



CPET-LIGHT

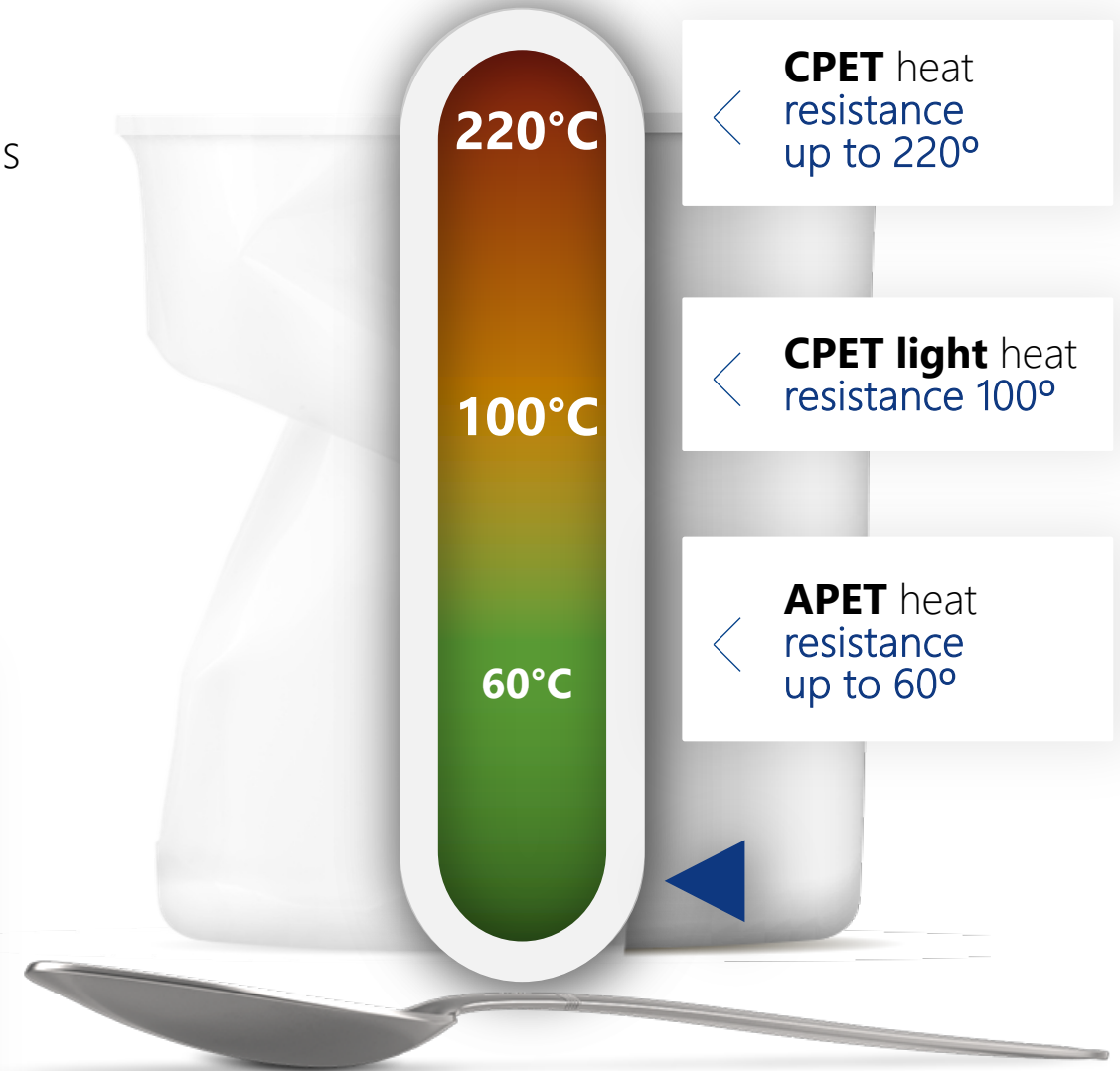
Enables recyclable, closed-loop applications with up to **100°C heat-resistance**

Petcore Annual Conference
February 7th & 8th, 2024

Why CPET-light

- Conventional **APET** cups and trays withstand temperatures up to 60°C limiting its application to fresh food packaging
- The market demands **PET** packaging cups and trays suitable for applications up to 100°C produced at improved output, recyclable and circular
- The traditional **CPET** offers **heat resistance up to 220°C** at the expense of transparency and productivity

