

# Labelling Adhesives in Packaging Recycling

FEICA Webinar – 23 April 2025



# Proceedings

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# Agenda

- 10:00 Introduction - *Ms Jana Cohrs, Executive Director Public & Regulatory Affairs, FEICA*
- 10:05 Overview of adhesives in labelling for packaging - *Ms Gwendoline Verkaik, Government Affairs Analyst, Avery Dennison*
- 10:20 Recycling process and test methods - *Mr Arne Jost, Senior Manager Circularity, Packaging & Consumer Goods, Henkel Adhesive Technologies*
- 10:35 Recommendations and look to the future - *Ms Elizabeth Staab, Global Packaging Sustainability Manager, H.B. Fuller*
- 10:50 Q&A session moderated by *Ms Jana Cohrs*
- 11:00 Close of the webinar



**Ms Jana Cohrs**

Executive Director Public & Regulatory Affairs, FEICA

## Introduction



**16 National Associations  
representing 17 Countries  
450+ members**



**26 Direct Company Members**



**24 Affiliate Company Members**



# Contribution of the adhesives and sealants industry in Europe

**19.9 billion** euros contribution to the EU economy

**800** adhesives and sealants manufacturers, of which **85% are SMEs**

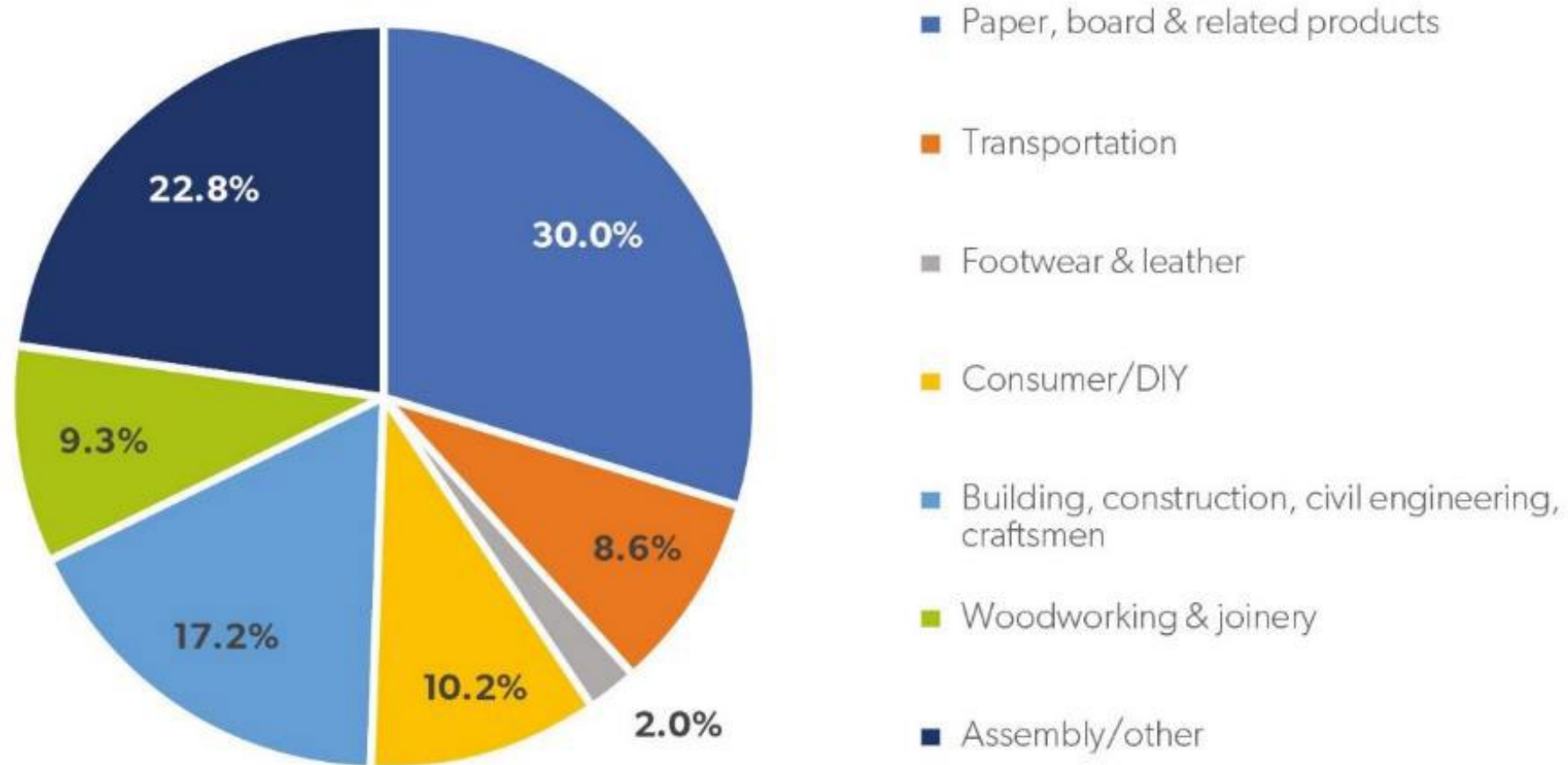
**4.8 million tonnes** of adhesives and sealants used in everyday products

