Design For Recycling

GUIDELINES for packaging

*Polymer resin can be either fossil- or bio-based, virgin or recycled.
**A removable label is a label resulting in a removal efficiency equal or higher than 90% by grinding and washing the packaging. RecyClass developed a standard testing procedure to prove label removability
***Decorative technologies must not hinder the recognition of the underlaying PE-polymer. Features as size, print, mass colouration and/or barrier might require to perform a Sorting Evaluation Protocol. Known misleading features are listed on the RecyClass Methodology.

CIRCPACK by VEOLIA

Material:

- PET bottle
- PET tray
- 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)	PP ≤ 10%	Multilayers HDPE with PLA; PVC; PS; PET; PETG; 10% < PP ≤ 30% (- 2 classes); PP > 30% (-3 classes), 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	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	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	EVOH > 1% with any other tie layers; PA; PVDC; Plasma Fluorination; Aluminium, Metallisation; PVOH
	Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants…) and density remains <0.97 g/cm³	Mineral fillers 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	Laminating adhesives approved as fully compatible by RecyClass; To be tested if in combination with a barrier material	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
Attachments	Closure Systems	HDPE; LDPE; LLDPE; MDPE	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 ≤ 1%; TPS ≤ 1%	PP; TPO; TPS; PET, PETG, PLA, PS (all with a d > 1 g/cm³); Removable silicon with a density > 1 g/cm³, PO foamed ≤ 1%	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;	Aluminium; PVC; Glass components; Foams with d < 1 g/cm³;
Decoration***	Inks	Non-bleeding inks compliant with EuPIA Exclusion Policy		Inks that bleed; Inks non-compliant with EuPIA Exclusion Policy; PVC binders
	Label Materials** (PSL, Wet-glue labels, IML, Wrap-around labels)	Removable labels in PE (all with density < 1 g/cm³)	Removable labels in PP, PO (with density < 1 g/cm³); Removable labels in PET, PETG, PLA, PS (all with density > 1 g/cm³); Removable labels in Paper without fibreloss; 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/cm³; Paper labels with fibreloss during recycling process; In-Mould-Labels; Aluminium; Metallised labels; PVC
	Adhesives for labels	Water soluble or water releasable adhesive (@ less than 40°C)		Non-water soluble adhesive (@ less than 40°C); Non-water releasable adhesive (@ less than 40°C)
	Sleeves	Sleeves in PE (all with density < 1 g/cm³); Self-separable plastic and cardboard sleeves under mechanical pressure (sorting test mandatory)	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 (sorting test mandatory)	Sleeves that hinder PE recognition; in non PO-materials with d <1 g/cm3 ; Cardboard sleeves with fibreloss;; Aluminium; Metallised sleeves; Heavily inked sleeves; PVC
	Direct Printing	Laser marked; Production or best-before date		Sleeves that hinder PE recognition; in non PO-materials with d <1 g/cm3 ; Cardboard sleeves with fibreloss;; Aluminium; Metallised sleeves; Heavily inked sleeves; PVC
	Other Decorative Tech		Electroplating on attachments (with density > 1 g/cm³)	Electroplating on attachments (with density <1 g/cm³)