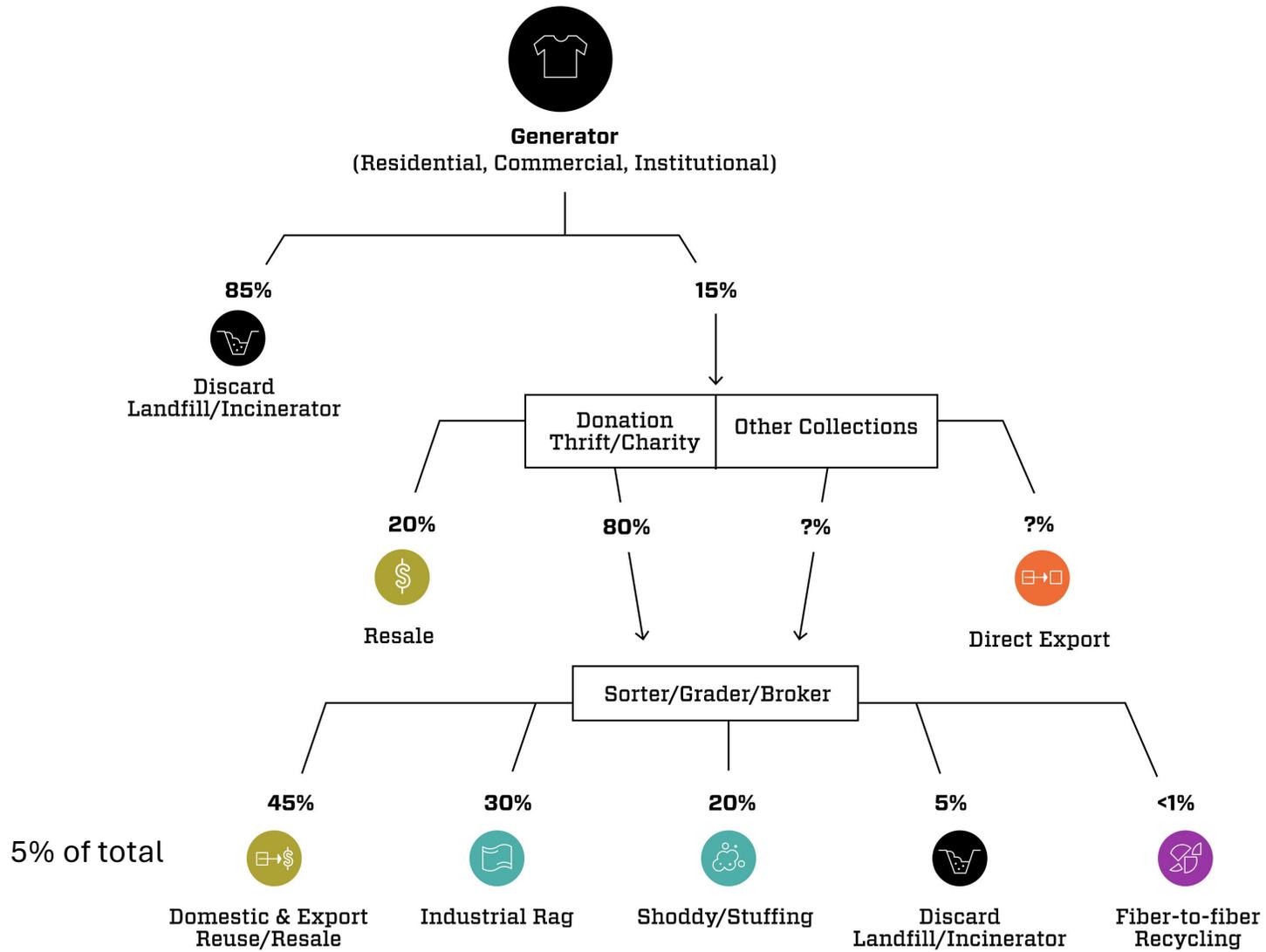


# Textiles





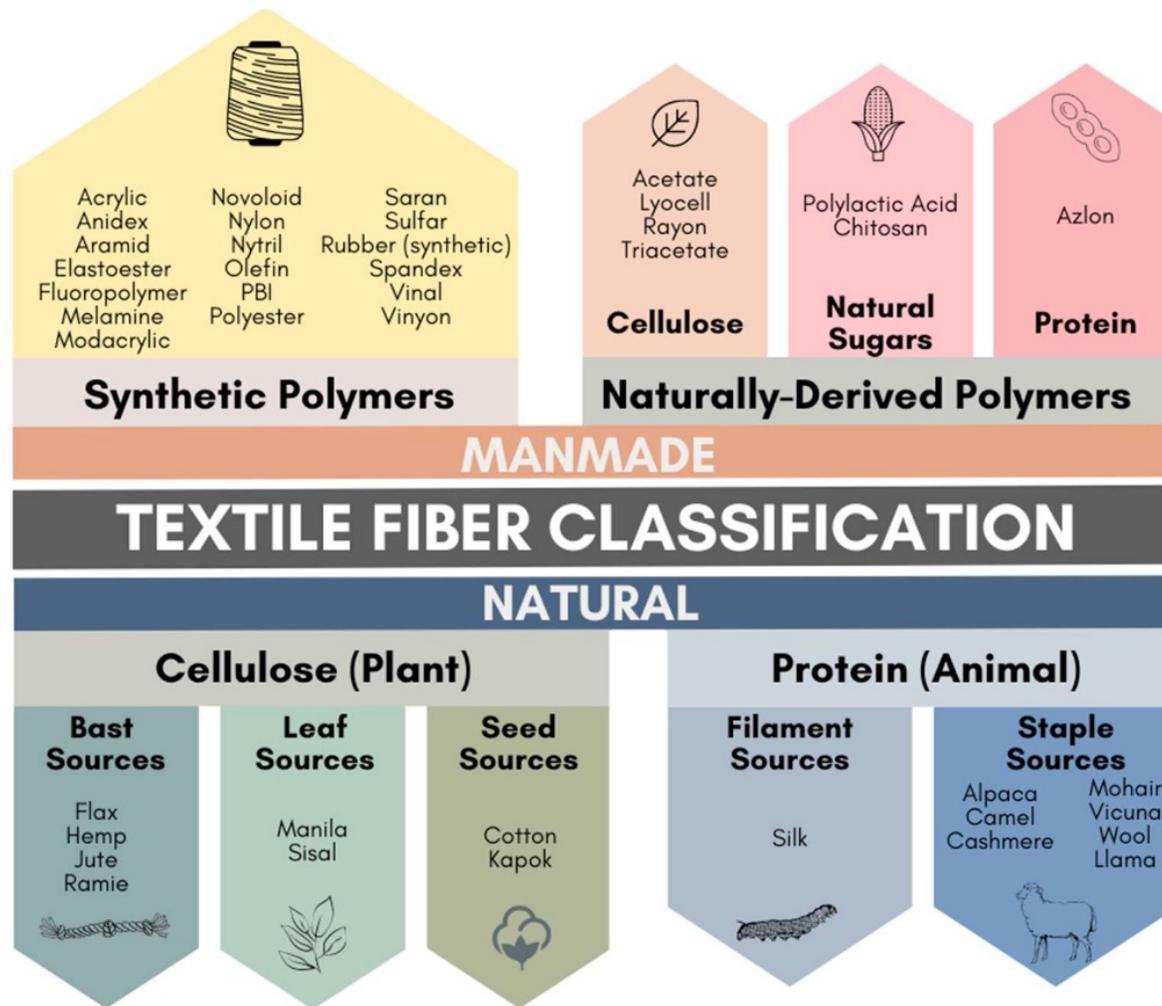


Figure 1: Classification by fiber type (adapted from [5, 6])

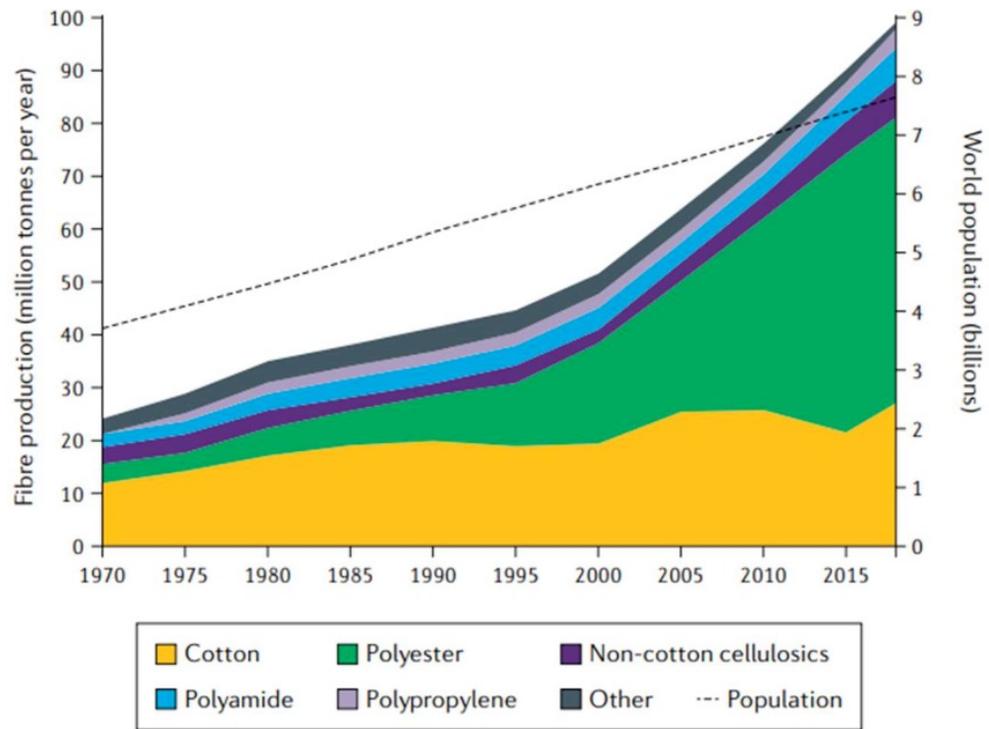


Figure 3: Growth in textile production by fiber type and total world population (used with permission from [1])

## Textiles

Textiles include clothing, shoes, bedding, towels, upholstery fabrics and carpeting

But mostly Clothing

2018 each person in the US discarded 103 lbs of clothing

EPA estimated that the generation of textiles in 2018 was 17 million tons. This figure represents 5.8 percent of total MSW generation

The recycling rate for all textiles was 14.7 percent in 2018, with 2.5 million tons recycled. Within this figure, EPA estimated that the recycling rate for textiles in clothing and footwear was 13 percent based on information from the American Textile Recycling Service. The rate for items such as sheets and pillowcases was 15.8 percent in 2018.

