic tights / leggings / hosiery
Colour fastness to washing	$\geq 3-4$	ISO 105-C06
Colour fastness to perspiration	$\geq 3-4$	ISO 105-E04
Colour fastness to rubbing	≥ 4 dry rubbing ($\geq 3-4$ for indigo dyed denim) $\geq 2-3$ wet rubbing (≥ 2 for indigo dyed denim)	ISO 105-X12
Colour fastness to light	≥ 4 for dyed or printed apparel ≥ 5 for outdoor apparel and products with significant sunlight exposure (i.e. upholstery, curtains)	ISO 105-B02

Durability parameter	Condition for sustainability attribute	Test method
Seam and trim integrity	Visual inspection after three laundering cycles. Seams, zippers, buttons, snaps, cords, elastics and prints shall remain functional and securely attached.	
Seam strength	≥120 N for shirting ≥150 N for pants, jackets ≥200 N for workwear, outdoor	ISO 13935-2
Seam slippage	≥60 N, light woven apparel (i.e. blouse, lining, dress fabrics) ≥80 N, general woven apparel (i.e. shirts, casual tops, light dresses) ≥100 N, medium-weight woven apparel (pants, skirts, casual jackets) ≥120 N, high-stress woven apparel (i.e. jeans, jackets, outdoor apparel) ≥150 N, workwear, heavy-duty apparel	ISO 13936-1 for apparel ISO 13936-2 for upholstery

5.4.2.2 Designed for recyclability

5.4.2.2.1 Definitions

According to Waste Framework Directive, recyclability is defined as the ability of products after becoming waste to be reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material, but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

5.4.2.2.2 Conditions

The sustainability attribute "designed for recyclability" can be claimed for registered consumer products that fulfil all of the following conditions:

1. Single polymer/fiber fabric
2. Free of coating and laminating (Exception: coating is of the same material as the base fabric in order to create a mono-material system)
3. Free of sequins or similar decorative accessory

5.4.2.2.3 Data provision and evidences

The following data and evidences shall be provided:

- Name of the article (as registered in the bluesign Guide) that the sustainability attribute is to be applied to
- Fibre composition of the article
- Production process(es)
- [BOM](#)

5.4.2.3 Recycled content

5.4.2.3.1 Definitions

According to the ISO 14021, recycled content is the proportion by mass of recycled material in the article. Only materials that have been recovered or otherwise diverted from the waste stream, either during the manufacturing processes (pre-consumer), or after consumer use (post-consumer) are accepted as recycled content.

Post-consumer materials are materials generated by households or by commercial, industrial, and institutional facilities in their roles as end users of the product that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain.

Pre-consumer materials are materials diverted from the waste stream during manufacturing processes. Excluded is the reutilization of materials such as those reworked, re-grinded, and scrap-generated in a process and capable of being reclaimed within the same process that generated it.

5.4.2.3.2 Conditions

The sustainability attribute "recycled content" can be claimed for registered consumer products that contain **at least 5% recycled content by weight**.

5.4.2.3.3 Data provision and evidences

Evidence for the "recycled content" attribute can be provided by third-party certifications such as:

- Materials Matter Standard (formerly GRS or RCS certification)
- ISCC PLUS
- SCS Recycled Content Certification
- UL Recycled Content Validation

Both segregation and mass balance approaches are accepted; the information shall be visible on the certificate provided to bluesign. The validity of the claim is connected to the validity of the third-party certificate.

5.4.2.4 Product environmental footprint (PEF)

5.4.2.4.1 Definitions

The Product Environmental Footprint (PEF) methodology is a science-based, standardised framework to help the entire industry speak the same language when discussing environmental impacts. It leverages the Life Cycle Assessment (LCA) approach, a scientifically validated methodology for measuring environmental impacts at each stage of a product's life. The PEF methodology is comprehensive, evaluating products along 16 environmental indicators to better understand the hotspots and opportunities for improving the environmental impacts of products.

The [Product Environmental Footprint Category Rules](#) (PEFCR) are specific rules tailored to 13 apparel and footwear categories such as t-shirts, dresses, boots, swimwear, etc.

