

CHEMISTRY THAT MATTERS™



CREATING VALUE IN PACKAGING THROUGH COLLABORATION

SABIC WEBINAR – DECEMBER 9, 2020

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GLOBAL MARKETING MANAGER – THIN WALL PACKAGING



AGENDA



- SABIC'S SOLUTION BASED INNOVATIONS FOR THE THIN WALL PACKAGING
 - LIGHT WEIGHTING
 - CONVERSION EFFICIENCY
 - PS REPLACEMENT
 - HIGH PERFORMANCE FOR FROZEN FOOD
- CIRCULAR ECONOMY AND REDUCING PLASTIC WASTE
 - SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES
 - CERTIFIED CIRCULAR POLYMERS
 - CERTIFIED RENEWABLE POLYMERS
- CONCLUSIONS

SOLUTION BASED INNOVATION

POLL QUESTION 1

WHERE DO YOU SEARCH THE RIGHT MATERIAL WHEN DEVELOPING A NEW PACKAGING PRODUCT?

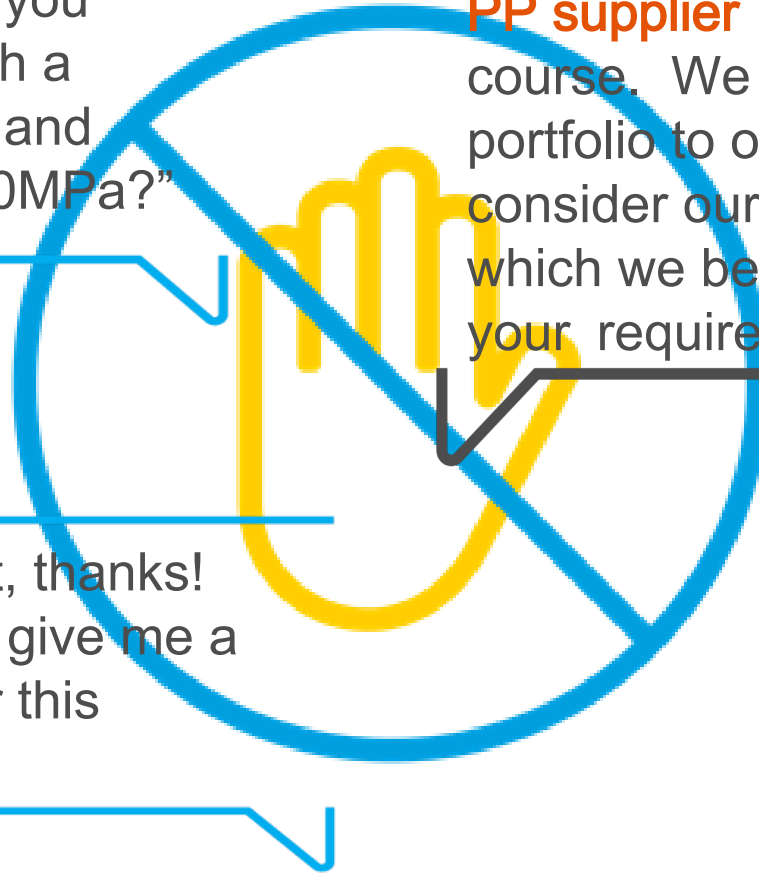
- a) Material supplier website
- b) Material search platforms
- c) Direct contact current supplier
- d) Ask mold maker/machine manufacturer for recommendation

TRADITIONAL APPROACH

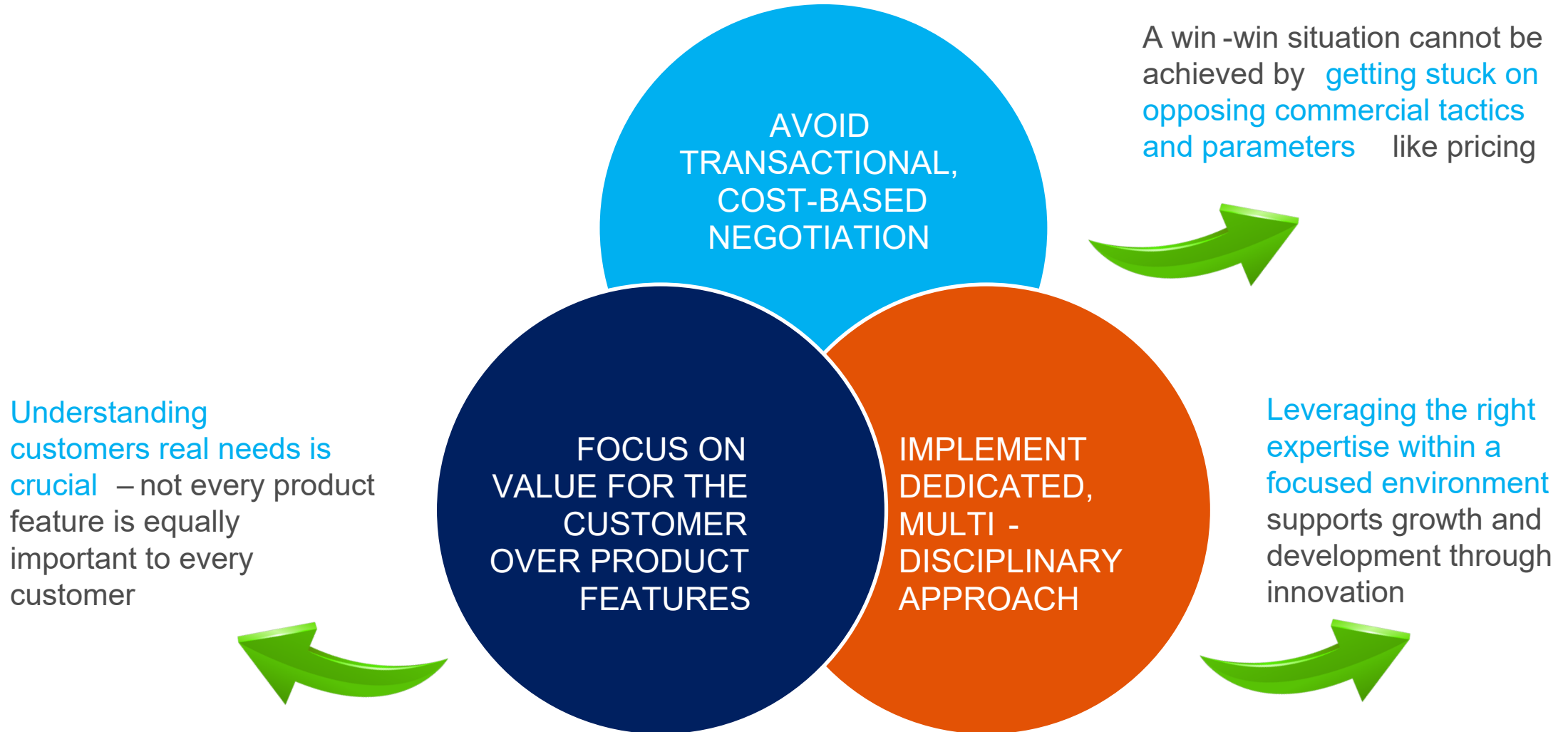
Customer : “Hello, do you have a PP material with a high flow, good impact and stiffness around 1.500MPa?”

