Cross visit Czech Republic 30.11-1.12. 2020

VLAĎKA MATUŠKOVÁ

NAFIGATE Corporation, a.s.

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Hydal Project

NAFIGATE® corporation

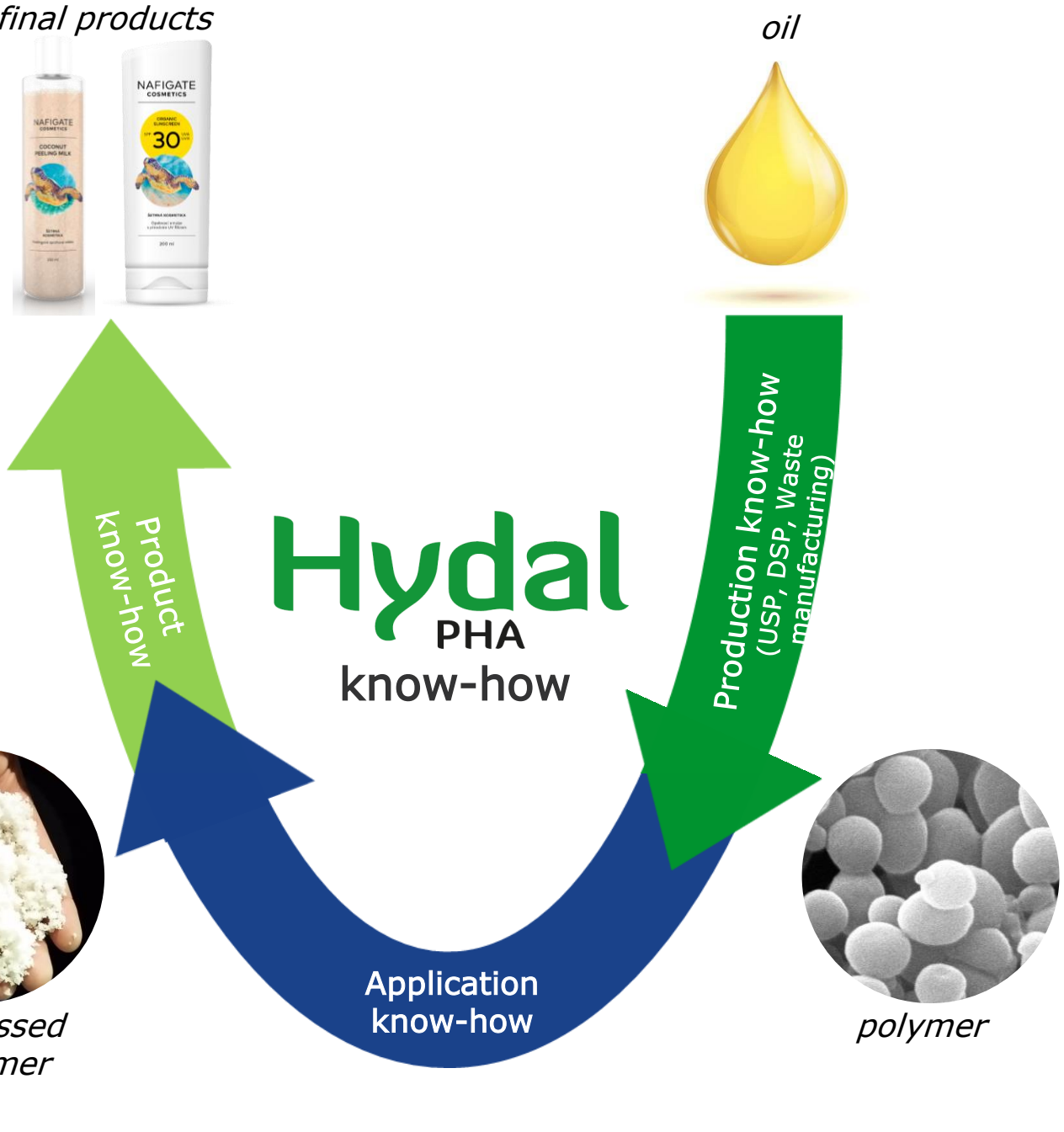
Introduction

- NAFIGATE Corporation is a knowledge based company founded in 2011. The business model is based on the sale of know-how in the industrial production phase.
- Activities are divided into two main segments - **nanofiber applications** and **biotechnology (Hydal technology)**, which together focus on three fundamental goals: natural polymer, clean water and clean air.
- NAFIGATE Corporation is a member of excellent projects HORIZON 2020 and Eurostars, and holds the most prestigious global prizes, especially the 2015 Frost and Sullivan Best Practised Award.

