

Visit from Rotary

ELOPAK SPIKKESTAD



Elopak

- a short introduction

2023-10-30 Rotary

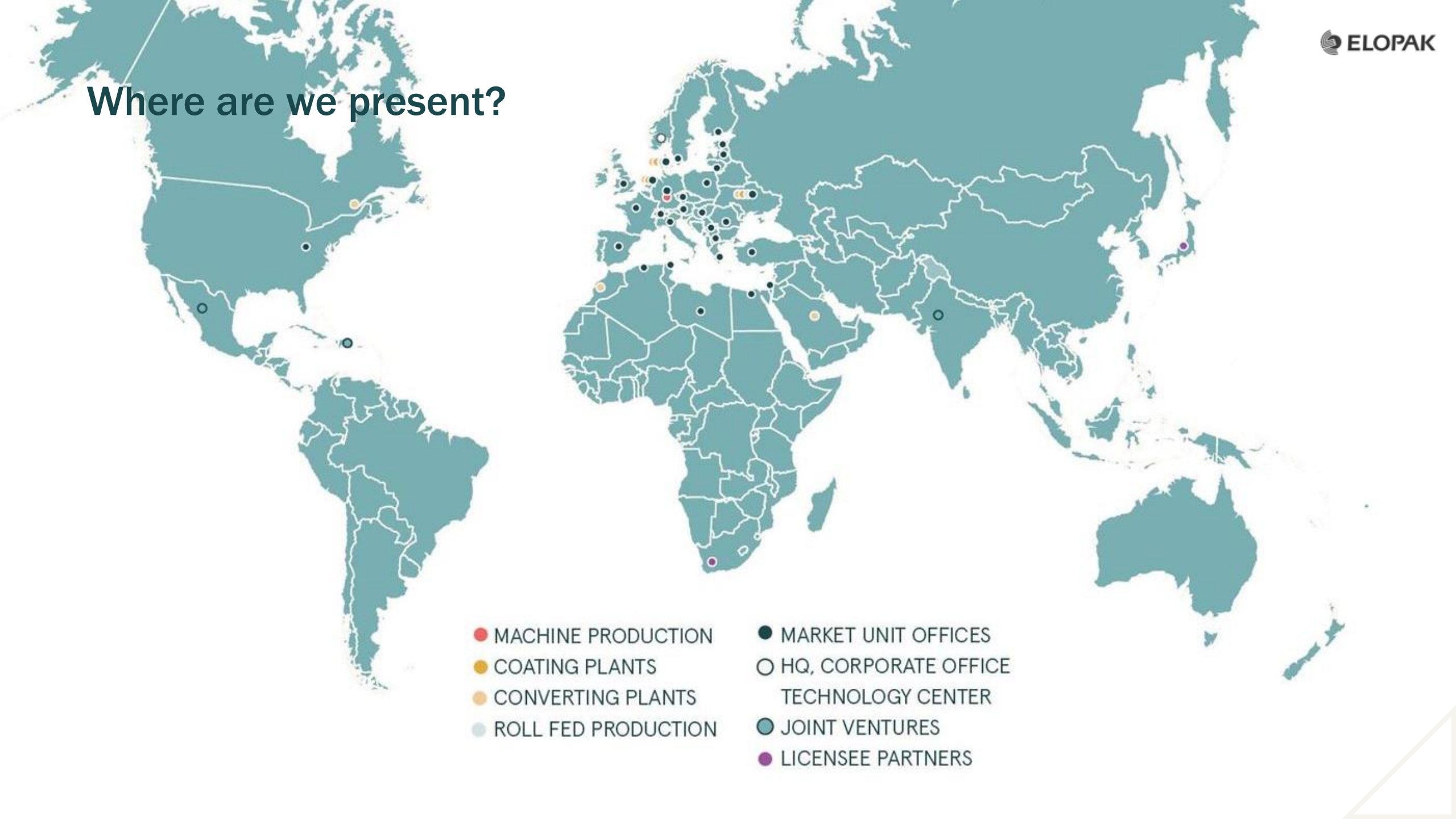


A Norwegian saga

- 1915** Patent granted for the Pure-Pak® carton
 - 1957** Elopak is founded in Norway
 - 1987** Elopak becomes the owner of the Pure-Pak® carton license world-wide
 - 2021** Listed on the Oslo Stock Exchange
-
- 2600** Employees incl. Joint ventures
 - 70** Markets across the globe
 - 14** Billion cartons sold annually

Where are we present?

- | | |
|-----------------------|------------------------|
| ● MACHINE PRODUCTION | ● MARKET UNIT OFFICES |
| ● COATING PLANTS | ○ HQ, CORPORATE OFFICE |
| ● CONVERTING PLANTS | ○ TECHNOLOGY CENTER |
| ● ROLL FED PRODUCTION | ● JOINT VENTURES |
| | ● LICENSEE PARTNERS |