PP supplier : “Hi! Yes, of course. We have a broad portfolio to offer. You could consider our PP grade XXX, which we believe will fulfill your requirements.”

Customer “Great, thanks! Could you please give me a price indication for this product?”



REPLACING THE TRADITIONAL APPROACH BY SOLUTION BASED INNOVATION FOCUSED ON CUSTOMER VALUE



POLL QUESTION 2

WHAT IS YOUR PRIMARY CHALLENGE IN YOUR PACKAGING PRODUCTION TODAY?

- a) Finding the right material
- b) Sustainability
- c) Improving the conversion/operation efficiency and cost

SABIC - THIN WALL PACKAGING

SOLUTION FOR LIGHT-WEIGHTING

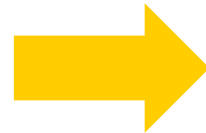
LIGHT WEIGHT OPPORTUNITY – DESIGN FOR RECYCLABILITY



STANDARD PP MATERIAL

E-mod: 1.500MPa

Wall thickness = 0,4mm



SABIC'S NEW PP SOLUTION

SABIC® PP FLOWPACT

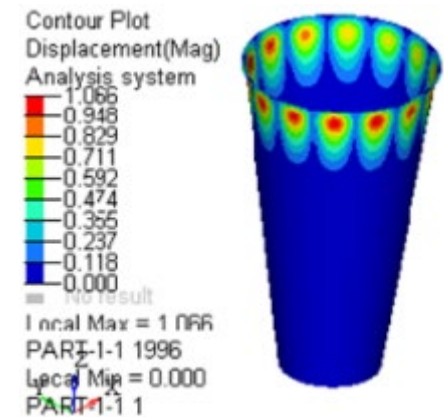
E-Mod : 1.700MPa

+product design optimization

= wall thickness 0,36mm

MARKET NEEDS/CHALLENGES

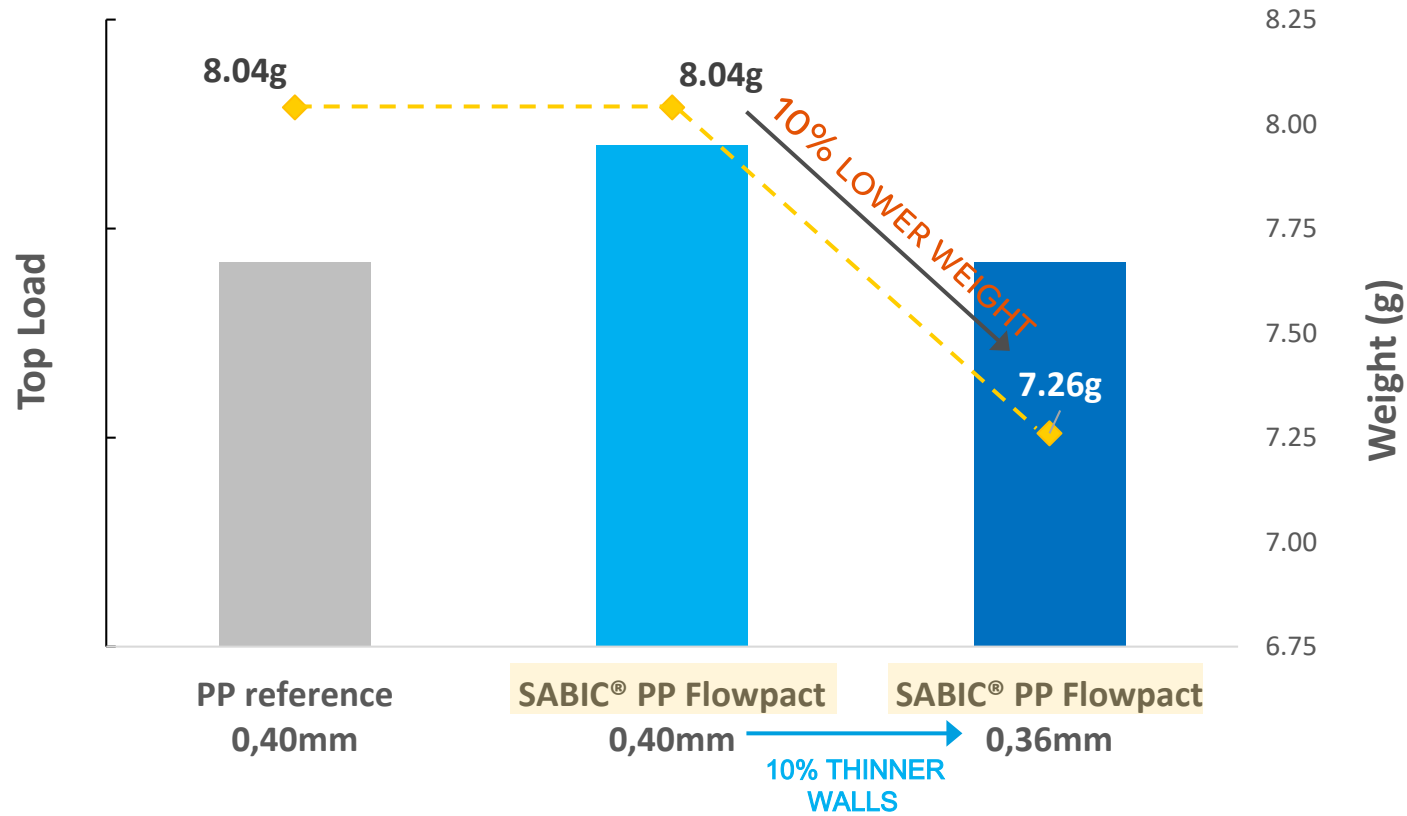
- Improved material properties balance
- Down gauging and/or higher stackability
- Lower energy intensity conversion
- Solution for hot fill applications
- Design for recycling (less material usage)



