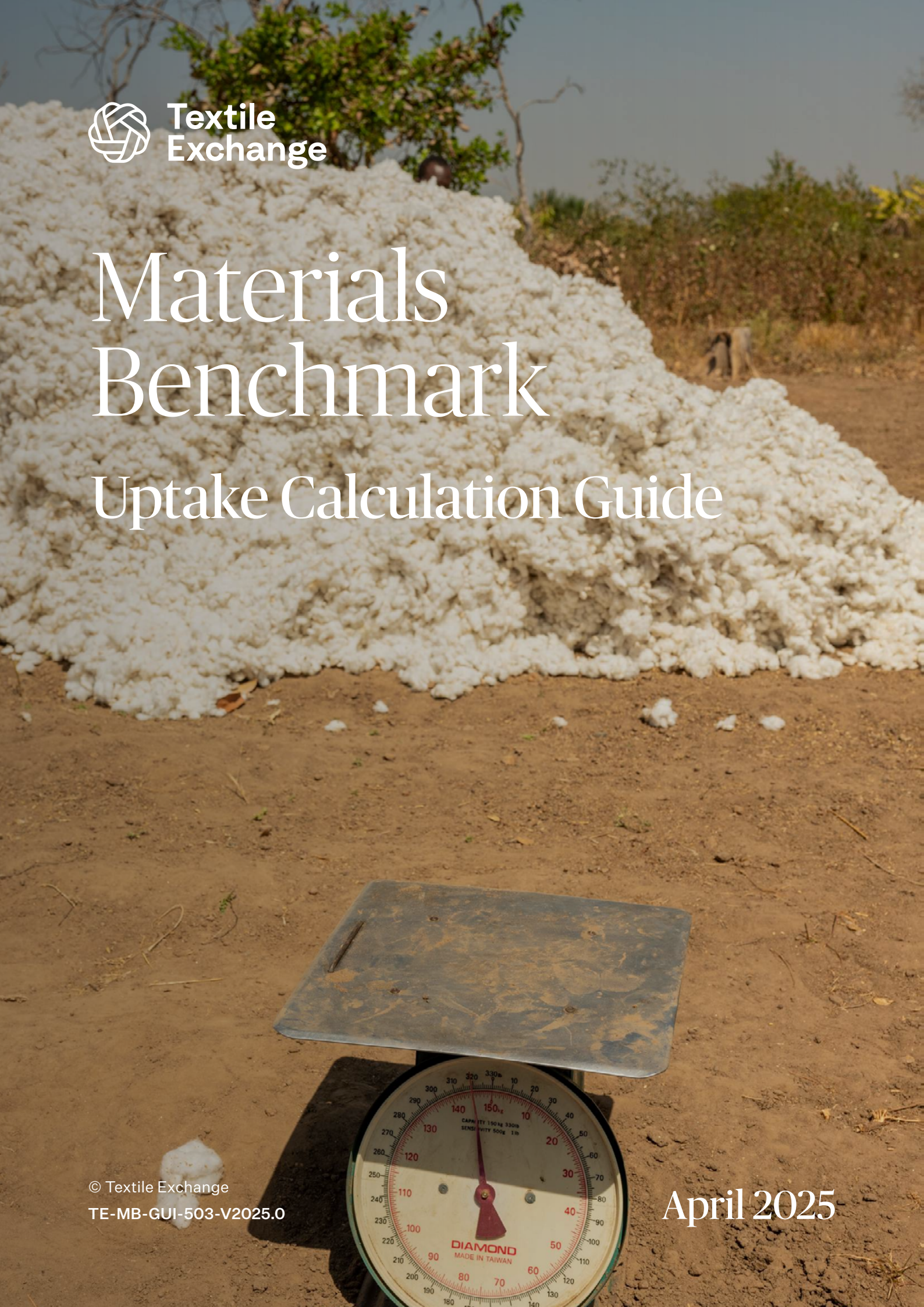
Textile Exchange

Materials Benchmark

Uptake Calculation Guide



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Cover photo: Lindokuhle Sobekwa

1 Which raw materials should be reported

Textile Exchange aims to increase the accuracy and comparability of raw material weights submitted by reporting companies through its Materials Benchmark.[1]

This guide shares best practices and recommendations for raw material weight reporting for Textile Exchange's Materials Benchmark. It aims to establish a framework for reliable and comparable raw material reporting for the textile, clothing, leather, and footwear (TCLF) industry.

While Textile Exchange works in partnerships to continuously improve and harmonize data reporting requirements, different tools or reporting mechanisms may differ in scope and requirements. If companies report their raw material weights in other contexts (e.g., the EU Corporate Sustainability Reporting Directive), the reporting companies should follow the latest requirements in the specific context.

1.1 Reporting period

Companies should have consistent annual reporting cycles, spanning over a continuous 12-month period. Companies shall report the data based on either the "calendar year" (January 1 to December 31), the raw material weight used in specific collections or product seasons (e.g., Spring-Summer and Fall-Winter), or any other consistent cycle such as the company's "financial year". The reporting period should be specified.[2]

The reporting period for the Materials Benchmark is always the previous year (respective 12-month period) but we encourage companies to report trend data wherever possible.

1.2 Materials in scope

Textile Exchange strongly encourages participants to report on all raw materials used for the company's textiles, clothing, leather, and footwear (TFLC) products.[3]

To be benchmarked at the portfolio level, companies must report their use (weights) of **Acrylic, Alpaca, Cashmere, Cotton, Down, Elastane (Spandex), Flax (Linen), Hemp, Leather (raw hide bovine), Lyocell, Modal, Mohair, Polyamide, Polyester, Viscose,** and **Wool.**

Companies can still choose to only report on selected fiber and raw materials and be benchmarked only on those, but they don't get a portfolio score in this case.

The Materials Benchmark asks for the total weight of each raw material. This includes the weight of raw materials covered by sustainability programs as well as the raw materials not covered by sustainability programs.

1 This guidance was originally developed in 2019 in cooperation with the Partnership for Sustainable Textiles (textilbuendnis.com), the Waste & Resources Action Programme's (WRAP) Sustainable Clothing Action Plan (wrap.org.uk/sustainable-textiles/scap) and the Global Organic Textile Standard (global-standard.org/).

2 Materials Benchmark > Introduction > Question IN-1-9

3 Materials Benchmark > Materials Portfolio > MP-1-1. Suppliers producing fibers or raw materials should report on all fibers and raw materials that they produce for textile, clothing, leather and footwear (TFLC) products. Manufacturers of interim materials or products should report the fibers and raw materials used for interim materials or products used in TFLC products.

1.3 Products in scope

The Textile Exchange Materials Benchmark includes raw materials used for textiles, clothing, leather and footwear (TCLF) products as defined and classified below. Raw materials used for other products not listed below are not part of the Textile Exchange Materials Benchmark.

