

PET MARKET TRENDS AND TECHNOLOGICAL SOLUTIONS



NPE, ORLANDO, MAY 9, 2024
SEBASTIAN WENDERDEL
KHS USA, INC.



PET MARKET VOICES



„100% recyclable by 2025!“

„50% PCR by 2030!“

„25% refillable/returnable by 2030!“

„33% less virgin plastic by 2025!“

„Net-zero by 2050!“

„25% less emissions by 2030!“

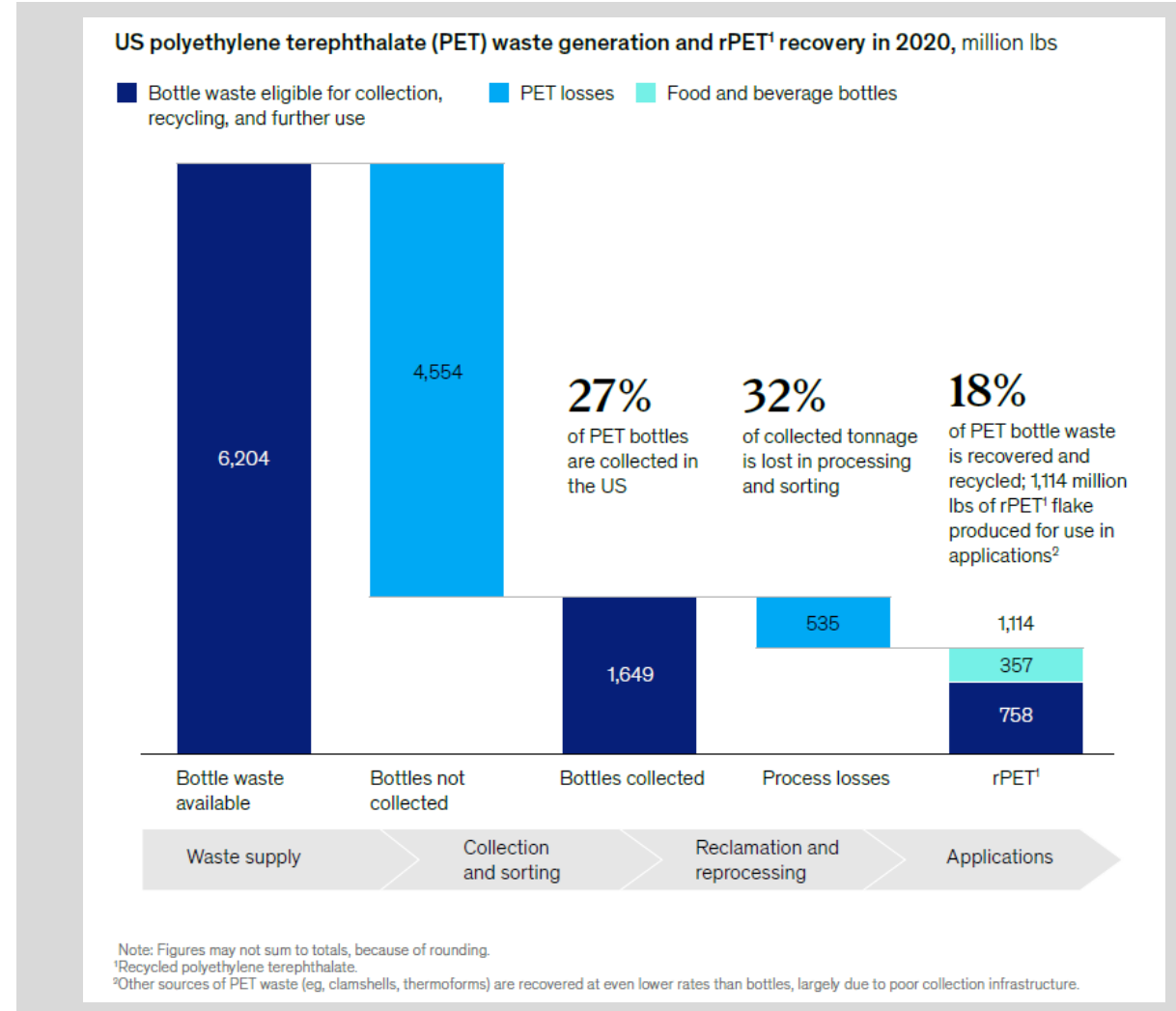
„30% PCR by 2025!“

„33% less plastic packaging by 2025!“

PCR SHORTAGE – THE SUPPLY

- Low collection rate
- Sorting and yield rates lead to lack of available bales
- Significant investments needed
- rPET supply grew about 1% p.a. since 2012, while consumption grew about 4% p.a. and is expected to rise to 15% p.a.