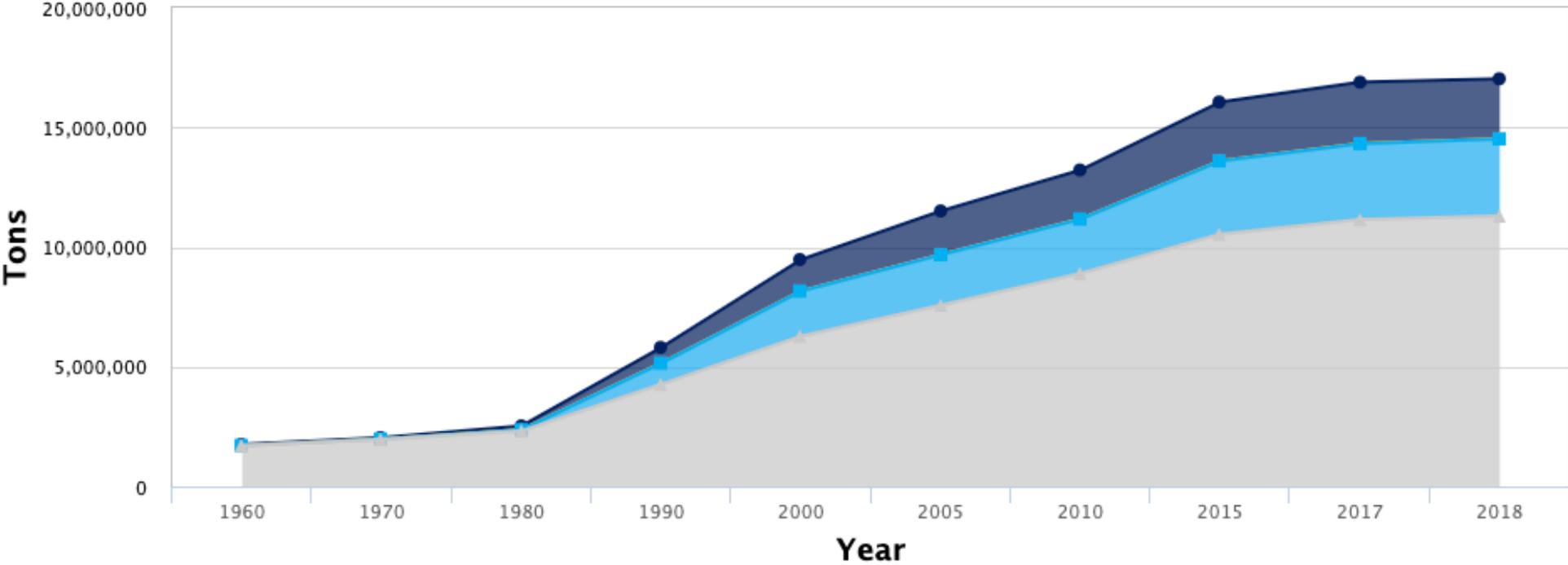
# Textiles

**1960-2018 Data on Textiles in MSW by Weight (in thousands of U.S. tons)**

| <b>Management Pathway</b>              | <b>1960</b> | <b>1970</b> | <b>1980</b> | <b>1990</b> | <b>2000</b> | <b>2005</b> | <b>2010</b> | <b>2015</b> | <b>2017</b> | <b>2018</b> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Generation</b>                      | 1,760       | 2,040       | 2,530       | 5,810       | 9,480       | 11,510      | 13,220      | 16,060      | 16,890      | 17,030      |
| <b>Recycled</b>                        | 50          | 60          | 160         | 660         | 1,320       | 1,830       | 2,050       | 2,460       | 2,570       | 2,510       |
| <b>Composted</b>                       | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| <b>Combustion with Energy Recovery</b> | -           | 10          | 50          | 880         | 1,880       | 2,110       | 2,270       | 3,060       | 3,170       | 3,220       |
| <b>Landfilled</b>                      | 1,710       | 1,970       | 2,320       | 4,270       | 6,280       | 7,570       | 8,900       | 10,540      | 11,150      | 11,300      |

Sources: American Apparel and Footwear Association, International Trade Commission, the U.S. Department of Commerce's Office of Textiles and Apparel, and the Council for Textile Recycling.

# Textiles Waste Management: 1960-2018



Click on legend items below to customize items displayed in the chart

**Recycled** **Composted** **Combustion with Energy Recovery** **Landfilled**

## Textile Waste

|                  |  |
|------------------|--|
| Post-industrial: | Waste generated before it reaches the consumer, i.e., during the manufacturing process. Often called pre-consumer waste [18]. Tends to be the cleanest and easiest stream of which identify material compositions. |
| Post-consumer:   | Waste generated by the consumer after use. Highest volume stream but includes blends of all fiber types and often contain contaminants.  |
| Residential:     | Post-consumer textiles worn by general consumers or used in residential settings   |
| Non-residential: | Post-consumer textiles used for professional uniforms, hospital linens, and industrial, commercial, and institutional (ICNI) applications  |

## Textile Waste

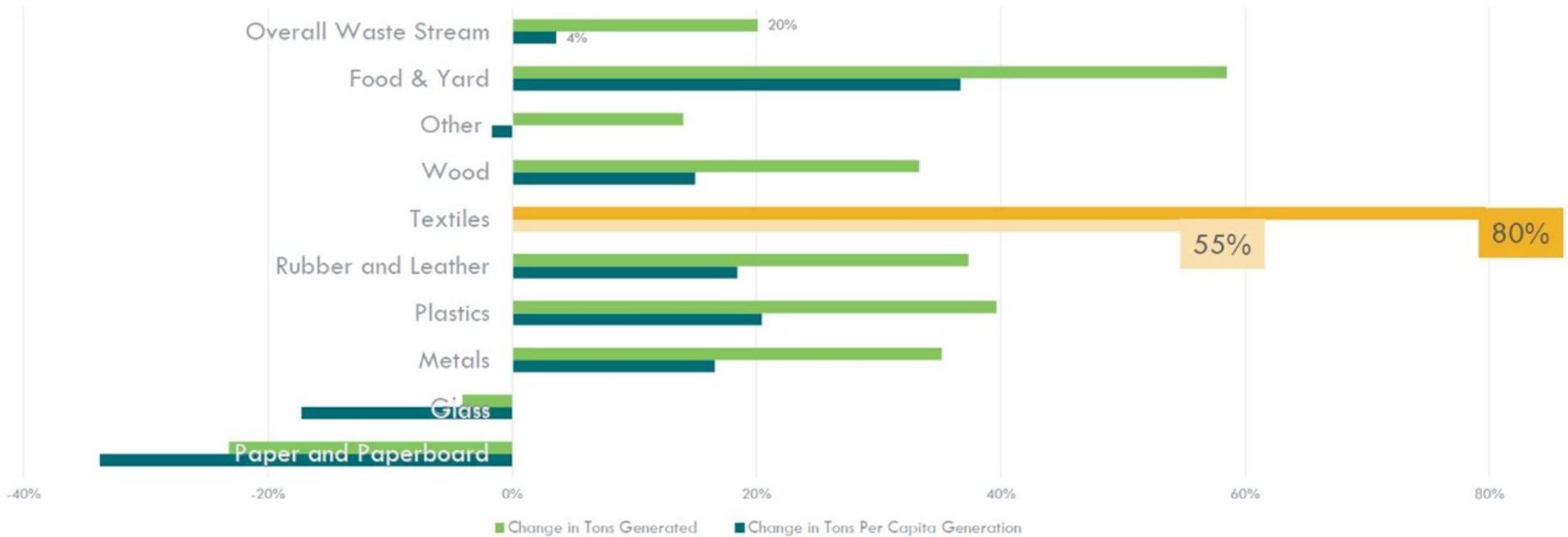


Figure 4: Percent change in absolute tons and tons per capita waste generation 2000-2018 (used with permission from [17])

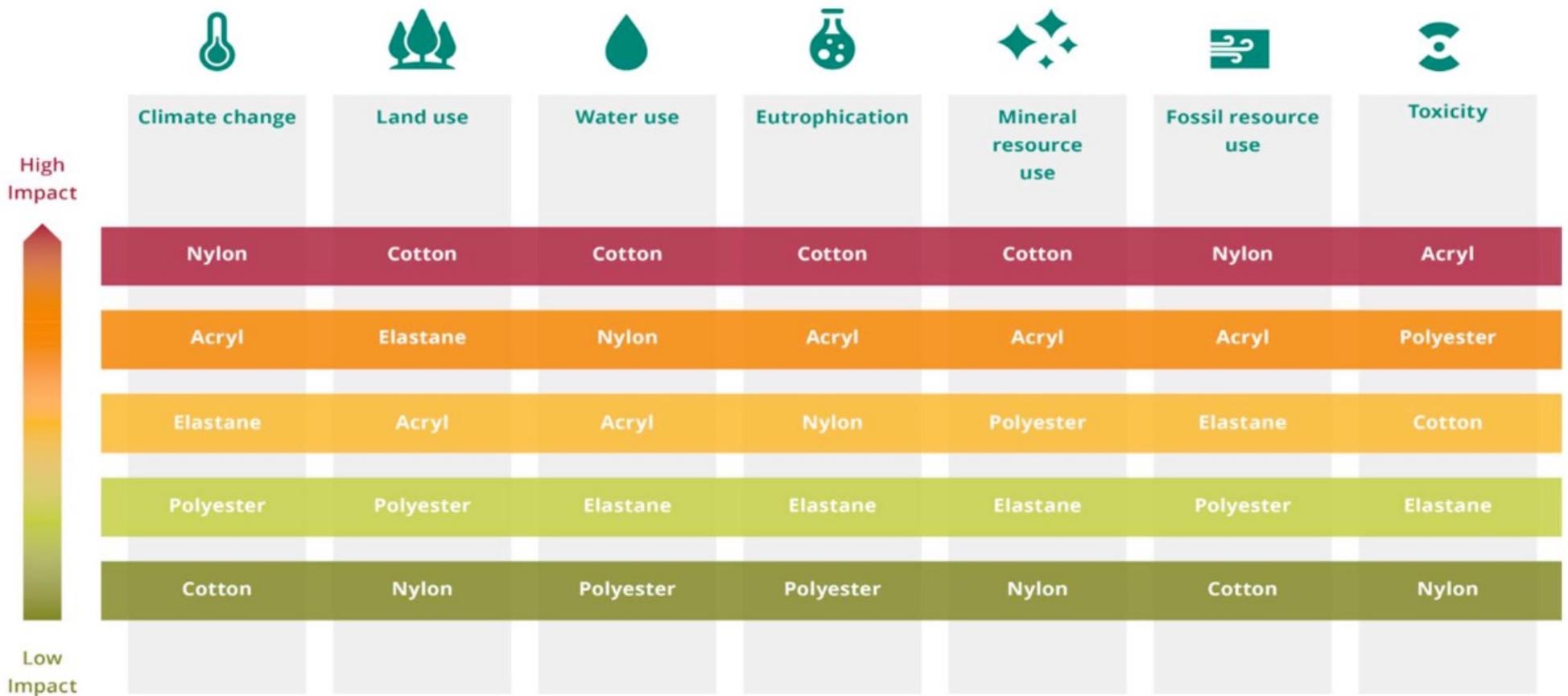


Figure 6: Impact of manufacturing of 1 kg dyed woven fabric (used with permission from [9])

## Textile Greenhouse Gas

- Annually the industry consumes 1 trillion kilowatt hours of electricity
- GHG emissions from textile production total 1.2 billion tons of CO2 equivalent
- The fashion industry contributes around 10 % of global GHG emissions annually
- Textiles is the 5th leading industry in terms of GHG emissions in the European Union
- Industry emissions are projected to increase more than 60 % by 2030

## Textile Water Use

- The fashion industry is the world's second largest consumer of the world's water supply
- 20 trillion liters of water are used by industry every year
- Water use in the fashion industry is expected to increase by upwards of 50 % by 2030
- 20 % of water pollution is from textile treatment and dying
- 17 % to 20 % of ALL industrial wastewater comes from the textile industry (citing the World Health Organization (WHO))
- Fashion is the second biggest polluter of clean water in the world, after agriculture (citing the WHO)
- In China, the textile industry is the leading cause of water pollution