Investing **470 million euros in Research and Innovation**

Employing over **45,000 people**



# 2022 European adhesives demand by market segment (€ million)



Source: Smithers



# FEICA Expert Group

## Sustainability and Recycling of Adhesives Applications in Paper and Packaging

### National Associations



### Company Members



**European  
Food Contact  
Legislation**

**Food  
Contact  
Additives  
Association**

**Printing Ink  
Joint  
industry TF**

**X-sector  
group**



**European Packaging  
and Packaging Waste  
Regulation**

**Campus  
Wien**

**CEN TC  
261**

**Packaging  
Chain  
Forum**

**European  
Recovered  
Paper  
Council**

**CEFLEX**

**RecyClass**

**4evergreen**

# Cooperation and communication along the supply chain

- Adhesives in packaging are very complex. FEICA is supporting stakeholders with expertise
- Find FEICA series on Adhesive in Packaging recycling on our website: <https://www.feica.eu/our-projects/paper-and-packaging>
  - Labelling Adhesives in Packaging Recycling (**coming**)
  - Laminating Adhesives in Flexible Plastic Packaging Recycling - report (2024)
  - FAQ (2024)
  - Adhesives in paper board recycling - report (2023)
  - Terminology and definitions - guidance (2021)
- For questions and comments after the webinar, please contact us at [info@feica.eu](mailto:info@feica.eu)