Products in scope	Definition
Textiles	Product which is composed of textile fibers (Based on EU Regulation 1007/2011)
Apparel textile / clothing	'Apparel textile' means a textile product worn as clothing or a clothing accessory by a person to clothe or adorn, principally to protect from the outer environment and very often to express their personal identity and/or belonging to a specific social group, with symbolic meanings and aesthetic values. (EC 2024, Preparatory study on textiles for product policy instruments)
Home/interior textiles	Textile products intended for household use
Technical textiles	Technical textiles are textile products meeting technical rather than aesthetic criteria, even if, for certain markets like workwear or sports equipment, both types of criteria are met. Technical textiles bring a functional answer to a wide range of specific requirements: lightness, resistance, reinforcement, filtration, fire retardancy, conductivity, insulation, flexibility, absorption and so on. The definition does not depend on the raw material, the fiber or the technology used, but on the end use of the product itself. Technical textiles can be used by professionals or not. Apparel textiles meeting the definition above are defined as technical apparel textiles. (EC 2024, Preparatory study on textiles for product policy instruments)
Leather products	Products made of a hide or skin with its original fibrous structure more or less intact and tanned so it does not rot *(Based on EU Directive 94/11/EC, ISO 15115, and EN 15987:2015)*
Footwear	Article(s) made of a sole (outsole) and an upper in different materials designed to protect or cover the foot *(Source: ISO 19952:2005, 68)*

1.4 Product components in scope

Reporting companies shall, at a minimum, include all main components of all products within scope. Any excluded components must be recorded in submissions to Textile Exchange's Materials Benchmark.[4]

Main components include the major structural and aesthetic components of a product. Minor components include (but are not limited to) badges, logos, belt loops, neck tapes, candle wicks, packaging, drawcords, pocketing, embellishments, shoe liners, fillings*, threads, interlinings, trims, laces, and waistbands.

**Except where these are a major product component, such as fillings in bedding.*

[4] Materials Benchmark > Materials Portfolio > Question MP-7-3

Reporting companies are encouraged to include all components of products in scope where data is available.

1.5 Resource inflow vs. outflow

Reporting companies shall measure their raw materials consumption in order of preference, based on either (i) products purchased or produced by the reporting company (e.g., resource inflow), (ii) products sold to customers (resource outflow), or (iii) a combination of both. Submissions to Textile Exchange must record which option is used.[5]

When measuring raw material consumption, it is preferable to use data that accurately reflects all raw materials in products sourced by the reporting company (e.g., raw material inflow). **Unsold products, such as returns or those donated to charities should be included when measuring raw material consumption, as these are part of the reporting company's procurement**. Reporting companies may use product sales data where product purchase data is unsuitable, or where other concerns exist (for example, data quality) that prevent the use of product purchase data.

If the latter is the case, companies should consistently factor back in unsold products, returns, and donations, which would otherwise not be mapped.

2 How to calculate raw material weights

2.1 Supply chain data extraction and reporting tiers

Textile Exchange encourages companies to use a consistent approach when reporting the weights of raw materials.

Companies shall report the data in order of preference based on either:[6]

- Tier 4: (Processed) raw material weight (e.g., lint cotton)
- Tier 3: Intermediate material (e.g., yarn)
- Tier 2: Finished material (e.g., fabric)
- Tier 1: Finished product: (e.g., t-shirt)

If the reporting company does not have access to the (processed) raw material weight, the reported finished product, finished material or intermediate material weights need to be converted back to (processed) raw material weights.[7] For more information, please see the chapter on Conversion factors.

The Materials Benchmark measures the weight of processed raw materials (e.g., lint cotton, scoured wool, raw hides) and not the unprocessed raw materials (e.g., seed cotton, greasy wool, animals). For more information, please see the Supply Chain Taxonomy.

Each material type has different supply chain and reporting tiers, so material type-specific reporting tiers are included in the Materials Benchmark.

[5] Materials Benchmark > Materials Portfolio > Question MP-7-1

[6] Materials Benchmark > Materials Portfolio > Question MP-2-2

[7] The Materials Benchmark is currently not designed for pre-fiber or equivalent processed raw materials (e.g., pulp producers).

2.1.1 Reporting fiber and textile product weights

For fiber and fiber-based products (textiles), weight data can be reported on four reporting tiers (product, fabric, yarn, and fiber). If the reporting tier is one of the three reporting tiers (product, fabric, and yarn), the weights need to be converted back to fiber level.

In summary, the reporting tiers are defined as follows:

- **Product**: Refers to the final manufactured good where all stages of processing have been completed and is ready for sale.
- **Fabric**: Refers to the finished fabric where all stages of processing have been completed (e.g., dyeing and finishing) and is ready for cut, make and trim.
- **Yarn**: Refers to the finished yarn that is ready to be knitted or woven into fabric. In the case of polyester and manmade cellulosics, yarn includes both Drawn Textured Yarn (DTY) as well as staple yarn. For wool, it refers to yarn that has been spun.
- **Fiber**: Is the baseline measure used in this methodology to track the uptake of conventional and non-conventional fibers. For cotton, it refers to ginned cotton - sometimes referred to as lint cotton. For polyester and manmade cellulosics, it covers both filament and staple fiber. For wool, it refers to clean wool.

2.1.2 Reporting down and feather weights

For down, weight data can only be reported as down. For down, no conversion factors are applied.

- **Down**: The weight of the down in tonnes.

2.1.3 Reporting raw hide and recycled leather fiber weights

For leather and raw hides, weight data can be reported on the following reporting tiers: finished leather, raw hides and recycled leather fiber. If the reporting tier is finished leather, the weights are converted back to raw hides or recycled leather fiber.

- **Product:** The product category can be converted to the average square meter of finished leather
- **Finished leather:** The surface area in square meters, square inches, or square feet.
- **Raw hides**: The weight of the untanned raw hide in tonnes.
- **Recycled leather fiber**: The weight of the recycled leather fiber in tonnes.

All finished leather entries are reverted to the mass of raw hide.

2.1.4 Reporting natural rubber

For natural rubber (e.g., rubber obtained from the latex of the rubber tree), weight data can be reported on the following reporting tiers: finished product or raw rubber. If the reporting tier is the finished product, the weights are converted back to raw rubber.

- **Product**: The weight of the rubber in the finished product (e.g., sole of a shoe)
- **Raw rubber**: The weight of the dried raw rubber (e.g., rubber content extracted from the latex in the form of pre-vulcanized rubber sheets)

For example, if an outsole is composed of 60% natural rubber, 35% silica, and 5% filler, the total weight of the outsole should be distributed across the components accordingly.

Natural rubber reporting is in the pilot stage, and we welcome feedback on how to improve the guidance and framework.

2.1.5 Reporting synthetic rubber

For synthetic rubber,[8] weight data can be reported on the following reporting tiers: finished product or raw rubber. If the reporting tier is the finished product, the weights are converted back to raw rubber.

- **Product**: The weight of the rubber in the finished product (e.g., the sole of a shoe)
- **Raw rubber:** The weight of the dried raw rubber (e.g., the pre-vulcanized rubber sheets)

For example, if an outsole is composed of 60% synthetic rubber, 35% silica, and 5% filler, the total weight of the outsole should be distributed across the components accordingly.

Synthetic rubber reporting is in the pilot stage, and we welcome feedback on how to improve the guidance and framework.

2.1.6 Reporting other non-fiber raw materials

For other non-fiber raw materials such as polyurethane (PU), thermoplastic polyurethane (TPU), ethylene-vinyl acetate (EVA), polyvinyl chloride (PVC), weight data can be reported on the finished product or raw material reporting tiers. If the reporting tier is the finished product, the weights are converted back to raw material.

