



RecyClass Unwrapped

Value-chain collaboration for circularity of PET bottles

Moderated by
Casper van den Dungen | Vice-President, Plastics
Recyclers Europe & Steering Board Member of EPBP

23 February 2022

RecyClass



RecyClass

RecyClass Unwrapped
Feb 2022

Argiris Dabanlis
EPBP Technical Director

EPBP Platform



1. Mission of the platform and the new era
2. How it works ?
3. TC and SB composition
4. Update on EPBP Platform – Running applications
5. New operating model
 1. SB and TC
 2. New EPBP – RecyClass collaboration model
6. External Communication related to the new operation model

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EPBP Platform

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Mission of the platform and the new era

The European PET Bottle Platform (EPBP) is a voluntary initiative, grouping technical experts in the field of PET production, design and recycling; together, they aim to provide an objective evaluation of new technologies and an independent assessment of their impact on PET recycling processes across Europe.

For the new era to be considered

- The new operation model
- To move towards circularity
- Evolution for the scientific and expertise needs of our members



EPBP Platform



TC and SB delegations

	Technical Committee (TC)	Steering Board (SB)
EPRO	To be assigned	To be assigned
	Luca Stramare (COREPLA)	Mike Jefferson (Plastic Recyclers)
	Benoit Le Dreff (Valorplast)	
PRE	Fabrizio Di Gregorio (PRE/RecyClass)	Antonino Furfari (PRE)
	Damien Vincent (France Plastiques Recyclage)	Casper van den Dungen (Polyrecycling)
	Matthias Nowotny (Veolia)	
PETCORE EUROPE	Andreas Christel (Polymetrix)	Christian Crepet (PETCORE)
	Gerald Engelmann (Indorama)	Nick Ryan (Avient)
	Mike Neal (Consultant)	
EFBW (UNESDA – NMWE)	Diego Lugagne (Coca-Cola)	Antoon Spiessens
	Marie Catherine Coquin (Danone)	Bruno van Gompel (Unesda)
	Jean-Francois Briois (Nestlé)	Philippe Diercxsens (Danone Waters)
	Alistair Sayers (Orangina Group)	

RecyClass

EPBP Platform



- Testing protocols and procedures
 - PET Recycling Test Protocol
 - QT500 – Oven test
 - QT502 – sink float separation
 - QT504 – glue separation
 - QT507 – label bleeding
 - **QT-508 – Pressure sensitive label**

RecyClass

	YES Full compatibility – materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PET recycling	CONDITIONAL Limited compatibility – materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PET recycling	NO Low compatibility – materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PET recycling
<u>Material</u>	PET		PLA; PVC; PS; PETG
<u>Size</u>			smaller than 4 cm (when compacted) or larger than 5 liters
<u>Colours</u>	transparent clear; transparent light blue	..	other transparent colours; opaque; fluorescence; metallic
<u>Barrier</u>	SiOx plasma-coating	carbon plasma-coating; Nylon-MXD6 in a 3-layer structure with up to 5 wt% Nylon-MXD6 and no tie layers; PGA multilayer ; PTN alloy	Nylon-MXD6 in a 3 layer structure, with > 5 wt% Nylon- MXD6 or with tie layers; Nylon-MXD6 in a 5 layer structure; monolayer Nylon-MXD6 blend; EVOH
<u>Additives</u>		UV stabilisers; AA blockers; optical brighteners; oxygen scavengers	bio-/oxo-/photodegradable additives; nanocomposites
<u>Closure Systems</u>	PE; PP; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g. highly filled PE; metals); non-detaching or welded closures
<u>Liners, Seals and Valves</u>	PE; PE+EVA; PP; foamed PET; all with density <1 g/cm ³	silicone with density <0.95 g/cm ³ ; floatable TPE	materials with density >1 g/cm ³ (e.g. PVC, silicone, metals)
<u>Labels</u>	PE; PP; OPP; EPS; foamed PET; all with density <1 g/cm ³	lightly metallised labels (density <1 g/cm ³); paper	materials with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG; PLA); metallised materials; non-detaching or welded labels; foamed PETG (even with density <1 g/cm ³); PET with washable inks
<u>Sleeves</u>	sleeves with partial bottle coverage in PE; PP; OPP; EPS; foamed PET; LDPE; all with density <1 g/cm ³	full sleeves translucent for IR detection in PE; PP; OPP; EPS; foamed PET; LDPE; all with density <1 g/cm ³ (INTERIM: Twin-perforated sleeves for household and personal care)	materials with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG); metallised materials; heavily inked sleeves; full body sleeves; foamed PETG (even with density <1 g/cm ³); PET with washable inks
<u>Tamper Evidence Wrap</u>	PE; PP; OPP; EPS; foamed PET; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g metal; PVC; PS; PET; PETG); metallised materials; foamed PETG (even with density <1 g/cm ³); PET with washable inks
<u>Adhesives</u>	alkali/water soluble and alkali/water releasable at 60-80 C without reactivation	hot-melts ; pressure-sensitive labels	
<u>Inks</u>	non-toxic; follow EUPIA Guidelines		inks that bleed; toxic or hazardous inks; metallic inks
<u>Direct Printing</u>	laser marked	production or expiry date	any other direct printing
<u>Other Components</u>	base cup, handles or other components which are separated by grinding and float/sink - all with density <1 g/cm ³ ; unpigmented PET		materials with density >1 g/cm ³ (e.g. metal, RFID tags); non- detaching or welded components; coloured P