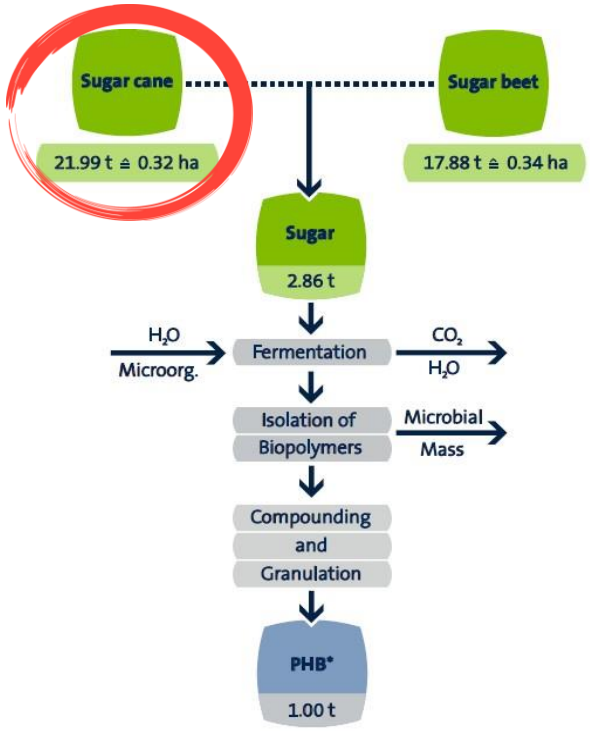
NAFIGATE® corporation

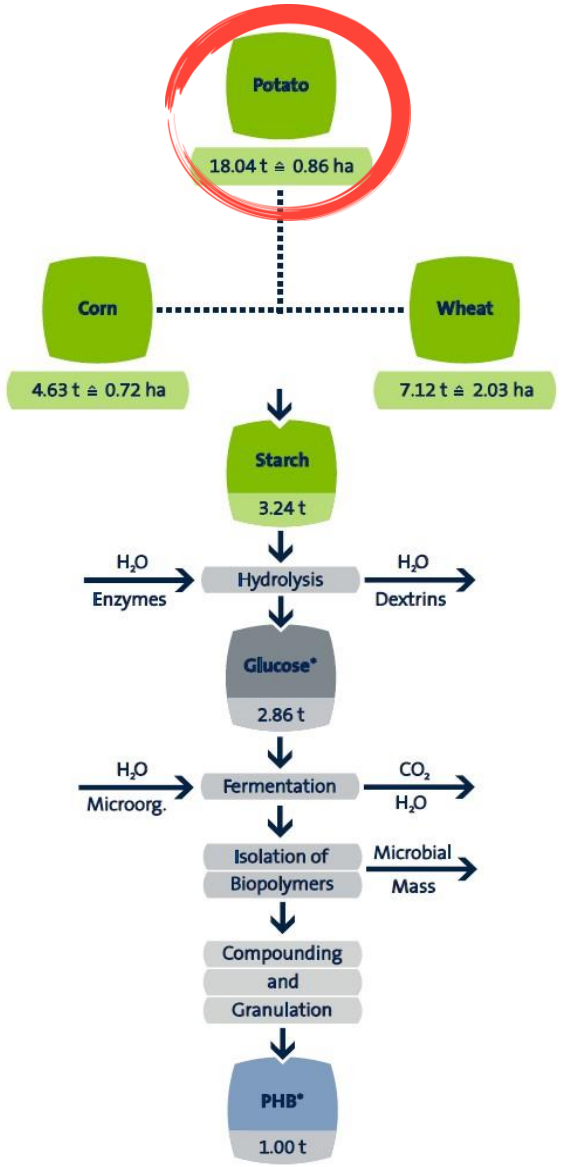
Hydal is NATURE

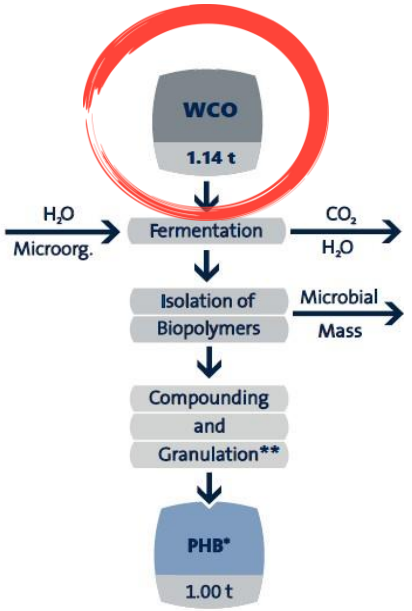
JOURNEY FROM WASTE - USED COOKING OIL - TO FINAL PRODUCTS



