RCI Webinar

RENEWABLE CARBON INITIATIVE

Bio-based CO_2-based Recycling

Circular Economy

Startup Pitches

Renewable Carbon, Defossilisation and Sustainable Carbon Cycles

- Focus: Pitches from RCI Startups

27 November 2024, 14:00 – 15:30 CET

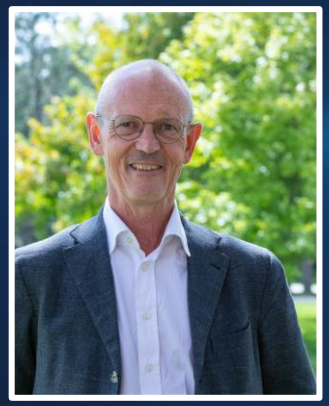
Pioneers of the transformational shift from fossil to renewable carbon

Shape the future of the chemical and material industry

Eric Appelman,
Aduro Clean Technologies (CA)

Upcycling Waste Plastic into Valuable Resources

ADURO
CLEAN TECHNOLOGIES



Eric Appelman
Chief Revenue Officer
eappelman@adurocleantech.com

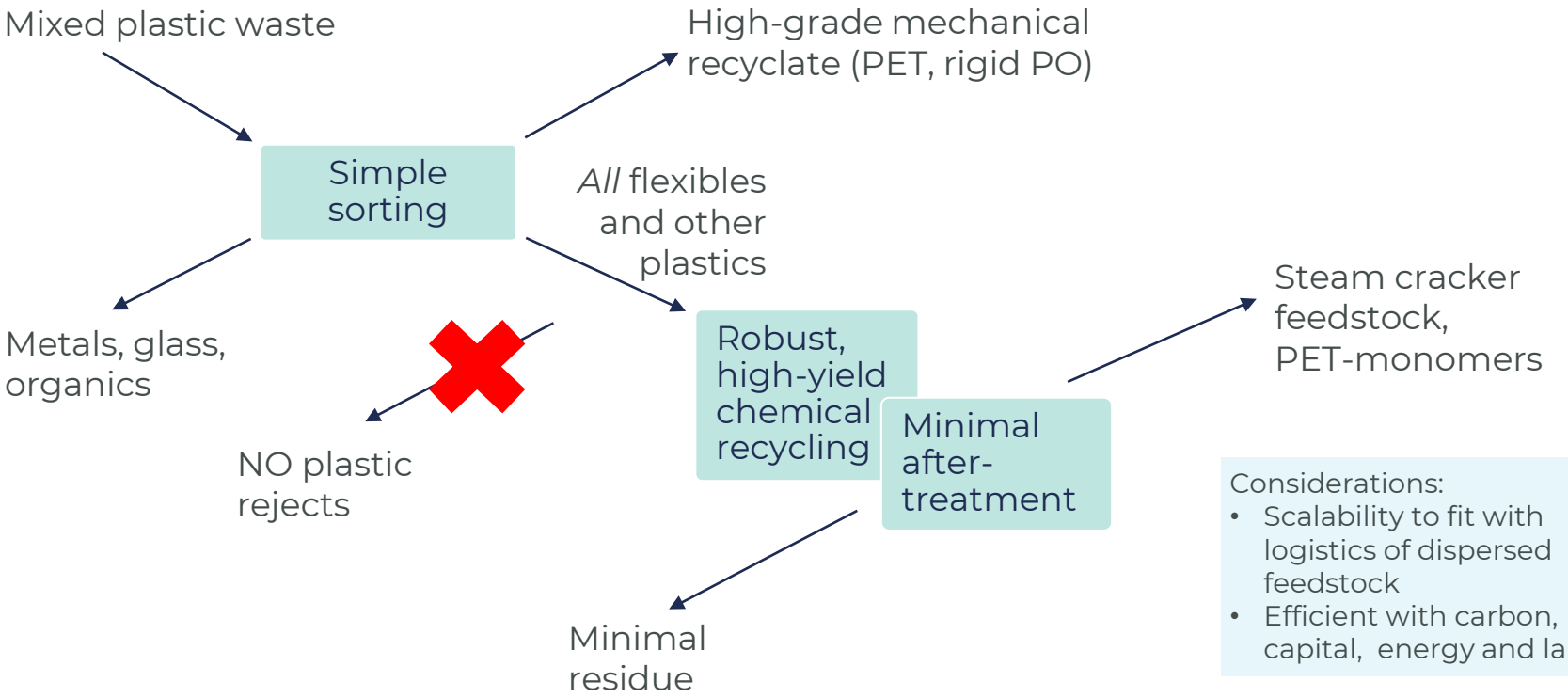
Hydrochemolytic™ Technology

For the optimal balance between sorting effort, product value and reject cost in plastic recycling

The mission in plastic recycling: an optimized system

- Deploy mechanical and chemical recycling in a truly complementary way
- Maximize the combined product value, minimize cost
- Co-optimize sorting, mechanical recycling and chemical recycling
- Avoid rejects that can only be incinerated or landfilled
- Dirty and unpredictable feedstock requires a simple, robust process

An optimal plastic recycling system



Considerations:
- Scalability to fit with logistics of dispersed feedstock
- Efficient with carbon, capital, energy and labor

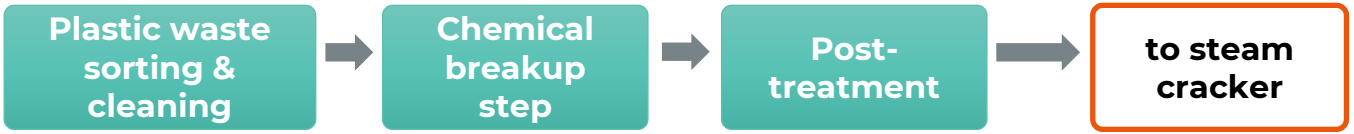
ADURO CLEAN TECHNOLOGIES

Challenges with mainstream pyrolysis

Feedstock:
- Removal of PET, PA, multi-layer plastics required, causing a reject stream to be incinerated
- Issues with inks, adhesives,
- Drying required

Reaction:
- High energy demand for temperature and endothermic reactions
- Significant carbon loss to gas and coke

Cleanup:
- Hydrotreatment to remove olefins and heteroatoms
- Additional Capex and Opex



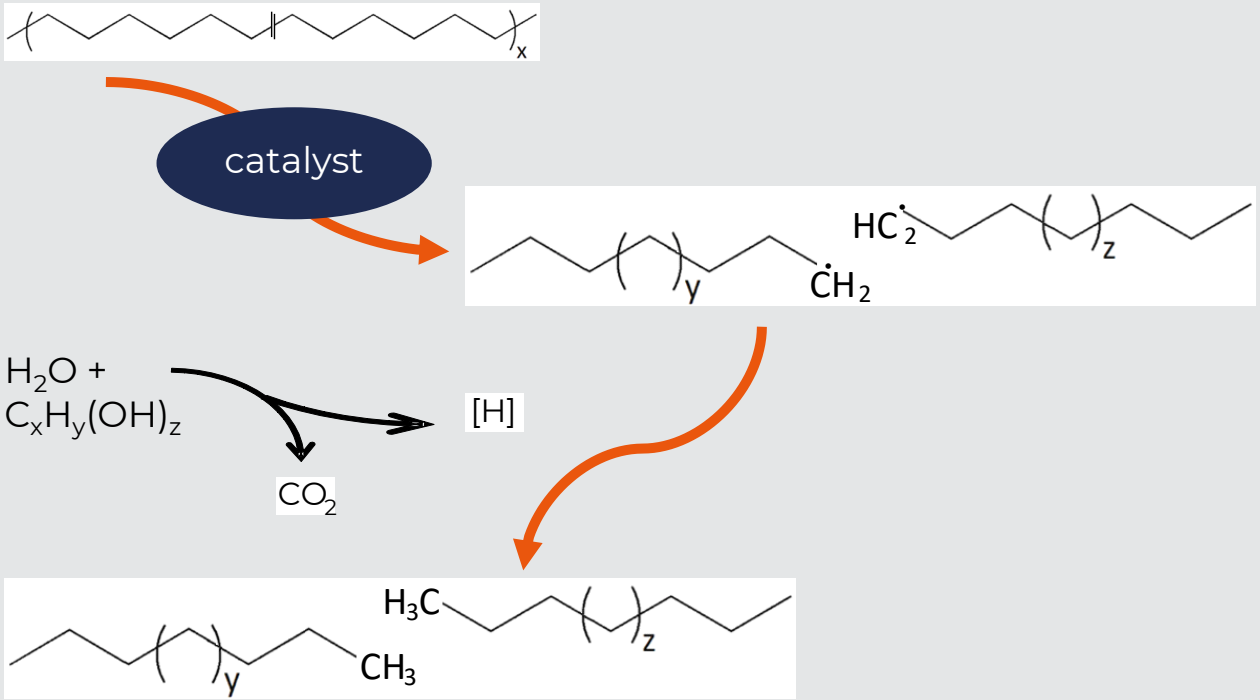
Aduro Hydrochemolytic™ Technology

From polyolefin straight to paraffins

Catalyzed Deconstruction of Polymer

Aqueous reforming of organic hydroxy component

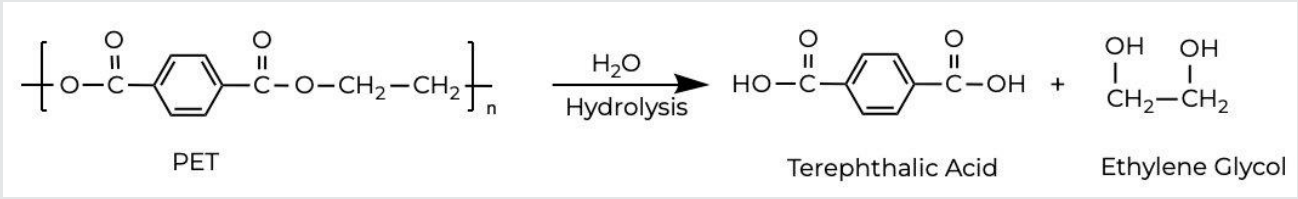
Quenching of Reactive Intermediate

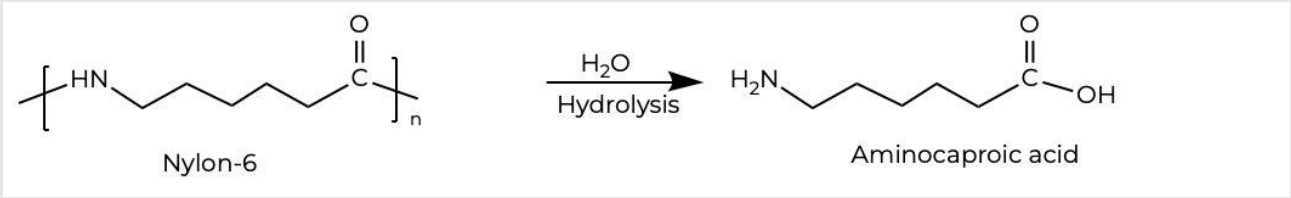


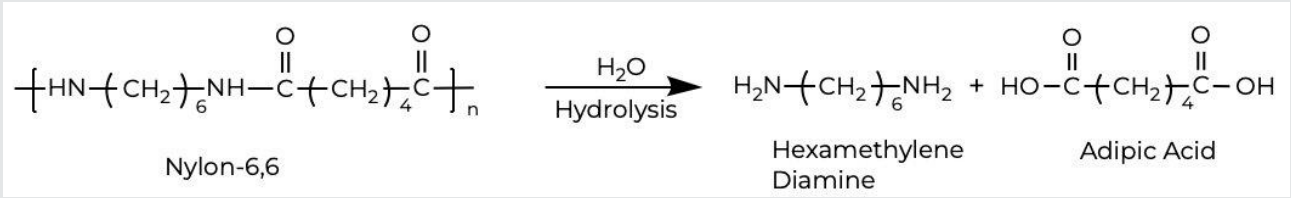
Lower molecular weight saturated hydrocarbons

ADURO CLEAN TECHNOLOGIES

Aduro HCT: parallel hydrolysis of condensation polymers (and easy monomer separation)