 Design guidelines Colored bottles	YES Full compatibility – materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PET recycling	CONDITIONAL Limited compatibility – materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PET recycling	NO Low compatibility – materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PET recycling	<h1>RecyClass</h1>
	Material	PET		PLA; PVC; PS; PETG
	Size			smaller than 4 cm (when compacted) or larger than 5 liters
	Colours	transparent, light colours	transparent, dark colours	opaque; fluorescence; metallic
	Barrier	SiOx coating; carbon plasma-coating; Nylon-MXD6 in a 3-layer structure with up to 6 wt% Nylon-MXD6 and no tie layers, PTN alloy	Nylon-MXD6 in a multilayer structure with up to 6 wt% Nylon-MXD6 and tie layers; EVOH multilayer with up to 3 wt% EVOH and no tie layers; monolayer Nylon-MXD6 blend; PGA multilayer	Nylon-MXD6 in a multilayer structure with > 6 wt% Nylon-MXD6; EVOH multilayer with >3 wt% EVOH or with tie layers
	Additives		UV stabilisers; AA blockers; optical brighteners; oxygen scavengers	bio-/oxo-/photodegradable additives; nanocomposites
	Closure Systems	PE; PP; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g. highly filled PET ; metals); non-detaching or welded closures)
	Liners, Seals and Valves	PE; PE+EVA; PP; foamed PET; all with density <1g/cm ³	silicone with density <0.95g/cm³ ; floatable TPE	materials with density >1 g/cm ³ (e.g. PVC , silicone , metals)
	Labels	PE; PP; OPP; EPS; foamed PET ; all with density <1 g/cm ³	lightly metallised labels (density <1 g/cm³) ; paper	materials with density >1 g/cm ³ (e.g. PVC ; PS ; PET ; PETG ; PLA); metallised materials ; non-detaching or welded labels ; foamed PETG (even with density <1 g/cm ³); PET with washable inks
	Sleeves	sleeves with partial bottle coverage in PE ; PP ; OPP ; EPS ; foamed PET ; LDPET ; all with density <1 g/cm ³	full sleeves translucent for IR detection in PE ; PP ; OPP ; EPS ; foamed PET ; LDPET ; all with density <1 g/cm ³ (INTERIM: Twin-perforated sleeves for household and personal care)	materials with density >1 g/cm ³ (e.g. PVC ; PS ; PET ; PETG); metallised materials ; heavily inked sleeves ; full body sleeves ; foamed PETG (even with density <1 g/cm ³); PET with washable inks
	Tamper Evidence Wrap	PE; PP; OPP; EPS; foamed PET ; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g metal; PVC ; PS ; PET ; PETG); metallised materials ; foamed PETG (even with density <1 g/cm ³); PET with washable inks
	Adhesives	alkali/water soluble and alkali/water releasable at 60-80 C without reactivation	hot-melts ; pressure-sensitive labels	
	Inks	non toxic; follow EUPA Guidelines		inks that bleed ; toxic or hazardous inks; metallic inks
	Direct Printing	laser marked	production or expiry date	any other direct printing
	Other Components	base cup, handles or other components which are separated by grinding and float/sink - all with density <1 g/cm ³ ; PET		materials with density >1 g/cm ³ (e.g. metal , RFID tags); non-detaching or welded components

The need of the new operating model

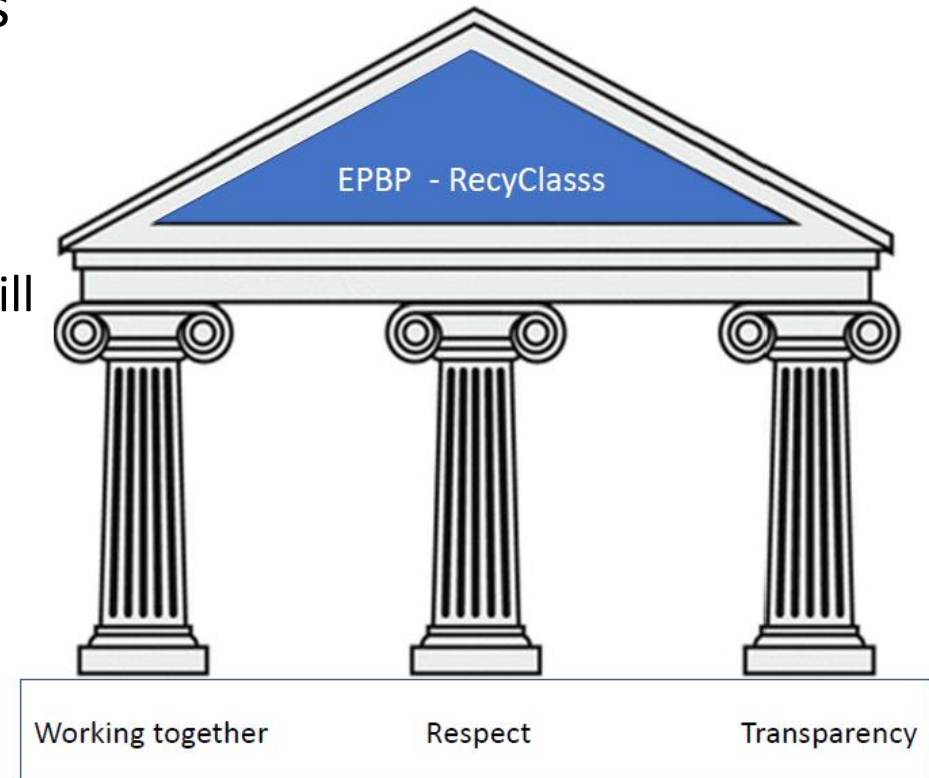


- Market is changing moving towards circularity
- Both EPBP and RecyClass must further support the numerous commitments of the industry players to increase uptake of recycled plastics, as per EU mandates
- The optimized way for this to be done, is leveraging on the experience and legacy of both organizations
- Thus EPBP and RecyClass decided to join efforts to further support the value chain actors in making the right design decisions in PET bottle production so that its recyclability, and therefore, circularity is guaranteed.



