COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

SESSION 3

MASTERCLASS RECYCLING

a deep dive into recycling of household packaging

suez circpack® EXPERTISE & CERTIFICATION

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

The PROGRAMM & etiquette of meetings

Masterclass Recycling – Session 3

suez circpack® EXPERTISE & CERTIFICATION

The programm

Five sessions into recycling of household packaging

1 Collection & Sorting

26-01-2021 | 10.00 – 11.30 CET

- What is ‘recyclable’?
- Legal background on packaging waste
- Collection systems
- Sorting of packaging & technologies used.
- Standard design & sorting issues in sorting
- New sorting technologies (digital watermarking & Image recognition)

2 Reprocessing

02-02-2021 | 10.00 -11.15 CET

- Reprocessing in Europe
- Additional sorting at the reprocessor explained
- Technologies in place
- Upcoming reprocessing technologies: Chemical recycling
- Recycling vs LCA vs CO_2-emission

3 Design & Certification

09-02-2021 | 10.00 – 11.15 CET

All participants will receive PDF with Design for recycling Guidelines

- Design for Recycling Guidelines;
- Training: How to make a self-assessment of recyclability for your packaging
- Mindeststandard in Germany, RecycleCheck in NL
- Certification conform RecyClass

4 Producer Responsibility

16-02-2021 | 10.00 – 11.00 CET

- Everything you want to know on Extended Producer Responsibility (EPR-systems) throughout the world
- What is changing in EPR for packaging
- Presented by Lorax for legislation & registration, supported by SUEZ.circpack for everything on recycling

5 One-on-one session

60 minutes | **Date to be aligned with you**

- Opportunity to ask additional questions in a one-on-one live session with a SUEZ.circpack expert.
- Get answers to your dedicated questions that are really important for you and your company
- No competitors listening!

Etiquette during the meeting

- Slides will be provided after the meeting
- Question? ask via the chat
- Have your QR-scanning app ready on your mobile:

- SCAN ME -

- Your competitors might be listening. Do not share anything that you do not want to be public
- Do not discuss prices, fees, margins, customers, etc.
- When you feel that regulatory rules are broken, please inform us via chat in order for us to take action.

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

1

RECAP OF SESSION ONE & TWO

Masterclass Recycling – Session 3

suez circpack® EXPERTISE & CERTIFICATION

Recap of session One

26-01-2021 10.00 – 11.30 CET

Collection & Sorting

1

- What is 'recyclable'?
- Legal background on packaging waste
- Collection systems
- Sorting of packaging & technologies used.
- Standard design & sorting issues in sorting
- New sorting technologies (digital watermarking & Image recognition)

1. COLLECTION
2. SORTING
3. REPROCESSING
4. APPLICATION

= RECYCLABLE

Consumer perception → Political awareness → Legislation

Robotization

Image Recognition

Deep learning

EU targets 2025/2030:

Recycling:
50% by 2025 and 55% by 2030

NEW Calculation of recycling:

100% put on market → xx% collected & sorted → xx% brought to reprocessor → 50% output of reprocessor

Screening sieve drum (Fines/Rest) → FE/non-FE detection (Metals (Alu / Steel)) → NIR (Tetra / Drinking Cardboards) → Wind-sifting / Ballistic (Mixed plastics → Films>DIN A4) → Optical Sorting: manual by shape and automatic by NIR (Mixed plastics → PE, PP, PET, (PS); Rest)

Recap of session two

02-02-2021 10.00 -11.15 CET

Reprocessing

2

- Reprocessing in Europe
- Additional sorting at the reprocessor explained
- Technologies in place
- Upcoming reprocessing technologies: Chemical recycling
- Recycling vs LCA vs CO_2-emission

How much additional sorting is required?

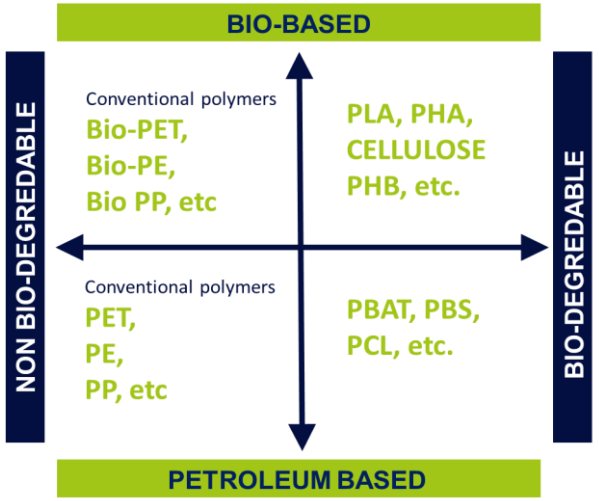
- ORIGIN?
- Quality of INPUT?
- **Quality of OUTPUT?**
- APPLICATION?

SORTING PROCESSES:

- Shredding & Washing
- Label separation
- Friction
- **Sink-float**
- **Optical sorting of polymer (NIR)**
- **Optical sorting of color (CCD camera's)**
- **Magnetic Density Separation (liquisort)**
- **Elutriator (zigzag windsifter)**
- Air classification (wind sifting)
- (Hydro)cyclone / Centrifuge
- **Tribo electric seperation**
- Magnetic (FE)
- Pulping (Cardboard & Tetra)

A balancing act....

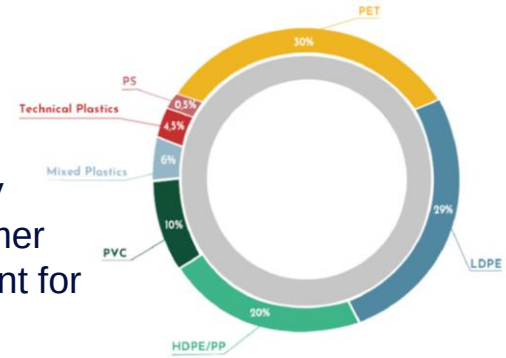
Recyclability vs Recycled content
Reducing plastics vs Recyclability
Recyclability vs Carbon footprint
Carbon footprint vs LCA
Prevention of littering?
Consumers perception



Crude oil Natural gas → Refined hydrocarbons → Monomers / Intermediates → Polymers → Plastics → Function → Plastic waste

PLASTIC CHEMICAL RECYCLING

- **8.5 MT** EU installed reprocessing capacity
- **7,5 Mt** of post consumer packaging plastics sent for recycling



COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

Design for recycling GUIDELINES

Masterclass Recycling – Session 3

circpack® EXPERTISE & CERTIFICATION

Design for recycling GUIDELINES

Organisation:	Country:	What?	Used for:
Citeo	France	recyclability assessment tool (LCA-based, free)	-
Cotrep	France	DfR guidelines (do & don't approach)	-
Danish Plastics Federation	Denmark	DfR guidelines	-
Der Grune Punkt (DSD)	Germany	DfR guidelines	-
EPBP	Europe	DfR guidelines + lab protocols	technology approvals
EXPRA	Europe	DfR guidelines + tool	-
FH Campus Wien	Austria	DfR guidelines + methodology	-
HTP-Cyclos	Germany	recyclability assessment (certification)	certification
IK	Germany	Eco Design of Plastic Packaging	-
IKV	Netherlands	DfR guidelines (do & don't), decision tree (for rigids)	-
OPRL (on pack recycling label)	UK	recyclability assessment (tool and labelling, only for members)	certification
Petcore Europe	Europe	DfR guidelines + recyclability protocol	technology approvals
Recoup	UK	DfR guidelines + tool (Packscore) - aligned with RecyClass	certification
RecyClass	Europe	DfR guidelines, recyclability assessment (free online tool) + certification, lab protocols	technology approvals
Suez.Circpack	Global	DfR guidelines, recyclability assessment - aligned with RecyClass	certification
WRAP	UK	DfR guidelines (yes please/no thanks approach)	-
Zentrale Stelle	Germany	DfR guidelines + methodology	certification
APR	US	DfR guidelines + lab protocols	technology approvals

Round Table Eco:Design of Plastics Packaging

Design for recycling GUIDELINES

The DO and DON'T approach:

Cotrep
Comité Technique pour le Recyclage des Emballages Plastiques

- Do
- Don't

- Flexible PE
- HDPE containers
- Clear PET (bottles and trays together)
- Dark PET (bottles and trays together)
- PP containers

Kennisinstituut Duurzaam Verpakken

- Do, difficult to recycle, don't
- Preferred/ Avoid

- PET bottles
- PET trays
- HDPE containers
- PP bowls, cups and tubes
- Pouches

wrap

- Recyclable
- Non-recyclable

Best in class material choice	Best in class colour choice	Why?