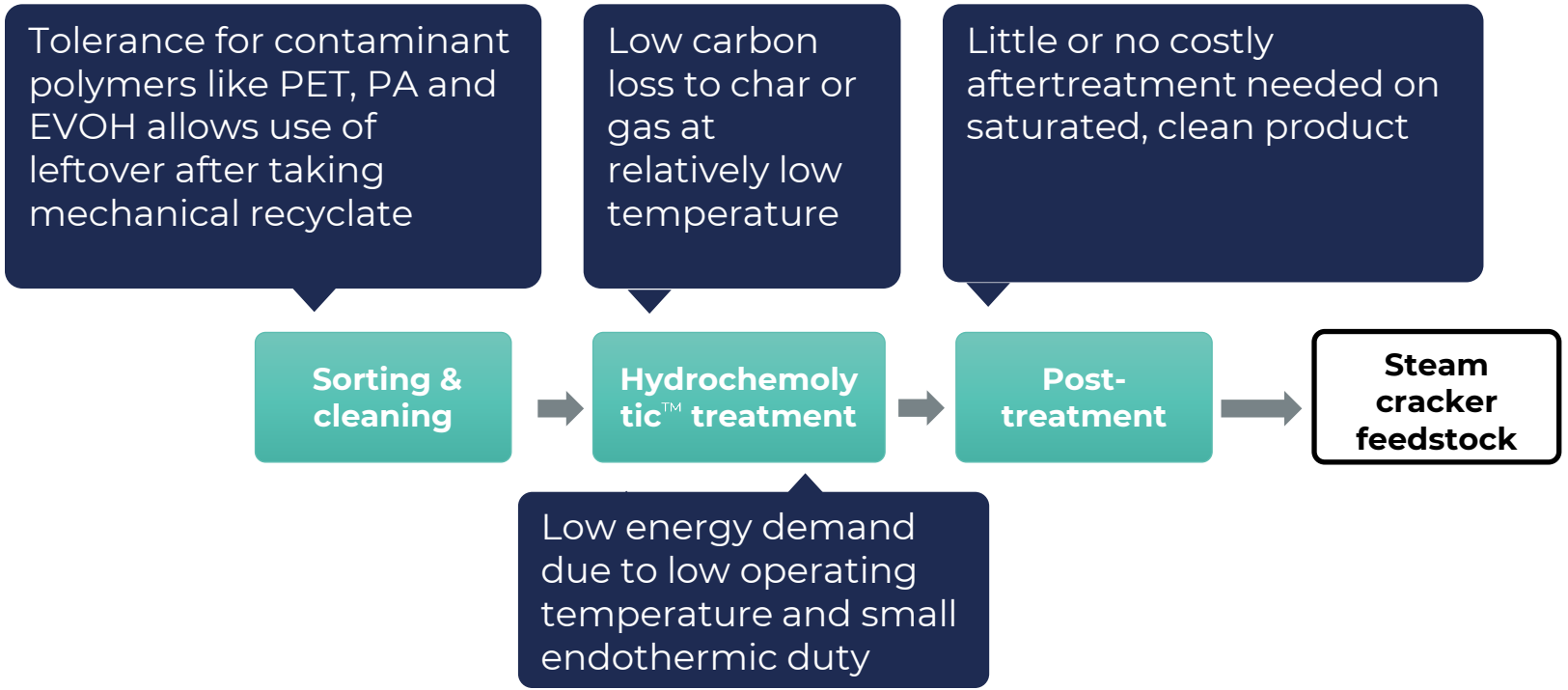




ADURO CLEAN TECHNOLOGIES

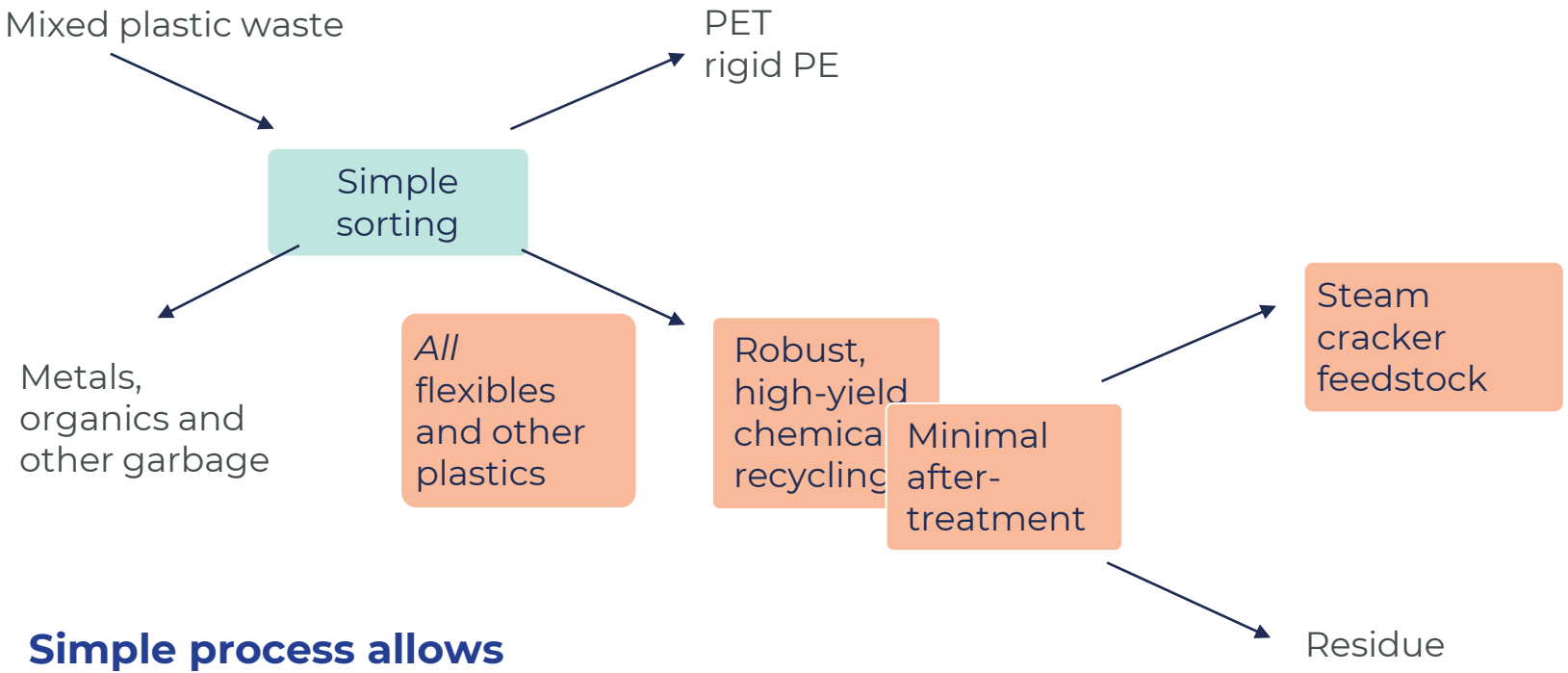
Aduro Hydrochemolytic Technology™

Advantages for an optimized plastic recycling system



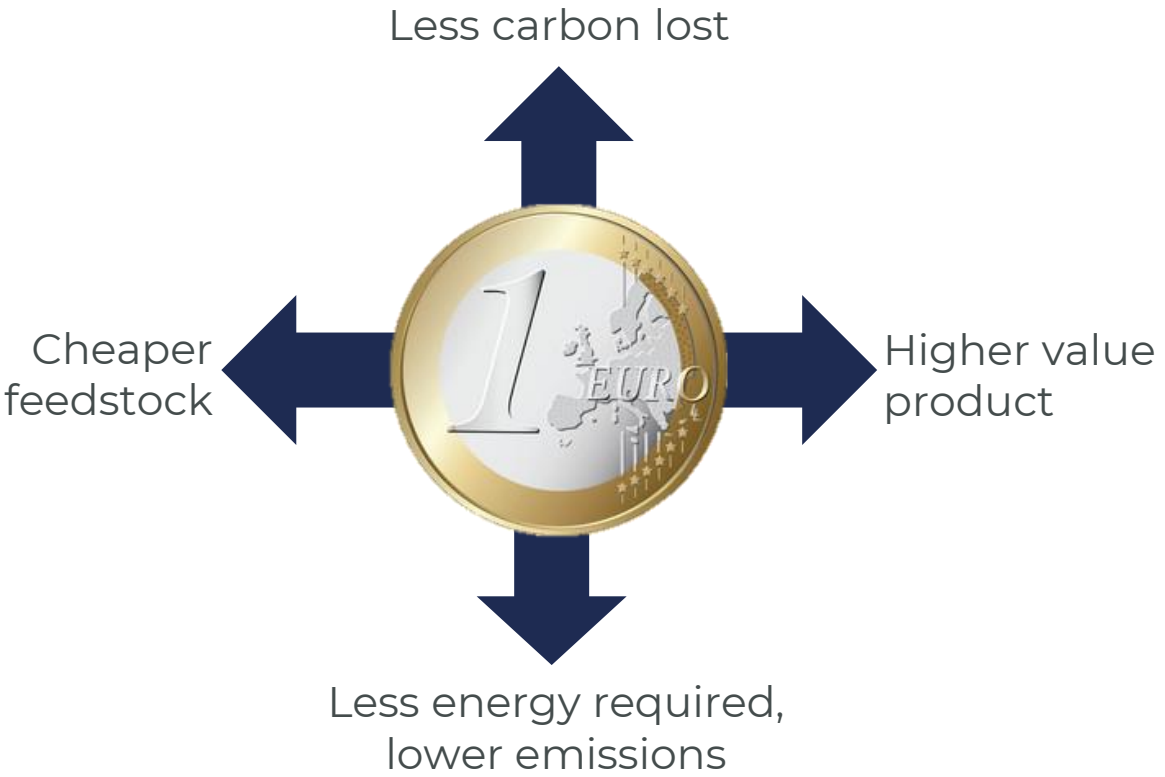
ADURO CLEAN TECHNOLOGIES

A system with Aduro's HCT as anchor technology

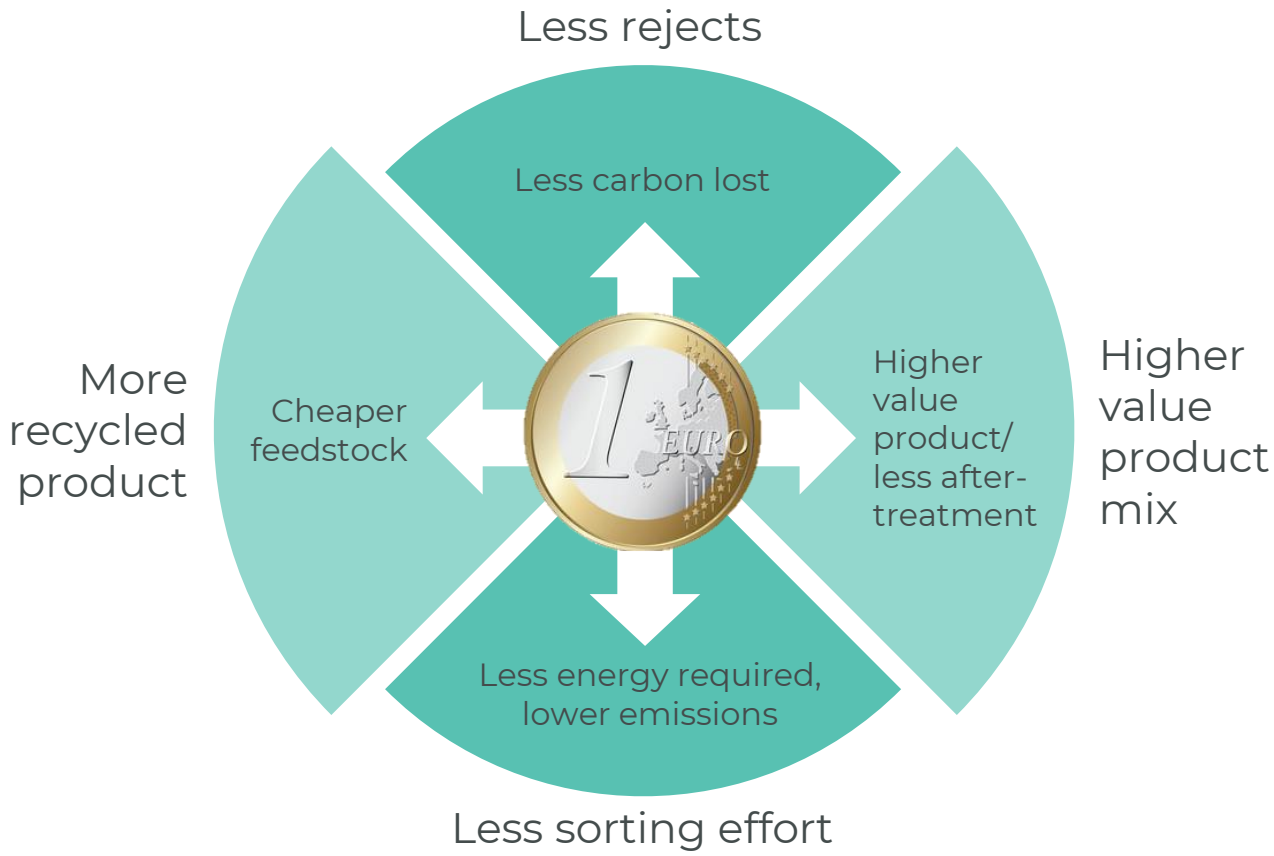


Simple process allows scaling both ways !

Aduro grows the pie for chemical recycling



Aduro grows the pie for recycling as a whole



Aduro: there is more

Upgrading of bitumen
Stable, low-viscosity intermediates

Renewable chemicals & fuels
Conversion of vegetable oils to biodiesel, SAF and bio-naphtha

Rubber recycling

BTX
BTX chemicals from waste plastic or renewable oil

THANK YOU!

Eric Appelman
Chief Revenue Officer
eappelman@Adurocleantech.com

CONTACT

Ofer Vicus
Chief Executive Officer
ovicus@adurocleantech.com

Abe Dyck
Head of Corporate Development
adyck@adurocleantech.com

Katrin Eckhardt, amynova polymers (DE)

Innovative, Starch-based Polymers

amynova polymers®

Starch-Based Biopolymers for a Sustainable Tomorrow

Katrin Eckhardt

RCI Startup Webinar

KEYFACTS

founded in **2012**

own **PRODUCTION FACILITY**

R & D Division

more than **3500 Customers**

> 200 trials

patented **KEY-TECHNOLOGY**

EXPANSION
North & South America, Europe, Asia

WHAT WE DO

[a **starch-based biopolymer**
from renewable raw materials]

WHAT WE DO

amylofol® [starch-based polymer family]

Film-former

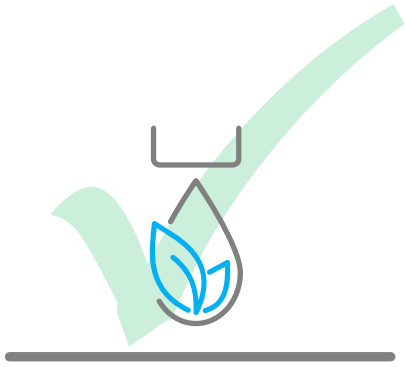
Rheology modifier

SWITCH TO RENEWABLE CARBON

amylofol® [a **starch-based biopolymer** from renewable raw materials]