RecyClass

- The Agreement between EPBP and RecyClass has been finalized
- The Agreement
 - defines the principles and the operating framework
 - the two Technical Directors of EPBP and RecyClass will define the details.
 - The working process is based on the following pillars:
 - **Working Together**
 - **Respect**
 - **Transparency**



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graph LR
    Start(( )) --> Decision{protocol update need?}
    Decision -- Yes --> Update[EPBP updates the protocol]
    Update --> Validation[Protocol validation]
    Validation --> End(( ))
    Decision -- No --> End
  
```



www.epbp.org

New operating model. In a nut shell



- For the ongoing testing RecyClass will be using EPBP protocols.
- The responsibility for the protocols remains with EPBP.
- The implementation of existing and validated protocols is with RecyClass.
- The existing applications (in advanced status) will be finalized by EPBP.
- The agreement is that for the new applications, the new model will be applied,
- For the endorsements we are going to have a joint communication

RecyClass



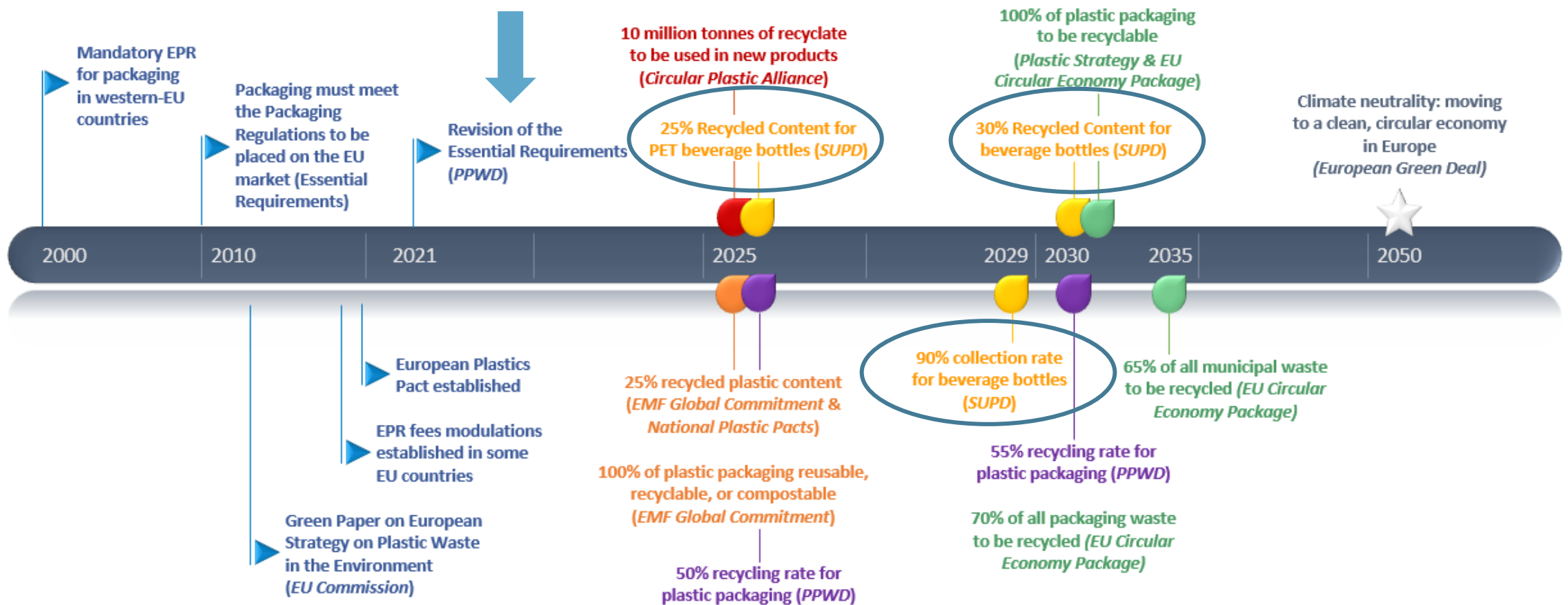
RecyClass

A graphic consisting of three thick, light blue curved arrows arranged in a circular pattern, suggesting a continuous cycle or process.

THE CIRCULARITY JOURNEY FOR THE PET BOTTLES

Fabrizio Di Gregorio – Plastics Recyclers Europe Technical Director
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RecyClass | THE CIRCULARITY JOURNEY



Multiple commitments to achieve

THE IMPORTANCE OF HARMONISED & SCIENTIFIC-BASED INFORMATION

- ✓ Strengthens and gives **credibility** to the message;
- ✓ Provides for **effective communication** with stakeholders;
- ✓ Provides **clear direction** for design for recyclability policies within brands.

RecyClass | PET – COLLABORATION WITH EPBP

3 Design for Recycling guidelines:

- TRANSPARENT CLEAR & LIGHT-BLUE PET BOTTLES
- TRANSPARENT COLOURED PET BOTTLES
- TRANSPARENT CLEAR MONO PET THERMOFORMING

Full Alignment with EPBP on bottles



TRANSPARENT CLEAR & LIGHT-BLUE PET BOTTLES

CLASS RANKING*	YES - FULL COMPATIBILITY A-B	CONDITIONAL - LIMITED COMPATIBILITY B-C	NO - LOW COMPATIBILITY D-E-F
DESCRIPTION (Test Protocol)	Materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PET recycling	Materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PET recycling	Materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PET recycling
BOTTLE**	PET		PLA; PVC; PS; PETG
MATERIAL COMPOSITION	A when PET content is > 95%; B when PET content is > 90%	C when PET content is > 70%	D when PET content is > 50%; E when PET content is > 30%; F when PET content is < 30%
COLORS	Transparent clear; Transparent light blue		Other transparent colours; Opaque; Fluorescence; Metallic < 4 cm (compacted); > 5 liter content
SIZE			D if the index is < 20%; E < if the index is 25%; F if the index is > 25%
PRODUCT RESIDUES (Easy to Empty index)	A if the index is < 5%; B if the index is < 10%	C if the index is < 15%	PA-MXD6 multilayer with <5wt% PA-MXD6 and no tie layers; PGA multilayer; PTA alloy
BARRIER	SiOx plasma coating		UV stabilisers; Acetaldehyde (AA) blockers; Optical brighteners; Oxygen scavengers
ADDITIVES			Carbon plasma-coating; PA-MXD6 multilayer with <5wt% PA-MXD6 and no tie layers; Monolayer PA-MXD6 blend; EVOH
CLOSURE SYSTEM	PE (with density <1 g/cm ³); PP (with density <1 g/cm ³)		Bio-/oxo-/photodegradable additives; Nanocomposites
LINERS, SEALS AND VALVES	PE; PE + EVA; PP; foamed PET (all with a density < 1 g/cm ³)	Silicone with density <0.95g/cm ³	Materials and blends with density >1 g/cm ³ (e.g. highly filled PE, metals,...); Non-detaching or welded closures
LABELS	Labels in PE; PP; OPP; EPS; foamed PET (all with density <1 g/cm ³), with a size that does not hinder* the recognition of the underlying PET-polymer * Indication label size of bottles > 500 ml: < 70% coverage * Indication label size of bottles ≤ 500 ml: < 50% coverage	Lightly metallized labels; Paper labels without fibrous	Labels which hinder the recognition of the underlying PET-polymer (e.g. too large, metallised, heavily inked); Labels with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG; PLA); Metallized labels; Non-detaching or welded labels; Paper labels with fibrous; Foamed PETG labels (even with density <1 g/cm ³); PET labels with washable inks