# Textile Chemicals

1. Agrochemicals are used on natural fiber crops
2. Synthetic fibers necessitate different degrees of chemicals
3. Spinning and weaving, utilize lubricants, accelerators, and solvents
4. Wet processing of fabrics uses chemicals such as bleaches, dyes, processing aides, and water and stain repellents
5. Per- and polyfluoroalkyl substances (PFAS) are widely used for “waterproof,” “water resistant,” or “stain-resistant”

## Textile Microplastics

- Emissions are mainly from China, with large percentages from North America, Southeast Asia, and Western Europe
- Fashion accounts for 20 % to 35 % of microplastic flows to the ocean (citing McKinsey)
- At least 35 % of microplastics in our oceans, drinking water, and air are from textiles
- Microfibers are in our food (salt, beer, tea, drinking water, seafood), air, water, ingested by organisms across the planet and found in our feces

## Textile Social Impacts

Employment: variable numbers 65 million people, 85 % of whom are women or 300 million people worldwide

Low-income regions of the world lack occupational health and safety regulations, minimum wage requirements, or child labor restrictions

[Collapse of the Rana Plaza building](#) in Dhaka, Bangladesh, which housed five garment factories and resulted in the death of over 1,100 people (24 April 2013)



## Recent changes in Textiles causing problems

- 1) "Fast-Fashion"
- 2) increased production of synthetic fiber (e.g., polyester, nylon)
- 3) Value chain is setup for linear economy

**Agriculture or petrochemical, garment industry, distribution, retail**  
**Produce => Use => Dispose model**



Figure 2: Current value chain of textiles (used with permission from [8])

## Transition to Reuse Repair Recycle

**Currently 15% much is shipped to the developing world**

## Goodwill (for example)

\$ Textiles donated to Goodwill \$

Regional Collection Warehouse

Goodwill Retail Stores

Goodwill Outlet Stores

Salvage Buyers (Export)

Landfill (5%)



## Shipped to Africa



## “Fast-Fashion”

- Traditionally, 4 fashion cycles produced per year, today fast fashion produces 50+ cycles/year
- 100 billion items of clothing are produced each year
- Fashion brands produce almost 2x the amount of clothing today than they did before the year 2000
- On average, consumers wear a garment seven times before getting rid of it
- More than 50 billion garments are thrown away within 12 months of being made

## Textiles

**Fast fashion** is the **business model** of replicating recent **catwalk** trends and **high-fashion** designs, **mass-producing** them at a low cost, and bringing them to retail quickly while demand is at its highest. The term *fast fashion* is also used generically to describe the products of this business model, particularly **clothing** and **footwear**. Retailers who employ the fast fashion strategy include **Primark**, **H&M**, **Shein**, and **Zara**,<sup>[1]</sup> all of which have become large multinationals by driving high turnover of inexpensive seasonal and trendy clothing that appeals to **fashion-conscious** consumers.



In 2014, the average person purchased 60 percent more articles of clothing and kept said clothing for half as long compared to the year 2000.



Clothes for sale at a [Zara](#) store in [Hong Kong](#)



The former "Big Biba" building, circa 2006

Retailers who employ the fast fashion strategy include [Primark](#), [H&M](#), [Shein](#), and [Zara](#),<sup>[1]</sup> all of which have become large multinationals by driving high turnover of inexpensive seasonal and trendy clothing that appeals to [fashion](#)-conscious consumers.



A H&M store in Downtown [Montreal](#)

# Textiles

The global fashion industry is responsible for 8–10% of global [carbon emissions](#) per year, to which fast fashion is a large contributor.



To make fast fashion more sustainable:

- **Zero-waste pattern cutting**: This technique eliminates potential textile waste right at the design stage, where the pattern pieces are strategically laid like a jigsaw puzzle onto a precisely measured piece of fabric.
- **Minimal seam construction**: This technique allows faster manufacturing time by lessening the number of seams that are necessary to stitch a garment.
- **Design for disassembly (DfD)**: The main intention of this strategy involves designing a product in such a way that it can be easily taken apart at the end of its lifespan and this allows the use of fewer materials
- **Craft preservation**: This technique combines and incorporates ancestral craft techniques into modern designs and in a way it ensures preservation of traditional craftsmanship through innovation.
- **Pull factor framework**: Brands such as [L.L.Bean](#) and [Harvey Nichols](#) have implemented a pull factor framework, which is a new methodology that strives to make sustainable innovation more enticing for consumers and producers alike.

## Key Challenges for Cyclic Textiles

1. Infrastructure and systems for collection of waste textiles  
not well established
2. Sorting and grading  
rely on expensive manual labor, No harmonized sorting standards
3. Commercial-scale recycling  
fiber-type dependent, require pure feedstock, separation of blends and removal of dyes, additives, and finishes
4. Textile circularity is not economical
5. Large-scale reuse, repair, and recycling is hindered by high transportation, labor, and processing costs

# Opportunities for Advancement

1. Harmonization of terminology, standards
2. Publicly available databases, registries and repositories
3. Advanced labeling strategies
4. Improve sorting-grading and preprocessing
5. Advanced recycling process development
6. Product design, recycled content requirements
7. Alternative businesses models
8. Standards for collection, recycling feedstock, sustainable procurement, and microplastic fiber testing
9. Policy economic incentives, public procurement, bans, mandates, EPR
10. Education and outreach
11. Economic assessment
12. Communication across sectors and value chain

# Textile Collection

## Challenges to Textile Collection

- No established infrastructure for convenient, consistent, widespread, and reliable collection
- No harmonized textile collection rules or standards
- Materials must be clean, dry, and have no odor or hazardous chemicals to maintain value
- High transportation costs

## Opportunities to Advance Textile Collection

- Need significant evolutionary change, not incremental improvement
- Expanding collection on the scale necessary requires involvement from brands, retailers, as well as legislation
- Need harmonized collection rules with an emphasis on preserving the quality without contamination
- Consumers need to recognize the value of used textiles and know options and best practices for collection

## Textiles

- Rubber-band shoes together when you donate them, so they stay together! There is no resale value in one shoe, and donation centers don't necessarily have the capacity to search for missing partners.
- Similarly, bag or band together infant and children clothing sets, such as pajamas.
- Keep in mind that pure-fiber textiles, such as 100% cotton or wool, are recyclable, while blended textiles currently are not.
- New synthetic (e.g., polyester) clothing is a significant source of microplastics in the environment. But roughly 90% of those microplastics are lost in the first three launderings. Buying these items secondhand can help reduce the problem.

# Textile Sorting and Grading

## Challenges to Textile Sorting and Grading

- Currently relies on manual labor, which is expensive
- Human eye is incapable of identifying fiber composition
- Existing technologies are incapable of screening for current styles and trends or identifying rips, stains, or wear
- No harmonized sorting standards or criteria
- Fiber identification, especially with fiber blends

## Opportunities to Advance Textile Sorting-Grading

- Development of high-speed automated sorting systems
- Dedicated domestic sorting facilities
- Digital identification on products

# Textile Reuse and Repair

## Challenges to Reuse and Repair

- Lagging consumer and industry acceptance that reuse is the preferred path with the least social and environmental impacts
- Materials must be clean and dry and have no odor or hazardous chemicals
- People throw unwanted materials away and do not understand reuse capabilities
- General public lacks knowledge, tools, interest, or time to repair garments
- High transportation costs – especially if dealing with large volumes
- Disenfranchised repair industry
- Fast fashion clothing quality is inferior, not suitable for resell or conversion and appropriate only for lower uses, e.g., wiping rags

## Opportunities to Advance Reuse and Repair

- Education regarding garment repair, as well as sources for repair support
- Consumer education on donating and purchasing used products
- Build industry acceptance and support for resell and repair industries



**\$150/pair**

**\$ 90 for last years model**

**Resole costs**

**\$50-60**

**Difficult to justify resoling**

## Textile Recycling

- Recycling:** Converting textile waste into something of roughly the same value; Often referred to as fiber recycling (e.g., recovery of fibers back into fibers). This term is often also used as a catch-all for all forms recovery pathways (whether up-, down-, open-, or closed-loop).
- Upcycling:** Turning wasted textile material into something of higher value; Often referred to as fabric recycling (e.g., making new garments with materials from allegedly old or used textiles)
- Downcycling:** Turning wasted textile material into something of lower value (e.g., industrial rags, shoddy/stuffing, carpet padding, insulation)
- Closed-loop recycling:** The material from a product is recycled and used in a similar or identical product
- Open-loop recycling:** Material from a product is recycled and used in different products (often referred to as cascade recycling)

## Challenges to Textile Recycling

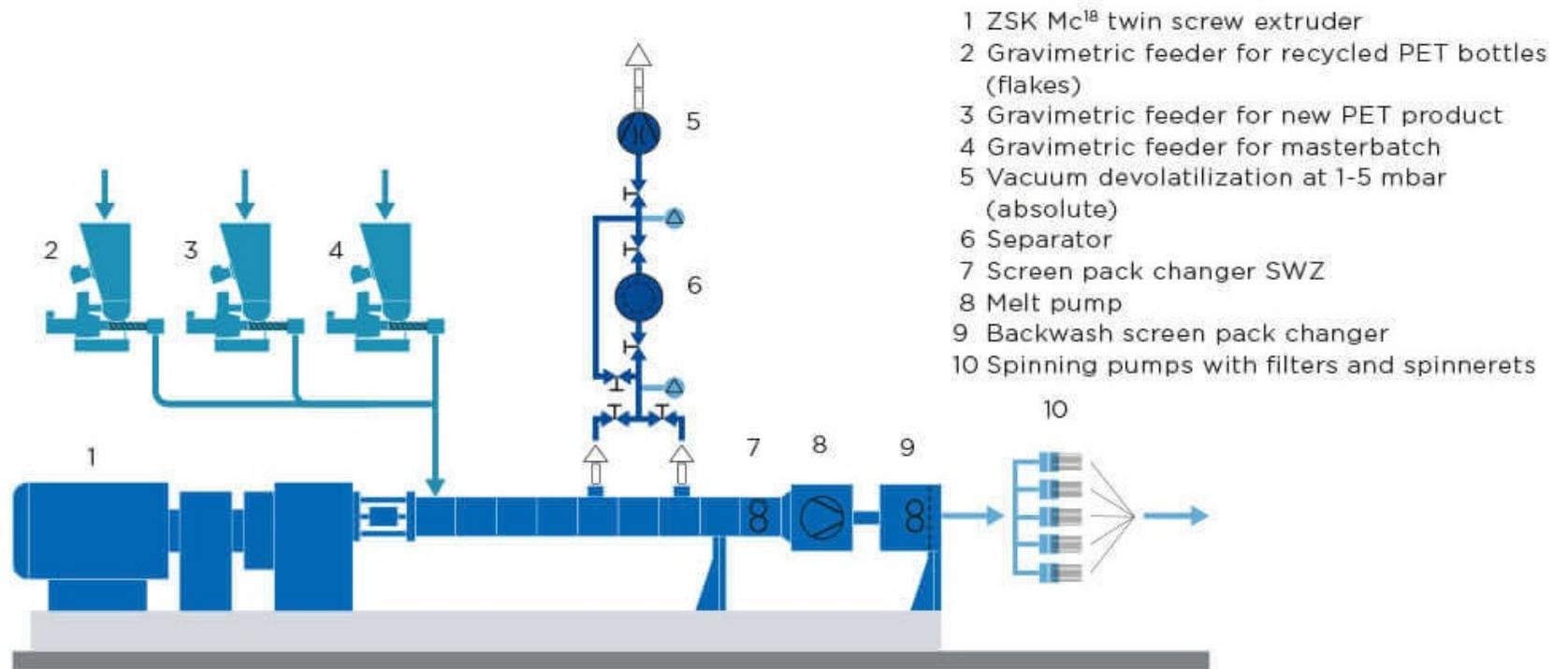
- Recycling economics require subsidization *[Both]*
- No dedicated funding for scaling of recycling technologies *[Both]*
- Removal of dyes, additives, finishes (e.g., functional coatings) *[Both]*
- Only conducive for pure fiber (not blends) *[Mechanical, some Chemical]*
- Degradation of fibers (length, strength, softness) during processing *[Mechanical]*
- Post-consumer textiles do not produce high-quality recycled fiber *[Mechanical]*
- High temperature, pressure, time, and cost requirements *[Chemical]*
- Some processes use/produce hazardous chemicals *[Chemical]*
- Requires pure, reliable, high-volume feedstock *[Chemical]*
- Separation of poly/cotton blends *[Chemical]*
- No processes for select fiber types (Nylon 6,6, elastane) *[Chemical]*
- Unknown energy consumption and overall environmental impacts *[Chemical]*

