Textile Exchange

Corporate Fiber & Materials Benchmark Program

Materials Terminology Guide

Materials Terminology Guide 2020

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Contents

About this Guide

Definitions are critical to ensuring a clear and shared understanding of meaning; providing insight into the way a word or a phrase is being used.

In this guidance document, we introduce some of the key definitions and terminology we use at Textile Exchange, which we know will be particularly helpful for participants of the Corporate Fiber and Materials Benchmark (CFMB) program.

The guide unpacks terminology such as “taking a portfolio approach” and it explains how a company can determine a “priority material” for their business. It explains the difference between a “preferred material” and the wider scope of a “sustainability program”, as defined by Textile Exchange. It also includes a comprehensive listing of fiber and material programs and the acronyms used in the benchmark.

The guide's final sections include additional CFMB program classifications such as “sub-sectors” and supply chain tiers. A drill-down is provided into key material categories, providing customized supply chain graphics and useful risk listings.

All graphics are developed and designed by Textile Exchange.

We hope you find this guide helpful and welcome any feedback as to how it can be improved.

Fiber & Materials Terminology

Material

Material[I]**:** A specific substance that is used to make textiles. The term "material" is used as overarching for both fibers and non-fiber materials. Textile Exchange defines a material as either a fiber that is transformed into yarn or a non-fiber material produced using other production processes to reach an otherwise prepared/cleaned material state ready for this transformation. Primary processing of a raw material to reach "ready-state" could include ginning, pulping, shredding, cleaning, tanning, etc.

- **Fiber:** A material which is transformed into yarn (and typically into fabric and then finished products). A fiber can be a staple fiber or a filament fiber. In the CFMB program, impacts of fibers are considered from raw material extraction and any primary processing, up to preparing the fiber for spinning. Any fiber with a practical, limited or finite length is considered a staple fiber. Contrary to filament fibers, these are small length fibers like cotton, wool, etc. They can also be manmade or synthetic (viscose, polyester…). All fibers that have a practically unlimited length are considered filaments. In other words, filament fibers are continuous fiber.
- **Non-fiber:** A material, which is not transformed into yarn, but rather is produced using other production processes to reach an otherwise prepared/cleaned material state (e.g., down cleaning and drying, leather tanning, rubber production) to become a product or component of a product.

Raw materials: Or feedstocks used by the textile industry can be either primary (virgin) materials (cultivated or extracted from the earth) or secondary feedstocks (reclaimed and recycled from pre-consumer or post-consumer waste streams and fed back into the production cycle). Materials can be either renewable or non-renewable.

- **Renewable raw materials** are typically not depleted when used. "Rapidly" renewable materials are usually harvested from fast-growing sources and take ten or fewer years to grow or raise and harvest in an ongoing and "sustainable" way. Examples include cotton, wool, and certain types of wood (for man-made cellulosic fibers). Renewable materials can be either produced to a sustainability program or conventionally produced.
- **Non-renewable raw materials,** also called finite resources, are natural resources that cannot be readily replaced by natural means quickly enough to keep up with consumption. An example is carbon-based fossil fuel (the building blocks of virgin conventional synthetic fibers and materials). Earth minerals, metal ores, and groundwater in certain aquifers are other examples of non-renewable resources. Primary forests can also be considered non-renewable. That is, their "localized replenishment cannot occur within time frames meaningful to humans."
- **Recycled raw materials** can originate from renewable or non-renewable feedstocks. They are materials that would otherwise have become waste, which can be collected, separated, processed, and returned to the economic mainstream in the form of raw materials or products. Recycled materials are usually considered part of a materials sustainability portfolio or program.

I. Textile Exchange's definition of a "**material**" is adapted from the EC Raw Materials Initiative, which describes raw materials (also known as a feedstock, unprocessed material, or primary commodity) as a basic material that is used to produce goods, finished products, energy, or intermediate materials that are feedstock for future finished products. Raw materials are materials in unprocessed or minimally processed states, e.g., cotton, raw latex, crude oil, raw biomass, logs, or "any product of agriculture, forestry, fishing or mineral in its natural form or which has undergone the transformation required to prepare it for international marketing in substantial volumes."**Secondary raw materials** are waste materials that have been reclaimed, recycled, and injected back into use as productive material. A helpful introduction to the differences between a fiber and a filament can be found here.

There are four key material categories in the CFMB program materials portfolio:

Plant-based fibers and materials can be grouped into conventional renewable, preferred renewable, or reclaimed and recycled. A "preferred renewable" plant-based material is cultivated or harvested using more sustainable methods (including protecting wild species from overexploitation). They include crops cultivated in fields such as cotton, flax (linen), hemp, or in plantations or forests such as latex (rubber) or from wild plants (such as nettles). Crops such as corn, sugar cane, and castor are being used as feedstocks for biobased synthetics. Plant-based materials are derived from the seed (cotton), stem (flax, hemp), sap (rubber) or leaves (sisal).

Animal-derived fibers and materials can be grouped into conventional renewable, preferred renewable, or reclaimed and recycled. A "preferred renewable" animal fiber/material is grown using more sustainable methods (including not being harvested from overexploited or endangered species). They are derived from both farmed/domestic animals (such as sheep, goats, cows, and some waterfowl) or wild animals (such as coyotes, opossums, crocodiles) for their skins, furs, hair, and wool. Note: some of these "undomesticated" animals are also farmed. Although less connected to the "animal" category, silk from the silkworm fits here and can be farmed or wild.

Regenerated manmade cellulosic fibers can be grouped into conventional renewable, preferred renewable, or reclaimed and recycled. Manmade cellulosics, such as viscose, modal, lyocell, and acetate are mainly derived from forestry or other plants such as bamboo, and increasingly from salvaged cellulose "waste" either at the biobased material level (e.g., straw, wood-based waste) or from pre- or post-consumer cotton (cellulose) waste. Manmade cellulosics are considered renewable (unless unsustainably harvested). Manmade cellulosics are made from these feedstocks through industrial processes of cellulose.

Synthetic fibers and materials can be grouped into conventional, recycled, and biobased. Conventional synthetics (such as virgin polyester, polyamide, and synthetic rubber) are based on non-renewable fossil fuels extracted from the earth and synthesized into petrochemical feedstocks. They can also come from post-consumer plastic waste. The building blocks are often the same and given second or multiple lives through mechanical or chemical recycling into new synthetic textiles. Biobased synthetics are derived from plants such as corn andsugar.

Preferred Material

Textile Exchange defines a preferred fiber or material ("PFM") as one that results in improved environmental and/or social sustainability outcomes and impacts compared to conventional production. A comprehensive methodology for assessing "preferred" is currently being developed, and Textile Exchange aims to release phase one of its new, interactive PFM Matrix resource in 2021.

- **Preferred, renewable:** A fiber or material that results in improved environmental and/or social sustainability outcomes and impacts compared to conventional production, and which is grown, naturally replenished, or cleansed on a human time scale. A renewable resource is capable of being exhausted but can last indefinitely with proper stewardship (ISO 21930:2017).

- **Preferred, recycled:** A pre- or post-consumer material diverted from waste streams and used as feedstock to produce recycled fiber or material.

- **Conventional:** Textile Exchange defines a conventional material as a material that is not produced to the specifications of a sustainability program (standard, certification, regulation, initiative, or process).

