

MECHANICALLY RECYCLED TRUCIRCLE™ SOLUTIONS

Driving a circular economy for plastics
Electrical and Electronics segment



INCREASING DEMAND FOR RECYCLED PLASTICS

The global market for recycled plastic is anticipated to increase by 56% over the next five years*



56%
Increase in demand

COMMITTING TO CIRCULAR PLASTICS

To meet these growing demands, we have committed to process one million metric tons of TRUCIRCLE™ products annually by the year 2030



1 million
Annual volume



COMMITTS TO
ACCELERATING A
CIRCULAR ECONOMY

SABIC CEO

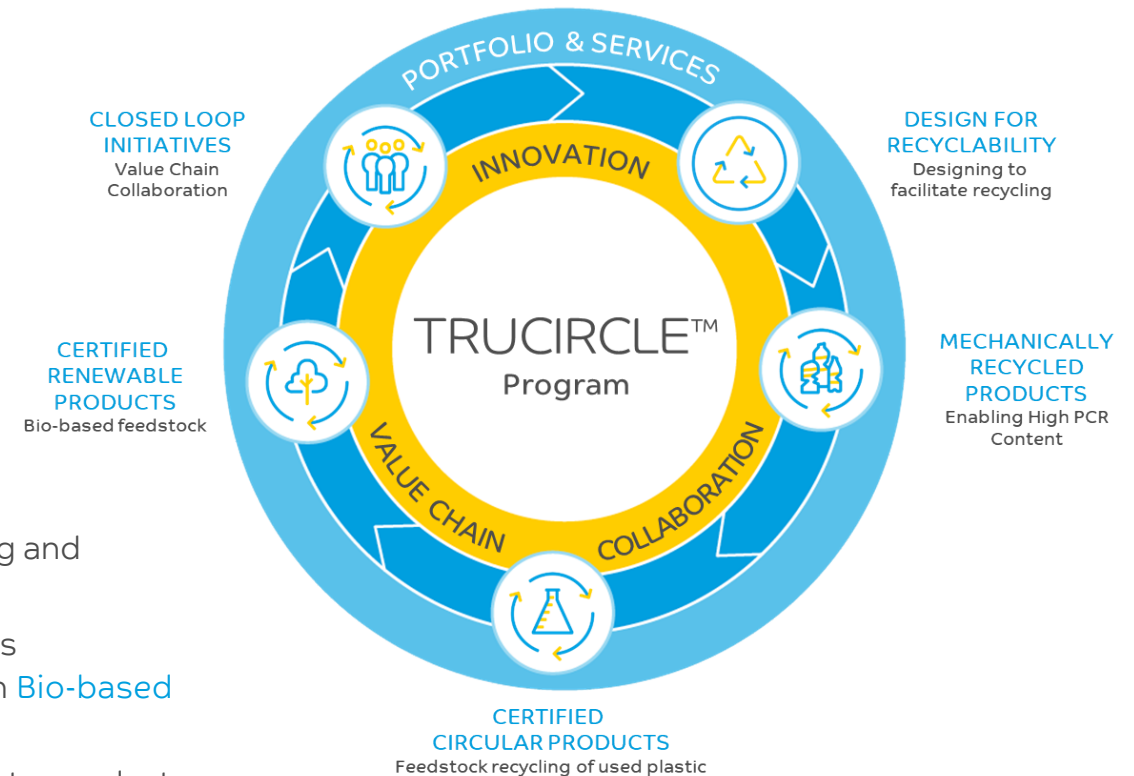
Abdulrahman Al-Fageeh

Our aim to achieve a circular economy is inspiring us to adapt our processes to the use of renewable and recycled feedstock, to create durable, recycled product solutions for our customers.

To achieve this vision and advance circularity, we have pioneered industry-leading product solutions through our TRUCIRCLE™ portfolio, which collectively showcase our circular innovations and help manufacturers produce more sustainable products.

Our vision is that plastic should never end up in the environment, landfill or in our oceans but instead be reused and remade into new products.