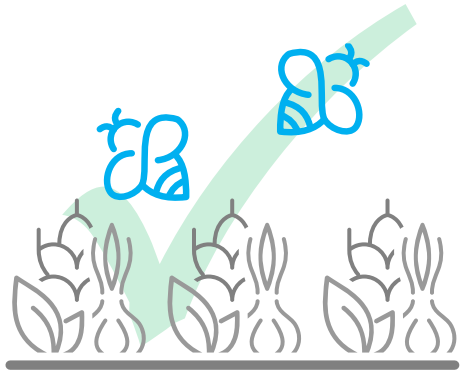
Alternative to replace

persistent and/or fossil-based chemicals



Sustainable & highly functional

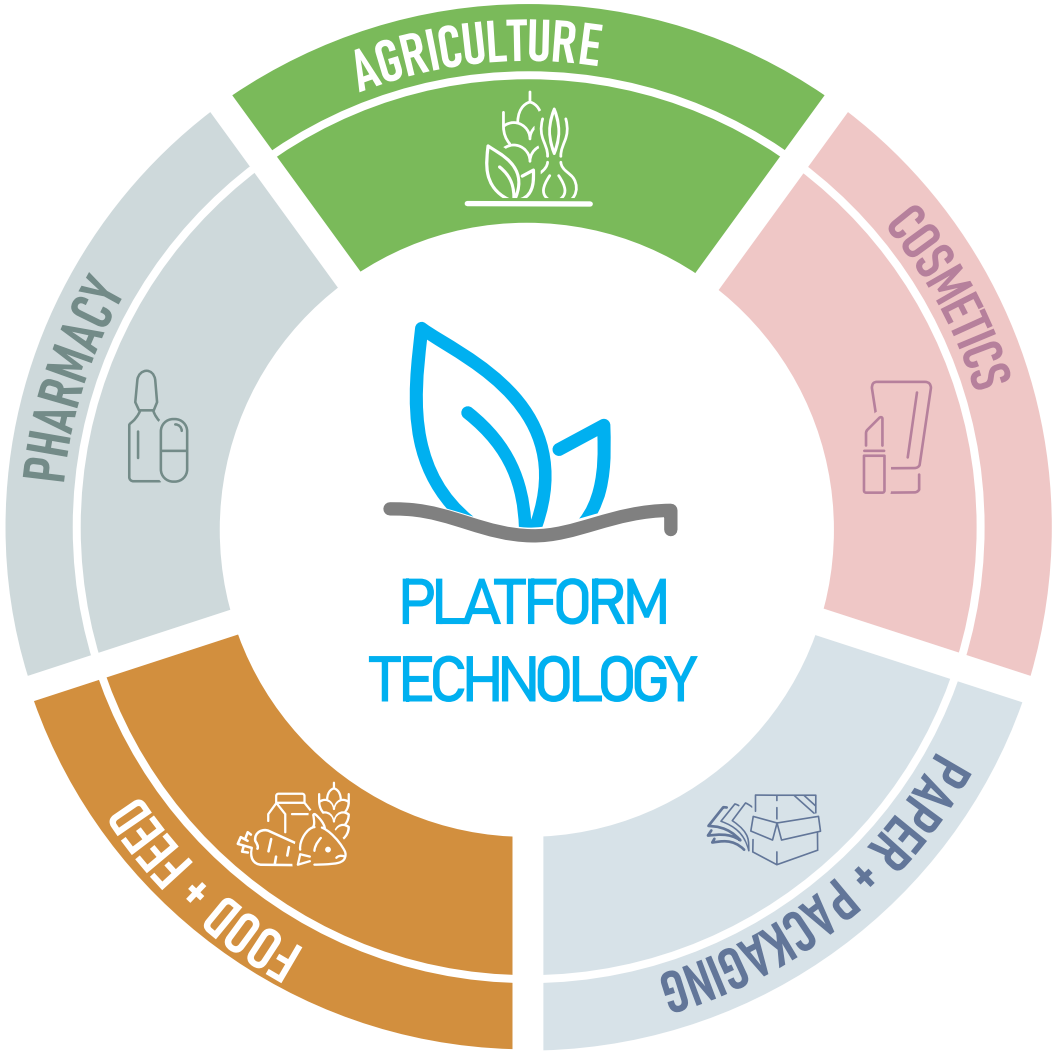
used in a variety of industries (agriculture, cosmetics, paper etc.)



Environmentally friendly

GMO-free, 100 % biodegradable, non-toxic

WHAT WE DO



ADJUVANTS

RHEOLOGY/FILM FORMING

BARRIER COATING

INGREDIENTS

COATING/SLOW-RELEASE

MODE OF ACTION

APPLICATION

Plant protection products applied together with amylofol

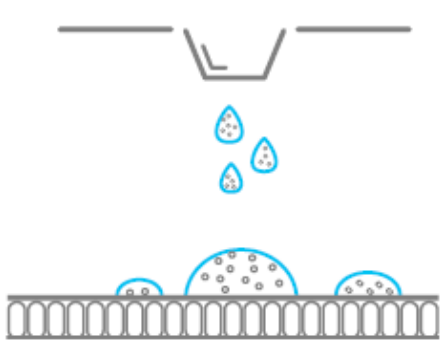
DRYING

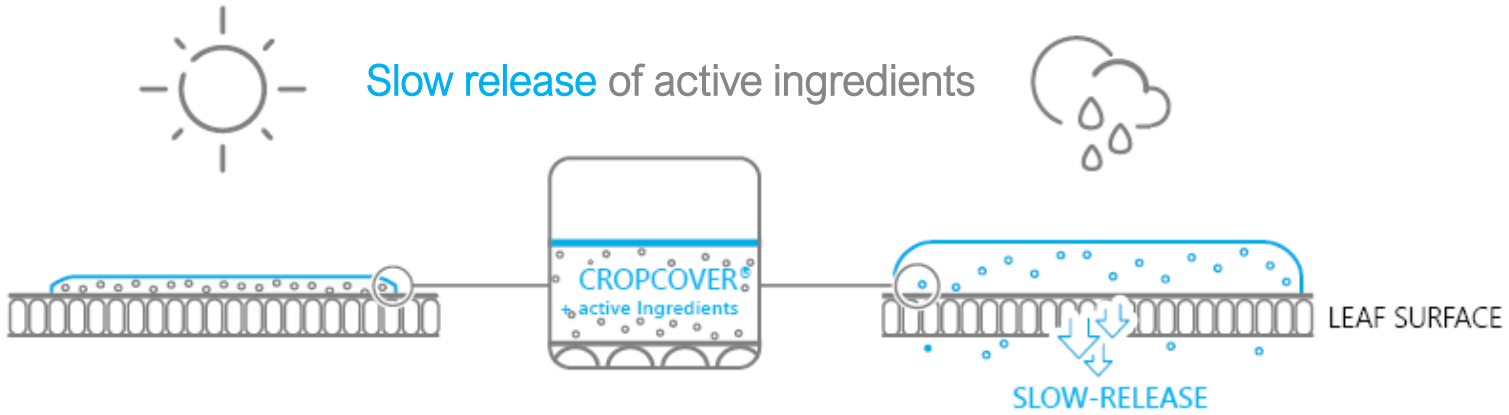
Starch film formed

MOISTURE

Gel

Prevent wash-off (Rainfastness)





OUR **USP** - MANUFACTURING PROCESS

Unique modification process of starch:

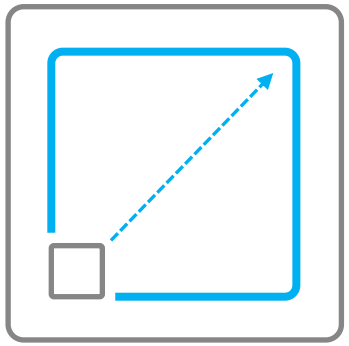
✓ uniform distribution of substituents

➢ special properties of our starch-based polymers

Highly SCALABLE PROCESS

Raw Material Availability & Security

+



Technological scalability of process

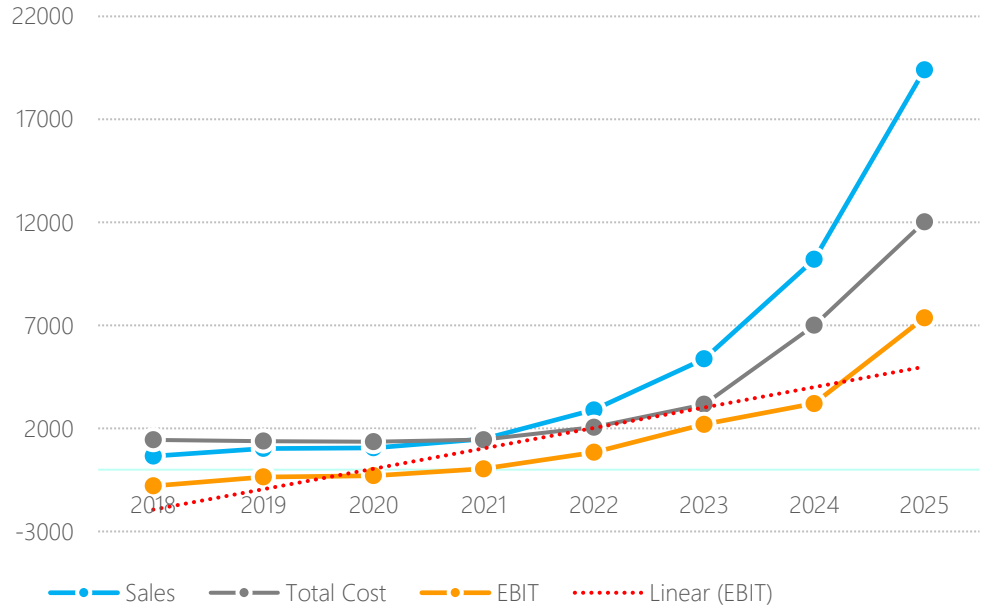
→

ECONOMY OF SCALES

FINANCIALS

	2018	2019	2020	2021	2022	2023	2024	2025
Sales	655	1030	1060	1487	1732	2036	2318	2600
Material	59	106	165	103	88	141	187	183
Staff	838	798	827	792	840	1032	1072	1173
Other Costs	550	478	363	480	607	651	804	904
Total Cost	1447	1382	1355	1273	1447	1683	1876	2076
EBIT	**-792**	**-352**	**-295**	**123**	**209**	**226**	**264**	**348**

1,000 Euros



- ALL COST TO DECREASE SIGNIFICANT WITH HIGHER VOLUME
- STEADY GROWTH OVER THE PAST YEARS

www.amynova.com

amynova_polymers_gmbh
amynova_polymers_gmbh

amynova polymers® GmbH
Seglerbogen 18
04442 Zwenkau
GERMANY

Phone: +49(0) 171 5839 449
Bernhard.Sack@amynova.com

Thank you for your attention

AGRICULTURE

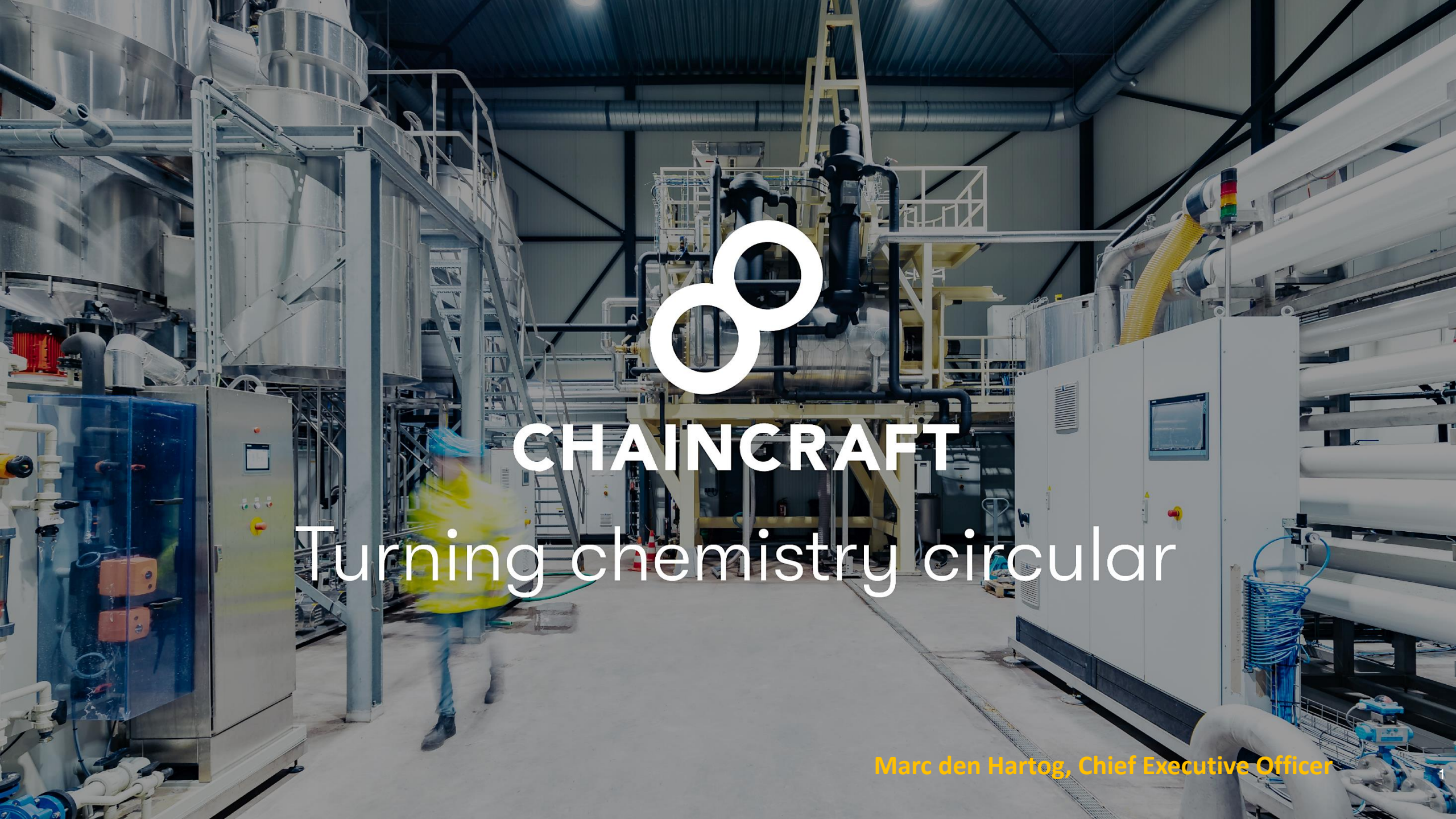
without amylofol

with amylofol®

plants grow faster (canopy closure) and display higher vitality (higher chlorophyll content)

Marc den Hartog, ChainCraft (NL)

Circular Chemicals from Food Waste



Marc den Hartog, Chief Executive Officer

Our vision

An industry in which all chemistry is circular

OUR MISSION

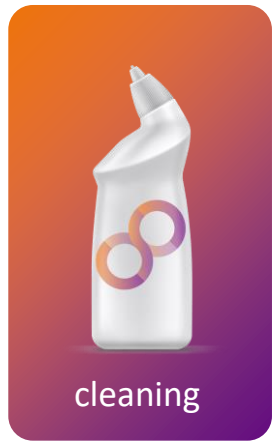
We transform bio-based waste into safe chemicals

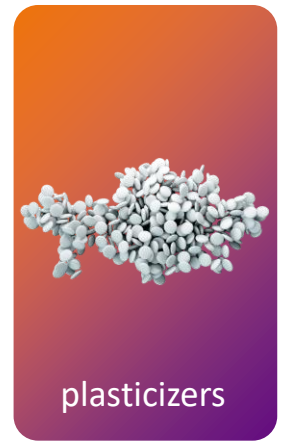
for a wide range of everyday products

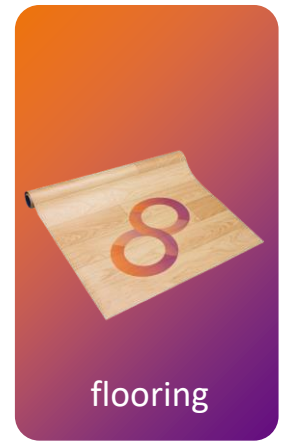
from food, feed, home & personal care

to technical products and more.