A preferred fiber or material (PFM) is assessed according to the following pillars.

Sustainability criteria developed through a formalized multi-stakeholder process.

A recognized **industry standard** in place which confirms its status as preferred.

A robust **chain of custody system** in place to track or trace the material through the supply chain and back to its origin.

Objectively and scientifically tested or verified as having greater sustainability attributes, such as through a peer-reviewed Life Cycle Assessment.

Potential for circularity (under consideration).

Further details of a preferred fiber/material:

- **Feedstock production:** The fiber or material is derived from a renewable or reclaimed material produced according to at least one recognized industry sustainability standard.

- **Feedstock Processing:** The fiber or material is processed or recycled (to a “spin-ready” filament or staple fiber or an otherwise prepared/cleaned material state) according to a recognized industry standard or results of a risk assessment. Risks associated with the primary processing of feedstocks (e.g., ginning, retting, pulping, shredding, cleaning, tanning, etc.) will vary in type and priority depending on the fiber or material, geography and/or country-level regulations.

- **Product Integrity.** The material is identified and preserved (e.g., using a Chain of Custody standard) and can potentially be traced through the supply chain back to its origin. If the material is managed via a mass-balance system, as a minimum, the country of origin is identified.

- **Scientifically tested:** The sustainability outcomes, impacts, or benefits associated with the fiber or material are relevant, scientifically proven, and peer-reviewed (e.g., LCA). Improvements need to be sustainable over time, and the positive impact achieved should not cause any (unintended) negative impacts somewhere else.

- **Potential for circularity:** The material has a good potential for circularity. This should be considered at the product design stage for end-of-life and cover durability, disassembly, resource use (including embedded impacts such as water, chemicals, non-renewable fossil fuels), technical and/or biological recyclability.

Priority Material

For the purposes of benchmarking, Textile Exchange defines a priority/non-priority material by the scale, risk, and opportunity it represents to the company.

- **Scale:** The "fiber" represents a percentage of volumetric use beyond a threshold of 10 percent of overall fiber use, e.g., cotton, polyester, man-made cellulosic fibers, nylon, and wool. Or, in the case of "non-fiber” materials (e.g., leather, down), it represents 10 percent of the final product range (i.e., by "count of products" with "major components" of non-fiber materials, e.g., down or leather).

- **Risk:** The raw material represents a "material risk” to the company. Risks associated with a minority (low volume) raw material include sourcing from environmentally and/or socio-economically high-risk sourcing regions, animal welfare risk, reputation risk, etc.

- **Opportunity:** The module should also be selected if the company has seized the opportunity to advance the sustainability of the raw material even if the material is below the volumetric use threshold or is not considered a risk.

I. Requirements: The three parameters (above) determine whether a material (fiber or non-fiber) is a priority and must be completed for a Material Change Index (MCI) score and placement in the Material Change Index (MCI).
II. Risk: Materiality assessments help a company identify its most "material" issues. The process of identifying/assessing these issues (including risks and opportunities associated with fiber/materials use) involves reaching out to internal and external stakeholders to get their input.
III. Exceptions: The company may decide not to complete a module, even if the material used is above the volume threshold and is recognized as a key risk. For example, if the company is in the process of decommissioning the use of the said material (e.g., based on the company's risk and opportunity assessment) and the transition is not yet complete.
IV. Evidence: The company is to disclose its priority/non-priority materials status with supporting evidence such as uptake documentation, risk assessment, etc. A company's completed Material Balance Sheet and accompanying Metadata Form is sufficient proof of volumetric uptake.
V. Materiality: For the definition of materiality, we look to the Sustainability Accounting Standards Board (SASB) and their standard-setting process: Information is financially material if omitting, misstating, or obscuring it could reasonably be expected to influence investment or lending decisions that users make on the basis of their assessments of short-, medium-, and long-term financial performance and enterprise value. The Integrated Reporting Initiative <IR> states that: The process of determining materiality is entity specific and based on industry and other factors, as well as multistakeholder perspectives. (see SASB and Integrated Reporting: Materiality).

Material Use and Uptake

- **Use:** The use, sourcing or otherwise integration of a material (fiber/non-fiber). For benchmarking purposes, "use" is defined as the presence of a material in a company's portfolio during the reporting period (12-month cycle).

- **Uptake:** The volume of a material (fiber/non-fiber) used in the creation of a textile product. For benchmarking purposes, "uptake" is defined as the numerical amount of material that a company sourced during the reporting period (12-month cycle). Uptake volumes are calculated back to "spin-ready" or equivalent, presented in a common metric (e.g., Tonnes) and enable the quantification of the company's material portfolio.

    - **Absolute uptake:** A company's absolute uptake is based on the volume (scale) of uptake from one or more preferred materials programs.

    - **Relative uptake:** A company's relative uptake is based on the share of preferred material uptake relative to conventional.

Materials Balance Sheet

The Materials Balance Sheet (MBS) is Textile Exchange's centralized framework for volumetric uptake reporting (accounting) housed in the benchmarking platform. The MBS is a quantitative "balance sheet" (accounting tool) for all materials used by the company during the reporting year. Uptake data is reported for each fiber/material category and within each category divided out by "conventional," preferred and "sustainability program" volumes. Companies complete the MBS as part of their survey submission. The CFMB program provides a suite of guides, conversion calculators, default conversion (loss) factors, and guidance methodologies based on best practice (from stakeholder consultation).

MBS data drives all volumetric analysis, including gaps between conventional and preferred and year-on-year progress tracking. It is also critical for the modeling of outcomes and impacts such as water use, energy and

carbon emissions. Aggregate MBS data drives Textile Exchange's Materials Impact Dashboard. Collaboration between Textile Exchange and the Sustainable Apparel Coalition (SAC) has led to the harmonization of loss factor calculations (from product back to raw material), and the SAC Higg MSI midpoints are used in the Materials Impact Dashboard to track water, energy, and greenhouse gas emission savings.

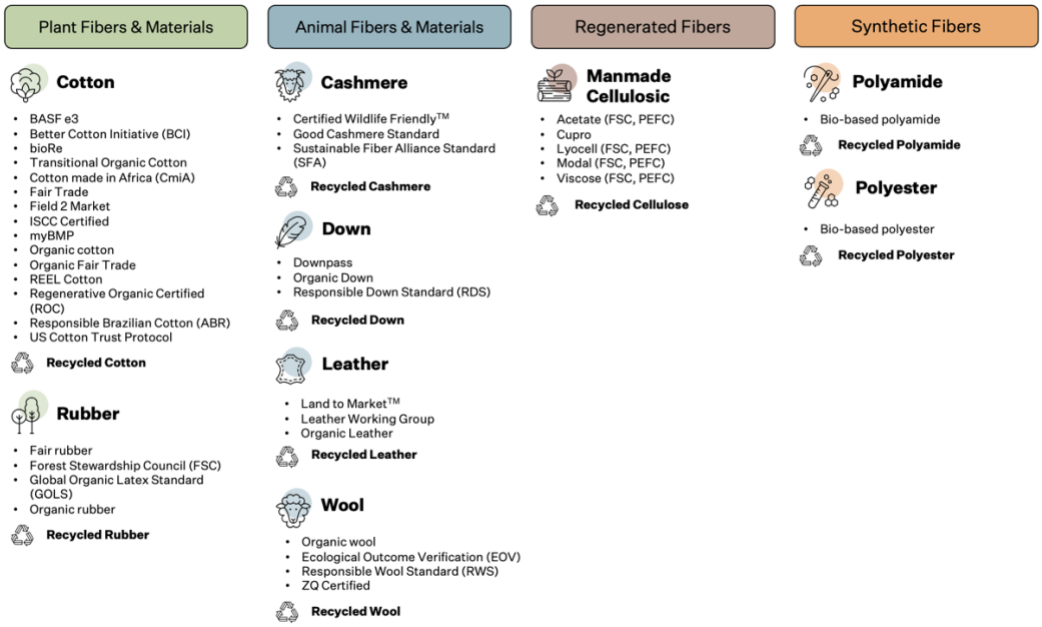
Materials Portfolio

The range of sustainability programs and conventional materials in use by a company. Designing a portfolio of sustainability programs involves the following:

- Building a suite of preferred materials from a choice of preferred options through the consideration of impacts and organizational priorities.
- Embedding a strategy that leads to preferred options replacing unsustainable or less sustainable alternatives.
- Making a commitment to the principles of continuous improvement and ensuring options selected result in a positive impact.

Taking a portfolio approach means recognizing that "one size does not fit all" and allowing companies to build their own portfolio of sustainability programs based on the company's strategic assessment and implementation plan.

The table below shows the four material categories and the seven modules (cotton, down, leather, wool, man-made cellulosic fibers, nylon, and polyester) currently covered by the CFMB. Additional fibers/materials (such as rubber, cashmere, and acrylic) that are deemed a priority for a company can now be reported through "generic" modules. Sustainability program options continue to expand, for instance, the US Cotton Trust Protocol was recently added to the Cotton module. We anticipate revising the sustainability program options in the MMCF module to incorporate pulp and fiber processing programs, such as the Zero Discharge Hazardous Chemicals (ZDHC) MMCF Guidelines.



Sustainability Program

A sustainability "program" is the term used in the CFMB program to refer to specific initiatives, standards and/or processes either listed in the portfolio of options (above) or distinguished by the company to have a higher sustainability performance than its conventional option.

Textile Exchange assesses sustainability programs to determine their preferred status. Program weightings will be revised in accordance with our new PFM Matrix methodology (available in Spring 2021). Textile Exchange classifies a "conventional" material as a material which is not produced to the specifications of a sustainability program (standard, certification, regulation, initiative or process).

A note on Circularity

According to the Ellen MacArthur Foundation (EMF), the Circular Economy is based on the principles of "designing out" waste and pollution, keeping products and materials in use, and regenerating natural systems. For more information on principles of the circular economy, see Ellen MacArthur Foundation – Make Fashion Circular.

The concept of circularity in the textile industry is to transition to a circular economy that would benefit business, society, and the environment, by implementing strategies that entail [gradually] decoupling economic activity from the consumption of finite resources and designing waste out of the system.

In the conventional linear production model ("take – make – throw away"), a product is considered waste when the owner has no further use for it. The product then becomes a burden on the environment either through its status as solid waste (going to landfill) or other pollution (e.g., emissions through incineration).

A circular model (or economy) requires a shift in mindset as well as technology and logistics to value waste as a resource – one that displaces the need for virgin materials and thereby relieves pressure on the natural world, including its biodiversity.

Materials Modules

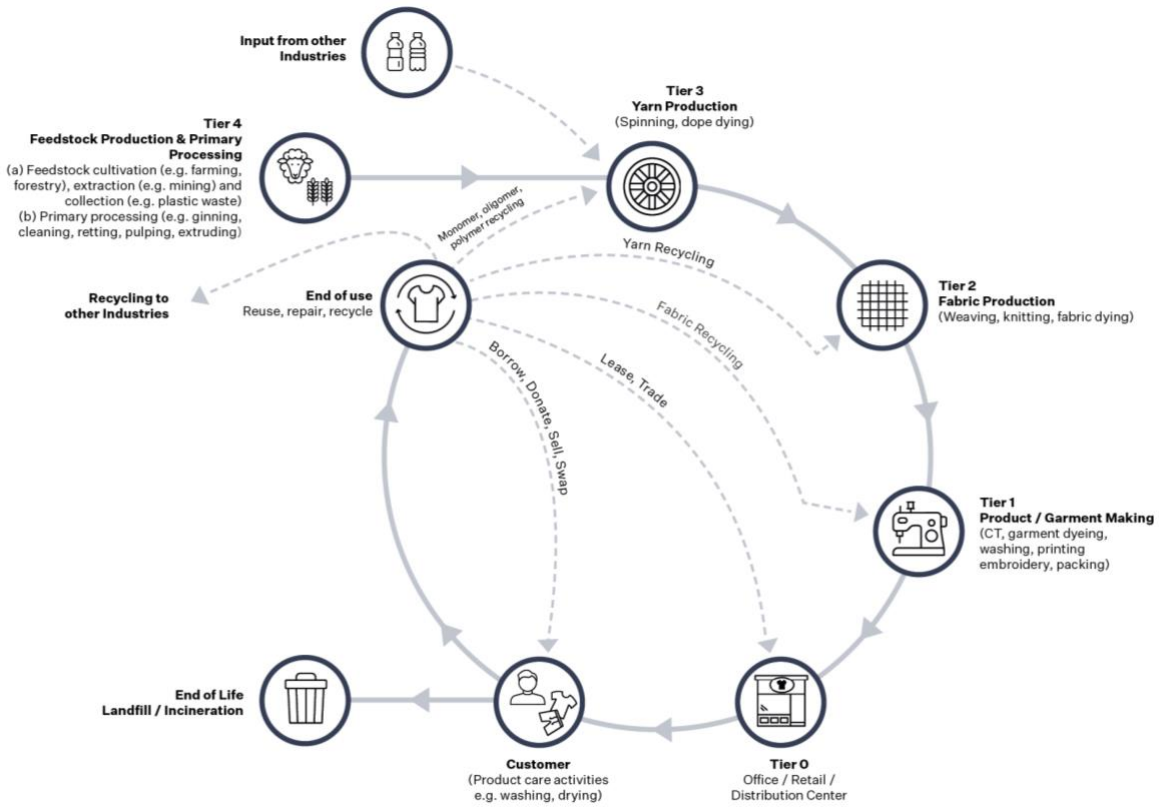
Core Materials Modules

Currently, the CFMB program includes seven fiber and material categories "modules". It allows for up to two additional fibers or materials to be selected and reported within a "generic module" framework. The CFMB program provides customized modules for the following material categories.