## Opportunities to Advance Recycling

- Development of post-consumer textile supply chain
- Development of domestic recycling options
- Advancements in separation of components (e.g., carpets)
- Advancements in separation of blended fibers
- Standardized methods for removal of buttons, zippers, etc.
- Methods to separate and process non-cellulosic/polyester content (e.g., elastane)

# Recycled Plastics to Textiles

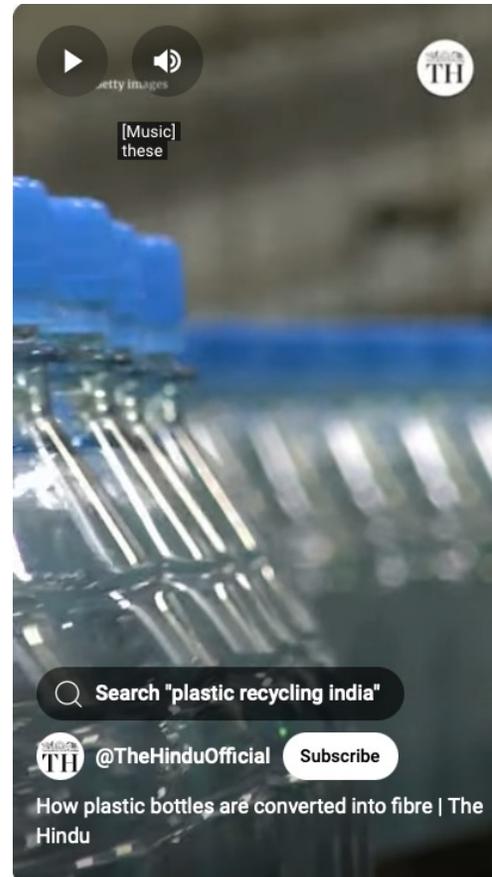
Typical set-up for devolatilizing recycled material - bottle to fiber



## Recycled Plastics to Textiles

### Bottles to Fibers Video

- Polyester most widely used fiber
- 14 % comes from recycled inputs
- Target is 45 % by 2025
- Competition with bottle recycle



## Stakeholders to be Included

- Charity and thrift sector
- Sorters/graders (domestic & international)
- Global reuse end markets
- Technology providers (sorting and identification technologies)
- Equipment manufacturers
- Textile and apparel brands, manufacturers, and retailers
- Small and medium-sized enterprises (SMEs), including designers and intermediaries (e.g., wholesalers, distributors)
- Local repair businesses
- Local environmental community
- NGOs and advocacy groups
- Haulers, collectors, and bin operators
- Regional waste and recycling managers and waste auditors
- Academic institutions
- Professional experts in textile production and recovery
- Industry associations such as SMART, the Council for Textile Recycling, Textile Exchange, etc.

## Unclear or Controversial Terms

- Biodegradable vs bio-based plastics
- Contaminant (e.g., chemicals introduced by design vs result of product use)
- Downcycling vs upcycling
- Open loop vs closed loop recycling
- End-of-life
- “Made with recycled materials”
- Pre-consumer, post-consumer vs post-industrial
- Recycling vs reuse vs repurpose
- Recycling rate
- Residential, non-residential vs commercial waste
- Sustainable
- ‘Waste’ vs ‘secondary raw material’

# Textile Labels

## Labeling Challenges

- Fiber composition on labels is often inaccurate
- Labels are designed for consumer, not circular partners
- Labels are often removed
- Only fibers that comprise 5 % or more of a product need to be identified
- Non-fibrous materials not required to be identified

## Labeling Opportunities

- Digital product identification/product passport
- Transparency of materials and chemicals in products

## Design Challenges

- Contradiction between design for durability and design for recycling (DfR)
- Current design does not consider the full lifecycle of product
- How to include EoL procedures into design?

## Design Opportunities

- Need to commit to purity (not mix fiber types)
- Increase demand for sustainable fiber types (e.g., organic, recycled)
- Need to design with the full lifecycle in mind
- Design for performance/fashion AND recyclability
- Increased communication and feedback loops
- Development of design guidelines to inform DfR

DfR (design for reliability) is a process that ensures a product, or system, performs a specified function within a given environment over the expected lifetime.

### Needs for End Market Development

- Need downstream demand for feedstocks in combination with feedstock availability and quality
- Need brand uptake agreements that support a domestic recycler economy
- Need to rebuild domestic manufacturing
- Need to retrain consumers to appreciate the value in a product, away from reduced cost
- Need new business realities: Decrease in clothing purchasing, increase in sharing economy, e.g., swapping, leasing, renting

Table 2: Policy Approaches to Facilitate a Circular Economy for Textiles at the Local, State, and/or Federal Level (adapted from [17, 43, 70])

| Policy Approach                                 | Description  |
|---|--|
| <b>Partnerships:</b>                            | With recovery stakeholders (incl. charities) and require reporting   |
| <b>Public Database:</b>                         | Provide publicly accessible database of textile processors   |
| <b>Green purchasing:</b>                        | Require public agencies to procure environmentally preferable products and include contracts with repair and recycling   |
| <b>Disclaimer laws:</b>                         | Require disclaimers on products (e.g., recycled content)   |
| <b>Disposal bans &amp; mandatory recycling:</b> | Prohibit textiles from entering landfills/incineration; effective only when alternative collection and processing options are available and easily accessible  |
| <b>Extended Producer Responsibility (EPR):</b>  | Require brand owner to take financial and/or operational responsibility for EoL management of post-consumer textile waste with specified performance standards   |
| <b>Fees:</b>                                    | Eco-modulated fees (i.e., varying levels of fees on virgin raw materials and products that do not meet different thresholds of minimum recycled content criteria)  |
| <b>PFAS and Microplastics:</b>                  | Increased research on toxicity and source reduction  |
| <b>Development Incentives:</b>                  | Encourage the domestic development of recovery infrastructure and supply chains through grants, low-interest loans, tax incentives, zoning allowances, etc.  |
| <b>Incentives for sustainable sourcing:</b>     | Reduce cost pressures and reward brands/retailers who implement sustainable sourcing, use sustainable materials, make fewer new products, manage repair programs, e.g., through favorable duty treatment, tax incentives, etc. |
| <b>Product and performance standards:</b>       | May include recycled content standards, mandatory retailer takeback, product certifications, etc.  |
| <b>Remove subsidies:</b>                        | On virgin fossil fuels and cotton production   |
| <b>Labeling standards:</b>                      | Include traceability of supply chain and provide data necessary for recovery/recycling   |
| <b>Preferential duty benefits:</b>              | Selective tariff rates to influence where products are made and with what materials  |

## Engagement and Education Approaches to Support Textiles Circularity

### Industry Education

- Webinars and courses about transitioning from linear to circular business models
- Training programs to support repair, recycling workforce
- Certification programs in circular materials management

### Academic Education

- Crafting classes/activities
- Lessons about material origin, characteristics, durability, and recyclability
- Link to textiles to climate change
- Lessons about consumer role in (un)sustainable consumption
- Lessons about recycling processes, role of design
- The social benefit of conscientious consumerism and donation

### General Public Education/Services: Repair

- Do it yourself (DIY) education (e.g., fix-it classes)
- Repair Cafes
- Lending libraries of repair equipment (e.g., sewing machines)
- Knitting clubs, repair clubs

### General Public Education/Services: Recycling

- Where and how to donate used textiles
- What textiles can and should be donated/recycled
- What happens to textiles once they are donated or recycled

## California “Carpet Stewardship Law” CA AB 2398 2010

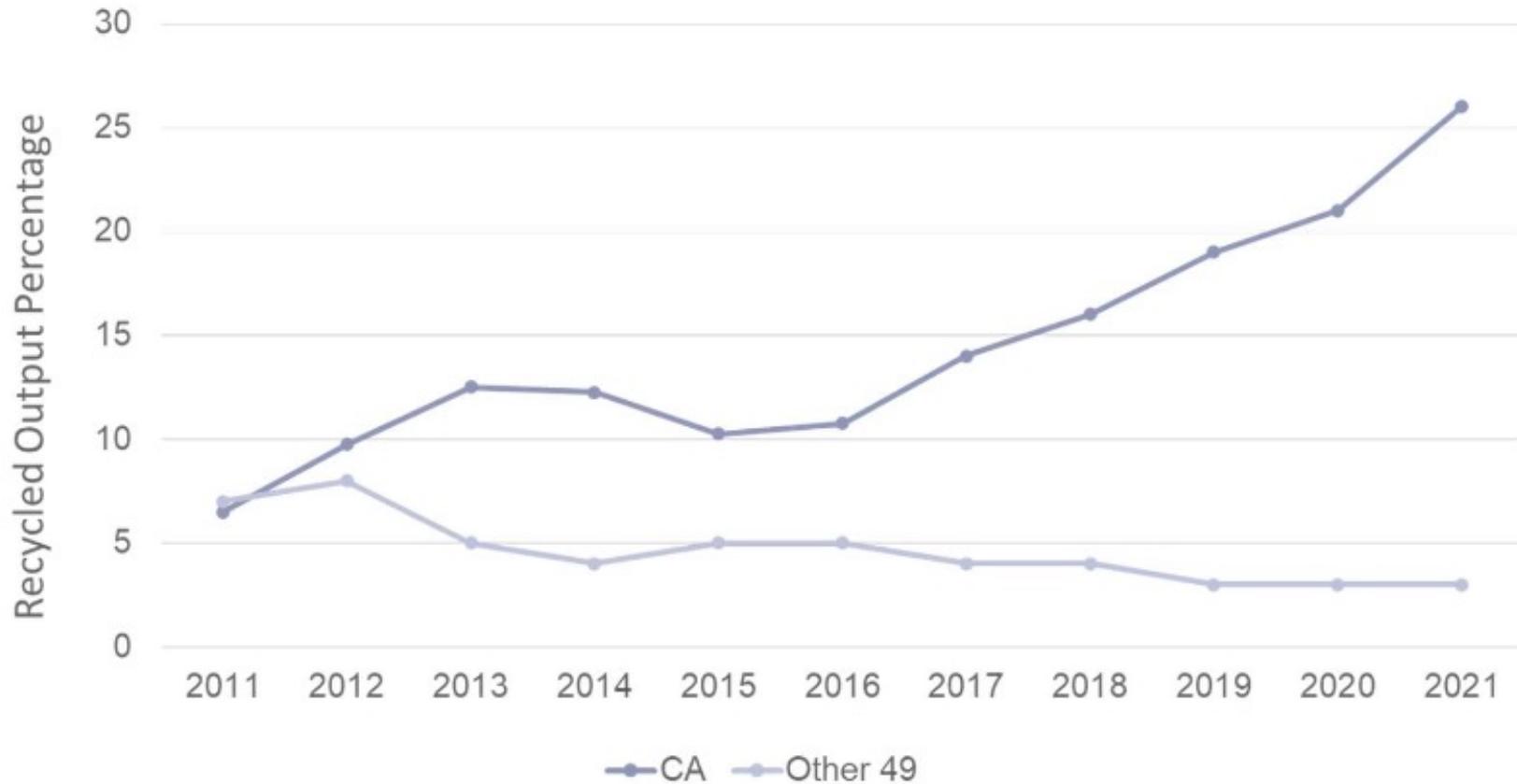


Figure C: Comparison of recycled carpet output between CA and other 49 US states [83]

