

# 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

Coloured

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



	Yes - Full compatibility	Conditional - Limited compatibility	No - Low (or no) compatibility	
<b>Main body</b>	Material*	HDPE; Multilayer PE with HDPE prevalence (LLDPE, LDPE, MDPE), <a href="#">TPO&lt;=10%(full olefinic/aliphatic structure)</a> ; <a href="#">TPS&lt;=5%</a>	<a href="#">PP ≤ 10%</a> ; <a href="#">5%.TPS.=10%</a>	Multilayers HDPE with PLA; PVC; PS; PET; PETG; <a href="#">10% &lt; PP ≤ 30%</a> (- 2 classes); <a href="#">PP &gt; 30% (-3 classes)</a> , TPO (rubber, e.g. EPDM)
	Colours	All colours	Black inner layer and dark colours (NIR-detectable)	Non NIR detectable 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	<a href="#">EVOH ≤ 6.0%wt + PE-g-MAH tie layers with MAH &gt; 0.1%wt and EVOH:tie layer ratio ≤ 2</a> ; <a href="#">Enkase (fluorination)</a> ; <a href="#">In-mould fluorination</a> ; <a href="#">SiOx Plasma coating</a>	<a href="#">EVOH &gt; 6.0%wt + PE-g-MAH tie layers with MAH &gt; 0.1%wt and EVOH:tie layer ratio ≤ 2</a> ; EVOH ≤ 1% with any other tie layers; <a href="#">Plasma Fluorination</a> ; Metallisation; PVOH ≤ 1%	EVOH > 1% with any other tie layers; PA; PVDC; Aluminium; PVOH > 1%
	Additives	Unavoidable additives in processing (stabilizers, antioxidants, lubricants, nucleating agents, peroxides) and d = <0,97 g/cm³	Mineral fillers (CaCO <sub>3</sub> , 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
Laminating adhesives	Polyurethanes and water-based acrylics <3%; Laminating adhesives <a href="#">approved</a> as fully compatible; to be tested if <a href="#">with barrier materials other than EVOH and metallisation</a>	Polyurethanes and water-based acrylics 3-5%; Laminating adhesives <a href="#">approved</a> as fully compatible; to be tested if with a barrier material other than EVOH and metallisation	Polyurethanes and water-based acrylics >5%; laminating adhesive developed for high thermal applications above boiling and/or for high chemical resistance (to be tested); Other adhesives (E.g Epoxy).	
<b>Attachments</b>	Closure Systems	<a href="#">HDPE; LDPE; LLDPE; MDPE</a>	PP; PET; PETG; PLA; PS (all with a density > 1 g/cm³); Removable aluminium lidding	Non-PO and/or foams with density <1g/cm³; Aluminium; Metal; PVC
	Liners, Seals and Valves	HDPE; LDPE; LLDPE; MDPE; TPO; EVA; TPS <= 1 %; <a href="#">Foamed PO</a>	PP; TPS; PET; PETG; PLA; PS (all with a density > 1 g/cm³); Removable silicon with a density > 1 g/cm³	Non-PO and/or foams with density <1g/cm³; Any other TPE, Aluminium; Metal; Foiled paper; PVC
	Other Components	HDPE; LDPE; LLDPE; MDPE	PP; PET; PETG; PS; PLA all with density >1 g/cm³;	Alu; PVC; Glass components; Non-PO and /or foams with d< 1 g/cm³
<b>Decoration*</b>	Inks	Non-bleeding inks compliant with <a href="#">EuPIA Exclusion Policy</a> ; Inks & lacquer for direct printing representing < 1 wt% of the total packaging, not hindering NIR detection	More than 1wt% direct printing (to be tested)	Bleeding inks; Inks non-compliant with EuPIA Exclusion Policy; PVC co- and terpolymer binders; any other chlorinated binders
	Facestock for Labels	PE	Labels in PP, PO (with d < 1 g/cm³); Labels in PET, PETG, PLA, PS (all with d > 1 g/cm³); Labels in Paper without fibreless; PO-foamed labels;	Labels that hinder the recognition of the PE; Non PO labels with d < 1 g/cm³; Paper labels with fibreless during recycling process; Cardboard or paper In-Mould-Labels;Aluminium; Metallised labels; PVC
	In-mould Labels	In-Mould-Labels in PE printed with < 1 wt% of the total packaging; <a href="#">Releasable</a> in the recycling process	Any other In-Mould-Labels in PE	Non-releasable in the recycling process in other materials than PO; Cardboard or paper in In-Mould Labels
	Adhesives for labels	<a href="#">Releasable in the recycling process</a>	Non-releasable <a href="#">approved</a> by RecyClass in combination with film PO labels; <a href="#">Acrylic emulsion</a> ; <a href="#">Hotmelt rubber</a>	Non releasable in the recycling process
	Sleeves	Sleeves in PE (all with density < 1 g/cm³); <a href="#">Self-separable plastic and cardboard sleeves under mechanical pressure (sorting test mandatory)</a>	Sleeves in PO (with density < 1 g/cm³); Sleeves in PET, PETG, PET-C, PLA, PS (all with density >1 g/cm³); Cardboard sleeves without fiberloss ( <a href="#">sorting test</a> mandatory)	Sleeves that hinder the recognition of the PE; Sleeves in non PO-materials with d <1 g/cm3 ; Cardboard sleeves with fibreless during recycling process; Alu; Metallised; Heavily inked sleeves; PVC
	Other Decorative Tech	Laser Marking	Electroplating on attachments (with density > 1 g/cm³); <a href="#">Cold transfer and hot stamping technologies</a> not hindering detection	Electroplating on attachments (with density <1 g/cm³)