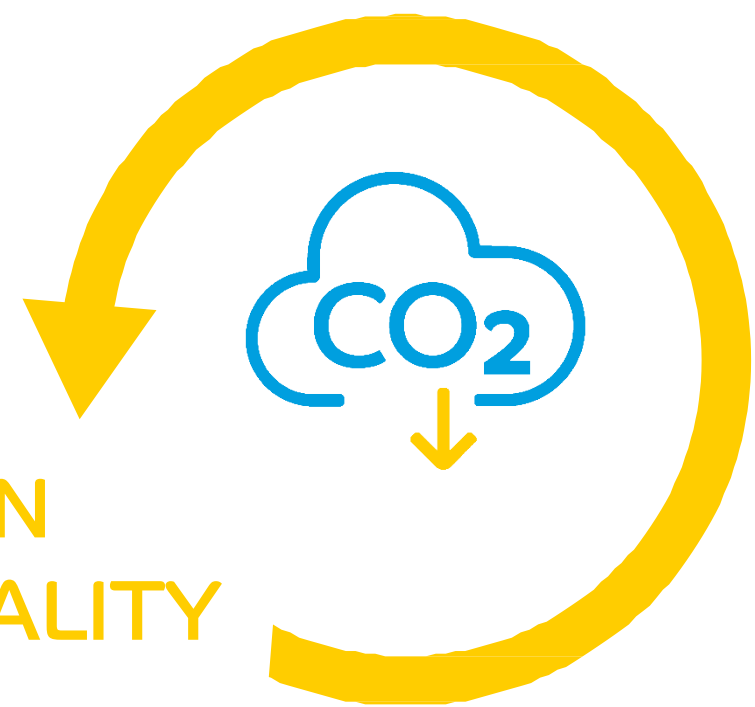
- [Redesign](#) applications for easier recycling
- Securing global leadership in [Advanced Recycling](#) to deliver on food-packaging and healthcare demand
- Targeting [Mechanical Recycling](#) solutions in medium and high-end applications
- Decarbonization targets driving introduction of alternative, second generation [Bio-based feedstock](#)
- Orchestrate collaboration in the value chain to [close the loop](#) from waste back to products



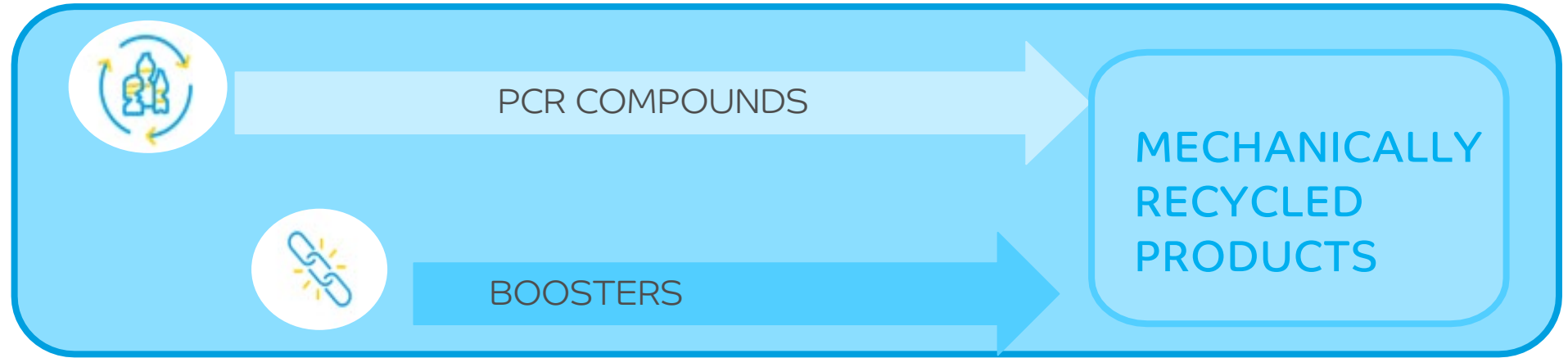
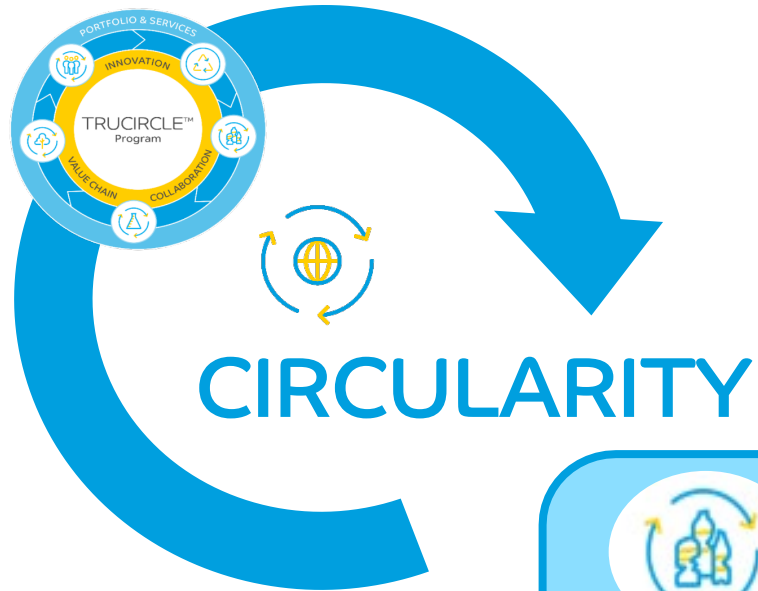
TRUCIRCLE™ SOLUTIONS RESPOND TO TWO MEGA DRIVERS