5.4.2.4.2 Conditions

The attribute "Product environmental footprint" can be claimed for [registered](#) consumer products if a PEF calculation is provided. The calculation shall be conducted based on the latest approved version of PEFCR. Either the company's product environmental footprint program and/or the product environmental footprint itself shall be verified by an accredited third-party.

5.4.2.4.3 Data provision and evidences

The following data and evidences shall be provided

- Product Environmental Footprint based on the latest approved version of [PEFCR](#) Apparel & Footwear
- Valid certificate - either for the company's product environmental footprint program or for the specific consumer product – issued by an accredited third-party.

5.4.3 Guidance on Criteria requirements for consumer product

5.4.3.1 Traceability

5.4.3.1.1 Identification

Identification of the product is done by:

- For consumer products sold [B2B](#), Style Name and unique style identifier (e.g. [GMN](#))
- For trade items placed on the consumer market, [GTIN](#) or EAN, Style Name and unique style identifier (e.g. [GMN](#))

After registration of the consumer product in the [bluesign Guide](#), a Guide ID is allocated.

The GS1 identification key, once assigned to one product model, is not to be reissued to another product model.

The GMN is not to be used to identify a trade item. A GMN is an attribute of a trade item identified with a GTIN. As a result, a GMN is directly correlated to one or more GTINs, while a GTIN is only to be associated with one GMN.

5.4.3.1.2 Categorization

Each consumer product is allocated to a consumer product category, group, and type.

The resulting usage ranges shall be considered in the selection of the fabric and trim components.

A list of all consumer product categories, groups and types is available here: [Usage ranges \[74\]](#)

5.4.3.1.3 BOM

A *BOM* for each style (in size medium in alignment with [EU PEFCR v3.1](#)) is to be provided to bluesign upon request.

If the same components/suppliers are used, it is not necessary to prepare separate BOMs for each color and size.

A BOM contains all components used in production of the consumer product to be [registered](#). This includes brand-nominated and assembler/tier-1-sourced components, in-scope and out-of-scope components (information about packaging is dispensable) with the following information:

- Functional description of the component (zipper, stopper, button, sewing thread, etc.)
- Supplier name and supplier article code
- bluesign Guide ID for registered items
- Quantity (meters, number of pieces), including assembly loss
- Share of the components of the consumer product (percentage of the textile area and share of the accessories). Allocation according to component list.

If the BOM used for data exchange between brand and assembler is not sufficient, the BOM may be supplemented by separate documentation.

If there are changes in the BOM (e.g. replacing components or changing quantities), the consumer product shall be re-evaluated and the entry in the Guide be updated.

5.4.3.1.3.1 Guiding principles

As recommended by [GS1](#), the following guiding principles should be considered by any brand owner when introducing changes to an existing product and also when developing a GTIN assignment strategy for a new product.

At least one of the guiding principles must apply for a GTIN change to be required.

1. Is a consumer and/or trading partner expected to distinguish then changed or new product from previous/current products?
2. Is there a regulatory/liability disclosure requirement to the consumer and/or trading partner?
3. Is there a substantial impact to the supply chain (e.g. how the product is shipped, stored, received)?

5.4.3.2 Supply chain

5.4.3.2.1 Assembler

The [assemblers](#) of [registered](#) consumer products are to be bluesign System Partner companies that have achieved Criteria conformance.

If there are any changes in the production site, a new and/or additional registration of the product is necessary.

Non-bluesign assemblers are accepted only if no *wet processing* is used for textile processing (only "cut & sew").

5.4.3.2.2 Qualified supplier

The extent of testing required is determined by a risk assessment that considers factors such as the reliability of the *qualified supplier*, and/or the potential contamination and their likelihood (the risk to the consumer).

While it is not necessary to test each specific component associated with each consumer product, a suitable testing program shall be established. For low/moderate risk items, third-party certificates can be an appropriate alternative if they cover the *RSL* requirements.