- **Product**: The weight of the rubber in the finished product (e.g., sole of a shoe)
- **Raw material:** The weight of the (processed) raw material.

Other non-fiber raw materials reporting is in the pilot stage, and we welcome feedback on how to improve the guidance and framework.

2.2 Usage of proxy data if actual data is not available

2.2.1 Product weights

If companies report on product level, reporting companies should use actual product weights if available. Actual weights for unique styles are ideal (data from product lifecycle management system (PLM) or from logistics teams). The next best option is using average weights derived from actual products from your company. If neither of those methods are available, the use of industry-wide average weight tables is accepted.

We advise using actual product weights. Individual stock keeping units (SKU) are recommended to identify style color instead of just style, as different colorways of the same style tend to have different fabrics (and respectively different compositions) and, therefore, different weights.

While Textile Exchange encourages companies to identify their actual product weights, some brands and retailers may choose to use a generic product weight table. In that case, the average product weights as listed in the appendix can be used: the Product Weight Proxies Apparel and Product Weight Proxies Home Textiles.

2.2.2 Conversion factors

Conversion factors (also called "multipliers") are factors used to convert the weight of an output in one tier of the supply chain into the weight of an input in another tier of the supply chain and to aggregate material losses. It is critical to estimate the material losses in the production of products, as nearly every supply chain stage has some raw materials remaining that are not embedded in the final

[8] Common types of synthetic rubber include styrene-butadiene rubber (SBR), butadiene rubber (BR), and ethylene-propylene-diene monomer (EPDM).

product (e.g., cutting waste from cutting fabric for finished products). There is significant variability in terms of how companies are estimating material losses throughout the supply chain to calculate back to the uptake of raw material (e.g., for cotton, back to the equivalent weight of cotton lint).

We have developed the **Textile Exchange Material Loss Calculator** for companies to calculate either finished product (e.g., t-shirt), finished material (e.g., fabric) or finished interim material (e.g., yarn) back to (processed) raw material level (e.g., fiber, raw hide). It also shows recommended material loss values known as "conversion factors." This calculator is embedded in the Materials Portfolio of the Materials Benchmark and is available as an online tool as well as a downloadable Excel sheet.

It is worth noting that, if companies have access to material loss data (for example, pattern efficiency data for their products) and are confident that these reflect reality, Textile Exchange would encourage companies to use this actual data for their calculations rather than industry averages.

If this is not available, another advanced reporting option is to differentiate sub-total weights for different fabric types as these tend to have distinctly different efficiencies (e.g., knits, woven, denims, etc.), see Advanced calculations.

Please see the Conversion Factors in the appendix if you don't have supply chain-specific conversion factors available.

2.3 Reporting on sustainability programs

Beyond reporting the total weight per raw material, the reporting companies should also report breakdowns per raw material covered by raw material sustainability program(s) and not covered by any sustainability program (often referred to as "conventional").

All programs have different chain-of-custody, verification, and claims requirements. The following part aims to share initial guidance for companies to compile the program-specific weight data and the related evidence options – but **it's the responsibility of each company to check the latest regulatory and standard-specific requirements when reporting on sustainability programs.**

Please note that this overview is not comprehensive and will be expanded over time. It's in the pilot stage and we welcome feedback and information to continuously improve the guidance for sustainability program reporting.

Examples

Program	Weight Data Source	Claims Policy	Eligibility criteria to make off-product claims / evidence
Better Cotton (Mass Balance & Physical Traceability)	Companies can access their aggregated weight data via the Better Cotton Platform (BCP) to collect BCCUs (Login) *Country of origin in BCP only available if physical traceability*	Better Cotton Claims Framework (Link)	• Better Cotton Statement of Membership (Link to Login) • Better Cotton Outcome Declaration and Conformity Assessment, independently assessed every three-years (More info here)* **Exceptions for the independent assessment requirement: Companies being members for less than 1 year and for very small companies.*
USCTP	Companies can access their weight data in the USCTP Protocol Platform (Login) *Country of origin is USA.*	USCTP Claims Framework (Link)	• USCTP Statement of Membership (Get here)

Program	Weight Data Source	Claims Policy	Eligibility criteria to make off-product claims / evidence
			• Proof that the volume data have been approved by the USCTP program managers (Upload)
ISCC EU	The amount of certified material must be reported by the certified company and is documented in the main audit report, which is not publicly available. The certified material weights are verified during the audit. *Country of origin is specified in the Summary Audit Report*	ISCC 208 - Logos & Claims (Link)	• ISCC Certification (link) • ISCC License (Get here) • For more details: Summary Audit Report *No need to provide both certification and license, one or the either is sufficient. However, for using the license, it is a prerequisite that the product is not fundamentally altered by the licensee.*
Regenerative Organic Certified	Textile Product Claimed Material Worksheet (Template) *Country of origin available on worksheet*	ROC Labeling Guidelines & Terms of Use (Link)	• Signed ROA License Agreement (Template) • Approved ROA Textile Product Claimed Material Worksheet (Template)
Cotton made in Africa (HIP and MB), Cotton made in Africa Organic (HIP)	Aggregated data available in the Sustainable Cotton Tracker - SCOT (Login) - with breakdown by HIP and MB, per year *Country of origin is not directly in the system but can be compiled by mapping the cotton producers to the respective countries (only if HIP)*	Cotton made in Africa Claims Framework (Link)	• Signed CmiA License Agreement • Download evidence from SCOT
MyBMP	*See Better Cotton* *Country of origin is Australia.*	*No standalone claims possible*	*To be reported as Better Cotton because myBMP currently doesn't offer a chain-of-custody and claims mechanism.*
Responsible Brazilian Cotton	*See Better Cotton* *Country of origin is always Brazil but only if physical traceability.*	*No standalone claims possible* *Currently only for Brazilian market*	*To be reported as Better Cotton unless if domestic Brazilian market*
OCS / RCS/ GRS / RWS / RAS	Trackit (Link) Transaction Certificates Country of origin on transaction certificate (Declared Geographic Origin)	TE-301 Standards Claims Policy (Link)	• TE_ID (Link) • Scope certificate *We encourage also non-certified organizations to start using TE_ID.*
Good Cashmere Standard	Aggregated data on GCS tracking system (CATS) or the Textile Genesis tracking system. From 2025 TextileGenesis tracking system will be the only tools used by GCS. *Country of origin is not directly in the system but it's by default Inner Mongolia (China).* *CATS is tracking up to spinning mill and TextileGenesis will trace up to cashmere producer but not farm.*	GCS Chain of Custody Guidelines (Link) GCS Logo Manual and the Communication Guidelines (Link)	• Signed licensing agreement for The Good Cashmere Standard (GCS) with ATAKORA. • Registration on the GCS tracking system (CATS) or the TextileGenesis tracking system • Paid annual license fee