This is Elopak

Packaging solutions

Known for quality and innovation

Fresh



Aseptic



Roll fed

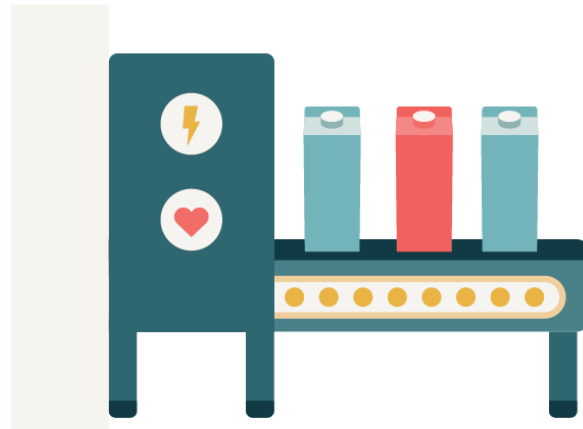


Closures



Filling machines

State-of-the-art offerings across fresh and aseptic



Aftermarket services

Value-added after-market support





March 2022

| © Elopak

2010

FSC Certification
of Elopak



2016

Carbon neutral
Company



2019

Signing up to
SBTs, < 1.5C



2020

UN Global Compact
membership



2021

Platinum
EcoVadis rating



2022

Net Zero





Chosen by people,
packaged by nature

Pure-Pak®

- ▶ Our aim is to leave our customers' product **unchanged** and the world **unharm**ed.
- ▶ We do this by creating sustainable packaging solutions which empower consumers to make **environmentally conscious choices**.



We call it the natural solution



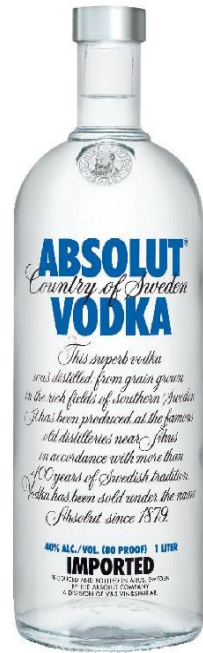
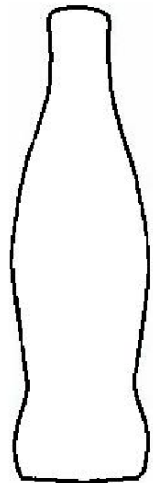
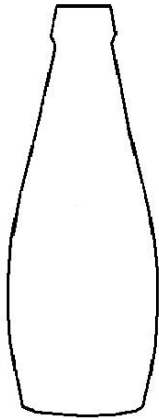
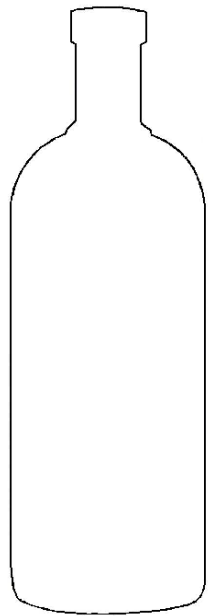
We call it →

Packaging by Nature®

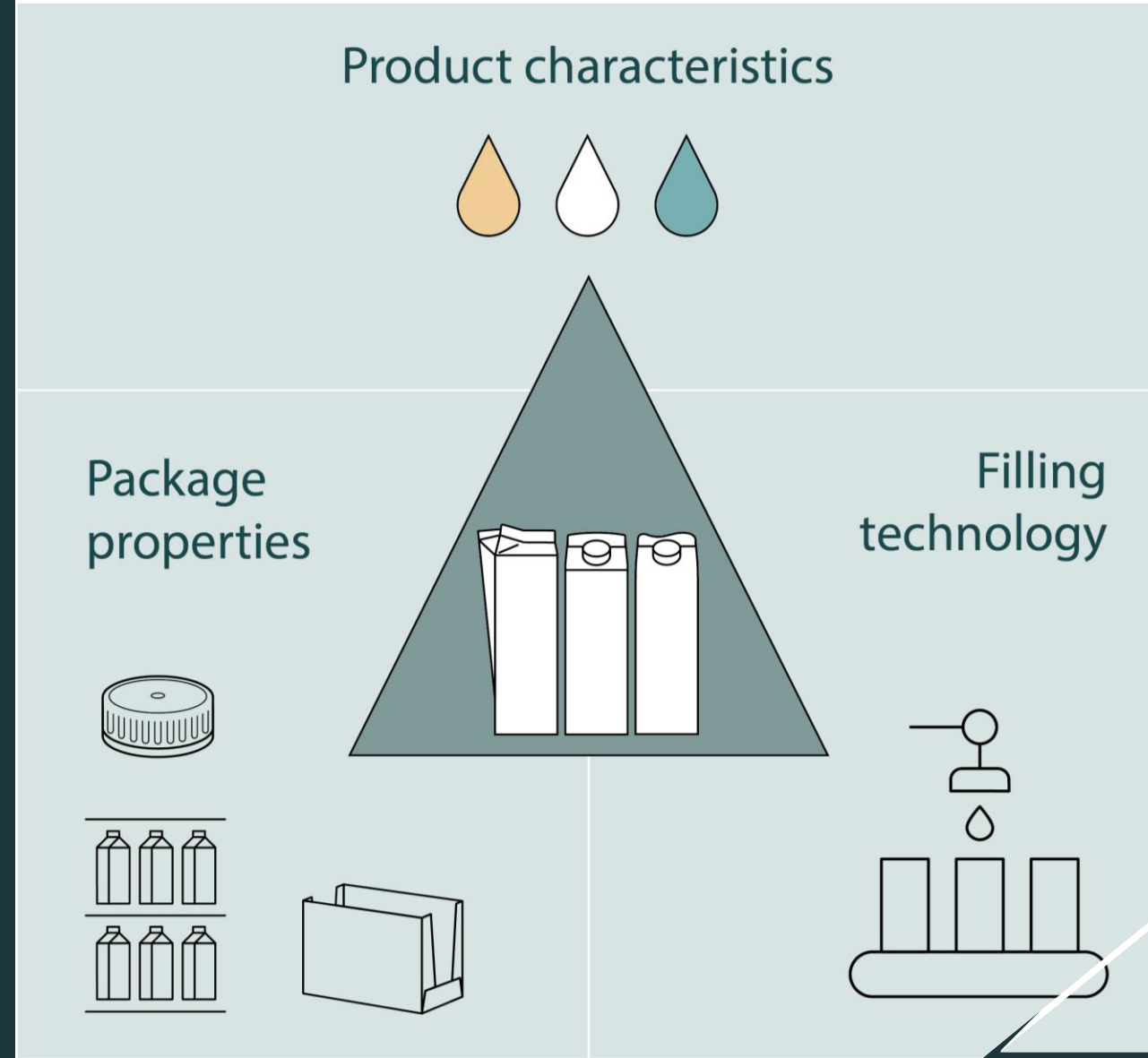
Pure-Pak® cartons are established as the natural and convenient alternative to plastic bottles. They fit within a low carbon circular economy, and it is made using renewable, recycled, and sustainably sourced materials.