CPET light is the solution that overcomes the challenge of heat stability at high output for thermoformed parts made of PET



What you get with **CPET-light**



Thermoformed,
partially **crystalline**
application made of PET



Available in opaque
and **transparent** applications



**Temperature-resistant
up to 100°C** thanks to
formulated additives
combined with a special
processing method



Suitable for use in
microwaves and **hot filling**



**Good barrier
properties** of PET



**Food grade
recycled material**



**Recycling test
conducted and passed**

at Sukano inhouse technical
centre according to PET
tray test protocol (TCEP)





Transparent

Nucleating Agent Masterbatch



Designed for heat resistance up 100°C
SUKANO® T na S806



**Recommended
Dosage**
2-3% dosage



Structure
mono film or into all
temperature resistant
layers of a tray



Globally
available



Thermoforming **equipment** for CPET-light

Collaborative work **for success:**

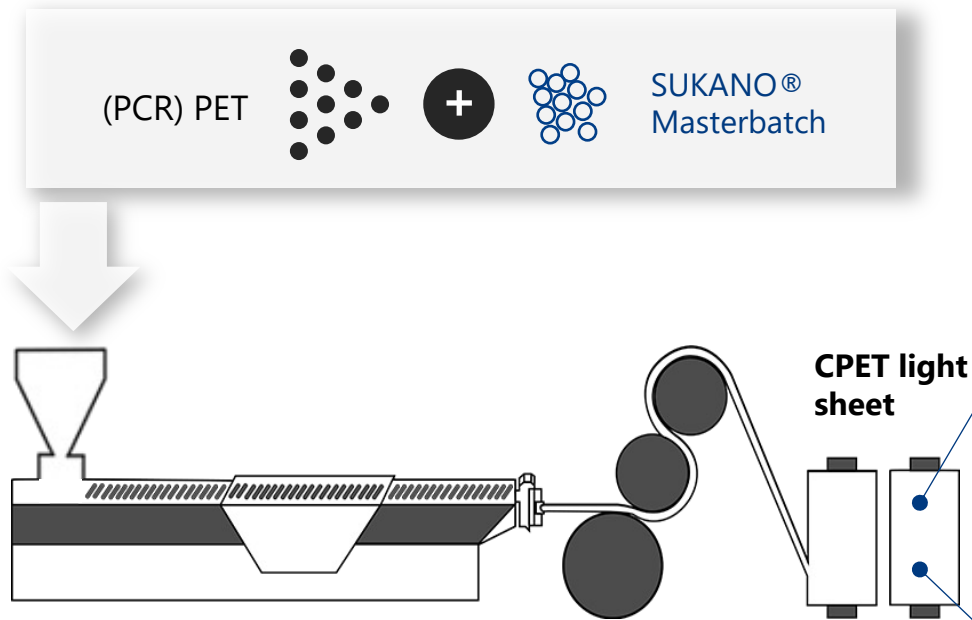
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**KIEFEL
TECHNOLOGIES**

