

# SYFA Annual Meeting

## Textile Recycling Panel

October 27, 2023

PRESENTED by SARAH COULTER

Director of Operations and Special Projects

[sarah@acceleratingcircularity.org](mailto:sarah@acceleratingcircularity.org)



### WE ARE

an action-oriented nonprofit focused on textile-to-textile recycling at commercial scale through a collaborative, stakeholder-led approach.

### WITH A MISSION

to catalyze new circular supply chains and business models to turn spent textiles into mainstream raw materials.

### AND A VISION

of a world in which textiles are no longer wasted and millions of tons of waste are diverted from landfills

### MEMBERS OF OUR U.S. AND EUROPEAN STEERING COMMITTEES





## THE GLOBAL PROBLEM

- Post-consumer spent textiles - 110 million tons generated annually.
- Unsold goods - 30% of garment production is never sold at retail.
- Post-industrial textile waste >15% of all materials are left on the cutting room floor.

## OUR TARGETS

- 40% overall recycled contents.
- 20% minimum post-consumer textile.
- 50 Tons post-consumer cotton.
- 50 Tons post-consumer polyester.
- Traceability from textile collection through finished product.

Education Visit, October 2022





## U.S. TRIALS

We are running trials to create a path to establish circular systems. By pressure testing the capabilities of stakeholders across the textile to textile value chain, we seek to understand the requirements of collectors, sorters, and recyclers, as we link them together with the existing textile production infrastructure to create quality material flows at commercial scale.



### PRODUCTS

- JEANS
- T-SHIRTS
- SWEATSHIRTS
- WORKWEAR
- FLEECE OUTERWEAR
- TOWELS

## CAPABILITIES

### FEEDSTOCKS/FIBERS

- Cotton: Post-consumer, Post-industrial, and Virgin
- Polyester: Recycled Textiles, Recycled Bottles
- MVI: Refibra™, Naia™

### RECYCLING TECHNOLOGIES

- Mechanical Cotton
- Thermo-mechanical Polyester
- Chemical Cellulosic
- Chemical Polyester

## TRIAL PARTNERS AND SUPPORTERS



FUNDED BY THE WALMART FOUNDATION

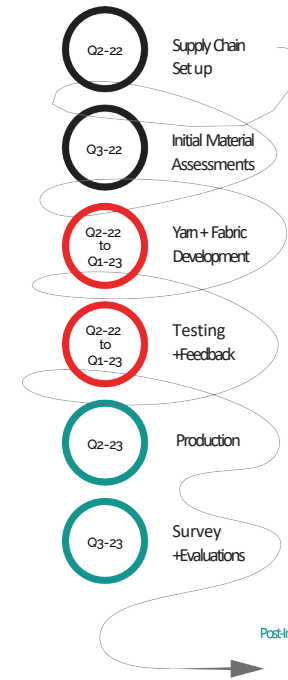
### YARNS

- Knitting: 26/1, 20/1, 16/1
- Wap+Fill: 85/1 - 14/1
- Filament: 70/34, 150/68

### FABRICS

- 140-200 gsm Single Jerseys
- 265 gsm Sweatshirt Fleece
- 240 gsm Polar Fleece
- 9 oz. - 13 oz. Denims
- 13.5 oz. Twill
- 11.5 oz. Canvas
- 100% Cotton Toweling

## TIMELINE



Q2-22 to Q1-23:  
Trials are at varying stages of development, based on individual process requirements, supply chain capabilities, and plant capacities.