Hydal story – 1st vs. 2nd feedstock generation





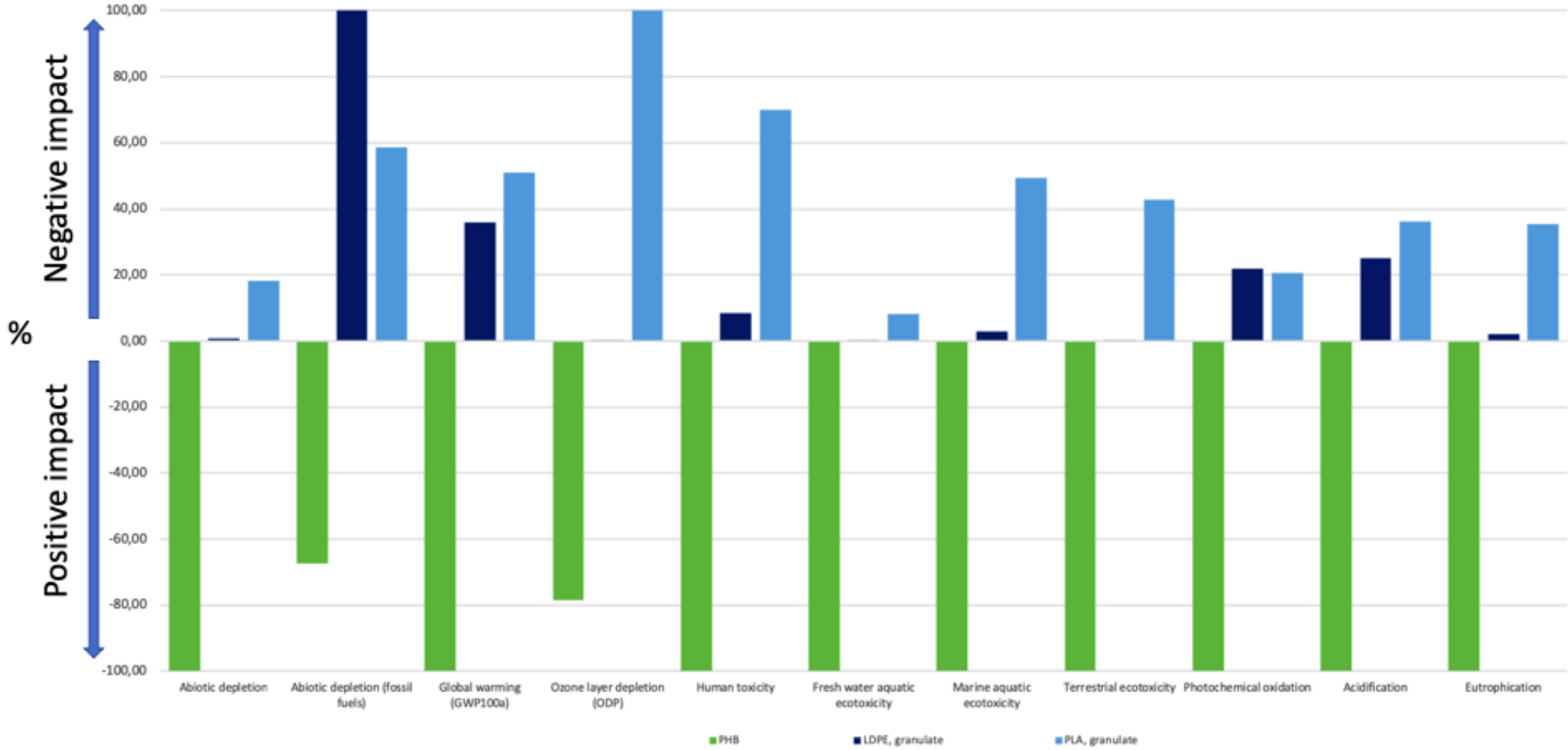


*** Conversion Rates**

Sugar to PHB	UCO to PHB
35%	87%

