

Design For Recycling

GUIDELINES for packaging

*Polymer resin can be either fossil- or bio-based, virgin or recycled.

**Temporary solution

*** Guidelines are non-company specifics. Barrier structures compatible with recycling are listed in RecyClass Approval page.

**** Nitrocellulose (NC) based inks impact on recyclability is under investigation by RecyClass.

Material:

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

PE flexible Coloured

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



		Yes - Full compatibility	Conditional - Limited compatibility	No - Low (or no) compatibility
Main body	Material*	Oriented and non-oriented LDPE, LLDPE (including PE-plastomers), HDPE; EVA, EBA, EEA, EMA copolymers with vinyl acetate and acrylate monomers representing < 5% of the film;EMAA, EAA copolymers & ionomers <= 20%	Multilayer PE/PP <u>with PP ≤ 5%</u>	Multilayer PE/PP with PP > 5%; Any other polymer (e.g. PET, PVC, etc.)
	Colours	Light colours; translucent colours	NIR-detectable dark colours (Sorting test)	Non NIR-detectable dark colours
	Size	> A4 or > 50 x 50 mm once compacted	< A4 format or between 20x20 and 50x50 mm once compacted (Sorting test)	< 20 x 20 mm
	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***	SiOx and AlOx without additional coatings	<u>≤ 5% EVOH (in polyolefin combination film); ≤ 15% PA 6/66 copolymer with melting temperature < 192°C and incorporating ≥ 10% PE-g-MAH tie layers</u>	> 5% EVOH (in polyolefinic combination film); Any other PA; PVOH > 1%; PVC, PVDC barrier layers; AlOx coating with PVOH primer; any other barrier layer; aluminium
	Additives	Additives that do not increase the density higher than 0,97 g/cm³		Bio-/oxo-/photodegradable additives; foaming agents used as expanding chemical agents; Additives that do increase the density higher than 0,97 g/cm³ (CaCO3, talc, glass fibers, etc.)
Attachments	Laminating adhesives	<u>Polyurethanes and water-based acrylics ≤ 3%;</u> <u>Laminating adhesives</u> approved as fully compatible by RecyClass; To be tested if in combination with a barrier material	<u>Polyurethanes and water-based acrylics 3-5%;</u> <u>Laminating adhesives</u> approved as limited compatible by RecyClass; To be tested if in combination with a barrier material	Polyurethanes and water-based acrylics >5%; Laminating adhesive specially developed for high thermal applications above boiling and/or for high chemical resistance (to be tested); Any other laminating adhesives (Epoxy, etc.)
	Closure Systems	PE-LD, PE-LLD (including PE-plastomers), PE-HD	PP	Metal, aluminium, PVC, PET, PETG, PS, PLA, non PO or foams with density < 1 g/cm³
	Liners, Seals and Valves	PE-LD, PE-LLD (including PE-plastomers), PE-HD	PP, removable aluminium liddings	Metal, aluminium, PVC, PET, PETG, PS, PLA, foiled paper, non PO or foams with density < 1 g/cm³
	Other Attachments	PE-LD, PE-LLD (including PE-plastomers), PE-HD	PP	Metal, aluminium, PVC, PET, PETG, PS, PLA, non PO or foams with density < 1 g/cm³
Decoration	Inks****	Non-bleeding inks compliant with EuPIA Exclusion Policy , Full PU-based inks	<= 0.8% of NC-binders****	> 0.8% of NC-binders; Inks that bleed; Inks non-compliant with EuPIA Exclusion Policy; PVC binders
	Labels	PE	PP	Metallized labels, any other; paper labels
	Adhesives for labels	Water soluble or water-releasable at less than 40°C		Adhesives non-soluble in water or non-releasable in water at less than 40°C
	Direct Printing	Laser marked print; Printed production or expiry date; printing covering < 50%**	Printing covering > 50%**	