Program	Weight Data Source	Claims Policy	Eligibility criteria to make off-product claims / evidence
FSC Certified (Important: This should not include FSC Controlled)	To be aggregated by brands based on transactional documents (e.g., invoices, delivery documents) or data from the Textile Genesis Platform (pilot) *Country of origin on transactional documents*		• FSC Promotional License (Link) or Chain of Custody Certification (Link)
PEFC Certified (Important: This should not include PEFC Controlled)	Needs to be aggregated based on transactional documents (e.g., invoices, delivery documents) that they receive from their suppliers (there are no special transaction certificates for PEFC). *Country of origin on transactional documents*	PEFC Trademark Rules – Requirements (Link) Accepted abbreviation and translations of the PEFC International chain of custody claims (Link)	• PEFC Trademark Usage License (get here) or PEFC Chain of Custody Certification (Link) • Print PDF with valid chain of custody certification number for each of your direct supplier(s) (get here)

Important note:

- In 2025, the Materials Benchmark introduced a new function to upload **program-specific evidence**.
- For all programs, we ask for the **right to share the submitted weight data with the program owners** for accuracy checks.
- For all programs, we **ask if the reporting company authorizes the program to directly share the data with Textile Exchange** if available (to reduce manual effort).
- Claims policies and frameworks are subject to change and it's the **responsibility of the reporting company to ensure that all latest requirements are met**.
- If the product only contains <100% material covered by the program, **only the partial product weight covered by the specific program should be counted** (not the total product weight).
- "Country of origin" refers here to the "**Country of raw material origin**" and should not be confused with the country where the direct supplier is based.

3 What metadata and evidence should be provided

In the Materials Portfolio of the Materials Benchmark there is a "Metadata Form". The metadata form is used to collect contextual information on the reporting data (e.g., data sources, assumptions made). Companies should also upload their internal calculations sheet (incl. internal methodology) to the metadata section.

In 2025, sustainability-program-specific evidence was introduced to better capture program-specific evidence to increase the robustness and comparability of the submitted data.

4 Appendices

4.1 Calculation examples

4.1.1 Basic Calculation

Below is an example fiber uptake calculation, based on product-level data. This is a "basic" calculation, as the method for estimating fiber weights uses a basic ratio for each material type. Different types of fabric and product have different efficiencies. Therefore, a more advanced and more accurate calculation methodology is also available.

Step 1: Identify volume data for the desired date range:

Data source likely to be ERP system, or logistics databases

Date	Ship-To	Customer Number	Style & Colour	Quantity
1/1/18	DE	123	111111-001	100,000
8/24/18	FR	456	222222-500	300,000
12/31/18	NL	789	333333-901	500,000

Step 2: Identify composition of unique products (likely that this is a Style & Color code):

Data source likely to be PLM system or product labeling teams.

Style & Colour	Gender Age	Category	Silhouette	Composition
111111-001	Menswear	Tops	Polo Shirt	88% Polyester, 12% Elastane
222222-500	Womenswear	Bottoms	Jeans	100% Cotton
333333-901	Babywear	All-In-One	Sleepsuit	95% Cotton, 5% Elastane

Step 3: Identify product weights:

Data source likely to be PLM system or logistics.

Style & Colour	Min Weight (g)	Max Weight (g)	Average Weight (kg)
111111-001	350	450	0.4
222222-500	350	650	0.5
333333-901	75	275	0.175

Step 4: Merge datasets, calculate weight of fiber uptake at product-level

Date	Style & Colour	Quantity	Average Weight (kg)	Fiber 1	%	Weight Fiber 1 (kg)	Fiber 2	%	Weight Fiber 2 (kg)
1/1/18	111111-001	100,000	0.4	Polyester	88	35,200	Elastane	12	4,800
8/24/18	222222-500	300,000	0.5	Cotton	100	150,000		0	
12/31/18	333333-901	500,000	0.175	Cotton	95	83,125	Elastane	5	4,375

Fiber Sub-Totals at Product-Level (kg)	
Cotton	233,125
Elastane	9,175
Polyester	35,200

Step 5: Integrate sustainability program criteria if not embedded in composition information:

Style 222222-500 is confirmed to be completely made of certified Organic Cotton (100% cotton composition) by validating the scope and transaction certificates. Therefore, the 150,000kg of cotton are classified as Organic Cotton.

Fiber	Weight at Product Level (kg)
Conventional Cotton	83,125
Organic Cotton	150,000
Elastane	9,175
Polyester	35,200

Step 6: Apply conversion factors to estimate the raw material input

In the below example, the reporting company has identified specific conversion factors for their products. Please see Estimating Fiber Loss in Production if you need support identifying fiber loss values for your calculation.

Fiber	Weight at Product Level (in KG)	Conversion Factor – Product to Fiber	Weight at Fiber Level (in KG)
Conventional Cotton	83,125	1.63	135,493.75
Organic Cotton	150,000	1.63	244,500
Elastane	9,175	1.5	13,762.5
Polyester	35,200	1.4	49,280

4.1.2 Advanced Calculations

Below is an example fiber uptake calculation, based on product-level data. This is an "advanced" calculation example, as the method for estimating fiber weights specifies sub-totals for types of fabric and some types of products. If the level of detail is not available for this year's calculation, please see the basic example for uptake calculation.

Step 1: Identify volume data for the desired date range:

Data source likely to be ERP system, or logistics databases

Date	Ship-To	Customer Number	Style & Colour	Quantity
1/1/18	DE	123	111111-001	100,000
8/24/18	FR	456	222222-500	300,000
12/31/18	NL	789	333333-901	500,000

Step 2: Identify the composition of unique products (likely that this is a Style & Color code). Also, identify the Fabric Type (this will be used for the fiber loss calculation)

Data source likely to be PLM system or product labeling teams.

Style & Colour	Gender Age	Category	Silhouette	Composition	Fabric Type
111111-001	Menswear	Tops	Polo Shirt	88% Polyester, 12% Elastane	Woven
222222-500	Womenswear	Bottoms	Jeans	100% Cotton	Denim
333333-901	Babywear	All-In-One	Sleepsuit	95% Cotton, 5% Elastane	Knit

Step 3: Identify product weights

Data source likely to be PLM system or logistics.

Style & Colour	Min Weight (g)	Max Weight (g)	Average Weight (kg)
111111-001	350	450	0.4
222222-500	350	650	0.5
333333-901	75	275	0.175

Step 4: Merge datasets, calculate weight of fiber uptake by fabric type at product-level

Date	Style & Colour	Quantity	Average Weight (kg)	Fiber 1	%	Weight Fiber 1 (kg)	Fiber 2	%	Weight Fiber 2 (kg)
1/1/18	111111-001	100,000	0.4	Polyester	88	35,200	Elastane	12	4,800
8/24/18	222222-500	300,000	0.5	Cotton	100	150,000		0	
12/31/18	333333-901	500,000	0.175	Cotton	95	83,125	Elastane	5	4,375

Fiber Sub-Totals by Fabric Type at Product-Level (kg)		
Knit	Cotton	83,125
	Elastane	4,375
Denim	Cotton	150,000
Woven	Elastane	4,800
	Polyester	35,200

Step 5: Integrate sustainability program criteria if not embedded in composition information:

Style 222222-50 is confirmed to be completely made of certified Organic Cotton (100% cotton composition) by validating the scope and transaction certificates. Therefore, the 150,000kg of cotton are classified as Organic Cotton.