KEEPING THE CARBON IN THE LOOP



TRANSITION TO A CIRCULAR CARBON ECONOMY



INDUSTRY CHALLENGE

Recycling post consumer regrind back to packaging should help preserving resources and lowering the need to use polymers made from fossil feedstock. However, mechanical properties, processability and performance of the end product should be comparable. Customers are looking for consistent batch-to-batch quality with limited color deviations.

SOLUTION

SABIC is fully supporting closing the material loop with recycling of used plastics. We focus on commercialising compounds with high recycled content and booster resins for recycle containing compounds that can improve processability and end-use properties. SABIC works along the entire value chain to develop these solutions and improve overall recyclability.

MAIN CHALLENGES IN THE VALUE CHAIN

KEY CHALLENGES FOR PCR* COMPOUNDS

- Feedstock availability
- Consistent raw material quality
- Odor & color consistency
- Process-ability
- Mechanical properties & performance of end product
- Product safety



COLLECTION

SORTING

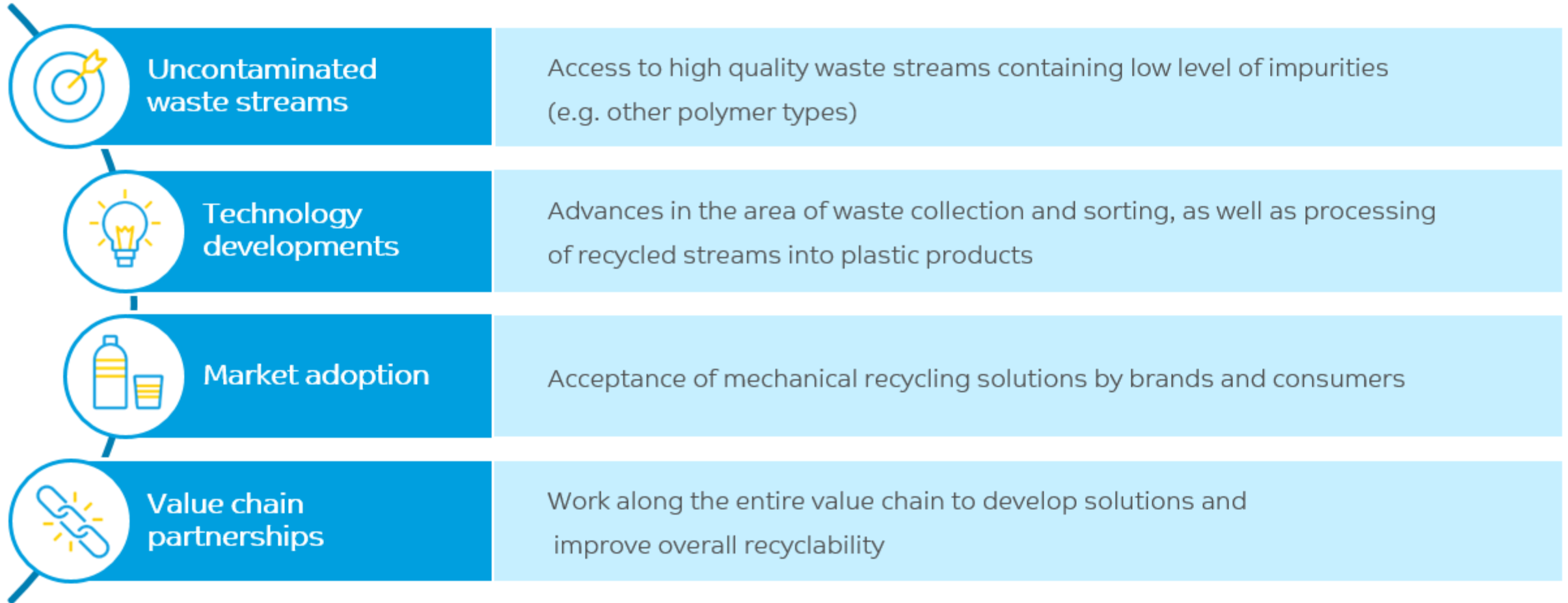
RECYCLING



Need for innovative technologies to develop sustainability solutions

* PCR = Post Consumer Re grind

KEY ENABLERS DRIVING PLASTIC MECHANICAL RECYCLING IMPLEMENTATION



PCR COMPOUNDS v BOOSTER RESINS



PCR COMPOUNDS

Recycled content up to 70% PCR