- Bottles (food and drink)
- Bottles (non-food or drink)
- Milk bottles
- Pots, tubs, trays (food and drink)
- Pots, tubs, trays (non-food and drink)

Design for recycling GUIDELINES

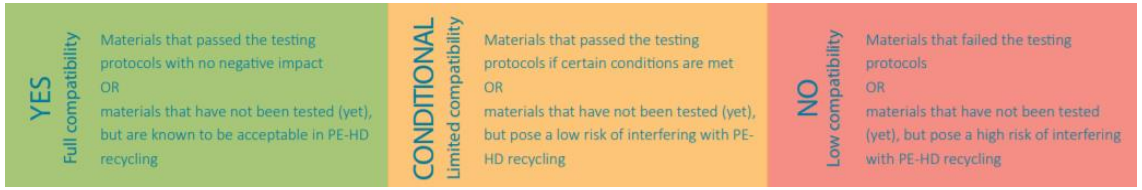
The traffic light approach:

APR	PET, HDPE, PP, PE films
Danish Plastic Foundation	PET, HDPE, PP
DSD	PET, HDPE, PP, PS, PE and PP films
EPBP	PET bottles - aligned with RecyClass
EXPRA	PET, HPDE, PP, PE films
FH Campus Wien	PET, HDPE, PP
Petcore Europe	PET trays -aligned with RecyClass
Recoup	PET, HDPE, PP, PE and PP films - aligned with RecyClass
RecyClass	PET bottle/trays, HDPE, PP, PE and PP films, PO pots, tubes, trays, HDPE/PP pallets and crates
SUEZ.circpack®	PET bottle/tray, HDPE, PP, PE and PP films - *aligned with RecyClass*
IK	PET, HDPE, PP, PE films – based on RecyClass + PS

Design for recycling GUIDELINES

Harmonized guidelines:

RecyClass



EPBP

RecyClass™ EPBP

PETcore Europe

petcore Europe RecyClass™

SUEZ.circpack®

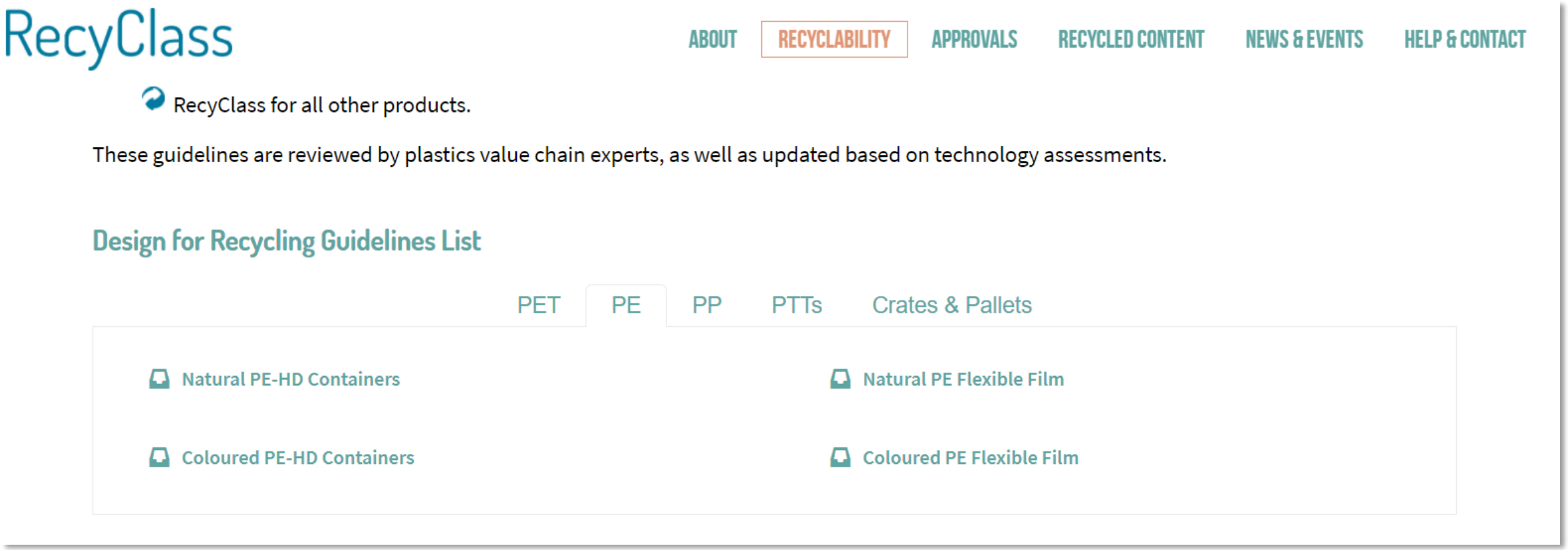
Yes! ☺	Conditional 😐	No ☹
Full compatibility for reprocessing	Limited compatibility for reprocessing	Low (or no) compatibility for reprocsssing

Recoup

COMPATIBLE	MAY BE SUITABLE	NOT SUITABLE
for recycling for most applications	for recycling for some applications	for recycling

