



**KOTKA**<sup>mi</sup>**LLS**

**Everyone wants to reduce plastic waste, but how much does it cost to the man on the street for example when using disposable cups?**

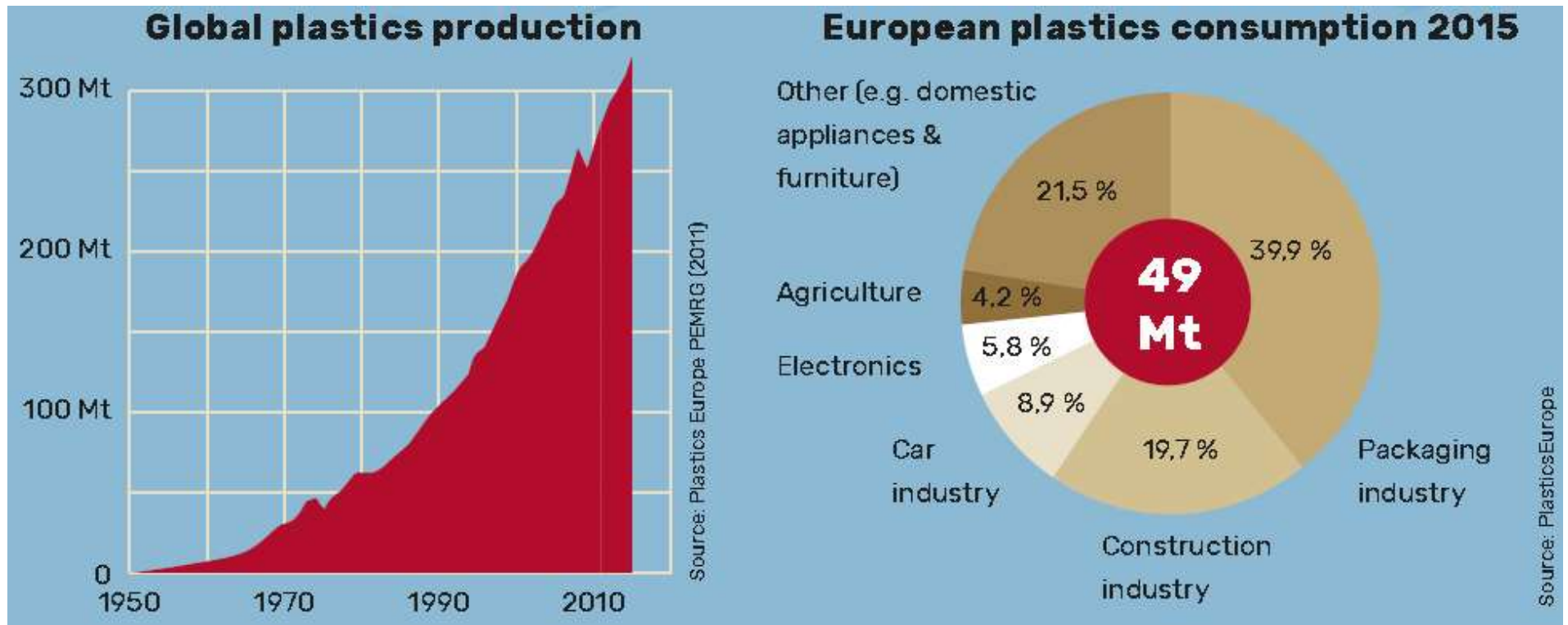
Dr. Markku Hämäläinen, CEO, Kotkamills Oy





Need for a Change

How to slow the growth of plastics production?