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6 bluesign glossary

6.1 Terms, definitions and abbreviations

A

accepted		Status of a <i>basic chemical</i> that conforms with bluesign's process for the assessment of the <i>CIL</i>
		Antonym: not accepted
add-on		Weight of chemical product applied per weight of material to be treated
Adsorbable Halogen (AOX)	Organic Compounds	Refers to a group of organohalogen compounds that can be adsorbed onto activated carbon. AOX includes chlorinated, brominated, and iodinated organics.
apparel		A category of textile <i>consumer products</i> with which people cover their bodies except for footwear. An individual item within this category is called a <i>garment</i>. Examples: Trousers, shorts, skirts, dresses, men's suits, shirts, jackets, coats, outdoor and sports clothing, socks, lingerie, underpants, workwear, protective wear, and apparel accessories such as scarves, gloves, hats, ties
article		A product placed on the market by manufacturers and converters, which is composed of one or more <i>materials</i> given a specific shape, surface or design. Examples: Fabrics, zippers, thread, membrane, buttons
assembler		A company that cuts, sews and assembles components to manufacture <i>consumer products</i> Related processes: 1. Business processes a. <i>converting</i> b. <i>subcontracting</i> c. <i>commission manufacturing</i> 2. Production processes a. consumer product manufacturing b. consumer product assembling Synonym: garment manufacturer See Also <i>material supplier</i>.

B

B2B	Short for: business-to-business
-----	---------------------------------

	Describes commercial transactions and relationships between one company and another, rather than with individual consumers Compare with: B2C
B2C	Short for: business-to-consumer Describes commercial transactions and relationships between one company and individual consumers, rather than with another company Compare with: B2B
basic chemical	A commercial product (normally without a trade name, sold under chemical name) consisting of one chemical substance or a solution of this substance. See: Technical Guidance on "Input stream management: Basic chemicals in textile manufacturing" Often used synonymously with: commodity chemical
Bill of Materials (BOM)	A comprehensive list of components and the quantity of each component required to manufacture a product. In the context of the bluesign Criteria: The bill of materials enables traceability to the supplier, supplier article number and color for each component and includes a functional description of the components.
black rating	Rating of a chemical product from a bluesign System Partner Black-rated chemical products do not conform to the bluesign Criteria for bluepass Products and must be eliminated from the manufacturing process Compare with: blue rating, grey rating
bluepass Product	A product that has been created using certified processes, that has met the requirements of the bluesign Criteria for product registration, and that carries the bluesign trademark. They can be: bluepass Chemical Product Certification mark for chemical products produced through processes that meet <i>bluesign Criteria for processing chemical products</i> and have fulfilled the <i>bluesign Criteria for bluepass Products</i>. Listed on the bluesign Finder. bluepass Article Certification mark for intermediate articles (fabrics, accessories, trims) produced through processes that meet <i>bluesign Criteria for processing articles and B2B consumer products</i> and have fulfilled the <i>bluesign Criteria for bluepass Products</i>. Listed on the bluesign Guide. bluepass Consumer Product Certification mark for finished consumer goods (apparel, denim, home textile, equipment, footwear) produced through processes that meet <i>bluesign Criteria for processing B2C consumer products</i> and have fulfilled the <i>bluesign Criteria for bluepass Products</i>. Listed on the bluesign Guide.

		Formerly known as: <i>bluesign Approved, bluesign Product</i>
		See Also ???TITLE???
blue rating		Rating of a chemical product from a <i>bluesign System Partner</i> Blue-rated chemical products for a specific application conform fully to the <i>bluesign Criteria</i> for bluepass Products. The use of these chemical products are preferred. Compare with: <i>black rating, grey rating</i>
bluesign Assessment	Company	An evaluation of business and/or production processes for their conformity with <i>bluesign Criteria</i>. It is valid for one year. Measures for continuous improvement are evaluated. If applicable, it includes <i>on-site assessments</i> of production sites. Types of Company Assessments include: 1. Initial assessment: The first company assessment conducted upon joining the bluesign System 2. Follow-up assessment: An annual company assessment to monitor the progress since the previous company assessment (only for companies that have reached the status "Criteria conformance") 3. Re-assessment: A regular comprehensive company assessment after the initial assessment in defined time intervals (i.e. three years) to renew the certificate 4. Additional assessment - An ad-hoc assessment necessary due to a change in scope of assessment, e.g. new processes, new facilities, expired company assessment Formerly known as: Screening and Audit
bluesign Criteria		A set of evaluation requirements for 1. the assessment of companies and their processes ("company assessments): a. bluesign Criteria for processing chemical products: valid for <i>bluesign System Partner</i> chemical suppliers and their processes b. bluesign Criteria for processing articles and B2B consumer products: valid for <i>bluesign System Partner</i> material suppliers and assemblers; and their processes c. bluesign Criteria for processing B2C consumer products: valid for <i>bluesign System Partner</i> brands and their processes 2. the assessment of a product: a. bluesign Criteria for bluepass Products: valid for <i>product registration</i>, i.e. of bluepass Chemical Products, bluepass Articles and/or bluepass Consumer Products
bluesign Finder		<i>Online database</i> containing blue- and grey-rated chemical products (e.g. dyestuffs, auxiliaries). It serves as a search engine designed to help companies in finding registered chemical products Compare with: <i>bluesign Guide</i>

