CII-ITC Centre of Excellence for Sustainable Development

Confederation of Indian Industry

INDIA PLASTICS PACT

Design for recycling guidance for films and flexible packaging

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Contents

Source: India Plastics Pact archives

List of abbreviations

AlOx	-	aluminium oxide
BoPP	-	biaxially oriented polypropylene
EVA	-	ethylene vinyl acetate
EVOH	-	ethylene vinyl alcohol
FMCG	-	fast-moving consumer good
HDPE	-	high density polyethylene
IPP	-	India Plastics Pact
LDPE	-	low density polyethylene
LLDPE	-	linear low density polyethylene
MDPE	-	medium density polyethylene
MRF	-	material recovery facility
MXD6	-	nylon made from m-xylene diamine (MXDA) + adipic acid
PA	-	polyamide
PE	-	polyethylene
PET	-	polyethylene terephthalate
PET-G	-	PET, glycol-modified
PP	-	polypropylene
PVC	-	polyvinyl chloride
rHDPE	-	recycled HDPE
SiO_x	-	silicon oxide

Chapter 1

The India Plastics Pact

The India Plastics Pact (IPP), a voluntary business initiative managed by the Confederation of Indian Industry, aims to create a circular economy for plastics packaging in India. IPP brings together businesses and NGOs across the plastics value chain to commit to a vision of a world where plastic is valued and doesn't pollute the environment. It is the only Plastics Pact in Asia and is part of a global network of 13 Plastics Pacts convened by the Ellen MacArthur Foundation and WRAP.

The initiative offers a platform to stakeholders for collective action and supports the creation of innovative solutions to manage plastic packaging and promote a circular economy for plastic packaging. All signatories to the Pact commit to four timebound targets (Figure 1) designed to drive changes in the production, use, and disposal of plastic packaging, ensuring efficient use and promoting circularity.

Figure 1 India Plastics Pact 2030 Targets

* These would only include compostable plastics with all the following properties
a) do not leave any microplastic residue,
b) used in closed-loop and controlled systems with sufficient infrastructure available or fit-for-purpose applications, and,
c) properly labelled as 'Home' or 'Industrial' compostable.