## PROJECTED VOLUMES

- Post-Consumer Cotton = **30 tons**
- Post-Industrial Cotton Cutting Scrap = **30 tons**
- Post-Consumer Polyester = **10 tons**
- Refibra™ = **10 tons**
- Total Yarn Volume = **150,000 lbs.**



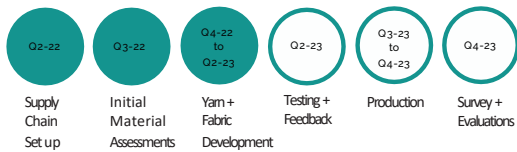
## EUROPEAN TRIALS

### PRODUCTS



- JERSEYS
- SHIRTS
- SWEATSHIRTS
- TOWELS
- TWILLS

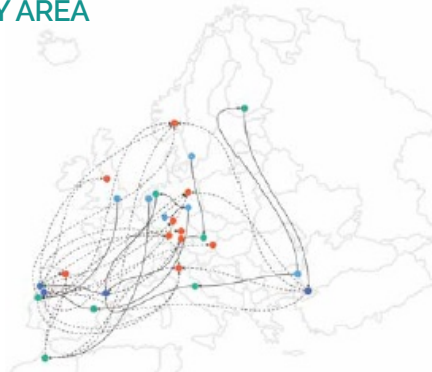
### TIMELINE



### CAPABILITIES

|                           |   |
|---------------------------|---|
| FEEDSTOCKS/<br>FIBERS     | <ul style="list-style-type: none"> <li>• Cotton: Post-consumer</li> <li>• Post-industrial and Virgin</li> <li>• Polyester: Textiles</li> <li>• MVI: Refibra™</li> </ul> |
| FABRICS                   | <ul style="list-style-type: none"> <li>• Sweatshirt Fleece</li> <li>• Yarn Dyed Light Wovens</li> <li>• Single Jerseys</li> <li>• Twills</li> </ul>                     |
| RECYCLING<br>TECHNOLOGIES | <ul style="list-style-type: none"> <li>• Chemical Polyester</li> <li>• Mechanical Cotton</li> <li>• Thermomechanical Polyester</li> </ul>                               |

### STUDY AREA

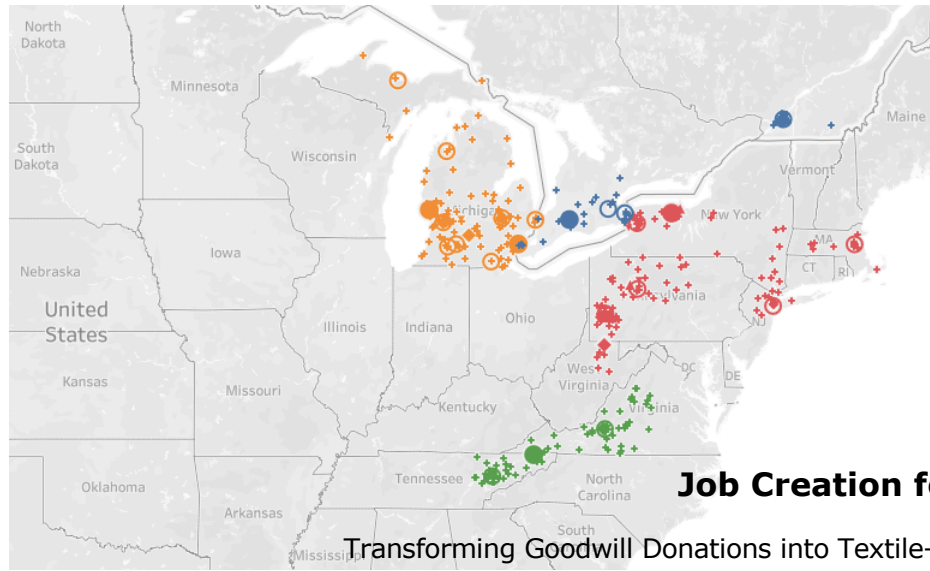


### PARTNERS





**ACCELERATING  
CIRCULARITY**



## **Job Creation for A Circular Economy**

Transforming Goodwill Donations into Textile-to-Textile Recycling Feedstock







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**CIRCULARITY**



Planning & Set Up



Implementation



Conducting the Trial



Measuring Success



Take me to [the Playbook](#)

# The Alliance of Chemical Textile Recyclers (ACTR)

Working together to provide accurate information on the chemical recycling of textiles.