bluesign Guide		Online database containing registered articles and consumer products Compare with: bluesign Finder
bluesign Product		Former bluesign mark for labelling of consumer products which are registered in bluesign Guide See Also bluepass Product.
bluesign Restricted Substance List (bluesign RSL)		The bluesign Restricted Substances List (bluesign 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). bluesign RSL is revised on the basis of the BSSL. Compare with: RSL Downloads available on bluesign.com: Downloads
bluesign Status		Progress of a bluesign client as shown in bluesign Connect. The stages are as follows: 1. Assessment - when the client has begun the assessment 2. System partnership and Criteria conformance - when requirements are fulfilled
bluesign System		The bluesign System is a comprehensive solution for businesses at all levels of the textile supply chain seeking to certify, report, and improve their impact on people and the planet. It does so by providing brands, assemblers, material suppliers and chemical suppliers a structured approach to sustainability, chemical management, and impact reduction across their value chain. The bluesign System encompasses the evaluation of a company to enter the bluesign System as a System Partner and access the option for product registration upon Criteria conformance, and the continual improvement through a trusted partnership with bluesign.
bluesign System Black Limits (BSBL)		The BSBL specify threshold limits for chemical substances in finished chemical products, such as auxiliaries or dyes. The BSBL substances with rating "Usage Ban" shall be not intentionally used in the manufacturing of chemical products, articles. It is designed to cover the ZDHC Manufacturing Restricted Substance List (MRSL). The BSBL is revised annually. Downloads available on bluesign.com: Downloads
bluesign System Partner		A legal entity with a valid bluesign Certificate, which includes holding a valid System Partner agreement and attaining the bluesign Status of Criteria conformance

bluesign System
Substances List (BSSL) The BSSL specifies consumer safety limits for chemical substances in articles.

It is designed to cover the AFIRM RSL and the AAFA RSL. The BSSL is revised annually.

Downloads available on bluesign.com: [Downloads](#)

bluesign Tool Web-based application for [bluesign Chemical Assessment](#) and rating of chemical products

C

chemical intermediate A chemical product that is not directly used in the textile manufacturing, but is a substance or substance mixture consumed during the synthesis or formulation/blending of the finished textile chemical product.

Examples: Silicones, surfactants, dyestuff building blocks

Chemical Inventory List (CIL) Overview of chemicals used at the site which informs on the chemicals in use, the volume, storage places, hazard statements etc.

chemical product A commercial product placed on the market by chemical suppliers, which can be a chemical substance or a mixture of chemical substances, and can be for industrial use or end-consumer use

Synonym: chemical

CLP Classification, Labelling and Packaging (CLP) Regulation ((EC) No 1272/2008)

consumer product A product placed on the market by brands for consumer use

Categories: [apparel](#), denim, [home textile](#), [equipment](#), [footwear](#)

Example: A jacket, a pair of jeans, a pair of sneakers

converting Buying and selling products which are registered in the Guide under own brand name and own responsibility. The properties of the original products are not modified. Changes to lot sizes or packaging are common. These products may be textile articles (at all processing levels), finished leather articles and/or accessories as well as consumer products.

The process converting includes the requirements and recommendations for [subcontracting](#) for material suppliers.