**** Granulation considers 20% of additives**

ENVIRONMENTAL IMPACT



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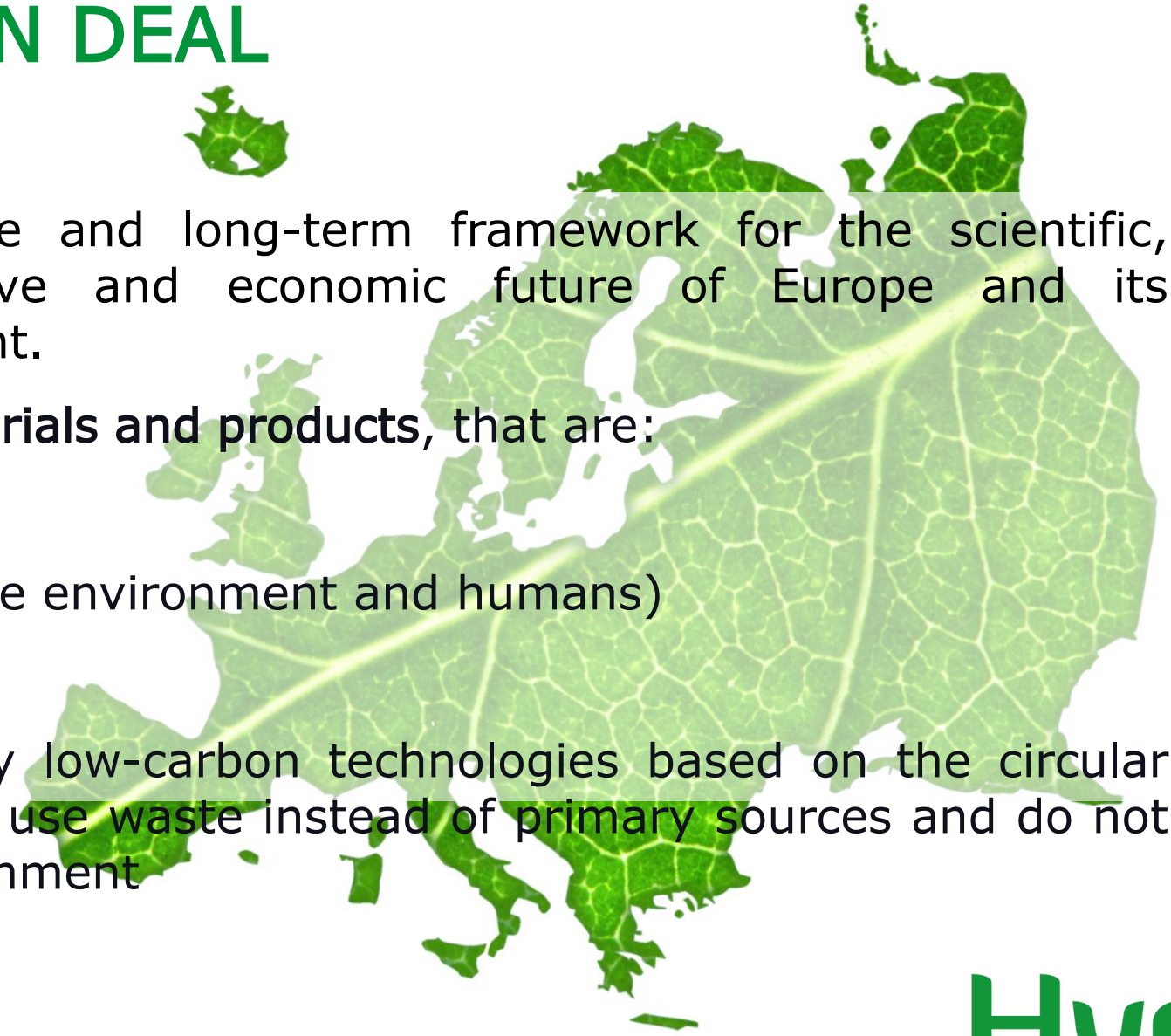
EUROPEAN GREEN DEAL