LIGHT WEIGHT OPPORTUNITY – DESIGN FOR RECYCLABILITY



LIGHT WEIGHT OPPORTUNITY – DESIGN FOR RECYCLABILITY



➤ **SABIC® PP FLOWPACT → 10 % POTENTIAL LOWER WEIGHT @ SAME TOP LOAD**

LIGHT WEIGHT OPPORTUNITY – DESIGN FOR RECYCLABILITY

CONSIDERATIONS:

Six cavity mold / 4s cycle time / 8 injection molding machines / 24x7 production in a full year

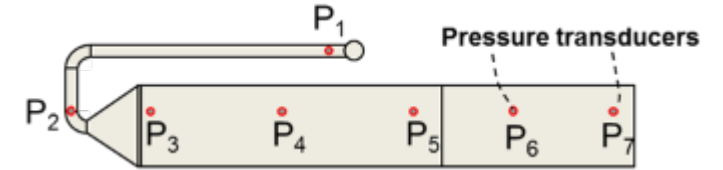
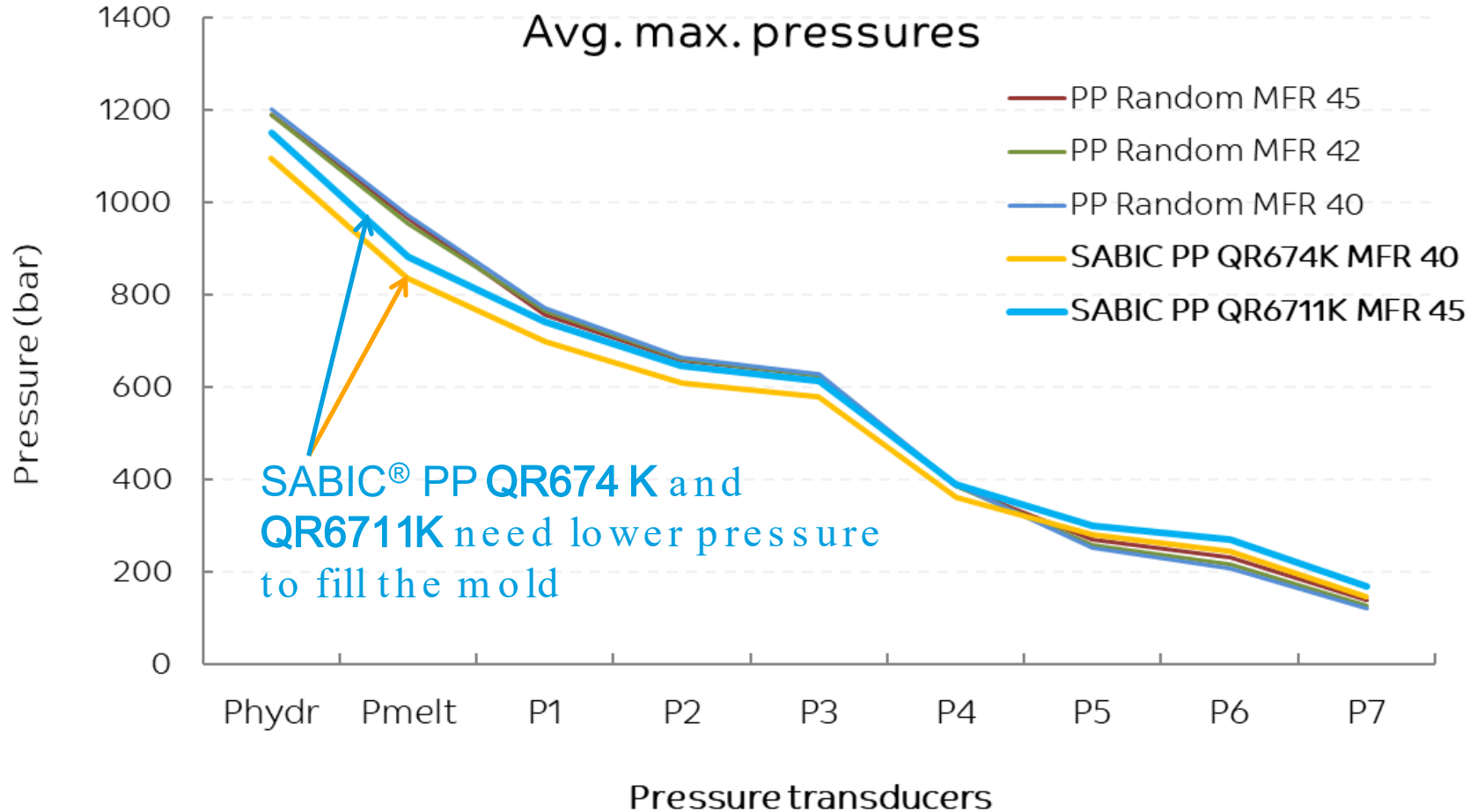
	Reference material
Wall thickness (mm)	0,40
Shot Weight (g)	48,24
PP volume per year (mton)	3.040