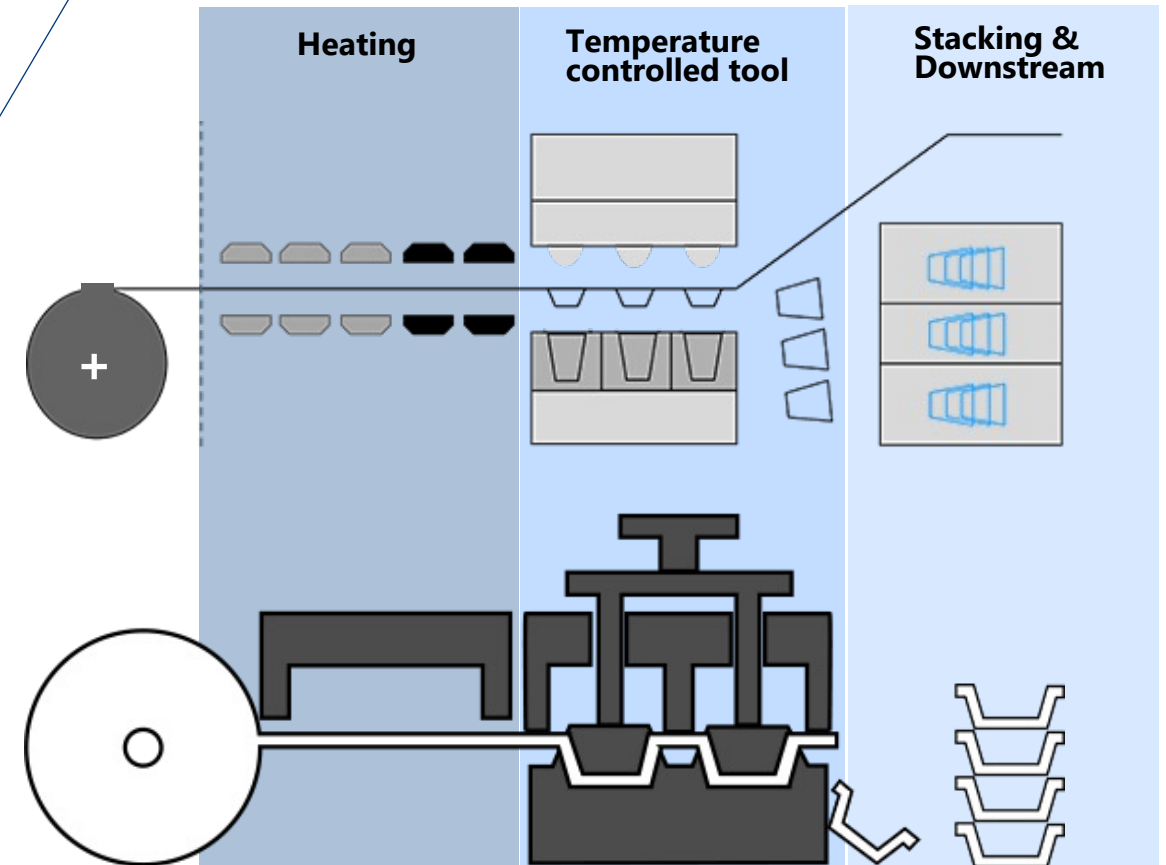
B

SUKANO

→ Production of thermostable sheet including Masterbatch



→ Thermoform food compliant CPET-Light **cups**



