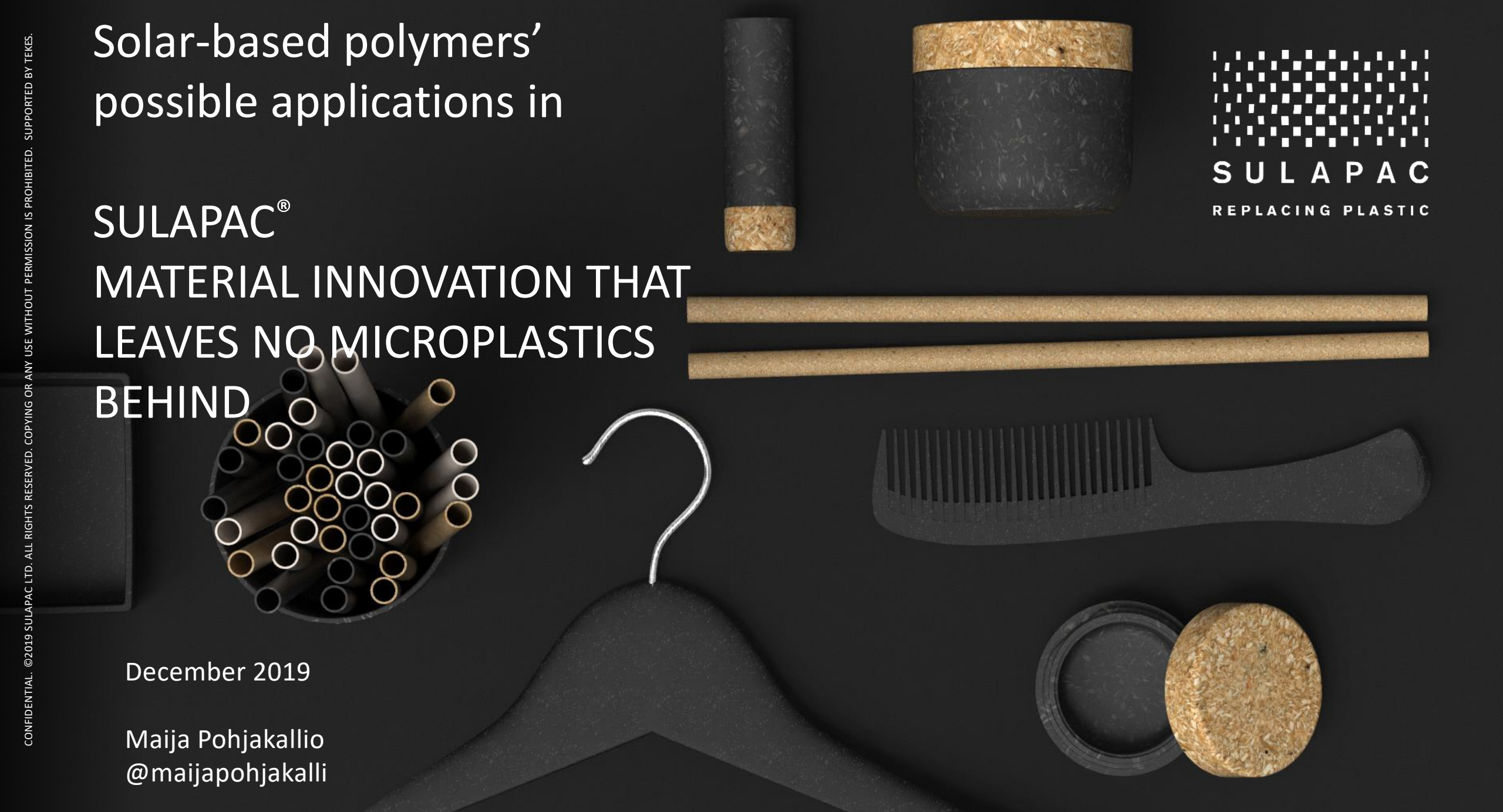
Solar-based polymers' possible applications in

SULAPAC®
MATERIAL INNOVATION THAT LEAVES NO MICROPLASTICS BEHIND



SULAPAC
REPLACING PLASTIC

December 2019

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 SUPPORTED BY TEKES.