 **SABIC SOLUTION BRINGS ADDITIONAL VALUE OPPORTUNITY**

SOLUTION FOR CONVERSION EFFICIENCY

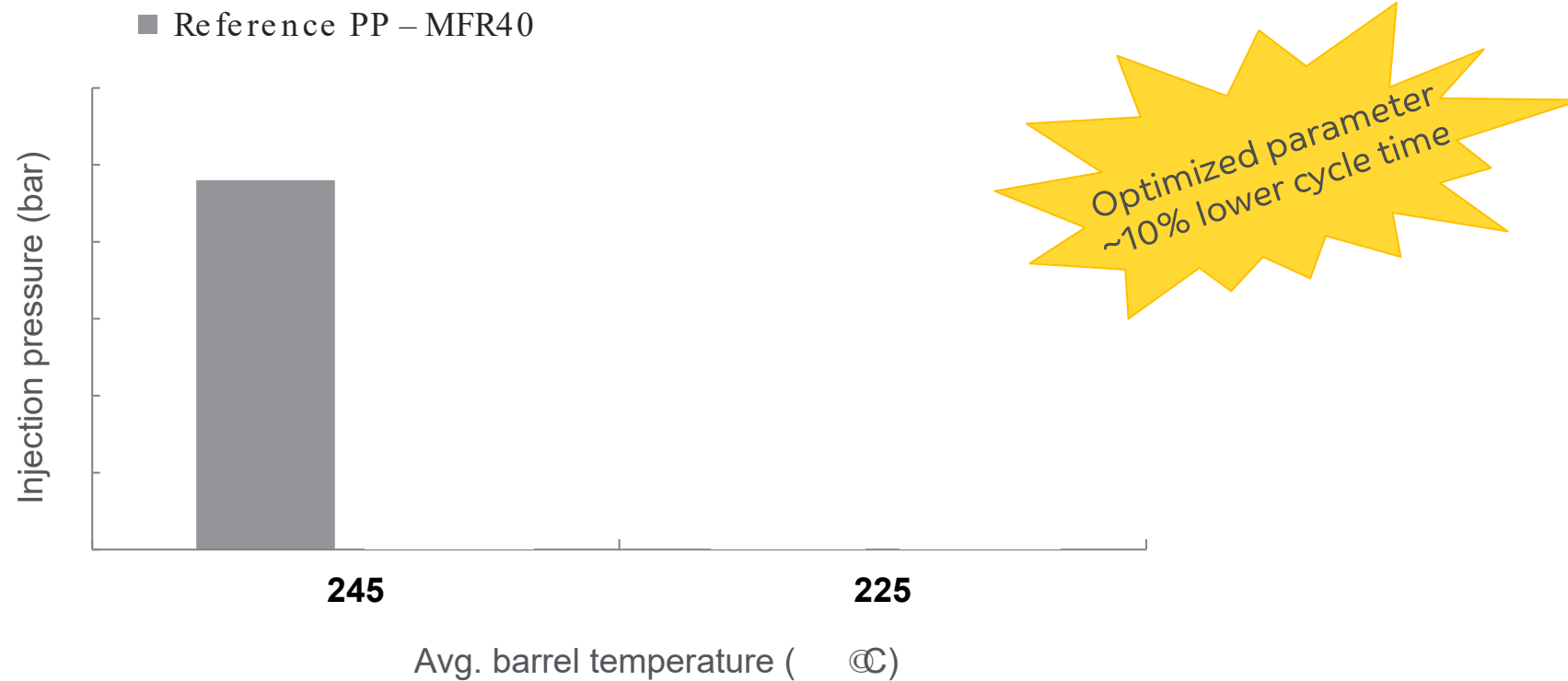
SABIC® PP QRYSTAL POLYMER – LOWER INJECTION PRESSURE NEEDED

FLOW BEHAVIOUR – IM MACHINE WITH PRESSURE TRANSDUCERS



SABIC® PP QRYSTAL POLYMER – POTENTIAL SHORTER CYCLE TIME

TRIAL AT THE CONVERTER - 2,5L FOOD CONTAINER



FULL YEAR PRODUCTION: -0,5s shorter cycle time means → 19 full production days equivalent to ~315.000 more containers + energy savings due to lower processing temperatures

SABIC - THIN WALL PACKAGING

SOLUTION FOR PS REPLACEMENT

MAJOR BRAND OWNERS MOVING AWAY FROM PS IN FOOD PACKAGING

TESCO, UK retail giant, issued an updated series of [guidelines](#) on the [preferred materials](#) and formats that it will accept as [packaging](#).

Packaging Preferred Materials & Formats Guidelines 2020. DATE: 13/11/20

Red		Amber		Green	
Not to be used as customers cannot easily recycle (UK)		When functional requirements mean green materials are not an option		Preferred for UK recycling via kerbside or store	
Materials	Formats & Designs	CONTROLLED USE: CONTACT THE PACKAGING TEAM FOR APPROVAL packaging.team@tesco.com		Rigid Materials	Formats & Designs
Compostable/Bio degradable	Black Plastic*			Glass (clear or of light colour)	Cardboard with plastic: Max 15% plastic, one side of board only and be easily separated
Oxy/Oxo Degradable	<u>Composite Drums</u>			Materials	Formats & Designs
PLA	Expanded/Foamed/Density Modified Plastics	Non PE Flexible film incl. OPP	Beverage Cartons	PET	Mono lidding film matched to tray material when permanently attached
Polystyrene	<u>Paper/board coated or laminated on both sides</u>	Foiled paper	Multilayer Films/Complex Laminates	HDPE/LDPE	Glass colour; Clear/Light colour preferred
PVC	<u>Glitter</u>	New material innovations	Shrink sleeves (perforated, include messaging to remove, max coverage 40%)	pp**	
PVdC (incl. layer within Complex Laminates)	<small>*Brands may choose to use black plastic for drink bottle caps</small>			Steel & Aluminium	
<u>Plywood and MDF</u>				Cardboard	
Water Soluble plastics				Flexible Materials	
				Paper	
				Glassine	
				PE (recyclable at front of store)	

Underlined denotes red material/format added in 2020 (Production to cease by end of 2020)
**PP is widely recyclable, however may have a packaging tax implication for food grade if recycled content cannot be included



The European Parliament voted in 2019 to approve a new law banning a variety of single-use plastic items across the European Union (EU) by 2021. The ban covers about a dozen items, including [expanded polystyrene foam food and drink containers](#).

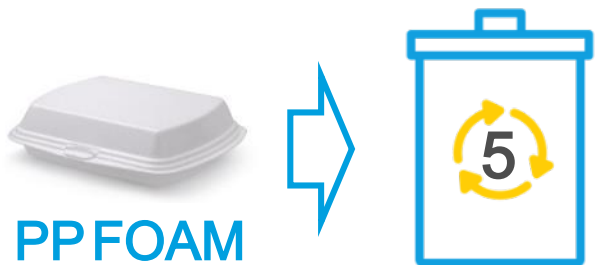


The UK Plastics Pact has identified the several plastic items to be eliminated, including [all polystyrene packaging](#)

“Polystyrene is not recycled in the UK. It is often used for food takeaway containers and yoghurt pots and to package white goods like microwaves. Alternative materials can be used.”