The Plastics Pact Network

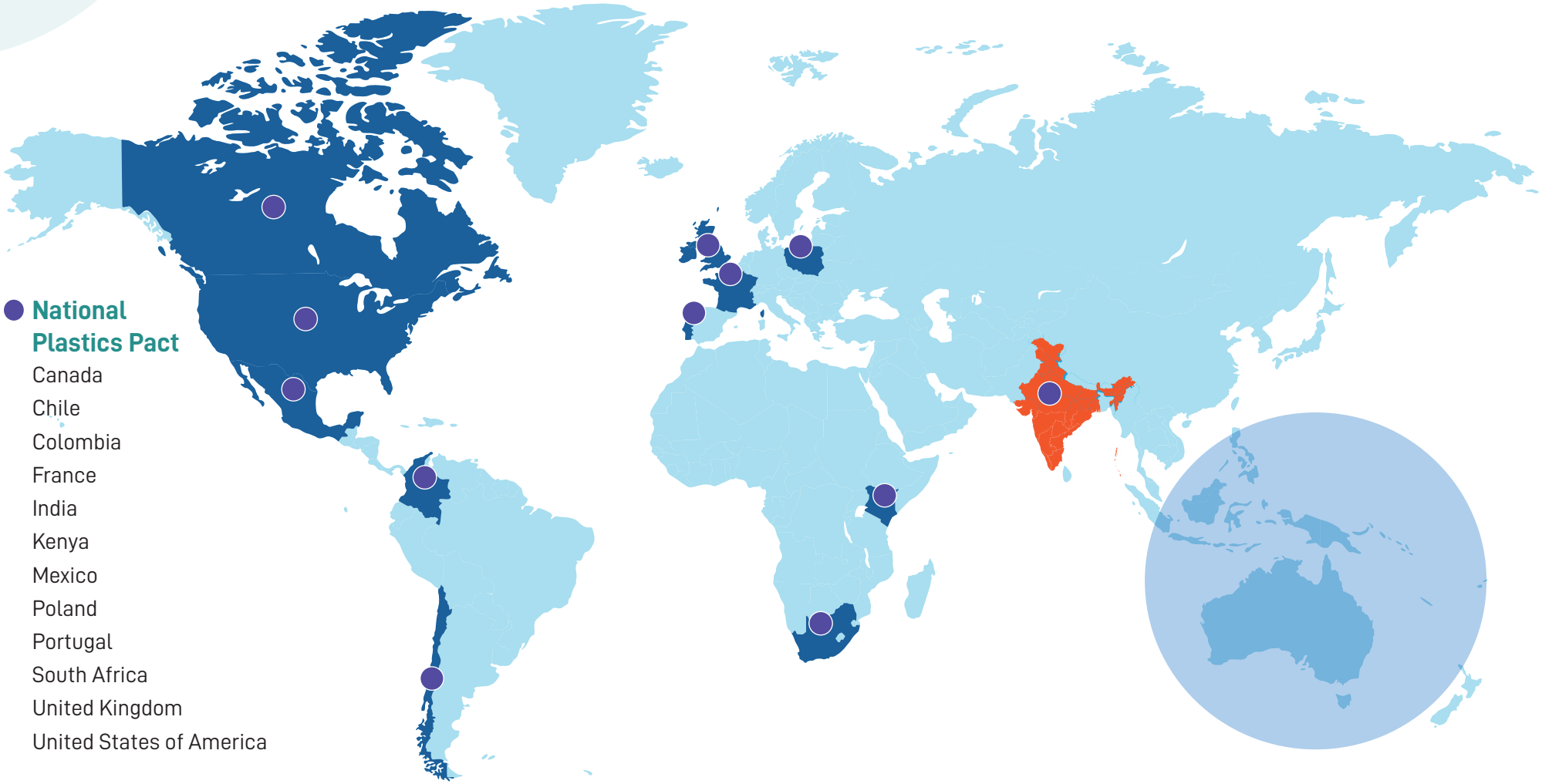

Figure 2 The Plastics Pact Network, convened by the Ellen MacArthur Foundation and WRAP

Chapter 2

Why a separate design guidance for films and flexible packaging?

Flexible plastic packaging accounts for 73% of the total plastic packaging used in India. By contrast, flexible plastic packaging constitutes 28% of the total packaging in the US[1] , while in Europe and Canada, it represents 45%[2] and 47%[3] , respectively. In emerging economies such as South Africa and Thailand, flexible packaging comprises approximately 42%[4] and 47%[5] of total packaging, respectively (Figure 3).

The market for flexible packaging in India is projected to grow to USD 12.72 billion, with a compound annual growth rate (CAGR) of nearly 11%, from 2021 to 2025[6] . Over the past four years, film manufacturing capacity in India has increased by 45%, with an additional 20%