Why does food packaging matter?



Understanding the filling and package requirements is needed to maintain the product quality



Typical Elopak shelf-life for milk applications, chilled distribution is min 4 weeks

Fresh pasteurized milk

- ▷ Pasteurization
- ▷ Chilled distribution
- ▷ Fresh filling Machine
- ▷ Shelf life 3-14 days

Extended shelf -life milk

- ▷ ESL Process
- ▷ Chilled distribution
- ▷ Ultra Clean filling machine
- ▷ Shelf life minimum 4weeks



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Typical Elopak shelf-life for milk applications for **ambient** distribution is 6-9 months

UHT milk

- ▶ UHT Process
- ▶ Ambient distribution
- ▶ Aseptic filling machine
- ▶ Shelf life 6-9 months



Typical Elopak shelf-life juice applications for chilled and ambient distribution

Chilled Juice

- ▷ ESL Process
- ▷ Chilled distribution
- ▷ *Ultra Clean filling Machine*
- ▷ Shelf life up to 60 days

UHT milk

- ▷ ESL Process/ Hot fill
- ▷ Ambient distribution
- ▷ Aseptic filling machine
- ▷ Shelf –life up to 12 months

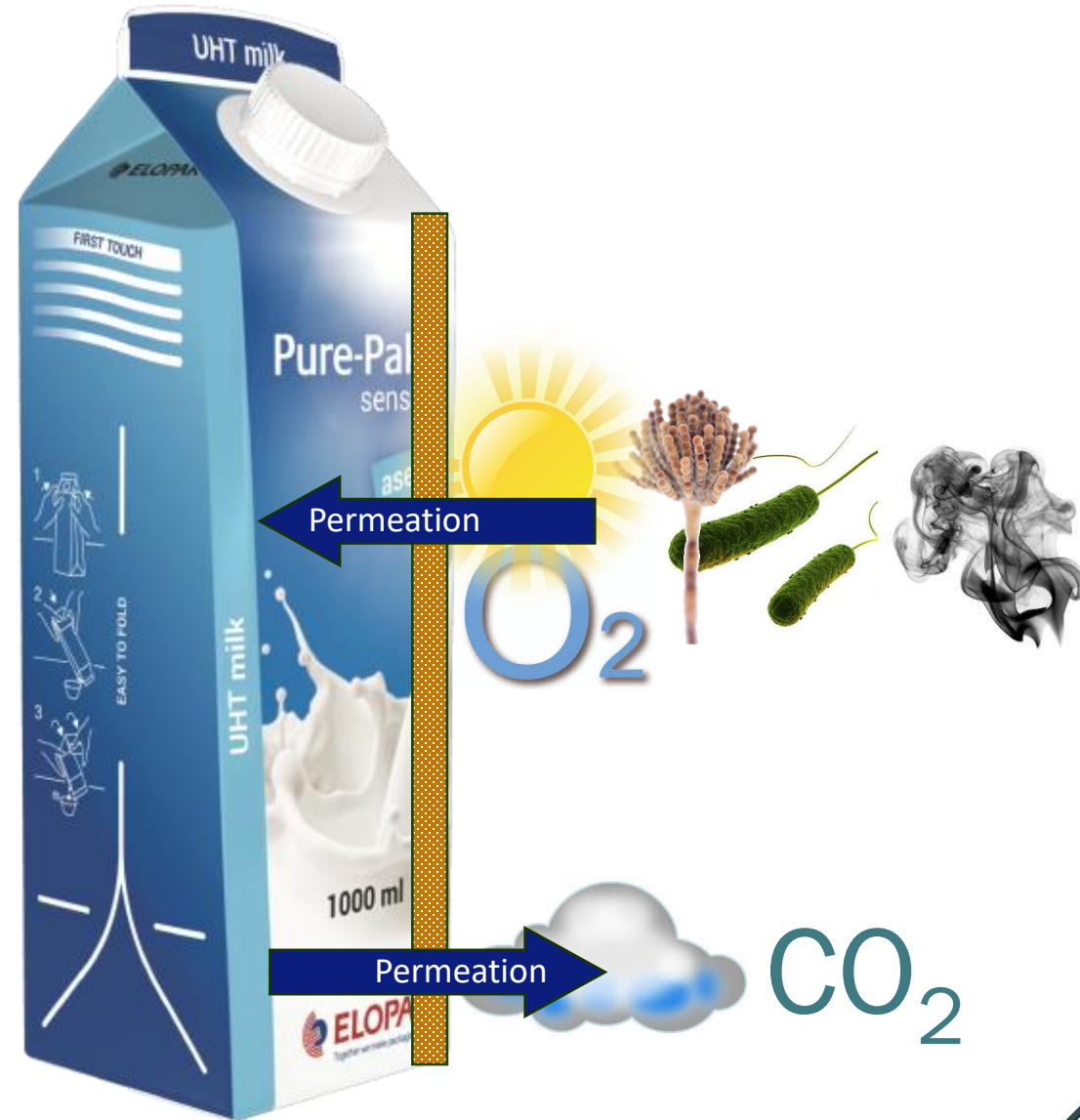


Why do we need to protect the product?