SLEEVES	Sleeves in PE; PP; OPP; EPS; foamed PET; LDPE (all with density <1 g/cm ³), with a size that does not hinder* the recognition of the underlying PET-polymer * Indication sleeve size of bottles > 500 ml: < 70% coverage * Indication sleeve size of bottles ≤ 500 ml: < 50% coverage	Full sleeves translucent for IR detection in PE; PP; OPP; EPS; foamed PET; LDPE; all with density <1 g/cm ³ INTERIM: Twin-perforated sleeves for household and personal care conform guidelines by EPBP	Sleeves which hinder the recognition of the underlying PET-polymer (e.g. too large, metallised, heavily inked); Sleeves with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG); Foamed PETG sleeves (even with density <1 g/cm ³); PET sleeves with washable inks
TAMPER EVIDENCE WRAP	PE; PP; OPP; EPS, Foamed PET (all with density <1 g/cm ³)		Materials with density >1 g/cm ³ (e.g. metal; PVC; PS; PET; PETG); Metallized materials; Foamed PETG (even with density <1 g/cm ³); PET with washable inks
ADHESIVES FOR LABELS	Alkali/water soluble and alkali/water releasable adhesive at 60-80°C without reactivation	Hot-melts; Pressure-sensitive labels	Non-soluble in water or alkaline at 60-80°C; Non-releasable in water or alkaline at 60-80°C
INKS	Non-toxic (according to EUPA guidelines)		Inks that bleed; Toxic or hazardous inks; Metallic inks
DIRECT PRINTING	Laser marked print		Any other direct printing
OTHER COMPONENTS	Base cup, handles or other components which are separated by grinding and float/sink - all with density <1 g/cm ³ ; Unpigmented PET	Production or expiry date	Materials with density >1 g/cm ³ (e.g. metal, RFID tags); Non-detaching or welded components Coloured PET
RECYCLED CONTENT	No change in the recyclability assessment. A separate 'Recycled Content Traceability Certification' based on a Chain of Custody approach is available with RecyClass		

Last update - February 2021

* Class ranking resulting from the RecyClass assessment. B class is reported two times because of the 90-95% amount of PET in the packaging or because of slight incompatibilities in the design.

** Polymer resin can be either fossil- or bio-based.



TRANSPARENT COLOURED PET BOTTLES

RANKING*	YES - FULL COMPATIBILITY A-B	CONDITIONAL - LIMITED COMPATIBILITY B-C	NO - LOW COMPATIBILITY D-E-F
DESCRIPTION (Test Protocol)	Materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PET recycling	Materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PET recycling	Materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PET recycling
E**	PET		PLA; PVC; PS; PETG
BAL COMPOSITION	A when PET content is > 95%; B when PET content is > 90%	C when PET content is > 70%	D when PET content is > 50%; E when PET content is > 30%; F when PET content is < 30%
RS	Transparent light colours	Transparent dark colours	Opaque; Fluorescence; Metallic < 4 cm (compacted); > 5 liter content
ICT RESIDUES (Empty index)	A if the index is < 5%; B if the index is < 10%	C if the index is < 15%	D if the index is < 20%; E < if the index is 25%; F if the index is > 25%
ER	SDx coating; Carbon plasma-coating; PA-MXD6 multilayer with <6wt% PA-MXD6 and no tie layers; PTA alloy	EVOH multilayer with <3 wt% EVOH and no tie layers; PA-MXD6 multilayer with <6wt% PA-MXD6 including tie layers; Monolayer PA-MXD6 blend; PGA multilayer UV stabilisers; Acetaldehyde (AA) blockers; Optical brighteners; Oxygen scavengers	EVOH multilayer with >3wt% EVOH or with tie layers. PA-MXD6 multilayer with >6wt% PA-MXD6
VES	PE (with density <1 g/cm ³); PP (with density <1 g/cm ³)		Bio-/oxo-/photodegradable additives; Nanocomposites
RE SYSTEM	PE; PE + EVA; PP; foamed PET (all with a density < 1 g/cm ³)	Silicone with density <0.95g/cm ³	Materials and blends with density >1 g/cm ³ (e.g. highly filled PE, metals,...); Non-detaching or welded closures
L SEALS AND VALVES	Labels in PE; PP; OPP; EPS; foamed PET (all with density <1 g/cm ³), with a size that does not hinder* the recognition of the underlying PET-polymer * Indication label size of bottles > 500 ml: < 70% coverage * Indication label size of bottles ≤ 500 ml: < 50% coverage	Lightly metallized labels; Paper labels without fibrous	Labels which hinder the recognition of the underlying PET-polymer (e.g. too large, metallised, heavily inked); Labels with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG; PLA); Metallized labels; Non-detaching or welded labels; Paper labels with fibrous; Foamed PETG labels (even with density <1 g/cm ³); PET labels with washable inks