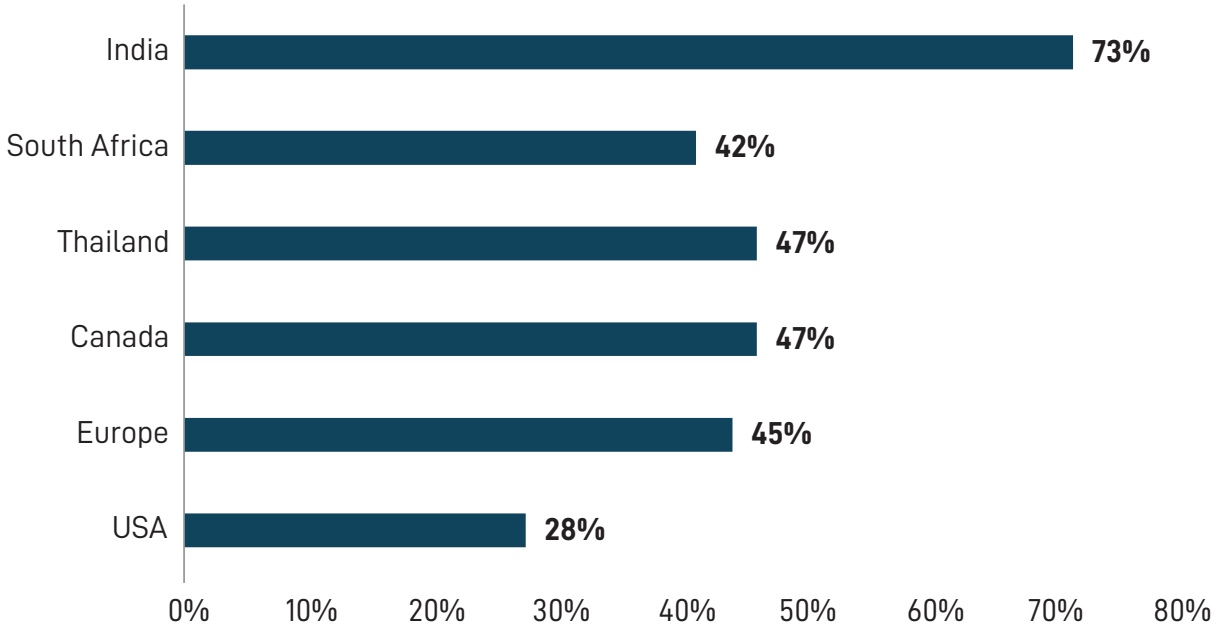

Figure 3 Share of flexible plastic packaging (in %) in total plastic packaging placed on market

[1] US Plastics Pact. 2023. *US Plastics Pact Annual Report 2023*. Available at https://usplasticspact.org/wp-content/uploads/2023/06/U.S.-Pact-2021-Annual-Report-06.27.23.pdf. Accessed on 29 November 2024.

[2] European Environment Agency. (2022). *Flexible plastics in Europe's circular economy*. Available at https://circulareconomy.europa.eu/platform/sites/default/files/2022-12/Flexible%20Plastics.pdf. Accessed on 29 November 2024.

[3] Plastics Recycling Update. (2024). *Flexible packaging nearly half of Canadian market*. Available at https://resource-recycling.com/plastics/2024/01/03/study-flexible-packaging-nearly-half-of-canadian-market/#:~:text=Results%20from%20the%20first%20phase,put%20on%20the%20Canadian%20market. Accessed on 29 November 2024.

[4] Plastics South Africa. (2022). Available at https://www.plasticsinfo.co.za/wp-content/uploads/2022/11/Latest-Industry-Statistics-released.pdf. Accessed on 29 November 2024.

[5] Data obtained from Huhtamaki India Limited.

[6] PR Newswire . (2021). *Flexible Packaging Market in India*. Available at https://www.prnewswire.com/news-releases/flexible-packaging-market-in-india-top-vendor-like-amcor-plc-is-expected-to-generate-revenue-worth-usd-12-45-billion-301349366.html. Accessed on 29 November 2024.

capacity expansion anticipated in FY 2024/25.[7] The figures presented for each country represent the use of films and flexible packaging placed on the market by weight. However, flexible packaging can meet more than 50% of packaging requirements, thus significantly reducing the total amount of plastic introduced into any given market.

Flexible packaging is widely used in the fast moving consumer goods (FMCG) industry due to its high resource efficiency, affordability, and ability to provide functionality while minimizing raw material consumption. It is used extensively by both, small regional brands as well as large national and multinational brands. Given its widespread use and relatively low manufacturing costs, flexible packaging is manufactured by many large and small operators which leads to a variety of packaging compositions being placed on the market. Therefore, despite the fact that flexible packaging meets the needs of the FMCG segment perfectly, its post-consumer management presents significant challenges on the ground.

More challenges arise because a large portion of flexible packaging placed on the Indian market is multilayered and composed of different polymers and materials, designed to provide barriers to moisture and oxygen to maintain product quality. These multilayered packaging structures hinder recycling and make waste management challenging; in FY 2023/24, about 77% of flexible packaging placed on the market by India Plastics Pact signatories was multilayered, non-recyclable plastic packaging[8]. Some end-markets exist for post-consumer recyclate made of multilayered packaging structures; however, a lack of consistent waste segregation at source at scale leads to contaminated plastic waste streams that hold little value for waste collectors and recyclers.

Effective management of flexible plastic packaging therefore, requires collaborations across the packaging value chain, backed by adoption of or adherence to collaboratively developed and agreed upon good design practices. This design guidance helps create value for post-consumer flexible packaging, improving its collection and recycling; which in turn

The India Plastics Pact has previously developed design guidance for rigid packaging to ensure that rigid packaging introduced into the Indian market is recyclable by design. These documents incorporate global best practices while adapting to the specific conditions of the Indian market.