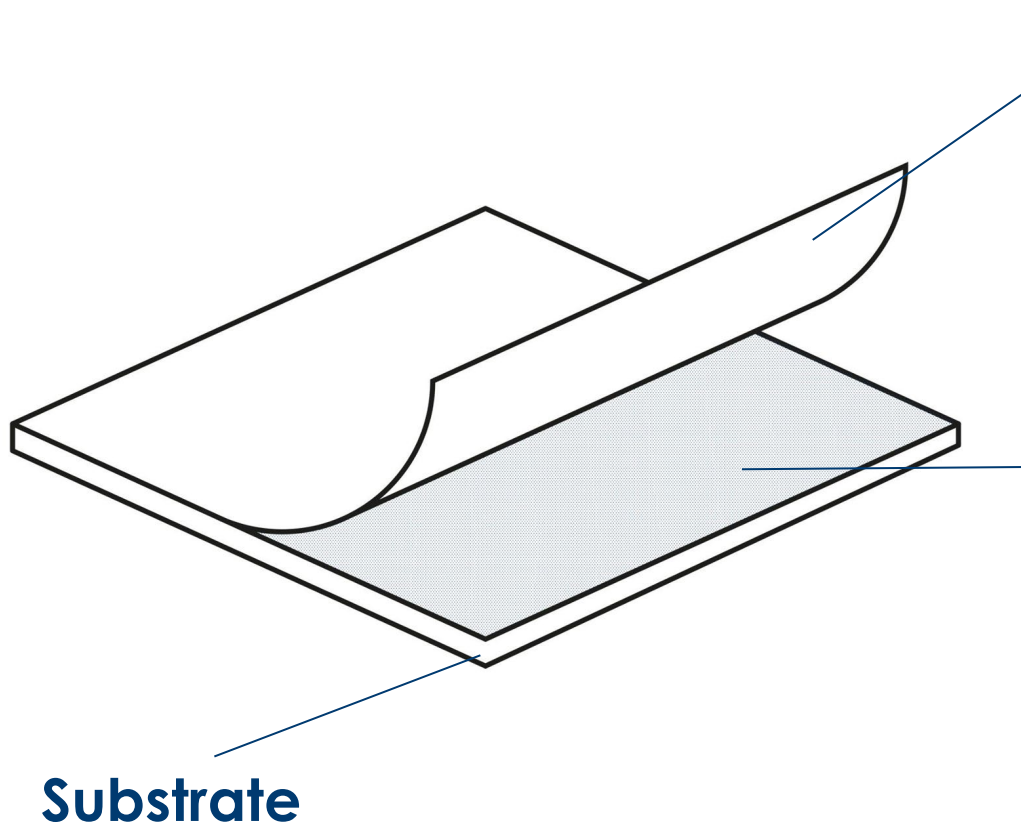
**Ms Gwendoline Verkaik**

Government Affairs Analyst, Avery Dennison

## Overview of adhesives in labelling for packaging



# What are labels? What are labelling adhesives?



## The label:

- ❏ Distinct layer of material applied to packaging using a **labelling adhesive**
- ❏ Key functions:
  - Information
  - Branding
  - Traceability

## The labelling adhesive:

- ❏ The substance that bonds the label to the substrate/packaging surface
- ❏ Ensure reliable attachment under various conditions
- ❏ Different chemistries and application methods exist

# Labelling adhesives: Ensuring performance

## Performance Requirements:

- 📄 Adhesives must offer basic resistance, with certain applications requiring increased resistance to:
  - **Temperature extremes:** Outdoor exposure, cold storage, and elevated temperatures
  - **Environmental factors:** Contact with water and humidity
  - **Substances:** Contact with surfactants and various chemicals

## Legal Requirements:

- 📄 In some cases, the reliable attachment of labels under specific conditions is also a legal obligation





# Labelling adhesives and the circular economy: Enabling material recovery

## Active EU conversation:

- 📖 There is ongoing discussion in the EU on how to best design labels and labelling adhesive applications to align with the existing and upcoming packaging recycling infrastructure

## Key focus areas:

- 📖 **Releasability:** The ability of the label to detach from the packaging under defined conditions to avoid contamination of recyclates
- 📖 **Recycling compatibility:** Ensuring the adhesive material itself is compatible with the recycling processes of various packaging materials<sup>16</sup>





## Mr Arne Jost

Senior Manager Circularity, Packaging & Consumer Goods,  
Henkel Adhesive Technologies

## Recycling process and test methods



# To get started ...

- **Re-use** is not a recycling process but belongs to the circular economy of packaging. Labels and adhesives detach in a **wash-off** process
- In a recycling process, the label adhesive is **NEVER** the **target material!**
- Hence, it is all about **Recycling Compatibility** of the label adhesive
- Depending on the target material, recycling processes differ. Label adhesives must adapt to the respective **recycling conditions**