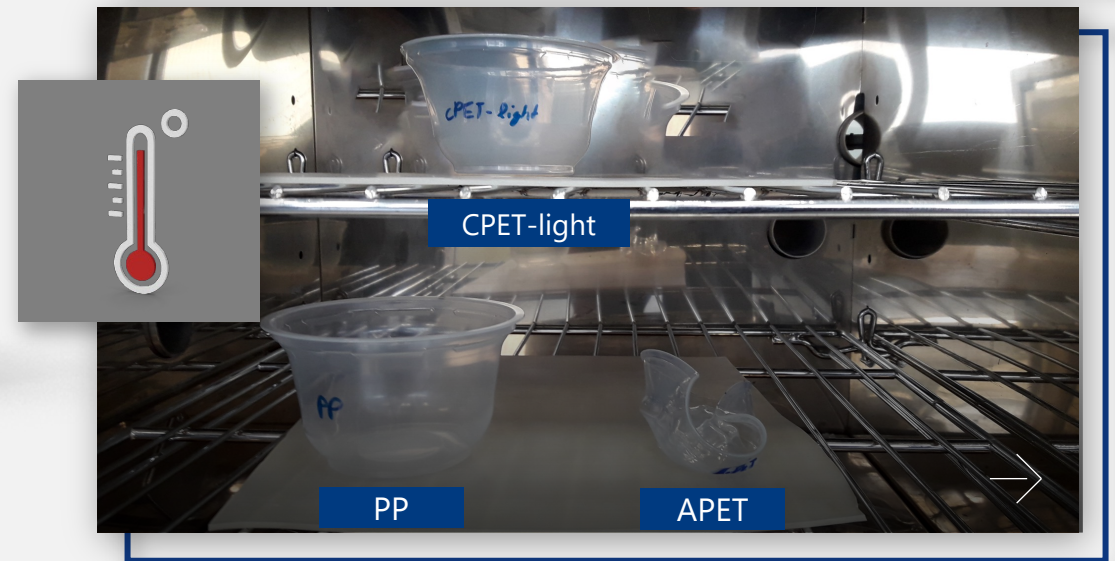
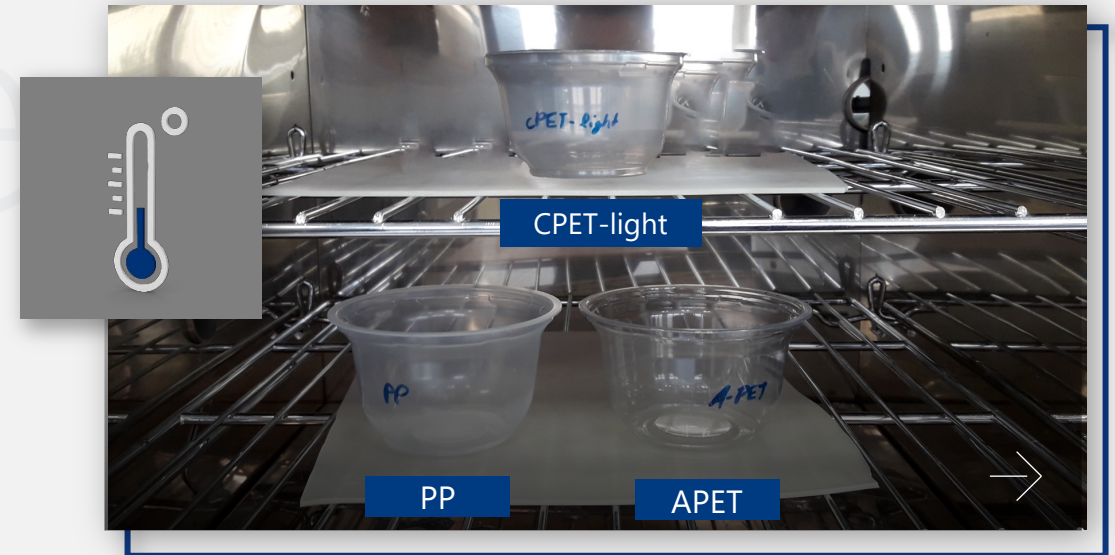
→ Thermoform food compliant CPET – Light **bowls and trays**