# How much plastic is there?



As of 2015, approximately **6.3bn tonnes** of plastic waste had been generated

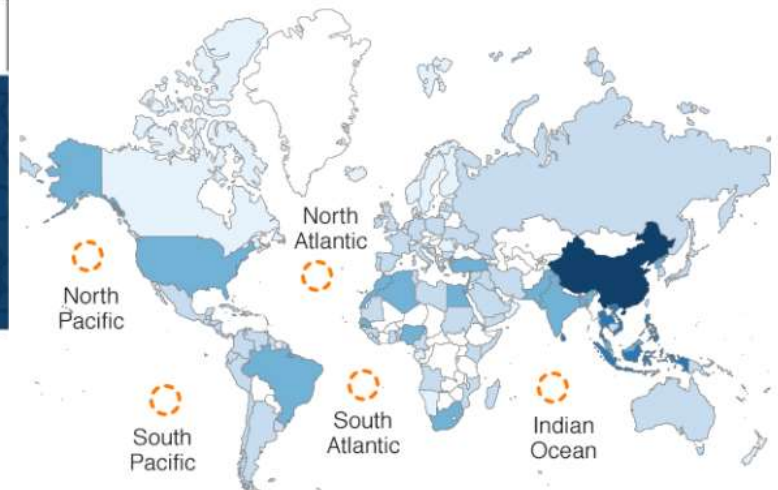


9% recycled

12% incinerated

79% accumulated in landfills or the natural environment

Source: BBC 2017



Mismanaged plastic waste, tonnes  
0 > 5 million

Gyres - Whirlpools of water which trap huge collections of waste in their currents

Source: BBC 2017



## Styrofoam Bans are Sweeping Across the Nation

Something amazing is happening around the country: cities and towns are starting to ban Styrofoam.

Throwaway polystyrene coffee cups, soup bowls, plates, and trays have gotten the boot. So have those foamy clamshell-style cartons fast food comes in. Even packing peanuts are going the way of the dodo.

Here's a list of cities that have completely or partially banned Styrofoam, compiled by Groundswell.

- New York City (and several other cities in New York)
- Takoma Park, MD
- Seattle, Washington
- Washington DC
- Miami Beach, FL
- Freeport, Maine
- Portland, Maine
- Nantucket (City & County), Massachusetts
- Minneapolis, Minnesota
- Portland, Oregon (and several other Oregon cities)
- Los Angeles County and San Francisco, California (and many other cities and counties in CA)

And more are in the works. It's as if a big Styrofoam domino has started to fall, taking all the other dominos down with it.

## Viewpoint: The waste mountain of coffee cups

27 July 2016 | Magazine

f t b e Share



Every day hundreds of thousands of Britons put their coffee cup into a recycling bin. They're wrong - those cups aren't recyclable, and the UK is at the top of the waste mountain.

In today's Magazine

## Takeaway coffee cups piling up in landfill as Australia's caffeine habit soars

7:30 | By Sarah Whyte

Updated 24 Oct 2016, 9:55am



YOUTUBE: Takeaway coffee cups driving hidden plastic catastrophe

Australia's ever-growing caffeine habit could be doing more damage than we think, with environmentalists warning disposable coffee cups are fast on their way to becoming a major pollution hazard.

PHOTO: Coffee cups are estimated to be the second largest contributor to litter waste. (7:30)

RELATED STORY: Milk wars: Does choice really matter in your coffee?

RELATED STORY: Global coffee shortage could close cafes, operator says

## Vancouver considering ban on disposable coffee cups, plastic bags

Staff are researching options to cut down on the amount of single-use items ending up in public garbage bins

By B.C. Almanac, CBC News | Posted: Feb 05, 2016 12:51 PM PT | Last Updated: Feb 05, 2016 12:51 PM PT



Albert Sharness with the City of Vancouver says single-use items such as coffee cups are increasingly ending up in the city's garbage bins. (CBC)

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France is thought to be the first country in the world to introduce a ban on disposable cups, plates, knives, and forks in a bid to cut waste.

Half the fun of an al fresco lunch is the challenge of steadying a slice of quiche, three sausage rolls, and a squashed crisp sandwich on a precariously balanced plastic plate, all while ineptly stabbing at a rogue cherry tomato with a disposable spoon.

But plastic cutlery and Solo cups of warm Chardonnay could soon be a distant memory for picnickers in France. It emerged yesterday that single-use cups, plates, knives, and forks are to be banned throughout the country in a bid to reduce plastic production and pollution from waste.