- Food contact grade PET bottles
- Overall rigid packaging
- Non-food contact grade HDPE bottles

[7] Packaging South Asia. (2024). *JPFL Films to invest Rs 250 Crore in new BOPP Line*. Available at https://packagingsouthasia.com/type-of-article/new-plant/jpfl-films-invest-in-bopp/. Accessed on 29 November 2024.

[8] India Plastics Pact. (2023). *The India Plastics Pact Annual Report 2022-23*. Available at https://www.indiaplasticspact.org/uploads/1710591779document.pdf. Accessed on 29 November 2024.

will enable businesses meet their Extended Producer Responsibility (EPR) obligations for recycling and use of recycled content in flexible packaging.

Flexible packaging in India

Flexible packaging is extensively used in India for a variety of applications, including FMCG products, electronics, lubricants, paints, tools, sanitary ware, pharmaceuticals, pet care products, and agricultural products such as fertilizers and cattle feed. This document provides overarching design-for-recycling recommendations for flexible packaging, specifically in food, personal care, home care, and pet food applications. These design recommendations are based on the infrastructure available for mechanical recycling in India. Future versions of this document will provide more detailed recommendations customised to different products and recycling types in the Indian context.

Food applications

Flexible packaging is widely used in food applications to extend shelf life, ensure food safety, and maintain taste. Both processed and unprocessed foods are packaged in a variety of flexible formats such as pouches and bags. An India Plastics Pact's report on small formats and sachets[9] states that, 93% of food products in India are packaged in flexible formats, contributing to 73% of sales value of the packaged food sector. Given that food packaging waste is one of the most prevalent forms of litter in India, transitioning to recyclable designs will add value to post-consumer packaging waste, prevent plastic leakage, and improve the collection and recycling of flexible packaging.

Personal care applications

Flexible packaging dominates in the personal care segment; 84% of personal care products are sold in flexible packaging. The demand for small packs drives sales in the personal care segment, as flexible formats enhance packaging aesthetics and improve consumer appeal, a key factor in this category. A transition to mono-material packaging in personal care has the potential to substantially increase the volume of recyclable mono-material flexible packaging placed on the Indian market.

Source: India Plastics Pact archives

[9] India Plastics Pact. 2023. *Insights Report: Small Formats and Sachets.* Available at https://www.indiaplasticspact.org/uploads/1703753842document.pdf. Accessed on 30 November 2024

Homecare applications

In India, 98% of homecare products are sold in flexible packaging, representing 91% of the segment's sales. Superior barrier properties offered by flexible packaging are essential to preserve active chemicals in detergents and other cleaning products. Although interventions in homecare product packaging may have a limited overall impact due to the lower volume of units sold than food and personal care categories, design changes should still be prioritised. Packaging for homecare products does not have to meet higher safety standards as in the case of food and personal care packaging.

Pet food and pet care applications

India's pet industry is rapidly growing, with the pet food segment projected to reach USD 1 billion by 2025. Additionally, other pet products, including collars, leashes, toys, and grooming products, are expected to attain a market value of USD 0.5 billion by 2025. At present, there are no specific regulations for pet food packaging, presenting an opportunity for brands to adopt recyclable packaging solutions.

Challenges in managing post-consumer flexible packaging

India's FMCG sector has grown rapidly, leading to a strong competition among brands to achieve revenue growth and maintain market share.

Although transitioning to recyclable flexible packaging is essential for meeting EPR obligations and brands' internal sustainability goals, progress has been slow, owing to cost considerations.

The following section highlights common challenges at post-consumer stage hindering the effective management of flexible plastic packaging.

Collection

- **Lack of source segregation:** absence of segregation at source results in contaminated waste streams, negatively affecting both the quality and quantity of feedstock available for recycling.
- **Low collection rates:** flexible packaging formats are not collected at scale by waste collectors, because the time taken to gather quantities sufficient for selling to an aggregator is not proportional to the value of the collected packaging waste.
- **Lack of awareness and communication about design changes:** information about design changes adopted by brands (such as a transition from multi-layer to mono-layer flexible packaging), often does not reach waste collectors and recyclers. This gap in communication results in a loss of potential input feedstock for recyclers.

Recycling

The installed capacity for high-quality film recycling is far lower than that available for rigid packaging.