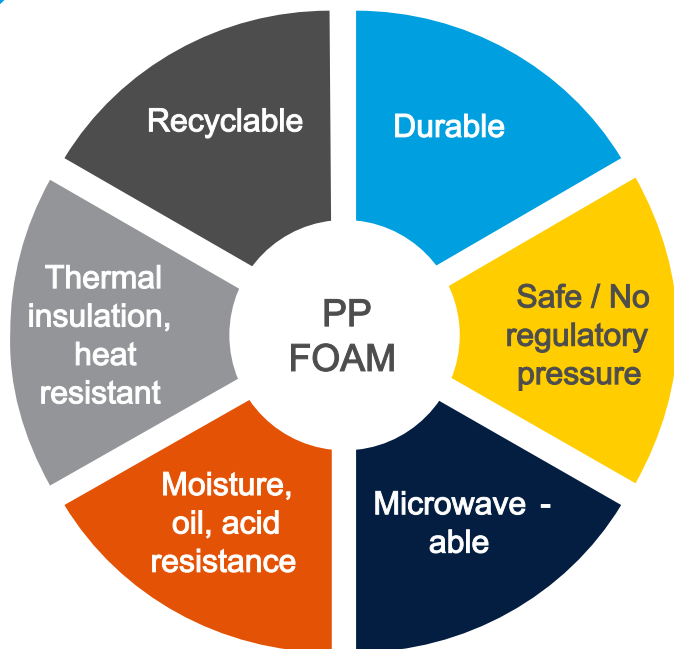
PS(POLYSTYRENE) FEATURES ON TESCO'S RED LIST: DIFFICULT TO RECYCLE