# Re-use → label wash-off

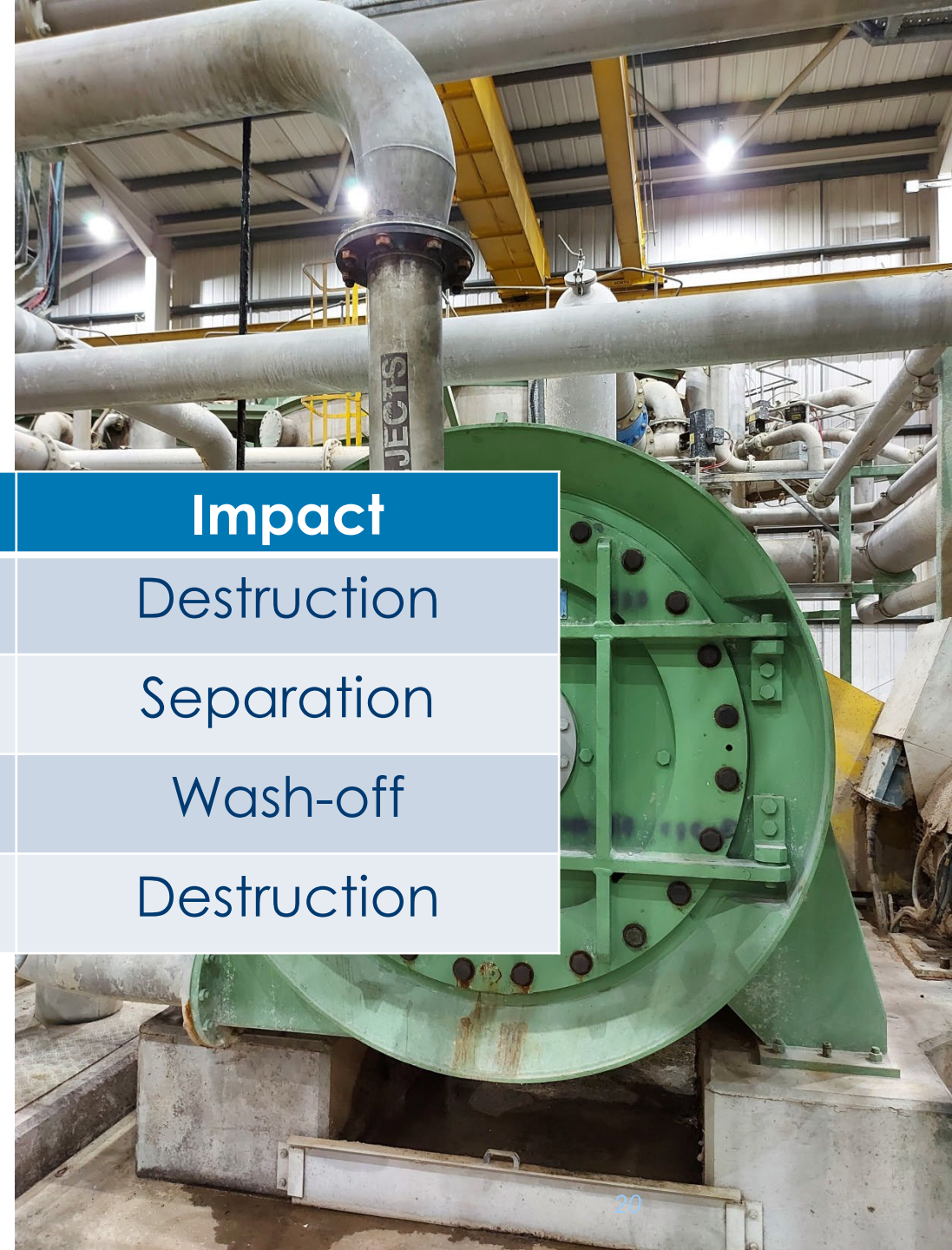
- For **beverage bottles**, labels should stay on the bottle in cold & wet conditions. How to wash-off?
- **Glass beverage bottles** → wash-off with heat (70 – 85 °C) and **NaOH**
- **PET beverage bottles** → wash-off with heat (60 °C) and **NaOH**
- **Re-use wash-off is a well-known process!**