S	Sleeves in PE; PP; OPP; EPS; foamed PET; LDPE (all with density <1 g/cm ³), with a size that does not hinder* the recognition of the underlying PET-polymer * Indication sleeve size of bottles > 500 ml: < 70% coverage * Indication sleeve size of bottles ≤ 500 ml: < 50% coverage	Full sleeves translucent for IR detection in PE; PP; OPP; EPS; foamed PET; LDPE; all with density <1 g/cm ³ INTERIM: Twin-perforated sleeves for household and personal care conform guidelines by EPBP	Sleeves which hinder the recognition of the underlying PET-polymer (e.g. too large, metallised, heavily inked); Sleeves with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG); Foamed PETG sleeves (even with density <1 g/cm ³); PET sleeves with washable inks
ES			Materials with density >1 g/cm ³ (e.g. metal; PVC; PS; PET; PETG); Metallized materials; Foamed PETG (even with density <1 g/cm ³); PET with washable inks
IR EVIDENCE WRAP	PE; PP; OPP; EPS, Foamed PET (all with density <1 g/cm ³)		Non-soluble in water or alkaline at 60-80°C; Non-releasable in water or alkaline at 60-80°C
INKS FOR LABELS	Alkali/water soluble and alkali/water releasable adhesive at 60-80°C without reactivation	Hot-melts; Pressure-sensitive labels	Inks that bleed; Toxic or hazardous inks; Metallic inks
F PRINTING	Non-toxic (according to EUPA guidelines)		Any other direct printing
L PRINTING	Laser marked print		Materials with density >1 g/cm ³ (e.g. metal, RFID tags); Non-detaching or welded components Coloured PET
COMPONENTS	Base cup, handles or other components which are separated by grinding and float/sink - all with density <1 g/cm ³ ; PET	Production or expiry date	
LED CONTENT	No change in the recyclability assessment. A separate 'Recycled Content Traceability Certification' based on a Chain of Custody approach is available with RecyClass		

Last update - February 2021

Ranking resulting from the RecyClass assessment. B class is reported two times because of the 90-95% amount of PET in the packaging or because of slight incompatibilities in the design or resin can be either fossil- or bio-based.

RecyClass | TESTING PROTOCOLS

Packaging solutions and/or innovations covered by the Protocols include among others: *resins, barrier materials, mineral fillers/additives, closure systems, liners, seals and valves, labels and sleeves, adhesives, and inks.*



[See all the protocols online](#)

Recyclability Evaluation Protocols

- Recyclability Protocol for PE films
- Recyclability Protocol for HDPE containers
- Recyclability Protocol for PP containers
- Recyclability Protocol for PP films
- **Recyclability Protocol for PET bottles (EPBP)**
- Recyclability Protocol for PET trays (Petcore Europe/EPTP)
- Recyclability Protocol for PS containers

Sorting

- [Sorting Protocol for plastic packaging](#)

Quick Test Procedures

- Washing QT Procedure for film labels and adhesives
- Washing QT Procedure for paper labels and adhesives
- Bleeding Inks QT Procedures
- **EPBP QT protocols for PET bottles**

RecyClass



RECYCLABILITY

- ✓ Testing Protocols
- ✓ DfR Guidelines
- ✓ Recyclability Methodology
- ✓ Online-Tool
- ✓ Recyclability Certifications & associated claims/logos

RECYCLED CONTENT

- ✓ Recycled Plastics calculation (controlled blending approach)
- ✓ Recycled Plastics Traceability Certification & associated claims/logos

RecyClass | HOW TO CLAIM RECYCLABILITY ?

DESIGN FOR RECYCLING GUIDELINES

The image shows a portion of a detailed table titled 'RecyClass Natural HDPE Containers and Tubes'. The table is organized into three main columns: 'HIGH RECYCLABILITY (A-B)', 'CONVENTIONAL RECYCLABILITY (C-D)', and 'LOW RECYCLABILITY (E-F)'. Each column contains specific design recommendations and requirements for different components of the packaging, such as 'Material', 'Shape', 'Color', 'Labels', and 'Fasteners'. The 'A-B' column highlights features that facilitate recycling, while the 'E-F' column lists factors that hinder it.

- Design guide & recommendations for plastic packaging
- Design for Recycling (DfR) Guidelines transposed in the tool
- Assessing **overall recyclability** of a finished package

RECYCLASS TOOL



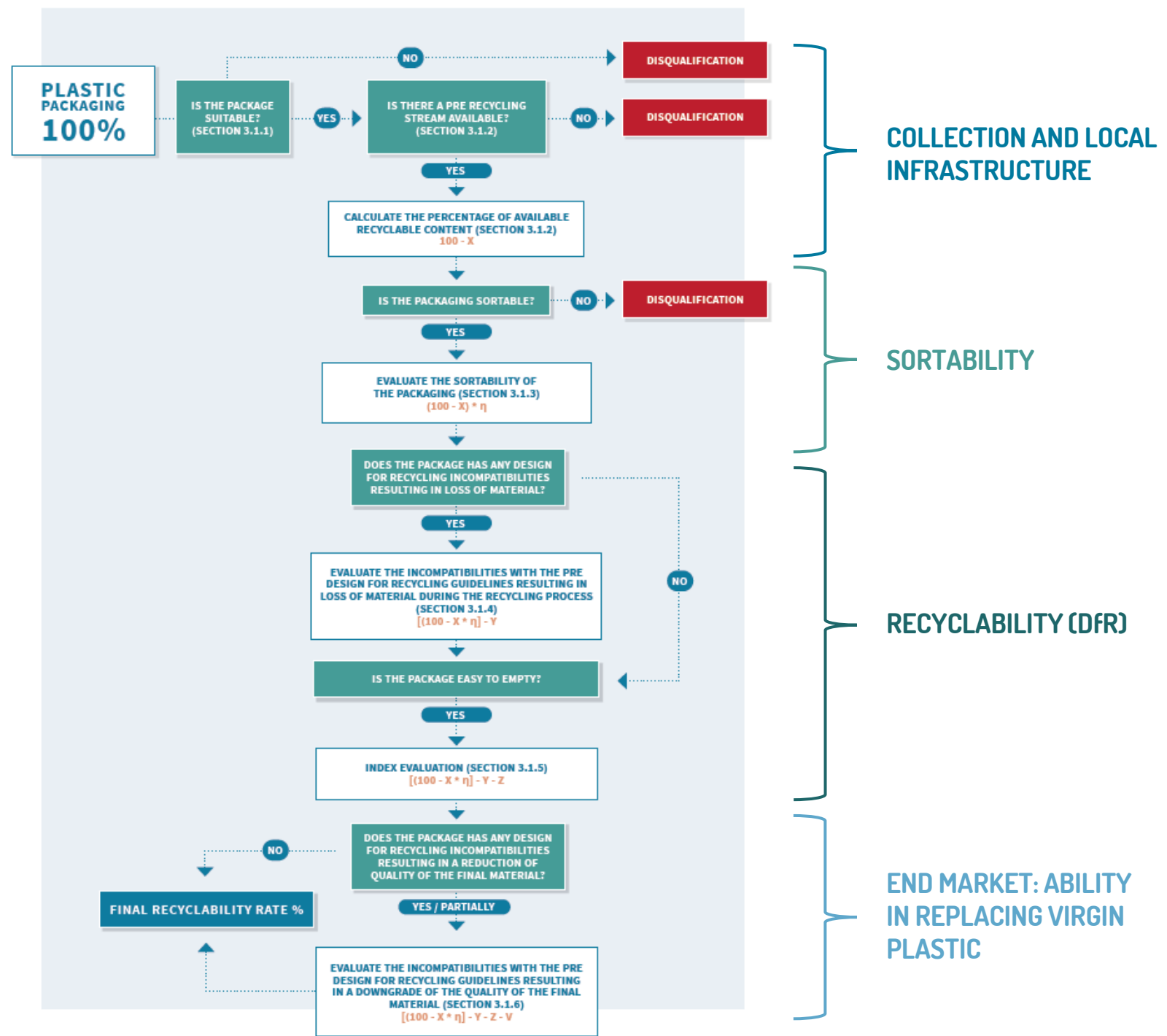
- Recyclability Self-Assessment
- RecyClass Team support

RECYCLABILITY CERTIFICATION