Sulapac's co-founders
Dr. Suvi Haimi & Dr. Laura Tirkkonen-Rajasalo

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FINLAND
HOITOBALMI
VÅRDBALM
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MICROPLASTICS

"On average people could be ingesting approximately 5 grams of microplastic weekly"

The analysis No Plastic in Nature: Assessing Plastic Ingestion from Nature to People prepared by Dalberg, based on a study commissioned by WWF and carried out by University of Newcastle, Australia, suggests people are consuming about 2000 tiny pieces of plastic every week.https://wwf.panda.org/wwf_news/press_releases/?348337/Revealed-plastic-ingestion-by-people-could-be-equating-to-a-credit-card-a-week

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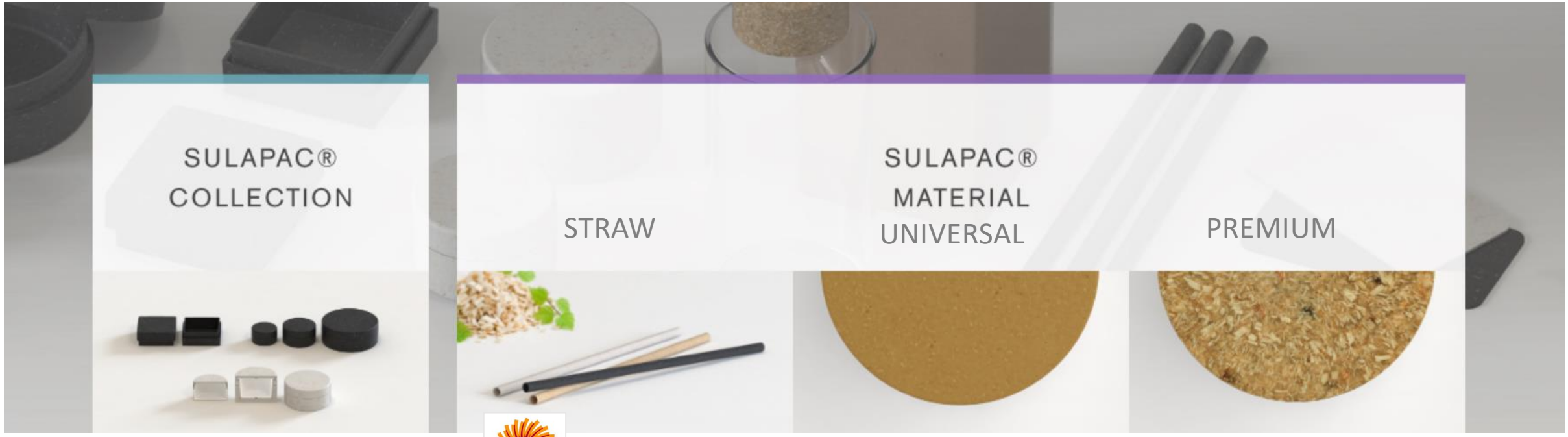
SULAPAC PORTFOLIO