Cotton Module			
Program	**Acronym**	**Program**	**Acronym**
Organic Fair Trade	OFT	ISCC certified	ISCC
Organic cotton	OC	myBMP	BMP
Fair Trade cotton	FT	bioRe® Sustainable Cotton	bioRe
Cotton made in Africa	CmiA	U.S Trust Cotton Protocol	USTrust
Better Cotton Initiative	BCI	Regenerative Organic Cotton	ROC
CottonConnect REEL	CCR	Transitional Organic Cotton	TOC
Abrapa	ABR	Recycled cotton	rCotton
BASF e3	e3	Other cotton programs	OtherCP
Field to Market	F2M	Conventional cotton	ConvCO

Wool Module			
Program	**Acronym**	**Program**	**Acronym**
Organic wool	OW	ZQ other countries	ZA-Others
Responsible Wool Standard	RWS	Recycled wool	rWool
Land to Market - Ecological Outcome Verified	EOV	Other wool programs	OtherWP
ZQ New Zealand	ZQ-NZ	Conventional wool	ConvW

Polyester Module			
Program	**Acronym**	**Program**	**Acronym**
Recycled polyester	rPET	Other polyester programs	OtherPET
Biobased polyester	bPET	Conventional Polyester	ConvPET



Nylon Module

Program	Acronym	Program	Acronym
Recycled nylon	rPA	Other nylon programs	OtherPA
Biobased nylon	bPA	Conventional nylon	ConvPA

Manmade Cellulosics Module	
Program	**Acronym**
Viscose, FSC	Vis-FSC
Viscose, PEFC	Vis-PEFC
Viscose, FSC/PEFC	Vis- FSC/PEFC
Viscose, other forestry standards	Vis-Other FS
Lyocell, FSC	Ly-FSC
Lyocell, PEFC	Ly-PEFC
Lyocell, FSC/PEFC	Ly-FSC/PEFC
Lyocell, other forestry standards	Ly-Other FS
Modal, FSC	Mod-FSC
Modal, PEFC	Mod-PEFC
Modal, FSC/PEFC	Mod-FSC/PEFC
Modal, other forestry standards	Mod-Other FS
Acetate, FSC	Ace-FSC
Acetate, PEFC	Ace-PEFC
Acetate, FSC/PEFC	Ace-FSC/PEFC
Acetate, other forestry standards	Ace-OtherFS
Recycled cellulose, cupro	rCell-Cupro
Recycled cellulose, other program	rCell-Other
Recycled cotton MMCF mix, other programs	rCell-CottonMix
Other MMCF programs	OtherMP
Conventional viscose	ConVis
Conventional lyocell	ConvLy
Conventional modal	ConvMod
Conventional acetate	ConvAce

Note, the current Manmade cellulosics module accommodates programs with forestry level certification. In addition, the module incorporates questions on risk at the pulp and fiber processing levels. Recent developments by the Zero Discharge Hazardous Chemicals (ZDHC) and their MMCF Guidance version 1 for

fiber manufacturing will be reviewed for potential inclusion as a “program option” in the next version in alignment with the PFM Matrix methodology.

Leather Module			
Program	**Acronym**	**Program**	**Acronym**
Bovine, conventional	ConvBov	Sheepskin, conventional	convSheep
Bovine, organic	BovO	Sheepskin, organic	SheepO
Bovine, recycled	rBov	Sheepskin, RWS	SheepRWS
Bovine, Leather Working Group	BovLWG	Sheepskin, LWG	SheepLWG
Bovine, Land to Market – Ecological Outcome Verified	BovEOV	Sheepskin, recycled	rSheep
Bovine, other	otherBov	Sheepskin, other	otherSheep
Calf leather, conventional	CAalfLEconv	Goatskin, conventional	convGoat
Calf leather, organic	CalfO	Goatskin, organic	GoatO
Calf leather, recycled	rCalf	Goatskin, recycled	rGoat
Calf leather, Leather Working Group	CalfLWG	Goatskin, Leather Working Group	GoatLWG
Calf leather, other	CalfOther	Goatskin, other	otherGoat
Pigskin, conventional	convPig	Conventional, other species	otherLEconv
Pigskin, organic	PigO	Other leather programs	OtherLP
Pigskin, recycled	rPig		
Pigskin, Leather Working Group	PigLWG		
Pigskin, other	otherPig		

Down Module			
Program	**Acronym**	**Program**	**Acronym**
Organic down	OD	Recycled down	rDown
Responsible Down Standard	RDS	Other down programs	OtherDP
Downpass	Downpass	Conventional down	ConvD

Generic Modules

The CFMB program now accommodates the reporting of fibers and materials beyond the seven material modules listed above.

The following tables provide examples of material categories and sustainability programs that may be important to participants, but the tables are not exhaustive or complete. Please note that "conventional" materials may have inherent sustainability attributes. Methodology to determine sustainability attributes and programs will be assessed within our PFM Matrix. Please see the Biodiversity Benchmark Companion Guide for further details on cashmere and rubber.

Plant-Based e.g., Flax/Linen, Hemp			
Program	**Acronym**	**Program**	**Acronym**
Organic linen	OL	Organic hemp	OH
Recycled linen	rLinen	Recycled hemp	rHemp
Other linen programs	OtherLP	Other hemp programs	OtherHP
Conventional linen	ConvL	Conventional hemp	ConvH

Plant-Based - Latex/Rubber			
Program	**Acronym**	**Program**	**Acronym**
Organic latex	OL	Other rubber/latex programs	OtherRP
Fair Rubber	FR	Recycled rubber	rRubber
FSC-certified	R-FSC	Conventional natural latex	convNL
FSC-certified	R-FSC	Conventional synthetic latex	ConvSL

Other plant-based fibers and matrials include: Coir, Kapok, Jute, Ramie, Plant-based Leather, etc.

Animal-Derived e.g., Alpaca, Cashmere, Mohair			
Program	**Acronym**	**Program**	**Acronym**
Organic cashmere	OC	Organic alpaca	OA
Sustainable Fibre Alliance	SFA	Responsible Alpaca Standard	RAS
Good Cashmere Standard	GCS	Organic mohair	OM
Certified Wildlife Friendly	WLF	Responsible Mohair Standard	RMS
Recycled cashmere	rCashmere	Recycled	rNSW
Other cashmere programs	OtherCP	Other non-sheep wool programs	OtherNSWP
Conventional cashmere	ConvC	Conventional non-sheep wool	ConvNSW

Other animal-derived fibers include: Camel, Lama, Yak, etc.

Animal-Derived e.g., Silk

Program	Acronym	Program	Acronym
Organic silk	OA	Recycled silk	rSilk
Wild silk	WildS	Other silk programs	OtherSP
Peace (Ahimsa) silk	PeaceS	Conventional silk	ConvS

Other Synthetic Fibers/Materials			
Program	**Acronym**	**Program**	**Acronym**
Recycled acrylic	rAcrylic	Biobased elastane	BioE
Other acrylic programs	OtherAP	Recycled elastane	rElastane
Conventional acrylic	ConvA	Other elastane programs	OtherEP
		Conventional elastane	ConvE

Other Materials e.g., Gold			
Program	**Acronym**	**Program**	**Acronym**
Fairtrade Gold	FTgold	Other programs	Other
FAIRMINED	FMgold	Conventional	Conv
Other gold programs	OtherGP		
Conventional gold	ConvG		

Others include silver, diamonds, other precious metals, and accessories such as glass, beading, etc.

Company Categorization

For benchmarking purposes, Textile Exchange categorizes companies according to the following criteria for structure, size, and market segment (sub-sector).

Company Structure

- **Holding company:** A company that holds and controls all or a large part of the capital stock of other (legally separate) enterprises. A holding company is a corporate parent, and the enterprises which it controls are subsidiaries (UNterm referring to UNOG).

- **Independent brand:** Defined here as a company whose stock is not owned by another company nor a company who is holding the stock of another company, i.e., neither a subsidiary or affiliate nor a holding company.