# Ambercycle



# Bay State Textiles



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# Blocktex (Australia)

STEP 2

## Recovering valuable resources

Our S.O.F.T.™ (separation of fibre technology) process works by separating everyday products such as sheets, clothing and towels back into their individual raw materials. The recovered resources can then be reused back into the textile industry or into other industries such as building, agricultural and manufacturing.



### SHRED

Textile waste is shredded to break the product down.



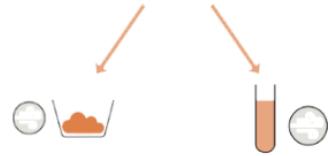
### SEPARATE

Polyester and cotton blends are treated with the S.O.F.T.™ (separation of fibre technology) process. This unlocks the parts but does not cause any deterioration to the components.



### WASH/DRY

Polyester and cellulose are thoroughly washed to ensure maximum separation. The parts are separated through this process for drying.



### PELLETISE

Polyester is dried further and then extruded into pellets.



### DEWATER

Cellulose is dewatered or dried to optimise product usability.

## Bureo Fishing Nets to Sweaters

### A New Wave of Recycled Material, From Fishing Nets to Finished Goods

---

Giving discarded fishing nets a fresh start, NetPlus material is a high-quality, high-impact solution embraced by industry-leading brands ready to take their materials program to the next level. From performance fabrics to hat brims and more, the possibilities with NetPlus material are endless.

[Discover NetPlus ▶](#)



# Carpet Recovery America



Developing Market Based Solutions for the Recycling & Reuse of Post-Consumer Carpet

English

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## Recovery Effort/ Collector Finder Map

### Recovery Effort

[Source Reduction](#)

[Innovation](#)

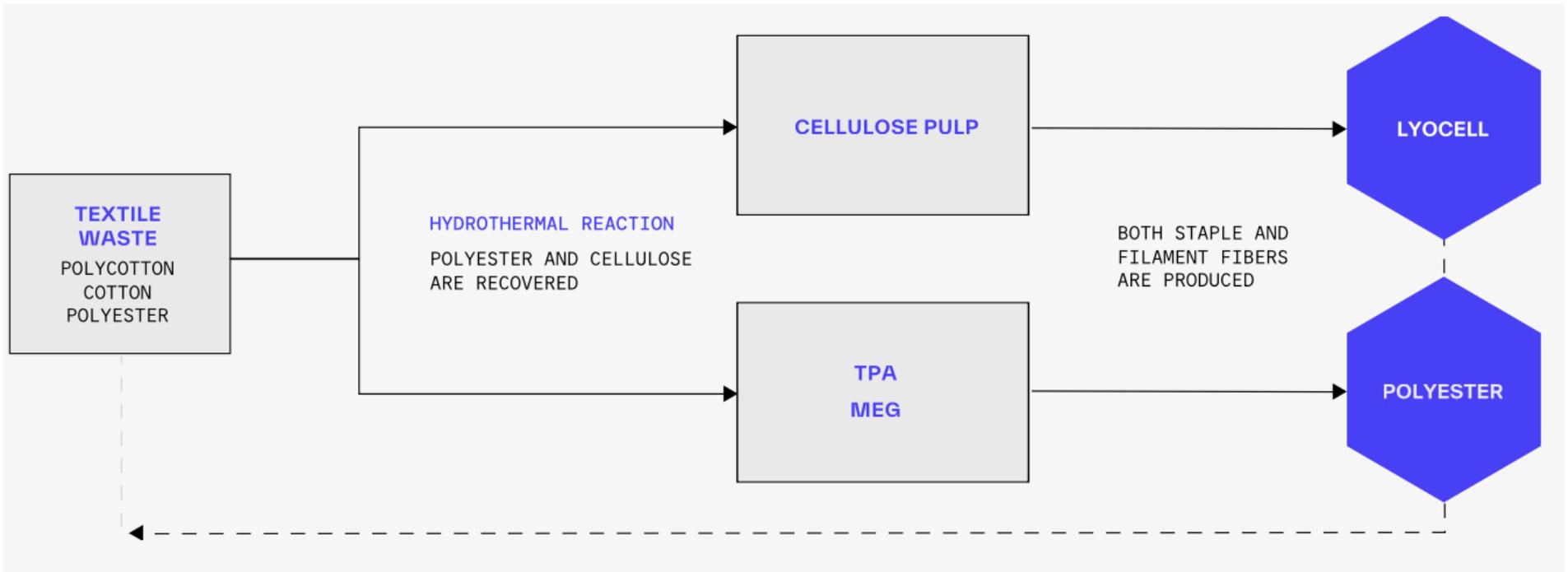
[Specs-Bid Template](#)

[Collector Finder Map](#)

If you are seeking a collection site in California, please [CLICK HERE](#).



## CIRC Chemical Recycler of Textiles



# Circular Polymers for Carpet Waste



[Process](#) [Products](#) [Cerene](#) [Carpet Collection](#) [News](#)



## About Circular Polymers

Circular Polymers' disruptive technology transforms post-consumer discarded carpet into new polymer raw materials for use by multiple industries.

[Learn More](#)



# Product Stewardship Councils


Northwest Product Stewardship Council

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- Other Products ▶



## Carpet

### The Problem: Volume, Waste, Emissions

Carpet is bulky, heavy, difficult to handle, and made from non-renewable resources. It is recyclable but it is more often disposed, taking up valuable landfill space and wasting material resources. In 2010, only 2% of discarded carpet was recycled in Washington and Oregon. Recycling carpet significantly reduces greenhouse gas emissions compared to other end of life management practices.

**Volumes:** Approximately 3 million tons of carpet and rugs are disposed of annually, representing about 1.2% of the national municipal solid waste stream. In Washington and Oregon, carpet comprises about 3% of the municipal solid waste stream. The most recent data for the recycling rate of carpet is 2.3% in Washington in 2010 (up from less than 2% in 2009), about 2% in Oregon in 2010 (up from less than 1% in 2009), and 4.5% nation-wide in 2010.

**Wasted Resources:** Carpet, made from valuable petroleum-based resources, is wasted when landfilled or incinerated. Carpet can be recycled into a wide range of products, including carpet fiber and backing, engineered products such as car and electronics parts, and erosion control products. Carpet recycling is a job creator - enactment of California's new carpet stewardship bill added an initial 50 jobs to the state's economy and increased the number of facilities recycling carpet from four to 18.

**Greenhouse Gas Emissions:** The majority of carpet is made from petroleum products and requires a great deal of energy to produce. A Seattle study on the environmental impacts various carpet management methods found that recycling carpet produced far less green house gases than other end-of-life choices, reducing emissions by 8,300 pounds of eCO2 per ton of carpet recycled. Each ton of used carpet recycled could be shipped more than 40,000 miles by truck (more than ten times the distance across the US) before recycling would lose its position as the best management option for discarded carpet.

**Product Stewardship Solutions**

Product stewardship solutions include activities that carpet manufacturers as well as retailers, governments and consumers can take to minimize the environmental impact of carpet throughout all stages of the products' life cycle, including end of life management

## Recycling Locations

by WA Legislative District

Join

Events

✕ Follow @StewardshipNW

Contact Us

Newsletter Sign-up

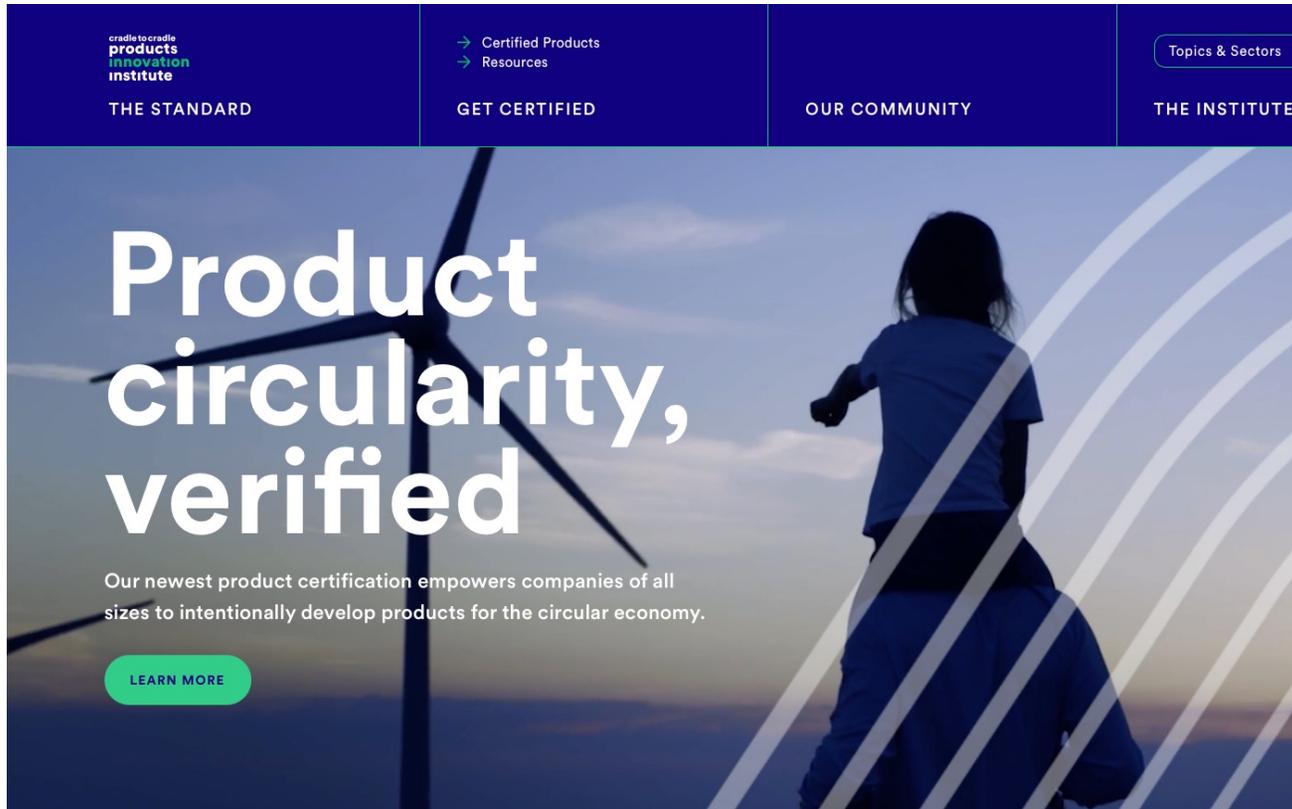
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Videos on YouTube

Frequently Asked Questions (FAQ)

Download Sample Product Stewardship Resolutions

# Cradle to Cradle Certification of Companies



The image shows the top portion of the Cradle to Cradle website. It features a dark blue navigation bar with the logo on the left, menu items in the center, and a dropdown menu on the right. Below the navigation bar is a large hero section with a background image of a person standing on a rooftop with wind turbines in the distance. The hero section contains the main headline, a sub-headline, and a call-to-action button.