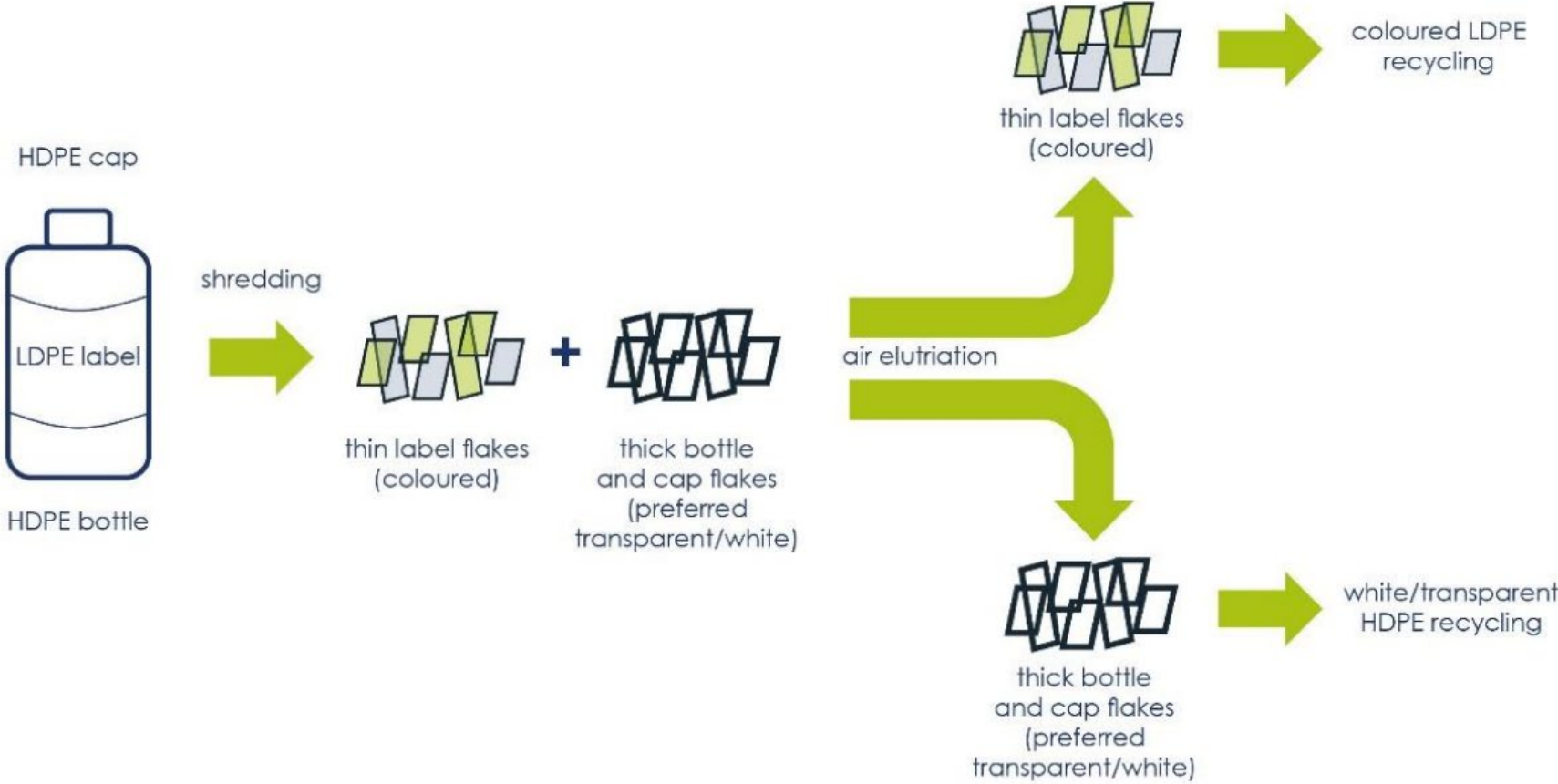
# Recycling processes

## Overview

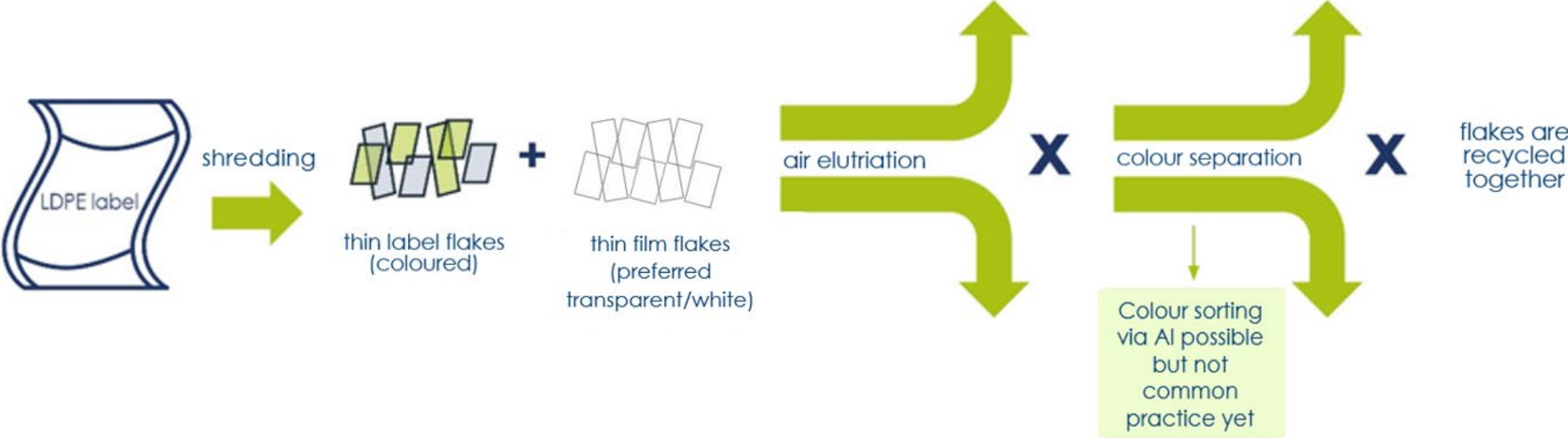
Material	Process trigger	Impact
Glass	Heat	Destruction
Paper	Water	Separation
Plastics	Water, heat, NaOH	Wash-off
Metals	Heat	Destruction