The image shows a template for a 'RecyClass RECYCLABILITY RATE CERTIFICATE'. It includes fields for 'PRODUCT NAME', 'BRAND NAME', and 'LEGAL COMPANY NAME AND ADDRESS'. A large '90%' is displayed next to the 'RECYCLABILITY' heading, with a note explaining that this value represents the proportion of material in the packaging that is recoverable and valuable for recycling. The certificate also features the RecyClass ABCDEF logo and a section for 'CERTIFIED BY' with fields for the auditor's name, date of issue, and date of expiration. The footer contains contact information for RecyClass and a page number 'PAGE 1/1'.

- Recyclability **Assessment** by recognized Certification Bodies

RecyClass



EXAMPLE: PET BOTTLE ASSESSMENT



COMPOSITION:

- PET BOTTLE 88,0%
- PP CAP 9,0%
- PE LABEL 3,0%

ADDITIONAL INFORMATION:

- PET BOTTLE WITHOUT BARRIER LAYER
- NO DIRECT PRINTING ON THE BOTTLE
- 0,1% WATER-SOLUBLE ADHESIVE (IN HOT ALKALINE WASH WATER)
- 0,2% PRINTING ON THE LABEL



SUITABILITY:

It is made of more than 50% plastic
More than 50% of its surface is made of plastic
The bottle is not coupled with other materials
▷ $X = 0$; Interim result = $(100 - X) = 100\%$

COLLECTION:

PRE recycling stream exists
▷ Interim result = $(100 - X) = 100\%$

SORTABILITY:

No carbon black surface, No Al layer > 5 microns, No full sleeves, no dark color, no multilayers, no metal components, label covering < 50% the bottle surface -> no need to sorting test
▷ $\eta_{\text{sort}} = 1$ Interim result = $(100 - X) * \eta_{\text{sort}} = 100\%$

DFR COMPATIBILITY:

No disqualifying items
The PP cap will float and will be recycled as by-product
The PE label will float and will be recycled as by-product
The water-soluble adhesive will allow the PE label to detach from the bottle (i.e. -0,1%)
▷ $Y = 0$ Interim result = $[(100 - X) * \eta_{\text{sort}}] - Y = 99,9\%$

EASY TO EMPTY:

The bottle will be completely emptied after use (Index = 0)
▷ $Z = 0$ Interim result = $[(100 - X) * \eta_{\text{sort}}] - Y - Z = 99,9\%$

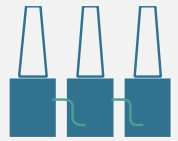
REPLACE VIRGIN PLASTIC:

The PET bottle is designed with all separable materials/substances
The PP cap will be recycled in a mix of polyolefin stream (i.e. -9*0,25)
The label will be recycled in a mix of polyolefin stream (i.e. -3*0,25)
Adhesive and inks never get recycled and are deducted by the rate (i.e. 3-0,1-0,2)
▷ Final result = $[(100 - X) * \eta_{\text{sort}}] - Y - Z - V = 99,9 - 9*0,25 - 3*0,25 = 96,9\%$ (Class A)

RecyClass | RECYCLED PLASTIC CERTIFICATION

➔ Certification **recognises the use of recycled plastics in products** via an independent third-party audit. Certification is granted to a process linked to a product or group of products.

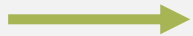
➔ Audit Scheme verifies the traceability of recycled material in different process steps throughout **the whole chain of custody of the recycled material**.



RECYCLER



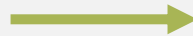
Traceability
Certification
EN 15343



COMPOUNDER



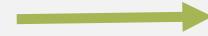
Recycled Content
Traceability
Certification



CONVERTER



Recycled Content
Traceability
Certification



PRODUCER



Recycled Content
Traceability
Certification

RecyClass | RECENT DEVELOPMENTS

ALIGNMENT WITH CPA AUDIT FRAMEWORK REQUIREMENTS*

- Addition of an Annex to be compliant with the CPA Audit Framework requirements.
- The Audit can be used as a verification of use of recycled plastics in a site/process.
- *Pending official approval by the CPA Monitoring WG

**CERTIFICATION READY
FOR ACCREDITATION**

- RecyClass Conformity Assessment Scheme positively evaluated by the European co-operation for Accreditation according to ISO 17065.
- Currently, coordination of recognised certification bodies to operate under accreditation (transition period of 2 years defined)

RecyClass

8. ANNEX I: CIRCULAR PLASTICS ALLIANCE

The following Annex verifies the tonnages to be reported to a CPA compliant Data Collector to count towards the monitoring of recycling and uptake of recyclates in the EU.

This Annex applies only to converters following the CPA definition.

The following data points were evaluated and verified for the period XXXX.

The following data is compliant with Traceability Level X

8.1 CONVERTER'S TOTAL INPUT

Specify the Converter's Total Input value and the period assessed below to be declared:

[illegible]

*Reporting optional for Traceability 2