The lack of recycling infrastructure has traditionally discouraged brands and converters from transitioning to mono-material packaging as EPR obligations were met easily by diverting multilayered flexible packaging waste to cement kilns and waste-to-energy plants.

End-markets

Mono-material flexible packaging, especially secondary and tertiary overwraps, is quite widely collected as it is known to have value and can be channeled to an existing end-market. By contrast, recyclates from multilayered flexible packaging have limited end-market applications, mostly in low-value products such as park benches, furniture, and agricultural pipes.

These factors emphasize the need to transition to recyclable mono-material structures. Such a transition would motivate the development of a supply chain and infrastructure for efficient collection and recycling of flexible packaging.

Source: India Plastics Pact archives

Source: India Plastics Pact archives

Objective of the guidance

Since post-consumer rigid packaging has more value than its flexible counterpart, its collection and recycling ecosystem is far better established. By contrast, recycling of flexible packaging is managed by low-end recyclers utilising cost-effective machinery, resulting in lower-quality output.

The objective of this document is to provide recommendations on technical and design-related aspects, which, if put into practice, will ensure that post-consumer flexible packaging is collected and recycled into high-quality pellets.

Chapter 3

The design guidance

The following aspects of flexible packaging format have implications on the ease of recycling and should be addressed at the design stage.

- Polymer choice
- Pigments
- Barriers, coatings, and metallisation
- Additives and fillers
- Closures: caps, zippers, and nozzles

- Printing and inks
- Labels
- Adhesives
- Residual content

Figure 4 Elements of a flexible pack

Note:

- Customised guidance for product-specific applications will be prepared in the next phase of the India Plastics Pact's work on flexible packaging.
- This document excludes flexible packaging components such as shrink sleeves and films used in rigid packaging applications.

The collection and recycling of flexible packaging are directly affected by its design. Recommendations relevant in the Indian context are presented below, divided into three categories.

Problematic for recycling (X)

These aspects negatively affect the recyclers' yield. A majority of recyclers are unable to address the challenges posed by these design choices, limiting the range of end-market applications.

Conditional (!)

These present known technical challenges to recyclers' productivity or final product quality, but are tolerated by most recyclers.

Recycling-friendly (✓)

These have minimal or no negative effect on recycling or final product quality. Packaging with these features will likely be collected and recycled..

Polymer choice

The choice of polymer significantly impacts the recyclability of flexible packaging. Post-consumer flexible packaging is typically sorted by polymer.

In practice, secondary and tertiary flexible packaging (largely made of LDPE and PP) is widely collected and recycled into low and high-quality pellets. However, flexible packaging in direct contact with the product is typically made from combinations of LDPE, HDPE, and PP together with a PET layer (as barrier). The above resins are used in different combinations depending on the packaged product: for example, PET laminates are preferred for their superior thermal and mechanical properties and aesthetic appeal.

Films made of PVC, PS, and co-extruded combinations of non-compatible polymers should be avoided, as packaging made of these are not widely recycled in India. Recycling of PVC, in particular, is associated with toxic chlorine emissions. Co-extruded films containing incompatible polymers are not recommended because they have little to no post-consumer value and cannot be channeled to any viable end market.

Ideally, packaging should be made of a single polymer or then, polymers belonging to the same family. With respect to combinations of PE and PP (polyolefin family), recyclers accept 70-90% PE with upto 20% PP. Similarly, mono-PP structures with 70-90% PP and upto 20% of PE are not known to cause significant problems to recyclers. This range of combinations, whether the base polymer be PE or PP, is easily identified by waste workers, segregated, and channeled into the appropriate waste streams.

Source: India Plastics Pact archives

The most recycling-friendly packaging structure is one in which the base polymer constitutes at least 90% by weight; a 10% margin is allowed for other polymers (of the same family), barrier layers, inks, adhesives, labels, and additives. However, it is important to ensure that the individual weight of each additional component does not exceed 5% of the total pack weight. Mono-material PET films can be used in flexible packaging: the use of this polymer is increasing. However, there is not enough recycling capacity for flexible PET in India. Brands should transition to PET films only if there is a high degree of confidence in post-consumer collection and recycling of flexible PET.

