



# Advanced mechanical recycling

Enabling true circularity for plastics, now



Advanced mechanical recycling has the potential to close the gap between the amount of valuable plastic waste that is lost and the ever-growing demand for high-quality recycled content to meet mandatory recycling and recycled content targets.

# Case study: recycled polystyrene yogurt cups

AMR helped create the world's first closed-loop system for post-consumer polystyrene (HIPS) by identifying, sorting, and removing impurities from HIPS found in mixed plastic waste



# Gaps in the plastics value chain



# TOMRA technology enables closing the quality and quantity gaps

## **1. Closing the quality gap.**

With the latest technology, and the addition of new and enhanced steps to the traditional mechanical recycling process, AMR can not only produce high-quality recyclates from source separated waste, but from mixed waste streams as well.

## **2. Closing the quantity gap.**

Rescuing a large amount of waste that would otherwise end up in landfills or incinerators and processing it into virgin-like recyclates is imperative to producing sufficient amounts of recycled material. Mixed waste sorting (MWS) can achieve this, while saving a high amount of CO<sub>2</sub> at the same time.

# Producing virgin-like recyclates from post-consumer plastic waste

Advanced mechanical recycling can help achieve circularity for polymers beyond PET beverage containers, including:

PE

PP

PS

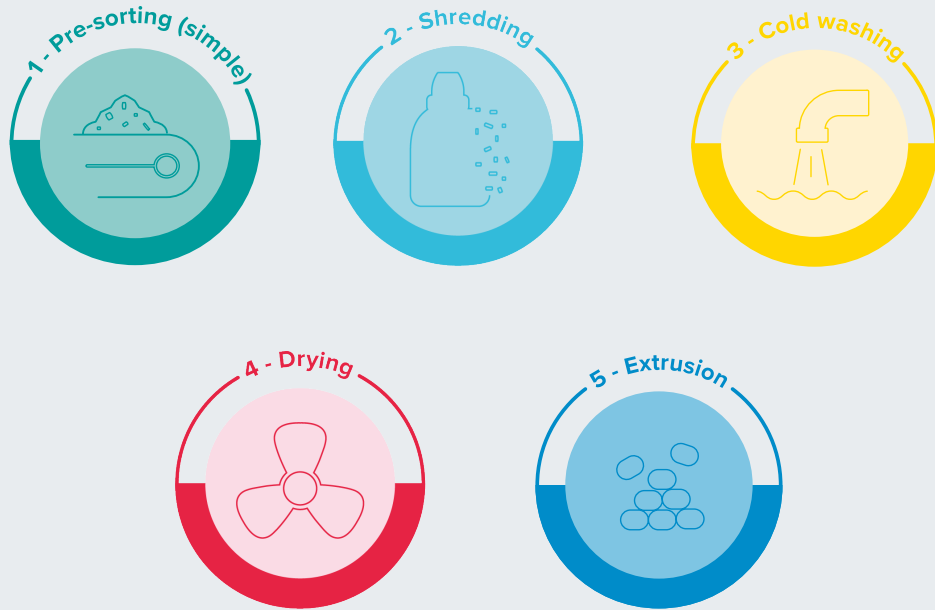
PET

Other polymers

Both rigid & flexibles

# How advanced mechanical recycling and mechanical recycling differ

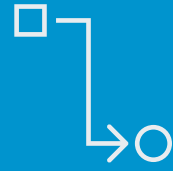
Standard mechanical recycling process



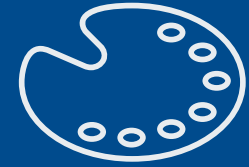
Advanced mechanical recycling process



How quality is achieved with advanced mechanical recycling



**Pure polymer types**



**Color separation**



**Odorless recyclates**



**Processability**



**Quality grades**



# The complementary roles of mechanical and chemical recycling





“The share of plastics that are economically recyclable mechanically could grow from 21% in 2016 to 54% in 2040.”