Fiber Sub-Totals by Fabric Type at Product-Level (kg)		
Knit	Cotton	83,125
	Elastane	4,375
Denim	Organic Cotton	150,000
Woven	Elastane	4,800
	Polyester	35,200

Step 6: Apply fiber loss values (or conversion factors) to estimate the raw fiber input

In the below example, the brand has identified specific conversion factors for the fabric types of their products. Please see Estimating Fiber Loss in Production if you need support identifying fiber loss values for your calculation.

Fiber Sub-Totals by Fabric Type at Product-Level (kg)			Conversion factor	Fiber Sub-Totals at Fiber Level (kg)
Knit	Cotton	83,125	1.65	137,156.25
	Elastane	4,375	1.50	6,562.50
Denim	Organic Cotton	150,000	1.35	202,500.00
Woven	Elastane	4,800	1.60	7,680.00
	Polyester	35,200	1.70	59,840.00

Fiber	Total at Fiber Level (kg)
Cotton	137,156.25
Elastane	14,242.50
Organic Cotton	202,500.00
Polyester	59,840.00

4.2 Product weights

4.2.1 Product Weight Proxies Apparel

The below table provides an overview of average product weights that can be used as a proxy if the specific product weights are not available.

The product weights are based on WRAP and Better Cotton data. If a company is using these product weights, the company must reference WRAP and/or Better Cotton as the source.

Please note that the WRAP product weights exclude cutting waste while the Better Cotton product weights include cutting waste.

WRAP Item	Weight (grams) excl. cutting waste	Better Cotton Silhouette	Weight (grams) incl. cutting waste
Womenswear			
Dressing Gowns Heavy Weight	1080	Dressing Gowns (Toweling)	1500
Dressing Gowns Light Weight	306		
Pajamas Light Weight	371		
Pajamas Heavy Weight	452		
Jersey Nightwear	344	Nightwear	150
Knickers/Pants	29	Knickers/Pants	45
Bras - Padded Underwired	112		
Bras - Lace Underwired	80		
Bras - Non-wired	39		
Slips	112		
Swimsuit	146		
Bikini Top	64		
Bikini Briefs	59		
Tankini Top	71		
Tankini Briefs	53		
Socks	31	Socks	31
Tights 15 Denier	24		
Tights 40 Denier	36		
Tights 60 Denier	43		
Heavy Tights	73		
Winter Vest (Thermal)	109		
Vests Jersey Cami	95	Underwear Vests	90
Thick Strap Vests	120		
Knitwear Heavy Weight	402	Knitwear	375
Knitwear Summer Weight	159		
Knitwear Light Knit	226		
Knit Formal Top	296		

WRAP Item	Weight (grams) excl. cutting waste	Better Cotton Silhouette	Weight (grams) incl. cutting waste
Hoody	489		
Sweat Tops / Rugby Tops	432	Sweat Tops / Rugby Tops	420
Sweat Jacket	495		
Tee Shirt Long Sleeve	176	Tee Shirt	190
Tee Shirt Short Sleeve	140		
Woven Formal / Casual Shirt Long Sleeve	130	Woven Formal / Casual Shirt	135
Woven Formal / Casual Shirt Short Sleeve	130		
Winter Heavyweight Coat (Main Fabric Only)	1056	Jacket	420
Winter Heavyweight Coat (Lining)	200		
Winter Raincoat / Mac (Main Fabric Only)	1052		
Winter Raincoat / Mac (Lining)	200		
Spring Mid Weight Coat (Main Fabric Only)	633		
Spring Mid Weight Coat (Lining)	200		
Lightweight Mac (Main Fabric Only)	362		
Lightweight Mac (Lining)	200		
Tailored Jacket (Main Fabric Only)	300		
Tailored Jacket (Lining Only)	100		
Waistcoat (Main Fabric Only)	150		
Waistcoat (Lining)	50		
Formal Suit Dress (Main Fabric Only)	350		
Formal Suit Dress (Main Fabric Only)	100		
Tailored Trousers	317		
Tailored Skirt	270		
Maxi Dress	433		
Standard Dress	263		
Knitted Dress	255		
Fleece Jacket	327		
Casual Jacket	653		
Casual Skirt	197	Skirt	115
Casual Trouser	364		
Cargo Trouser	243	Cargo Trouser	275
Jogger Pant	353	Jogger	420
Jean	478	Jean	560
Playsuit (Long)	228		
Playsuit (Short)	214		

WRAP Item	Weight (grams) excl. cutting waste	Better Cotton Silhouette	Weight (grams) incl. cutting waste
Leggings	130		
Menswear			
Dressing Gowns (Toweling, Velour, Fleece)	1127	Dressing Gowns (Toweling)	1600
Dressing Gowns (Lightweight)	536		
Knickers / Pants	77	Knickers / Pants	90
Fitted Boxer	75		
Loose Fit Boxer	63		
Brief	51		
Pajamas Heavyweight	493	Pajamas	300
Pajamas Lightweight	358		
Socks	36	Socks	35
Underwear Vests	103	Underwear Vests	110
Ties	36		
Suit Jacket (Main Fabric Only)	500		
Suit Jacket (Lining)	125		
Suit Trouser	402		
Jackets (Main Fabric Only)	500		
Jackets (Lining)	125		
Formal Trousers	350		
Heavy Weight Knitwear	650	Knitwear	500
Lightweight Knitwear	283		
Hoody	646		
Polo Shirt	229	Polo Shirt	370
Rugby Tops	442	Sweat Tops / Rugby Tops	470
Sweat Top	500		
Jogger	532	Jogger	500
Tee Shirt Long Sleeve	266	Tee Shirt	190
Tee Shirt Short Sleeve	258		
Swimwear Shorts	196		
Fleece Jacket	323		
Outerwear Jackets - Lightweight	701		
Outerwear Jackets – Lightweight Lining	150		
Outerwear Jackets - Midweight	927		
Outerwear Jackets - Midweight Lining	150		
Outerwear Coats/Jackets - Heavyweight	1369		

WRAP Item	Weight (grams) excl. cutting waste	Better Cotton Silhouette	Weight (grams) incl. cutting waste
Outerwear Coats/Jackets - Heavyweight Lining	150		
Woven Formal / Casual Shirt Short Sleeve	225	Woven Formal Shirt Poly Cotton (65%, 35%)	240
Woven Formal / Casual Shirt Long Sleeve	243	Woven Formal Shirt 100% Cotton	285
Casual Trouser	514	Casual Corduroy Trouser	630
		Casual Chino Trouser	485
Lightweight Shorts	164		
Casual Shorts	276	Casual Shorts	320
Jean	718	Jean	650
Jogger	462		
Babywear			
Bodysuits	85	Bodysuits	114
Sleepsuits	125		
Bib	24		
Blanket	194		
Sleeping Bag	228		
Dress	72		
Jogger	78		
Snowsuit	471		
Fleece Bodysuit	189		
Socks	13		
Younger Girls (1 to 7 years)			
Lightweight Jacket	182		
Coat Heavyweight Jacket	275		
Tee Shirt Short Sleeve	87	Tee Shirt	70
Tee Shirt Long Sleeve	96		
Vest	36		
Swimwear	50		
Jumper	120		
Jeans	207	Jean, Trouser, Jogger, Hoody	200
Trousers	213		
Joggers	177		
Hoody	218		
Sweatshirt / Hoody	242		
Dungarees	292		
Shorts	145		
Dress	106	Dress	84