X	!	✓
PVC, PS, co-extruded films with incompatible polymers.	Mono-PE with PP content upto 20% Mono-PP with PE content upto 20%	Mono-PE with >90% PE content* Mono-PP with >90% PP content* Mono-material PET

*10% includes other polymers as well as remaining components like additives, inks, fillers, barriers, etc.

Pigments

Pigments are often used in packaging for brand differentiation. However, certain pigments used to enhance packaging colours can hamper the recycling process.

The use of carbon pigment for black colour, can cause rejection of recyclable packaging when infrared (NIR) sorting technology is used. Thus, the use of carbon pigment should be avoided. Although the use of NIR sensors or automated sorting is not currently widespread in India, this recommendation will prevent problems if automated sorting systems become popular.

Dark pigments are acceptable for packaging if they do not contain carbon black. However, packaging with no pigments, or pigments in paler colours can be used in a wide range of end-market applications, and are therefore preferred by waste collectors and recyclers.

X	!	✓
Non-NIR detectable carbon black.	Black or dark pigments (NIR detectable).	Colourless, white colour, or paler colours.

Source: India Plastics Pact archives

Barriers, coatings, and metallization

Barrier layers in flexible packaging provide protection from oxygen, moisture, and light. In India, barriers used in multilayered packaging include PET, PVC/PVDC, silicon oxide + PET, and metallized PET; all these present significant challenges in the recycling process.

EVOH and EVA barriers are acceptable replacements for PET, PVC/PVDC, and metallized PET, as long as they don't exceed 5% of the total pack weight.

Barrier layers made from the same polymer as the packaging are ideal from the perspective of recycling. Oriented PP (OPP) or Cast PP (CPP) barriers are preferred for PP packaging, and LLDPE or HDPE barriers for PE packaging.

Aluminium provides excellent barrier properties and is widely used in either the vapour-deposited or coated form, and is used in conjunction with PE or PP. Packaging containing a layer of vapour-deposited aluminium, commonly used in food packaging, is considered recyclable, but packaging using relatively thick aluminium foil is not. However, it is hard for waste workers, sorting manually, to differentiate between packaging with aluminium foil and packaging with a vapour-deposited aluminium layer. As a consequence, vapour-deposited aluminium packaging is not collected.

X	!	✓
PET, PVC, PVDC, SiO_x + PET, metallized PET*, aluminium foil, PS, nylon, and other non-compatible barriers.	Barriers/coatings not exceeding 10% of the pack's total weight.	For Mono-PP, use Cast PP or Oriented PP as barriers. For Mono-PE, use LDPE, LLDPE, HDPE, or HM-HDPE as barriers. EVOH or EVA Vapour-deposited aluminium Barriers/coatings not exceeding 5% of the pack's total weight.

*Metallized PET can be used for mono-material PET films.

Additives, fillers, and masterbatches

While additives and fillers enhance performance and functionality of packaging, they might change its density and negatively impact the recycling process (sink-float tank).

Fillers such as talc and calcium carbonate, when used at high concentrations, raise the density of flexible packaging to above 0.995 g/cm^3 and should be avoided. Oxo-biodegradable additives and optical brighteners should be avoided for the same reason.

Slip additives, anti-block additives, and tackifiers are commonly used in flexible packaging. If the weight of these additives is under 5% of the total pack weight, they do not pose challenges during the recycling process.

X	!	✓
Talc, calcium carbonate, and other fillers or masterbatch that increase packaging density beyond 1 g/cm^3. Oxo-biodegradables Optical brighteners	Slip additives, anti-block additives, tackifiers, or masterbatch that maintain density below 0.995 g/cm^3.	Additives or a masterbatch that do not increase the product density.

Printing and inks

Printed matter on packaging conveys information about the brand, product ingredients, expiry date, nutritional content, and allergens. To improve packaging recyclability, it is recommended that the surface area covered by print is minimised. Inks that can increase packaging density or inks containing heavy metals should be avoided as they can hinder the recycling process and result in low quality recyclate.

Solvent-based inks are widely used in India, but the challenges they pose during recycling are not known. Water-based inks, a preferred solution, can be easily removed during the de-inking process. Packaging with both, water-based and solvent-based inks is considered recyclable in India.

Ideally, ink must not weigh more than 5% of the total weight of packaging. However, recyclers in India accept post-consumer flexible packaging with ink weighing upto 10% of pack weight.