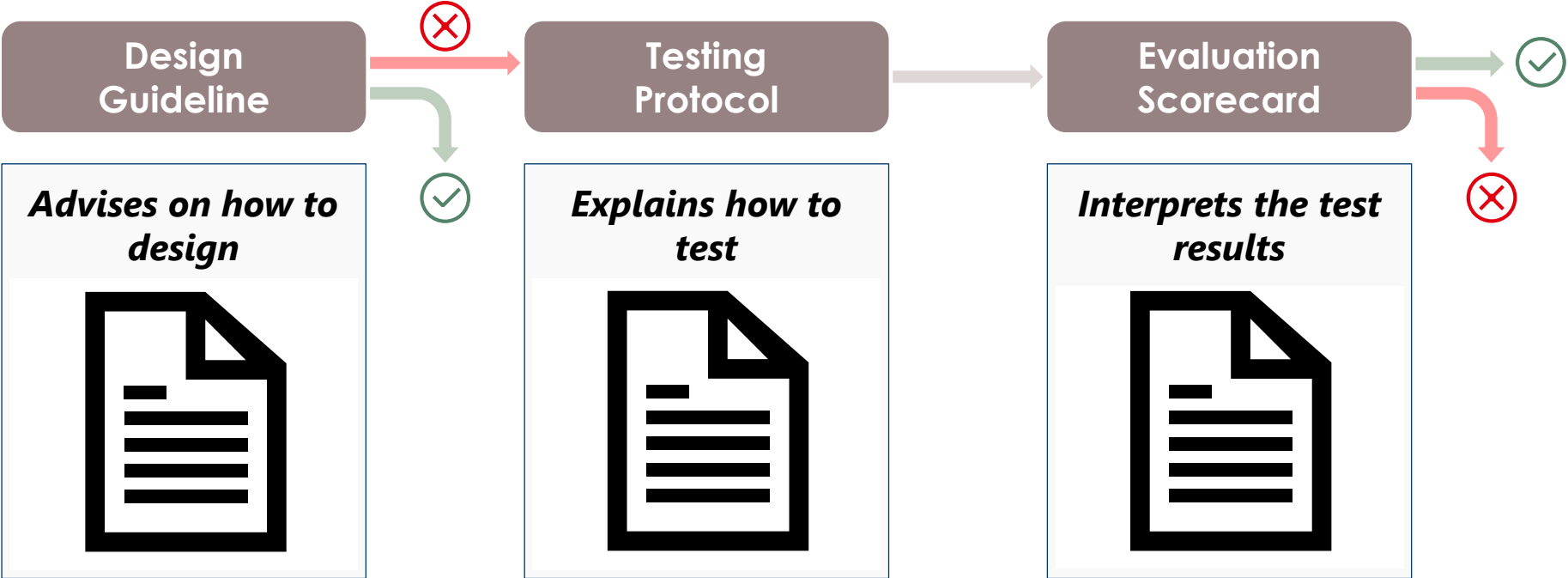
# Rigid plastics packaging wash-off



# Flexible plastics packaging wash-off



# Recyclability triad



# Guidelines & test protocols – EU examples

- **4evergreen**
- CITEO
- **COTREP**
- **cyclos-HTP**
- **EPBP**
- FH Campus Wien
- German Minimum Standard
- KIDV
- **PETCYCLE**
- RECOUP
- **RecyClass**