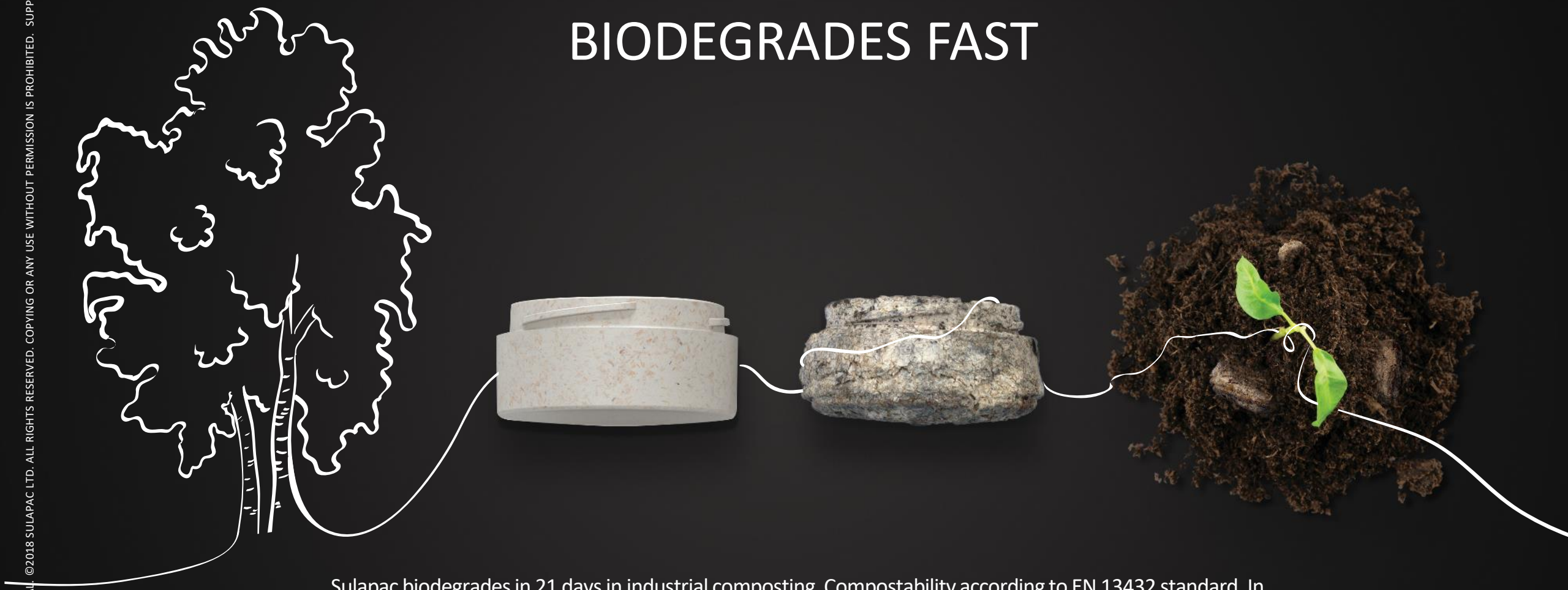
storaenso

SULAPAC AS A LICENSE
EXTENDABLE BEYOND PACKAGING

SULAPAC:
SAFE & CIRCULAR
BY DESIGN

SULAPAC

SULAPAC®
BIODEGRADES FAST



Sulapac biodegrades in 21 days in industrial composting. Compostability according to EN 13432 standard. In addition to biodegradability also ecotoxicity is tested & it's proofed by chemical analysis that the degradation products don't have any potential negative effects to end compost quality