X	!	✓
Inks containing heavy metals and PVC binders.	Water-soluble inks	Water-soluble inks
Inks that bleed in dye washes.	Solvent-based non-transferable inks	Solvent-based non-transferable inks
Inks that increase product density.	Weight of ink to not exceed 10% of the total pack weight.	Weight of the ink should not exceed 5% of the total pack weight.

Source: India Plastics Pact archives

Reverse printing vs surface printing

Reverse printing, widely used in India, involves ink being applied to the inner layer of a multilayered packaging structure to protect the ink from direct exposure to the external environment. However, reverse-printed packaging poses a challenge during the ink removal process in recycling.

Surface printing involves applying ink directly to the outermost layer of the packaging and is commonly used for monolayer packaging. While this method offers high visibility and print quality, it exposes the ink to the external environment, making it more susceptible to damage from abrasion, moisture, and light.

Closures (caps, nozzles, and zippers)

Rigid closures such as caps, nozzles, or zippers are often used with large-format flexible packaging. Food products such as savoury snacks, tomato ketchup, ginger-garlic paste; and homecare products such as handwash and liquid detergents, are sold in flexible packaging with closures.

Ideally, packaging without closures is considered recyclable. However, if closures are a requirement, they should be

- designed to allow products to be emptied easily from the packs, leaving minimum product residue
- preferably be made of the same material as the packaging, or
- made of a material that is easily separable during recycling.

Closures made of PVC, nylon, silicone, PS, EPS, steel, or aluminium should be avoided as they contaminate the plastic recycling stream.

X	!	✓
Aluminium, PVC, and PET closures.	PP closures for PE packaging. PE closures for PP packaging.	No closure Closures made of same material as the packaging.

Labels

Most large brands do not use labels on flexible packaging. However, many regional brands might do so on mono-layer packaging with product information printed on paper labels. Large brands and retailers use labels in cases where multiple packs are bundled together with a tape for promotional offers.

Discussions with recyclers indicate that PVC tapes on flexible packaging pose challenges during recycling, and should be avoided. Paper labels are not ideal; however, if used, they should be easily removable. PE labels on PP packaging and PP labels on PE packaging are not optimal; however, they do not pose challenges during recycling.

Packaging without labels or with labels made from the same material as the packaging is considered ideal for recycling.

Source: India Plastics Pact archives

X	!	✓
PET, PET-G, PVC, and PVDC labels.	Paper labels which are easily removable. PE labels for PP packaging. PP labels for PE packaging.	No labels. Labels of same material as the packaging.

Adhesives

The choice of adhesive may impact recyclability of flexible packaging. Globally, solvent-based adhesives, solvent-less adhesives, and polyurethane-based adhesives are widely used with global guidance suggesting an optimal level for adhesives at 5% but no more than 10% of total pack weight.

So far, the impact of adhesives on the recycling process in India is not clearly understood.

Residual content

While a minimum threshold of 1% of product residue in flexible packaging is broadly recommended globally, recyclers have not yet determined a threshold for Indian conditions.

However, it is essential for brands to clearly communicate to consumers the importance of removing as much of the product from packaging as possible, before disposal. This will maximise the amount of post-consumer flexible packaging waste channeled to recyclers.

X	!	✓
Non-soluble adhesives, hot melt glues, or adhesives weighing more than 10% of the pack weight	Solvent-based adhesives, weighing between 5% and 10% of the pack weight.	Solvent-less adhesives and polyurethane-based adhesives, weighing less than or maximum upto 5% of the pack weight.

Chapter 4

Checklist for brands and converters

Brands across the world have begun the transition from multilayered, non-recyclable structures to mono-material structures for a range of products. Recyclable packaging solutions are available in India, but have not been widely adopted. A summary of the design elements important in the transition to recyclable structures is presented in the following checklist: the goal is to maximize the number of ticks in the green boxes.