Consistent quality: homogenous compound (PCR + virgin)

Ready to use: elimination of compounding step at customer

Compounded by SABIC or by SABIC's PCR supplier partner

BOOSTER RESINS

Virgin resins designed to enable PCR addition without compromising on processing and material quality

Improve process-ability and end-use properties with maximum amount of PCR

Designed based on application requirements

PCR to be sourced and blended by convertor

WIDE RANGE OF PCR COMPOUNDS DEVELOPED FOR E&E

**ENGINEERING THERMOPLASTIC (ETP)
COMPOUNDS**

- LEXAN™, XENOY™ and CYCOLOY™ resins
- Feedstock availability
- Consistent raw material quality
- Odor & color consistency

Containing up to 30% PCR content UL certified

APAC region:

LEXAN™ T5R141RC resin (transparent) contains up to 50% PCR

LEXAN™ T9R945M and T9R141R resins contain up to 90% PCR

Typically used in end applications such as:

- Printers
- Laptops
- Audio appliances
- Smartphones
- Wallplates
- Electrical housing



VALUE DRIVERS OF PCR COMPOUNDS AND BOOSTERS

PCR COMPOUNDS

- Batch-to-batch consistency
- Less complexity
- Elimination of compounding step

BOOSTERS

- Flexibility in PCR selection
- Works with broad quality range of PCRs
- Enables maximizing PCR content

POSITIVE BRAND EXPERIENCE

- Brand attractiveness and loyalty
- Create positive social impact
- Attracting new or regain customers

