

Plastic Packaging Guide

Material proposals for plastic packaging
Version 3.0 2024





Content:

- ICAs plastic goal
- ICA's packaging **strategy**
- Packaging fees & RecyClass
- Plastic Recycling in Sweden
- Material proposals for flexible packaging
- Material proposals for rigid packaging

ICAs Plastic Goal

Year

25



Year

30



...all private label consumer plastic packaging is recyclable into new materials

...made exclusively from renewable or recycled sources.

FÄRDPLAN FÖR
FOSSILFRI KONKURRENSKRAFT
Dagligvaruhandeln



ICA's goals are aligned with global initiatives



Contribute to the UN sustainable Development Goals

To contribute to the UN goals of limiting temperature, the ICA Group has, for a long time, been working with science-based climate goals. Between 2006 and 2020, climate emissions in our own operations (shops, pharmacies, warehouses, and offices) were reduced by 76%.

Contribute to EU's goals

We work in accordance with EU's waste directive, where we, for example, make sure to eliminate packaging materials that go to incineration, and ensure that they instead go to material recycling. We also follow EU's recycling targets that apply to different types of materials.



The Golden Rules

1

Minimize

Is packaging needed?

Remove excessive elements

Remove unnecessary air

2

Recycling for a Circular Economy

Mono material

Recycled or renewable resource

Waste as a resource

3

Make it Easier for our Customers

Easy to identify for sorting

Easy to open and empty

Easy to separate components

4

Holistic Approach

The whole valuechain

Product waste and logistics

Secondary and tertiary packaging

ICAs Packaging Strategy

START

Is packaging needed?

MINIMIZE

Design away excessive elements. Replace and avoid materials

Responsible certified sources



RENEWABLE & RECYCLED RAW MATERIAL

Move away from fossil raw material and on to renewable and recycled material



PRODUCTION & LOGISTICS

Climate impact, reduce chemicals, waste, and emissions

Packaging becomes similar packaging



Packaging becomes different packaging

MATERIAL RECYCLING

Keep materials in use

Packaging becomes another product

REUSE

When it's right, it's easy!



IN USE



WAREHOUSE & IN STORE

Easy to handle and reduce the risk of waste in warehouse and in store



LANDFILL & LITTERING

Reduce littering and the impact on nature, through smart design solutions

ENERGY RECOVERY

What cannot be recycled must be energy recovered

BIODEGRADABLE

Packaging that is biodegradable must be able to decompose through anaerobic digestion

Dialogue throughout the value chain is crucial

Product developers, producers, recyclers, researchers, and the market have much to gain by taking a collective approach to contribute to a positive transition

Swedish Packaging Fees

- Näringslivets Producentansvar (short NPA) is the producer responsibility organization which ICA is connected to.
- NPA sets the packaging fees & criteria for recycling based on
 - Demand on the market, cost of collecting and sorting
 - Sorting possibilities at Swedish Plastic Recycling, Site Zero.
 - Design4Recycling guidelines from RecyClass
 - Guidelines from the Swedish Environmental Protection Agency
- NPA provides recycling guidelines
 - Recommendations in the guidelines might be picked up as criteria in future updates



Packaging fees – Private use			
Item no.	Item	Fee 2024 SEK/kg	Material recycling
3110	Paper packaging compatible with material recycling	3,90	✓
3150	Paper packaging partially or not compatible with material recycling	5,40	✓✗
4110	Plastic packaging compatible with material recycling	7,60	✓
4130	Plastic packaging partially compatible with material recycling	9,70	✓
4150	Plastic packaging not compatible with material recycling	11,00	✗

Site Zero

Swedish Plastic Recycling

World's biggest sorting plant, can process 200,000 tons of plastic packaging/year

Sorting 12 types of plastic (comparable plants 3-4 types)

95 % of the packaging arriving at the plant can be sorted out for recycling

1000 packages per second, 42 tons per hour

MATERIAL PROPOSALS

Material Proposals: Table of Content

- The new materials needs to be tested
- Classification of materials
- Artworks from ICA
- Prints and colors
- **Flexible packaging**
- **Rigid packaging**



Flexible Packaging

- Barriers and adhesives in flexible PE and PP films
- Print on flexible packaging

1. Pouches
 1. Pillow bag
 2. Gusset bag
 3. Doy pack
2. Thermoformed trays
 1. Ridged
 2. Flexible



PLASTFÖRPACKNINGAR

Rigid Packaging

3. Pre-made trays
4. Cups
 1. Injection moulded
 2. Thermoformed
5. Tubes
6. Blow moulded bottles & jars



The New Materials Needs to be Tested

When changing from a traditional plastic packaging to a recyclable mono packaging, tests needs to be done in production to ensure product safety and minimizing food waste. It is the suppliers responsibility to arrange and evaluate the proper tests for every specific product.

Examples of tests:

- **Shelf life test.** This should always be done before launching a new packaging material.
- **UV test.** A typical PET-based laminate gives the product a natural protection against UV light. Hence, a change to a mono material in PE or PP can lead to miscoloured products. It is therefore recommended to carry out a UV test (light exposure test) for sensitive products like cured ham.
- **Transportation or handling test.** PE and PP has a lower puncture resistance than some of the traditional components in multi laminates (PET or PA). It is therefore good to execute a transportation or handling test before launching a mono packaging.
- **Upscaling and long production runs.** To make sure that the material runs well during continuous production, longer test runs are always recommended.