Transmission processes and how they affect the product

	Process	Possible Product impact
Ingress	<ul style="list-style-type: none">• Microorganisms• Light• Aroma• Oxygen	<ul style="list-style-type: none">• Contamination• Off-taste• Reduced nutritional value• Physical changes
Egress	<ul style="list-style-type: none">• Water vapour• CO₂	<ul style="list-style-type: none">• Dehydration• Sensory• physical changes



Migration and sorbtion processes and how they affect the product

	Process	Possible Product impact
Migration	<ul style="list-style-type: none">• Additives• Monomers	<ul style="list-style-type: none">• Contamination• Off-taste• Reduced nutritional value• Physical changes
Sorbtion	<ul style="list-style-type: none">• Aroma• Fats	<ul style="list-style-type: none">• Aroma Loss• Package integrity



Elopak uses 3 different board types to ensure optimal protection



Polyethylene
Paperboard
Polyethylene

PE is the sealing layer providing protection from moisture and microorganisms

Chilled Fresh and ESL milk, liquid eggs



Polyethylene
Paperboard
EVOH Barrier
Tie Layer
Polyethylene

EVOH/ PA provides protection from O₂

Chilled Fermented products

Chilled Juice

Ambient UHT dairy products



Polyethylene
Paperboard
Tie Layer
Aluminium Barrier
Tie Layer
Polyethylene

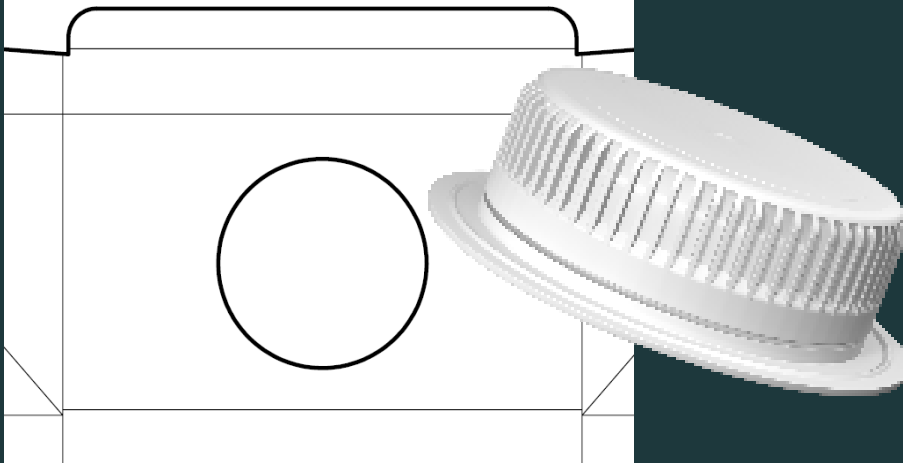
Aluminum provides the best water vapor, (oxygen) and light protection.

Ambient UHT dairy products

Ambient Juice

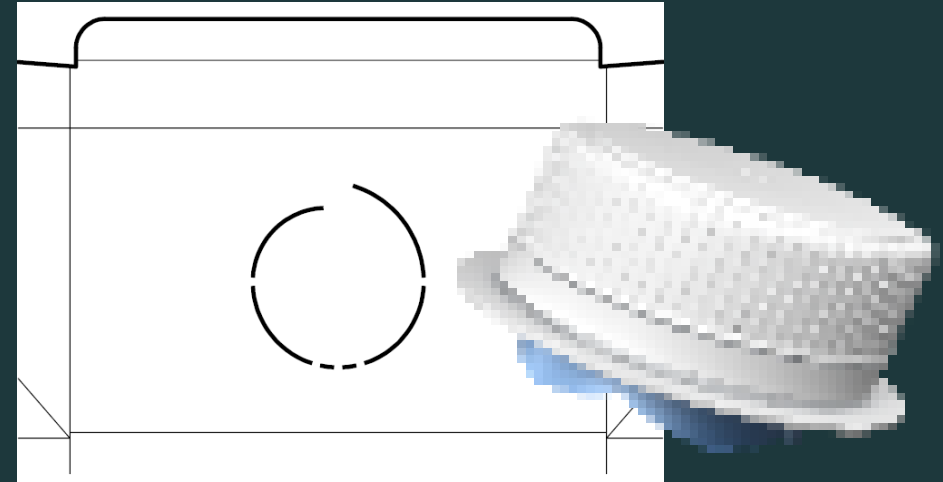
Two types of closures

-Outside applied closure offer an unopened carton barrier during distribution



Elo-Cap for **fresh** products. Applied from the **inside** and **before** filling of cartons with a fully pre-cut hole.

Chilled Fresh products



Pure-Twist for **UHT milk** products. Applied from the **outside** and **after** filling and sealing of cartons provided with a pre-cut area.