- **EGD** = a clear, stable and long-term framework for the scientific, technological, legislative and economic future of Europe and its sustainable development.
- EGD requires **new materials and products**, that are:
  - biodegradable
  - non-toxic (for the environment and humans)
  - biocompatible
  - are produced by low-carbon technologies based on the circular economy, which use waste instead of primary sources and do not harm the environment

Hydal PHA

OUR BUSINESS MODEL

VERTICAL MODEL
From oil to final product

HORIZONTAL MODEL
based on our participation in Horizon HOOP 2020, a consortium for the treatment of municipal bio-waste

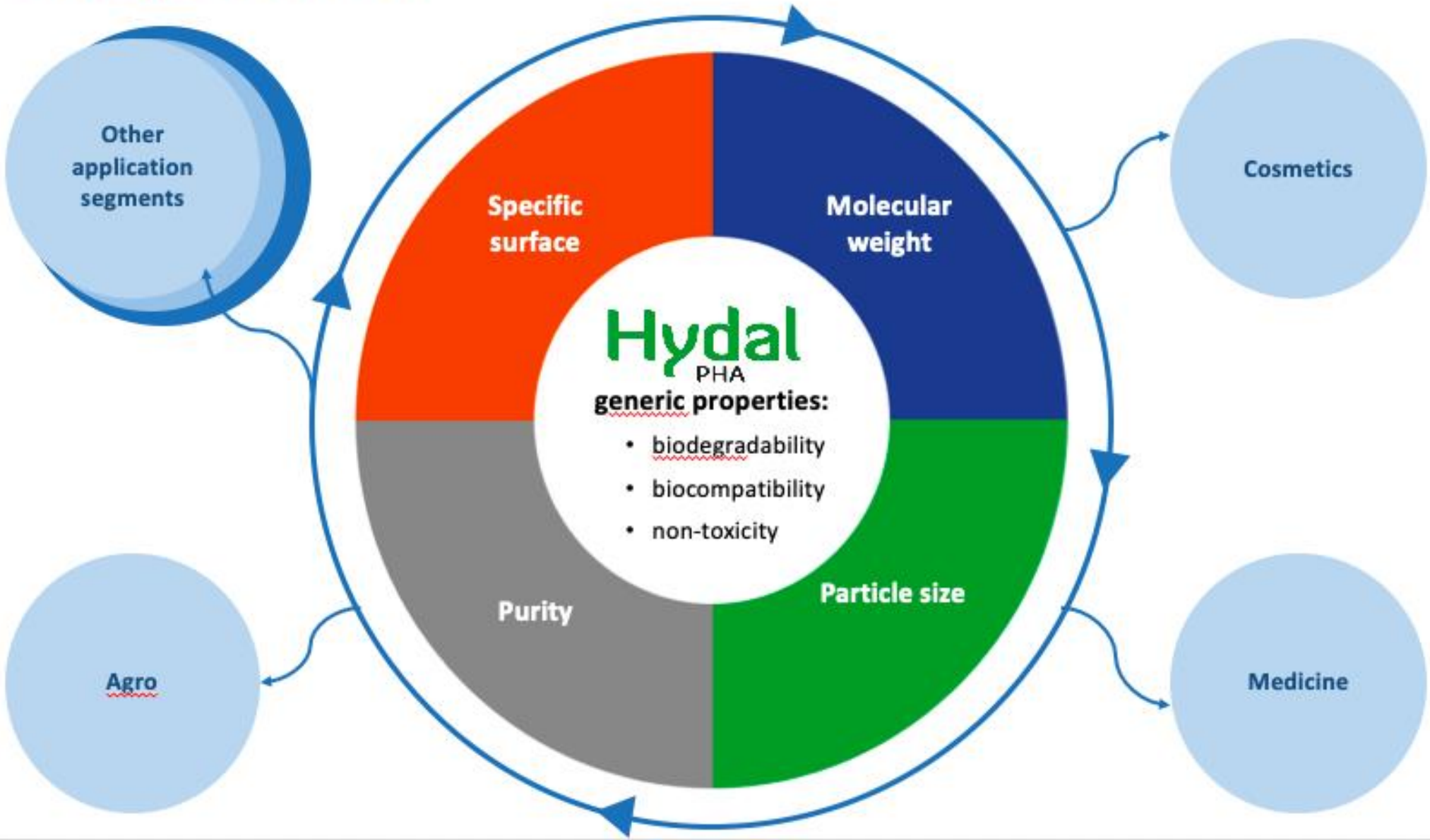
Hydal is NATURE

Approach to strategic material - PHA polymer

- integration of the value chain from the point of view of know-how, trade, production
- two margins
- Open science Hydal PHA virtual academy

Hydal PHA

OUR KNOW-HOW


Other application segments
Specific surface
Molecular weight
Hydal
PHA
generic properties:
• biodegradability
• biocompatibility
• non-toxicity
Purity
Particle size
Cosmetics
Agro
Medicine


NAFIGATE
COSMETICS
COCONUT
PEELING MILK
ŠETRNÁ
KOSMETIKA
Peelingové sprchové mléko
250 ml


NAFIGATE
COSMETICS
ORGANIC
SUNSCREEN
SPF 30 UVA UVB
ŠETRNÁ KOSMETIKA
Opalovací emulze
s přírodním UV filtrem
200 ml

ECHA report – each year up to 36 000 tons of microplastics are released into the environment.

POWER4BIO
REGIONS FOR BIOECONOMY

Microplastics reduction

Sources – e.g. cosmetics, detergents, controlled-release fertilizers, capsule suspension plant protection products and coated seeds etc.

ECHA restriction – reduction up to 500 000 tons of microplastic releases over a 20-year period. Particles from 1nm to 100nm.