READ MORE: Hamburg Just Became the World's First City to Ban Pod Coffee

## France Just Banned Plastic Cups and Cutlery

The horse that saved his

## Cafe BANS disposable takeaway coffee cups telling customers they can either bring their own or drink out of old crockery from second-hand shops

- New Zealand's Eden Cafe stopped selling takeaway cups on Monday
- The small university cafe was handing out up to 1,000 cups every week
- All takeaway cups have been replaced by second hand tea cups and mugs
- The majority of customers drink their coffee within 50 metres of the cafe

By BRIANNE TOLJ FOR DAILY MAIL AUSTRALIA

PUBLISHED: 06:20 BST, 2 March 2016 | UPDATED: 09:34 BST, 2 March 2016

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37 View comments

A café is ditching their disposable takeaway cups in favour of second hand mugs and tea cups.

The Eden Café on New Zealand's South Island began their ban on disposable cups on Monday after staff realised they were handing out up to 1,000 cups every week.

About 90 percent of customers drink their café within 50 metres of the café, which sits on Otago Polytechnic's campus in Dunedin. Polytechnic functions and catering executive chef Mark Lane told Daily Mail Australia.

1/16/2019

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## **General nature of water based dispersion barriers**

Water based dispersion polymers are mixtures of natural and synthetic polymers which are closely related to the binders used in typical pigment coated paper and carton board products. They don't have a clear melting point, they are not capable of functioning as a main structural component of final materials and products and they do not have the elongation properties of plastics.

Typically these polymers are based on acrylate and/or styrene chemistry combined with natural polymers, filler pigments and additives to give the intended functionality.

## **Single use plastics (SUP) according to proposed EU directive**

According to current status plastic is defined as follows:

"plastic means a material consisting of a polymer...to which additives or other substances may have been added, and which can function as a main structural component of final products..."

## **EU Plastics directive No 10/2011 (§3.2)**

"Plastic means polymer to which additives or other substances may have been added, which is capable of functioning as a main structural component of final materials and articles"