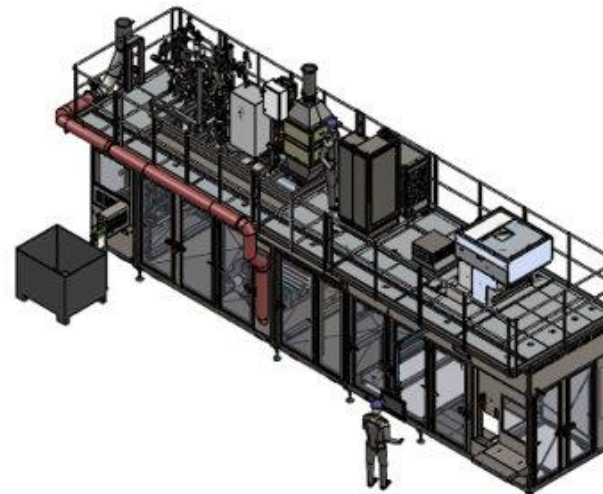
Ambient distributed products

All closures will be tethered from 2024



The Elopak filling machines are classified according to the hygienic performance

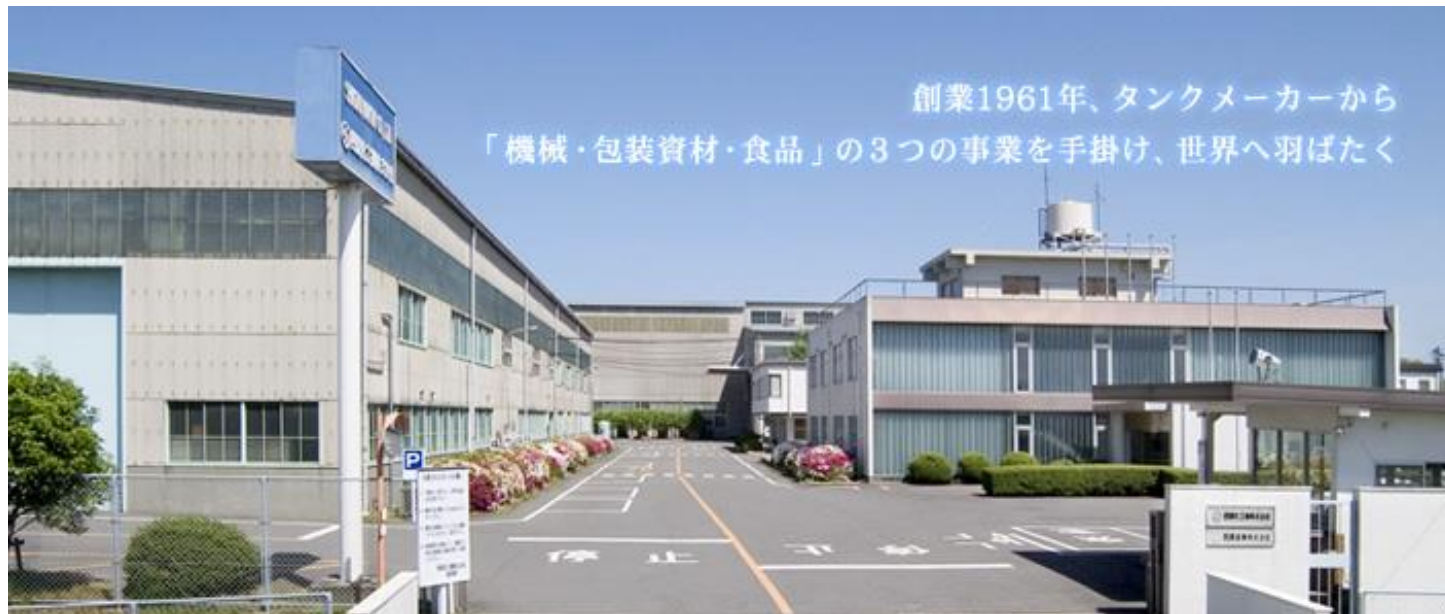
Machine Class		Main applications
Standard Clean	SC	•Pasteurized milk ≤ 14 days •Fermented dairy
Ultra Clean	UC	•Chilled ESL milk ≤ 28 days •Fermented dairy ≤ 35 days •Chilled juice ≤ 60 days
High Acid Aseptic	HA	•Chilled ESL milk ≤ 90 days •Ambient Juice ≤ 12 months
Aseptic	A	•Chilled ESL milk ≤ 90 days •Ambient Juice ≤ 12 months •Ambient UHT milk 6-9 months



Elopak Aseptic filling machines- Produced by Elopak EQS GmbH, Germany



Fresh and UC filling machines- Produced by Shikoku Kakoki, Japan (China)



Shikoku Flex

HIGH EFFICIENCY & AUTONOMY

- 14.000 /7.000/5.000 pack/hr
- Proven efficiency >95%MME
- 15 min buffer time

MAXIMUM FLEXIBILITY

- Quick product, design and size change-over (± 360 s) by press of a button
- 50+ pre-programmable recipes
- 6 sizes, wide range of pack shapes & closures
- Combi-filler for gentle filling of high & low viscosity and fibrous products

INTEGRATED CONTROL & REPORT SYSTEM

- User friendly HMI – Easy access to all dashboards
- Data capturing/ production monitoring
- ELOEE performance charts and reports



EXCEPTIONAL RELIABILITY

- Servo driven motions
- Highest precision for impeccable carton integrity
- High-end components used throughout the filler
- Fully reliable for 24/7 operations
- Well-proven PMP

CLEANING SYSTEM

- Fully automatic external surface cleaning & sterilization
- Hygienic design
- Less time CIP
- Integrated FIP

HYGIENIC AND EFFICIENT FILLING

- Double index, single shot filling: less points of contamination - Less time CIP
- Precise fill control ± 2 gr (less waste)
- Bottom-up servo filling, reduces foam & splashing
- One step filling

WELL-PROVEN & EFFICIENT HYGIENIC PERFORMANCE

- Vaporized 2% H2O2 + UV-C light
- Secure and low-cost decontamination
- UV light on cap feeding system
- UV light on potable water