Source: McKinsey&Company, Filling the gap: Boosting supply of recycled materials for packaging, 2023

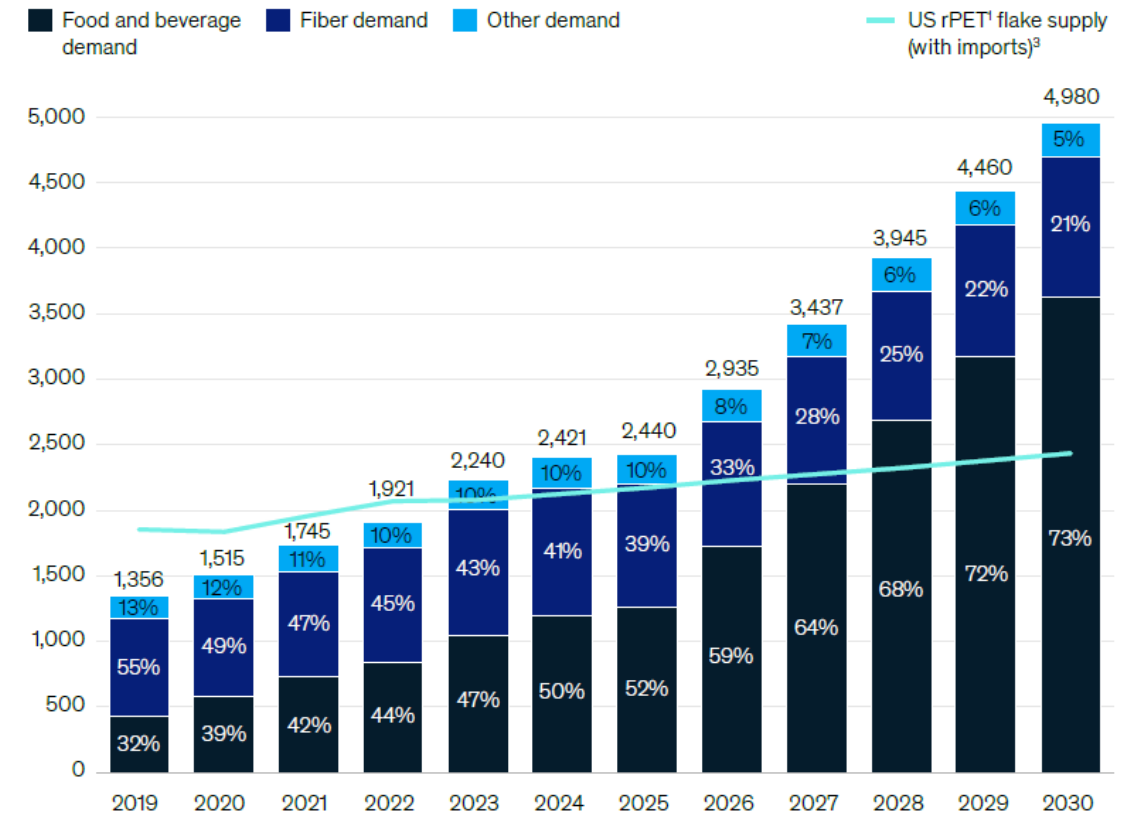


PCR SHORTAGE – THE DEMAND

- rPET demand as per public 2030 recycle commitments would outpace supply by three times!
- Price premium to rise significantly
- Enablers to improve availability:
 - Boost supply
 - Ensure access
 - Design for circularity

Source: McKinsey&Company, Filling the gap: Boosting supply of recycled materials for packaging, 2023

US supply–demand balance for rPET¹ flake,² million lbs



Note: Figures may not sum to 100%, because of rounding.
¹Recycled polyethylene terephthalate.
²Assuming brand owners pursue at least 50% of public commitments.
³Assuming imports of food-grade rPET flake increase at the 2017–20 growth rate.

KHS LOOP LITE

KHS Bottles & Shapes
Holistic container design



FreshSafe PET
Barrier Technology



NatureMultiPack
Secondary packaging



**SUSTAINABLE
APPROACH**

**Leveraging
sustainable
technologies
from our
portfolio
in one great
packaging
solution**





New thread and tethered cap
Lightweight 26/22 neck
Complying with latest legislations

Design for circularity
100% rPET
up to 22% less weight and material
CO₂ footprint reduced by approx. 60%

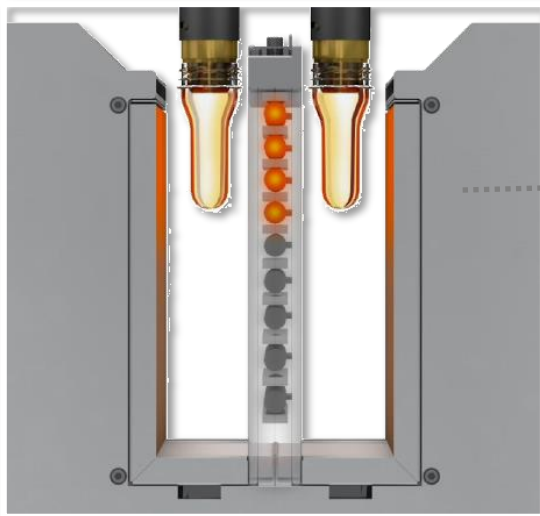
Label
100% recyclable, approved by APR
up to 30% material reduction