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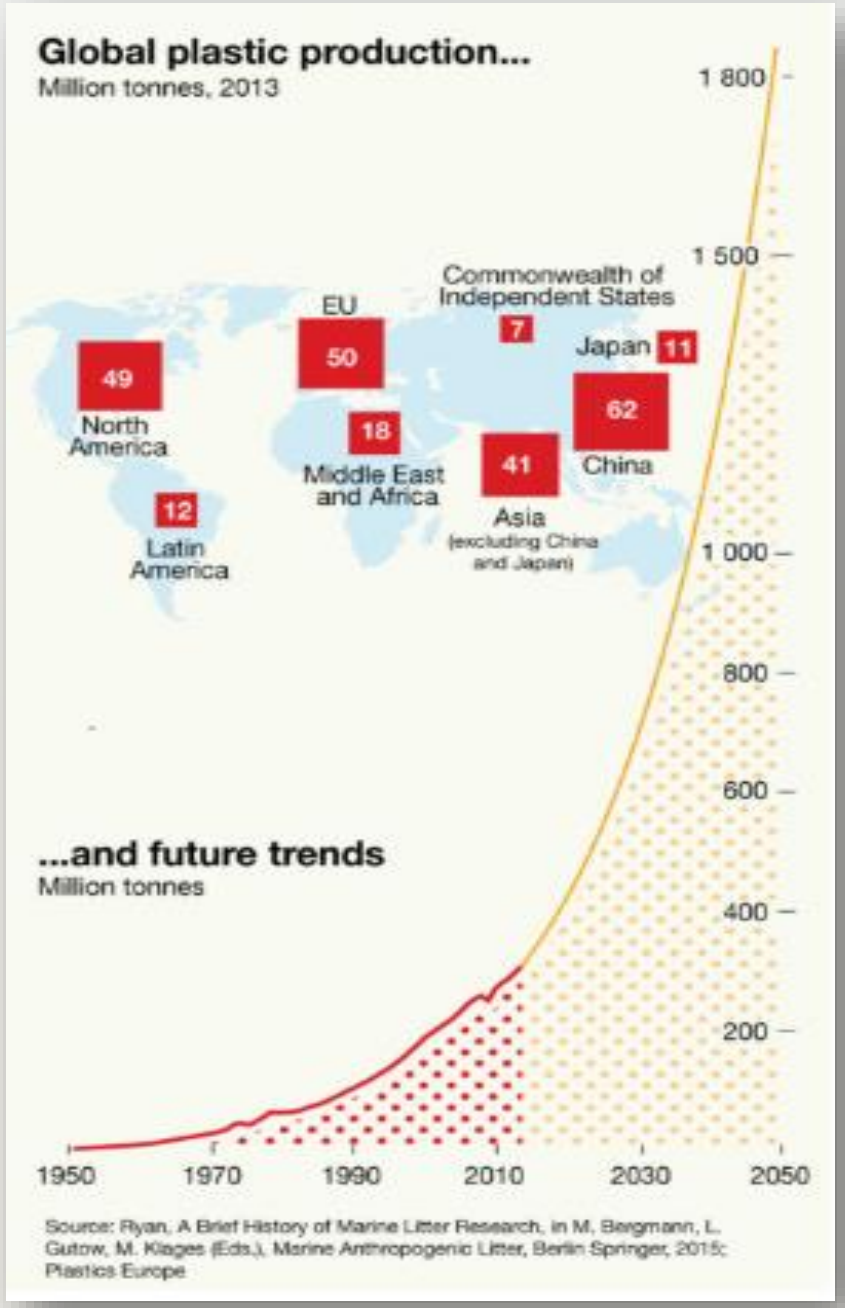
MECHANICAL RECYCLING OF SULAPAC IS TECHNOLOGICALLY FEASIBLE

- Mechanical recycling of Sulapac has been demonstrated by VTT , Technical Research Centre of Finland:
  mechanical properties last up to 5 cycles

- Chemical recycling via pyrolysis is also an interesting option
  which we are currently investigating



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PLASTICS PRODUCTION

The annual global plastics production has increased from 2 Mt to 380 Mt between 1950 and 2015, **and it's predicted that the production will double by 2035 and almost quadruple by 2050.**

Source: Solving plastics pollution through accountability, WWF report 2019.

RETHINKING IS KEY

Reduce

Reuse

Recycle

Replace

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RETHINKING THE USE OF CARBON

Sustainable carbon

- Renewable carbon from biomass
- Recycled fossil carbon
- Carbon extracted from CO_2

Source: Carus, M. et al, Renewable carbon is Key to a Sustainable and Future-Oriented Chemical Industry, Nova paper #10, 2018.

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DECREASING THE PLASTICS LEAKS INTO ENVIRONMENT

Visible litter

- Waste management infrastructure & product design

Microplastics

- Any persistent, non-biodegradable polymer in plastics, fibres, tyres, paints, cosmetics etc. can be a source of microplastics polution
- Material innovation & design is key as once released microplastics are difficult to remove from the environment

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To some extent, all solid polymeric materials release small particles (< 5 mm) due to wearing in use.

One great advantage of fully biodegradable materials is, that the particles which are released do not accumulate but are “eaten up” by the microbes in nature.

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REPLACING PLASTIC

FREE OF MICROPLASTICS, FULL OF POSSIBILITIES

WIRED

Europe's 100 Hottest Startups 2018

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