SABIC® PP UMS : A BUILDING BLOCK FOR SUSTAINABLE PP FOAM SOLUTIONS



PPFOAM

➤ PP FOAM FOOD CONTAINER IS SUSTAINABLE WITH EXTRA BENEFITS



NEW SABIC® PP-UMS

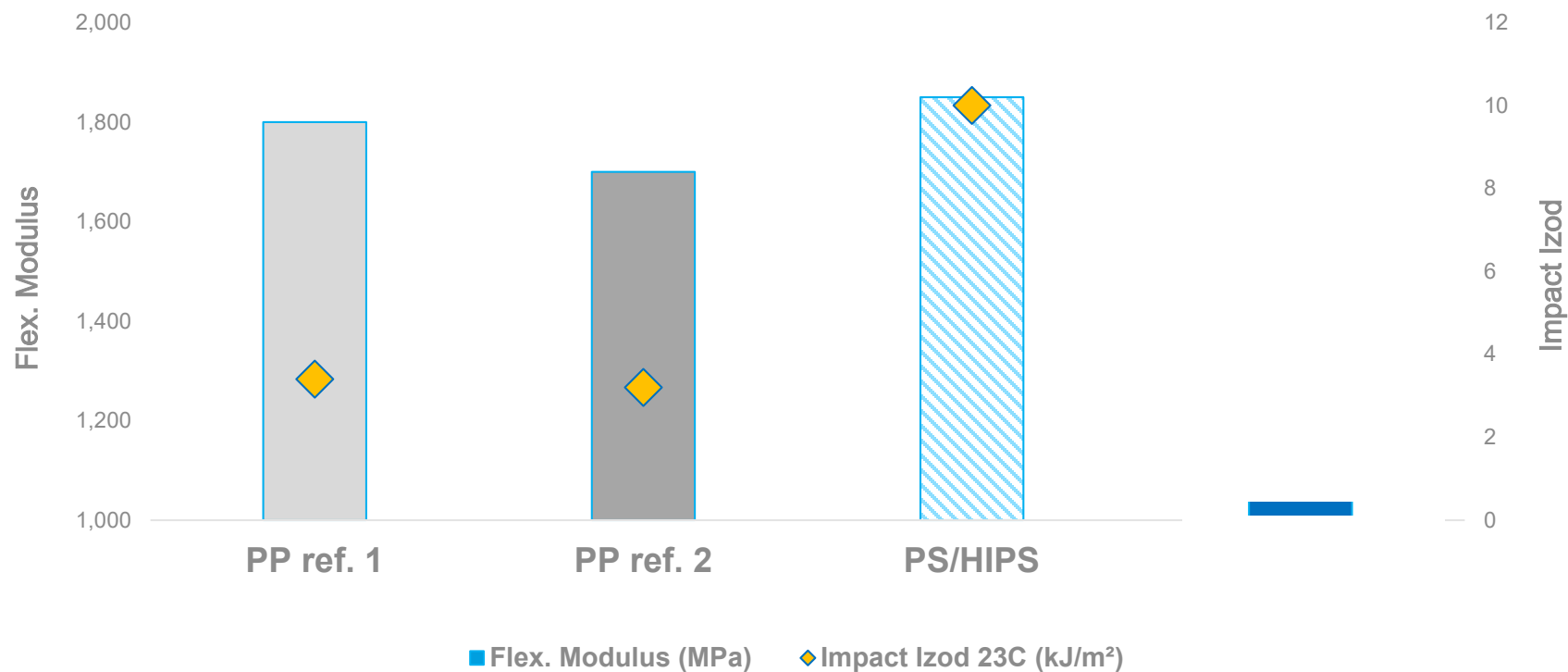
MELT STRENGTH >65 cN

ULTRA HIGH MELT STRENGTH FOAMABLE PP SOLUTIONS
BUILDING BLOCK FOR FULLY RECYCLABLE
PP FOAM FOOD CONTAINERS



LIGHTWEIGHTING & COST OPTIMIZATION

SOLUTION BASED APPROACH – PS/HIPS REPLACEMENT



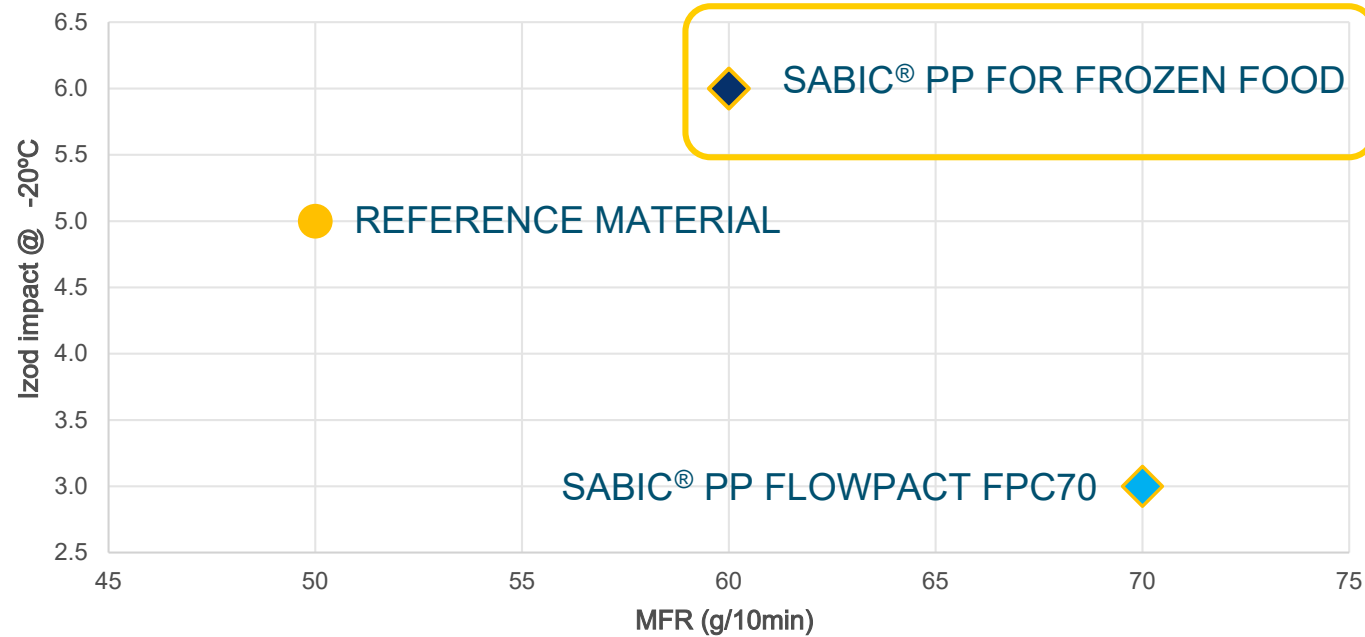
SABIC® PP MATERIAL SOLUTION DELIVERS A STIFFNESS ON THE SAME LEVEL AS PS/HIPS AT A SUFFICIENT IMPACT FOR THE APPLICATION, AND WITH A **DENSITY 13% LOWER THAN PS/HIPS – LIGHTER WEIGHT SOLUTION**

SABIC - THIN WALL PACKAGING

SOLUTION FOR FROZEN FOOD

HIGH PERFORMANCE PP FOR FROZEN FOOD

SABIC® PP FOR FROZEN FOOD– New!



Brand owners want to avoid **consumers complaints about broken ice** **-cream containers** and the risk of getting unintended pieces of broken plastic in their ice **-cream** products.

➤ SABIC's new material solution offers **robust impact performance at -20°C** and high flow characteristics for ease of processing of thin wall applications.

SOLUTIONS FOR CIRCULAR ECONOMY AND REDUCING PLASTIC WASTE

TRUCIRCLE™: COMPLEMENTARY PILLARS TOWARDS CIRCULAR APPROACH

TRUCIRCLE™: SABIC's new portfolio and services for circular solutions



DESIGN FOR RECYCLABILITY

Tailor-made resins for the development of products that have improved recyclability characteristics



Maximize value for waste

MECHANICALLY RECYCLED PRODUCTS

Compounds with high recycled content and booster resins for recycle containing compounds that improve processability and end-use properties



Reduce use of fossil fuels

CERTIFIED CIRCULAR PRODUCTS

Virgin resins and chemicals from difficult to recycle plastic waste streams produced through feedstock recycling



CERTIFIED RENEWABLE PRODUCTS

Resins and chemicals from bio-based feedstock that is not in competition with the food chain and help to mitigate climate change

THE **SABIC AMBITION** IS TO DEVELOP THESE CIRCULAR SOLUTIONS BY WORKING SIDE BY SIDE WITH **BRAND OWNERS** AND OUR **DIRECT CUSTOMERS**



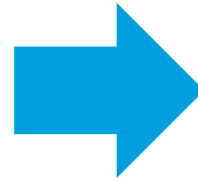
Circular Economy



Innovation & Sustainable Solutions

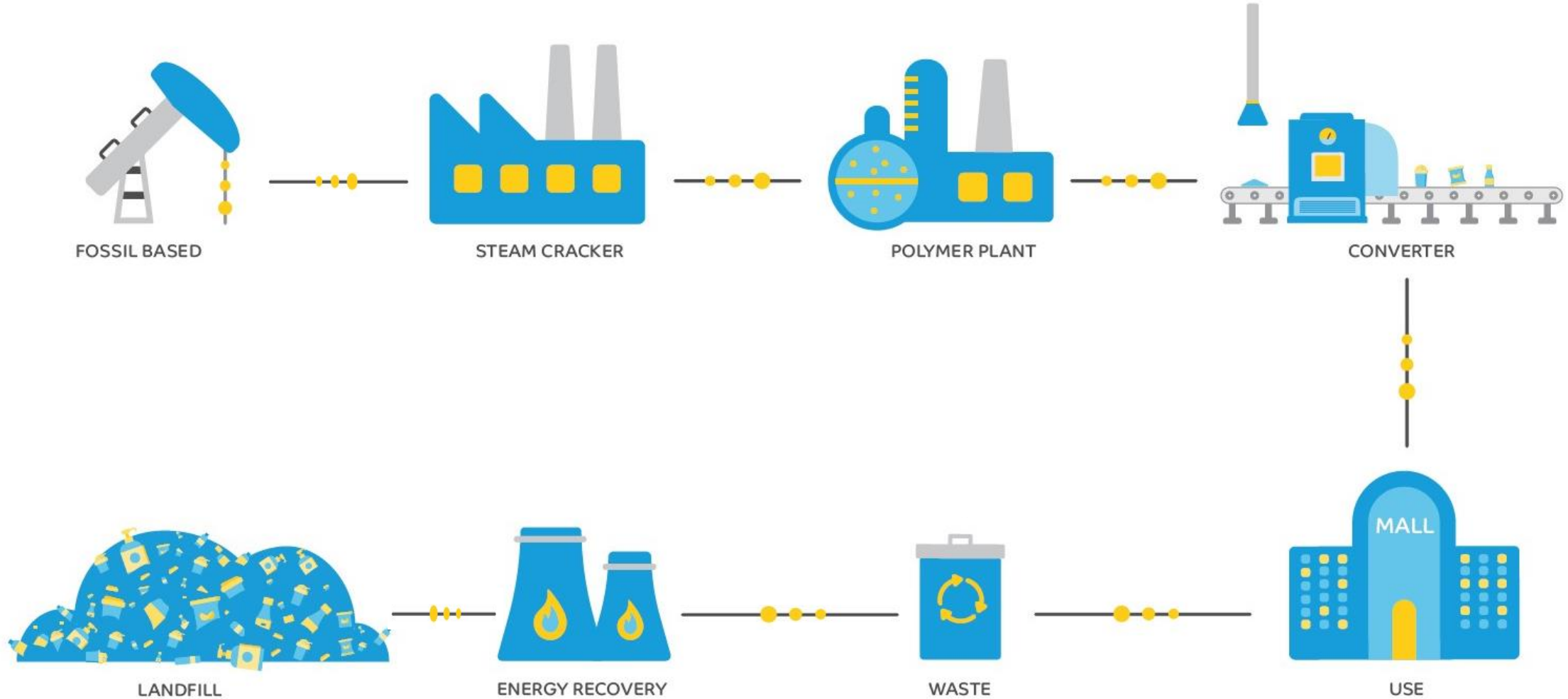
THINK OF ...

