

# Recyclability in a View

Make the most informed labelling and packaging decision for greater sustainability. Here is an overview of different labelling technologies, the recyclability of various packaging materials, and the global trend in plastic packaging to help you make the right choice.

Avery Dennison ClearIntent™ portfolio contains hundreds of products that help reduce material consumption and landfill waste.

## Benefits of PS labels versus other labelling technologies



### Pressure Sensitive Labels

- + CleanFlake™ solution enhances the recyclability of PET containers by enabling a clean separation during the recycling process
- + Materials from renewable resources available for facestocks and liners
- + Bio-sourced, compostable, biodegradable materials readily available
- + Liner and matrix recycling programs make it easy for converters and end users to recycle label waste
- Backing liner waste
- No current CleanFlake solution for HDPE or PP
- Standard adhesives may impact label and container separation



### Wrap-around

- + No backing liner waste
- + Easiest separation due to small adhesion zone
- Limited material options, lower quality look & feel
- Hotmelt contaminant



### Shrink Sleeve

- + No backing liner waste
- + Perforations can be added to provide manual sorting
- + Container lightweighting / recycled content color variation
- 360 coverage impacts optical sorting process
- Traditional PETG and PVC sleeves do not separate through PET recycling process (sink / float)



### Wet Glue

- + No backing liner waste
- Limited to paper face - can disintegrate and contaminate recycling wash water
- Not proven through plastic recycling process (only glass)



### In-mould

- + No backing liner waste
- + Single polymer plastic makes recycling easier (container and label are PP)
- Limited availability of PP recyclers
- Label cannot be separated from container
- Risk of ink contaminating recycling wash water



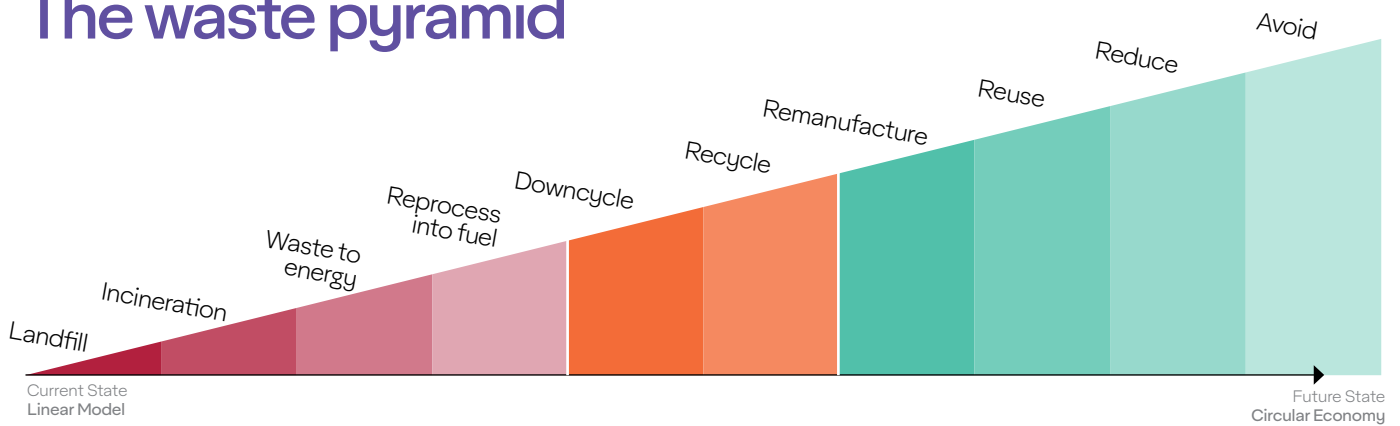
### Direct Print

- + Zero label waste
- Inks have a high risk of contaminating recycling wash water
- Typically rejected by recyclers

# Ease of recyclability

<p>Easier</p> <p>Harder</p>	<p><b>Paper &amp; Cardboard</b> Most paper mills are actively sourcing paper to recycle</p>	<ul style="list-style-type: none"> <li>+ Easily separated and 100% recyclable</li> </ul>	
	<p><b>Glass</b> Glass industry recycles bulk of glass into new glass products</p>	<ul style="list-style-type: none"> <li>+ Easily separated and 100% recyclable or reusable</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy weight and energy intensive production process</li> </ul>
	<p><b>Metal Cans</b> Many aluminum recyclers accepting and recycling waste</p>	<ul style="list-style-type: none"> <li>+ Aluminum is easily separated and 100% recyclable</li> </ul>	<ul style="list-style-type: none"> <li>- Energy intensive production process</li> </ul>
	<p><b>PET</b> Many rPET closed loop food grade recyclers available</p>	<ul style="list-style-type: none"> <li>+ Easily separated and recycled into food grade containers</li> </ul>	<ul style="list-style-type: none"> <li>- Some decorations can limit recyclability (shrink sleeves, direct print, PSL)</li> </ul>
	<p><b>HDPE</b> Closed loop food grade HDPE recyclers are emerging</p>	<ul style="list-style-type: none"> <li>+ Can be recycled into food grade containers</li> </ul>	<ul style="list-style-type: none"> <li>- Some decorations can limit recyclability (shrink sleeves, direct print, PSL)</li> </ul>
	<p><b>PP</b> Limited to industrial recycling process</p>	<ul style="list-style-type: none"> <li>+ Can be recycled into non food products</li> </ul>	<ul style="list-style-type: none"> <li>- Few recyclers available due to commercial viability and lack of demand for rPP</li> </ul>
	<p><b>Flexible Plastics</b> Few recycling options available today</p>	<ul style="list-style-type: none"> <li>+ Lightweight/thin</li> </ul>	<ul style="list-style-type: none"> <li>- Hard to separate</li> <li>- Multi-layer substrates impact recyclability</li> </ul>