WRAP Item	Weight (grams) excl. cutting waste	Better Cotton Silhouette	Weight (grams) incl. cutting waste
Socks	15	Socks	13
Leggings	84	Leggings	97
Skirts	90	Skirts	63
Older Girls (6 - 14 years)			
Socks	25	Socks	26
Skirts	133	Skirts	127
Shorts	139		
Jeans	321	Jean, Trouser, Jogger, Hoody	400
Trousers	311		
Joggers	209		
Hoody	345		
Tee Shirt Long Sleeve	123	Tee Shirt	140
Tee Shirt Short Sleeve	94		
Vest	67		
Sports Bra	20		
Pants	20		
Swimming Costume	65		
Bikini	53		
Tops	96		
Dress	161	Dress	169
Leggings	134	Leggings	194
Knitwear Heavy Weight	244		
Knitwear Light Weight	182		
Jacket Light Weight	172		
Heavy Weight Coats	723		
Younger Boys (1 to 7 years)			
Socks	15	Socks	15
Tee Shirt Long Sleeve	98	Tee Shirt	90
Tee Shirt Short Sleeve	109		
Polo	117		
Vest	36		
Swim Trunks	14		
Coat / Jacket	323		
Shorts	114		
Knitwear	220		
Jeans	219	Jean, Trouser, Jogger, Hoody	200
Trousers	193		

WRAP Item	Weight (grams) excl. cutting waste	Better Cotton Silhouette	Weight (grams) incl. cutting waste
Joggers	202		
Hoody	245		
Woven Shirt	79	Woven Shirt	90
Sweat Tops / Rugby Tops	172	Sweat Tops / Rugby Tops	190
Older Boys (6 - 14 years)			
Socks	25	Socks	30
Tee Shirt Long Sleeve	146	Tee Shirt	180
Tee Shirt Short Sleeve	135		
Polo Shirt	160		
Vests	47		
Pants	25		
Swim Trunks	121		
Jeans	341	Jean, Trouser, Jogger, Hoody	400
Trousers	361		
Joggers	322		
Hoody	364		
Coat / Jacket	588		
Shorts	177		
Knitwear	323		
Woven Shirt	139	Woven Shirt	180
Sweat Tops / Rugby Tops	338	Sweat Tops / Rugby Tops	380
Schoolwear			
Socks	22	Socks	10
Skirts	187	Skirts	38
Shorts	150		
Joggers	355		
Coats	736		
Tee Shirt Long Sleeve	99	Tee Shirt, Blouses	63
Tee Shirt Short Sleeve	97		
Shirt Long Sleeve	128		
Shirt Short Sleeve	104		
Blouse	64		
Polo Shirt	114		
Dress	117	Dress	100
Trouser	218	Trouser	92
Knitwear Jumper	137	Knitwear	125
Knitwear Cardigan	145		

4.2.2 Product Weight Proxies Home Textiles

The below table provides an overview of the average product weights for home textiles based on Better Cotton data. These average product weights can be used as a proxy if the specific product weights are not available.

For these homeware products specifically, it is assumed that there is no cutting waste. Different weights are provided based on approximate GSM or grams of fabric per square meter. To accurately match products to the average weight for each towel category, the following average dimensions are used:

Face Cloth	31.5 cm x 31.5 cm
Guest Towels	65 cm x 40 cm
Hand Towels	95 cm x 50 cm
Bath Towel	130 cm x 70 cm
Bath Sheet	167 cm x 100 cm

Product Category	Products	Grams
Towels	Face Cloth 420 GSM	42
Towels	Face Cloth 500 GSM	50
Towels	Face Cloth 570 GSM	57
Towels	Face Cloth 640 GSM	64
Towels	Face Cloth 670 GSM	66
Towels	Face Cloth 800 GSM	79
Towels	Kitchen Tea Towel	100
Towels	Guest Towel 420 GSM	109
Towels	Guest Towel 500 GSM	130
Towels	Guest Towel 570 GSM	148
Towels	Guest Towel 640 GSM	166
Towels	Guest Towel 670 GSM	174
Towels	Guest Towel 800 GSM	380
Towels	Hand Towel 420 GSM	200
Towels	Hand Towel 500 GSM	238
Towels	Hand Towel 570 GSM	271
Towels	Hand Towel 640 GSM	304
Towels	Hand Towel 670 GSM	318
Towels	Hand Towel 800 GSM	380
Towels	Bath Towel 420 GSM	382
Towels	Bath Towel 500 GSM	455

Product Category	Products	Grams
Towels	Bath Towel 570 GSM	519
Towels	Bath Towel 640 GSM	582
Towels	Bath Towel 670 GSM	610
Towels	Bath Towel 800 GSM	728
Towels	Bath Sheet 420 GSM	701
Towels	Bath Sheet 500 GSM	835
Towels	Bath Sheet 570 GSM	952
Towels	Bath Sheet 640 GSM	1069
Towels	Bath Sheet 670 GSM	1119
Towels	Bath Sheet 800 GSM	1336
Bedding	Duvet / Quilt Cover (150 X 200 cm)	750
Bedding	Duvet / Quilt Cover (200 X 200 cm)	1000
Bedding	Duvet / Quilt Cover (240 X 220 cm)	1320
Bedding	Duvet / Quilt Cover (260 X 220 cm)	1430
Bedding	Fitted Sheet (135 x 190 x 20 cm)	500
Bedding	Fitted Sheet (140 x 200 x 20 cm)	540
Bedding	Fitted Sheet (160 x 200 x 20 cm)	600
Bedding	Fitted Sheet (180 x 200 x 20 cm)	660
Bedding	Fitted Sheet (200 x 200 x 20 cm)	720
Bedding	Fitted Sheet (90 x 200 x 20 cm)	420
Bedding	Flat Sheet (150 X 260 cm)	350
Bedding	Flat Sheet (180 X 260 cm)	420
Bedding	Flat Sheet (220 X 260 cm)	500
Bedding	Flat Sheet ET (240 X 260 cm)	560
Bedding	Flat Sheet (265 x 275 cm)	650
Bedding	Flat Sheet (280 x 290 cm)	730
Bedding	Duvet / Quilt (outer fabric) - 150 X 200 cm	630
Bedding	Duvet / Quilt (outer fabric) - 200 X 200 cm	840
Bedding	Duvet / Quilt (outer fabric) - 240 X 200 cm	1000
Bedding	Pillow (outer fabric)	150
Bedding	Pillowcase	150
Bedding	Valance Sheet (140 x 200 cm)	500
Curtains & Carpets	Bath Mat	483
Curtains & Carpets	Curtains 300 cm X 145 cm 600 GSM	2610

4.3 Conversion Factors

4.3.1 Data sources, updates, and assumptions

Data sources and updates

In 2019, over 50 data sets were collected from certification bodies, suppliers, manufacturers, and brands for the development of the raw material conversion factors. Data points were also extracted from past benchmarking surveys for triangulation and cross reference. Collected data sets comprised a single data point (e.g., recycled polyester fiber to yarn) or were vertically complete (e.g., organic cotton fiber to apparel). The data sets were analyzed on range, average, median and mode. Given that it was not possible to establish a sample size that was reflective of the market share, median –as opposed to average– data points were applied. Following the initial analysis, discussions were held internally with textile engineers and externally with initiatives (e.g., Better Cotton Initiative). For a more consistent "sector-wide" approach, some data points were aligned between organizations following these discussions. The "final" conversion methodology was presented to the Advisory Committee and other stakeholders for comments and feedback.

