

Design For Recycling

GUIDELINES for packaging

* Decorative technologies must not hinder the recognition of the underlying PET-polymer, such as size, print, mass colouration and/or barrier. The following size indications can be considered to ensure the recognition of PET:
 - Size of non-PET surfaces on containers > 500 ml: < 70% coverage
 - Size of non-PET surfaces on containers < 500 ml: < 50% coverage

The DfR guidelines for plastic packaging are 100% aligned with...
 For more info, please visit <https://recyclclass.eu/>

RecyClass

CIRCPACK
 by VEOLIA

Material:

- PET bottle
- PET thermoform

PP rigid Natural&white

- PP flexible
- PE rigid
- PE flexible
- PS
- Paper & cardboard
- Beverage carton
- Glass
- Steel
- Aluminium



	Yes - Full compatibility	Conditional - Limited compatibility	No - Low (or no) compatibility	
Main body	Material*	PP, <u>TPO <= 10 % (full olefinic or aliphatic structure)</u> ; TPS<=10%	<u>PE ≤ 10%</u>	Multilayers with PLA; PVC; PS; PET; PETG; <u>PE > 10%</u> , TPO (containing rubber, e.g. EPDM)
	Colours	Natural (clear); White	Light colours	Black Inner layer; Black; Carbon Black; Other dark colours
	Size		Items compacted ≤ 5 cm	Items compacted ≤ than 2 cm
	Product residues	A if the index Easy-to-empty is < 5%; B if the index is < 10%	C if the index Easy-to-empty is < 15%	D if index <20%; E < if index 25%; F if index > 25%
	Barrier	<u>EVOH ≤ 6% + PP-g -MAH tie layers</u> with MAH ≥ 0.1wt% and EVOH:tie layers ratio ≤ 2;	<u>EVOH > 6% + PP-g -MAH tie layers</u> with MAH ≥ 0.1wt% and EVOH:tie layers ratio ≤ 2;	EVOH with different tie layers; PA; PVDC; Aluminium; Metallisation
	Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants...) and density remains <0.97 g/cm³	Mineral fillers (CaCO ₃ , talc) not increasing density more than 0,97 g/cm³	Additives changing material density >1 g/cm³; Flame retardant additives, plasticizers; Bio-/oxo-/photodegradable additive
Attachments	Laminating adhesives	Laminating adhesives <u>approved</u> as fully compatible by RecyClass; To be tested if in combination with a barrier material, Aliphatic PU <= 2.3 wt%	Aliphatic PU between 2.3 and 4.5 % Laminating adhesives <u>approved</u> as limited compatible by RecyClass; To be tested if in combination with a barrier material	PU > 4.5% ; Aromatic PU; To be tested: Acrylics; Laminating adhesives specially developed for high thermal applications above boiling and/or for high chemical resistance
	Closure Systems	PP	HDPE; LDPE; LLDPE; MDPE; PET; PETG; PS; PLA (all with a density >1g/cm³), Removable aluminium lidding	Non-PO and/or foams with density < 1 g/cm³; Aluminium; Metal; PVC
	Liners, Seals and Valves	PP; TPO; <u>TPS</u> ; PO Foamed	HDPE; LDPE; LLDPE; MDPE; TPS; PET; PETG; PLA, PS (d>1 g/cm³); removable silicon with d>1 g/cm³; <u>PO foamed ≤ 1%</u>	Non-PO and/or foams with density < 1 g/cm³; Any other TPE ; Aluminium; Metal; Foiled paper; PVC
Decoration*	Other Components	PP	PE with density <1 g/cm³; PET; PETG; PS; PLA (d >1 g/cm³)	Aluminium; PVC; Glass components; Non-PO and /or foams with d< 1 g/cm³
	Inks	Non-bleeding inks compliant with <u>EuPIA Exclusion Policy</u> ; Direct printing for production or expiry date		Inks that bleed; Inks non-compliant with EuPIA Exclusion Policy; PVC binders
	Facestock for label materials	Removable labels in PP (all with density < 1 g/cm³)	Removable labels in PE, PO (with d< 1 g/cm³); Removable labels in PET, PETG, PLA, PS (all with d > 1 g/cm³); removable labels in Paper without fibreloss; Removable PO-foamed labels	Non or partially removable labels; labels that hinder PP recognition; labels in non PO-materials with d < 1 g/cm³; paper labels with fibreloss; alu; Metallised labels; <u>IML</u> ; PVC
	In-mould Labels	<u>Releasable in the recycling process</u>		Non releasable
	Adhesives for labels	<u>Releasable in the recycling process</u>		Non releasable
	Sleeves	Sleeves in PO (all with density < 1 g/cm³), <u>Self-separable plastic and cardboard sleeves under mechanical stress (sorting test mandatory)</u>	Sleeves in PE (density < 1 g/cm³); Sleeves in PET, PETG, PET-C, PLA, PS (density > 1 g/cm³), Cardboard sleeves without fiberloss (<u>sorting test</u> mandatory)	Sleeves that hinder the PP recognition; Sleeves in non-PO materials with d< 1 g/cm³ ; Cardboard sleeves with fiberloss; Aluminium; Metalised sleeves; PVC
Other Decorative Tech	Laser marked for production or best-before date	Electroplating on attachments (with density > 1 g/cm³)	Electroplating on attachments (with density <1 g/cm³)	