MAKING SURE PLASTIC PACKAGING



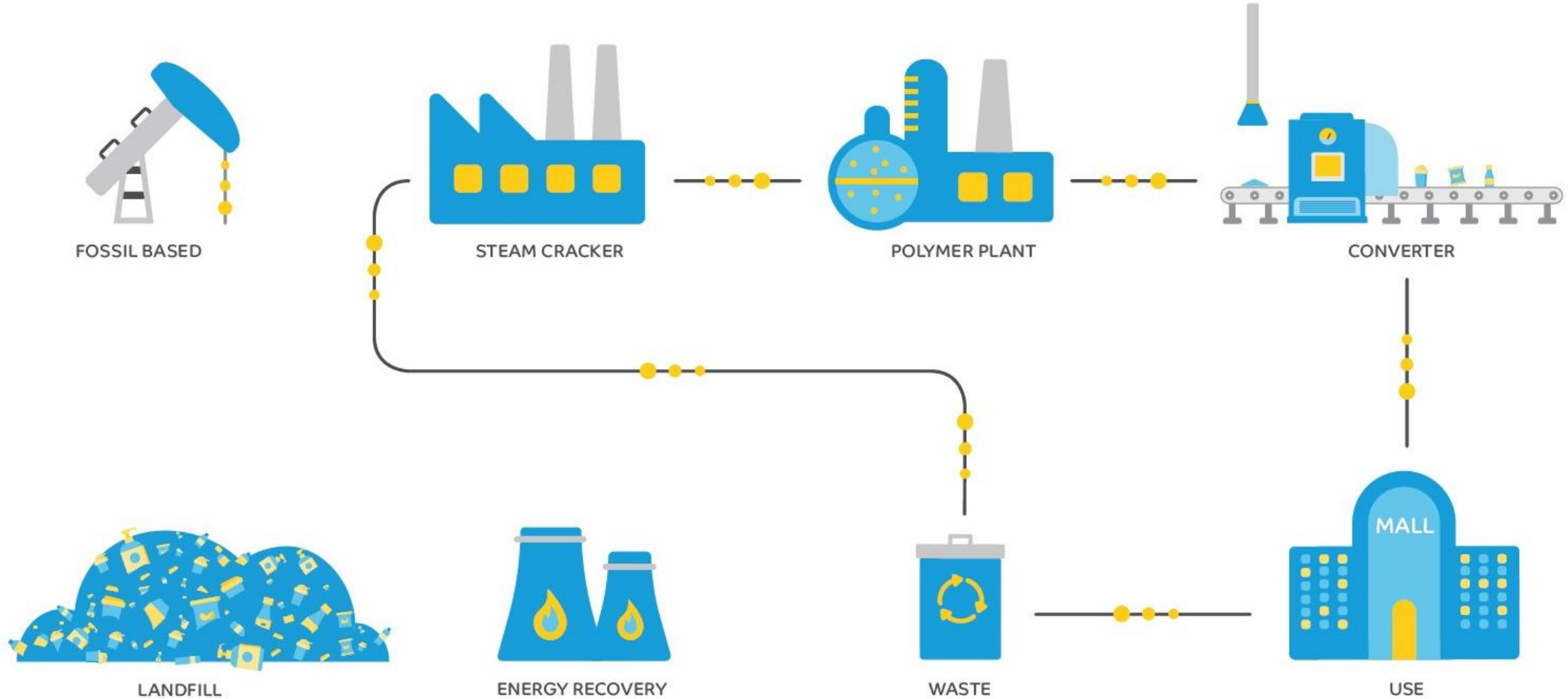
NEVER BECOMES WASTE

PLASTIC WASTE TO FEEDSTOCK FOR POLYMERS: FROM LINEAR TO CIRCULAR



THE CURRENT MODEL CAUSES MOST OF OUR NATURAL RESOURCES TO END UP IN LANDFILL

PLASTIC WASTE TO FEEDSTOCK FOR POLYMERS: FROM LINEAR TO CIRCULAR



CHEMICAL RECYCLING CREATES FEEDSTOCK FROM PLASTIC WASTE

ENABLING CUSTOMER'S UNMET NEEDS



COLLABORATING WITH OUR CUSTOMERS TO MEET THEIR SUSTAINABILITY TARGETS CERTIFIED CIRCULAR POLYMERS FROM SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES



PURE AND SAFE

NO COMPROMISE ON PRODUCT PACKAGING QUALITY
BIG WINDOW OF PACKAGING APPLICATIONS, INCLUDING F&B CONSUMER PACKAGING



DROP-IN SOLUTION

PROCESS NEW PACKAGING ON EXISTING EQUIPMENT WITHOUT MODIFICATIONS
DOWN GAUGING OPPORTUNITIES



TRULY RECYCLABLE

NO LIMITATIONS IN NUMBER OF RECYCLING STEPS

MAGNUM® ICE CREAM CONTAINER UNILEVER FOOD SOLUTIONS

CERTIFIED CIRCULAR PP POLYMER FROM SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES

WORLD'S FIRST PREMIUM ICE CREAM BRAND

UNILEVER DEBUTS MAGNUM TUBS CREATED
FROM RECYCLED PLASTIC

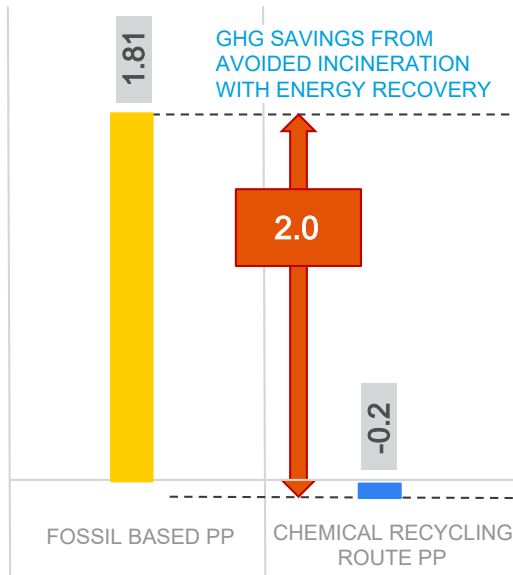
“ Around 600,000 of the tubs are already available
in Belgium, Spain and the NL since 2019, with
more than 7 million launched in August 2020
covering Europe and available globally in 2021”