Leather conversion factors were added in 2021.

In 2025, we slightly updated the cotton conversion factors to fully align with the Better Cotton conversion factors. We also added conversion factors for natural and synthetic rubber, along with a proxy conversion factor for other non-fiber raw materials (e.g., EVA). Additionally, we limited the reporting tier for recycled leather fiber to the fiber level and removed the conversion factors.

We also initiated a project to strategically review and update the conversion factors, as well as add conversion factors for additional fibers and raw materials.

Based on our understanding, the conversion factors we use are the best available in the industry. We welcome data from any industry stakeholder that may help continuously improve the modeling of conversion factors.

Dependencies

There are inherent dependencies between the raw material characteristics, how they are processed and the final product. In developing conversion factors from the finished product, finished material, and intermediate material to (processed) raw material, these dependencies need to be accounted for. The table below provides a broad overview of these dependencies. Fiber length determines the type of yarn that can be spun, and yarn type determines whether it is suited for knit or woven fabric, which will in turn determine the type of products for which it is suited.

Table 2: Cotton Profile and Product Suitability

Cotton	Fiber Length	Yarn Count (Ne)	Yarn Type	Cultivation Country (Organic)	Product Suitability	Broad Classification
Gossypium Arboreum	Short	3–20	OE, K	Benin, Bukian Faso, India, Mali, Pakistan, Peru, Senegal, Tanzania, Uganda, USA	Denim/Jeans, Home, Canvas, Non-Wovens, Medical, Industrial textiles	Home Textile / Apparel Woven / Denim
Gossypium Herbaceum	Short	3–20	OE, K	Benin, Bukian Faso, India, Mali, Pakistan, Peru, Senegal, Tanzania, Uganda	Denim/Jeans, Home, Canvas, Non-Wovens, Medical, Industrial textiles	
Gossypium Hirsutum (Upland)	Medium, Long	18-45	K, C, CK	Benin, Brazil, Bukina Faso, China, Colombia, India, Madagascar, Mali, Pakistatn, Peru, Senegal, Tajikistan, Tanzania, Turkey, Uganda, USA	Denim/Jeans, Home, T shirts, Yoga wear, Leisure wear, Causal wear, Under wear, Industrial, Smart, Geo textiles	Apparel Knitted / Woven (Less)
Gossypium Barbadense	Long, Extra Long	40-130	K, C, CK	China, Egypt, India, Israel, Kyrgyzstan, Madagascar, Peru, Turkey, USA	High-end (fine apparel, underwear/intimates), High-end Home	

OE - Open end/Rotor yarn | K - Ring spun carded yarn | C - Ring spun combed yarn | CK - Ring spun combed compact yarn

Source: Organic Cotton: A Fiber Classification Guide

It is worth noting that the more information a brand has on its supply chain, the more accurate the estimated conversion calculation will be. For example, being able to differentiate between knit or woven fabric, or the spinning type used in production, will allow for a more nuanced calculation and will allow companies to estimate raw material uptake more accurately.

Assumptions

To balance accuracy with data availability, we take into consideration that:

- Companies should at least specify whether the uptake is used for apparel, home textiles, footwear, or any other products.
- For cotton, open-end (OE) and carded (K) yarn is commonly used for home textiles, woven apparel, and denim products. Meanwhile, carded (K) and combed (CK) yarn is commonly used for knitted apparel and, to a lesser extent, woven apparel.
- For polyester and manmade cellulosics, filament is commonly used for home textiles, woven apparel and denim products. Staple yarn is commonly used for knitted apparel and, to a lesser extent, woven apparel.
- For wool, woolen-spun yarn is commonly used for home textiles and apparel products (such as jersey and knitwear), and worsted yarn is commonly used for apparel (such as tailored garments and suits).
- The material loss for cut, make and trim (CMT) is similar between cotton, polyester, polyamide, and manmade cellulosic products but not for wool products due to the way the garment is manufactured.

Limitations and constraints

Textile Exchange's conversion factors are intended as a tool to support companies in estimating their product, finished material, and intermediate material uptake back to (processed) raw material baseline measure. **Where possible, companies are encouraged to apply their own conversion factors. The Textile Exchange raw material conversion factors are offered only as standardized approximations of conversions with the following limitations:**

- **Data Sets:** Certification bodies, suppliers, and brands or retailers are asked to volunteer conversion values. These can either be an average or a range. The values should cover product-to-finished material, finished material-to-intermediate material, and intermediate material-to-(processed) raw material. Key processes involved should be taken into consideration. The values reported are assumed true and accurate. Furthermore, due to the time and resource limitations, data is sourced from companies who are open and able to volunteer this information.
- **Processes**: While key processes are included in the conversion factor calculation, we acknowledge that they don't cover all possible processes.
- **Region, Country, Product Variation**: Conversion factors may differ significantly from country to country, producer to producer and even product to product. We have attempted to gather from sources across different regions and stakeholders, but we acknowledge that these sources may not be complete, and averages have not been weighted against the share of these markets and/or products.

4.3.2 Overview of conversion factors

To calculate this material loss in the supply chain, Textile Exchange refers to the **conversion factors** between an input in one tier of the supply chain and an output in another tier of the supply chain. For

example, the yarn-to-fiber conversion factor of 1.17 denotes the conversion of "1 yarn: 1.17 fiber". Put simply, 1.17 units of fiber are required to produce 1 unit of yarn.

The conversion factors are currently available for the following materials:

- Cotton and recycled cotton (proxy for the other plant fibers)
- Polyester and recycled polyester (proxy for all the other synthetic fibers)
- Manmade cellulosics and "recycled" cellulosics
- Wool (proxy for all the other animal-based fibers)
- Leather and recycled leather fiber
- Proxies for rubber, and other non-fiber raw materials used for textile, clothing, leather, and footwear products

Unlike cotton, where one fiber conversion factor is developed for virgin and another is developed for recycled, a single fiber conversion factor covering both virgin and recycled has been developed for polyester, nylon, and manmade cellulosics. This approach has been taken because the processing variation between virgin and recycled polyester, nylon, and manmade cellulosics predominantly occurs pre-fiber. As no significant variation occurs post-fiber, the conversion factor for both virgin and recycled is treated as the same.

Down and recycled down have been excluded because down uptake volumes (in grams) are generally collected at "material" level.

Companies reporting on recycled wool and recycled down who require conversions are requested to use the virgin conversion factors as equivalent proxies.

