Design for recycling - Call for value chain collaboration

Afera Annual Conference 2021

Mikko Rissanen, Director, Technology, UPM Specialty Papers

Oct 1, 2021

UPM BIOFORE - BEYOND FOSSILS

Contents

UPM in short

Turnover EUR
8,580 million

12,500 customers
in **120** countries

We plant
50 million trees
every year

No deforestation ever.
Rainforests are off-limits.

UPM **BIOFORE – BEYOND** FOSSILS

Sustainability in the core of our strategy

PLATINUM Top 1%
2021
ecovadis
Sustainability Rating

BUSINESS AMBITION FOR 1.5°C

OUR ONLY FUTURE

Sustainable forestry preserves forests and increases carbon sinks

UPM in Finland

Carbon storage:

390M

Equal to 8 years of Finland's total GHG emissions
(based on 2020 data)

Annual carbon sink:

1.3M tonnes in own forests

Equal to removing ~280,000 cars from the street every year

UPM in Uruguay

Carbon storage:

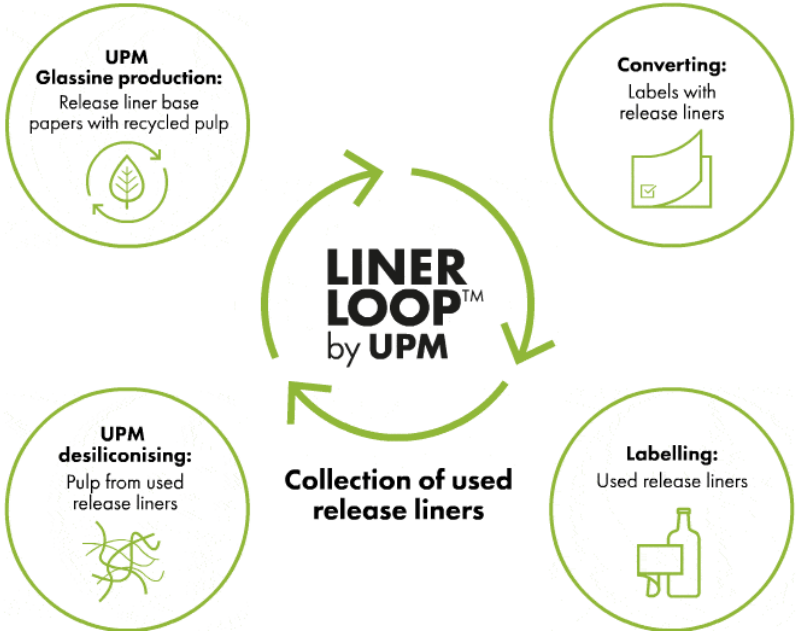
40M tonnes in 30 years

Equal to 6 years of Uruguay's total GHG emissions
(based on 2019 data)

Forests are the **2nd LARGEST ABSORBER OF CO_2** after oceans

Creating a circular economy in the label business

- In 2018 UPM Specialty Papers introduced UPM LinerLoop™, **the first label release paper recycling solution.**
- With UPM LinerLoop you can take a step towards your **recycling and zero waste targets**.
- UPM products: UPM Honey™ Plus Recycled Forte, UPM Golden™ Recycled Forte



Current status of paper based release liner recycling in Europe

~70% of release liners were **considered collectable**

~50% of release liners are **recycled to create new products**

~15% of release liners are **recycled to back to liner** (globally ~10%)

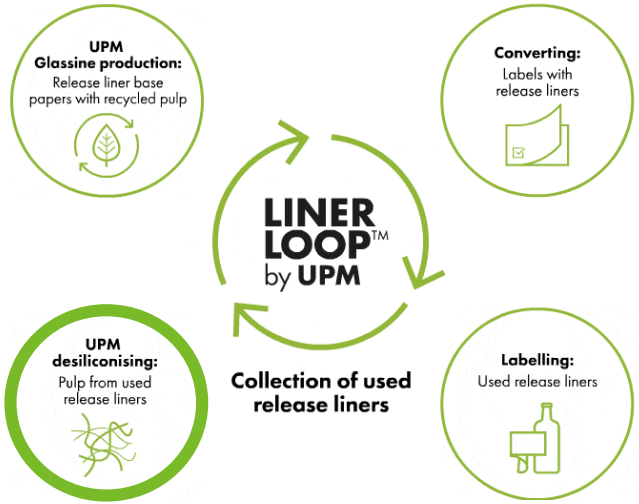
CELAB – Toward a Circular Economy for Labels

- **CELAB** is a collaboration of the whole **self-adhesive label value chain** to allow stakeholders to **collect and recycle** their used release liner and matrix material.
- Target: For **>75%** of the used release liner and matrix material to follow a circular business model **by 2025**.
- https://celabglobal.org/

Europe CELAB
Toward a Circular Economy for Labels

Improving sustainability in liner recycling
Raw material in closed loop recycling

- Feedstock quality is extremely important
- Pulp yield is high, if feedstock quality is consistent



Let’s improve the circular economy together!