**Report only for Traceability Level 1

Detail how the calculation was done to obtain the value and verify it is plausible

Check if any Converter's Input was supplied by a trader. If this is the case, keep in mind that traders and compounders are subject to the same information obligation as recyclers (according to either Traceability level 1 or 2).

If the plant has received any material which has been refused that is recorded. That material cannot be included in the reported tonnages.

8.2 CONVERTER'S OUTPUT

Specify the Converter's Total Output value and the period assessed below to be declared

LOGOS WITH ADDITIONAL INFORMATION

RecyClass Recycled Plastics logo - Example use of 35% of pre-consumer recycled plastics



RecyClass Recycled Plastics Traceability Certification ready for accreditation

RecyClass Conformity Assessment Scheme positively evaluated by the European co-operation for Accreditation

With the positive evaluation by the European co-operation for Accreditation (EA)'s, RecyClass Recycled Plastics Traceability Certification becomes the go-to scheme for companies that want to comply with the standard EN 15343:2007 and to stay ahead in the circular transition. The scheme verifies and certifies the origin, as well as the percentage of recycled content in, beyond packaging, virtually any plastic products in line with the latest market and regulatory developments.

"It is a clear signal to all the actors of the value chain who are searching for a reliable and credible scheme to certify the circularity of their plastic products", said Paolo Gleréan, Chairman of RecyClass. "This positive evaluation will bring more transparency on the market and give confidence to both downstream and end-users. We are convinced that such a robust tool will constitute major support for the companies willing to substantiate their commitment on the use of recycled plastics" he added.

enlabeling
YOUR BRAND



EBPB AND RECYCLASS FROM A PRACTICAL PERSPECTIVE



We are CCL – global leader of labels and packaging



Global Locations

191 *production facilities*
in **42** *countries over 6 continents*



We work **globally**, specialise regionally and deliver to you locally.



Partnerships & Commitment

Together with our partners we work towards a sustainable future of packaging.



Global
Commitment

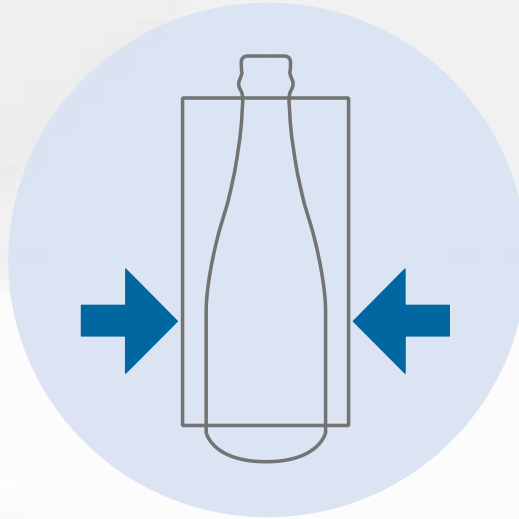
RecyClass



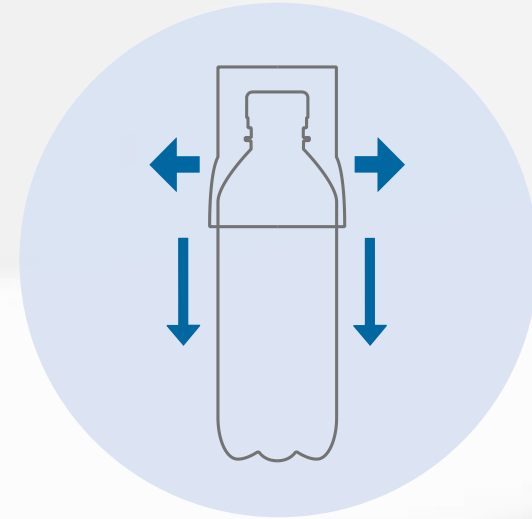
PET Bottle Decoration Solutions



PSL
(Self-Adhesive Label)



Shrink Sleeve



Stretch Sleeve

EcoFloat®

Shrink Sleeve that enables bottle-to-bottle recycling of PET bottles
& meets critical guidance from ,  & CITEO



Lower carbon footprint



Supports circularity



Easy separation from PET bottle due to low density material



100% of PET can be reused -> helps achieve recycling targets



Sleeve floats, even with fully printed designs



No contamination or discolouration of washing bath





EcoStream[®]

PSL that enables bottle-to-bottle recycling of PET bottles and meets critical guidance from  & 

Solving a pressing industry issue: Bleeding inks & contamination of water & PET during the wash process does not occur with EcoStream!



Lower carbon footprint



Supports circularity



Clean separation of labels and PET bottle flakes



PET bottle flakes can be reused immediately



Detached labels float to surface & PET sinks (easy separation)



Construction prevents contamination or discolouration of washing bath & PET flakes



Design Guidelines



Please select a product from below:

Transparent clear / light blue PET bottles
Transparent coloured PET bottles
Opaque PET bottles

	YES Full compatibility – materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PET recycling	CONDITIONAL Limited compatibility – materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PET recycling	NO Low compatibility – materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PET recycling
Material	PET		PLA; PVC; PS; PETG
Size			smaller than 4 cm (when connected) or larger than 5 liters
Colours	transparent clear; transparent light blue		other transparent colours; opaque; fluorescence; metallic
Barrier	SiOx plasma-coating	carbon plasma-coating; Nylon-MXD6 in a 3-layer structure with up to 5 wt% Nylon-MXD6 and no tie layers; PGA multilayer; PTN alloy	Nylon-MXD6 in a 3 layer structure with > 5 wt% Nylon-MXD6 or with tie layers; Nylon-MXD6 in a 5 layer structure; monolayer Nylon-MXD6 blend; EVOH