KNORR™ BOUILLION POWDER CONTAINER UNILEVER FOOD SOLUTIONS

CERTIFIED CIRCULAR PP POLYMER FROM SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES

CRADLE TO GATE
CARBON FOOTPRINT
(KGC02 EQ./KG PP)



LCA CONSIDERATION

Based on results of “Cradle to Gate” study on SABIC certified circular PP polymers carbon footprint reduction is about 2 kilograms of CO₂ for every kilogram of polyolefins produced via chemical recycling route in comparison to fossil route*.

This reduction includes the benefit realized from avoidance of mixed plastic waste diversion to energy recovery.

LIGHTWEIGHT PACKAGING THAT IS SAFE FOR FOOD CONTACT, OFFERING ROBUST PERFORMANCE OF THE LID, HIGH STACK ABILITY AND EASY TO PROCESS.



AVOURY® TEA CAPSULES MELITTA SINGLE PORTIONS

CERTIFIED CIRCULAR PP POLYMER
FROM SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES

FEATURES



Equal performance to virgin polymer

- ✓ Packaging properties – similar to prime
- ✓ Color consistency – No deviation

BENEFITS



Contributes to sustainability targets

- ✓ Better waste management
- ✓ Fossil feedstock avoidance
- ✓ CO2 emission avoidance vs incineration



SABIC

CERTIFIED RENEWABLE POLYMERS

CERTIFIED RENEWABLE POLYMERS

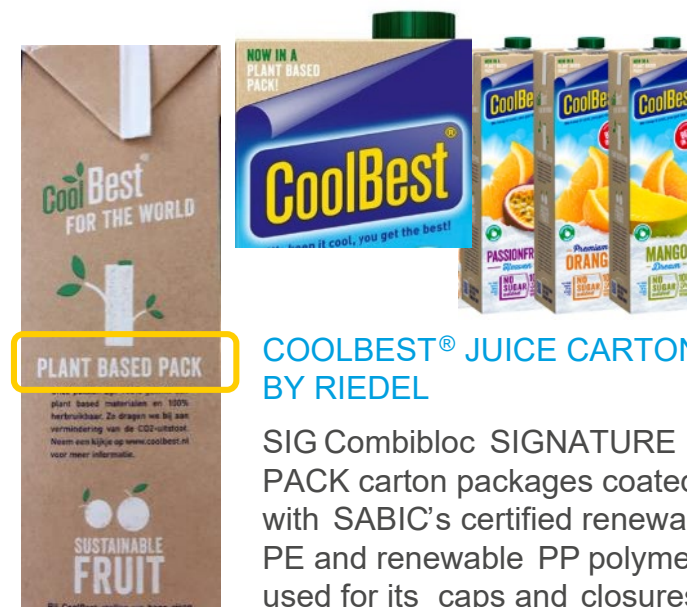
CERTIFIED RENEWABLE POLYMER FROM SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES

- 2nd generation **renewable feedstock** , not in direct competition with the human food chain
- **Identical product specifications** to our current SABIC® PE & PP portfolio
- Used in the **existing production processes** of the value chain
- **Lower carbon footprint** compared to fossil alternative

Arla's organic milk goods in SIG Combibloc carton packages using SABIC's certified renewable PP/PE



EACH KG OF RENEWABLE PE/PP REMOVES UP TO 4 KG OF CO₂ FROM THE ATMOSPHERE



COOLBEST® JUICE CARTONS BY RIEDEL

SIG Combibloc SIGNATURE PACK carton packages coated with SABIC's certified renewable PE and renewable PP polymers used for its caps and closures.

ORKLA/IRPLAST POTATO CHIPS BAG

CERTIFIED RENEWABLE BOPP POLYMER FROM SABIC'S TRUCIRCLE™ PORTFOLIO & SERVICES



50% LOWER CO₂ FOOTPRINT
(PLASTIC FROM TALL OIL)
COMPARED TO FOSSIL
FEEDSTOCK MADE MATERIAL

- 50% CO₂ reduction achieved
- ISCC certified feedstock
- Mass balance system
- Feedstock source; tall oil

Bio-based packaging from renewable feedstock



CONCLUSIONS

POLL QUESTION 3

WHAT SPECIFIC TOPIC WOULD YOU LIKE US TO COVER IN DEPTH IN COMING PACKAGING WEBINARS?

- a) Sustainability
- b) Customer case stories
- c) Improve conversion efficiency
- d) TWP market growth
- e) Technical topics

THIN WALL PACKAGING SEGMENT

SABIC IS COMMITTED TO PACKAGING INDUSTRY WITH DEDICATED TEAMS AND TECHNOLOGY CENTERS TO COLLABORATE WITH OUR CUSTOMERS.

TO PUSH THE BOUNDARIES OF LIGHT WEIGHTING, CONVERSION EFFICIENCY AND DOWN GAUGING OPPORTUNITIES



OUR GLOBAL PRESENCE AND DEDICATED PACKAGING INNOVATION CENTERS



STC-G (GELEEN– NL)



STC-S (SHANGHAI - CHINA)



SPADC (RIYADH – KSA)



STC-B (BANGALORE – INDIA)



CONCLUSION: WHY SABIC?

More than what we say, it's what we do that matters.

At SABIC, we remain true to our purpose by delivering on our commitments:



1 DRIVING PERFORMANCE FOR CUSTOMERS

We push the limits of quality, efficiency, and performance to drive customer success with our broad portfolio of products and services.



2 LONG TERM COMMITMENT TO SUSTAINABILITY

We strive for innovative solutions for ever better performance from resource efficiency to reducing material use and waste and enhanced quality of life for everyone.



3 BUILDING VALUABLE RELATIONSHIPS

We collaborate closely to create opportunities. Our one global dedicated team serving the packaging market enables ease of doing business

QUESTIONS



STAY CONNECTED WITH US



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