- **Subsidiary brand:** A company whose stock is more than 50 percent owned by another company; enterprise in which another enterprise has majority voting rights and/or effective operational control (UNterm referring to UNOG).

Company Size

An enterprise is defined as the smallest combination of legal units that is an organizational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. The basis for size classification is the total number of persons employed, which includes the self-employed. Micro-enterprises are defined as firms with 1-9 persons employed; small enterprises: 10-49; medium enterprises: 50-249; and large enterprises: 250 and more (OECD).

Definitions of criteria that determine company size:

- **Company size:** The Material Change Index (MCI) uses the European Union "number of employees" as its dominant business classification condition, the other being turnover. Number of employees takes precedent over annual turnover due to data availability and completeness received in responses from companies.
- **Micro-enterprise:** 1 to 9 employees (turnover under US$2.35 million).
- **Small enterprise:** 10 to 49 employees (turnover between US$2.36 and 11.76 million).
- **Medium-sized enterprise:** 50 to 249 employees (turnover between US$11.77 and 58 million).
- **Large enterprise:** 250 employees or more (turnover over US$58 million).
- **Full-time Equivalent (FTE):** Full-time equivalent employment is the total number of hours worked divided by the average annual hours actually worked in full-time jobs. An FTE of 1.0 means that the person is equivalent to a full-time worker, while an FTE of 0.5 signals that the worker is only half-time (UNterm referring to UNHQ).

- **Turnover:** Total amount invoiced by an enterprise during the period under review. This total corresponds to market sales of services or goods supplied to third parties (UNterm referring to UNOG).

Sub-sectors

For benchmarking purposes, brands/retailers are categorized and benchmarked within market segments (called sub-sectors). There are four sub-sectors as listed below. Textile Exchange is currently piloting the CFMB for manufacturers and suppliers of textile and apparel products. Sub-sectors have not yet been determined.

Sub-sector	Description	Product Categories
Apparel / Footwear	Companies and retailers, of all sizes, mainly apparel and fashion footwear.	Designer, luxury, fashion, family, workwear/uniforms, baby, basics, intimates, and footwear.
Sports / Outdoors	Companies and retailers, all sizes of outdoor, sportswear, and footwear.	Mountain, active and performance sports, yoga, lifestyle, backpacks, sports bags, and footwear.
Home / Hospitality	Companies and retailers, all sizes, of exclusively or predominantly home textiles.	Bed and bath (sheets and towels), dining and catering (tablecloths, napkins), and indoor or outdoor soft furnishings.
Multi-sector	Companies and retailers, all sizes, handling a mix of apparel, footwear, and/or home textiles.	A range of product categories.

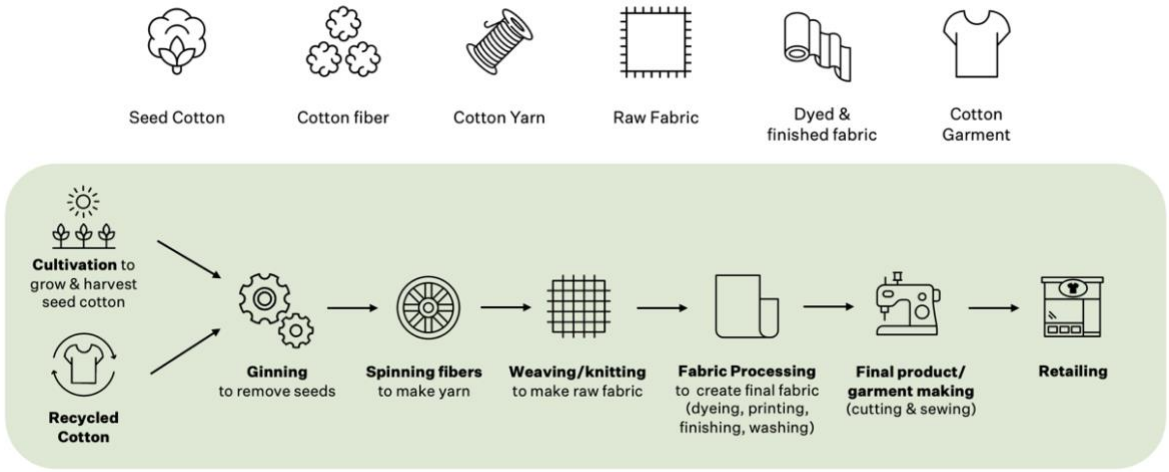
Supply Chain Tiers

- **Tier 1:** Product/Garment Making (Cut, Make, and Trim (CMT)). Suppliers that manufacture the final products.
- **Tier 2:** Fabric Producers. Suppliers that process cotton yarn into fabric.
- **Tier 3:** Yarn Producers. Suppliers that process (by spinning) fibers into yarn.
- **Tier 4:** Raw Material Producers and Processors of primary or secondary (reclaimed) raw materials.

See details of supply chains in the next section.

Supply Chains and Material Risk Charts

Cotton Supply Chain and Risk Chart



Cotton Feedstock Production (Cultivation)

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Chemical-related risks
- Climate change
- Energy use
- Greenhouse gas emissions
- Harmful wildlife management practices
- Invasive species
- Land Occupancy
- Loss of habitat connectivity
- Loss of natural habitat
- Presence of hunting or poaching
- Soil contamination
- Soil degradation
- Species endangerment / extinction
- Water pollution
- Water scarcity
- Zoonotic disease transmission

Social

- Child labor
- Forced labor
- Human rights violation
- Human-wildlife conflict
- Negative impacts on local communities
- Pesticide exposure
- Poverty and debt
- Other labor-related risks

Cotton Feedstock Production (Ginning, shredding)

Environmental

- Energy use
- Green-house gas emission
- Water depletion
- Water pollution

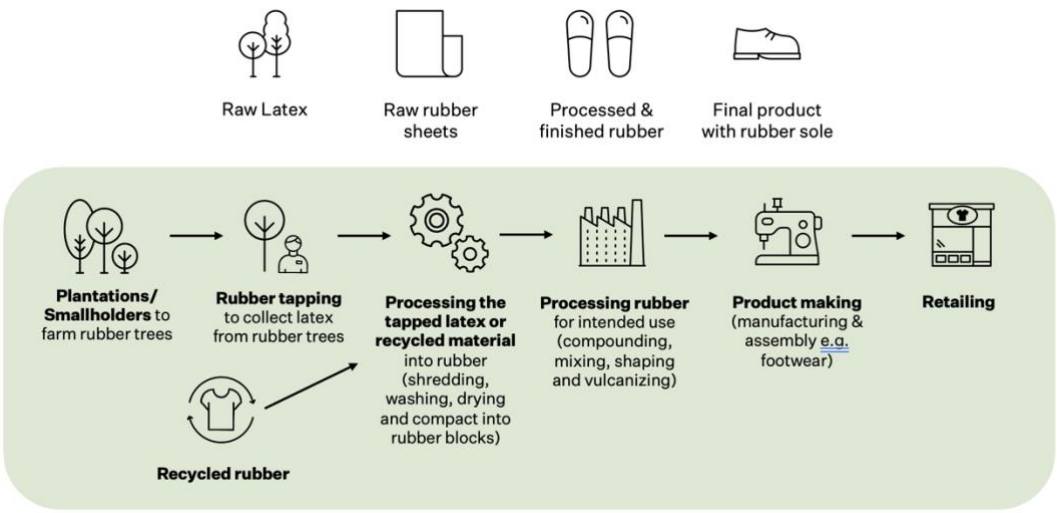
Social

- Child labor
- Forced labor
- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Rubber Supply Chain and Risk Chart