Classification of Materials

- **Green level:** Materials that are fully compatible with material recycling. These material will get the lowest packaging fee in Sweden.
- **Yellow level:** Materials that have limited compatibility with material recycling. These materials will get the medium packaging fee in Sweden.
- **Red level:** Materials that are not compatible with recycling. These materials will get the highest packaging fee in Sweden.

Although our goal is to use materials that are suitable for recycling today (green level), we acknowledge that technically it is a very ambitious target for some products. Therefore, we are settling for the next best option (yellow level) in some of these cases, to ensure we are talking a step in the right direction.

Interested in learning more?



RecyClass design4recycling guidelines:
[Design for Recycling Guidelines – RecyClass](#)



EPR criteria for plastic packaging from NPA (ICA's Producer responsibility organisation):
[NPA-Fee-criteria-plastic-packaging-for-private-use-v2.0.pdf](#)

Artworks from ICA

New ICA artworks:

- All new artworks for plastic packaging will only have 60% print coverage

Protective varnishes, lacquers and non-colored inks

- If there are technical requirements on where to use non-coloured surface coatings. This needs to be communicated to ICA so that the artwork can be adjusted with less ink coverage.



Guidelines for Print & Colors

Colors, print & varnish:

- Color: No dark pigments
- Heat stable inks (up to 240 degrees Celsius) for example PU based inks
 - Avoid NC-based binders for print and varnish
- Use laser marking

Material

- Use transparent material when possible
- Matt structures should be applied by using structured/matt films, not outside varnish.



Flexible Packaging

*Rigid & Flexible
thermoformed trays.
Pouches like flow pack,
doy pack, gausset bag*



Print on Flexible Packaging



Reverse Print

- + The print is protected by the film, no risk for offset or scratching the print
- + Possible to use thermo resistant PU inks, which are better from a recycling point of view.
- Requires the use of adhesive which must fulfil requirements from NPA for green or yellow level



Surface Print

- + No need for adhesives (easier to get the lowest packaging fee)
- Might need to use protective varnish, mainly in sealing areas. Same requirements for varnish as for inks (max 60% of outer surface* for green level)
- Requires NC based inks which are not thermo resistant

Barriers and Adhesives in Flexible PE and PP Films

Harmonizing with guidelines for natural film from RecyClass

Flexible PE

Flexible PP

Barrier

- SiOx or AlOx, without any additional coating.
- EVOH ≤ 5,0 wt%.
- Metallisation (needs to be tested by Swedish plastic recycling)

- PA 6/66 copolymer ≤ 15 wt% with a melting temperature <192 C and with at least 10 wt% PE-g-MAH tielayer.

- SiOx or AlOx, without any additional coating.
- EVOH ≤ 5,0 wt%.
- Metallisation (needs to be tested by Swedish Plastic Recycling)

Adhesive

- Aliphatic PU-based adhesive ≤ 2.5 wt%
- Adhesive approved with full compatibility by RecyClass
- To be tested by RecyClass if in combination with other barrier material than EVOH and metallisation

- PU-based (aliphatic or aromatic) or water-based acrylate adhesive ≤ 5 wt%
- Adhesive approved with limited compatibility by RecyClass.
- To be tested by RecyClass if in combination with other barrier material than EVOH and metallisation

- Laminating adhesive specially developed for high thermal applications above boiling and/or for high chemical resistance.
- Other types of adhesives (e.g., epoxy-based) that have not been tested and approved by RecyClass.

- Aliphatic PU-based adhesive ≤ 2.3%*
- Laminating adhesives approved as fully compatible by RecyClass;
- To be tested by RecyClass if in combination with other barrier material than metallisation

- Aliphatic PU-based adhesive between 2.3% and 4.5%*
- Laminating adhesives approved as limited compatible by RecyClass;
- To be tested by RecyClass if in combination with other barrier material than metallisation

- Laminating adhesive specially developed for high thermal applications above boiling and/or for high chemical resistance.*
- Other types of adhesives (e.g., epoxy-based) that have not been tested and approved by RecyClass.

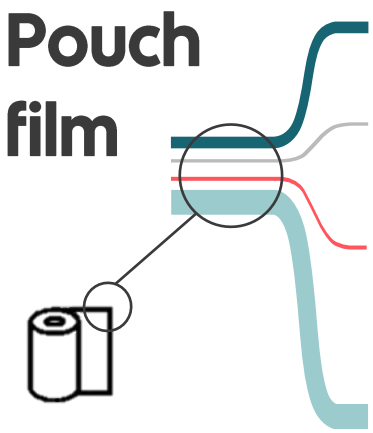
1.1 Pillow Bag

Packaging:

- Flexible pouch
- HFFS or VFFS
- Permanent seal
- MAP possible
- The pack is made out of one material:
 - Printable
- Typical material structures with barrier:
 - PET/PE-EVOH-PE (laminate) (Red level)
 - OPP/PE-EVOH-PE (laminate) (Red level)
 - OPA/PE (laminate) (Red level)
- Typical material structures without barrier:
 - PET/PE (laminate) (Red level)
 - OPP/PE (laminate) (Red level)
 - OPP (Green level)
 - PE (Green level)



