



SUSTAINABLE
Solutions

CTLpack

Sustainable products timeline



Our Tubes



	PCR		GREEN		MONOMATERIAL INJECTED TUBE	LAMINATE	ECO-f
MATERIAL	PE-PCR	PP-PCR	GREEN PE	PE-PCR + GREEN PE	100% PP / 100% PP-PCR	PBL (Plastic Barriere Laminate)	100% PE / GREEN PE
SLEEVE	Up to 50%	Up to 18% FDA NOL	Up to 100% compliant with the European food grade regulations	Up to 50% PE-PCR + 50% GREEN PE compliant with the European food grade regulations for all diameters of our tube range in extruded polyethylene	99% Recyclability rate according to the German Institute Cyclos (for Germany, Austria, Italy, The Netherlands, Norway and The United Kingdom)	Monomaterial PE tube 89% Recyclability	33,6% lighter than standard sleeve (thickness reduction from 0,6 mm to 0,4 mm)
HEAD	Up to 50% PE-PCR	Up to 50% PP-PCR FDA NOL		Up to 100% GREEN PE compliant with the European food grade regulations			21,4% lighter than standard head (geometry change)
CAP	Up to 100% PP-PCR FDA NOL		-	Up to 100% PP-PCR FDA NOL	PE / PP caps	20,6% lighter than Positop cap (height reduction)	

Most recyclable tubes*

	Monomaterial Tube	Canule Tube	Monomaterial Tube	Extruded Plastic Tube	Extruded Plastic Tube	Laminate Tube
Recyclability rate	99%	99%	98%	92%	90%	89%
Features	Single layer plastic label IML	Monolayer	EVOH barrier	Monolayer	EVOH barrier	PBL
Format	Ø50 - 23P 140 mm	Ø16 - CF6 55 mm	Ø50 - 23P 140 mm	Ø50 - 23P 160 mm	Ø50 - 23P 160 mm	Ø35 - XS18 127 mm
Material	Label	-	-	-	-	-
	Sleeve	PP	PE	PP	PE	PE
	Head	PP	PE	PP	PE	PE
	Cap	PP	PE	PP	PP	PP
Recycling country	Austria Germany Netherlands Norway UK	Germany Netherlands	Austria Germany Netherlands Norway UK	Austria Germany Netherlands Norway UK	Austria Germany Netherlands Norway UK	Austria Germany Netherlands Norway UK

*Source: German Institute Cyclos



USE OF RECYCLED MATERIALS

PCR (Post Consumer Recycled)



Extruded PE-PCR Tube

■ SLEEVE (PE-PCR)

- > **Up to 50%** Post-Consumer Recycled Polyethylene (PE-PCR) compliant with the European food grade regulations
- 50% HDPE PCR+ 50% LLDPE
- PCR only with HDPE
- Coextrusion: on any layer



Inyected PP-PCR tube (ESTube) Monomaterial Tube

■ SLEEVE (PP-PCR)

- > **Up to 18%** Post-Consumer Recycled Polypropylene (PP-PCR) FDA NOL (not yet compliant with the European food grade regulations)

■ HEAD (PE-PCR)

- > **Up to 50%**
- Positop heads: D30, 35, 40, 50
- Minitop 21PM
- PML 35-40, 50



■ HEAD (PP-PCR)

- > **Up to 50%** Post-Consumer Recycled Polypropylene (PP-PCR) FDA NOL (not yet compliant with the European food grade regulations) for the following caps:
 - 19 PP
 - M15
 - PP23P-PP
 - 21P
 - M8
 - 22TL

■ CAP (PP-PCR)

- > **Up to 100%** Post-Consumer Recycled Polypropylene (PP-PCR) FDA NOL, not yet compliant with the European food grade regulations for the following caps:
 - Positop in diameter 35, 40 and 50
 - Screw cap Head 11, diameter 25, matte finish (11.25.21)
 - Screw cap Head 11, diameter 19, matte finish (11.19.21)
 - Screw cap Head 15, diameter 30, fluted (15.30.30)



■ CAP (PP-PCR)

- > **Up to 100%** Post-Consumer Recycled Polypropylene (PP-PCR) FDA NOL (not yet compliant with the European food grade regulations)

IMPROVED RECYCLABILITY



Monomaterial

PP INJECTED TUBE ESTube

- > Tube ESTube = Monomaterial
- > **99%** Recyclability rate according to the German Institute Cyclos (for Germany, Austria, Italy, The Netherlands, Norway and The United Kingdom)
- > Certificate N° 2319-2020-001529



■ SLEEVE (POLYPROPYLENE-PP)

- Sleeve + Label made of Polypropylene (PP)

■ HEAD (POLYPROPYLENE-PP)

- Head made of Polypropylene (PP)

■ CAP (POLYPROPYLENE-PP)

- Caps (screw and Positop) made of Polypropylene (PP)

Laminate Tube

- > High reciclable laminates
- > Transition from ABL to PBL

Monomaterial PE

■ SLEEVE (MONOMATERIAL - PE)

- Transition to the monomaterial concept
- 300 microns white laminate with 15 microns EVOH
- Diameter 50

■ HEAD (MONOMATERIAL - PE)

- XS18 PE
- M 15
- 21 P

■ CAP (MONOMATERIAL - PE)

- XS18 PE:
 - Ribbed cylindrical
 - Cylindrical Diameter 50
- Ongoing projects:
 - M 15: Octogonal cap
 - 21 P: Flip Top SSQZ TE (membrane)

USE OF RECYCLED MATERIALS

PE Extruded Tube & PP Injected Tube

Polymers obtained from either hard to recycle plastic waste or from renewable feedstocks (cooking oils, fats, biomass ..). Mass balance certification under ISCC+ scheme. Suitable for food-contact and pharma applications and high-end market requirements.