The following conversion factors for textile products are made available:

	Option 1 Where companies are unable to specify further details of the product.		Option 2 Where companies are able to specify further details of the product			
Products	Home Textiles	Apparel	Home Textiles	Denim	Apparel - Woven	Apparel - Knitted
Fabric processing	Mix	Mix	Mix		Mix	Mix
Knitting/weaving	Mix	Mix	Woven		Woven	Knitting
Yarn - Cotton	Mix	Mix	OE*		OE, K*	C, CK*
Yarn - Polyester	Mix	Mix	Filament		Filament	Staple
Yarn - MMCF	Mix	Mix	Filament/Spun		Staple	Staple
Yarn - Wool	Mix	Mix	Woolen-Spun		Worsted	Worsted

*Spinning and yarn types and acronyms used:

- OE – Open-end/Rotor
- K – Ring (carded yarn)
- C – Ring (combed yarn)
- CK – Ring (combed compact yarn)
- DTY – Drawn textured yarn

For example, the conversion factor for "spinning – OE" denotes the rate of loss that occurs for open-end spinning when fiber is made into yarn.

4.3.3 Cotton and other plant-fiber conversion factors

Cotton fiber conversion factors (proxy for all the other plant-based fibers)[9]

	Option 1		Option 2			
Products	Home Textiles	Apparel	Home Textiles	Denim	Apparel - Woven	Apparel - Knit
Product-to-fiber	1.31	~~1.65~~ 1.70	1.31	1.43	~~1.60~~ 1.54	~~1.76~~ 1.75
Fabric-to-fiber	1.25	~~1.32~~ 1.39	1.25	1.21	~~1.28~~ 1.27	~~1.41~~ 1.44
Yarn-to-fiber	1.11	~~1.18~~ 1.22	1.11	1.14	1.14	1.26

In 2025, we slightly updated the conversion factors for cotton highlighted in blue in order to align with the Better Cotton conversion factors. The overall conversion factors, multipliers, and methodology can be found at the following link.

Recycled cotton fiber conversion factors (proxy for all the other recycled plant fibers)[5]

	Option 1		Option 2			
Products	Home Textiles	Apparel	Home Textiles	Denim	Apparel - Woven	Apparel - Knit
Product-to-fiber	1.39	1.70	1.39		1.65	1.74
Fabric-to-fiber	1.32	1.36	1.32		1.32	1.40
Yarn-to-fiber	1.14	1.18	1.14		1.14	1.20

	Option 1		Option 2			
Products	Home Textiles	Apparel	Home Textiles	Denim	Apparel - Woven	Apparel - Knit
Product-to-fiber	1.38	1.76			1.58	1.73
Fabric-to-fiber	1.32	1.39			1.30	1.43
Yarn-to-fiber	1.14	1.22			1.13	1.21

Based on an LCA provided by one European recycled cotton supplier, spinning losses for mechanically recycled cotton are low compared with the loss rate for Indian suppliers which is generally much higher. The spinning loss is modeled by using a blended worldwide rate. Recycled cotton applies only to mechanically recycled cotton and typically has a higher fabric processing loss compared to cotton.

4.3.4 Synthetic fiber conversion factors

	Option 1		Option 2		
Products	Home Textiles	Apparel	Home Textiles	Apparel - Woven	Apparel - Knit
Product-to-fiber	1.20	1.53	1.20	1.43	1.59
Fabric-to-fiber	1.14	1.22	1.14	1.14	1.27
Yarn-to-fiber	1.03	1.06	1.03	1.03	1.10

[9] Other plant fibers include bamboo, coir, hemp, jute, kapok, flax (linen), nettle, ramie, sisal, and other plant fibers.

The synthetic fiber conversion factors are based on polyester fiber conversion factors that are used as a proxy for all synthetic fibers.

4.3.5 Manmade cellulosics fiber conversion factors

	Option 1		Option 2		
Products	Home Textiles	Apparel	Home Textiles	Apparel - Woven	Apparel - Knit
Product-to-fiber	1.23	1.49	1.23	1.46	1.53
Fabric-to-fiber	1.17	1.19	1.17	1.17	1.22
Yarn-to-fiber	1.02	1.03	1.02	1.02	1.05

The above conversion factors are derived from virgin manmade cellulosic production. Chemically recycled cotton or chemically recycled manmade cellulosics typically have a lower fabric processing waste compared to mechanically recycled cotton. Textile Exchange therefore recommends using factors for manmade cellulosics as a proxy if no further information on conversion factors is available.

4.3.6 Animal fiber conversion factors[10]

	Option 1		Option 2		
Products	Home Textiles	Apparel	Home Textiles	Apparel - Woolen	Apparel - Worsted
Product-to-fiber	2.37	2.13	2.37	2.49	1.84
Fabric-to-fiber	2.27	1.95	2.27	2.27	1.69
Yarn-to-fiber	2.16	1.85	2.16	2.16	1.60

Cut, make and trim (CMT) for wool is considered differently and separately from the other fibers because the manufacturing process using knitting machines generally has lower processing losses than other fibers.

Scouring and top-making are the most significant contributors to the high conversion factor in wool. Scouring refers to the process of removing oil from the animal hair. In cooler climates, where animal hair contains more oil, the processing loss can be up to 50%.

4.3.7 Leather to raw hides conversion factors

Products	Finished leather (m^2)	Finished leather (in^2)	Finished leather (ft^2)
Finished-leather-to-raw hide	0.00633	9.81152	0.06814

A default conversion factor of the finished leather area to raw hide mass is integrated in the Leather uptake data table, automatically making the conversion for the user.

The finished leather area to mass of raw hide default factor of 0.00633 is based on the conversion factors provided by the EU Environmental Footprint Category Rules for Leather. It has been calculated taking into account all leather industry segments, species, and product types. (1 m^2 of finished leather = 0.00633 mt of raw hide or 1 mt of raw hide = 157.98 m^2 of finished leather.)

[10] Animal fibers include wool, alpaca, angora, cashmere, camel, guanaco, lama, mohair, silk, vicuna, yak, and other animal fibers.

Recycled leather fiber can only be reported directly as recycled leather fiber. Given the huge variety in blends, the specific compositions of the recycled leather fiber containing composite materials need to be applied.

4.3.8 Natural and synthetic rubber conversion factors

Products	Finished product
Product-to-raw material	2.37

Rubber conversion factors are a rough proxy currently in the pilot stage. We welcome feedback and data points to refine the rubber conversion factor over time.

4.3.9 Other non-fiber raw materials conversion factor[11]

Products	Finished product
Product-to-raw material	2.37

The other non-fiber raw material conversion factor is a rough proxy currently in the pilot stage. We welcome feedback and data points to refine the rubber conversion factor over time.

5 Acknowledgments

The development of this guide would not have been possible without the input and feedback provided by many industry stakeholders, including all companies who responded to the Materials Benchmark. We would like to thank all the brands, certification bodies, industry initiatives, manufacturers, suppliers and retailers for their transparency and openness in sharing information to create a valuable resource for broader industry use.

6 Use and copyright

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As a continual work in progress, this guide will be reviewed on a regular basis. We invite readers to provide feedback and suggestions for improvement, particularly with regards to data where new and improved sources are likely to emerge over time.

Please contact benchmark@textileexchange.org with your suggestions and comments.

[11] Other non-fiber raw materials include thermoplastic polyurethane (TPU), ethylene-vinyl acetate (EVA), polyvinyl chloride (PVC), polyurethane (PU), and other non-fiber raw materials used for textile, clothing, leather, and footwear products.