# Advancing a circular economy: The waste pyramid



## Downcycling

Recycled into lower grade industrial applications.

### Example:

Food-grade to industrial grade fibers

## Recycling

Recycled into alternate applications.

### Example:

Food-grade into non-food-grade packaging

## Remanufacturing

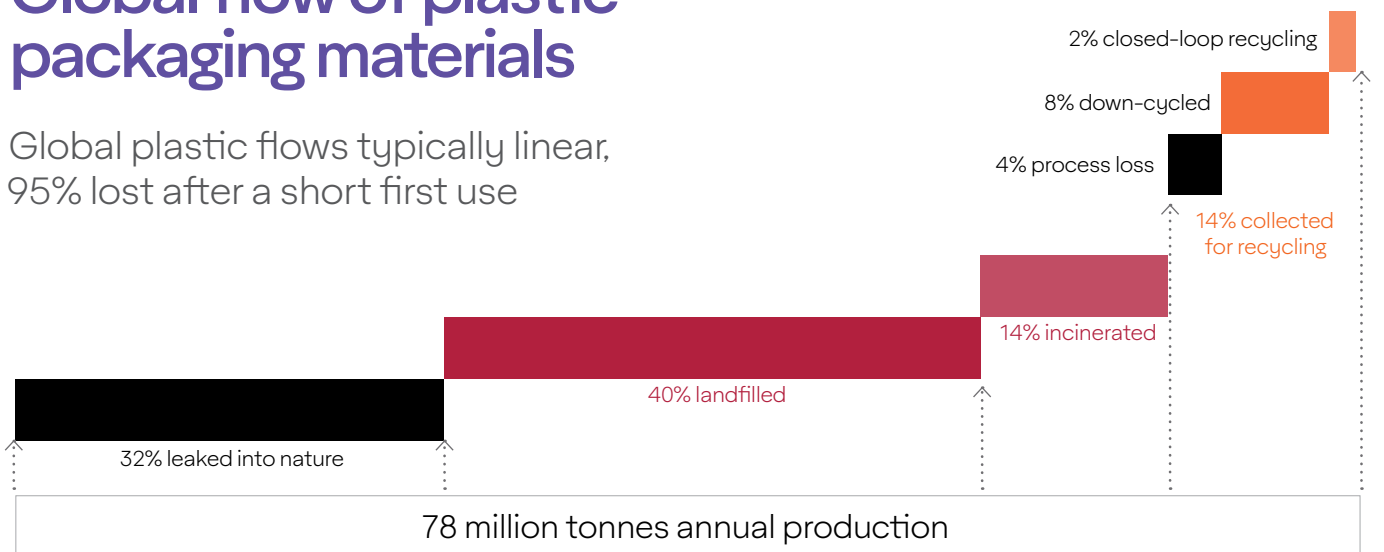
Closed-loop recycling back into same applications.

### Example:

Food-grade into food-grade packaging

# Global flow of plastic packaging materials

Global plastic flows typically linear, 95% lost after a short first use



# Main plastic types and recycling potential



## Bottle to bottle

water & soft drink bottles  
salad domes  
biscuit trays  
salad dressing  
peanut butter dressings



## Bottle to bottle

milk bottles/jugs  
freezer bags  
dip tubs  
shopping bags  
ice cream containers  
juice bottles  
shampoo bottles  
chemical & detergent



## Limited options

cosmetic containers  
commercial cling wrap



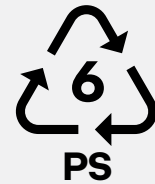
## Downcycled

squeeze bottles  
cling wrap  
shrink wrap  
rubbish / trash bags



## Downcycled

microwave dishes  
ice cream tubs  
potato chips bags  
dip tubs



## Limited options

compact disc cases  
water station cups  
plastics cutlery  
imitation of crystal glassware  
video cases



## Limited options

foamed polystyrene hot drink cups  
hamburger take-away clamshells  
foamed meat trays  
protective packaging for fragile items



## Limited options

water cooler bottles  
flexible films  
multi-material packaging