**Based on the above definitions Kotkamills' barrier coated cups are not plastic materials.**

# Plastics-free products for food packaging

## Barrier Boards



**AEGLE® Barrier boards  
for folding packages**



**ISLA® barrier boards  
for Cups**



## Dispersion coated Cupstock without any plastics is now available



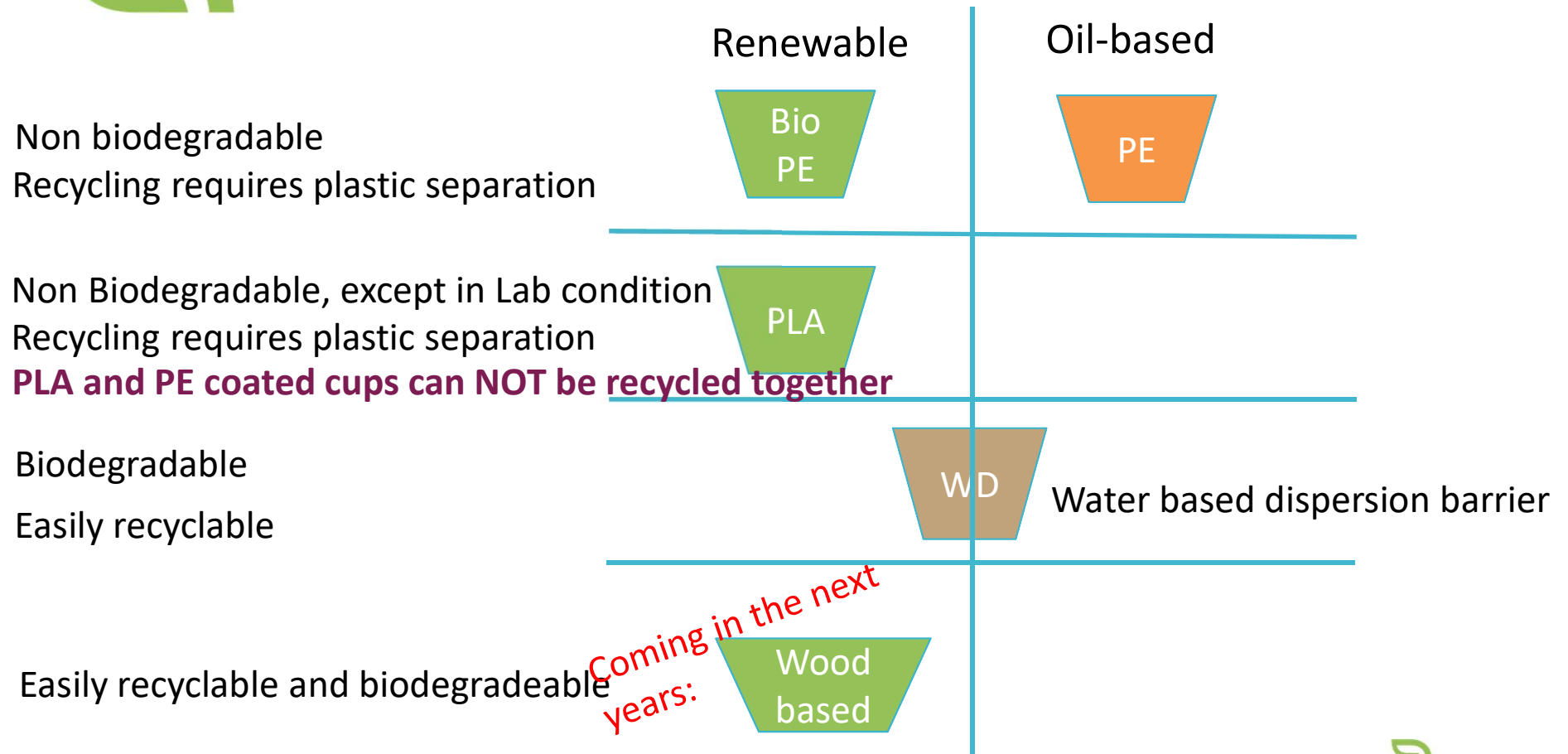
- Easy to recycle for example with newsprint or magazine waste, if aiming to higher value end products
- Waste from Cup making process and also Recycled Cups are excellent and strong fibre material for the RCF markets
- Biodegradable

Kotkamills is already using unprinted Cupstock waste in the Board production and printed & used Cups in the Saturating Base Kraft production