**cradle to cradle**  
**products**  
**innovation**  
**institute**

→ Certified Products  
→ Resources

Topics & Sectors ▾

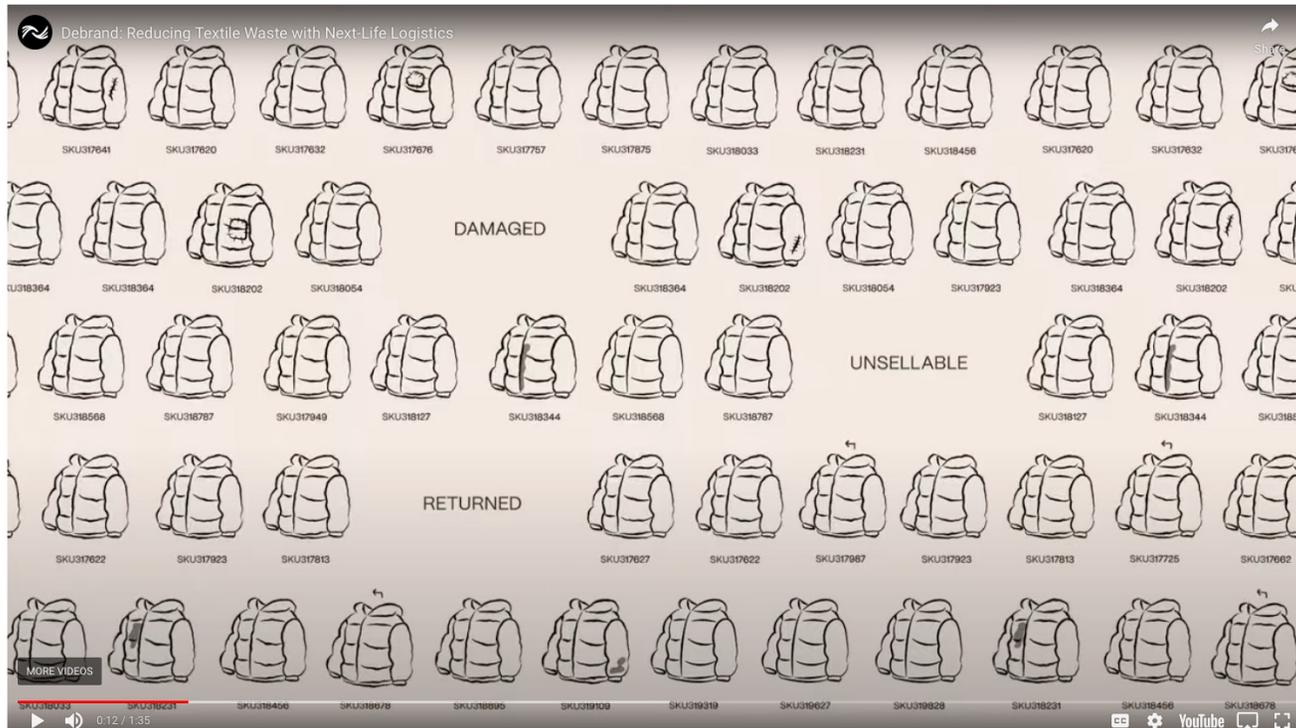
THE STANDARD      GET CERTIFIED      OUR COMMUNITY      THE INSTITUTE

# Product circularity, verified

Our newest product certification empowers companies of all sizes to intentionally develop products for the circular economy.

[LEARN MORE](#)

# DeBrand Damaged etc cloths



# Depop for clothes resale

The screenshot shows the Depop website interface. At the top left is the 'depop' logo. A search bar contains the text 'Search for "black jodie top"'. To the right of the search bar are icons for a heart, a shopping bag, and buttons for 'Sell now', 'Sign up', and 'Log in'. Below the search bar is a navigation menu with links for 'Menswear', 'Womenswear', 'Kids', 'Brands', and 'Sale'. The main content area features two large promotional banners. The left banner shows a man in a denim jacket and beanie, with the text 'Menswear' and a 'Shop now' button. The right banner shows a woman in a blue jacket and grey sweater, with the text 'Womenswear' and a 'Shop now' button. Below these banners is a central banner with the text 'Buy for less. Sell for free. Keep fashion circular.' and a 'Sell now' button. At the bottom, there is a dark grey banner with the text 'No selling fees' and a 'List now' button. To the right of this banner is a photograph of three people smiling, with a right-pointing arrow icon.

depop

Search for "black jodie top"

♡ 🛒 Sell now Sign up Log in

Menswear Womenswear Kids Brands Sale

**Menswear**  
Shop now

**Womenswear**  
Shop now

**Buy for less. Sell for free. Keep fashion circular.**  
Sell now

**No selling fees**  
There are zero selling fees\* on Depop. From July 18, there will be a new Marketplace Fee for buyers. See updated terms [here](#).  
List now

→

# Econyl regenerative nylon

**ECONYL®**

DISCOVER ECONYL®

**BUY PRODUCTS**

Shop

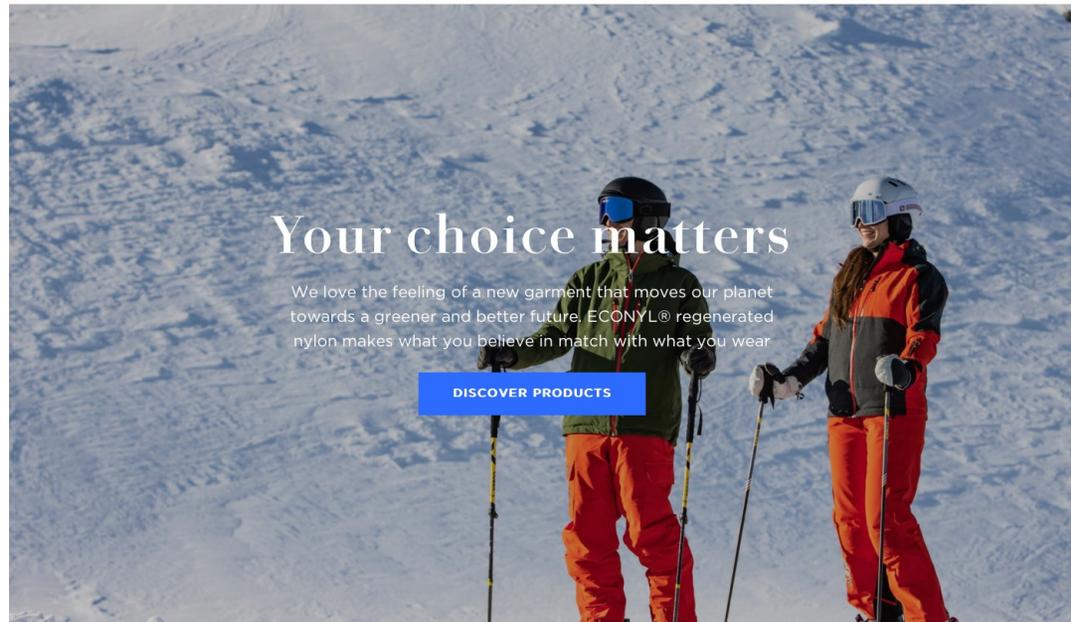


Inspirations

Magazine

Glossary

Customer Support



## Your choice matters

We love the feeling of a new garment that moves our planet towards a greener and better future. ECONYL® regenerated nylon makes what you believe in match with what you wear.

**DISCOVER PRODUCTS**

That's why we created this Digital Hub: a place where our community can get together, make conscious purchases of products made with ECONYL®, and learn more about how to be truly sustainable. These garments can Live & Repeat, changing shape and function, and so we can help preserve our planet's resources. From waste to garment, over and over again, in a virtuous and infinite loop.

## EON Circular Data Protocol (a sticker)



There's a simple idea that could change the fashion industry.

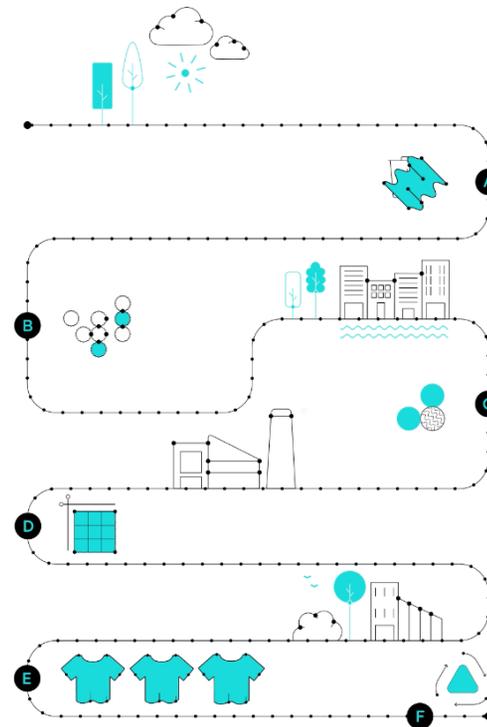
# Evrnu cotton recycling (Seattle)

NUCYCL®

## How the process works

- A** COLLECT, SORT, SHRED TEXTILE WASTE
- B** LIQUIFY/PURIFY INTO LIQUID PULP
- C** EXTRUDE PULP INTO FIBER
- D** WEAVE/KNIT FIBER INTO FABRIC
- E** FABRIC IS THEN TURNED INTO GARMENTS
- F** UNWANTED GARMENTS GET RECYCLED AGAIN AND AGAIN

The cycle starts with used cotton-rich textiles and production waste, which we work with textile recyclers, brands and retailers to source. The textile waste is then shredded, liquified, purified, and transformed into Nucycl® lyocell fiber, which looks and performs the same as, if not better than, virgin fiber. This 'new' regenerative fiber can be recycled again and again to make new products over and over.