Breaking the Plastics Wave  
The Pew Charitable Trusts and  
Systemiq

# The hidden value in mixed waste





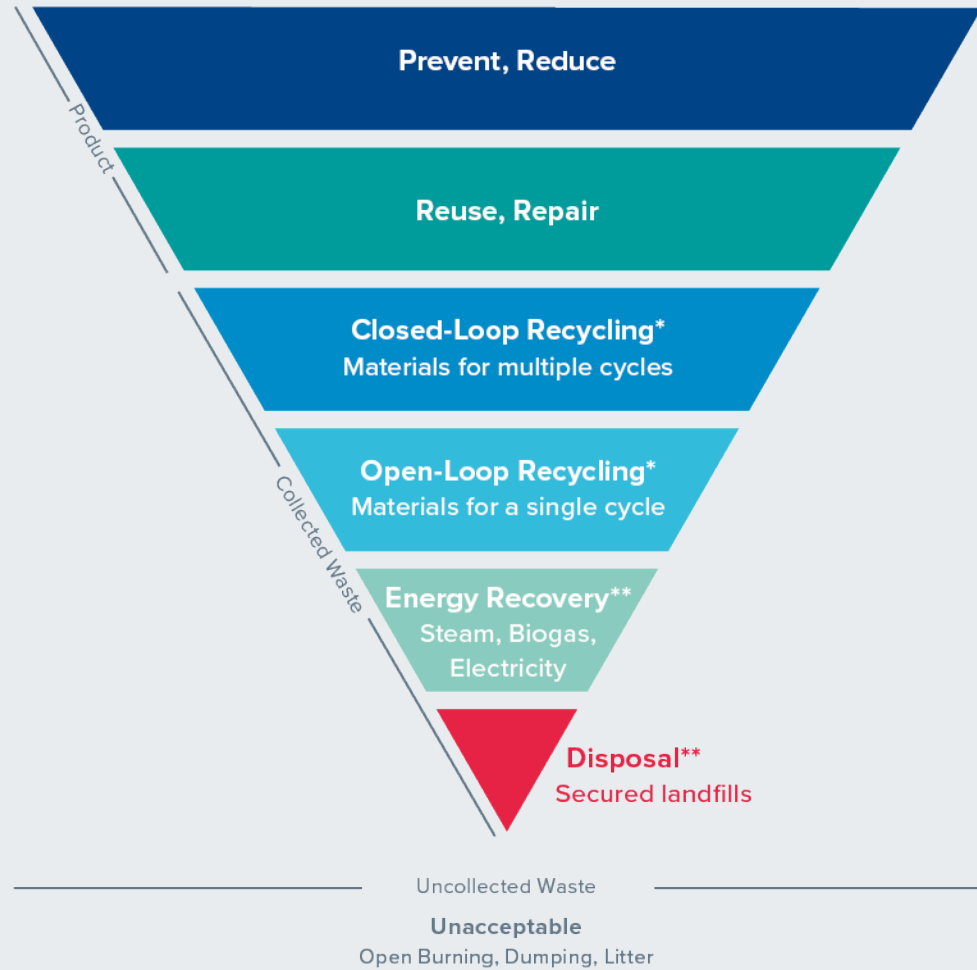
The recovery of plastics with mixed waste sorting  
can save 0.73 billion tonnes CO<sub>2</sub>e

*The Ultimate Guide to Mixed Waste Sorting*



In combination, mixed waste sorting (MWS) and AMR have the potential to eliminate the quality and quantity gaps that exist along the value chain

# TOMRA's resource hierarchy



\* Mechanical recycling preferred  
\*\* Additional sorting recommended

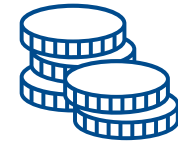
# Legislative tools to advance circularity



Effective extended producer responsibility (EPR) schemes to support plastics circularity



Well-legislated post-consumer recycled (PCR) content targets to reduce dependency on virgin resources and address challenges to create market certainty and trigger investment in infrastructure.




Financial instruments such as a plastic tax, CO2 trading fees, and eco-modulation of fees to help to decouple prices of recycled and virgin plastics.

# All stakeholders can do their part in closing the loop on plastics





The background consists of numerous small, irregular pieces of clear, crushed plastic scattered across a light-colored surface. Overlaid on this is a circular graphic composed of several concentric lines. The outermost line is a solid dark blue. The next line inward is a lighter blue, and the innermost line is a thin black line. There are several gaps in these lines, creating a fragmented or 'broken' circular effect.

More questions?  
Visit us at the K, 2022.

Hall 9, stand D47