1.1 Material Proposals: Pillow Bag with Barrier

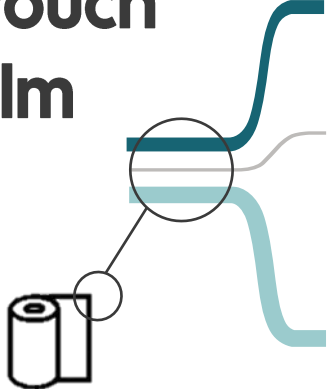
		Mono PE	Mono PP
Pouch film 	Outside layer	OPE	OPP
	Adhesive	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19
	Barrier	<ul style="list-style-type: none"> • SiOx • AlOx • Metallisation* • EVOH <5% • PA 6/66 <15% 	<ul style="list-style-type: none"> • SiOx • AlOx • Metallisation* • EVOH <5%
	Inside film	PE	PP
Total pack		<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • PP $\leq 5 \%$ • Colored film • Black film 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • PE $\leq 10 \%$ • Colored film • Black film



Use renewable content where possible.

* Must be tested and approved at Swedish Plastic Recycling

1.1 b Material Proposals: Pillow Bag without Barrier

		Mono PE	Mono PP
Pouch film 	Outside layer	OPE	OPP
	Adhesive	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19
	Inside film	PE	PP
Total pack		<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • PP $\leq 5 \%$ • Colored film • Black film 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • PE $\leq 10 \%$ • Colored film • Black film



Note that PP get brittle and tear easy if deep frozen. Do not use for product with high risk of puncturing the packaging.

Use renewable content where possible.

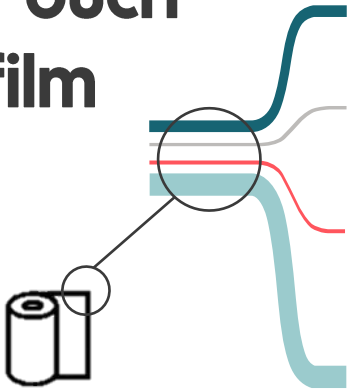
1.2 Gausset Bag/ Block Bottom / Quattro Seal Pouch

Packaging:

- Flexible pouch
- HFFS or VFFS
- Permanent seal
- MAP possible
- Pre-made bags an option
- The pack is made out of one material:
 - Printable
 - Material needs to be ridged for the pouch to stand up
- Typical material structures:
 - PET/PE (laminate) (Red level)
 - OPP/PE (laminate) (Red level)
 - OPA/PE (laminate) (Red level)



1.2 Material Proposals: Gausset bag

		Mono PE	Mono PP
Pouch film 	<i>Outside layer</i>	OPE	OPP
	<i>Adhesive</i>	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19
	<i>Barrier</i>	<ul style="list-style-type: none"> • SiOx • AlOx • EVOH <5% • PA 6/66 <15% 	<ul style="list-style-type: none"> • SiOx • AlOx • EVOH <5%
	<i>Inside film</i>	PE	PP
Total pack		<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • $PP \leq 5 \%$ • Colored film • Black film 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • $PE \leq 10 \%$ • Colored film • Black film



Only use barriers where need!

Use renewable content where possible.

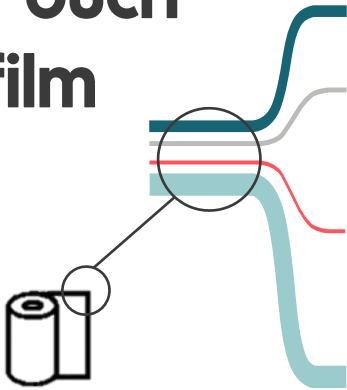
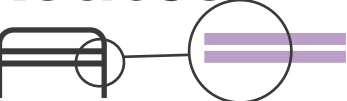
1.3 Doy Pack/Stand Up Pouch

Packaging:

- Flexible pouch
- HFFS
- Permanent seal
- Reclose by Zip, Velcro or Spout
- The pack is made out of one material:
 - Printable
 - Material needs to be ridged for the pouch to stand up
- Typical material structures:
 - PET/PE (laminare) (Red level)
 - OPP/PE (laminare) (Red level)



1.3 Material Proposals: Doy Pack

		Mono PE	Mono PP
Pouch film 	Outside layer	OPE	OPP
	Adhesive	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19
	Barrier	<ul style="list-style-type: none"> • SiOx • AlOx • Metallisation* • EVOH <5% • PA 6/66 <15% 	<ul style="list-style-type: none"> • SiOx • AlOx • Metallisation* • EVOH <5%
	Inside film	PE	PP
Reclose 	Zip, Velcro or spout	PE	PP
Total pack		<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • Transparent film • PP $\leq 5 \%$ • Colored film • Black film 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • Transparent film • PE $\leq 10 \%$ • Colored film • Black film



Only use barriers where need!

Use renewable content where possible.

Hot filled or heat treated products are recommended to be packed in PP packaging, since PP is more heat resistant.