FATTY ACIDS







The chemical industry depends on crude and palm oil, resulting in...

THE PROBLEM

GHG emissions
Environmental devastation
Human rights issues

Deforestation
Biodiversity loss
Climate impact
Human rights issues

THE SOLUTION

Producing chemicals from waste

Bio-based

Circular

Renewable carbon

Local

Stable supply

Non-GMO

We have already scaled our technology

250,000x

Lab

Pilot

Commercial demo scale

250m³ REACTORS

125m³ REACTORS

Getting ready for our 1st Full Scale plant

Investment decision in 2025
Generating 20 million kgs of output

ChainCraft
Flagship plant

Lab

Pilot

Commercial demo scale

Commercial full scale

Delivering sustainable impact at scale

Upcycling waste

40-80% less GHGs

Preservation of forests

Ecover

Too Good To Waste


CHAINCRAFT
Turning chemistry circular
Thank you for your attention

Jasper Munier, Clariter (LU)

Green Chemicals from Plastic Waste


Meet clariter
November 2024

The world needs

To solve the plastic pandemic

To reduce crude dependency

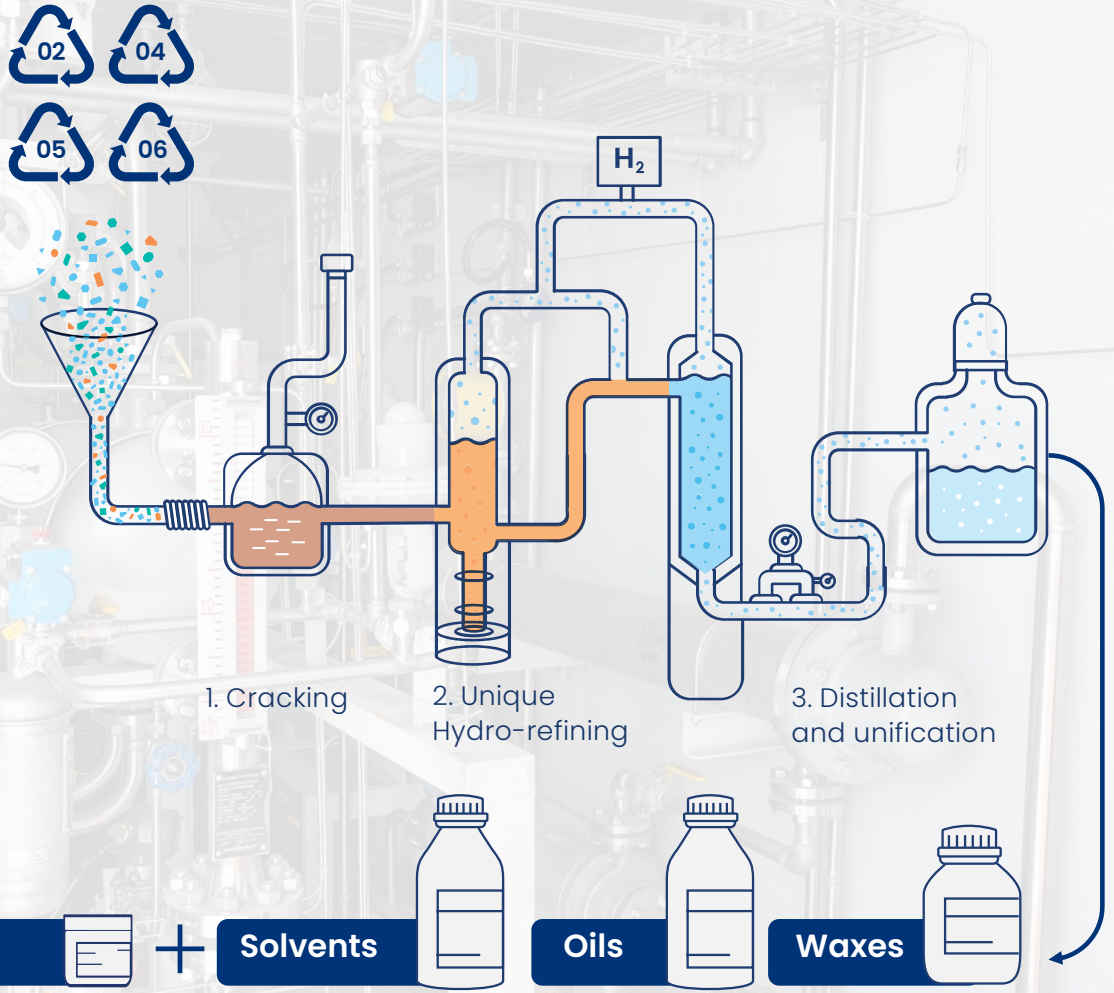
An unmatched offering

Sustainable, pure chemicals with unlimited applications

Circular, electrified production with zero reliance on crude oil

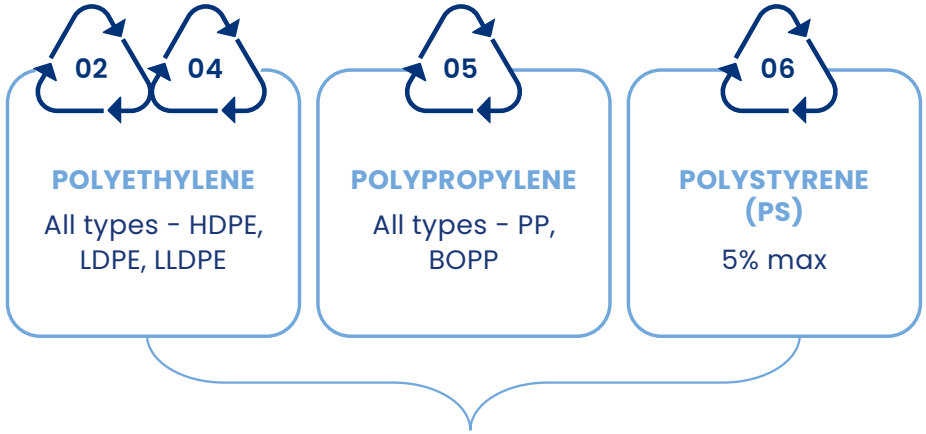
Proprietary, high-yield chemical upcycling process

Creating a **lasting impact** on the industrial, environmental and economic landscape



clariter

Clariter can handle 50% of all plastics by volume, from all streams



which constitutes ~50% of plastics made, by volume.

- Clariter can handle new plastics and recycled plastics
- Clariter can handle mixed and contaminated waste

Industrial waste

Municipal waste

Agricultural waste

Landfilled waste

(extraction and landfill rehabilitation)

Ocean plastic waste

Construction and demolition waste

clariter

From waste to raw material, to feedstock, to products

Waste streams

Sorting

Raw material

Washing, shredding, drying

Feedstock

Clariter's process

ClariProducts

Application

Consumer and industrial products

clariter

Attractive €22 billion market potential

Clariwax®

€12bn market

4% CAGR

12% Sustainable CAGR

- Food packaging
- Candles
- Auto tech
- Furniture & leather

Oilter®

€4.7bn market

4% CAGR

12% Sustainable CAGR

- Lubricants
- Cosmetics
- Personal care
- Li batteries

Solventra®

€5.2bn market

3% CAGR

12% Sustainable CAGR

- Pharmaceuticals
- Paint and ink
- Pesticides
- Cleaning & Detergents

Unlimited options for sustainable, high-value applications

Source: Third Party Commercial VDD Report, Company Information. 2030E Market Sizes by Product.

clariter

Clariter's competitive edge

High 80-85% Product Yield

Market-leading product yield

Driving an efficient, highly profitable process

Achieving ~100% Utilization Rate

Harnessing off-gases to reduce energy consumption and carbon emissions

Residue becomes a sellable byproduct

Highest Compliance & Purity Standards

Clariter products meet:

Industrial Standards

Cosmetic & Pharmaceutical purity levels (REACH)

FDA food-contact grade

Seamless product replacement

Production lines can easily be shifted from fossil-based petrochemicals to Clariter products

Distinguishing Clariter from other bio-based alternatives

Broad Plastic Acceptance

Clariter's process accepts most plastic types, including mixed and contaminated

More flexible than conventional recycling technologies

clariter

De-carbonization & emissions reduction leaders

1 ton of Clariter products will save 2 tons of CO_2 emissions

1 ton of plastic waste upcycled by Clariter contributes to avoiding 2 tons of CO_2 emissions

100K tons emissions saved Per year

75KT emissions abated from **avoided plastic disposal**

25KT emissions abated by **low carbon production** of sustainable petrochemicals

Displacing 4.2K barrels per day of crude

Clariter contributes to direct & complementary displacement of crude

Lowering reliance on crude oil

Potential add-ons carbon / plastic credits

1 ton of CO_2
~$2-50 per ton

1 ton of plastic
~$100-500 per ton

Circular economy enabler

clariter

Working with the Best

* Clariter shareholders

clariter

Key milestones

2009
IP breakthroughs
6 patents secured

2015
Partners with IDC to finance the construction of Industrial Demonstration Plant in South Africa

2017

Upgraded R&D lab in Poland starts operations

2018

Industrial Demonstration Plant in South Africa starts operations

2019
FDA purity levels passed and confirmation that products can be REACH registered

2021
Registration in UN Global Compact

Awarded Frost & Sullivan's Technology Innovation Leadership Award in European chemical recycling

2021
Capital investment and R&D partnership with AECI

2022
€1.5 Bn offtake agreement signed with Count, securing up to 100% of solvents and oils offtake for the first 4 plants

Investment and cooperation agreement with Kerax, UK's leading wax expert, and Gadot, a cutting-edge Israeli chemical company

2022
Infinity Recycling's Circular Plastics Fund invested in Clariter, providing validation from its first Article 9 investor

Cooperation agreement with Fluor, a world-class EPCM contractor for FEED and EPCM for the first 3 plants

2023
Engaged with Morgan Stanley on preparations towards an institutional capital raise to provide part of the funding for the first Clariter Plants

2023
Capital investment and strategic partnership with Flowserve, include equipment supply, engineering support, and joint development of lubricants for use in Flowserve's equipment

Clariter and TotalEnergies Fluids announced the successful development of the first sustainable ultra-pure solvent made from plastic waste, with a joint patent application submitted in late 2022

2023
Capital investment and strategic partnership with CNW, committed to developing a pilot scheme for transferring its plastic waste to Clariter.

Capital investment and strategic partnership with Summit Midstream, supporting the development and roll-out of Clariter's future US-based BOO plants

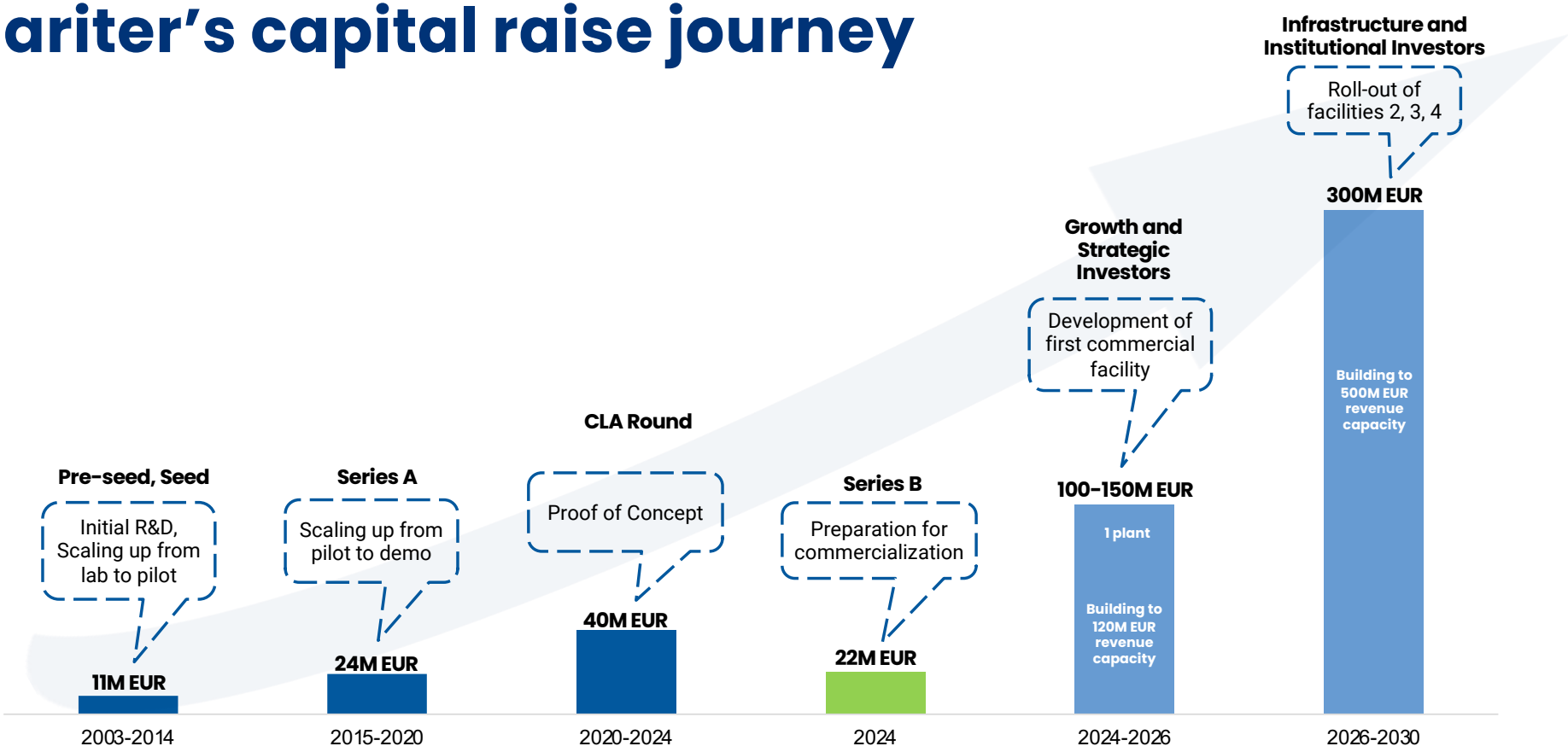
2024
Definitive agreement signed with Makpol for supply of 100% of feedstock requirements for Poland plant