REDUCED CARBON FOOTPRINT

- Enabling CO₂ emission reductions

MEETING SUSTAINABILITY TARGETS

- Supporting customers in addressing corporate sustainability goals

INCLUDES MIN 30% PCR

- Avoiding or reducing future plastic taxes
- Limiting risk of EPR penalty*


Cost reduction


Risk reduction


Value increase


Societal impact

**MECHANICAL
RECYCLING**


Individualization

TAILOR MADE SOLUTIONS

- To maximize PCR content

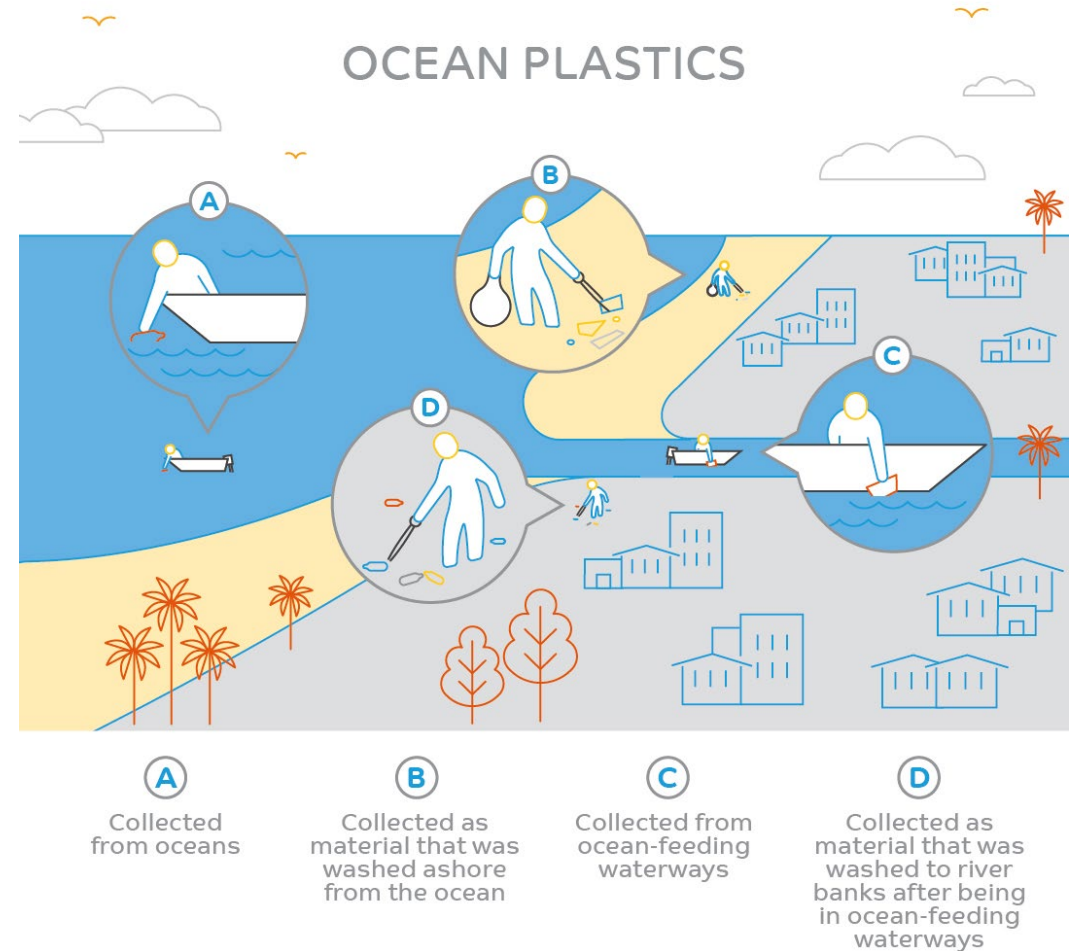
Complementary TRUCIRCLE™ solution

RECYCLED OCEAN PLASTIC

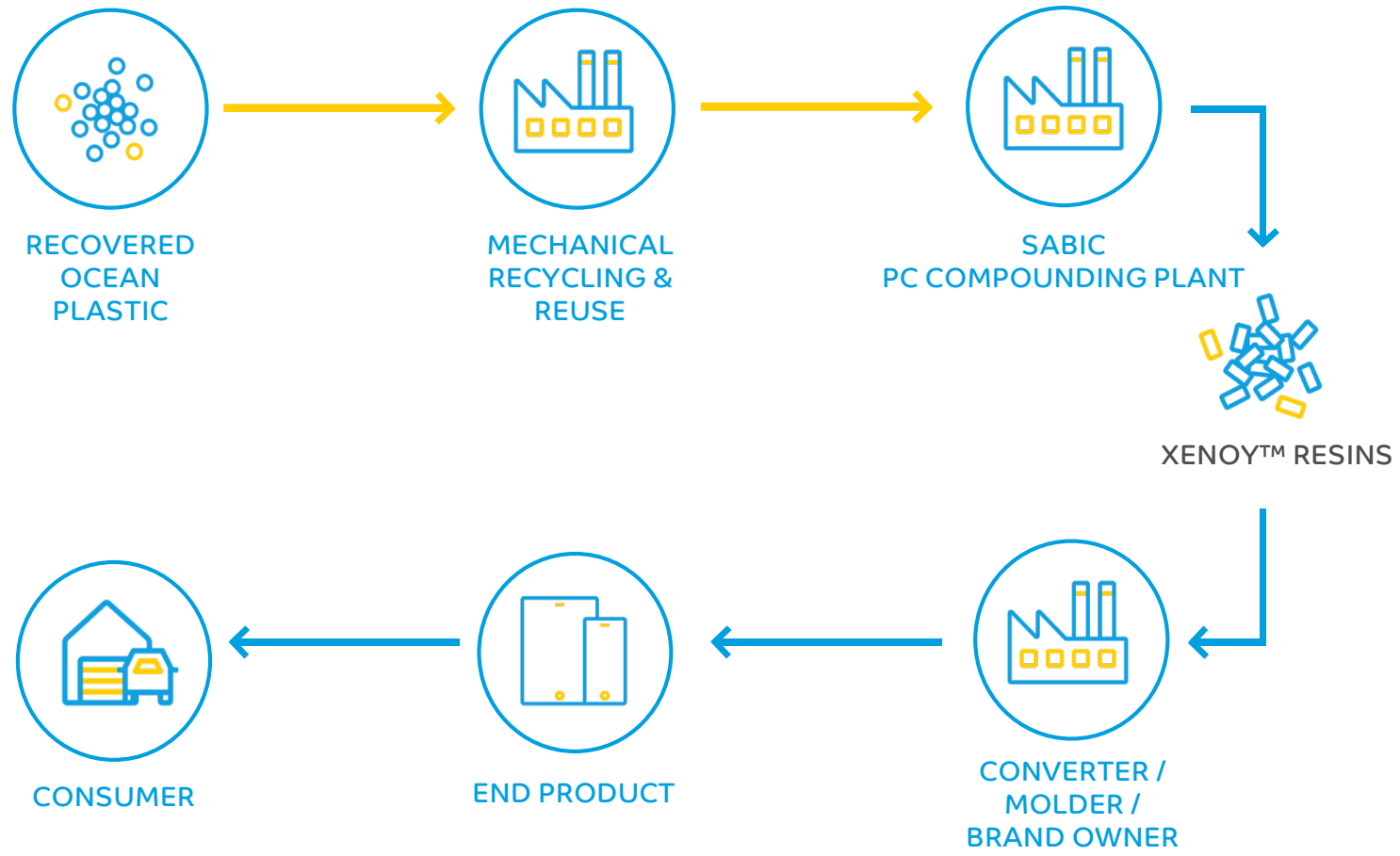
DEFINITION

Plastic that has been certified by a 3rd party as recovered in one or more of the following ways:

- Recovered from any ocean
- Recovered from ocean-feeding waterways
- Recovered where it has washed ashore from these locations



OCEAN PLASTIC RECYCLING VALUE CHAIN BASED ON POST CONSUMER REGRIND



SABIC AND MICROSOFT COLLABORATION – MICROSOFT OCEAN PLASTIC MOUSE

As part of a new collaboration to advance the use of recycled ocean plastic, SABIC and Microsoft Corporation have partnered to create Microsoft’s first consumer electronic product – The Microsoft Ocean Plastic Mouse – with an [exterior shell containing 20% recycled ocean plastic](#).

The new XENOY™ resin with recycled ocean plastic can help reduce plastic waste in the ocean.



MATERIAL PROPERTIES



ENHANCED AESTHETICS



DIVERTS USED PLASTIC FROM ENTERING OCEAN



CONSUMER ACCEPTANCE



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