Additives		UV stabilisers; AA blockers; optical brighteners; oxygen scavengers	bio-/oxo-/photodegradable additives; nanocomposites
Closure Systems	PE; PP; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g. highly filled PE; metals); non-detaching or welded closures
Liners, Seals and Valves	PE; PE+EVA; PP; foamed PET; all with density <1 g/cm ³	silicone with density <0.95 g/cm ³ ; floatable TPE	materials with density >1 g/cm ³ (e.g. PVC; silicone; metals)
Labels	PE; PP; OPP; EPS; foamed PET; all with density <1 g/cm ³	lightly metallised labels (density <1 g/cm ³); paper	materials with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG; PLA); metallised materials; non-detaching or welded labels; foamed PETG (even with density <1 g/cm ³); PET with washable inks
Sleeves	sleeves with partial bottle coverage in PE; PP; OPP; EPS; foamed PET; LDPE; all with density <1 g/cm ³	full sleeves translucent for IR detection in PE; PP; OPP; EPS; foamed PET; LDPE; all with density <1 g/cm ³ (INTERIM: Twin-perforated sleeves for household and personal care)	materials with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG); metallised materials; heavily inked sleeves; full body sleeves; foamed PETG (even with density <1 g/cm ³); PET with washable inks
Tamper Evidence	PE; PP; OPP; EPS; foamed PET		materials with density >1 g/cm ³

Inks	non-toxic; follow EUPIA Guidelines		inks that bleed; toxic or hazardous inks; metallic inks
Adh	reactivation		
Inks	non-toxic; follow EUPIA Guidelines		inks that bleed; toxic or hazardous inks; metallic inks

Labels

PE; PP; OPP; EPS; [foamed PET](#) ;
all with density <1 g/cm³

Adhesives

alkali/water soluble and alkali/water
releasable at 60-80 C without
reactivation

Sleeves

[sleeves with partial bottle coverage](#) in PE; PP; OPP; EPS;
[foamed PET](#); [LDPE](#); all with
density <1 g/cm³

Inks

non-toxic;
[follow EUPIA Guidelines](#)

[inks that bleed](#);
toxic or hazardous inks; metallic inks

[Link: Design Guidelines - EPBP - European PET Bottle Platform](#)

EPBP Application + QTs



Application with detailed information of innovation (NDA)



Test design provided by EPBP



Quick Tests available for verification and optimization of innovation



Execution of full tests at independent test laboratory



Evaluation of results and feedback report by EPBP – full/limited/low compatibility



Quick Tests

Shrink Sleeves



QT 502 – Sink Float Separation



QT 507 – Label Bleeding

Pressure Sensitive Labels



QT 507 – Label Bleeding



QT 508 – Pressure Sensitive Labels



Quick Tests

Shrink Sleeves



QT 502 – Sink Float Separation

Apparatus

- Technical balance, accurate to 0,1 g
- Beakers of 1000 ml
- Hot plate stirrer, or similar equipment
- pH meter
- Drying oven
- Thermometer(0-100°C, +/-1°C)

Sample

- 50 g PET flakes (bottle regrind - clean and dry - no caps/labels) - record the weight
- 50 g regrind from test sample (cap, label, seal, etc. - clean and dry) - record the weight

Procedure (foamed materials and shrink sleeves or labels)

- Fill beaker with 700 ml tap water (pH between 7 and 8)
- Boil the water for 10 minutes, and allow cooling to room temperature
- Transfer 350 ml of the boiled and cooled water to another beaker
- Heat this water at 85°C
- Put the test sample in the hot water and stir at 500 rpm for 15 minutes
- Remove the beaker from the magnetic stirrer
- Allow the water to cool down to 25-30°C
- Remove all particles that float at the surface with a sieve
- Eliminate any PET flakes which might got trapped in the floatables
- Dry the floating fraction for 2 hours at 80°C
- Cool to room temperature, weigh and record the weight of the float fraction
- Repeat the test with the PET bottle regrind



EPBP Endorsements

CCL works with “Third Party” approval to make sure that products put on the market are in line with existing recycling infrastructure & technology



Credibility



Marketing Advantage

Tests based on protocol



In line with recycling



Harmonized protocols ensure a standardized approach for the industry

Multinationals require endorsement



25-30% recycled content



Avoids making false claims
- greenwashing





Thank you!

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[@CCL Label](#)



[@LabelCcl](#)

Questions & Answers

Use the Q&A box in the top-right corner of your screen



RecyClass



Thank you for participating!

Join us at future webinars:

20 April
6 July

RecyClass