* Must be tested and approved at Swedish plastic Recycling

2.1 Rigid Thermoformed Trays

Packaging:

- Thermoformed rigid tray with flexible lidding film
- MAP
- Peel, reseal or permanent seal
- The pack is made out of two materials:
 1. Base web (BW):
 - Flexible
 - Thermoformable
 2. Top web (TW):
 - Printable
- Typical material structures:
 - BW: APET/PE/EVOH/PE (High barrier: EVOH) (**Red level**)
 - TW: OPET / ADH / PE / EVOH / PE (High barrier: EVOH) (**Red level**)



2.1 Material Proposals: Rigid Thermoformed Trays






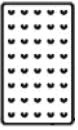
		Mono PET tray				Mono PP tray
Lidding film 	Outside layer	OPET	Low Density film (<1g/cm3)	OPE	OPP	OPP
	Lamination layer	Co-extruded	Any	<ul style="list-style-type: none"> Co-extruded Adh see Slide 19 	<ul style="list-style-type: none"> Co-extruded Adh see Slide 19 	<ul style="list-style-type: none"> Co-extruded Adh see Slide 19
	Barrier	<ul style="list-style-type: none"> SiOx AlOx 	All barriers ok	<ul style="list-style-type: none"> SiOx AlOx EVOH <5% PA 6/66 <15% 	<ul style="list-style-type: none"> SiOx AlOx EVOH <5% 	<ul style="list-style-type: none"> SiOx AlOx EVOH <5%
	Inside film	<ul style="list-style-type: none"> APET Permanent seal 	<ul style="list-style-type: none"> Any with Peel or Reclose Leave no PO residues on tray! 	<ul style="list-style-type: none"> PE Peel Reclose Leave no residues on tray! 	<ul style="list-style-type: none"> PP Peel Reclose Leave no residues on tray! 	<ul style="list-style-type: none"> PP Peel or permanent seal
Tray 	Sealing layer	PET				PP
	Barrier	PET Oxygen scavenger. (Without yellowing effect). All other barriers.				EVOH <5% EVOH 5-6%
	Adhesive	co-extrusion, no adhesive allowed				co-extrusion, no adhesive
	Outside layer	PET				PP

Use renewable or recyclable content where possible.

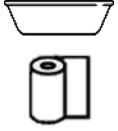


More requirements on next side

2.1 Material Requirements: Rigid Thermoformed Trays

PET: Other requirements for green/yellow level:

-  PET without any fillers. PET/PE, PETG, C-PET, PET-GAG or expanded PET is **not** allowed.
-  No print or colour allowed on PET trays. Laser marking and production marking (such as expiration/packaging date or batch number) is allowed.
-  Any adhesive for labels should be washoffable or soluble in 70°C alkaline water without leaving any adhesive residue on the PET packaging. It is recommended for the label to have a density <math><1 \text{ g/cm}^3</math> and Cover <math><60\%</math> of the outer surface of the packaging.
-  Absorbent mats must be easily separable and leave no residues in the PET packaging, the adhesive shall be washoffable or soluble in 80°C alkaline water and not be reactivated after washing. PE or PP based absorbents are OK and should have a density <math><1</math>.

PP: Other requirements for green/yellow level:

-  PP without additives that increase the density <math>< 0,97 \text{ g/cm}^3</math> and with a filler content (organic or inorganic) max. wt5%.
-  PE content in PP packaging:
 - No PE (**green level**).
 - PE<math><10\%</math> is allowed in the top film (**yellow level**)
-  Black colour is not allowed for either tray or lid, recommended to use uncoloured PP.

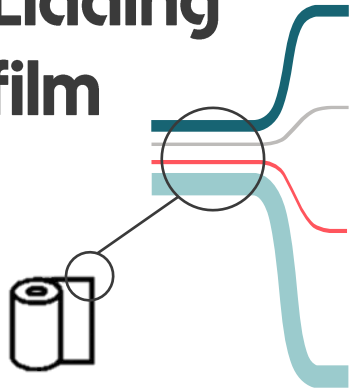
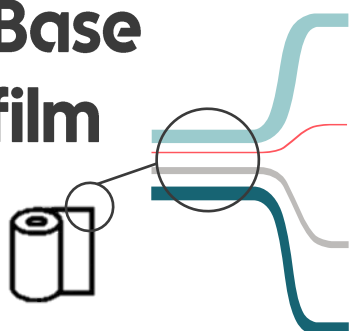
2.2 Flexible Thermoformed Tray

Packaging:

- Thermoformed flexible tray with flexible lidding film
- Permanent or peelable seal
- MAP or vacuum
- The pack is made out of two materials:
 1. Base web (BW):
 - Flexible
 - Thermoformable
 2. Top web (TW):
 - Printable
- Typical material structures:
 - BW: PA/PE/EVOH/PE (multilaminate) (Red level)
 - TW:
 - OPET/PE/EVOH/PE (multilaminate) (Red level)
 - OPA/PE (multilaminate) (Red level)



2.2 Material Proposals: Flexible Thermoformed Tray

		Mono PE	Mono PP
Lidding film 	Outside layer	OPE	OPP
	Adhesive	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19
	Barrier	<ul style="list-style-type: none"> • Siox • Alox • EVOH <5% • PA 6/66 <15% 	<ul style="list-style-type: none"> • Siox • Alox • EVOH <5%
	Inside film	PE peel or permanent seal	PP peel or permanent seal
Base film 	Sealing layer	PE	PP
	Barrier	<ul style="list-style-type: none"> • EVOH <5% • PA 6/66 <15% 	<ul style="list-style-type: none"> • EVOH <5%
	Adhesive	<ul style="list-style-type: none"> • co-extrusion • Adh see Slide 26 	<ul style="list-style-type: none"> • co-extrusion • Adh see Slide 26
	Outside layer	PE	PP
All		<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • PP $\leq 5 \%$ • Colored film • Black film 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • < 5% fillers • PE $\leq 10 \%$ • Colored film • Black film



Use renewable content where possible.