# Barrier positioning

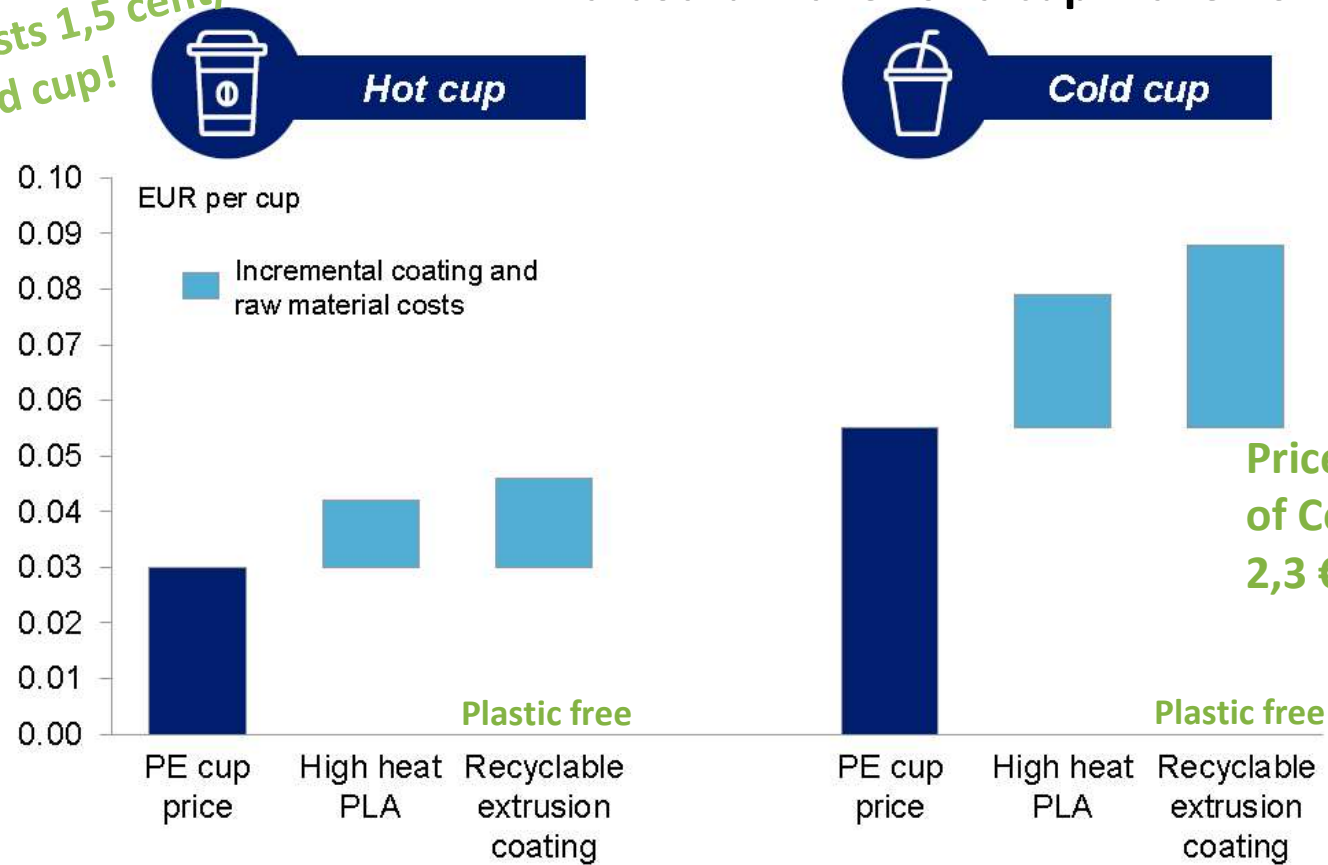


# Cost comparison of extrusion coated paper cups with different barrier materials

No investments in the machinery of either a board maker or a cup maker is needed

Disposable cup coated by recyclable non-plastic material costs 1,5 cent/cup more than plastic coated cup!

A consumer can decide:  
Price of a cup of coffee either 3,85 € or 3,87 € ?



Price of a cup of Coke either 2,3 € or 2,33 €

1/16/2019

Note: Standard cup sizes used: hot cup 200 ml, cold cup 400 ml

## Brand owner's postconsumer waste hierarchy and an idea how to ensure recycling

Boxes with used cups end up in the feed of a RCF plant



1/16/2019

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Used cups put back to the box, which is picked up by a waste paper company



New cups delivered using this box



THE GAME CHANGER **KOTKA MILLS**



## How much plastics is needed for the PE-coated cups in Europe today?

- European Cupstock consumption is ca. 250 000 t/a
- 8% of it is plastics = 20 000 t/a



1 300 lorries is needed to transport it every year !