Design for recycling GUIDELINES

https://recyclass.eu/recyclass/design-for-recycling-guidelines/



HDPE Design for recycling GUIDELINES

PE-HD Natural Containers and Tubes

RecyClass	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	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 HDPE 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 HDPE recycling	Materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with HDPE recycling
Container**	HDPE; Multilayer HDPE with other PE (LLDPE, LDPE, MDPE).		Multilayers HDPE with PLA; PVC; PS; PET; PETG
Material composition	A when PE content is > 95%; B when PE content is > 90%	C when PE content is > 70%	D when PE content is > 50%; E when PE content is > 30%; F when PE content is < 30%
Colours	Natural (clear);	Light colours	Black Inner layer; Black; Carbon Black; Other dark colours
Size		Items compacted < 5 cm	Items compacted < 2 cm
Product residues (Easy to 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%
Barrier	EVOH < 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layers ratio ≤ 2; Enkase (fluorination)	EVOH > 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layers ratio ≤ 2; EVOH < 1% with any other tie layers	EVOH > 1% with any other tie layers; PA; PVDC; Aluminium
Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants, nucleating agents, peroxides) and density remains < 0,97 g/cm³	Mineral fillers ($CaCO_3$, talc) not increasing density more than 0,97 g/cm³	Additives changing the material density > 1 g/cm³ Flame-retardant additives, plasticizers Bio-/oxo-/photodegradable additives
Closure Systems	HDPE; LDPE; LLDPE; MDPE	PP; PET; PETG; PLA; PS (all with a density > 1 g/cm³).	Non-PO and/or foams with density < 1 g/cm³; Aluminium; Metal; PVC
Liners, Seals and Valves	HDPE; LDPE; LLDPE; MDPE TPE-PE	PP; TPE-PP PET, PETG, PLA ; PS (all with a density > 1 g/cm³); Removable aluminium lidding; Removable silicon with a density > 1 g/cm³	Non-PO and/or foams with density < 1 g/cm³; Any other TPE Aluminium; Metal; Foiled paper; PVC
Labels	Labels in HDPE, LDPE, LLDPE, MDPE (all with density < 1 g/cm³)* * with a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer	Labels in PP (with density < 1 g/cm³)*; Labels in PET, PETG, PLA, PS (all with density > 1 g/cm³)*; Labels in Paper without fibreloss*; PO-foamed labels*; * with a size, a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer: - Indication label size on containers > 500 ml: < 70% coverage - Indication label size on containers ≤ 500 ml: < 50% coverage	Labels that hinder the recognition of the PE; Labels in non PO-materials with density < 1 g/cm³ ; Paper labels with fibreloss during recycling process Aluminium Metallised labels; PVC
Sleeves	Sleeves in HDPE, LDPE, LLDPE, MDPE (all with density < 1 g/cm³)* * with a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer	Sleeves in PP (with density < 1 g/cm³)*; Sleeves in PET, PETG, PLA, PS (all with density >1 g/cm³)*; * with a size, a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer: - Indication sleeve size on containers > 500 ml: < 70% coverage - Indication sleeve size on containers ≤ 500 ml: < 50% coverage	Sleeves that hinder the recognition of the PE; Sleeves in non PO-materials with density < 1 g/cm³ ; Aluminium; Metallised sleeves; Heavily inked sleeves; PVC
Adhesives for labels	Water soluble or water releasable adhesive (@ less than 40°C)	Pressure sensitive labels	Non water soluble or non water releasable adhesives
Inks	Non toxic following the EuPIA Guidlines		Inks that bleed; Toxic or hazardous inks.
Direct Printing	Laser marked; Production or best-before date.		Any other direct printing
Other Components	HDPE, LDPE, LLDPE, MDPE	PP; PET; PETG; PLA; PS all with density > 1 g/cm³	Aluminium; PVC; Glass components; Foams with density < 1 g/cm³
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 - January 2021

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

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

HDPE Design for recycling GUIDELINES

PE-HD Natural Containers and Tubes

RecyClass	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	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 HDPE 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 HDPE recycling	Materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with HDPE recycling
Container**	HDPE; Multilayer HDPE with other PE (LLDPE, LDPE, MDPE).		Multilayers HDPE with PLA; PVC; PS; PET; PETG
Material composition	A when PE content is > 95%; B when PE content is > 90%	C when PE content is > 70%	D when PE content is > 50%; E when PE content is > 30%; F when PE content is < 30%
Colours	Natural (clear);	Light colours	Black Inner layer; Black; Carbon Black; Other dark colours
Size		Items compacted < 5 cm	Items compacted < 2 cm
Product residues (Easy to 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%
Barrier	EVOH < 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layers ratio ≤ 2; Enkase (fluorination)	EVOH > 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layers ratio ≤ 2; EVOH < 1% with any other tie layers	EVOH > 1% with any other tie layers; PA; PVDC; Aluminium
Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants, nucleating agents, peroxides) and density remains < 0,97 g/cm³	Mineral fillers ($CaCO_3$, talc) not increasing density more than 0,97 g/cm³	Additives changing the material density > 1 g/cm³ Flame-retardant additives, plasticizers Bio-/oxo-/photodegradable additives
Closure Systems	HDPE; LDPE; LLDPE; MDPE	PP; PET; PETG; PLA; PS (all with a density > 1 g/cm³).	Non-PO and/or foams with density < 1 g/cm³; Aluminium; Metal; PVC
Liners, Seals and Valves	HDPE; LDPE; LLDPE; MDPE TPE-PE	PP; TPE-PP PET, PETG, PLA ; PS (all with a density > 1 g/cm³); Removable aluminium lidding; Removable silicon with a density > 1 g/cm³	Non-PO and/or foams with density < 1 g/cm³; Any other TPE Aluminium; Metal; Foiled paper; PVC

HDPE Design for recycling GUIDELINES

PE-HD Natural Containers and Tubes

RecyClass	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	D-E-F
Labels	Labels in HDPE, LDPE, LLDPE, MDPE (all with density < 1 g/cm³)* * with a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer	Labels in PP (with density < 1 g/cm³)*; Labels in PET, PETG, PLA, PS (all with density > 1 g/cm³)*; Labels in Paper without fibreloss*; PO-foamed labels*; * with a size, a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer: - Indication label size on containers > 500 ml: < 70% coverage - Indication label size on containers ≤ 500 ml: < 50% coverage	Labels that hinder the recognition of the PE; Labels in non PO-materials with density < 1 g/cm³ ; Paper labels with fibreloss during recycling process Aluminium Metallised labels; PVC
Sleeves	Sleeves in HDPE, LDPE, LLDPE, MDPE (all with density < 1 g/cm³)* * with a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer	Sleeves in PP (with density < 1 g/cm³)*; Sleeves in PET, PETG, PLA, PS (all with density >1 g/cm³)*; * with a size, a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer: - Indication sleeve size on containers > 500 ml: < 70% coverage - Indication sleeve size on containers ≤ 500 ml: < 50% coverage	Sleeves that hinder the recognition of the PE; Sleeves in non PO-materials with density < 1 g/cm³ ; Aluminium; Metallised sleeves; Heavily inked sleeves; PVC
Adhesives for labels	Water soluble or water releasable adhesive (@ less than 40°C)	Pressure sensitive labels	Non water soluble or non water releasable adhesives
Inks	Non toxic following the EuPIA Guidlines		Inks that bleed; Toxic or hazardous inks.
Direct Printing	Laser marked; Production or best-before date.		Any other direct printing
Other Components	HDPE, LDPE, LLDPE, MDPE	PP; PET; PETG; PLA; PS all with density > 1 g/cm³	Aluminium; PVC; Glass components; Foams with density < 1 g/cm³
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 - January 2021

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

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

PET bottles 1/3 Design for recycling GUIDELINES

Transparent Clear and Light-blue PET bottles

EPBP RecyClass	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	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%
Colours	Transparent clear; Transparent light blue		Other transparent colours; Opaque; Fluorescence; Metallic.
Size			< 4 cm (compacted); > 5 liter content
Product residues (Easy to 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%
Barrier	SiOx plasma coating.	Carbon plasma-coating; PA-MXD6 multilayer with <5wt% PA-MXD6 and no tie layers; PGA multilayer; PTN alloy.	PA-MXD6 multilayer with >5wt% PA-MXD6 or with tie layers; Monolayer PA-MXD6 blend; EVOH.
Additives		UV stabilisers; Acetaldehyde (AA) blockers; Optical brighteners; Oxygen scavengers;	Bio-/oxo-/photodegradable additives; Nanocomposites
Closure Systems	PE (with density <1 g/cm³); PP (with density <1 g/cm³);		Materials and blends with density >1 g/cm³ (e.g. highly filled PE, metals,...); Non-detaching or welded closures.
Liners, Seals and Valves	PE; PE + EVA; PP; foamed PET (all with a density < 1 g/cm³)	Silicone with density <0.95g/cm³	Materials with density >1 g/cm³ (e.g. PVC, silicone, metals)
Labels	Labels in PE; PP; OPP; EPS; foamed PET (all with density <1 g/cm³), with a size that does not hinder* the recognition of the underlaying 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 fiberlosses	Labels which hinder the recognition of the underlaying PET-polymer (e.g. too large, metalised, heavily inked); Labels with density >1 g/cm³ (e.g.PVC; PS; PET; PETG; PLA); Metallized labels; Non-detaching or welded labels; Paper labels with fibreloss; Foamed PETG labels (even with density <1 g/cm³); PET labels with washable inks
Sleeves	Sleeves in PE; PP; OPP; EPS; foamed PET; LDPET (all with density <1 g/cm³), with a size that does not hinder* the recognition of the underlaying 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; LDPET; all with density <1 g/cm³ INTERIM: Twin-peforated sleeves for household and personal care conform guidelines by EPBP	Sleeves which hinder the recognition of the underlaying PET-polymer (e.g. too large, metalised, heavily inked); Sleeves with density >1 g/cm³ (e.g.PVC; PS; PET; PETG); Foamed PETG sleeves (even with density <1 g/cm³); PET sleeves with washable inks
Tamper Evidence Wrap	PE; PP; OPP; EPS, Foamed PET (all with density <1 g/cm³)		Materials with density >1 g/cm³ (e.g metal; PVC; PS; PET; PETG); Metallised materials; Foamed PETG (even with density <1 g/cm³); 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 EUPIA guidelines)		Inks that bleed; Toxic or hazardous inks; Metallic inks
Direct Printing	Laser marked print;	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/cm³; Unpigmented PET		Materials with density >1 g/cm³ (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 - January 2021

* Class ranking resulting by 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.