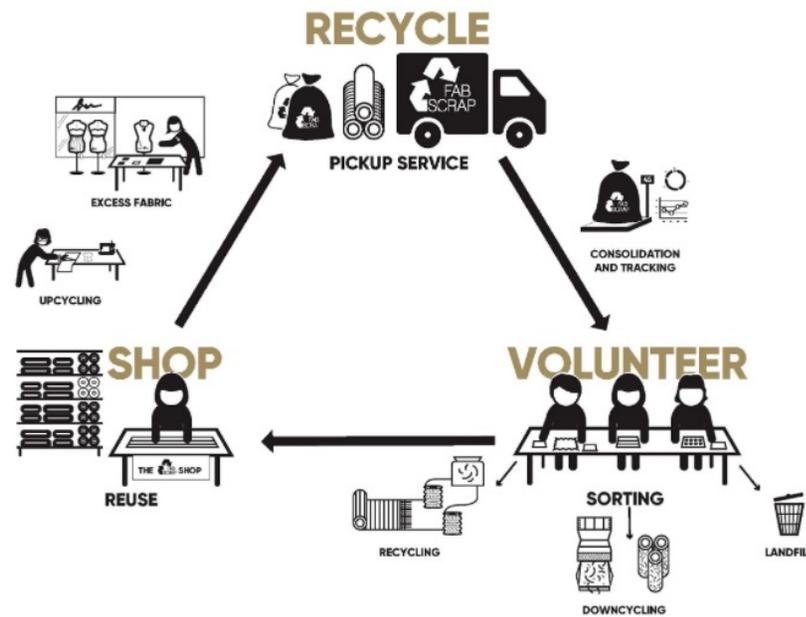
# FabScrap Brooklyn fabric recycling

## FABSCRAP

is a convenient and transparent recycling and reuse **SERVICE**,

is an affordable and accessible materials **RESOURCE**, and

is educating and empowering a diverse **COMMUNITY** of changemakers



# Fashion Pass Rent your cloths

Limited time fall sale: use code PUMPKINSPICE to try for \$59

Search

FASHIONPASS

TRY FOR \$59 Sign In

Browse Occasions Brands How it Works Gift Cards Sale



Rent your clothes.

Browse Clothing



# Fashion Revolution USA Activist Organization

FASHION  
REVOLUTION

ABOUT CAMPAIGNS RESOURCES EVENTS BLOG TAKE ACTION **DONATE**

I AM A... citizen brand retailer producer union educator Journalist

Share this...



## FASHION REVOLUTION USA

Welcome to Fashion Revolution USA! Join us in asking #whomademyclothes and #whatsinmyclothes throughout the 50 states and beyond.

Fashion Revolution USA is proud to be a part of the international mission of Fashion Revolution bringing programming, events, and educational resources to life.

### Our Mission

Through advocacy, industry partnerships, events, initiatives, and education we bring together stakeholders from across the fashion, clothing, footwear, accessories, and textiles supply chain to help create an inclusive U.S. fashion system that conducts business ethically, regenerates the environment, and produces responsibly, supporting all voices across the apparel network.

Your [donation](#) helps us bring this mission to life. Fashion Revolution USA is fiscally sponsored by Social Good Fund, a registered 501c3 non-profit organization. All contributions are tax-deductible in the United States. Our EIN/tax ID is 46-1323531.

### Become a USA Fashion Revolutionary

Do you want to be part of a global network of change-makers committed to transforming the fashion industry? At Fashion Revolution, we believe every individual can play a role, and that every voice matters in the global movement calling for a fairer, safer, cleaner, more transparent fashion industry. By joining Fashion Revolution USA's team as one of our Fashion Revolution Ambassadors, you'll join a network of like-minded individuals, make local and global connections, and take a leadership role in your community to educate, influence and make a real impact on the future of fashion. [Apply today!](#)

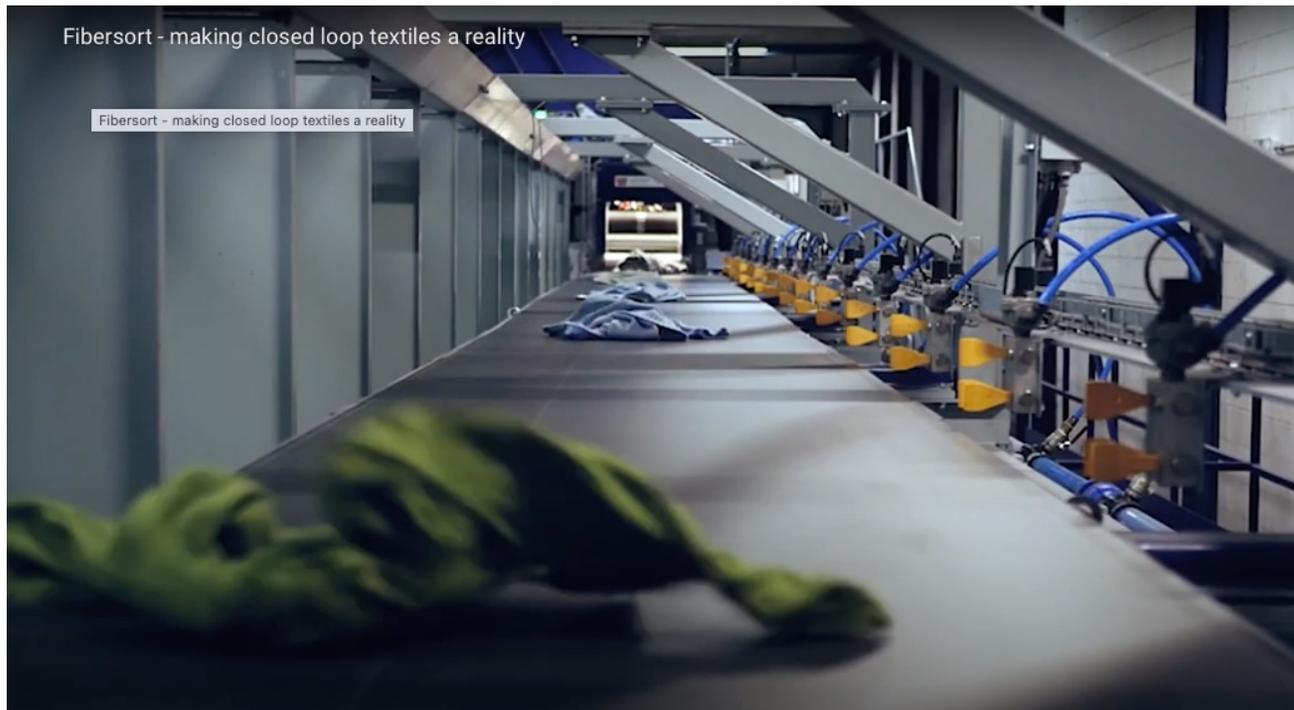
### Our Teams

Fashion Revolution USA consists of three Vice Presidents and several core team members representing a mix of deep education

# FiberShed Something about sheep I guess



## FiberSort using IR to detect fabric types

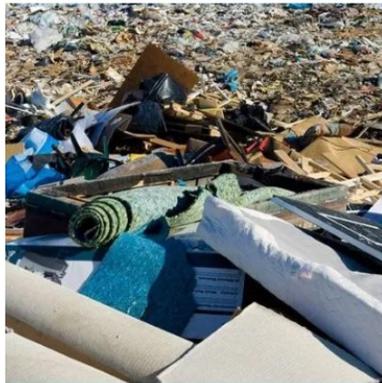


# GeoHay recycled carpet to water control



[Home](#) [About](#) [Industries](#) [Contact](#)

Contact us



## Our Mission Statement:

**GeoHay is the clear advantage for water management. GeoHay products provide solutions for erosion and sediment control along with water filtration and diversion.** Our products are made from recycled carpet and exceed the EPA's regulations for storm water discharge and sediment control. GeoHay products are versatile. They are effective working exclusively or as a complement to an application where high performance is required. Either way, GeoHay products make a positive impact on the environment.

# Global Fashion Exchange (swap clothes San Francisco)



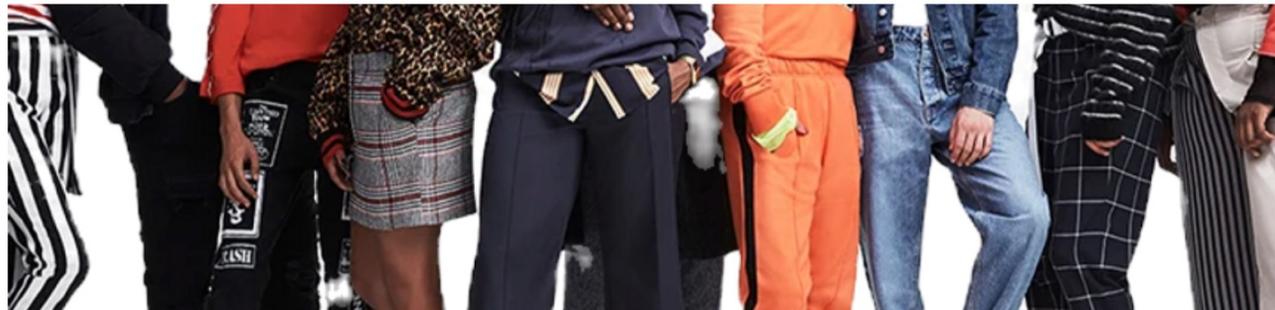
HOME [GFXYP](#) WORK +IMPACT TOOLS



## YOUTH PROGRAM

NEXT GENERATION SWAPPERS

Welcome to **GFXYP**, designed for the next generation of leaders.  
Empowering youth to create positive social and environmental impact through  
academic institution-supported clothing exchanges.



# Helpsy looks like goodwill

 [Home](#) [Impact](#) [Work With Us](#) [Bin Dropoff & Home Pickup](#) [Press](#) [Blog](#) [in](#) [@](#) [f](#) [GET IN TOUCH](#)

*Helpsy® is a certified B Corp and Public Benefit Corporation with a mission to keep clothes out of the trash and to create honorable work.*

*Work with us to be part of the solution*

HELPSY FOR EVERYONE

**Find a Bin** →

**Schedule Home Pick-Up** →



HELPSY FOR

**Thrifts & Resellers** →



HELPSY FOR

**Fundraising & Non-Profits** →

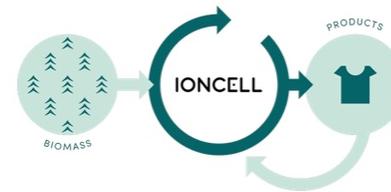


# Ioncell ionic liquids for cellulose recycle (Finnish)



## Ioncell® in a nutshell

- The Ioncell® process uses a novel solvent called ionic liquid. It's an environmentally friendly solvent that can be recycled and isn't flammable like many others.
- Ioncell® fibers feel soft and are strong even when wet. They're tenacious and work well in both clothing and technical applications.
- The Ioncell® process could revolutionize the recycling of textile waste. It enables waste textiles to get a new life as high-quality fibers.



**Want to be among the first ones**

# Oeko Tex certification for fabrics



OEKO-TEX® STANDARD 100 is a label for textiles tested for harmful substances. It sets the benchmark for textile safety, from yarn to finished product. Every item bearing the STANDARD 100 label is certified as having passed safety tests for the presence of harmful substances.



- The certified article is harmless to human health
- Every thread, button and accessory have been tested against a list of over 1,000 harmful substances
- The more intensive the skin contact, the stricter the **human ecology requirements** and laboratory tests
- We use globally standardised test criteria
- The certification complies with international requirements and regulations
- We review our limit values for harmful substances at least once a year

[Watch the video to discover more](#)

# PoshMark.com on line goodwill

The image shows a screenshot of the PoshMark.com website. At the top left is the PoshMark logo, and at the top right are links for "Log in" and "Sign up". The main heading reads "Buy, sell, and discover fashion, home decor, beauty, and more". Below this is a sub-heading: "Sign up now and join millions of people on the social marketplace for all things style". There are three large buttons for social login: "Continue with Facebook", "Continue with Google", and "Continue with Apple". Below these is a link for "Sign up with Email". At the bottom left, there is a checkbox for "Stay Signed In" and a link for "Show More".