Temperature Resistance



Oven test
(30Min @100°C)

Before oven test



After oven test

Transparency

A-PET



C-PET light



PP



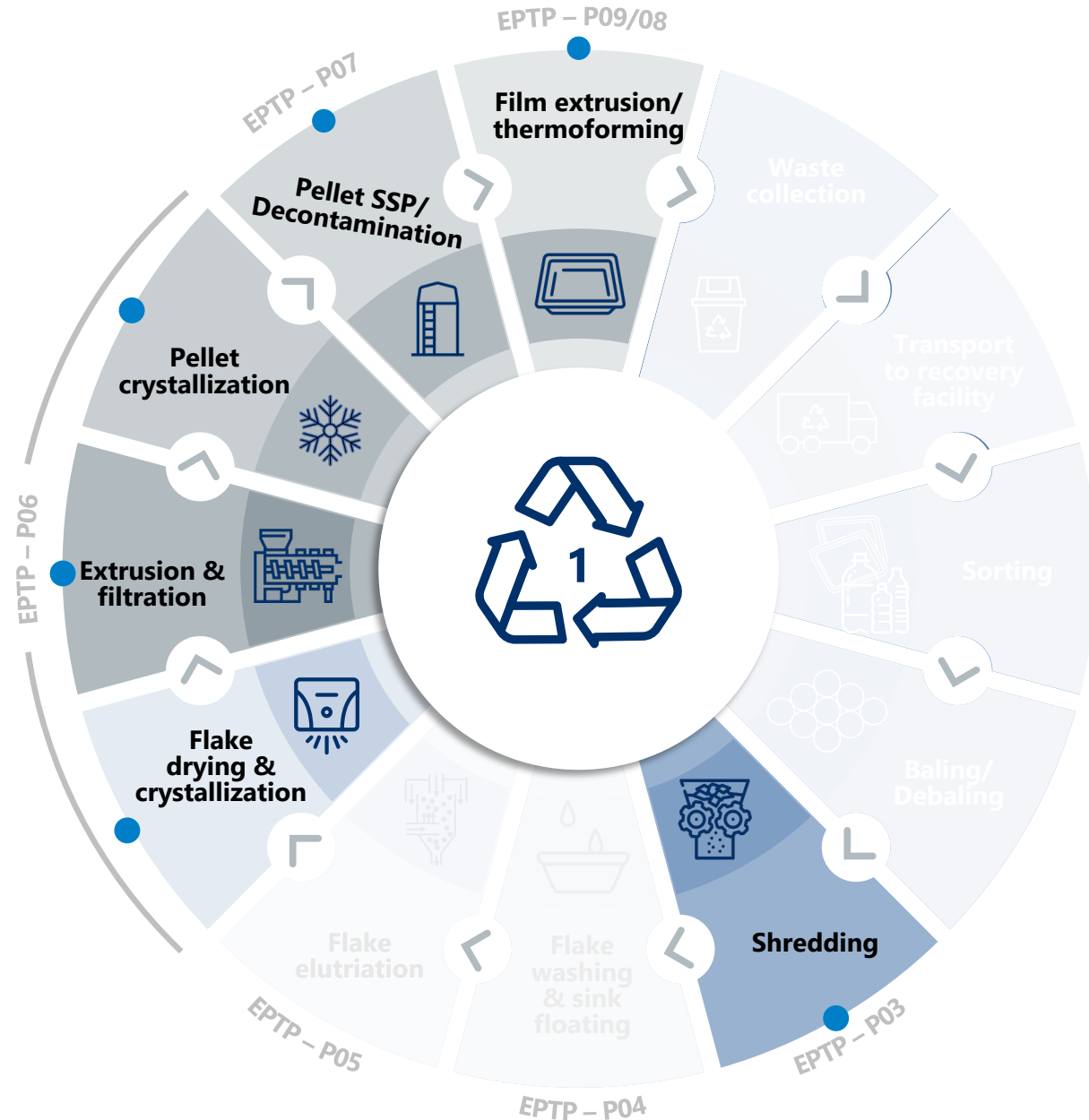
Tray to Tray Recycling Steps



SUKANO® T na S806 was tested based on the **PETCORE Tray Circularity Evaluation Protocol (TCEP)** for PET Recycling

- Marked steps were **reproduced in-house**

Specifications defined at each step of the protocol were **fulfilled**





Sorting Tests on CPET Light trays

PETCORE ANNUAL MEETING , FEBRUARY 2024

ANTOINE BOURÉLY, CHIEF SCIENTIFIC OFFICER, PELENC ST



Objectives

SUKANO supplied Pellenc ST with two types of cups:

Transparent CPET Light cups : #3 and #5

Opaque CPET Light cups : #4 and #6

Goals:

1. Check how they are sorted in a MRF today
2. Check if a better setting can orient them towards the clear stream without creating sorting quality issues