Rubber Feedstock Production
(Forestry, tapping of latex)

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Chemical-related risks
- Climate change
- Energy use
- Greenhouse gas emissions
- Harmful wildlife management practices
- Invasive species
- Land Occupancy
- Loss of habitat connectivity
- Loss of natural habitat
- Presence of hunting or poaching
- Soil contamination
- Soil degradation
- Species endangerment / extinction
- Water pollution
- Water scarcity
- Zoonotic disease transmission

Social

- Child labor
- Forced labor
- Human rights violation
- Human-wildlife conflict
- Negative impacts on local communities
- Pesticide exposure
- Poverty and debt
- Other labor-related risks

Rubber Feedstock Production
(Block production, shredding, washing, drying)

Environmental

- Energy use
- Green-house gas emission
- Water depletion
- Water pollution

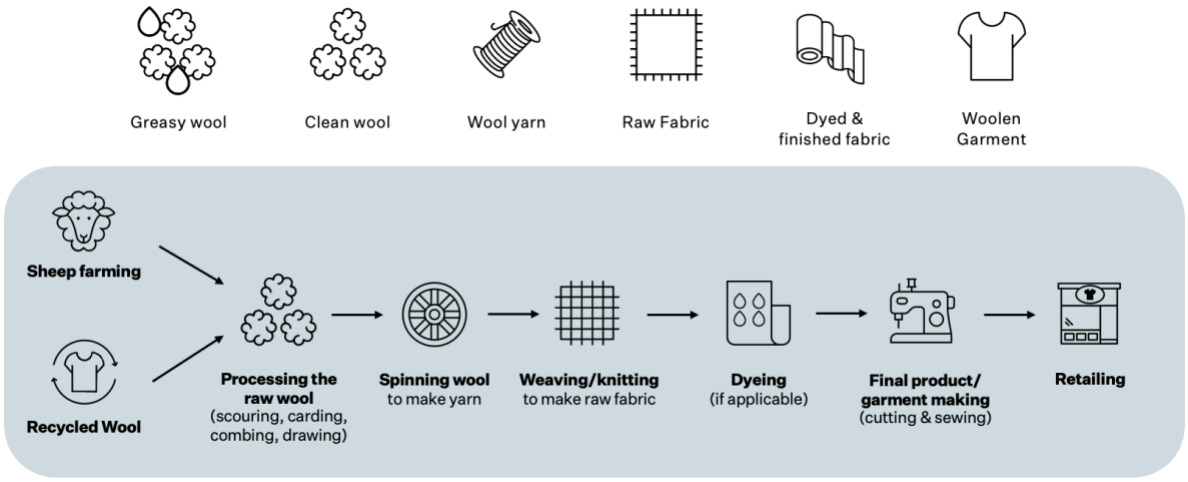
Social

- Child labor
- Forced labor
- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Wool Supply Chain and Risk Chart



Wool Feedstock Production (Sheep farming)

Animal welfare

- 5 Provisions (nutrition, health environment, behavior and mental experience)
- Mulesing

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Climate change
- Endangerment/ extinction of species
- Energy use
- Greenhouse gas emissions
- Harmful wildlife management practices
- Invasive species
- Land degradation from overgrazing
- Land Occupancy
- Lethal predator control
- Loss of habitat connectivity
- Loss of natural habitat
- Presence of hunting or poaching
- Water pollution
- Water scarcity

Social

- Human rights violation
- Human-wildlife conflict
- Negative impacts on local communities
- Zoonotic disease transmission
- Other labor-related risks

Wool Feedstock Production (Scouring, drying)

Environmental

- Air pollution
- Chemical–related risks
- Energy use
- Green-house gas emission
- Solid waste/disposal
- Water depletion
- Water pollution

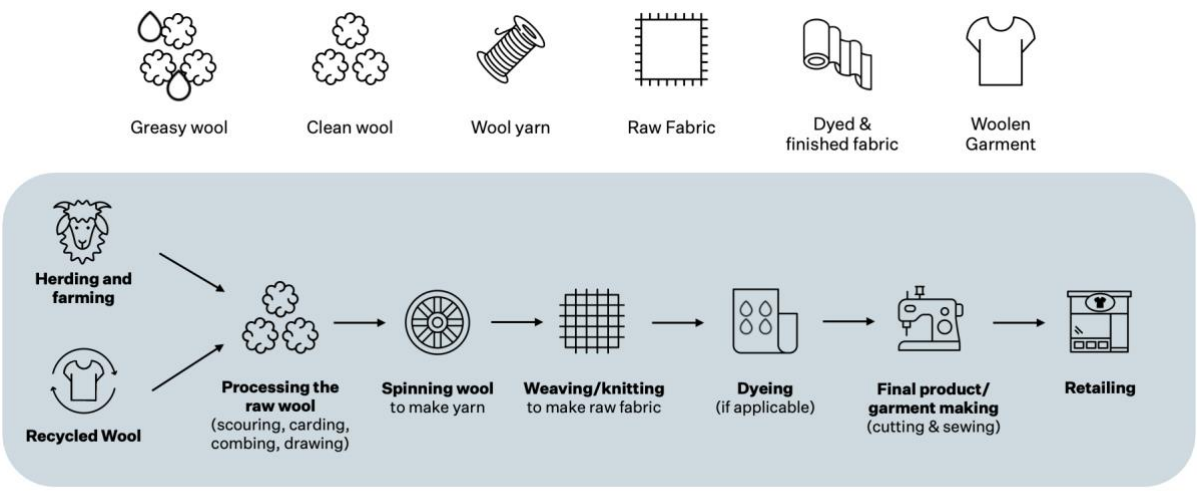
Social

- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Cashmere Supply Chain and Risk Chart



Note: Dyeing could be done at yarn or fabric stage.

Wool Feedstock Production (Herding & farming)

Animal welfare

- 5 Provisions (nutrition, health environment, behavior and mental experience)

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Climate change
- Endangerment/ extinction of species
- Energy use
- Greenhouse gas emissions
- Harmful wildlife management practices
- Invasive species
- Land degradation from overgrazing
- Land Occupancy
- Lethal predator control
- Loss of habitat connectivity
- Loss of natural habitat
- Presence of hunting or poaching
- Water pollution
- Water scarcity

Social

- Human rights violation
- Human-wildlife conflict
- Negative impacts on local communities
- Risks to herder communities
- Zoonotic disease transmission
- Other labor-related risks

Wool Feedstock Production (Scouring, drying)

Environmental

- Air pollution
- Chemical–related risks
- Energy use
- Green-house gas emission
- Solid waste/disposal
- Water depletion
- Water pollution