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REGIONS FOR BIOECONOMY

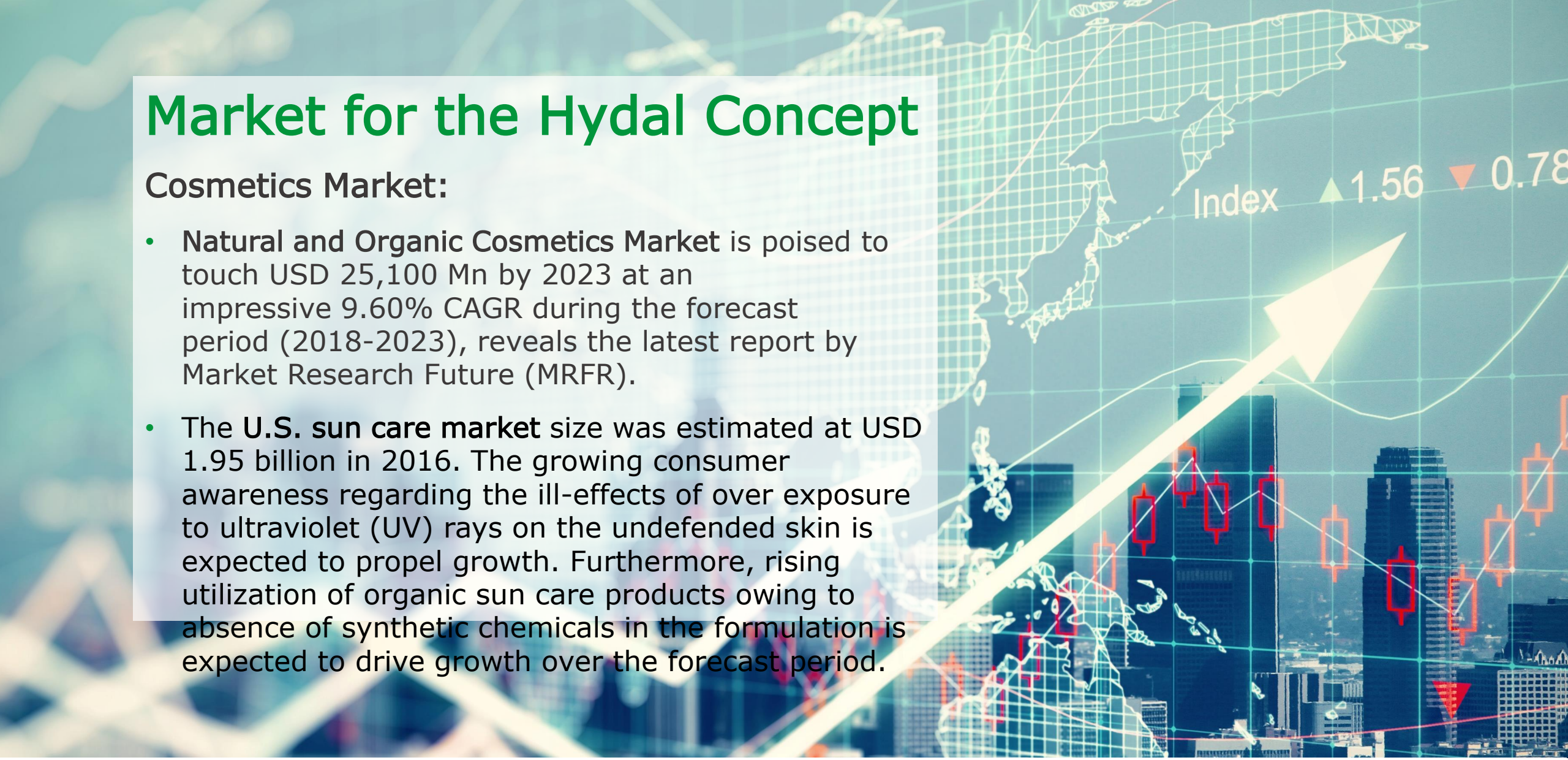
Microplastics reduction

ECHA proposal should be adopted in 2021 and get into force from 2022 with a six-year transition period.

Market for the Hydal Concept

Cosmetics Market:

- **Natural and Organic Cosmetics Market** is poised to touch USD 25,100 Mn by 2023 at an impressive 9.60% CAGR during the forecast period (2018-2023), reveals the latest report by Market Research Future (MRFR).
- The **U.S. sun care market** size was estimated at USD 1.95 billion in 2016. The growing consumer awareness regarding the ill-effects of over exposure to ultraviolet (UV) rays on the undefended skin is expected to propel growth. Furthermore, rising utilization of organic sun care products owing to absence of synthetic chemicals in the formulation is expected to drive growth over the forecast period.



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Market for the Hydal Concept

Agriculture market:

- **Capsule suspension plant protection products (CSPs)** - the global slow and controlled release pesticides market size was **USD 1.7 billion in 2016**. Global consumption of pesticides was **4.1 million tons** in 2016.
- **Controlled-release fertilisers** - The global controlled-release fertilizers market is estimated at **USD 2.4 billion in 2020** and is projected to reach **USD 3.2 billion by 2025**.

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- **MPO TRIO – „SMART FERTILIZERS” -** national project, which aims at the development of a new generation of fertilizers based on PHA.

- **MPO TRIO – „ DEVELOPMENT OF A NEW MATERIAL BASE BASED ON HYDAL PHA FOR THE REPLACEMENT OF MICROPLASTICS” -** The aim of the national project is to develop new materials based on Hydal PHA, which can replace microplastics in cosmetics and other sectors.

Hydal PHA

POWER4BIO website and social media

www.power4bio.eu

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@power4bio

Thank you for your attention

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