Hot filled or heat treated products are recommended to be packed in PP packaging, since PP is more heat resistant.

If you have a peel function, top and base are considered as two separate components. This requirement is per component.

Rigid Packaging

*Pre-made trays,
cups, tubes, jars &
bottles*



2.1 Plastic Pre-made Trays

Packaging:

- Pre-made tray with flexible lidding film
 - Peel opening or permanent seal
 - MAP
 - The pack is made out of two materials:
 1. Tray:
 - Pre-made
 2. Top web (TW):
 - Peel
 - Typical material structures:
 - Tray: Mono PET (**Green level**)
 - TW: OPET / PE / EVOH / PE (Multilaminate) (**Red level**)
- Or
- Tray: Mono PP (**Green level**)
 - TW: OPET/PE/EVOH/PP (Multilaminate) (**Red level**)



1.1 Material Proposals: Rigid Pre-made Trays






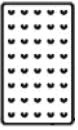
		Mono PETtray			Mono PP tray	
Lidding film 	Outside layer	OPET	Low Density film (<1g/cm3)	OPE	OPP	OPP
	Lamination layer	Co-extruded	Any	<ul style="list-style-type: none"> Co-extruded Adh see Slide 19 	<ul style="list-style-type: none"> Co-extruded Adh see Slide 19 	<ul style="list-style-type: none"> Co-extruded Adh see Slide 19
	Barrier	<ul style="list-style-type: none"> SiOx AlOx 	All barriers ok	<ul style="list-style-type: none"> SiOx AlOx EVOH <5% PA 6/66<15% 	<ul style="list-style-type: none"> SiOx AlOx EVOH<5% 	<ul style="list-style-type: none"> SiOx AlOx EVOH<5%
	Inside film	<ul style="list-style-type: none"> APET Perma- nent seal 	<ul style="list-style-type: none"> Any with Peel or Reclose Leave noPO residues on tray! 	<ul style="list-style-type: none"> PE Peel Reclose Leave no residues on tray! 	<ul style="list-style-type: none"> PP Peel Reclose Leave no residues on tray! 	<ul style="list-style-type: none"> PP Peel or permanent seal
Tray 	Sealing layer	PET. Sealing adhesive needs to be washed off in 80 C			PP	
	Barrier	No extra barrier needed			EVOH <5% EVOH 5-6%	
	Adhesive	co-extrusion, no adhesive allowed			co-extrusion, no adhesive	
	Outside layer	PET			PP	

Use renewable or recyclable content where possible.

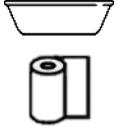


More requirements on next side

2.1 Material Requirements: Rigid Thermoformed Trays

PET: Other requirements for green/yellow level:

-  PET without any fillers.
PET/PE, PETG, C-PET, PET-GAG or expanded PET is **not** allowed.
-  No print or colour allowed on PET trays. Laser marking and production marking (such as expiration/packaging date or batch number) is allowed.
-  Any adhesive for labels should be washoffable or soluble in 70°C alkaline water without leaving any adhesive residue on the PET packaging. It is recommended for the label to have a density <math><1 \text{ g/cm}^3</math> and Cover <math><60\%</math> of the outer surface of the packaging.
-  Absorbent mats must be easily separable and leave no residues in the PET packaging, the adhesive shall be washoffable or soluble in 80°C alkaline water and not be reactivated after washing. PE or PP based absorbents are OK and should have a density <math><1</math>.

PP: Other requirements for green/yellow level:

-  PP without additives that increase the density > $0,97 \text{ g/cm}^3$ and with a filler content (organic or inorganic) max. wt5%.
-  PE content in PP packaging:
 - No PE (**green level**).
 - PE<math><10\%</math> is allowed in the top film (**yellow level**)
-  Black colour is not allowed for either tray or lid, recommended to use uncoloured PP.

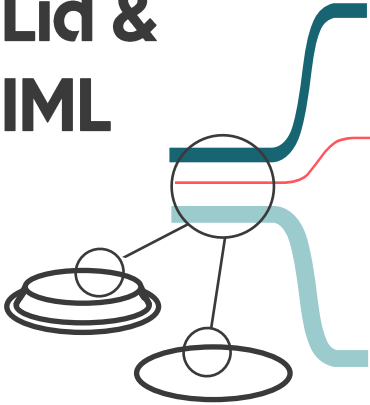
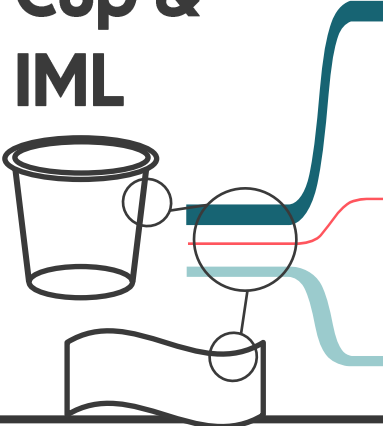
4.1 Injection Moulded Cups