PET bottles 2/3 Design for recycling GUIDELINES

EPBP RecyClass

Transparent Clear and Light-blue PET bottles

	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	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%
Colours	Transparent clear; Transparent light blue		Other transparent colours; Opaque; Fluorescence; Metallic.
Size			< 4 cm (compacted); > 5 liter content
Product residues (Easy to 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%
Barrier	SiOx plasma coating.	Carbon plasma-coating; PA-MXD6 multilayer with <5wt% PA-MXD6 and no tie layers; PGA multilayer; PTN alloy.	PA-MXD6 multilayer with >5wt% PA-MXD6 or with tie layers; Monolayer PA-MXD6 blend; EVOH.
Additives		UV stabilisers; Acetaldehyde (AA) blockers; Optical brighteners; Oxygen scavengers;	Bio-/oxo-/photodegradable additives; Nanocomposites
Closure Systems	PE (with density <1 g/cm³); PP (with density <1 g/cm³);		Materials and blends with density >1 g/cm³ (e.g. highly filled PE, metals....); Non-detaching or welded closures.
Liners, Seals and Valves	PE; PE + EVA; PP; foamed PET (all with a density < 1 g/cm³)	Silicone with density <0.95g/cm³	Materials with density >1 g/cm³ (e.g. PVC, silicone, metals)
Labels	Labels in PE; PP; OPP; EPS; foamed PET (all with density <1 g/cm³), with a size that does not hinder* the recognition of the underlaying 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 fiberlosses	Labels which hinder the recognition of the underlaying PET-polymer (e.g. too large, metalised, heavily inked); Labels with density >1 g/cm³ (e.g.PVC; PS; PET; PETG; PLA); Metallized labels; Non-detaching or welded labels; Paper labels with fibreloss; Foamed PETG labels (even with density <1 g/cm³); PET labels with washable inks

PET bottles 3/3 Design for recycling GUIDELINES

EPBP RecyClass

Transparent Clear and Light-blue PET bottles

	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	D-E-F
Sleeves	Sleeves in PE; PP; OPP; EPS; foamed PET; LDPET (all with density <1 g/cm³), with a size that does not hinder* the recognition of the underlaying 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; LDPET; all with density <1 g/cm³ INTERIM: Twin-peforated sleeves for household and personal care conform guidelines by EPBP	Sleeves which hinder the recognition of the underlaying PET-polymer (e.g. too large, metalised, heavily inked); Sleeves with density >1 g/cm³ (e.g.PVC; PS; PET; PETG); Foamed PETG sleeves (even with density <1 g/cm³); PET sleeves with washable inks
Tamper Evidence Wrap	PE; PP; OPP; EPS, Foamed PET (all with density <1 g/cm³)		Materials with density >1 g/cm³ (e.g metal; PVC; PS; PET, PETG); Metallised materials; Foamed PETG (even with density <1 g/cm³); 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 EUPIA guidelines)		Inks that bleed; Toxic or hazardous inks; Metallic inks
Direct Printing	Laser marked print;	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/cm³; Unpigmented PET		Materials with density >1 g/cm³ (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 - January 2021

* Class ranking resulting by 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.

PE film Design for recycling GUIDELINES

PE Transparent Flexible Films Guideline for Household and Commercial Packaging

RecyClass	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	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 PE 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 PE recycling	Materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PE recycling
Main material	PE-LD, PE-LLD; PE-HD	multilayer PE/PP	any other polymer (ex. PET, PVC, etc.)
Material composition	A when PE content is > 95%; B when PE content is > 90%	C when PE content is > 70%	D when PE content is > 50%; E when PE content is > 30%; F when PE content is < 30%
Colour	unpigmented; transparent	light colours; translucent colours	dark colours; black; carbon black
Size	> A4 or > 50 x 50 mm once compacted	< A4 format or between 20 x 20 and 50 x 50 mm once compacted (Sorting test)	< 20 x 20 mm
Product residues (Easy to 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%
Barrier	barrier in the polymer matrix; SiOx and AlOx without additional coatings	< 5% EVOH (in polyolefinc combination film); metallized layers without coatings; EcoLam High Plus; VO+ LLDPE	> 5% EVOH (in polyolefinc combination film); barrier layer PVC, PVDC; PA; any other barrier layer; foaming agents used as expandant chemical agents; aluminium
Additives	Additives that do not increase the density higher than 0,97 g/cm³		Bio-/oxo-/photodegradable additives Additives that do increase the density higher than 0,97 g/cm³ ($CaCO_3$, talc, glass fibers, etc.)
Closure Systems	PE-LD, PE-LLD, PE-HD	PP	metal, aluminium, PVC, PET, PETG, PS, PLA, non PO or foams with density < 1 g/cm³
Liners, Seals and Valves	PE-LD, PE-LLD, PE-HD	PP, removable aluminium liddings	metal, aluminium, PVC, PET, PETG, PS, PLA, foiled paper, non PO or foams with density < 1 g/cm³
Labels	PE	PP, paper labels without fiberloss	metallized labels, any other; paper labels with fibreloss
Adhesives for labels	Water soluble or water-releasable at less than 60°C		Adhesives non-soluble in water or non-releasable in water at less than 60°C
Inks	no inks	Non-toxic (according to EUPIA guidelines)	Inks that bleed; Toxic or hazardous inks.
Direct Printing	Laser marked print; Printed production or expiry date	printing covering < 50%**	printing covering > 50% **
Other Attachments	PE-LD, PE-LLD, PE-HD	PP	metal, aluminium, PVC, PET, PETG, PS, PLA, paper, foams with density < 1 g/cm³
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 - January 2021

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

** temporary solution

Design for recycling GUIDELINES

https://recyclass.eu/recyclass/design-for-recycling-guidelines/

RecyClass guidelines available for:

PET:	
PET bottles	- clear
PET bottles	- coloured
PET thermoformed trays	

PE:	
HDPE containers	- natural
HDPE containers	- coloured
PE flexible film	- natural
PE flexible film	- coloured

PO:
PE & PP pots, tubs & trays
HDPE & PP crates and pallets

PP:	
PP containers	- natural
PP containers	- coloured
PP flexible film	- natural
PP flexible film	- coloured