**COTREP**



**RecyClass**

**Bold** = also proposes test protocols





# Testing protocols – typical steps

- Sample **preparation**
  - **Washing** (hot or cold) incl. density separation
  - **Drying**
  - **Roasting** -----▶
- 
- **Assessment** (weighing, counting, tackiness, colour difference)



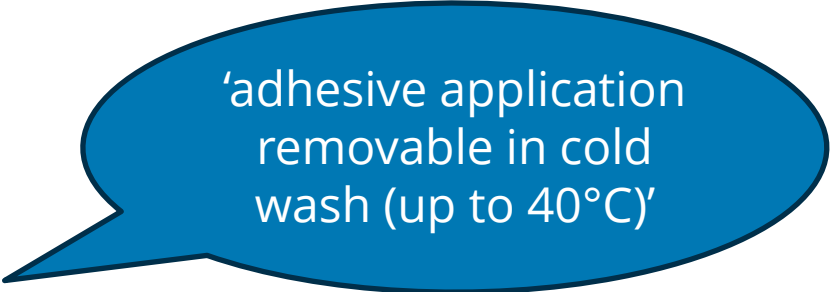
vs.



© cyclos-HTP

# Critical review

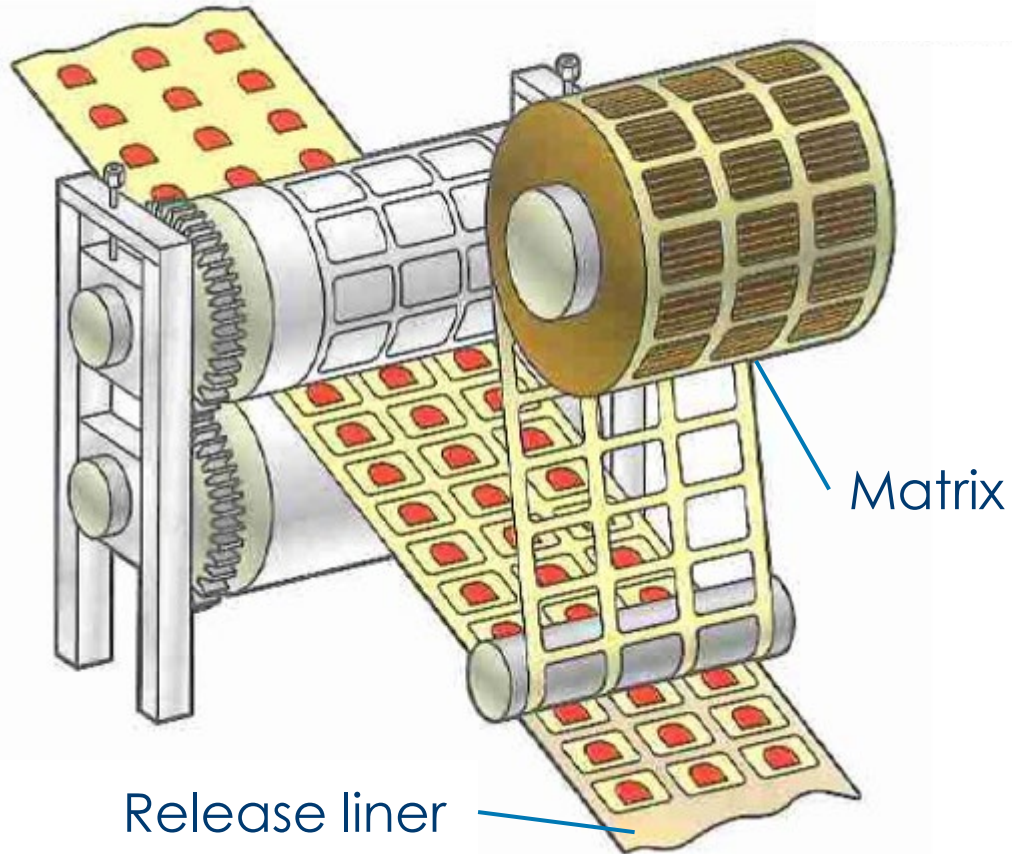
- **Guidelines and testing protocols:** similar but different!
  - Sample preparation
  - Tackiness count vs. Roasting
  - Assessment
- **Cold wash-off** versus shampoo bottle in the shower → the importance of **friction**
- **CEN work will harmonise testing in Europe!**