- **End product quality requirements** are not met when darker grades are added to the process
- In case **darker and light grades are mixed** in the same bales, the **bales cannot be accepted** as feedstock
- Dark grade volumes are in relative terms so small that recycling them separately is not economical

“The colour of the glassine grade being recycled may have an impact on the end application for the recycled fibre, which typically means that it is recommended to recycle darker coloured glassine grades (such as Havana or brown, often used in self-adhesive tapes), as a different stream to the lighter colored glassines.”

Source: CELAB, 2020

Sustainability of different shades

Recyclable

Recyclable

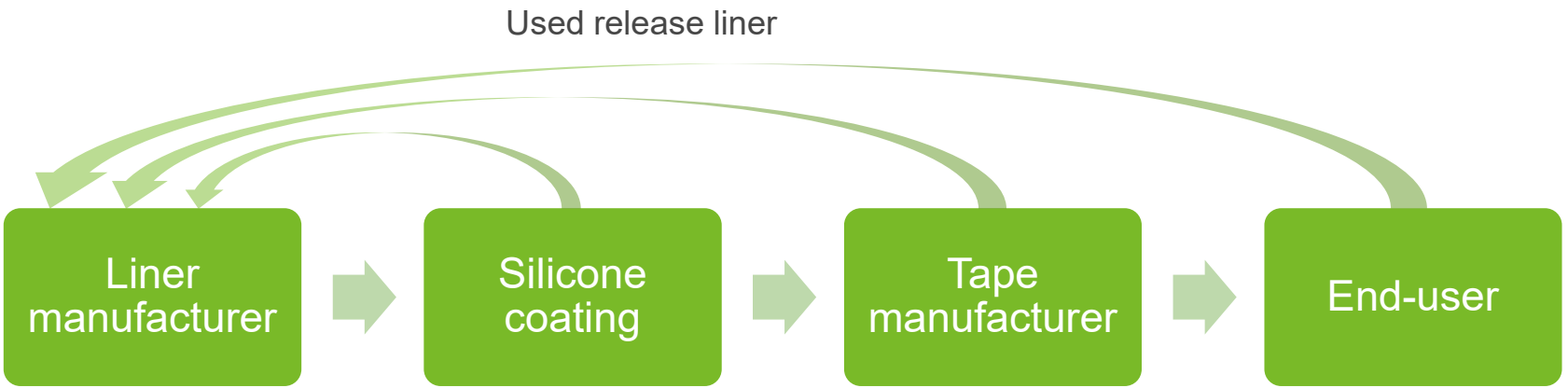
Recyclable in limited amounts

Not recyclable

+ Product safety secured
+ Best supply security
+ Quality consistency

- Compliance with EU Green deal?
  - Circular economy action plan 2.0
  - Chemical strategy for sustainability
  - Product environmental footprint

Call for value chain collaboration

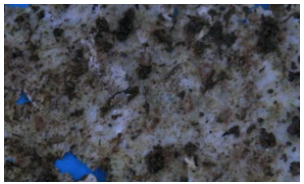
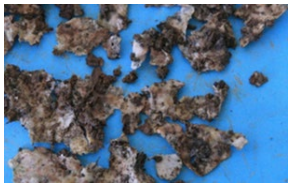
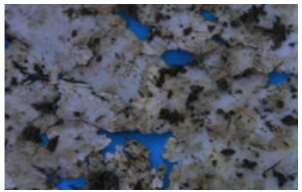
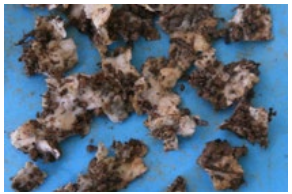
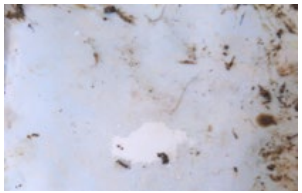
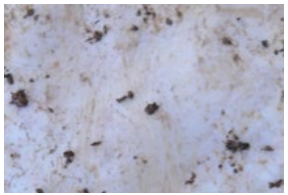