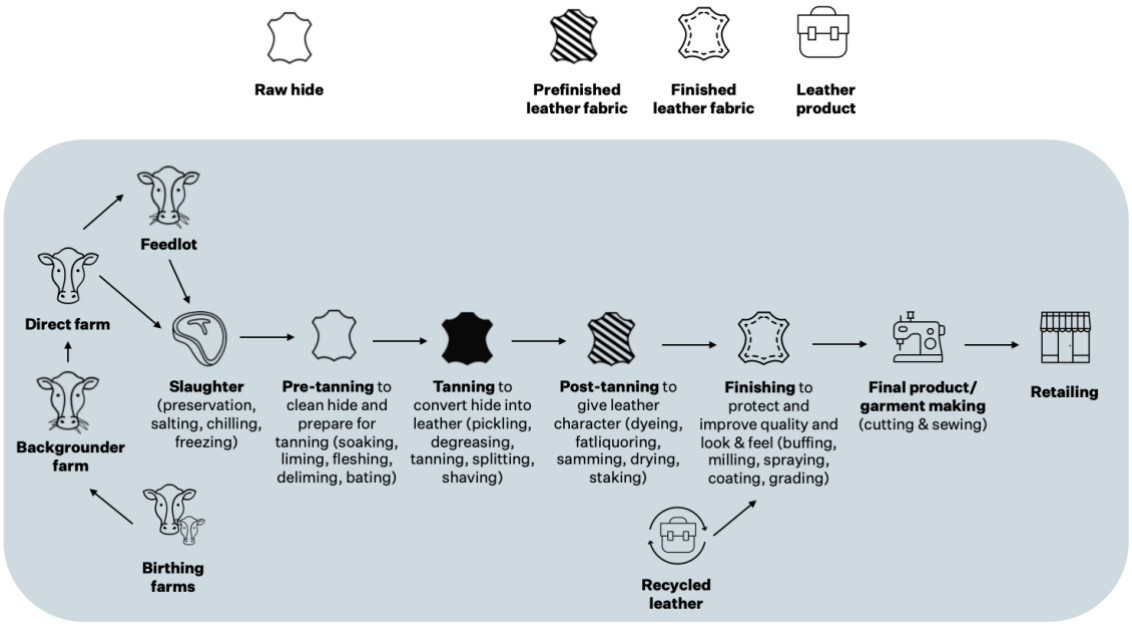
Social

- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Leather (Bovine) Supply Chain and Risk Chart



Leather Feedstock Production
(Animal farming)

Animal welfare

- 5 Provisions (nutrition, health environment, behavior and mental experience)

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Climate change
- Deforestation
- Endangerment/ extinction of species
- Energy use
- Greenhouse gas emissions
- Harmful wildlife management practices
- Human-wildlife conflict
- Invasive species
- Land degradation from overgrazing
- Land Occupancy
- Lethal predator control
- Loss of habitat connectivity
- Loss of natural habitat
- Presence of hunting or poaching
- Water pollution
- Water scarcity

Social

- Human rights violation
- Human-wildlife conflict
- Negative impacts on local communities
- Zoonotic disease transmission
- Other labor-related risks

Leather Processing
(Tanning and other processes)

Environmental

- Air pollution
- Chemical–related risks
- Energy use
- Green-house gas emission
- Solid waste/disposal
- Water depletion
- Water pollution

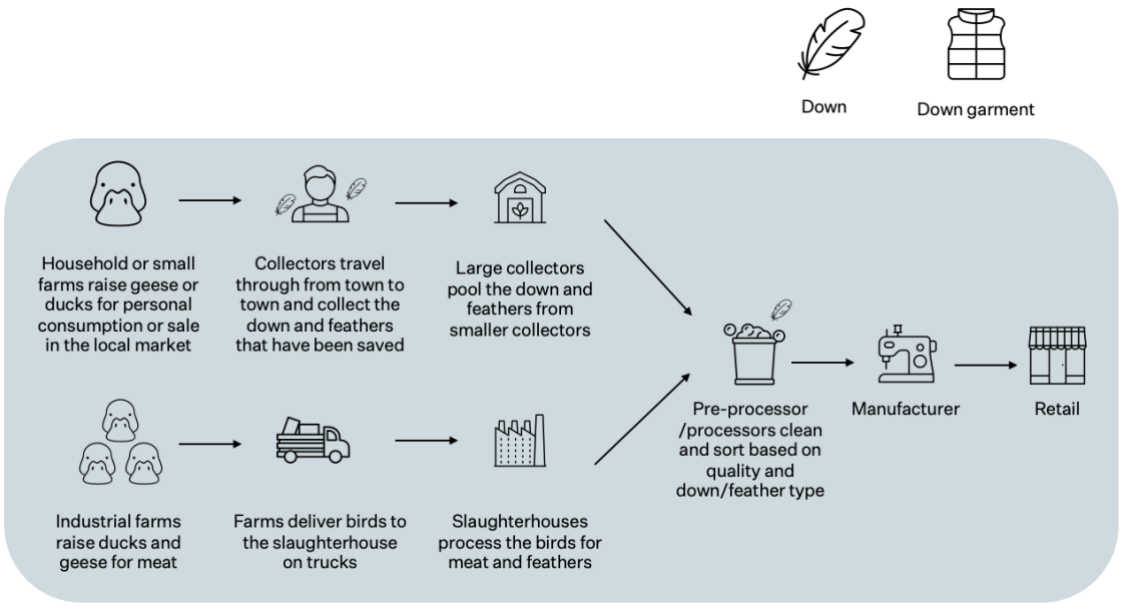
Social

- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Down Supply Chain and Risk Chart



Down Feedstock Production
(Geese and duck farming)

Animal welfare

- Force feeding
- Live plucking
- 5 Provisions (nutrition, health environment, behavior and mental experience)

Environmental

- Agricultural pests and disease
- Energy use
- Greenhouse gas emissions
- Invasive species
- Lethal predator control
- Soil contamination
- Water pollution

Social

- Human rights violation
- Human-wildlife conflict
- Negative impacts on local communities
- Zoonotic disease transmission
- Other labor-related risks

Down Processing
(Cleaning, drying and other processing of down and feathers)

Environmental

- Air pollution
- Chemical–related risks
- Energy use
- Green-house gas emission
- Solid waste/disposal
- Water depletion
- Water pollution