A variety of products on one machine

- ▶ A filling technology that enables low & high viscosity and fibrous products to be **easily inter-produced** and having a the most **gentle treatment** of the products as a pre-requisite



- ▶ Bottom up (double index, single shot) filling 50+ pre-programmable recipes for **automatic & precise settings**
- ▶ Format rebuildings during the lifetime of the filling machine, to **adapt to market trends and needs**

HIGH AND LOW
VISCOSITY DAIRY

FRUIT JUICES (JNSD)

NON-CARBONATED
(FLAVOURED) WATER

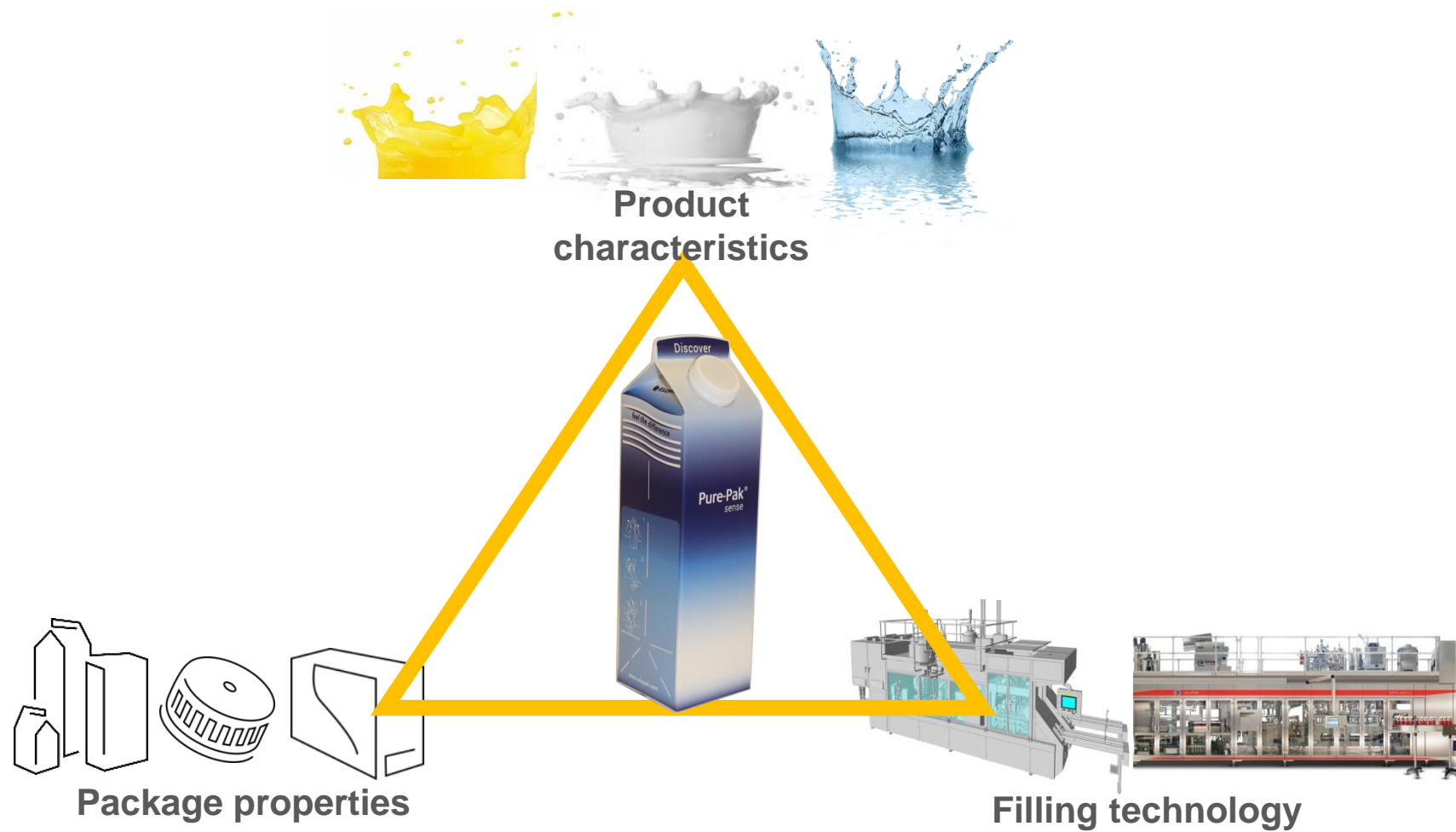
PLANT-BASED

Elopak Technology Center



The Golden Triangle

-integration of the product, package and the filling equipment



Elopak Technology Center

- a key asset for packaging development and system validation

Product



Filled package



Distribution



Package



Filling machine



Elopak Technology Center

Packaging Development and System Validation

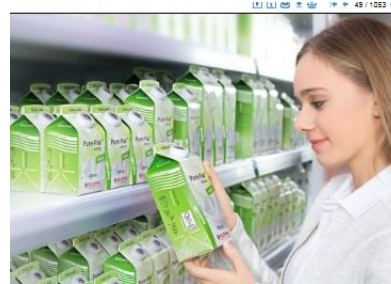
**Cross functional
competence cluster**



- our key success factor

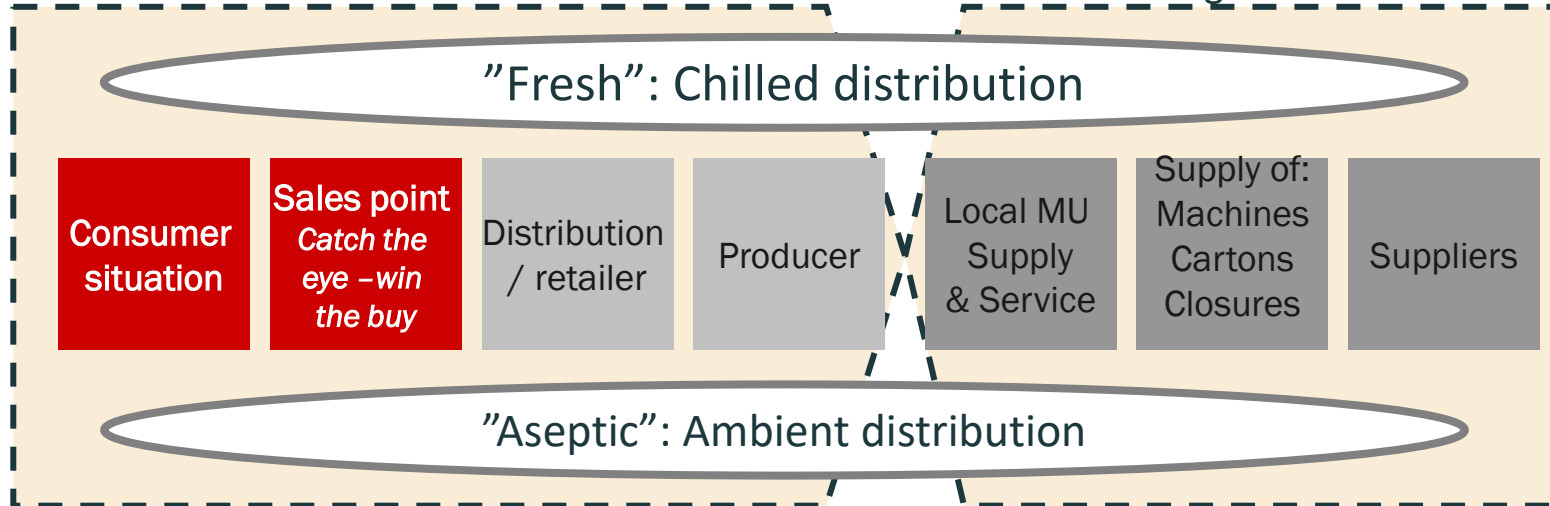
- IPR
- Test Centre
- Food Safety
- Food Science
- Laboratories
- Project Management
- Material Development
- Technical Training
- New Packaging Concepts
- Distribution testing
- Quality & Processes
- Environment