On the right side of the page, there is a large video player showing a live stream. The video is from a user named @devonodom. A notification says "petitemarie joined". A comment from @philupmysodacup says "@philupmysodacup has the highest bid!". Other comments from users like bossyjocey, yungtsunami, and threadheadz are visible. The video player has a close button, a share button, and a comment button.

# Queen of the Raw (Excess inventory)

Queen of Raw, Inc.

[HOME](#) [CASE STUDIES](#) [ABOUT US](#) [CAREERS](#) [CONTACT US](#)



Excess inventory sits in warehouses collecting dust or ends up burned or buried. This causes environmental and financial harm. So we built the solution, starting with a marketplace to monetize waste while keeping it in circulation. Now our excess inventory management software, called "Materia MX," powers Fortune 500 enterprises so they can manage complex waste streams around the world all in one place. Get started on Day 1 and take action!



# RecoverBrands.com

Spend \$50 more for FREE SHIPPING.

**RECOVER SHOP**  
READY-TO-WEAR

**recover**

**RECOVER WHOLESALE**  
CUSTOM • STOCKED

THE RESPONSIBLE COMPANY FOR EVERYONE



OUR PRODUCTS

## APPAREL AND GEAR FOR POSITIVE IMPACT

Our environmentally-friendly and socially-responsible products are at the core of our mission.

LEAD TIMES → BLANKS → CUSTOM PRINTING → SUSTAINABLE STORYTELLING → SMALL TO BIG → LOW MINIMUMS → QUICK LEAD TIMES → BLANKS → CUSTOM PRINTING → SUSTAINABLE STORYTELLING → SMALL TO BIG → I



NEW PRODUCT RELEASE

## THE IMPACT JACKET

## RecoverFiber (Spanish fiber recycling)

### RECOVER PRODUCTION NETWORK

**Recover™ is investing globally to increase recycling capacities. We want to achieve maximum output by being where the waste is, thereby close to both supply and demand and reducing simultaneously our carbon footprint.**

📍 Current hubs 📍 Future hubs

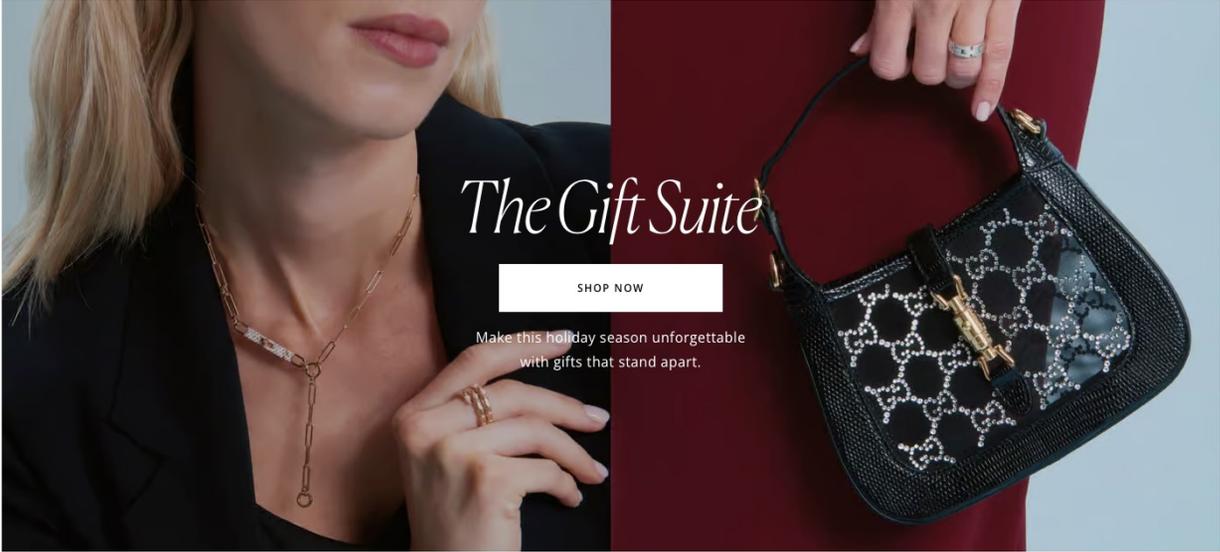


# RedBags (Recycled Handbags)

**REBAG**

[Log in](#) [Sign Up](#)

[New Arrivals](#) [Designers](#) [Bags](#) [Accessories](#) [Watches](#) [Jewelry](#) [Apparel](#) [Shoes](#) [Sale](#) [Membership](#) [Gifts](#) [Trade](#) [SELL](#)



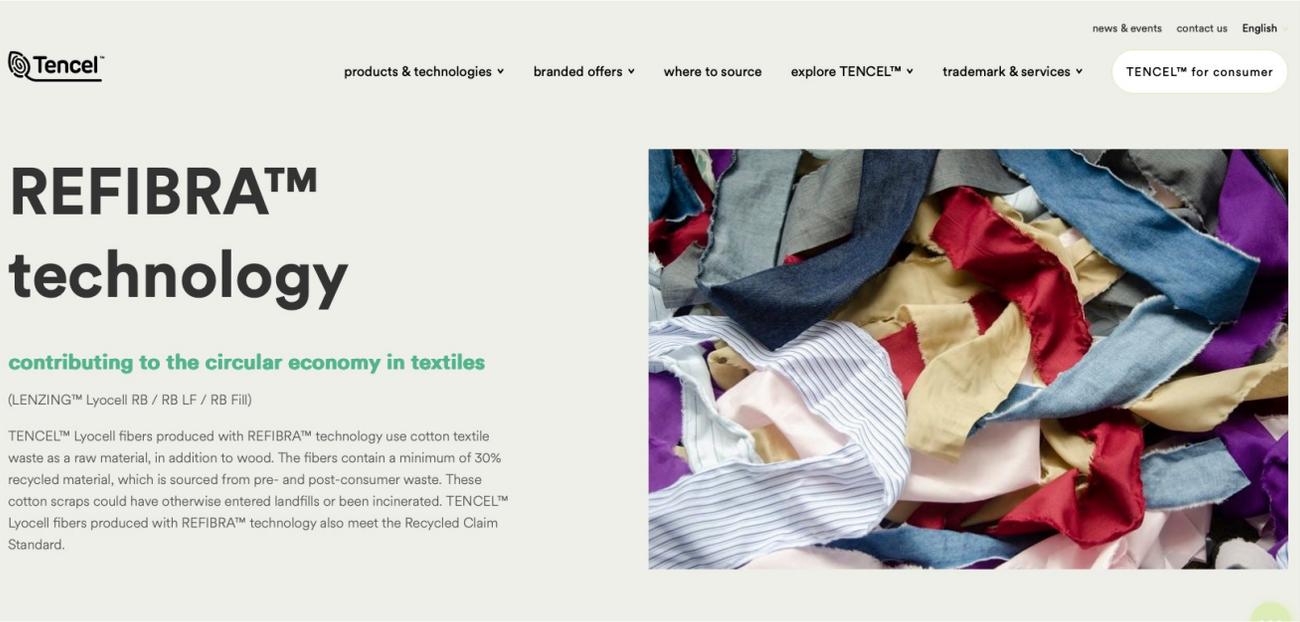
*The Gift Suite*

[SHOP NOW](#)

Make this holiday season unforgettable  
with gifts that stand apart.



# Refibra Cotton recycling



The screenshot shows the TENCEL website's navigation bar with the logo on the left and links for 'products & technologies', 'branded offers', 'where to source', 'explore TENCEL™', 'trademark & services', and 'TENCEL™ for consumer'. On the right, there are links for 'news & events', 'contact us', and 'English'. The main content area features the heading 'REFIBRA™ technology' and a sub-heading 'contributing to the circular economy in textiles'. Below this, a paragraph explains that TENCEL™ Lyocell fibers produced with REFIBRA™ technology use cotton textile waste as a raw material, containing a minimum of 30% recycled material. A photograph of various colored fabric scraps is positioned to the right of the text.

**TENCEL™**

products & technologies ▾ | branded offers ▾ | where to source | explore TENCEL™ ▾ | trademark & services ▾ | TENCEL™ for consumer

news & events | contact us | English

## REFIBRA™ technology

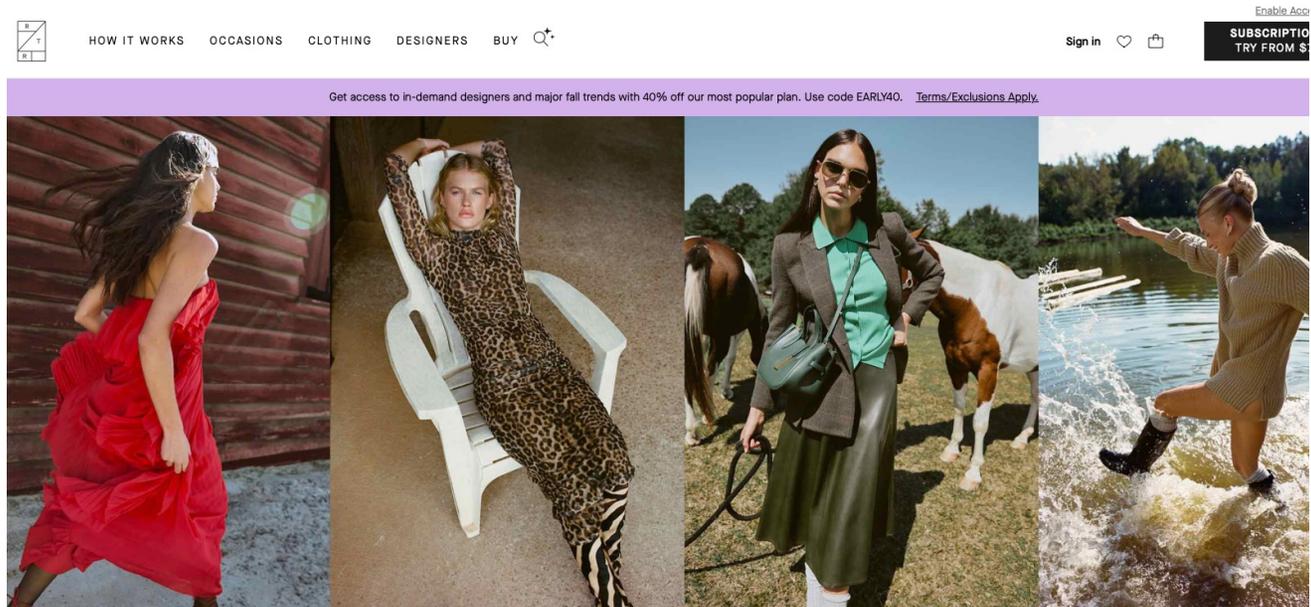
**contributing to the circular economy in textiles**

(LENZING™ Lyocell RB / RB LF / RB Fill)

TENCEL™ Lyocell fibers produced with REFIBRA™ technology use cotton textile waste as a raw material, in addition to wood. The fibers contain a minimum of 30% recycled material, which is sourced from pre- and post-consumer waste. These cotton scraps could have otherwise entered landfills or been incinerated. TENCEL™ Lyocell fibers produced with REFIBRA™ technology also meet the Recycled Claim Standard.



# Rent the Runway (rent clothes)



**Bored by your closet? You can have ours.**

Rent the Runway is the premier destination for renting designer fashion.

# Textiles

# Textiles