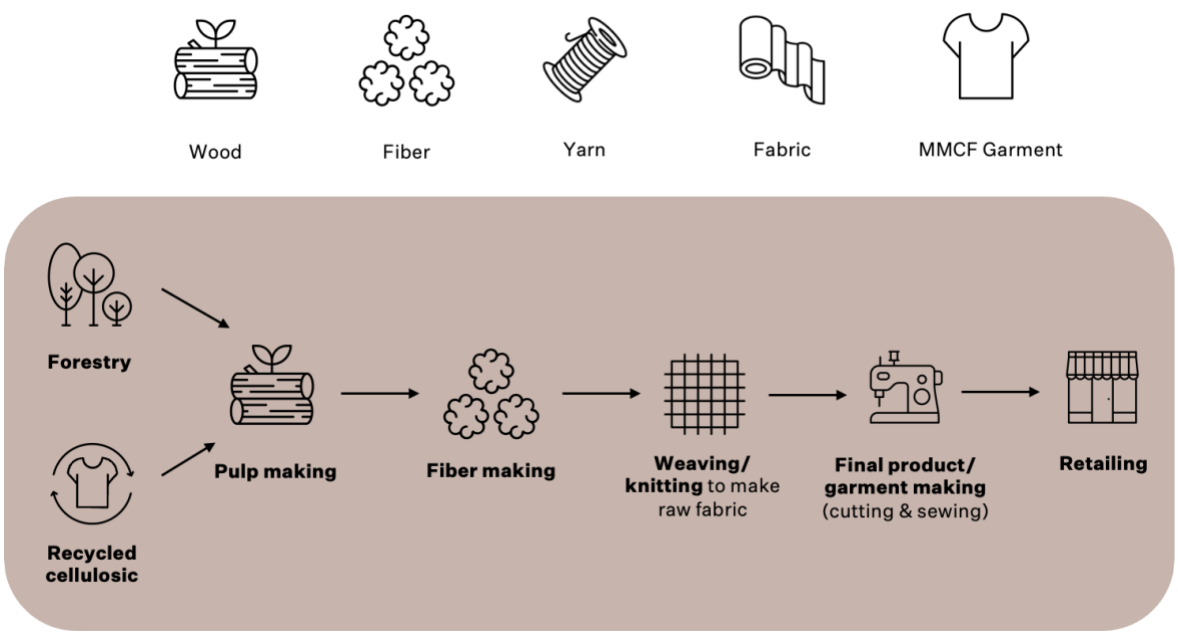
Social

- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Man-made Cellulosic Fibers Supply Chain and Risk Chart



Feedstock Production (Forestry)

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Climate change
- Deforestation
- Energy use
- Greenhouse gas emissions
- Harmful wildlife management practices
- Invasive species
- Land Occupancy
- Logging of HCV/HCS forests
- Loss of habitat connectivity
- Loss of natural habitat
- Presence of hunting or poaching
- Species endangerment/extinction
- Water pollution
- Water scarcity
- Zoonotic disease transmission

Social

- Human rights violation
- Negative impacts on local communities
- Other labor-related risks

MMCF Pulp Production (Dissolving pulp production)

Environmental

- Air pollution
- Chemical–related risks
- Energy use
- Green-house gas emission
- Solid waste/disposal
- Water depletion
- Water pollution

Social

- Occupational health and safety
- Other labor-related risks

MMCF Pulp Production (Fiber extrusion, staple & filament)

Environmental

- Air pollution
- Chemical–related risks
- Energy use
- Green-house gas emission
- Solid waste/disposal
- Water depletion
- Water pollution

Social

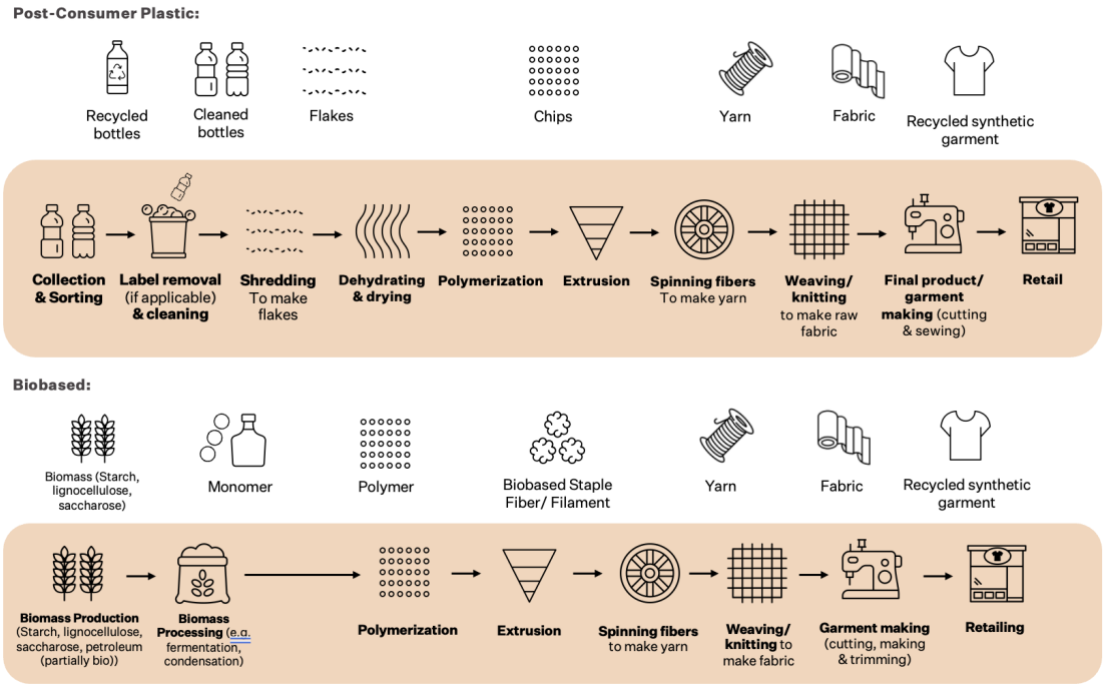
- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Definition/Abbreviations: High Conservation Value (HCV) forest and High Carbon Stock (HCS) forest.

Post-Consumer Plastic and Biobased Synthetics Supply Chain and Risk Chart



Synthetic Fibers Feedstock Production
(Oil extraction, post-consumer, crop cultivation)

Processing
(Polymer, chemicals, shredding, crop cleaning)

Environmental

- Agricultural pests and disease
- Biodiversity loss
- Climate change
- Endangered species/extinction
- Food insecurity (Biosynthetics)
- Greenhouse gas emissions
- Harmful wildlife management practices
- Invasive species
- Land Occupancy
- Land use related risks (biobased)
- Loss of natural habitat
- Presence of hunting or poaching
- Species endangerment / extinction
- Water pollution
- Water scarcity
- Zoonotic disease transmission

Social

- Health risks of vulnerable informal waste pickers (recycled)
- Human rights violation
- Negative impacts on local communities
- Other labor-related risks

Environmental

- Energy use
- Green-house gas emission
- Plastic pollution/danger to freshwater and marine ecosystems
- Solid waste/disposal
- Water depletion
- Water pollution

Social

- Human rights violation
- Negative impacts on local communities
- Occupational health and safety
- Other labor-related risks

Note: Zoonotic disease transmission could be both social as well as environmental.

Refers to the direct biodiversity risks.

Further Resources

- Material Change Index Survey Guide
- Material Change Index Results Guide
- Material Change Index Circularity Guide
- Fiber Uptake Calculations Guide
- Fiber Conversion Methodology
- Biodiversity Benchmark Materials Companion Guide
- Textile Exchange Suite of CFMB Program Guides

Additional Textile Industry Standards and Certifications

Textile Exchange Suite of Industry Standards

Chain of Custody Generic Standards

Textile Exchange: Content Claim Standard (CCS)

Organic Textile Standards

Global Organic Textile Standard (GOTS)
Textile Exchange: Organic Content Standard (OCS)

Organic textile standards are built on top of national organic farm regulations. GOTS and OCS recognize the IFOAM Organics International Family of Standards).

Recycled Textile Standards

Textile Exchange:
Global Recycled Standard (GRS)
Recycled Claim Standard (RCS)

SCS Global Services:
Recycled Content Certification (RCC)

Further links

Textile Standards & Legislation: Textile Standards & Legislation is the result of a partnership between MCL News & Media and the European Outdoor Group. https://www.textilestandards.com/

Textile Exchange | Corporate Fiber & Materials Benchmark Program

Find out more about the Material Change Index here:

mci.textileexchange.org
www.textileexchange.org