MOU signed with S.A.L Real Estate for real estate partnership and civil works for the Israeli plant

Source: Company Information

clariter

Clariter's capital raise journey



Recent Investors

FLOWSERVE · INFINITY RECYCLING · SUMMIT MIDSTREAM · GADOT GROUP · AECI · CNW COURIER NETWORK

Growth Partners[1]

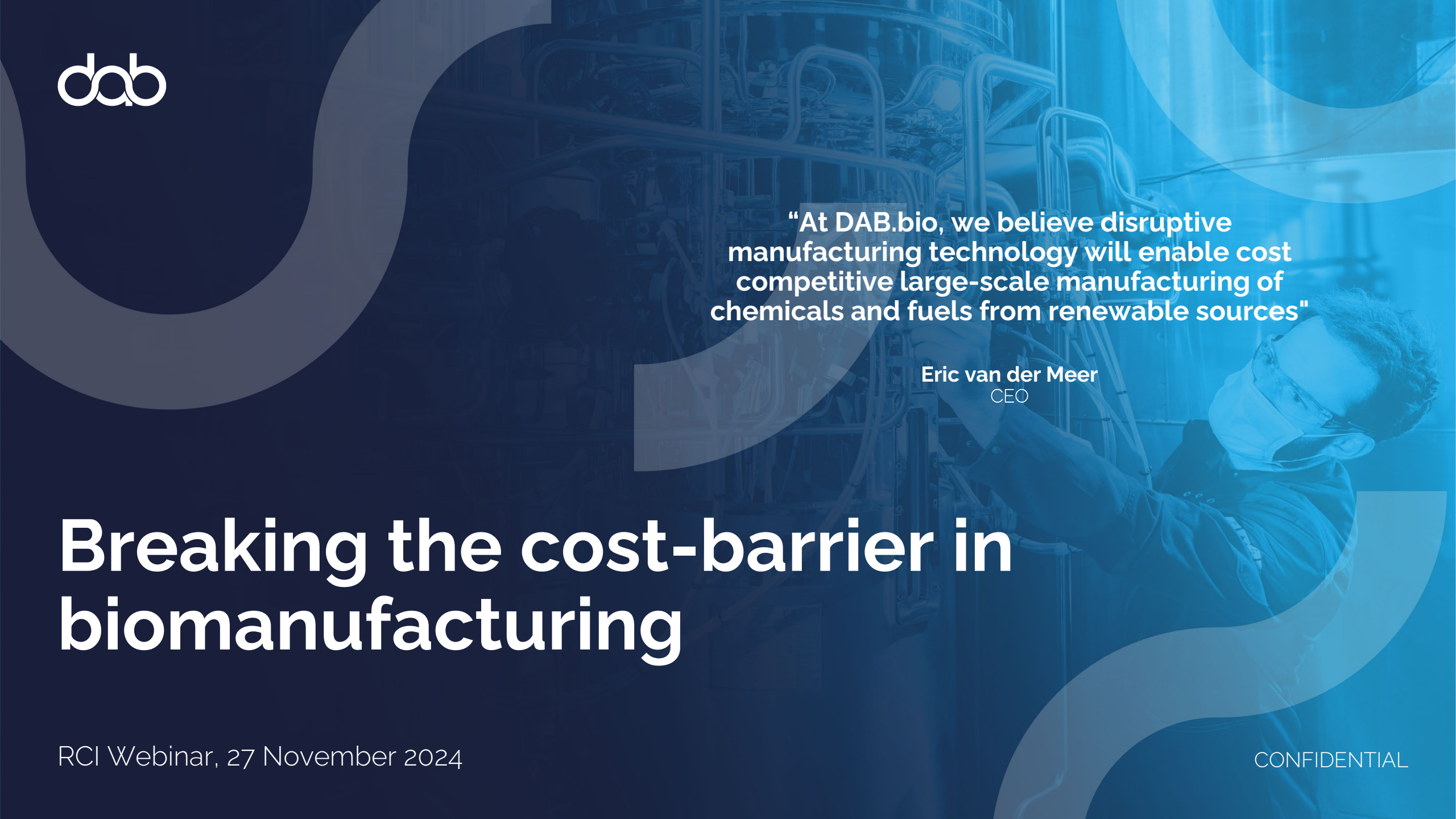
BCG · Morgan Stanley · FLUOR

clariter


clariter
A clean future. Now.
Let's connect!
Jasper Munier | Business Development Director
+31 6 129 74 125
Jasper.Munier@clariter.com
www.clariter.com

Willem-Jan Meijer, DAB.bio (NL)

Advanced Fermentation Process Solutions



"At DAB.bio, we believe disruptive manufacturing technology will enable cost competitive large-scale manufacturing of chemicals and fuels from renewable sources"

Eric van der Meer
CEO

Breaking the cost-barrier in biomanufacturing

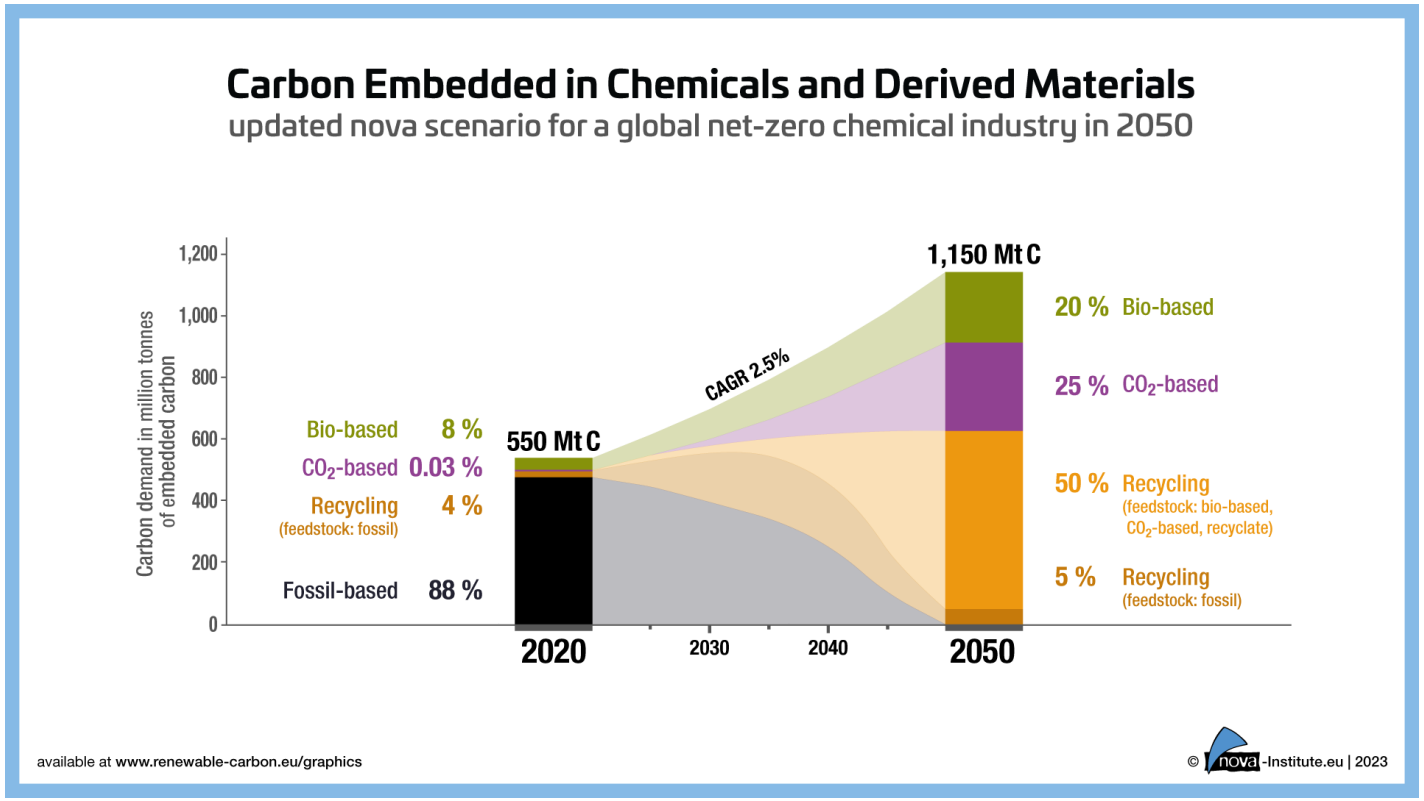
RCI Webinar, 27 November 2024

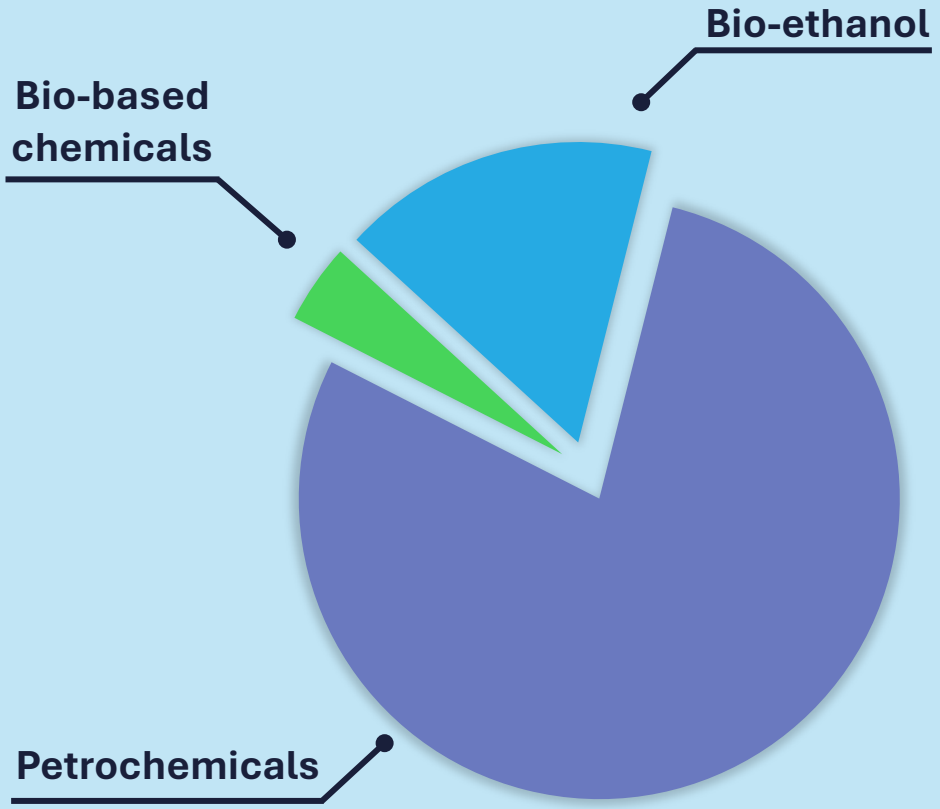
CONFIDENTIAL

Introduction

- DAB.bio is a spin-out from the Technical University Delft
- Founded in 2012 on the premise to make biomanufacturing cost competitive
- Currently, the FAST™ technology operates at TRL7 demo-scale at Bio Base Europe Pilot Plant
- 7 Patent families cover the FAST™ technology design and mode of operation
- The FAST™ technology design is ready for implementation at industrial scale
- DAB.bio licenses out its technology, assists clients with the implementation and offers lab equipment

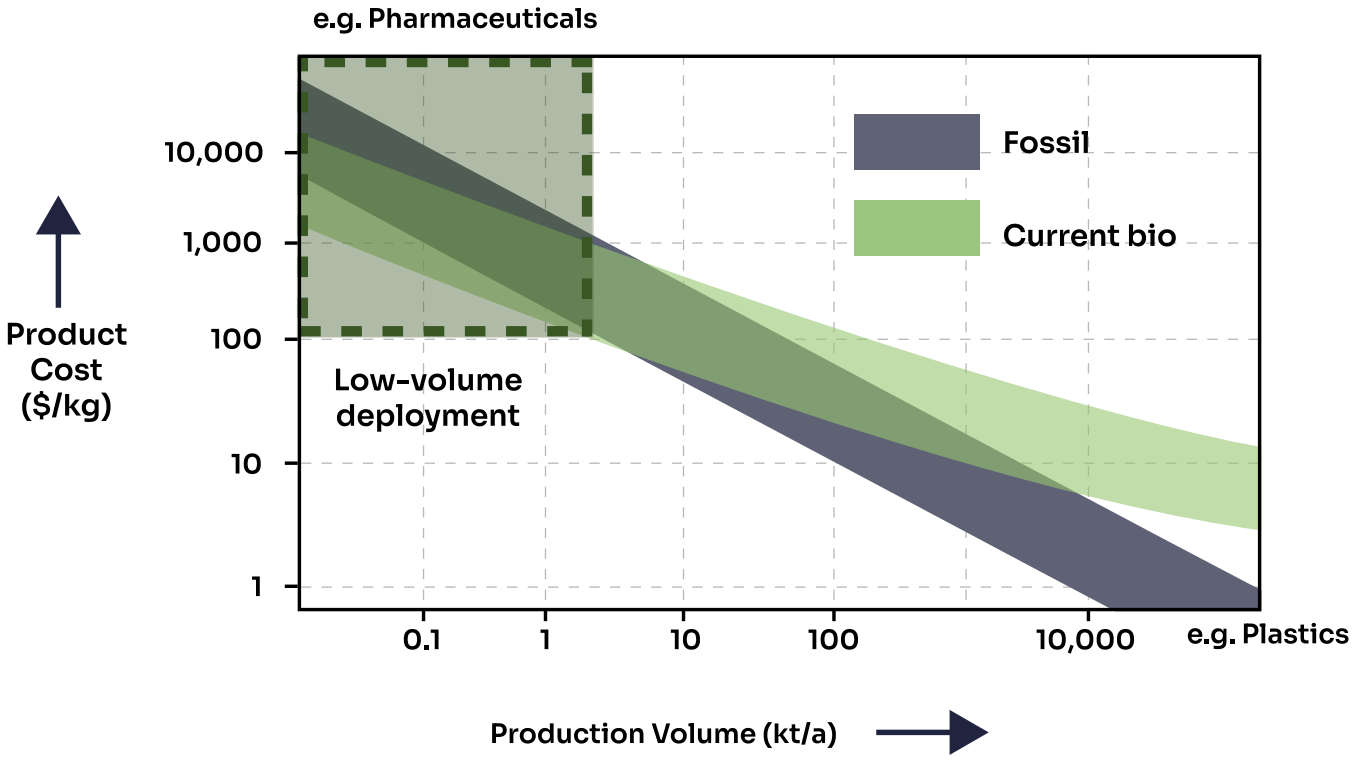
Biomanufacturing of chemicals hasn't scaled much… but needs to multiply manifold to 2050