POLIMERS FROM ADVANCE RECYCLING SOURCES

- Possibility of having polymers generated from plastic waste and renewable polymers, which by pyrolysis generates virgin materials.
- Obstacle: Availability of material, additional costs and certifications.



FOSSIL ORIGIN REPLACEMENT

GREEN (Bio-Based) PE Tube

■ SLEEVE (GREEN PE)

➤ **Up to 100%** Bio-Based Polyethylene (Green PE) compliant with the European food grade regulations for all diameters of our PE Extruded tube range

- 25%HDPE- 75% LLDPE
- 50%HDPE- 50% LLDPE
- 75%HDPE- 725% LLDPE
- 75%HDPE- 25% LLDPE + UV filter



PE - PCR + GREEN PE

■ SLEEVE (PE-PCR + GREEN PE)

➤ **Up to 50%** Post-Consumer Recycled Polyethylene (**PE-PCR**) and **50%** Bio-based Polyethylene (**Green PE**) compliant with the European food grade regulations for all diameters of our tube range in extruded polyethylene

- 50% HDPE PCR+ 50% LLDPE GREEN
- 25% HDPE PCR + 75% LLDPE GREEN

■ HEAD (GREEN PE)

➤ **Up to 100%** High Density Bio-Based Polyethylene (Green PEHD) compliant with the European food grade regulations

- 19 M11
- 30 M15 M16
- 35 M15
- 30-35-40-50 Positop
- 50 CF 17
- 19-25-30 CF11 (75 HD-25 LLD)



■ HEAD (GREEN PE)

➤ **Up to 100%** high density Bio-Based Polyethylene (**Green PEHD**) compliant with the European food grade regulations

- 19 M11
- 30 M15 M16
- 35 M15
- 30-35-40-50 Positop
- 50 CF 17
- 19-25-30 CF11 (75 HD-25 LLD)

RENEWABLE FEEDSTOCK

- Sugar Cane = renewable source
- Sugar Cane = plantations that capture CO₂



■ CAP (PP - PCR)

➤ **Up to 100%** Post-Consumer Recycled Polypropylene (**PP-PCR**) FDA NOL, not yet compliant with the European food grade regulations

- Positop diameter 35, 40 and 50
- Screw cap Head 11, diameter 25, matte finish (11.25.21)
- Screw cap Head 11, diameter 19, matte finish (11.19.21)
- Screw cap Head 15, diameter 30, fluted (15.30.30)



WEIGHT REDUCTION

ECO-f

Laminate Tube

Total plastic weight reduction of **27,9%** of vs. standard tube of the same format (diameter 50, length 155, capacity 200 ml, Positop)



■ SLEEVE (LIGHT - D50)

- **33,6% lighter** than standard sleeve (thickness reduction from 0,6 mm to 0,4 mm)
- Co-extrusion
- Mono layer (under devlpt.)
- PE-PCR and PE-GREEN options available
- Plastiband available (non oriented)



■ HEAD (LIGHT - D50)

- **21,4% lighter** than standard head (geometry change)



■ CAP (MINITOP - D50)

- **20,6% lighter** than Positop cap (height reduction)
- PE under development



Thanks to the reduction in the size of the cap, an increase in the capacity of a pallet between **17-25%**

HEAD XS 18

Equivalences for reduced weight

- Switching from cylindrical cap XS18 head to ribbed conical cap
- Switching from cylindrical cap M11 head to octogonal cap
- Instead of:
 - Cylindrical M15 caps Ø30-35-40
 - High Cylindrical Ø30-35-40
 - Octogonal M15 PP or PE



Ribbed conical cap



Octogonal cap



WEIGHT REDUCTION



MINITOP VERSUS POSITOP

■ CAP (MINITOP - D35/D40)

- D35: **7,9% lighter** than Positop
- D40: **15,2% lighter** than Positop
- PP-PCR FDA NOL option under development
- PE under development



■ HEAD (LIGHT - D35/D40)




- D35: **12,8% lighter** than standard head
- D40: **28% lighter** than standard head



■ OCTOGONAL CAP

- A screw cap much lighter than a standard M15 cap: **3 times lighter** than a screw cap 15.35 / 20.
- Material (PP or PE)
- Gloss finish only
- Colors available « à la carte » with counter-type
- Manual capping
- Mandatory tamper evident closure
- Diameters 25-30-35-40 (**Extruded tubes**)
- Diameters 35-40 (**Injected PP tubes**)
- Diameters 25 (M11) -30-35-40 (M15) (**Laminate tubes**)

PLASTIC WEIGHT REDUCTION

	Standard PE tube POSITOP	Standard PE tube MINITOP		ECO-F PE tube (reduced sleeve) MINITOP	
 Ø35 x 120 (75 ml)	12,05 g	11,50 g	-4,6%	NA	Fourth quarter 2022
 Ø40 x 145 (125 ml)	15,80 g	14,40 g	-8,9%	NA	Fourth quarter 2022
 Ø50 x 155 (200 ml)	24,70 g	22,40 g	-9,3%	NA	-27,9%



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