



The Journey to Textile Recycling

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THE JOURNEY TO TEXTILE RECYCLING

Panelists

Raymond Randall, Senior Manager, Textiles - WM

Megan Helton, Market Development Manager - Eastman

Chad Bolick, Vice President Brand Sales - Unifi

Sarah Coulter, Director Special Projects – Advanced Circularity

Moderator

Alasdair Carmichael, Program Director - NAPCOR

TEXTILE EXCHANGE RPET CHALLENGE

“We are challenging the apparel industry to commit to bringing the percentage of rPET from **14% to 45%** at **17.1Mt** (million metric tons) **by 2025.**”

Great idea, but:

There will not be enough RPET from bottles to meet target

The only way to achieve 17.1 Mt of RPET for fibers is to develop a much more effective textile recycling process and this has to start with collection and separation – and then the development of either mechanical or chemical recycling processes.

RECYCLING OF PET 2021

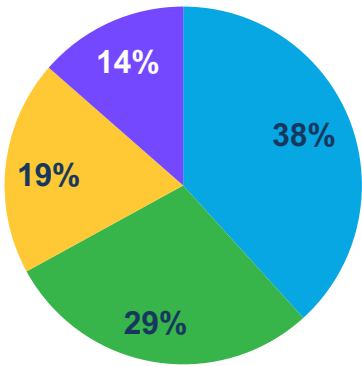
Global estimate that the PET recycling rate was 53% in 2021 which is approx 12.5 million tons of PET collected.

Typically there is a Process Loss of 25% resulting in 9.4 million tons of rPET flake.

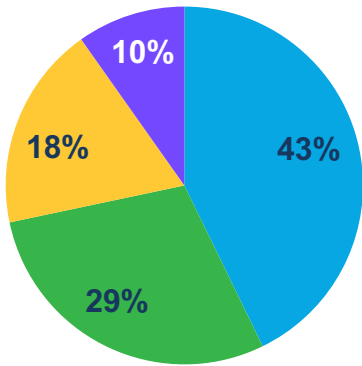
Of this 9.4 million tons estimated that 3.2 million tons of rPET is consumed into containers in 2021 and 5.6 to fibers.

Beverage companies targeting 25% rPET content by 2025 (legislated & voluntary). rPET required by 2025 = 5.9 million tons.

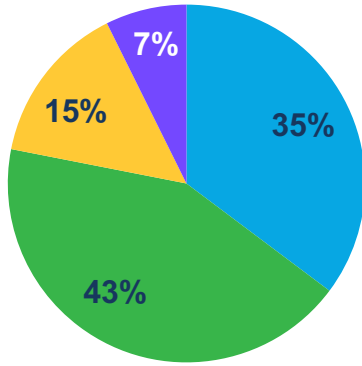
USA & CANADA RPET END USE SHARES



2011 1.04 bn lbs



2016 1.5 bn lbs



2021 1.83 bn lbs

■ Fiber
 ■ Bottles
 ■ Sheet & Film
 ■ Others

Total RPET production increased 75% from 2011 to 2021.
 Volume of RPET to Bottles: 2011 = 299mm lbs, 2021 = 782mm lbs (+161%)

To achieve a 25% national recycled content rate in 2025 would need 3bn lbs of RPET

LEGISLATION

- Most activity is currently focused on Extended Producer Responsibility (EPR).
- EPR shifts the responsibility for recycling of commodity products from taxpayers to producers. Politicians love it!
- The industry needs to be ready for it!



Source: Plastics News

ANAPCOR

EXTENDED PRODUCER RESPONSIBILITY

- Many different types of EPR, and with individual States working on legislation it could be very challenging for the industry to have many different rules.
- CA, CO, ME & OR passed EPR for packaging in 2022 and MD in 2023. Details being worked out. CA bill has charge of \$500m for legacy plastics clean up. \$150m on resin producers and \$350m on companies using plastic packaging
- Producers additionally involved in cost of PRO operation.
- **Concern is that EPR is a producer discipline, not a consumer discipline, so will it improve recycling rates?**

TEXTILES BEWARE!

- Textiles are on the agenda for Extended Producer Responsibility (EPR).
- The amount of textiles going into the landfill is getting attention – Carpet already has major problems. The apparel industry estimated to produce over 92 million tons of textile waste per year
- Producer companies (Brands) need to get involved in discussions, otherwise NGOs will set the rules.
- Chemical Recycling is an opportunity.
- Design for recycle will be a necessity.

EPR FOR APPAREL - LOGISTICS

- Most apparel is sold in affluent Western economies
- After-Life sortation is labor intensive – fiber type, zips, buttons etc,
- Manufacture of apparel is mainly in low cost areas (Asia).
- Expensive to ship used apparel back to Asia – Legislation issues
- Does EPR legislation lead to near shoring becoming a necessity?
- Near shoring brings in a human cost in Asia?

WHAT TO DO WITH THE WASTE?

- Collection, Sortation, Transportation – All problems
- Chemical Recycling, Advanced Recycling, Molecular Recycling, Enhanced Recycling offers opportunities.
- Eastman plants in US and France – need raw materials.
- Loop Ind of Canada building PET recycling plant in Korea with SK Chemical – to be fed partly by textiles – 70k tons cap.
- Carbios – Enzymatic recycling, enzymes can recover the polyester from a blended fabric. NC State doing research.
- CIRC – Hydrothermal Processing and Recycling

CONCLUSION

The bottom line is none of this is going to be easy, but if the Apparel and Textile industry does not get involved then the rules will be written by bureaucrats and NGOs and the options will not be good.

It is better to be sitting at the table than to be on the Menu!