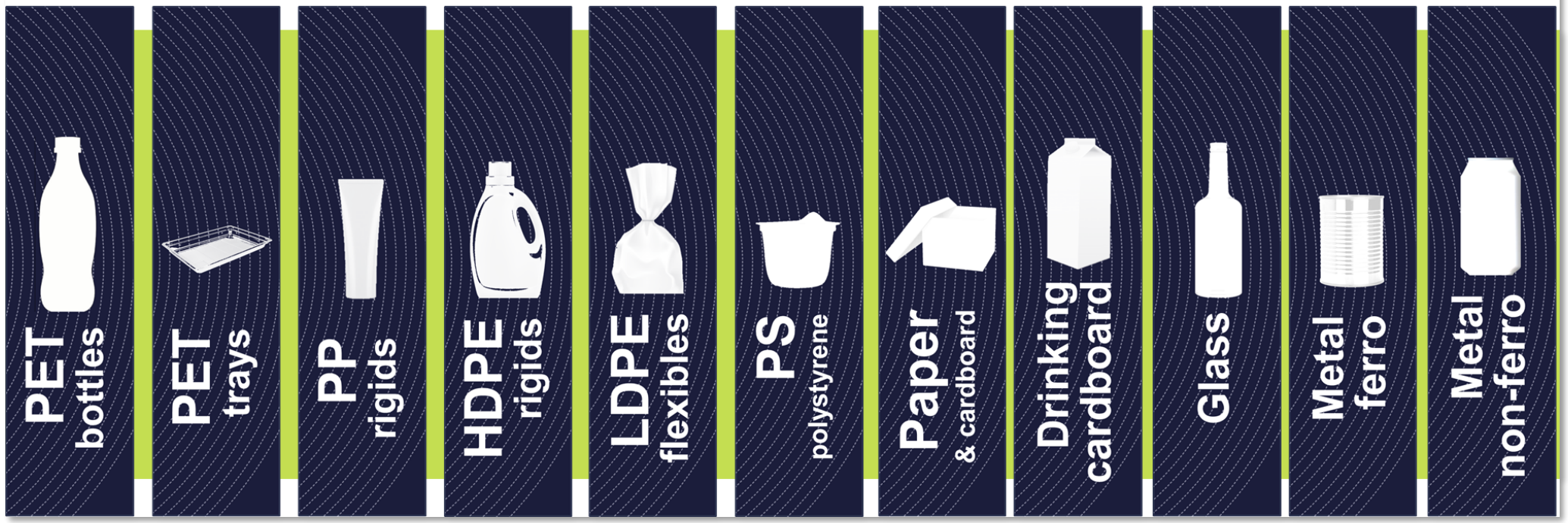
Design for recycling GUIDELINES

Design for recycling GUIDELINES

DESIGN GUIDELINES

On the following pages you will find an overview of different types of materials used in packaging.
For each material, we provide you with details on:

1. **Recyclable** materials, which can be **fully recycled**,
2. **Non-recyclable** materials, which can **not be recycled**, but will not hinder the recycling of recyclable materials in the packaging)
3. **Conflicting** materials, that can **not be recycled** & will **also obstruct** the recycling of the recyclable materials in the packaging



Design for recycling GUIDELINES

Paper & Cardboard:

	Yes! ☺ **Recyclable Materials** Materials are known to be recyclable	Not conflicting 😐 **Non-recyclable materials** Materials are non-recyclable, but will not hinder the recycling	No ☹ **Conflicting Materials** Materials will negatively impact or obstruct the recycling
General (according to DIN643)	natural fibre-based paper and board suitable for recycling;	Unwanted material (outthrows) max 1.5% Non-paper components, paper and board not according to grade defintion, paper and board conflicting with production, paper not suitable for de-inking	Prohibited Material (any material which present a hazard for health, safety and environment, such as medical waste, contaminated products of personal hygiene, hazardous waste, organic waste including foodstuffs, bitumen, toxic powders and similar)
Main Material	Paper fibres	Polyolefins (PE, PP); Aluminium	
Colours		Suitable for de-inking	Non-de-inking
Barrier		Coating	Foil lined papers
Labels and Adhesives		Water soluble adhesives	Insoluble adhesives; heavy foils; Latex/Hotmelt; Self-Adhesive; Polycoat Wax
Inks		Non toxic following the EuPIA Guidlines	Inks that bleed; toxic or hazardous inks (Inks that are on the EuPIA exclusion list)
Other Components		Wet strength agents, as far as fibre recovery and recyding is not proven; components of EuPIA	

In a lot of countries combination of cardboard and plastic is not allowed in the collection system

Design for recycling GUIDELINES

Glass:

	Yes! ☺ Recyclable Materials Materials are known to be recyclable	Not conflicting 😐 Non-recyclable materials Materials are non-recyclable, but will not hinder the recycling	No ☹ Conflicting Materials Materials will negatively impact or obstruct the recycling
Main Material	Glas; Ferro metals, Non-ferro metals	Glas composities with metal or plastic layers	Pyrex (oven-proof glass), chrystal
Colours	All colours (focus to the separately collected colours white, green and brown)		
Closure Systems	Polyolefins and metals (including aluminium)	Other	
Labels and Adhesives		All	
Inks			Heavy metal inks;
Direct Printing		Solid colours direct print on glass	
Other Components			

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

How to make a self-assessment of recyclability for your packaging?

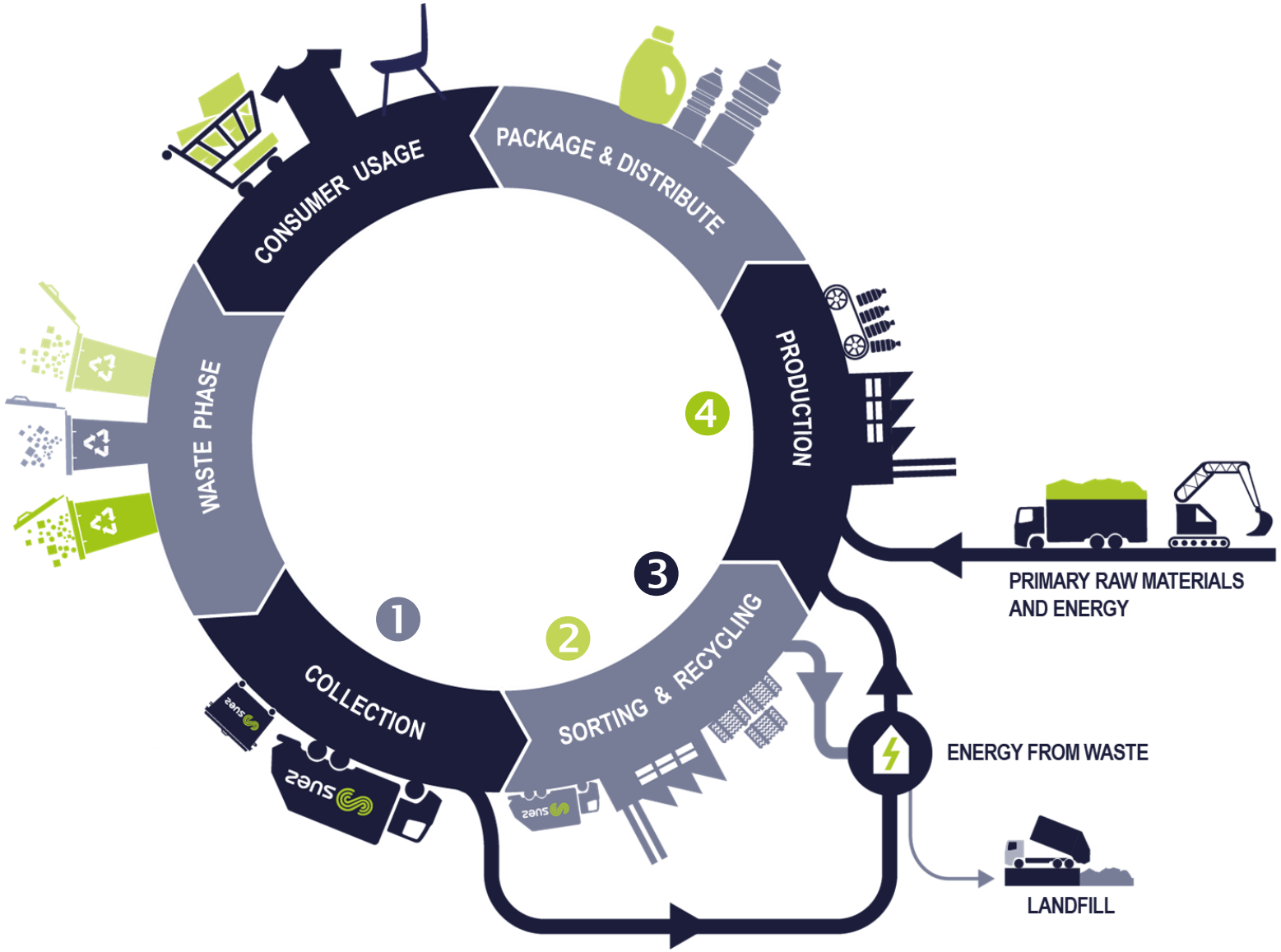
Masterclass Recycling – Session 3

circpack® EXPERTISE & CERTIFICATION

Assessing Recyclability

How to assess?