Packaging:

- Rigid
- Permanent sealed lid, no lidding film
- Hot or cold filled
- With or without barrier
- Print on IML label
- Lid and cup often same material
- Typical material structures:
 - PE (Green level)
 - PP (Green level)



4.1 Material Proposals: Injection Moulded Cups

		Mono PE	Mono PP
Lid & IML 	<i>Outside layer</i>	PE	PP
	<i>Barrier</i>	<ul style="list-style-type: none"> • EVOH <5% with PE-g-MAH tielayer • EVOH 5-6% with PE-g-MAH tielayer 	<ul style="list-style-type: none"> • EVOH <5% with PP-g-MAH tielayer • EVOH 5-6% with PP-g-MAH tielayer
	<i>Inside layer</i>	PE	PP
Cup & IML 	<i>Outside layer</i>	PE	PP
	<i>Barrier</i>	<ul style="list-style-type: none"> • EVOH <5% with PE-g-MAH tielayer • EVOH 5-6% with PE-g-MAH tielayer 	<ul style="list-style-type: none"> • EVOH <5% with PP-g-MAH tielayer • EVOH 5-6% with PP-g-MAH tielayer
	<i>Inside layer</i>	PE	PP
All		<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • $\leq 5\%$ fillers • Black MB color 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • $\leq 5\%$ fillers • Black MB color



Only use barriers where need!

Use renewable content where possible.


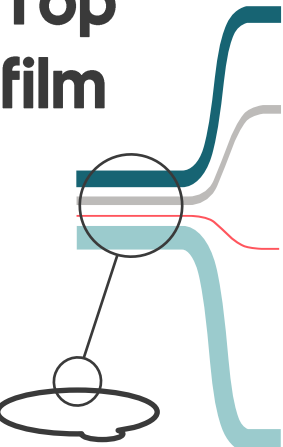
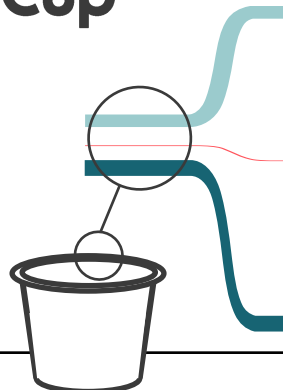
1.1 Rigid Thermoformed Cups

Packaging:

- Rigid
- Sealed with lidding film and thermoformed lid
- Hot or cold filled
- With or without barrier
- Print on cup and lidding film
- Typical material structures:
 - Cup: PS or PP (**Green level**)
 - Lidding films:
 - Metal (**Green level**)
 - PET/PE-EVOH-PE (**Red level**)
 - Lid: PET (**Green level**)



1.1 Material Proposals: Rigid Thermoformed Cups

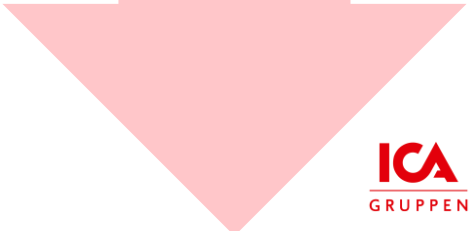
		PP Cup	PE Cup	PS Cup
Lid 		PP $\rho \leq 0,97 \text{ g/cm}^3$	PE $\rho \leq 0,97 \text{ g/cm}^3$	PS $\rho = 1-1,07 \text{ g/cm}^3$
Top film 	Outside layer	OPP	OPE	Use PE or PP based films or metallic film
	Lamination layer	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	<ul style="list-style-type: none"> • Co-extruded • Adh see Slide 19 	
	Barrier	<ul style="list-style-type: none"> • SiOx • AlOx • EVOH <5% 	<ul style="list-style-type: none"> • SiOx • AlOx • EVOH <5% • PA 6/66 <15% 	
	Inside film	<ul style="list-style-type: none"> • PP • Peel or permanent seal 	<ul style="list-style-type: none"> • PE • Peel or permanent seal 	
Cup 	Sealing layer	PP $\rho \leq 0,97 \text{ g/cm}^3$	PE $\rho \leq 0,97 \text{ g/cm}^3$	PS $\rho = 1-1,07 \text{ g/cm}^3$
	Barrier	<ul style="list-style-type: none"> • EVOH <5% w. PP-g-MAH tielayer • EVOH 5-6% w. PP-g-MAH tielayer 	<ul style="list-style-type: none"> • EVOH <5% w. PE-g-MAH tielayer • EVOH 5-6% w. PE-g-MAH tielayer 	<ul style="list-style-type: none"> • EVOH
	Outside layer	PP $\rho \leq 0,97 \text{ g/cm}^3$	PE $\rho \leq 0,97 \text{ g/cm}^3$	PS $\rho = 1-1,07 \text{ g/cm}^3$



Only use barriers where need!

Use renewable content where possible.

More requirements on next side



1.1 Material Requirements: Rigid Thermoformed Cups

PE and PP :

Other requirements for green/yellow level:



Filler content (organic or inorganic) max. wt5%.