Elopak's total value chain perspective



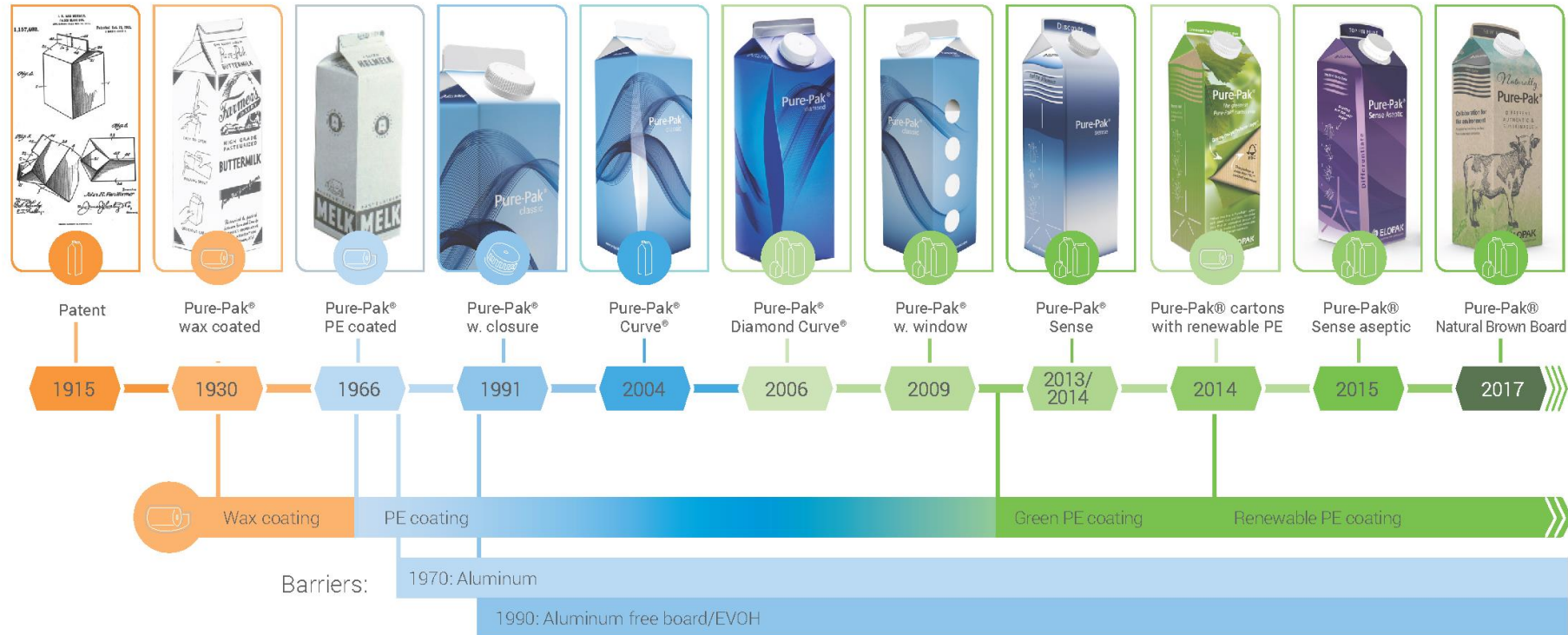
Understanding consumer & customer needs

Meeting the needs



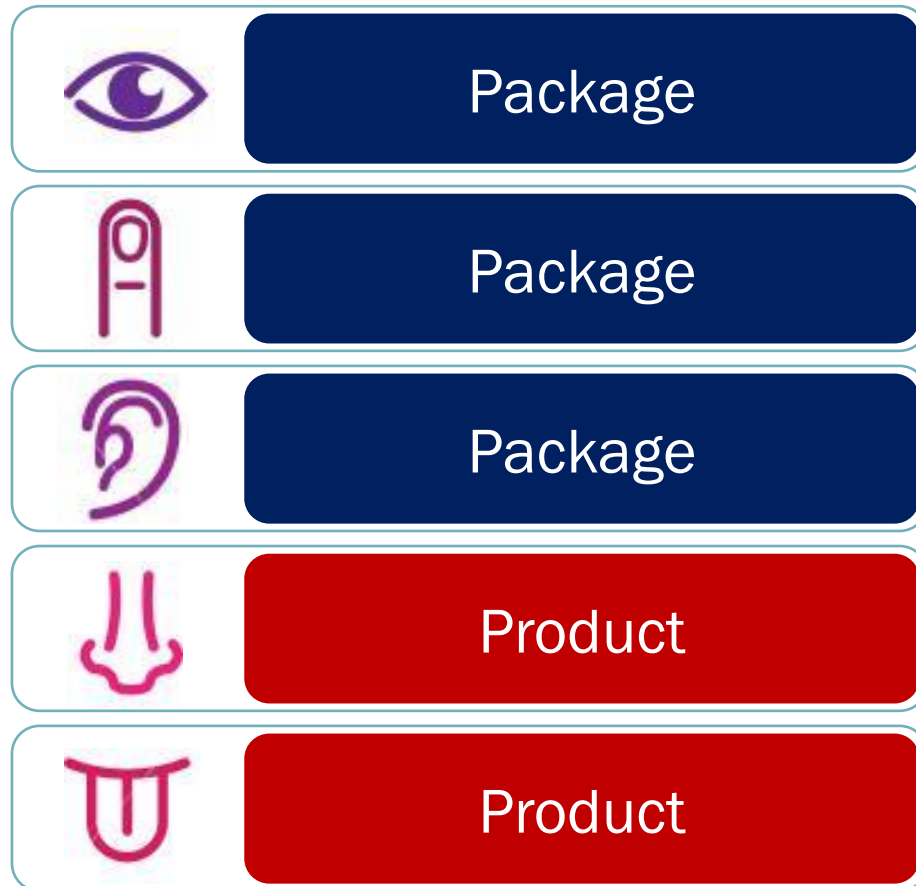


Elopak's continuous innovation development



Why packaging matters?

Three of our senses experience the package before the other two experience the product



*The combination of
sensorial
perceptions creates
the
overall product
experience*

As we have learned that especially the printed top fin draws shopper's attention ...

Eye tracking consumer test with RFC in 2013



Adding value to packaging

Trends



Preferences

Brand value = Shapes + features



Minimum investment



Imitating nature



Differentiation

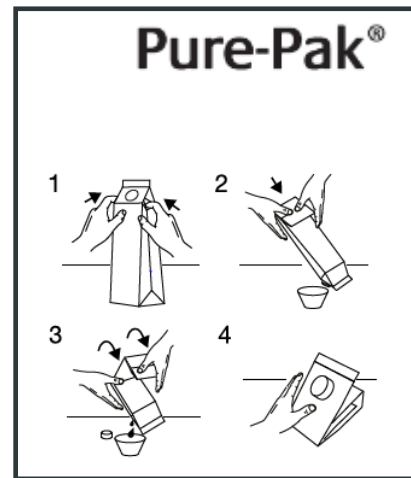
Existing platform

People's instincts

Pure-Pak® Sense introduced with „easy fold“ feature for more convenience in carton emptying and disposal

„Easy fold“ line

allows squeezing out the last drop of the product and having less waste volume



**Less residuals
& waste volume**

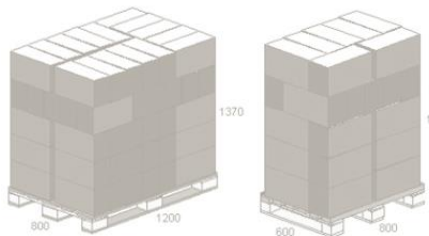


**Better squeeze,
fold & recycle**

Successful secondary packaging development is a key factor



Palletizing g 5 layers	2x2 Cartons Pallet	Area used Pallet	2x3 Cartons Pallet	Area used Pallet	Pallet height 5 layers
Europallet 800 x 1200	800	96%	780	93%	1350
¼ pallet 800 x 600	400	96%	390	93%	1341



Elopak development of food packaging for liquid foods goes along five main areas



Product protection

- Minimize contamination during filling
- Maintain nutritional and sensory quality

Package functionality

- Opening, pouring and closing devices
- Ergonomic packages

Image and consumer appeal

- Superior print and design
- Attractive shapes

TCO Total Cost of ownership

Sustainability

RENEWABLE



RECYCLABLE





RESPONSIBLE

Quality is the fundament of our customer offering

Our customers are filling liquid food products and food safety is a number one priority

Poor quality performance is costly, can destroy the customers reputation and endanger human health

Many of our customers are driven by the requirements from retailers



Thank you!