Global production volume in 2022

Current fermentation technology largely restricts biomanufacturing to low-volume applications

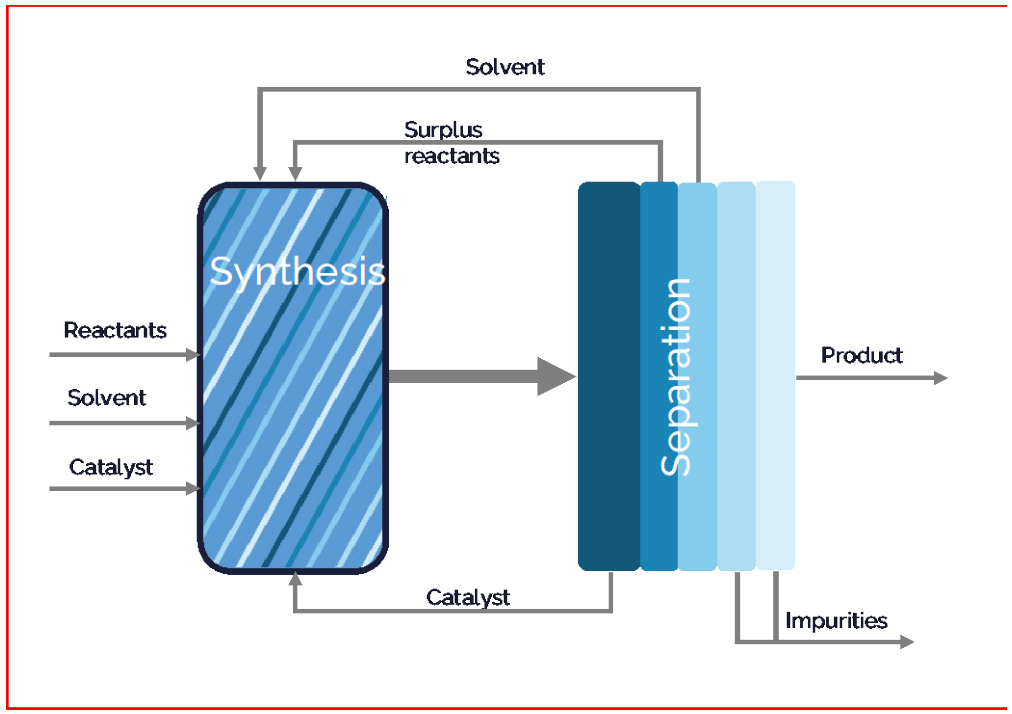


Interpretation from 2024 Synonym-BCG report: [Breaking the Cost Barrier on Biomanufacturing | BCG]

Cost-disadvantage has fundamental causes

- ✗ Low reactor productivity
- ✗ Low carbon intensity
- ✗ Diluted streams
- ✗ Batch processing

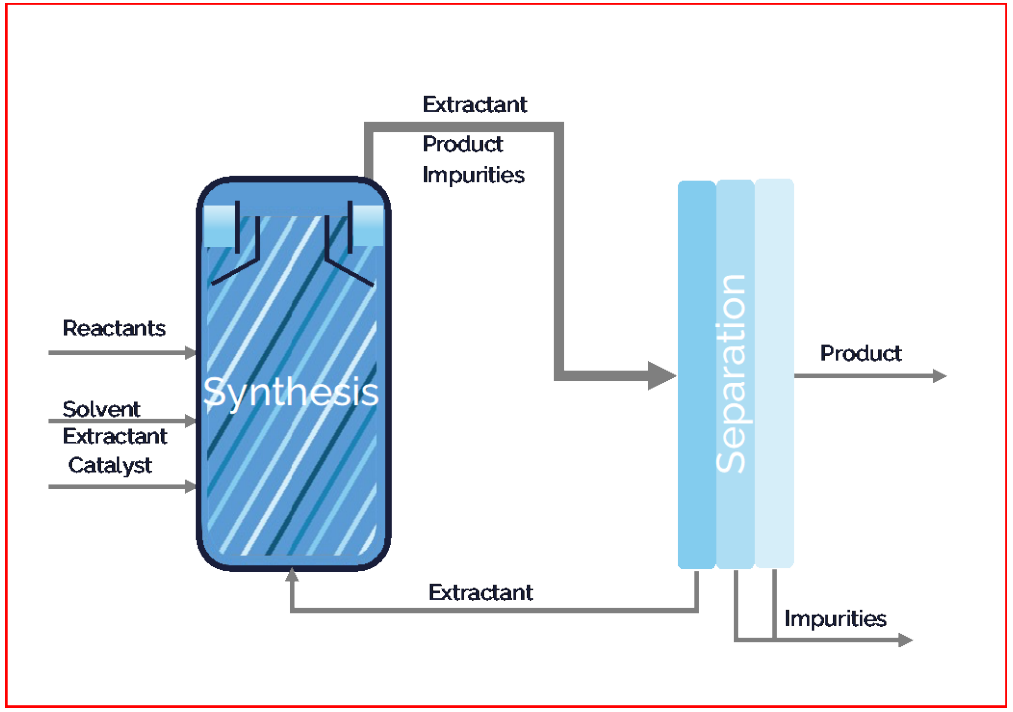
Learnings from classical chemistry



Holistic view on synthesis and product recovery. Overall optimum is the goal

- ✓ Continuous, steady state
- ✓ Integration of synthesis and recovery
- ✓ Catalytic
- ✓ Intensified

Leads to fermentation enabled by continuous in-situ product removal



Holistic view on synthesis and product recovery. Overall optimum is the goal!

FAST™ technology enables ISPR through separation in the reactor

- ✓ **Continuous substrate addition and conversion**
- ✓ **Integration -> ISPR via recycling of extractant**
- ✓ **Catalytic -> micro-organism**
- ✓ **Intensified**

FAST™ emulates chemicals manufacturing

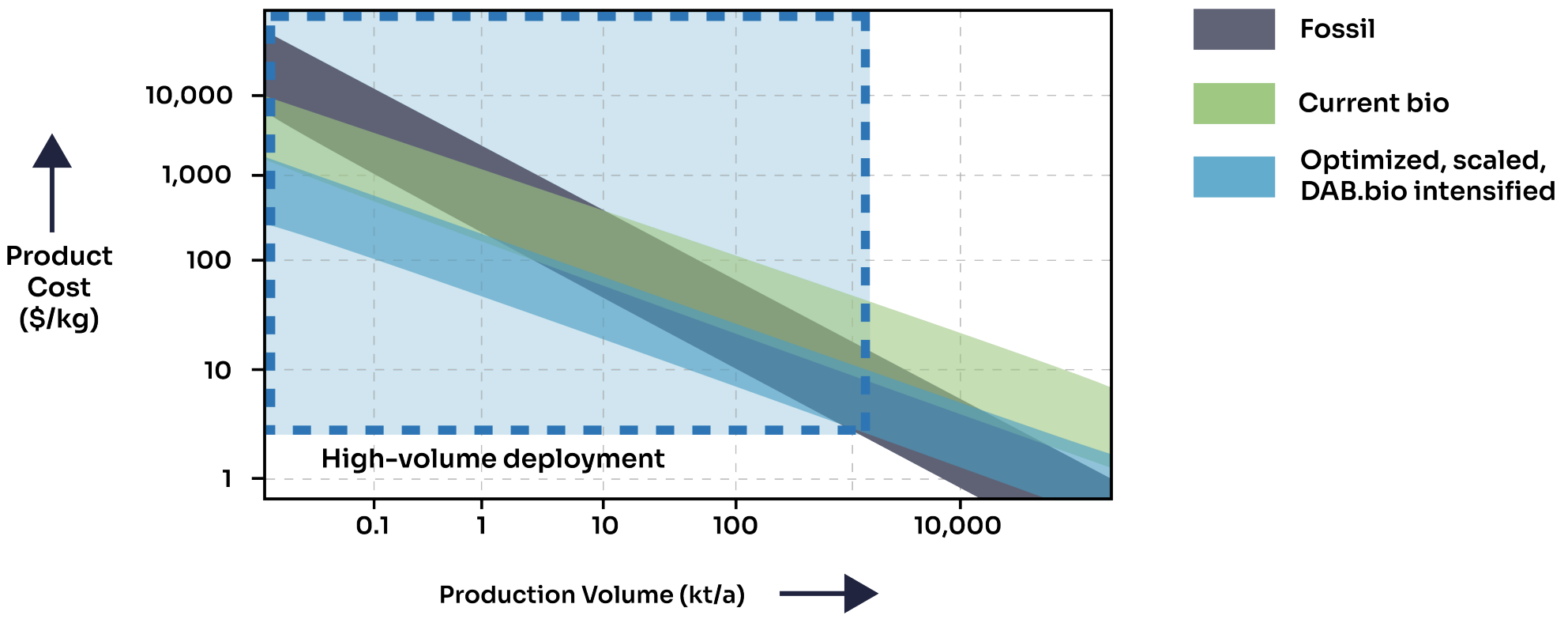
FAST™ technology
- Continuous extraction
- Intensified process

Results in
- Concentrated streams
- Superior operation and productivity
- Reduced role of water
- Vastly increased CAPEX & OPEX efficiency

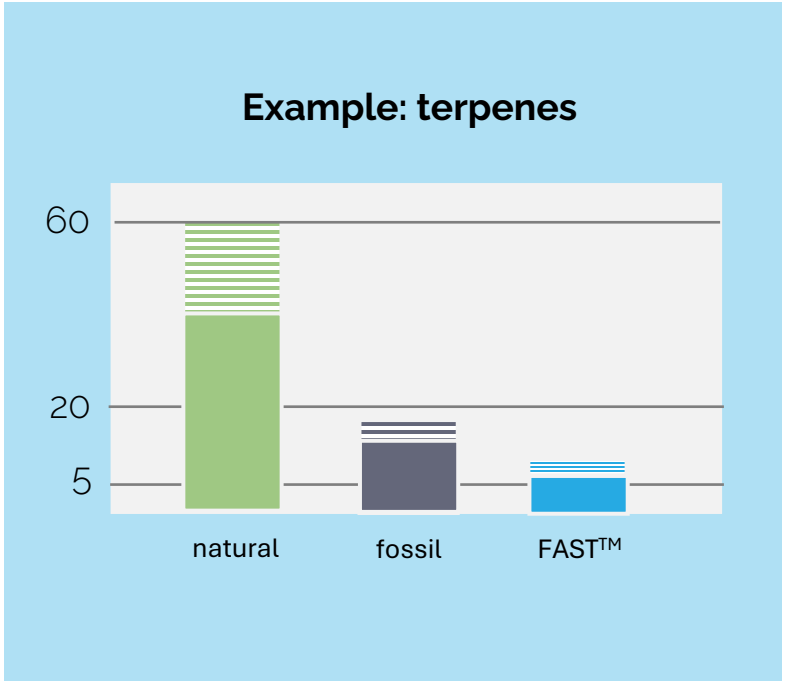
Game-changing impact, overcoming biomanufacturing barriers

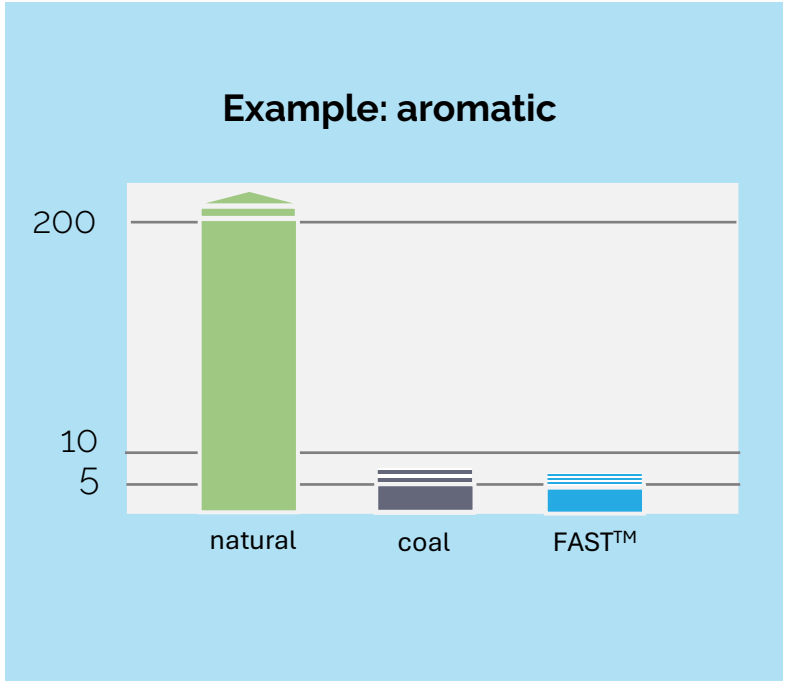
- Up to **10+** times more product per m3 fermenter
- **50-80%** improved energy & water consumption
- Reduced stream size and lower energy requirements for DSP
- Hitherto unattainable product cost of goods
  - Below **$/kg 5** now
  - **$/kg 2** in future

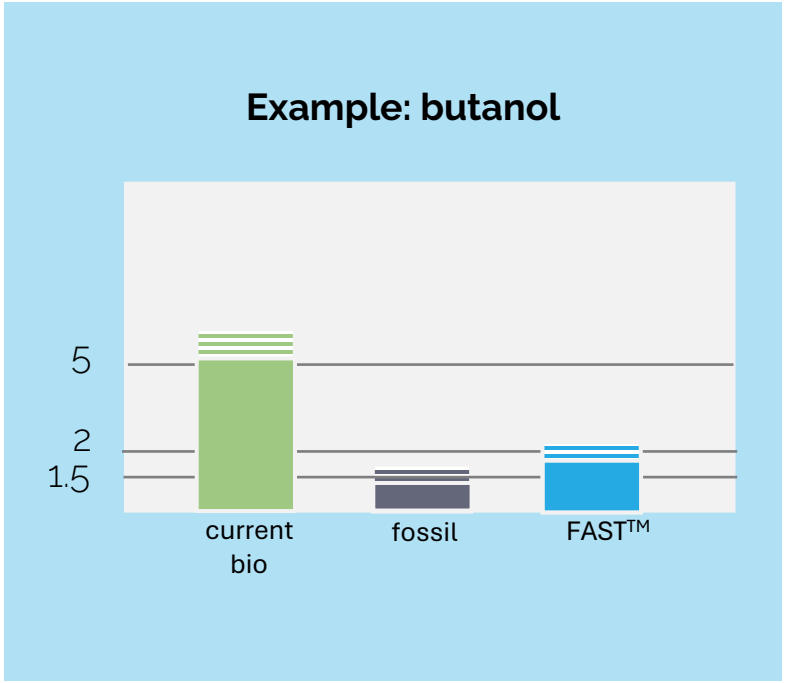
DAB.bio breaks the cost barrier and unlocks high-volume biomanufacturing