- 1 COLLECTION
- 2 SORTING
- 3 REPROCESSING
- 4 APPLICATION



Assessing Recyclability

What to assess?

1. COLLECTION

IS a collection system in place?

WHAT is allowed in?

HOW is the material collected? Curbside? Deposit?

WHERE is the material collected? Households? B2B?

General waste? or source SEPERATION?

Own TAKE-BACK system?

EFFICIENCY rate?

2. SORTING

Is ADDITIONAL sorting required?

Which TECHNOLOGIES are used for crude-sorting?

Which MATERIALS are being sorted?

SIZE limitations?

WEIGHT & RESIDUE issues?

How are COMPOSITE materials being recognized & sorted?

EFFICIENCY rate?

3. REPROCESSING

Which MATERIAL are we going to reprocess?

Which TECHNOLOGIES are used for fine-sorting?

HOW is the sorted material treated?

Blocking substances? Carbon black, PV(d)C, Silicone, metal, etc.

EFFICIENCY rate?

What happens to the RESIDU?

4. APPLICATION

What is the QUALITY of the Secondary Raw Material?

In what type of APPLICATION can the material be applied?

Can it replace the same type of virgin material?

Is the material being blended or DOWNGRADED?

Assessing Recyclability

EXAMPLE 1

BOX
Cardboard

CAP
PP

POUCH
Multi-layer
PE/PET/PE

Assessing Recyclability

What to assess?

1. COLLECTION

Separate collection for box: paper & cardboard

Separate collection of pouch: lightweight packaging waste

Differences per country/region

Sometimes collected together

2. SORTING

Box will not be additionally sorted when collected in separate collection for paper/cardboard

If box is part of mixed packaging, it will be NIR-sorted as cardboard.

Pouch is being sorted into the mixed plastics flexibles.

3. REPROCESSING

Box will be repulped. The fibres will mostly be removed from glue, inks and residue.

The combination of PET and PE in the pouch can not be separated. Issue in reprocessing.

PP cap might be sorted correctly

In chemical recycling either the Pet or the PE/PP will cause issues (depending on the process)

4. APPLICATION

Box to box

Pouch will hopefully be incinerated. Otherwise landfill. If the PET/PE is returning into a product, it will be a thick-wall-product. This means that it is highly downgraded.

Options to improve the design?

Assessing Recyclability

EXAMPLE 2

TUBE
PE

IN-TUBE OPTIONS
ALUMINIUM METALISATION
IML
EVOH barrier

CAP
PP

Assessing Recyclability

What to assess?

1. COLLECTION

Curbside collection of household packaging

High collection rate since it is used @home

2. SORTING

Normally recognized as PE (as this is the main material of the tube)

Dark color could contain carbon black (NIR test?)

Metallization could prevent NIR identification.

3. REPROCESSING

PP cap might be difficult to separate from PE (density <1,0)

Metallization will slightly downgrade the quality

EVOH barrier might downgrade quality (depending on %)

IML, when PE based, will result in a dark color of the PCR.

Seems OK for pyrolysis (effect of EVOH and ink?)

4. APPLICATION

Still good for a lot of products: buckets, containers, etc.

Probably not returning in a cosmetics packaging (maybe inner layer?

Options to improve the design?

Assessing Recyclability

EXAMPLE 3

BOTTOM-LAYER:

- PET (250 µm)

TOP-LAYER:

- PET
- Ink
- Lamination glue
- PE
- Tie layer
- EVOH
- PSA

Assessing Recyclability

What to assess?

1. COLLECTION

Curbside collection of household packaging

High collection rate since it is used @home and in the kitchen

Top lid may be separated by consumer or by force of collection & transport

2. SORTING

Sorted in PET-trays by NIR

When top lid is separated, it will enter the mixed plastics flexible.

3. REPROCESSING

Currently no treatment capacity for PET-trays. Incineration or landfill.

In some countries it might partially be reprocessed with PET-bottles (limited %)

Good potential for depolymerization process.

Lid will be sorted out by density and send to incineration or landfill.

4. APPLICATION

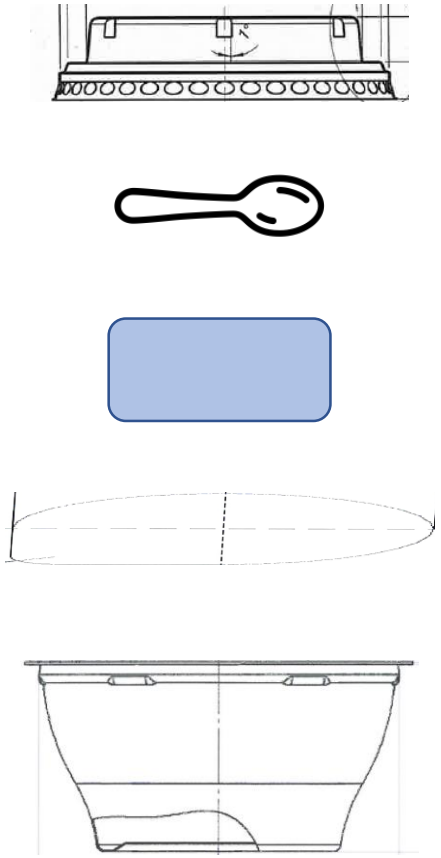
Fuel

Landfill

Options to improve the design?

Assessing Recyclability

EXAMPLE 4



TOPCUP:
APET – diameter=95mm

SPOON:
PE – size = 108 * 25 mm

SPOON FLOWWRAP:
PE – size = 79 * 36 mm

ALUMINIUM LID:
Lacquer – Alu – PET seal peel

YOGHURT CUP:
PP – OPS Shrink sleeve

Assessing Recyclability

What to assess?

1. COLLECTION

Curbside collection of household packaging

Collection rate is lower since it the product is also used out-of-home

Most parts will be separated

2. SORTING

Identification of Cup might be obstructed by the OPS-sleeve (otherwise PP-fraction)

Topcup will go to PET or PET-trays

Alu-lid will not be sorted by the Eddy Current due to shape and weight → residue

Other materials to small (when wrinkled) to sort. Will end in residue.

3. REPROCESSING

If cup goes to PP: cup will be reprocessed, OPS shrink sleeve will be removed in sink-float

Topcup: when sorted in PET-trays, currently no reprocessing capacity available. When in PET, no problem.

4. APPLICATION

PP can be brought back to high quality applications
However, non-food-grade.

Other material will typically end-up in incineration or landfill.

Options to improve the design?

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

4

Eco-modulation-fees for recyclable packaging

Masterclass Recycling – Session 3

suez circpack® EXPERTISE & CERTIFICATION

Eco-modulation-fees for Recyclable Packaging

Stimulus to change packaging design

- Under a modulated fee approach, the fees paid by the producer will vary according to specific criteria relating to aspects of their packaging's environmental performance.
- More ‘environmentally-friendly’ packaging are charged at a lower rate than those that are less ‘environmentally friendly’ to incentivise eco-design.
- **How is this certified?**

Stiftung Zentrale Stelle VERPACKUNGSREGISTER

MINIMUM STANDARD

RECYCLE CHECK

CITEO

Donnons ensemble une nouvelle vie à nos produits.