PP content in PE packaging:

- Cup/Lid. No PP (green level).
- Film: PP ≤ 5% is allowed (yellow level)

PE content in PP Cup/Lid/Film:

- Cup/lid: No PE (green level).
- Film: PE ≤ 10% is allowed (yellow level)

Black colour is not allowed for either tray or lid, recommended to use uncoloured PP.

PS:

Other requirements for green/yellow level:



Filler content(organic or inorganic) max. wt5%.

Black colour is not allowed for the cup.
Uncolored or white pigment (green level),
other colors (yellow level).



No other print than laser marking and
production marking (such as
expiration/package date or batch number) is
allowed (green level),
Print <60% (yellow level).


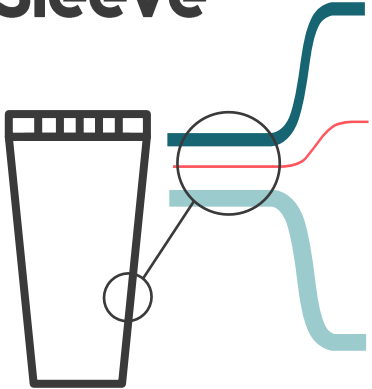

5. Tubes

Packaging:

- Rigid
- Head, shoulder and sleeve sealed together
- Cap: Screwed or snap on
- Hot or cold filled
- With or without barrier
- Print on sleeve
- Typical material structures:
 - Tube: PE or PP (Green level)
 - Cap: PE or PP (Green level)



5. Material Proposals: Tubes

		Mono PE	Mono PP
Cap 		PE	PP
Sleeve 	Outside layer	PE	PP
	Barrier	<ul style="list-style-type: none"> EVOH <5% with PE-g-MAH tielayer EVOH 5-6% with PE-g-MAH tielayer 	<ul style="list-style-type: none"> EVOH <5% with PP-g-MAH tielayer EVOH 5-6% with PP-g-MAH tielayer
	Inside layer	PE	PP
Head/shoulder 		PE	PP
All		<ul style="list-style-type: none"> $\rho \leq 0,97 \text{ g/cm}^3$ $\leq 5\%$ fillers Black MB color 	<ul style="list-style-type: none"> $\rho \leq 0,97 \text{ g/cm}^3$ $\leq 5\%$ fillers Black MB color

Only use barriers where need!

If different material in cap and sleeve: cap should be easy and intuitive to separate from tube.

Use renewable content where possible.



Requirements for adhesive lamination will be added in 2025, please check RecyClass guidelines.

Blow Moulded Bottles and Jars


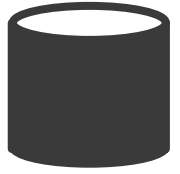
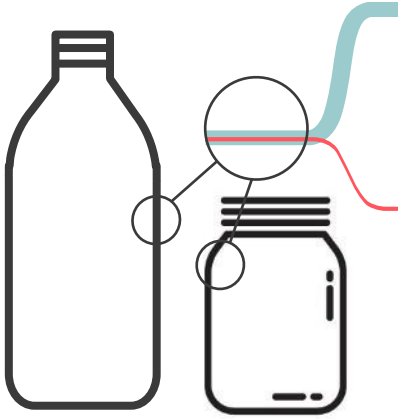
Packaging:

- Rigid
- Cap: Screwed or snap on
- Hot or cold filled
- With or without barrier
- Print on sleeve or glued label
- Typical material structures:
 - PP (Green level)
 - PE (Green level)
 - PET (Green level)
 - Cap: PE or PP (Green level)



6. Material Proposals: Blow Moulded Bottles and Jars

Only use barriers where need!

		Mono PE	Mono PP	Mono PET
Cap or Lid 	<i>Material</i>	PE <ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • $\leq 5\%$ fillers • Black MB color 	PP <ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • $\leq 5\%$ fillers • Black MB color 	PP or PE, <ul style="list-style-type: none"> • $\leq 5\%$ fillers • Easy and intuitive to remove
Shrink sleeve 	<i>Material</i>	<ul style="list-style-type: none"> • PE • Other material than PE & covers less than 60% of the packaging's outer surface 	<ul style="list-style-type: none"> • PP • Other material than PP & covers less than 60% of the packaging's outer surface 	<ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • Covers $\leq 60\%$ of the packaging • Covers $>60\%$ of the packaging
Bottle or Jar 	<i>Material</i>	PE <ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • $\leq 5\%$ fillers • Black MB color 	PP <ul style="list-style-type: none"> • $\rho \leq 0,97 \text{ g/cm}^3$ • $\leq 5\%$ fillers • Black MB color 	PET <ul style="list-style-type: none"> • Transparent clear or transparent light blue • Without fillers
	<i>Barrier</i>	<ul style="list-style-type: none"> • EVOH <5% with PE-g-MAH tie layer • EVOH 5-6% with PE-g-MAH tie layer 	<ul style="list-style-type: none"> • EVOH <5% with PP-g-MAH tie layer • EVOH 5-6% with PP-g-MAH tie layer 	<ul style="list-style-type: none"> • SiOx plasma coating • Oxygen scavenger



Recommended to use a shrink sleeve that is easy to remove!

Use renewable or recyclable content where possible.