Compare with: [rebranding](#)

D

E

embellisher A company adding print, embroidery or other decoration to a garment

Synonym: decorator

equipment Examples: tents, backpacks, luggage, climbing ropes, hammocks, umbrellas, sleeping bags, sleeping pads, handbags, camping chairs, rooftop tents, strollers, car seats for kids, bicycle trailers, personal flotation devices, yoga mats, and similar articles

F

footwear Examples: street shoes, sport shoes, boots, and similar articles

furniture Free-standing or built-in units whose primary function is to be used for the storage, placement or hanging of items and/or to provide surfaces where users can rest, sit, eat, study or work, whether for indoor or outdoor use

Source: [Commission Decision \(EU\) 2016/1332](#)

G

Global Trade Item Number (GTIN) Global standard for identifying products

Predecessor: European Article Number (EAN)

GMN Global Model Number

greenhouse gas (GHG) Greenhouse gases are a group of gases contributing to global warming and climate change. The Kyoto Protocol covers the following seven:

- the non-fluorinated gases:
 - carbon dioxide (CO₂)
 - methane (CH₄)
 - nitrous oxide (N₂O)
- the fluorinated gases:
 - hydrofluorocarbons (HFCs)
 - perfluorocarbons (PFCs)
 - sulphur hexafluoride (SF₆)
 - nitrogen trifluoride (NF₃)

Converting them to carbon dioxide equivalent (CO₂e) makes it possible to compare them and to determine their individual and total contributions to global warming.

(Source: [Eurostat](#))

grey rating Rating of a chemical product from a [bluesign System Partner](#)

Grey rated chemical products for a specific application are fully compliant with the [bluesign Criteria](#) for bluepass Products, but certain guidance on safe use at the factory is to be followed. Supporting information is given in the [bluesign Finder](#)

Compare with: [black rating](#), [blue rating](#)

Guide ID A unique identifier for a registered article or consumer product on [bluesign Guide](#)

H

home textile

A category of textile *consumer products* which people use at home

Examples:

- Bath linen such as bath towels, beach towels, wash towels, face towels/cloths, hand towels, washing mitts, bath sheets, bathrobes, bath-mats and toilet pedestal mats
- Bed linen such as bed sheets, pillowcases, valance sheets, cot sheets, blankets, bed scarves/partial coverlets
- Kitchen textiles such as tea towels, oven gloves/mitts, potholders, aprons, and tea cozies
- Table linen such as tablecloths, non-disposable table napkins, fabric place mats/settings, non-disposable table runners, as well as cushion covers used for kitchen chairs
- Household textile items typically used in the living room, such as cushions (including floor cushions), throw pillows, cushion covers and sofa throws, rugs, moveable floor coverings, curtains

I

K

L

M

Mass Median Aerodynamic Diameter (MMAD)

The aerodynamic diameter at which 50% of the aerosol particles by mass are smaller and 50% are larger, typically measured in micrometers (µm). It is the standard metric used in pharmaceuticals and engineering to characterize aerosol size distribution and predict particle deposition in the respiratory tract.

material supplier

A company that supplies textile articles (at all processing levels), leather and/or accessories. Not all material suppliers have *production sites*.

Related processes:

1. Business processes
 - a. *converting*
 - b. *subcontracting*
 - c. *commission manufacturing*
2. Production processes
 - a. *fiber manufacturing*
 - b. yarn manufacturing
 - c. textile manufacturing
 - d. consumer product manufacturing
 - e. consumer product assembling
 - f. plastic part manufacturing
 - g. fabricated metal part manufacturing
 - h. *down and feather manufacturing*

- i. footwear manufacturing
- j. leather manufacturing

See Also [assembler](#).

MOS

Margin of Safety

N

O

OECD

Organization for Economic Co-operation and Development

P

Partnership for Carbon Transparency (PACT)

A global initiative led by the World Business Council for Sustainable Development (WBCSD), launched in 2020

Its primary aim is to establish a unified, interoperable standard for calculating, sharing, and using product-level carbon footprint (PCF) data within supply chains.

PEC

Predicted Environmental Concentrations

PNEC

Predicted no-effect concentration

Product Environmental Footprint Category Rules (PEFCR)

A standardized methodology approved by the European Commission to measure the environmental impact of fashion products across their entire lifecycle. The latest version approved by the European Commission in May 2025 was version 3.1

(Source: [PEF Apparel & Footwear](#))

product registration

products made with certified processes and assessed to conform with the [bluesign Criteria](#) may be registered in the bluesign Finder (chemical products) or bluesign Guide (articles, consumer products)

PVC

Polyvinylchloride

Q

qualified supplier

A supplier whose products have been evaluated to meet the requirements set out in purchasing specifications or brand RSL