Parameter	Problematic for recycling	Conditional	Recycling-friendly	Reference
Polymer choice				Refer to page 16
Percentage of other components				Refer to page 16
Pigments				Refer to page 17
Barriers, coating, and metallization				Refer to page 19
Additives, fillers, and masterbatch				Refer to page 20
Printing and inks				Refer to page 21
Closures (caps, nozzles, and zippers)				Refer to page 23
Labels				Refer to page 24
Adhesives				Refer to page 25

Chapter 5

Summary of the guidance

	X	!	✓
Polymer choice	PVC, PS, co-extruded films with incompatible polymers.	• 70-90% PE with up to 20% PP content. • 70-90% PP with up to 20% PE content.	• Mono-PE with >90% PE content* • Mono-PP with >90% PP content* • Mono-material PET * 10% includes other polymers as wel as remaining components like additives, inks, fillers, barriers, etc.
Pigments	Non-NIR detectable carbon black.	Black or dark pigments (NIR detectable).	Colourless, white colour, or light coloured pigments.
Barriers, coatings and metallisation	PET, PVC, PVDC, SiO_x + PET, metallized PET*, aluminium foil, PS, nylon, and other non- compatible barriers. *Metallized PET can be used for mono-material PET films.		• For Mono-PP, use Cast PP or Oriented PP as barriers. • For Mono- PE, use LDPE, LLDPE, HDPE, or HM-HDPE as barriers. • EVOH or EVA • Vapour-deposited aluminium • Barriers/coatings not exceeding 5% of the pack's total weight.

	X	!	✓
Additives, fillers and masterbatch	• Talc, calcium carbonate, and other fillers, or masterbatch that increase packaging density beyond 1 g/cm^3. • Oxo- biodegradables • Optical brighteners	Slip additives, anti-block additives, tackifiers, or masterbatch that maintain density below 0.995 g/cm^3.	Additives or a masterbatch that do not increase the product density.
Printing, inks, and primers	• Inks containing heavy metals and PVC binders. • Inks that bleed in dye washes. • Inks that increase product density.	• Water-soluble inks and solvent-based non-transferable inks. • Weight of ink to not exceed 10% of the total pack weight.	• Water-soluble inks and solvent-based non-transferable inks. • Weight of the ink should not exceed 5% of the total pack weight.
Closures (caps, nozzles, and zippers)	Aluminium, PVC, and PET closures.	• PP closures for PE packaging. • PE closures for PP packaging.	• No closures • Closures made of same material as the packaging.
Labels	PET, PET-G, PVC, and PVDC paper labels.	• Paper labels (easily removable) • PE labels for PP packaging. • PP labels for PE packaging.	• No labels • Labels made from the same material as the packaging.
Adhesives	Non-soluble adhesives, hot melt glues, or adhesives weighing more than 10% of the pack weight.	Solvent-based adhesives weighing between 5% and 10% of the pack weight.	Solvent-less adhesives and polyurethane-based adhesives weighing less than or maximum upto 5% of the pack weight.

India Plastics Pact

The India Plastics Pact, launched in 2021, unites businesses, governments, NGOs and citizens to create a circular plastics economy in India. It is managed by the Confederation of Indian Industry (CII). The CII-ITC Centre of Excellence for Sustainable Development (CESD) anchors the India Plastics Pact, within CII. It is the first Plastics Pact in Asia and is supported by WRAP, a global NGO based in the UK. As of December 2024, 55 organisations are part of the India Plastics Pact. IPP is part of a global network of 13 Plastics Pact. The work of the Pact covers all plastic resins at all stages of the plastics value chain.

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The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. With its extensive network across the country and the world, CII serves as a reference point for Indian industry and the international business community.

In the journey of India's economic resurgence, CII facilitates the multifaceted contributions of the Indian Industry, charting a path towards a prosperous and sustainable future. With this backdrop, CII has identified "Globally Competitive India: Partnerships for Sustainable and Inclusive Growth" as its Theme for 2024-25, prioritizing 5 key pillars. During this year, it would align its policy recommendations, initiatives, and activities with this overarching framework to facilitate strategic actions for driving India's global competitiveness and growth through a robust and resilient Indian Industry.

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CESD works towards bringing local and global macro challenges to the centre stage; building policy consensus on critical issues; strengthening stakeholders' awareness and representation on policy & regulatory reforms and enabling actions that positively impact the environment, nature and communities.

With a vision to drive transformation towards sustainable development, the Centre continues to play a focal role in Government-Industry dialogues on national regulations; articulating stakeholders' discourse on global policies; putting forth Indian Industry's stand on macro-economic issues and accentuating the need for sustainable and inclusive transformation.

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