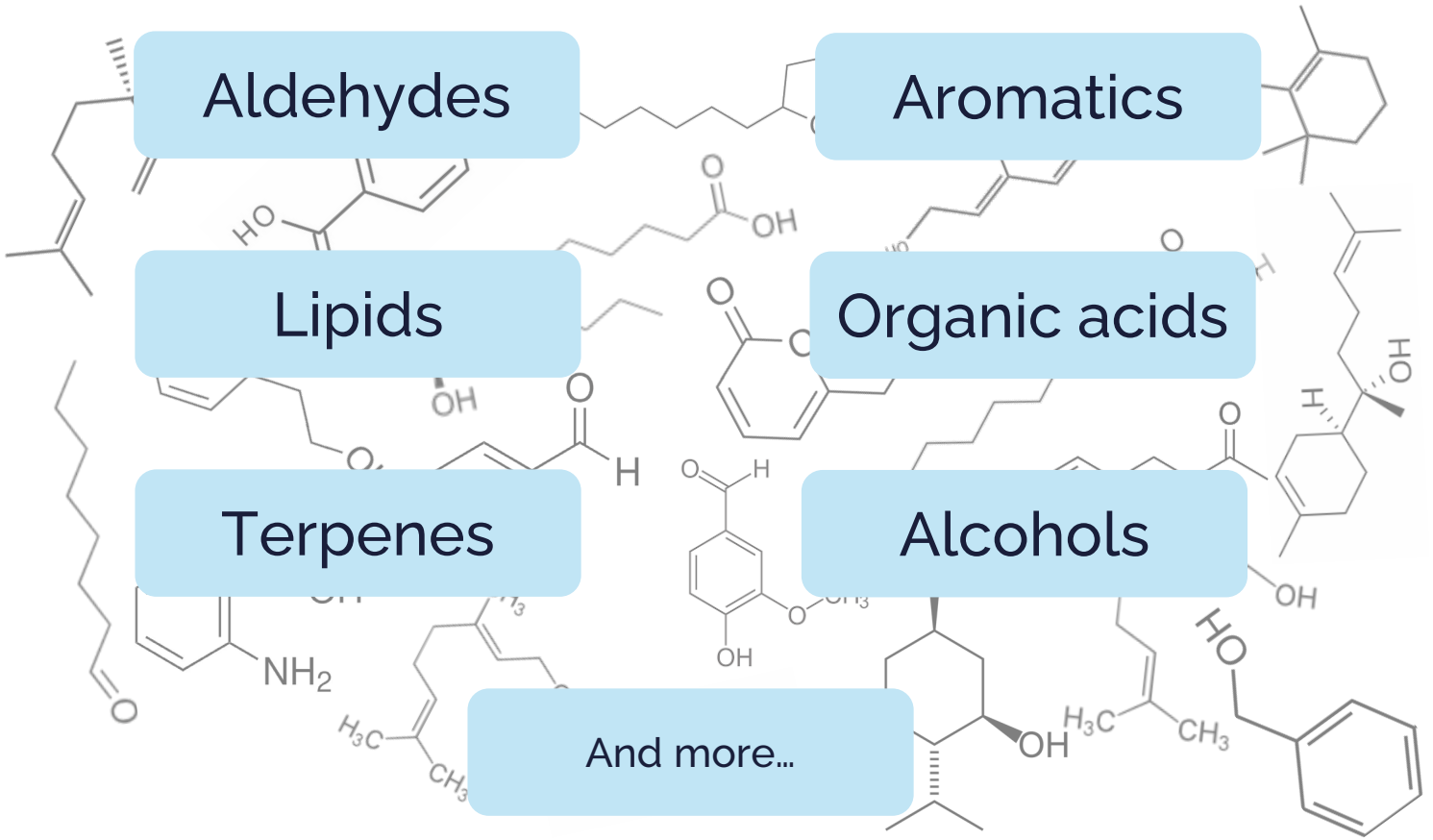
FAST™ dramatically reduces cost price of biobased chemicals and fuels

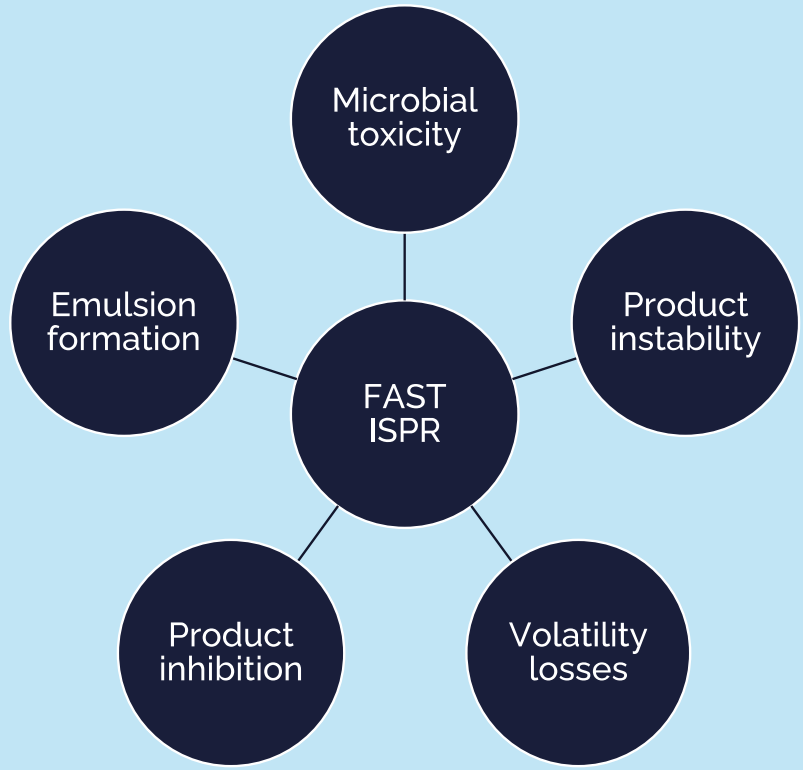




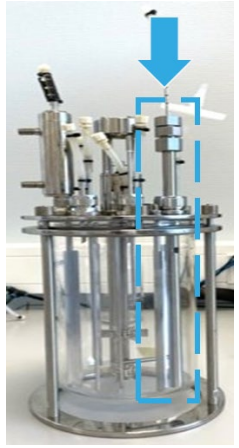


FAST™ technology is process agnostic and applicable for numerous compounds





Begin with the end in mind – from lab equipment to industrial deployment



ISPRIN

A tool to enable continuous/ periodic removal of an extractive phase in an existing reactor

FASTMINI

A benchtop reactor designed to enable the study of the conditions of industrial-scale FAST systems (scale-up/scale-down)

DAB.bio support available!

- Successful deployment through technology licensing and subsequent engineering, implementation and operational support
- Scale to commercial application or intermediate demo volumes, dependent on requirements. DAB to facilitate at BBEPP
- Comprehensive development program at lab and pilot scale to optimize strain, process and product, incl. DSP process design
- Initial proof of concept based on conceptual design, incl. TEA and risk assessment. Followed by validation at lab and pilot scale

Recap

- DAB.bio vision to enable **large-scale** biomanufacturing through FAST™
- FAST™ enables **unmatched cost levels** for fermented products
- It's **fundamentally** different from (fed-)batch, and requires new thinking
- **Impact** delivered through renewable feedstock and superior productivity metrics
- FAST™ is **ready** for industrial deployment with proven cost of product gains
- Lab equipment to experiment, develop and learn are commercially available – **begin with the end in mind**

THANK YOU

Get in contact

Willem-Jan Meijer
meijer@dab.bio

dab.bio

Rob Marrow, Econic (UK)

Transforming CO_2 Into High-performance Materials

Redeeming CO_2

Redefining essential products - for good

RCI Presentation
Nov 2024

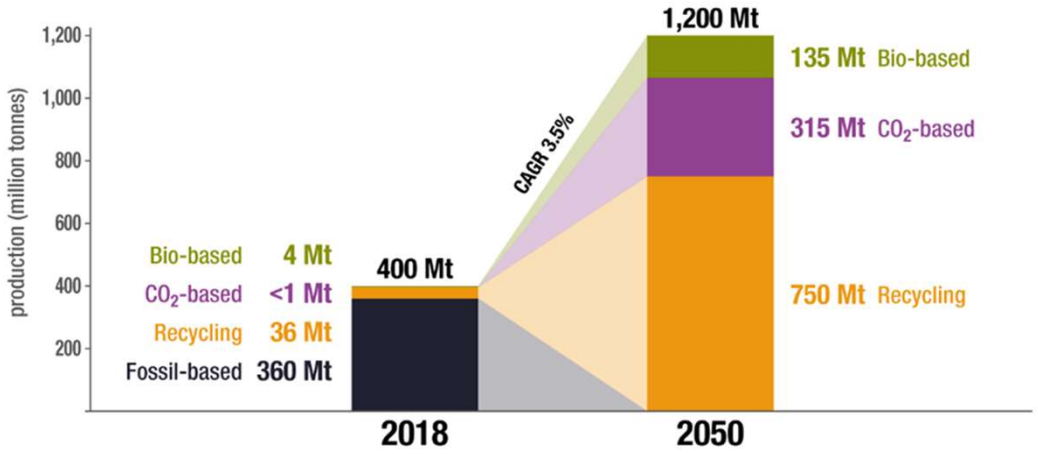
econic





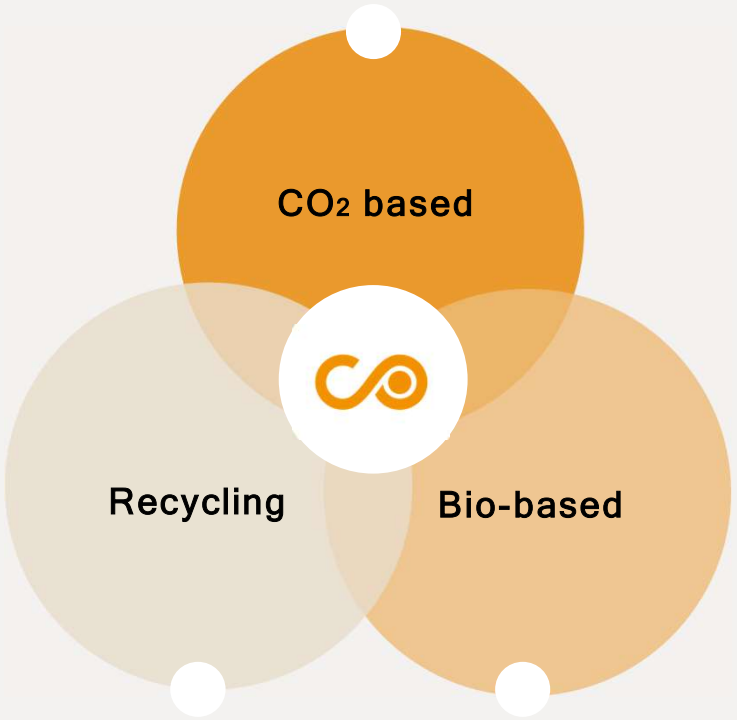
RENEWABLE CARBON: CO_2 AN ESSENTIAL PART

World Plastic Production and Carbon Feedstock



The virgin plastic production of 364 Million t in 2018 will increase to 450 Million t in 2050, completely based on renewable carbon. The total demand for plastics of 1,200 Million t in 2050 will be mainly covered by recycling.

Adapted from the nova institute work available:
www.renewable-carbon.eu/graphics



ECONIC PROCESS

Traditional surfactants: Oil + Oleo Feedstocks

Econic's Renewable Carbon Products

Renewable Carbon + Bio / Recycled Products

Conventional process for polymers with oil- and/ or oleo-based raw materials

Econic's process with captured recycled CO_2

Our catalyst transforms inert carbon dioxide into a reactive feedstock; replacing epoxide and oleo raw materials in the surfactant production process.

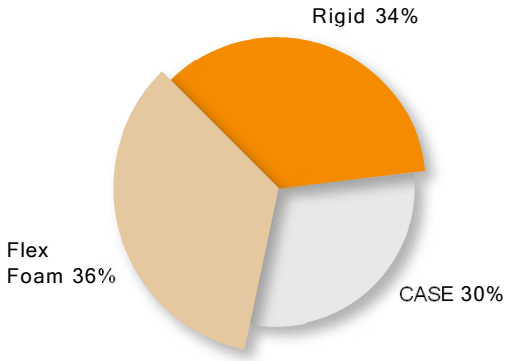
Econic's process with captured recycled CO_2 is synergistic with bio and recycled raw materials.

The use of bio-sourced feedstocks, in combination with CO_2, can result in 100% renewable and recycled carbon surfactants.