**EASTMAN**

Claudia de Witte,  
Harald Notz-Lajtkep

The **LYCRA** Company

Jean Hegedus  
Francis Mason

**Lenzing**

Innovative by nature

Dorner Andreas  
Michael Kininmonth

**worn again**  
technologies

Cyndi Rhoades  
Toby Moss

**sappi**

Krelyne Andrew  
Bernhard Erich Riegler

**irc**

Luke Henning  
Shannon Parker

**SÖDRA**

Angeline Elfstrom

**INTEGRATED FIBER**

Kirsi Roine  
Sini Ilmonen  
Markus Nuopponen

**RENEWCELL**

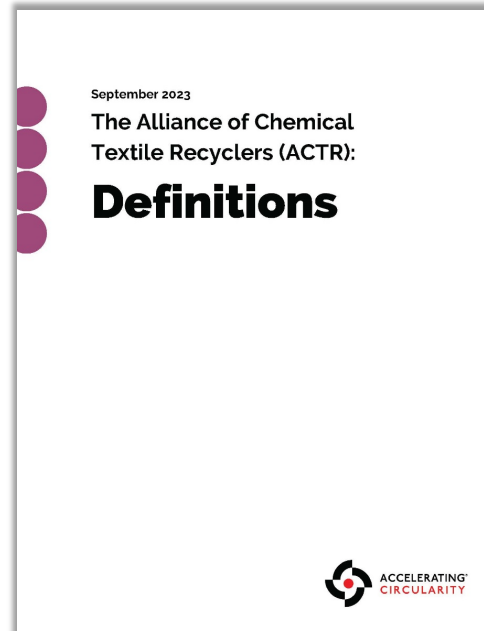
Tricia Carey

**CURE**  
Polyester  
Rejuvenation

Josse Kunst

**grēn**  
POLYESTER RECYCLING

Fabio Silvestri



Take me to [ACTR Definitions](#)



## The Reality Zone

### Mechanically Recycled Cotton – Launched Today at TE!

Database to showcase what is currently feasible in textile-to-textile mechanical cotton recycling. Includes: commercial fiber blends, yarn counts, and fabric constructions.

#### Forthcoming:

- RZ for rPolyester
- RZ for rMMFC

| Product Category | Feedstock Type   | Total Recycled Cotton | % Post-Industrial C... | % Post-Consumer Cot... |
|------------------|--|-----------------------|------------------------|------------------------|
| Yarn             | Post-Consumer Cotton Textiles  | 100%                  | 0%                     | 100%                   |
| Fabric           | Post-Industrial Cotton Textiles  | 70%                   | 70%                    | 0%                     |
| Yarn             | Post-Industrial Cotton Textiles  | 70%                   | 70%                    | 0%                     |
| Fabric           | Post-Industrial Cotton Textiles PET Bottles                                    | 50%                   | 50%                    | 0%                     |
| Yarn             | Post-Industrial Cotton Textiles PET Bottles                                    | 50%                   | 50%                    | 0%                     |
| Fabric           | Virgin Cotton Post-Consumer Cotton Textiles<br>Post-Industrial Cotton Textiles | 40%                   | 20%                    | 20%                    |
| Yarn             | Virgin Cotton Post-Consumer Cotton Textiles<br>Post-Industrial Cotton Textiles | 40%                   | 20%                    | 20%                    |



[Access Reality Zone – Mechanically Recycled Cotton](#)





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**CIRCULARITY**

## Building Circular Systems

Overcoming barriers to scale textile-to-textile recycling systems

### Textile Use Hierarchy

tool to guide the flow of textiles through the channels that have the highest circular potential.

### Education

develop resources that speak to and educate brands and institutions on responsible disposal pathways for used textiles

### Building Markets

demonstrate that textile-to-textile recycled fibers and fabrics can be manufactured at scaled production