- Consumption of pure plastic cups is ca. 50 000-100 000 t/a

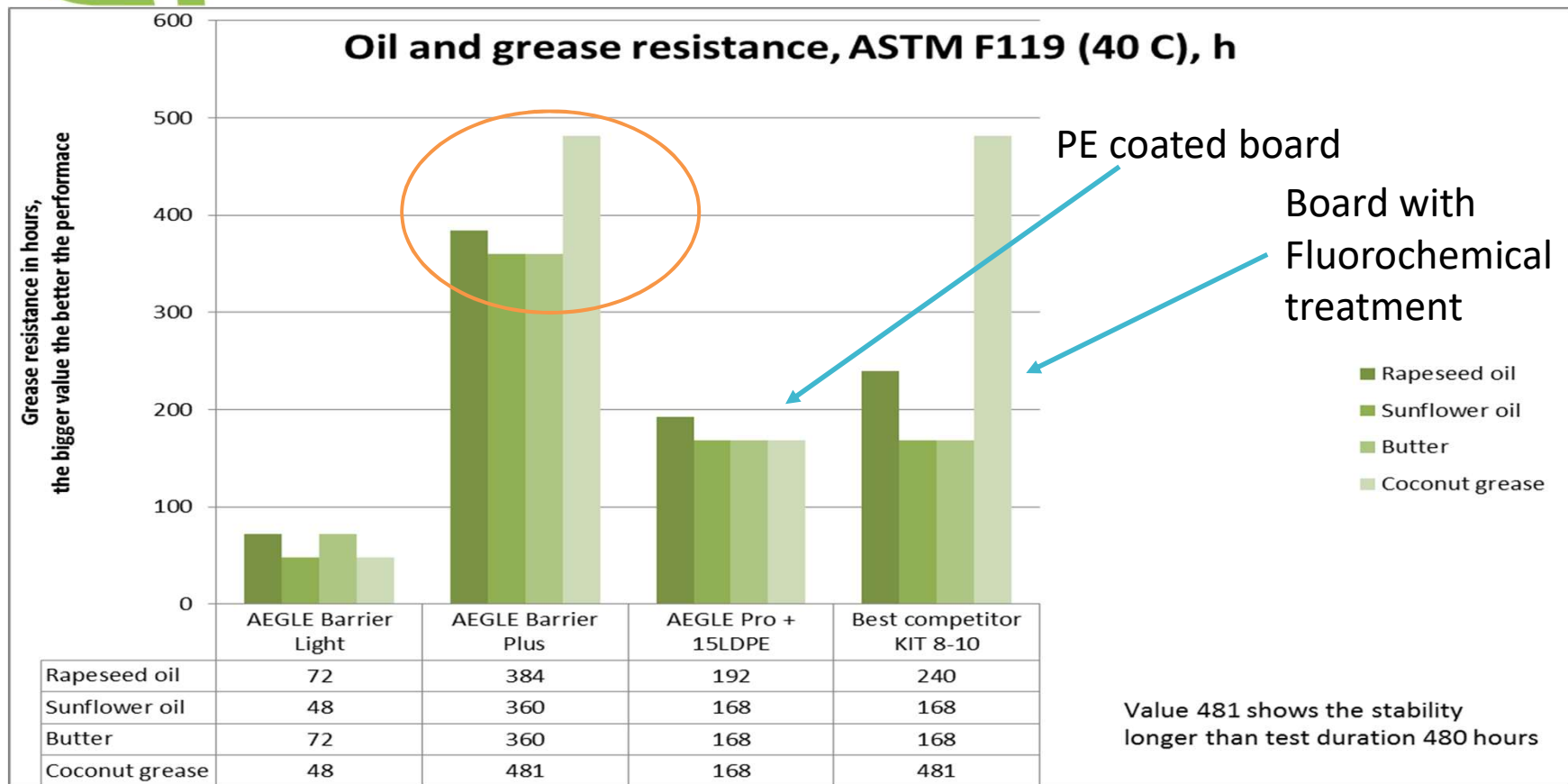


ca. 4500 lorries in a year !





## With dispersion coating better grease resistance than with PE



Results from external laboratory, not specified values

24.5.2018

Kotkamills Consumer Boards

THE GAME CHANGER **KOTKAMILLS**



# New end use areas were developed during the R&D-process

## Gin + Tonic

Traditional mixing order:

