

Design For Recycling

GUIDELINES for packaging

*Polymer resin can be either fossil- or bio-based, virgin or recycled. EPS commercial packaging should refer to other existing DFR Guidelines (i.e. EPS white goods and EPS fish boxes). XPS and EPS household packaging are not recycled into the PS stream. To recycle them, it is necessary to develop a separate stream.

**A removable label is a label resulting in a removal efficiency equal or higher than 90% by grinding and washing the packaging. RecyClass is developing a standard testing procedure to prove label removability

*** Decorative technologies must not hinder the recognition of the underlying 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

Material:

- PET bottle
- PET tray
- PP rigid
- PP flexible
- PE rigid
- PE flexible

PS

Natural&white

- Paper & cardboard
- Beverage carton
- Glass
- Steel
- Aluminium



		Yes - Full compatibility	Conditional - Limited compatibility	No - Low (or no) compatibility
Main body	Material*	PS		PS foamed < 1 g/cm ³ ; multilayers (PET, PETG, PVC, PLA...)
	Colours	Natural; white		Any other colour
	Size		Items compacted ≤ 5 cm	Items (compactd) ≤ 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 ≤ 5.0 wt% + PE-g-MAH tie layers and EVOH:Tie layers ratio ≤ 1	EVOH > 5.0 wt% + PE-g-MAH tie layers and EVOH:Tie layers ratio ≤ 1	PA; PvdC
	Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants...) and in formulation (SBS copolymer) with density that remains between 1 and 1.07 g/cm ³	Mineral fillers (CaCO ₃ , talc) not increasing density > 1.07 g/cm ³	Additives increasing density > 1.07 g/cm ³ ; Bio/oxo/photodegradable additives
	Colours	Natural; White	Light colours	Black Inner layer, Black, Carbon Black, Other dark colours
Attachments	Closure Systems	PS	Removable PP and/or PE	PET; PETG; PVC; PLA; Paper; Any material with d >1 g/cm ³ ; Non detaching or welded closures; Aluminium; metal
	Liners, Seals and Valves	PS	PP; PE; EVA; TPE (non welded and with density <1 g/cm ³)	PET; PETG; PVC; PLA; Any material with d >1 g/cm ³ ; Metal; metal foil; silicone
	Lids	PS	Removable aluminium lidding ; Removable PP and/or PE	PVC; Non removable alu lidding; Paper; PET. Multilayer PET/paper or PET/PS; Any material with density >1 g/cm ³
	Other Components	PS	Removable PP and/or PE	PET, PETG, PVC, PLA, metal, metal foil, paper; Any other material with density >1 g/cm ³
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 PS	Removable labels in PP, PE (with density < 1 g/cm ³) not hampering the NIR detection (sorting test mandatory)	Non removable or partially removable labels; Labels that hinder the recognition of the PS; PET, PETG, PVC, PLA; Paper label; In-Mould-Labels; Metallised materials; Aluminium
	Adhesives for labels	Water soluble adhesive (@ less than 40°C); 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 PS; Self-separable plastic and cardboard sleeves under mechanical pressure (sorting test mandatory)	Sleeves in PE, PO (with density <1 g/cm ³) not hampering the NIR detection (sorting test mandatory)	Sleeves that hinder PS recognition; Sleeves in non PO materials with d <1 g/cm ³ ; PET, PETG, PVC, PLA; Cardboard sleeves; Metallised materials; Heavily inked sleeves; Alu
	Direct Printing	Laser marked; Production or best-before date		Any other direct printing