More to be revealed in the session 4 on Extended Producer Responsibility

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

RecyClass approvals & certifications

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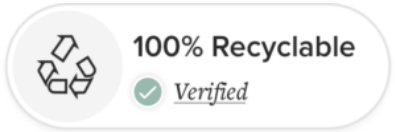
RecyClass approvals & certifications

Many different certification approaches:



The value chain needs HARMONISATION of:

- Design Guidelines
- Test protocols on sorting
- Test protocols on reprocessing
- Certification methodology (EN-norm?)
- Standardised logo
- Clarity on Country specific situations

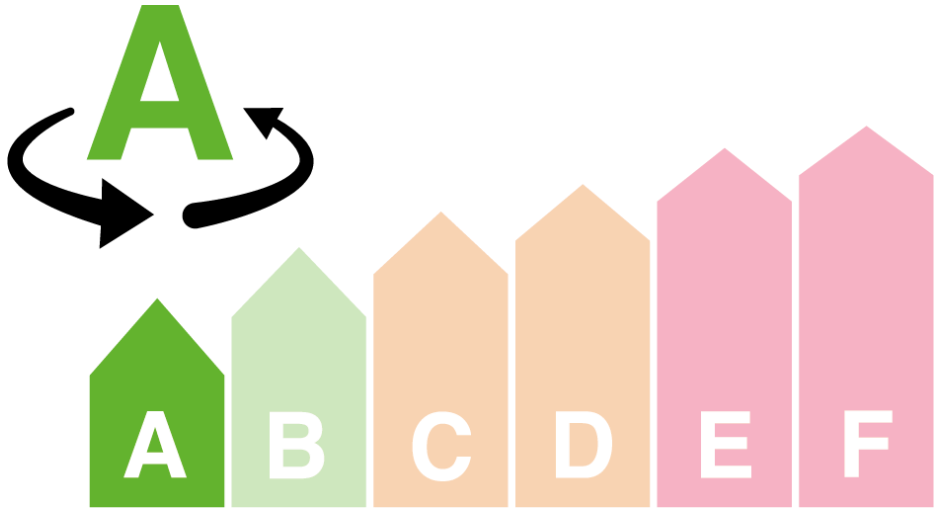
RecyClass approvals & certifications

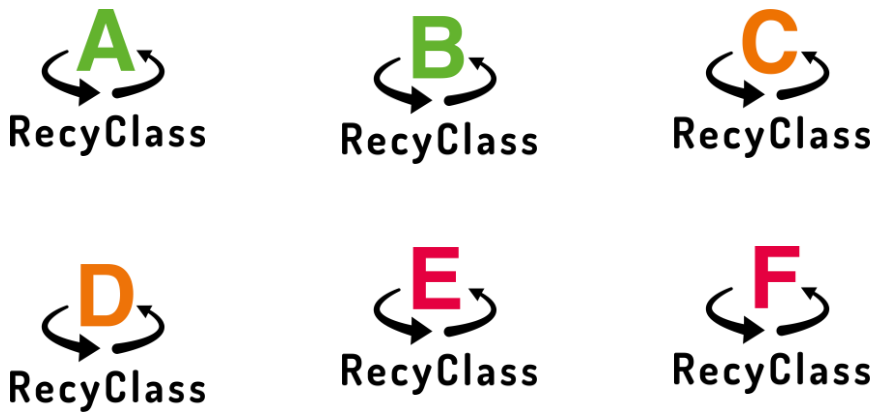
RecyClass™

https://recyclass.eu/

The European Value Chain initiative

- Design for Recycling Guidelines
- Online tool for self-assessment
- Evaluation protocols on reprocessing (evaluation protocols)
- Certification methodology
  - Country specific
  - General
- Standardised logo
- Plastic packaging only





RecyClass approvals & certifications

RecyClass™

https://recyclass.eu/

By the Value Chain, for the value chain!

ALBÉA packaging and more
amcor
Berry
Bostik smart adhesives
essity
FERRERO
greiner packaging
gsk
BOREALIS Keep Discovering
coim
COLGATE-PALMOLIVE
Constantia Flexibles
Henkel
Huhtamaki
IPV PACK
kao
DANONE ONE PLANET. ONE HEALTH
AVERY DENNISON
Dow
essel EXTRAORDINARY PACKAGING
kuraray
KURZ
LAVAZZA
LUMSON Cosmetic Packaging Industries
Sealed Air
SIEGWERK
suez
Taghleef Industries
Milliken
Mondelēz International
MULTI-COLOR GLOBAL LABEL SOLUTIONS
P&G
UPM RAFLATAC
Unilever
petcore Europe
PLASTICS RECYCLERS EUROPE

RecyClass Approvals & certifications

1. NEW MATERIALS

2. SEMI-FINISHED PACKAGING

3. FINAL PACKAGING

4. RECYCLED CONTENT

RecyClass Approvals & certifications

1. NEW MATERIALS

Laboratory test

1A. Recyclability Evaluation Protocols

Laboratory assessment of the **reprocessability** of **new materials** or material combinations.
Results can be submitted for RecyClass Technology Approval.

Validation of technology

1B. Technology Approval

Validation of a **specific technology** (e.g. functional barrier, adhesive, etc.) with a determined recycling stream. The **lab results** are assessed by the RecyClass **Technical Committees**.

Validation of features

1C. Product Approvals

Validates the **compatibility** of a **final packaging** (as commercialized) with a determined recycling stream. Mainly **meant for packaging containing new features** which are not yet covered by the guidelines. Assessed by the **Technical Committees.**

A Technology Approval (1B) and a Product Approval (1C) will lead to integration in the design for recycling guidelines (3A), the RecyClass online tool (3B), and the Recyclability product certification (3C).

RecyClass Approvals & certifications

2. SEMI-FINISHED PACKAGING

External verification

2A. Letter-of-Compatibility

Official **external assessment** of recyclability of a **semi-finished packaging**. Assessment is based on RecyClass Design for Recycling **Guidelines** and operational **sorting tests**.

It classifies the technical recyclability of a semi-finished plastic packaging on the EU market.

Packaging companies typically like an assessment on a semi-finished packaging and are looking for a Letter-of-Compliance. Brand owners will turn the semi-finished packaging into a final packaging (3) by adding product, print, labels, etc.

The resulting score for of the semi-finished packaging is typically the maximum possible score of the final packaging.
The score provides a good indication of sorting behaviour and reprocessability.

RecyClass Approvals & certifications

3. FINAL PACKAGING

Design help

3A. Design for Recycling Guidelines

Insights on how to **improve** the recyclability of a packaging. Material combinations, components, etc.

Self Assessment

3B. Online tool

Self assessment: quick scan to check the **theoretical recyclability** of your **complete packaging**.

External verification

3C. Recyclability product certification

Official **external assessment** of recyclability, based on RecyClass Design for Recycling **Guidelines** and operational **sorting tests**.

3C-A. Design for Recycling Assessment:
It classifies the technical recyclability of a plastic packaging on the EU market.

3C-B. Recyclability Rate Assessment:
It classifies and rates the technical recyclability of a plastic packaging in a specific country for which the assessment is conducted.

RecyClass Approvals & certifications

4. RECYCLED CONTENT

Methodology

4A. Recycled Content Audit Scheme

Methodology to evaluate and calculate the recycled content used in plastics.

Verification by Auditing

4B. Recycled Plastics Traceability Certification

The Certification is granted based on the Audit Scheme requirements (4A).
The Certification is granted after the auditor successfully carries out the on-site audit.


RecyClass

RECYCLED CONTENT TRACEABILITY CERTIFICATE

THIS CERTIFIES THAT

Name of the Company
Address

has the required procedures in place into their site in order to ensure the traceability of recycled material incorporated in the products annexed to this Certificate.

This Certificate is valid until 00/00/0000 .