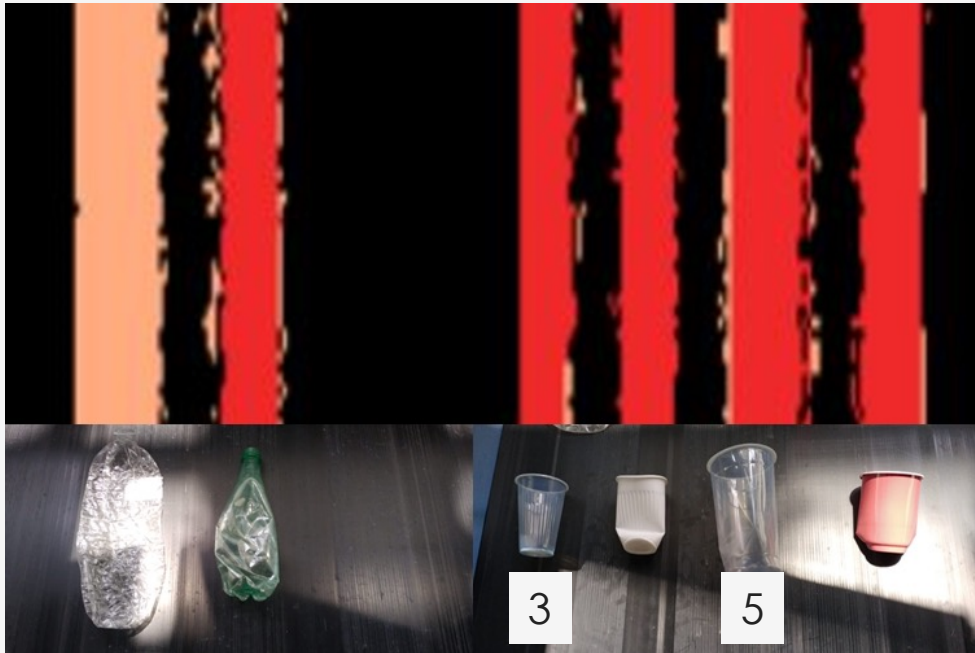
Static Detection Tests



Clear PET

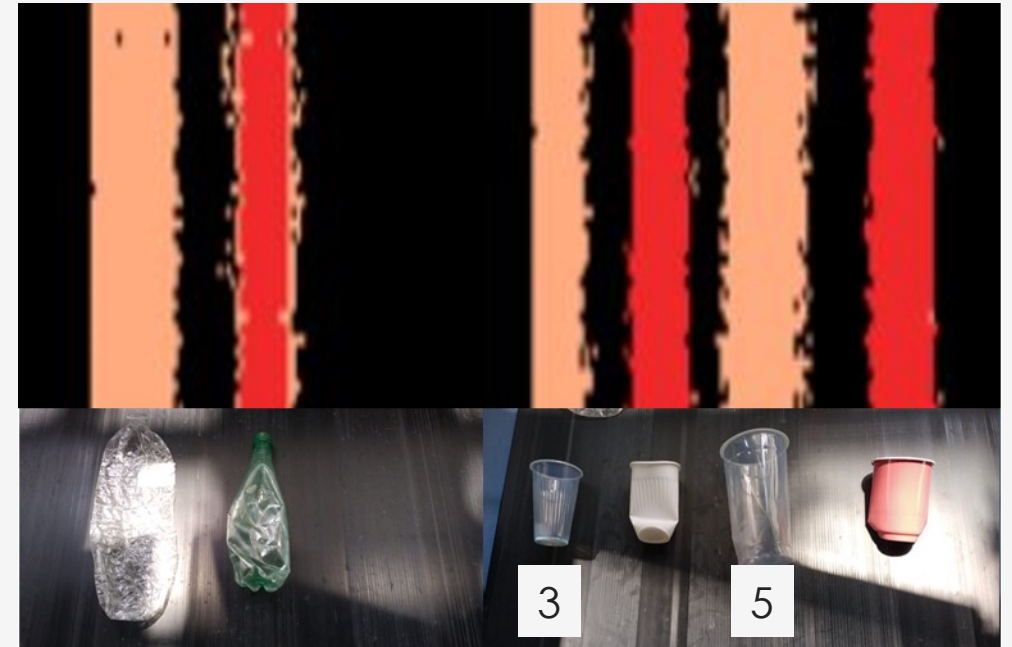


Colored PET



Standard settings

Transparent CPET light mostly seen as colored PET



Advanced settings

Transparent CPET light seen as clear PET



“ Sorting Test Configuration

Input

Mistral+ 2000



(-) Others



Clear PET



Sorting Results: Standard Settings



PELLENC ST	n°3	n°4	n°5	n°6	Clear PET	Others	Total	Purity
Box2 Positive (kg)	0,21	0,01	0,32	0,02	23,5	1,5	25,56	94,1%
Box 1 Negative(kg)	0,11	0,22	0,1	0,38	1,2	36	38,01	
Total	0,32	0,23	0,42	0,4	24,7	37,5	63,57	
Efficiency	65,6%	4,3%	76,2%	5,0%	95,1%	4,0%		

Purity and efficiency on Clear PET Stream are excellent

Around 70% of the CPET light trays are ejected as clear:
Not too bad considering detection test
But too many of them are lost in the negative fraction





Sorting Results: Advanced Settings



PELLENCST	n°3	n°4	n°5	n°6	Clear PET	Others	Total	Purity
Box2 Positive (kg)	0,22	0,03	0,46	0,04	23,6	1,9	26,25	92,8%
Box 1 Negative(kg)	0,02	0,21	0,01	0,38	1,3	34,8	36,72	
Total	0,24	0,24	0,47	0,42	24,9	36,7	62,97	
Efficiency	91,7%	12,5%	97,9%	9,5%	94,8%	5,2%		

Purity and efficiency on Clear PET Stream:

- **Purity only lost 1%:** acceptable compromise (high proportion of color PET in input)
- Efficiency is stable

95% of the CPET light trays are ejected as clear: Excellent result !

A few white objects can be seen in the positive fraction (e.g; #4 cup)





Sorting Test Takeaways

With the advanced settings,

« Transparent CPET light » trays are very reliably sorted as clear PET.

The setting modifications have an acceptable impact on the rest of the stream.

Pellenc ST is proud to contribute to ensuring full circularity for this new product.

This work is part of our continuous efforts to **help Design For Recycling initiatives.**

Pellenc ST performs around 50 dedicated trials of this type per year.

Conclusion

C-PET light

is a great alternative for PS and PP in thermoformed hot filling and microwavable cups and trays



Suitable for transparent applications



Short cycle times and high output versus CPET



High stiffness versus PP



Good chemical resistance versus PP and PS



Recyclable and Circular



CPET-LIGHT

Thank you for your attention