1. Gin
2. Tonic



## Tonic + Gin

**Kotkamills** mixing order:

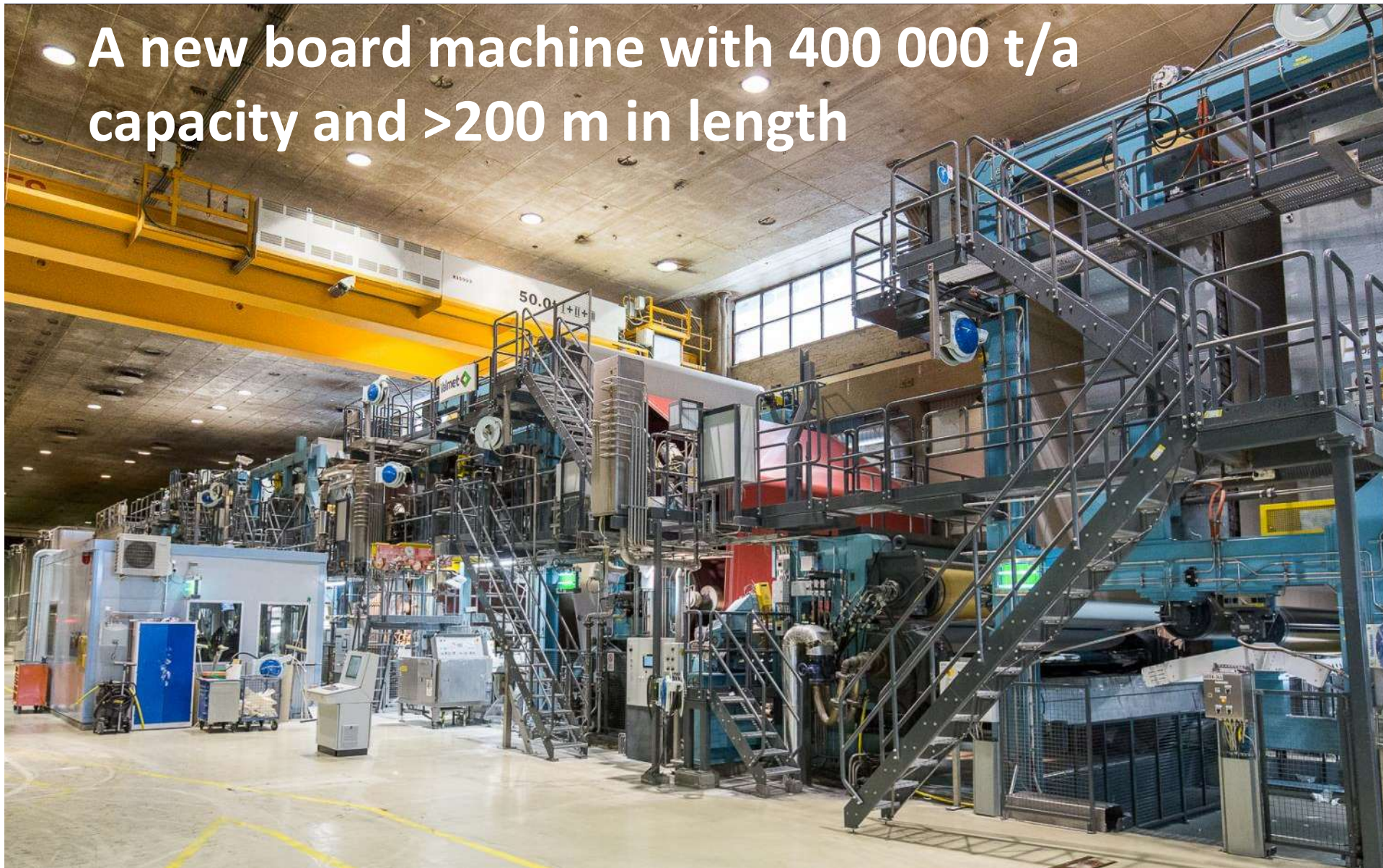
1. Tonic
2. Gin



*Could plastic cups be replaced by fibre based, fully recyclable, paper cups in alcoholic drinks?*

*Festivals, skiing resorts, sport events, aeroplanes,...*

• A new board machine with 400 000 t/a capacity and >200 m in length



The logo for Kotkamills features the word "KOTKAmILLS" in a bold, dark grey sans-serif font. A green stylized leaf icon is positioned above the letter 'm'.

**KOTKAmILLS**