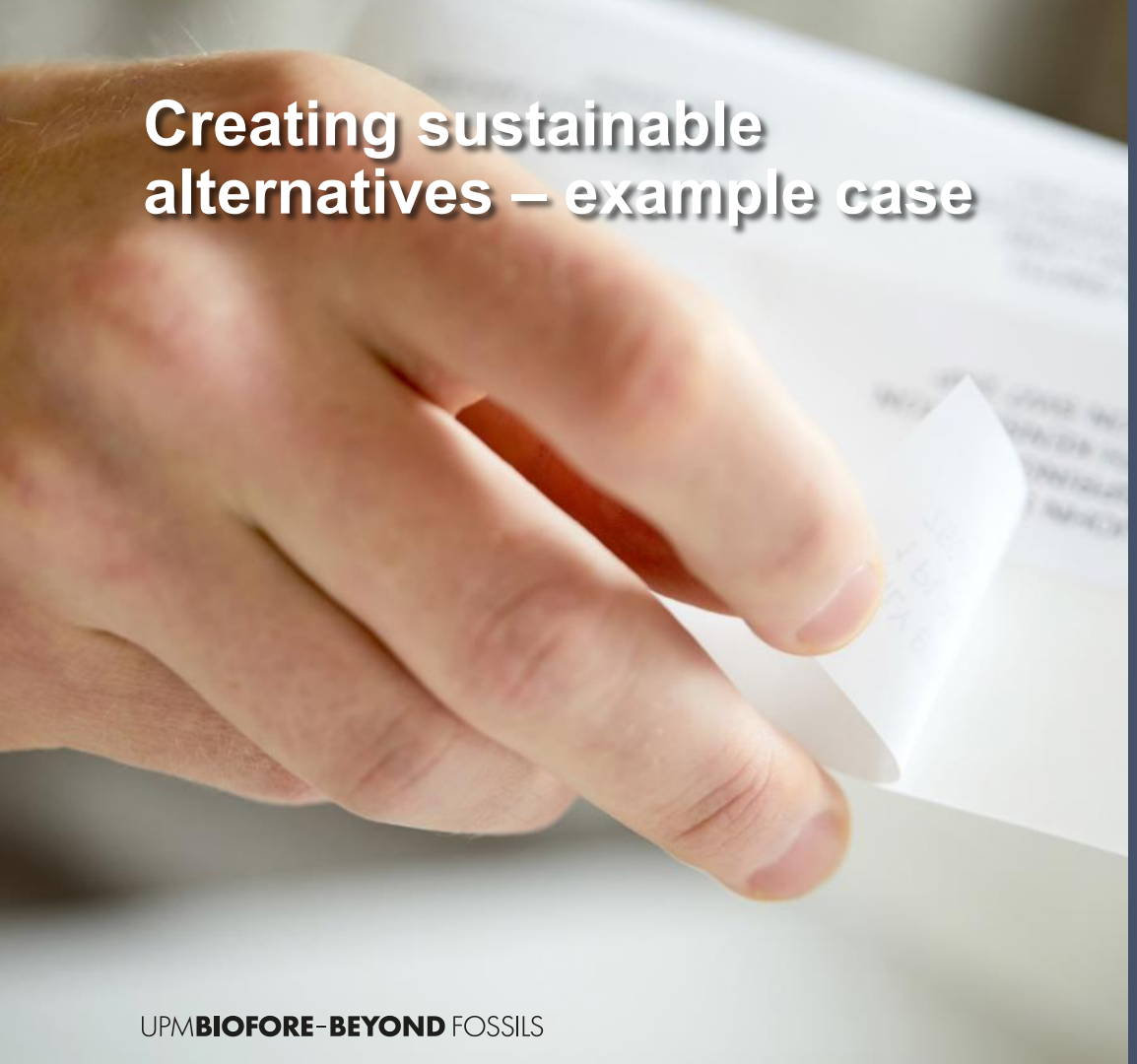
- Target to expand existing scope of label release liner recycling into other end-uses
  - Reduced amount of used liner to landfill & incineration
- Cost avoidance in waste management through higher recycling rates
- Reducing unnecessary complexity – dark colours & composite materials

Material sustainability
CCK vs. PEK biodegradation experiment

Bury the sample into the soil
Take photos every week

The biodegradation process does no harm to the plant

	Week 0-Buried	Week 1	Week 2	Week 3
CCK				CCK (whether siliconized or not) has basically degraded after 3 weeks, no paper fragments found
Si-CCK				
PEK				PEK has not degraded at all, degradation is estimated to 100+ years



Creating sustainable alternatives – example case

UPM

In APAC, replacing even 30% of PEK liners in labelling with UPM's plastic-film free CCK could achieve:

10,000,000 kg

reduction of plastic in APAC

~ 500 million
plastic bottles (500ml)

BUSINESS AMBITION FOR 1.5°C OUR ONLY FUTURE

UPM BIOFORE – BEYOND FOSSILS

Let’s show that sustainability is in the core of our industry!

Call for value chain collaboration

1. There are more sustainable options for the dark grades in the market
   - Reducing waste in landfills and liners to incineration is an excellent sustainability case
   - UPM is answering to the market need to develop a new light yellow grade for the tape end-use
   - Colour change does not affect technical performance. No need for requalification.
2. Material engineering to sustainability
   - Reducing unnecessary complexity – dark colours & composite materials

UPM BIOFORE
BEYOND FOSSILS