1.1 Material Requirements: Blow Moulded Bottles and Jars

PET: Recommendations for glued labels:

- Any adhesive for labels should be washoffable or soluble in 70°C alkaline water without leaving any adhesive residue on the PET packaging.
- The label should have a density <math><1 \text{ g/cm}^3</math> and Cover <math><60\%</math> of the outer surface of the packaging.

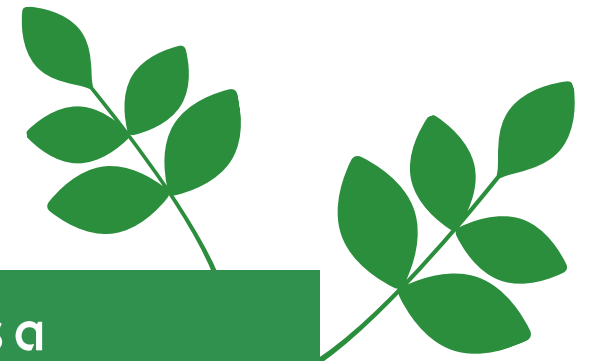
PP & PE: Recommendations for glued labels :

- Recommended to use the same material as the packaging (PE or PP). The adhesive should be washed off at 60 °C



Recommended to only use PET for food applications, this is a requirement for closed loop PET to PET recycling.

Use PP and PE for Nearfood, this also enables incorporation of recycled content.



Key Take Outs

- Avoid mixing different types of plastics, both within the same component and between different components.
- The criteria are very similar regardless of the packaging types. If you are missing your particular packaging you can still follow the guideline for a similar pack as long as you stick to rigid or flexible.
- We are working on a rapidly changing market, and new packaging legislations and guidelines are coming every year. Important to stay updated!
- There are not criteria for everything yet but it is still important to take a step in the right direction. Change take time!
- There are both economical and environmental benefits in changing to recyclable packaging. We have to work together to reach our climate goals. Together we can make a change!



Thanks!



ICA *In collaboration*
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Ordförklaring

Använda ord	Beskrivning
Laminate	Förpackningsmaterial i flera skikt. Kan vara mono eller bestå av flera plasttyper. Tex: PET/PE/EVOH/PE
Mono	Förpackningsmaterial som består av en typ av polymer. Kan vara ett laminat.
Co-extruded material	Extruderat material = Material bestående av ett eller flera skikt, där inget lim används. Istället så sammanfogas skikten av en plastsmälta.
Adhesive laminate	Lacklaminat = Material bestående av flera skikt, där ett lim (ofta lösningsmedelbaserat) används för att sammanfoga skikten
Top web	Ovanbana (OB)= ovasida på tråg (mjuk eller rigid) även kallad: överfilm, top lid, toppfilm
Base web	Underbana (UB)= undersida på tråg (mjukt eller rigid) även kallad: underfilm, tråg
Seal	Svets/försegling = Sammanfogar materialen i förpackningen (påse eller tråg). Oftast svetsas förpackningar mha värme
Permanent seal	Fast försegling = Svets som inte går att riva upp. Krävs sax eller kniv för att öppna förpackningen
Peel	Påse/tråg kan öppnas genom att man drar isär materialen
Reclose (tray)	Återförslutning =Tråget får en klistrig kant efter peel-öppning, detta gör den återförslutningsbar (funkar ca 10 ggr). Även kallad: reseal
MAP	Modifierad atmosfär, gas sprutas in i förpackningen för att öka hållbarhet. (kan var tråg eller påse)
Flow pack	Påse = Ofta syftas till enklaste typen av påse, pillow bag, men kan vara alla typer av påsar.
Pillow bag	Kuddpåse = Enklaste typen av påse (tänk chipspåse).
Gusset bag	Ståpåse = Påse med invik i botten så att den kan stå. Även kallad: Block bottom, Quattro seal pouch OBS: ej att förväxla med doypack/stand-up-pouch

Använda ord	Beskrivning
ZIP	Återförslutningstyp i påsar
HFFS	Horisontal form fill seal= Horisontell påsmaskin
VFSS	Vertical form fill seal= Vertikal påsmaskin
Pre-made tray	Tråg som levereras färdigt (staplat i högar) till packaren
Renewable plastic	Förnybar plast = Plast tillverkad av förnybar råvara, ex sockerrör eller tallolja. Är kemiskt identisk med konventionella fossila plaster.

Ordförklaring plaster

Använda ord	Beskrivning
BOPP	Biaxialt orienterad polypropen
EPS	Expanderad polystyren
EVOH	Etenvinylalkohol
HDPE	Högdensitetpolyeten
LDPE	Lågdensitetpolyeten
LLDPE	Linjär lågdensitetpolyeten
MDPE	Medium densitetpolyeten
OPP	Orienterad polypropen
PA	Polyamid (Nylon)
PET/PETE	Polyetentereftalat
rPET	Recycled PET
APET	Amorf PET
CPET	Kristallin PET
PETG	Glykolmodifierad PET
PLA	Polylaktid
Polyolefiner/Olefinplast	En grupp vanliga polymerer tex. PP och PE
PP	Polypropen
PS	Polystyren
PVdC	Polyvinylklorid
PVC	Polyvinylklorid
PVOH	Polyvinylalkohol

Använda ord	Beskrivning
AlOx	Aluminium oxide
SiOx	Silicon oxide