

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
- PP flexible

PE rigid Natural&white

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



		Yes - Full compatibility	Conditional - Limited compatibility	No - Low (or no) compatibility
Main body	Material	HDPE; Multilayer PE with HDPE prevalence (LLDPE, LDPE, MDPE) TPO <= 10 % (full olefinic or aliphatic structure)	<u>PP ≤ 10%</u>	Multilayers HDPE with PLA; PVC; PS; PET; PETG; <u>10% < PP ≤ 30% (- 2 classes); PP > 30% (-3 classes)</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 ≤ 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layer ratio ≤ 2; Enkase (fluorination); In-mould fluorination; SiOx Plasma coating</u>	<u>EVOH > 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layer ratio ≤ 2; EVOH ≤ 1% with any other tie layers</u>	EVOH > 1% with any other tie layers; PA; PVDC; <u>Plasma Fluorination</u> ; Aluminium, Metallisation; PVOH
	Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants...) and density remains <0.97 g/cm ³	Mineral fillers not increasing density more than 0,97 g/cm ³	Additives changing material density >1 g/cm ³ ; 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 <u>with other barrier material than EVOH</u>	Aliphatic polyurethanes < 2.5%; Laminating adhesives approved as limited compatible by RecyClass; To be tested if in combination with a barrier material	Aliphatic polyurethanes (PU) > 2.5 %; Aromatic PU & water based acrylics; Laminating adhesive developed for high thermal applications above boiling and/or for high chemical resistance (to be tested); Any other laminating adhesives
	Closure Systems	HDPE; LDPE; LLDPE; MDPE	PP; PET; PETG; PLA; PS (all with a density > 1 g/cm ³); removable aluminium lidding	Non-PO and/or foams with density <1g/cm ³ ; Aluminium; Metal; PVC
	Liners, Seals and Valves	HDPE; LDPE; LLDPE; MDPE; TPO; TPS <= 1 %; <u>Foamed PO</u>	PP; TPS; PET, PETG, PLA, PS (all with a density > 1 g/cm ³); Removable silicon with a density > 1 g/cm ³ ;	Non-PO and/or foams with density <1g/cm ³ ; Any other TPE, Aluminium; Metal; Foiled paper; PVC
	Other Components	HDPE; LDPE; LLDPE; MDPE	PP; PET; PETG; PS; PLA all with density >1 g/cm ³ ;	Aluminium; PVC; Glass components; Foams with d < 1 g/cm ³ ;
Decoration*	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 <u>EuPIA Exclusion Policy</u> ; PVC binders
	Facestock for Labels	Removable labels in PE (all with density < 1 g/cm ³)	Removable labels in PP, PO (with density < 1 g/cm ³); Removable labels in PET, PETG, PLA, PS (all with density > 1 g/cm ³); Removable labels in Paper without fibreless; Removable PO-foamed labels	Non removable or partially removable labels; Labels that hinder the recognition of the PE; Labels in non PO-materials with d < 1 g/cm ³ ; Paper labels with fibreless during recycling process; In-Mould-Labels; Aluminium; Metallised labels; PVC
	Adhesives for labels	<u>Removable in the recycling process</u>		Non removable in the recycling process
	Sleeves	Sleeves in PE (all with density < 1 g/cm ³); <u>Self-separable plastic and cardboard sleeves under mechanical pressure (sorting test mandatory)</u>	Sleeves in PO (with density < 1 g/cm ³); Sleeves in PET, PETG, PET-C, PLA, PS (all with density >1 g/cm ³); Cardboard sleeves without fiberloss (<u>sorting test</u> mandatory)	Sleeves that hinder PE recognition; in non PO-materials with d < 1 g/cm ³ ; Cardboard sleeves with fibreless;; Aluminium; Metallised sleeves; Heavily inked sleeves; PVC
	Other Decorative Tech	Laser marking for production or expiry date	Electroplating on attachments (with density > 1 g/cm ³)	Electroplating on attachments (with density <1 g/cm ³)