R

RCR

Risk Characterization Ratio

REACH

Registration, Evaluation and Authorization and Restrictions of Chemicals (EU regulation 1907/2006)

rebranding

There are two types of rebranding process:

- Rebranding of [registered](#) products: Purchasing chemical products which are registered in the Finder from a chemical supplier for registering in the [bluesign Finder](#) and distributing them under own brand name and on own responsibility. The properties of

	the original products are not modified. Changes to lot sizes or packaging are common. • Rebranding of non-registered products: Purchasing products from a non-bluesign supplier for registering in the bluesign Finder and distributing them under own brand name and on own responsibility. The properties of the original products are not modified. Changes to lot sizes or packaging are common.
	Compare with: converting
registered	The term "registered" refers to products created using certified processes and assessed to be conformant with the bluesign Criteria See Also bluesign Product.
Restricted Substances List (RSL)	A list focusing on consumer safety that regulates the presence of certain chemical substances in articles (for example textiles, trims, leather) and therefore indirectly often the use of these substances. Typically, it defines concentration limits for chemical substances in an article (e.g. mg substance per kg textile)
S	
Safety Data Sheet (SDS)	A standardised document for hazard communication of chemical products. It provides comprehensive information on the hazards of a substance or mixture, and gives guidance on safe handling, storage, transport, use and disposal. Synonym: Material Safety Data Sheet (MSDS)
Substance of Concern (SoC)	A substance that meets the properties described in the Ecodesign for Sustainable Product Regulation (ESPR) paragraph Article 2, (27) (a), (b), (c) or (d)
Substance of Very High Concern (SVHC)	A substance may be proposed as an SVHC if it meets one or more of the following criteria: · it is carcinogenic; · it is mutagenic; · it is toxic for reproduction; · it is persistent, bio accumulative and toxic according to the criteria set out in Annex XIII to the REACH Regulation (PBT substances) · there is "scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern"; such substances are identified on a case-by-case basis
T	
Technical Data Sheet (TDS)	A document summarizing the performance and other technical characteristics of a product or a material. It includes information on proper application and handling
Technical Guidance	Technical Guidance refers to documents that provide explanation and guidance on how to comply to the bluesign Criteria. These include documents that were previously categorised as such: 1. Guidelines 2. Guidance sheets 3. Fact sheets

4. Best practice sheets

**IMPORTANT:**

Separate *Technical Guidance* documents may contain the verbal forms "shall", "required", "necessary" or other expressions conveying requirements. Such provisions in separate documents are not to be regarded as bluesign Criteria requirements. Only the requirements expressly stated in this bluesign Criteria document apply.

You can find a list of all Technical Guidance documents online on [bluesign Cube](#).

TOC (off-gas)

A sum parameter for organic load measured by *FID*

Together for Sustainability (TfS)

A member-led initiative working to accelerate the development of sustainable and resilient chemical supply chains

The TfS PCF Guideline offers a standardised methodology for calculating cradle-to-gate carbon footprints of chemical products.

(Source: [TfS initiative](#))

tolerated

Status granted to chemical products from non-System Partner; temporary use is allowed and re-evaluated during each company re-assessment. The conditions of which can be found in the *Technical Guidance* "Input Stream Management at Manufacturers".

Antonym: *banned*

U

usage range A

Articles with next to skin use and baby-safe articles

V

volatile organic compound (VOC)

Any organic compound having at 293.15 K a vapor pressure of 0.01 kPa or more, or having a corresponding volatility under particular conditions of use

W

wet processing

A series of chemical and mechanical treatments applied to raw, unfinished "grey" fabrics to enhance their appearance, performance, and durability.

This stage is the most water-intensive and chemically complex part of textile manufacturing, generating significant wastewater that requires careful treatment to mitigate environmental impact.

A non-exhaustive list of examples:

- pretreatment (e.g. singeing, desizing, scouring, and bleaching)
- coloration (e.g. dyeing, printing)
- finishing (e.g. application of anti-creasing or water repellency finishing)
- other processes (e.g. mercerizing, laundry)

workflow

A combination of manufacturing processes, chemicals and materials used to make a specific type of article/product (e.g. coated polyester woven fabric), covering all colors and material variations.

Z

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