Auditor signature

This certificate is based on the Audit Report n° 00000-000-00-00-000-00

Page 1 of 2

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

Product certification by RecyClass

Masterclass Recycling – Session 3

suez circpack® EXPERTISE & CERTIFICATION

Certifications conform RecyClass

1. ‘Desgin for Recycling’ Certification

Assessment considering industrial availability of sorting and recycling infrastructure in **Europe.**

2. ‘Recyclability Rate’ Certification

Assessment considering the collection schemes, as well as the industrial availability of sorting and recycling infrastructure in a **specific country**.

3. ‘Letter of Compatability’ Assessment:

Assessment of a **semi-finished plastic** packaging leading to Recycling Compliance Evaluation and a Letter of compatibility.

Certifications conform RecyClass

List of equivalent packaging

Packaging of the same specification but difference in size and printing design can (after a short check) be combined in the annex of the certificate.


RecyClass™

RecyClass

RECYCLABILITY RATE CERTIFICATE

THIS CERTIFIES THAT

Your brand
Great Yellow Sauce
HDPE-bottle with PP-cap and IML

Has successfully been certified conform the RecyClass standard.

The packaging scored
54,88 % recyclability
This value represents the amount of material that will be effectively recycled during a recycling process.

A B C D E F

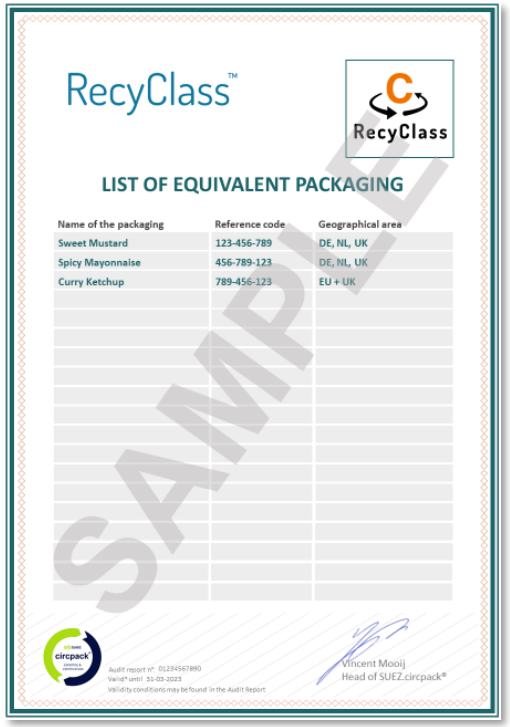
This certificate is based on the Audit Report n°: 0123456790
The certificate and its result are valid for: Germany

Valid* until 31-01-2023

Vincent Mooij
Head of SUEZ.circpack®

*Validity conditions may be found in the Audit Report

SAMPLE


RecyClass™

RecyClass

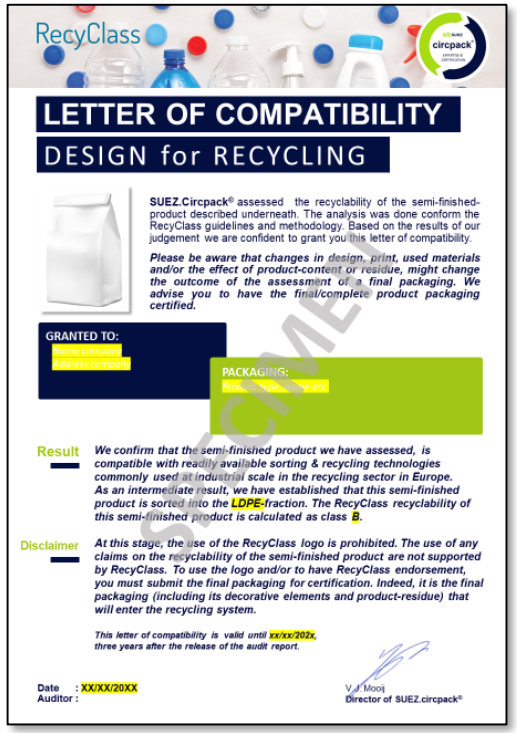
LIST OF EQUIVALENT PACKAGING

Name of the packaging	Reference code	Geographical area
Sweet Mustard	123-456-789	DE, NL, UK
Spicy Mayonnaise	456-789-123	DE, NL, UK
Curry Ketchup	789-456-123	EU + UK

Audit report n° 01234567890
Valid* until 31-01-2023
Validity conditions may be found in the Audit Report

Vincent Mooij
Head of SUEZ.circpack®

SAMPLE


RecyClass

LETTER OF COMPATIBILITY
DESIGN for RECYCLING

SUEZ.Circpack® assessed the recyclability of the semi-finished-product described underneath. The analysis was done conform the RecyClass guidelines and methodology. Based on the results of our judgement we are confident to grant you this letter of compatibility.

Please be aware that changes in design, print, used materials and/or the effect of product-content or residue, might change the outcome of the assessment of a final packaging. We advise you to have the final/complete product packaging certified.

GRANTED TO:
Name company
Address company

PACKAGING:
Product type, name etc.

Result ***We confirm that the semi-finished product we have assessed, is compatible with readily available sorting & recycling technologies commonly used at industrial scale in the recycling sector in Europe. As an intermediate result, we have established that this semi-finished product is sorted into the LDPE-fraction. The RecyClass recyclability of this semi-finished product is calculated as class B.***

Disclaimer ***At this stage, the use of the RecyClass logo is prohibited. The use of any claims on the recyclability of the semi-finished product are not supported by RecyClass. To use the logo and/or to have RecyClass endorsement, you must submit the final packaging for certification. Indeed, it is the final packaging (including its decorative elements and product-residue) that will enter the recycling system.***

This letter of compatibility is valid until xx/xx/202x, three years after the release of the audit report.

Date : XX/XX/20XX
Auditor :

V.J. Mooij
Director of SUEZ.circpack®


RecyClass

LETTER OF COMPATIBILITY
DESIGN for RECYCLING

ANNEX:
LIST OF EQUIVALENT PACKAGING

Name of the packaging	Reference code
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15

This letter is based on
Evaluation Report n° XXXXXXXXXX
Date: XX/XX/20XX

V.J. Mooij
Director of SUEZ.circpack®

SPECIMEN

Certification conform RecyClass

RecyClass™

What is required for a recyclability rate assessment:

- Sample packaging (100 pieces)
- 10 complete products incl. packaging (for Easy-to-Empty-test)
- Info on materials used. (input-data document)
- An agreement with one of the 7 certifying bodies.

COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

Everything you need to know for your brand

Certification of recycled content

Masterclass Recycling – Session 3

suez
circpack®
EXPERTISE & CERTIFICATION

Certification of recycled content

Demand is growing:

- EU-laws on minimum recycled content
- Increasing demand from customer


RecyClass

RECYCLED CONTENT
TRACEABILITY CERTIFICATE

THIS CERTIFIES THAT

Name of the Company
Address

has the required procedures in place into their site in order to ensure the traceability of recycled material incorporated in the products annexed to this Certificate.

This Certificate is valid until 00/00/0000 .

Auditor signature

This certificate is based on the Audit Report n° 00000-000-00-00-000-00

Page 1 of 2

- Many different certification schemes:

SCSglobal SERVICES
Setting the standard for sustainability™

EuCertPlast

RECYCLED CONTENT
QA-CER

A SUSTAINABLE SOLUTION
GreenCircle CERTIFIED
RECYCLED CONTENT

Certification of recycled content

Still a lot of questions:

- **How will this be implemented in legislation?**
- **What is recycled content?**
  - Post household? Post B2B? Post production? Misbatches?
- **What is post-consumer-recycled (PCR?)**
- **How to check? How to proof?**
- **What if virgin is cheaper than recycled?**

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Questions & Answers

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Next week: EPR
& planning one-1-one sessions

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MASTERCLASS RECYCLING

Thank you for your attention!

See you next time!

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