Embossing
Supports label reduction
Adds bottle stability

Plasmax SiO₂ barrier
for 100% bottle-to-bottle recycling
≥ 26 weeks shelf life

Innovative rPET base
up to 15% energy reduction
high bottle quality



Innovative DoGa heating concept
Two lanes of preforms
Centrally located NIR heaters
up to 50% less heater boxes
up to 30% energy savings

30% energy savings or more

Increased machine speed
up to 60,000bph
matches CSD current line speeds

NEW KHS INNOPET PLASMAX 80E

Machine footprint reduced
25% less floor space
More compact pump module



OPEX reduction
up to 25%
up to 1.5l bottles

Enables lightweighting
Coating allows for up to 36% material savings,
without compromising
on shelf life*

*) exemplary calculation for a 355ml CSD brand bottle

Sixpack without shrink foil
Glue dots keep bottles together
Innovative hotmelt technology
Up to 87.5% less secondary packaging

Consumer friendliness
Awareness for sustainability topics
Customer experience of detaching



Functional handle
Keeps rows of glued bottles together
Ergonomic handling
Top-clip alternative available

Billboard effect
Each bottle is individually oriented
EAN code can be hidden

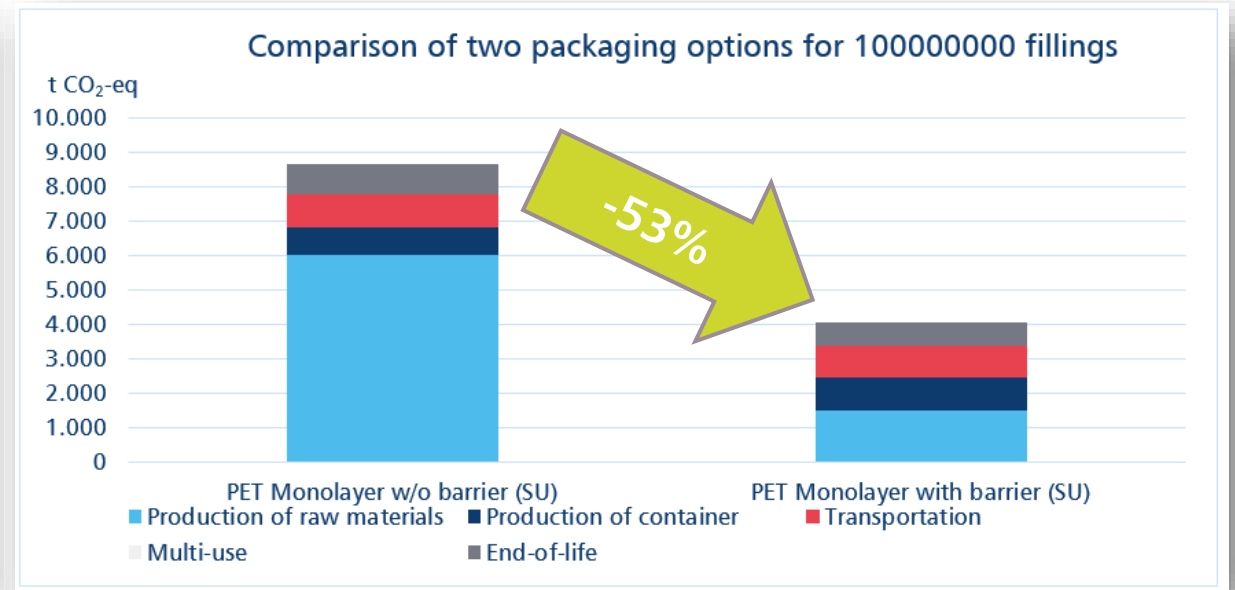
KHS LOOP LITE – CO2 FOOTPRINT REDUCTION



Materials	Barrier	Recycling share [%]	Weight [g]	Fillings
Current option: PET Monolayer w/o barrier (SU)		0%	21g	100.000.000
New option: PET Monolayer with barrier (SU)	SiOx	100%	15,5g	100.000.000

Results

Life Cycle Stage	PET Monolayer w/o barrier (SU)	PET Monolayer with barrier (SU)	Difference new to current packaging option [%]
	[t CO ₂ -eq]	[t CO ₂ -eq]	
1. Production of main raw material	6.003	1.503	-75%
2. Production of layer raw material	-	0	0%
3. Transports raw materials / preforms	59	44	-26%
4. Production of container (if not included in 1)	803	965	20%
5. Transportation of packaging and container	909	872	-4%
6. Filling pre-temperation (glass)	-	-	0%
7. Multi-use (cleaning)	-	-	0%
8. End-of-life	896	662	-26%
Sum	8.670	4.045	-53%



Note: This generic comparative consideration cannot replace a specific LCA. KHS CO₂ estimation tool developed by ifu Institut, Hamburg.

DANKESCHÖN!

Q & A



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