'adhesive application  
removable in cold  
wash (up to 40°C)'

# Side note: PSA release liner and matrix recycling

PSA = Pressure Sensitive Adhesives



- **Matrix:** Face stock material with label adhesives
  - **Release liner:** siliconised paper, siliconized PE/paper/PE, siliconized PET
- **Recycling is a challenge!**

# Key take-aways

- **Re-usable** beverage bottles → Labels and adhesives detach in a **wash-off** process
- For paper and plastics packaging recycling, the label adhesive must be **recycling compatible**
- Guidelines, testing protocols, and assessments are **similar but different**. CEN work will **harmonise** the European landscape
- **Friction** during wash-off needs further investigation and should be considered in CEN work



**Ms Elizabeth Staab**

Global Packaging Sustainability Manager, H.B. Fuller

**Recommendations and look to the future**



# Adhesive give labels of all kinds their versatility

- Different adhesive technologies can fulfill the same purpose for a chosen label and packaging substrate combination
- Testing and evaluations should be allowed to override guidelines
- The diversity of adhesive technology demands that the accuracy of discussions about labelling adhesives and their behaviour in recycling processes is elevated
- Adhesives should be specified based on the required properties of the adhesive application



**This should be reflected in their evaluation for packaging**

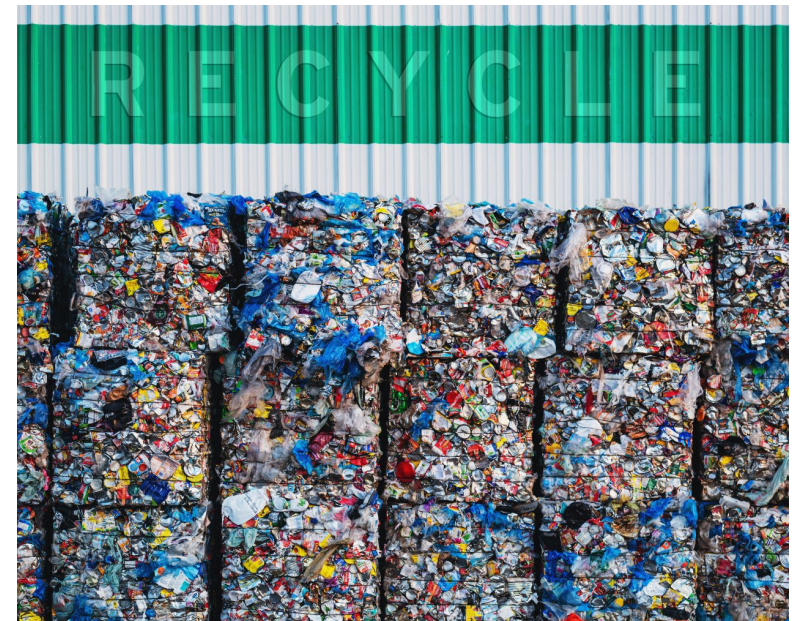
# Recommendations for testing protocols

- Strive for a harmonisation of testing protocols in Europe
- Ensure that testing protocols adequately represent industrial processes
- Consider all relevant processes that can release labels
- Provide detailed descriptions of all steps that can release labels



# Final Comments

- Adhesives are made for a plethora of label and packaging substrate combinations
- The discussion around adhesives needs to reflect this level of diversity and ample functionality
- Adhesive innovation enables new packaging design for the success of the PPWR





# Q&A

- Please use the chat box if you have a question
- Questions in the chat box will be covered as we go along
- In case we don't have sufficient time during the Q&A session to address your question, please feel free to send your question to [info@feica.eu](mailto:info@feica.eu)



**Ms Jana Cohrs**

Executive Director Public & Regulatory Affairs, FEICA



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# THANK YOU

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