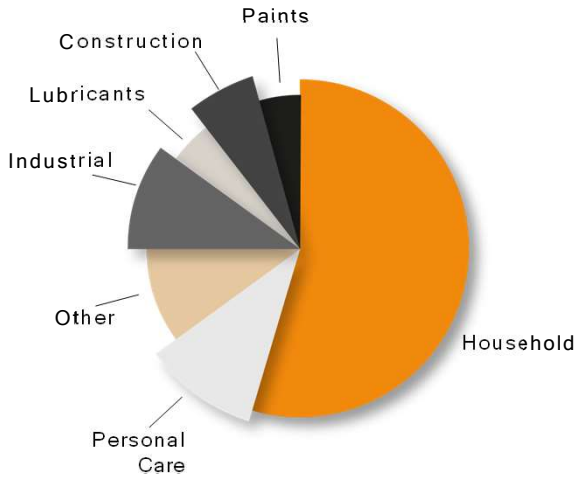
econic

RESILIENT GROWING GLOBAL TARGET MARKETS

#1 ADDRESSABLE MARKETS



Polyols for Polyurethanes,
11 MM T $28 Bn pa



Surfactants & Lubricants
10 MM T $20 Bn pa

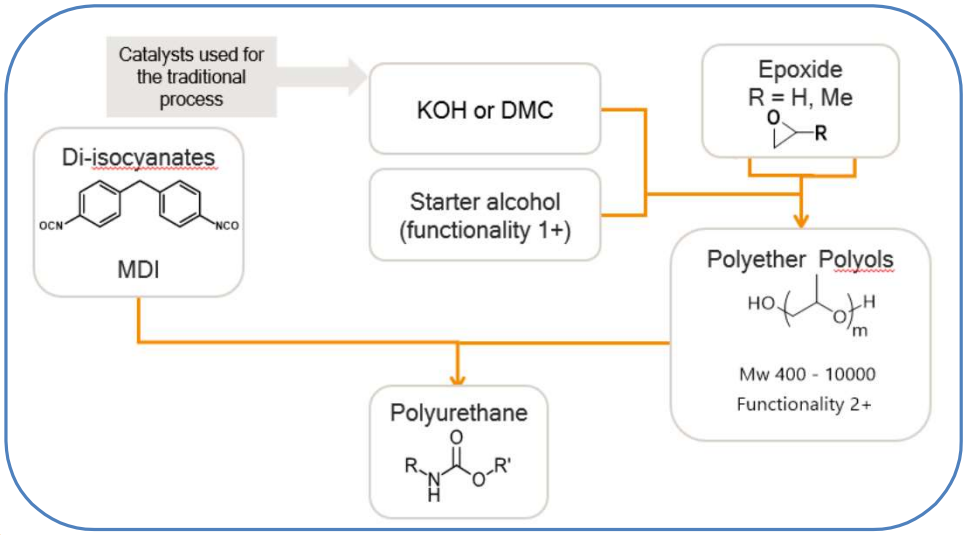
FUTURE MARKETS

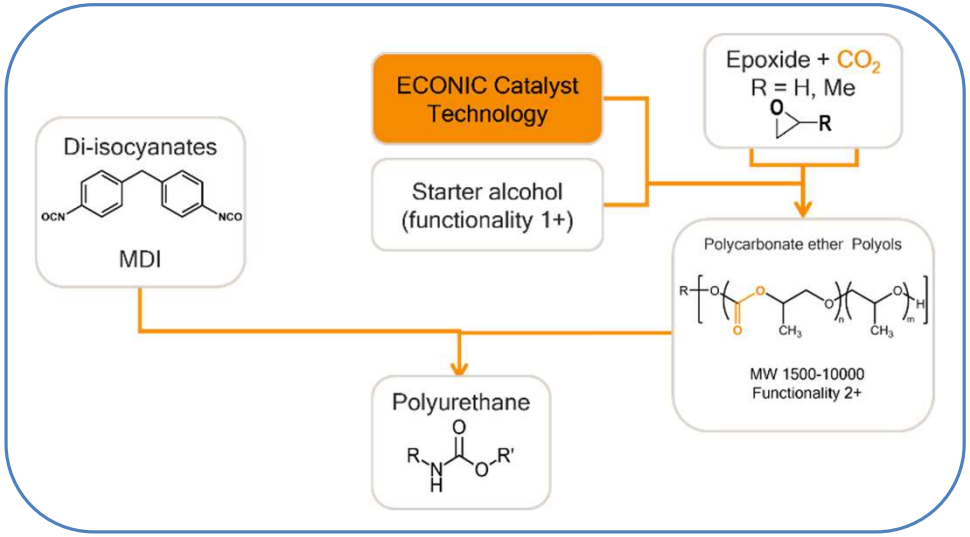
THERMOPLASTICS MARKET

econic

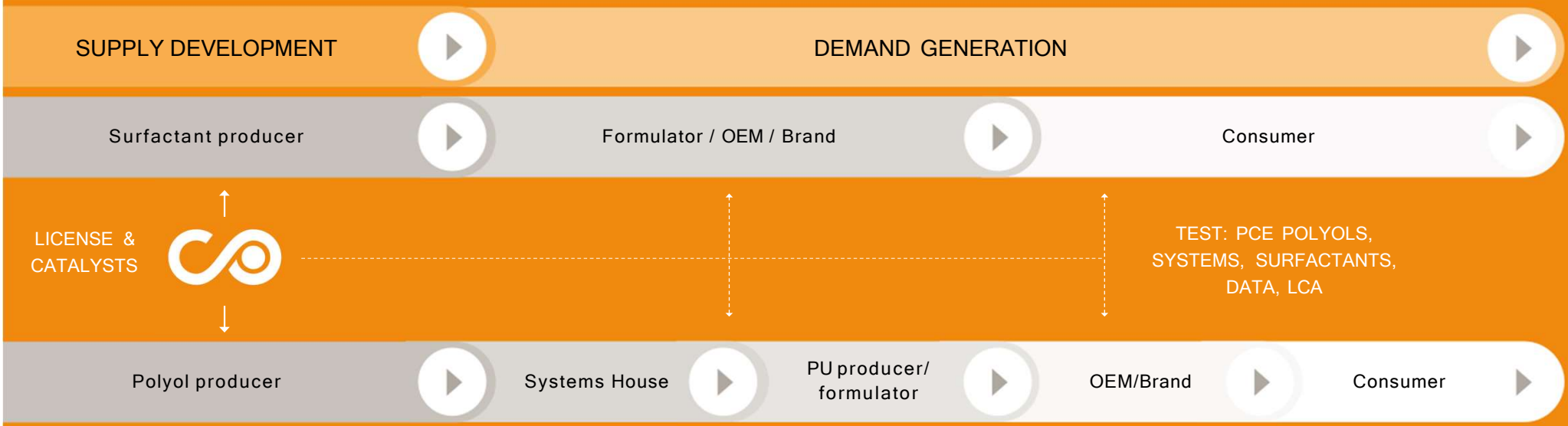
THE ECONIC POLYOL PROCESS

Econic's technology fits into existing polyether polyol equipment and supply chain





FOCUSED ASSET LIGHT BUSINESS MODEL



ECONIC BUSINESS MODEL

- CATALYST SALES
- LICENSING
- TECHNICAL SERVICE – support from plant start-up through to ongoing operation

ACCELERATING BUSINESS DEVELOPMENT

- We drive disruptive technology with the whole supply chain to develop and provide sustainable CO_2 containing solutions

econic

Thank you.

econic

Redeeming $C0_2$

Redefining essential products - for good

Florian Hildebrand, Greenlyte Carbon Technologies (DE)

Dual-Product DAC Process for CO_2 and H_2

Greenlyte

Fueling circular carbon.

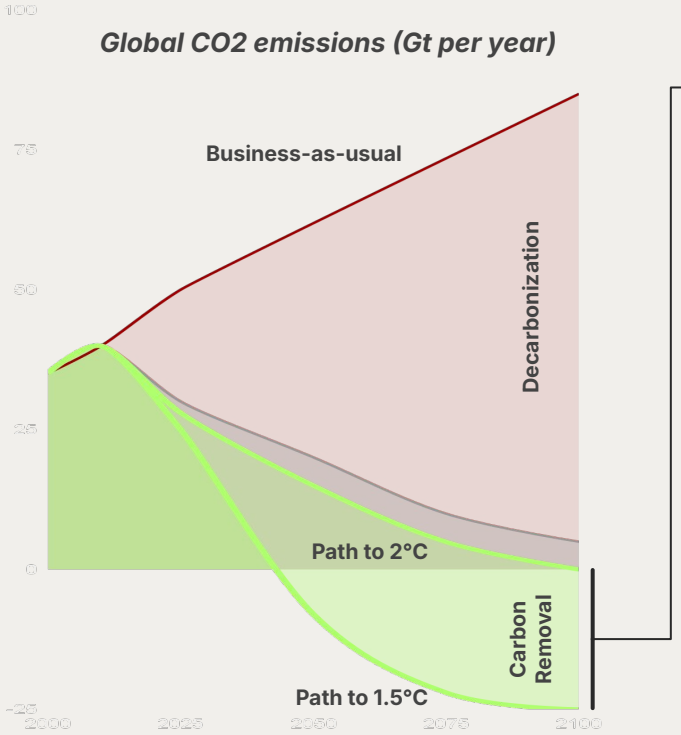
November 2024

We have rapidly achieved major milestones since our founding in September 2022

Early investments from

AENU · CARBON REMOVAL PARTNERS · EARLYBIRD · EFRE.NRW · GREEN GENERATION FUND · PARTECH

Direct air capture is essential to meet climate targets and opens up huge market opportunities



CO2 removal is a necessity

10 billion tonnes CO2

per year must be removed to hit climate targets

Carbon Utilization	Negative Emissions
Decarbonizing transportation	Balance inevitable emissions
Feedstock for chemicals	Reverse historic emissions
...	...

Opportunity

>$1 trillion market

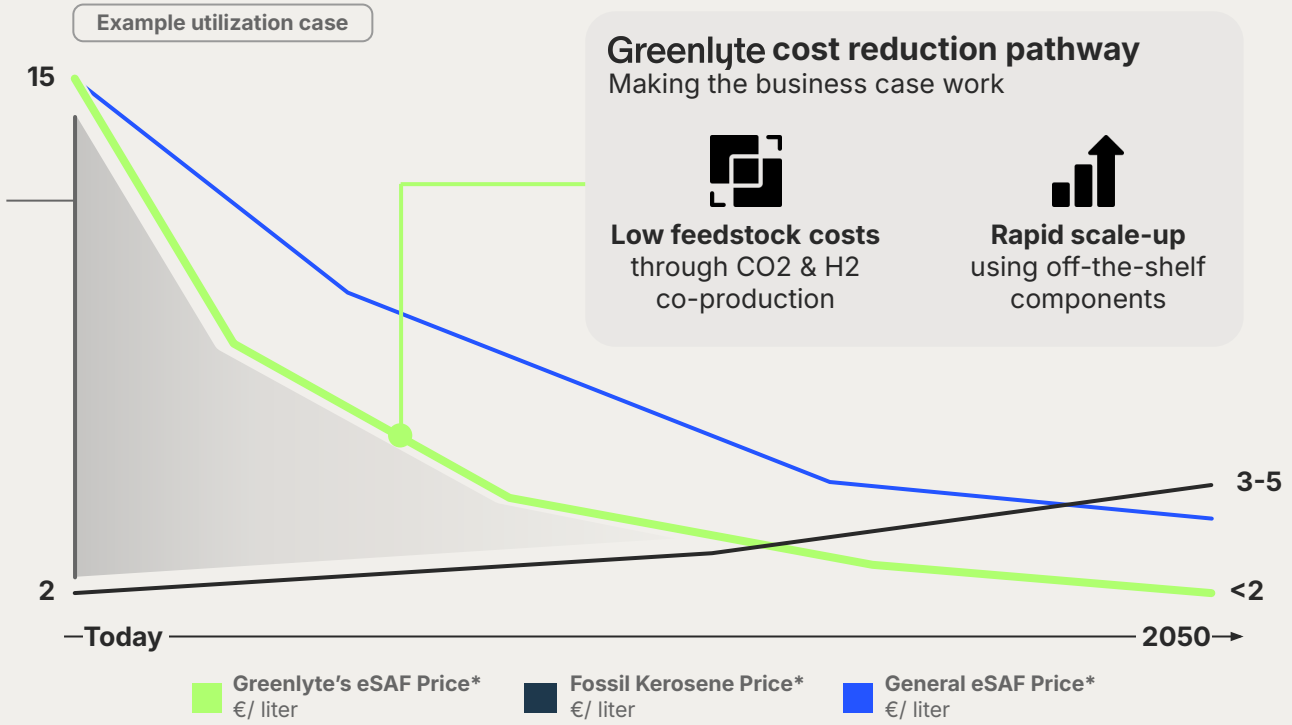
per year by 2050

(2024) "State of Carbon Dioxide Removal"

The pathway to utilize green molecules has immense potential but remains costly

Expensive Green Molecules

are significant barrier to the exploitation of utilisation pathways, offering substantial untapped potential for cost reduction



Greenlyte cost reduction pathway
Making the business case work

Low feedstock costs through CO2 & H2 co-production

Rapid scale-up using off-the-shelf components

*eSAF = Sustainable aviation fuel made from carbon feedstock sourced from DAC; *indicative development*

Greenlyte's technology will radically bring down costs of green molecules

How it works

1. Absorption

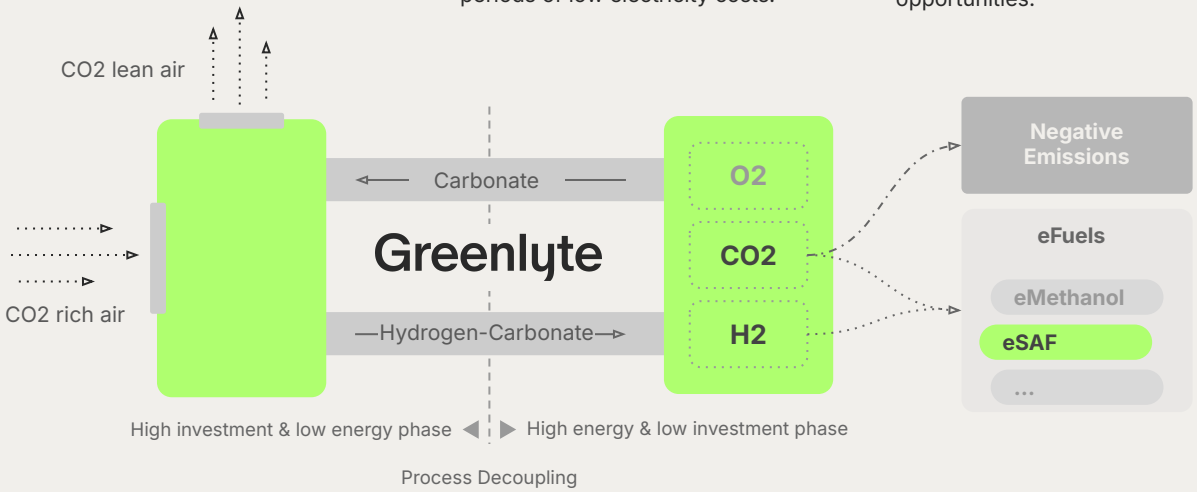
Our efficient chemical absorption uses less energy and can be continuously run to capture CO2 rich air.

2. Desorption

Desorption & electrolysis produces CO2 with H2 as a byproduct. This process can be dynamically operated during periods of low electricity costs.

3. Downstream

Captured carbon can be stored or used as feedstock for diverse applications, including eFuels, capitalizing on massive market opportunities.



Advantages

CO2 & H2 co-production
enhances downstream integration and delivers substantial reductions in both CAPEX

Minimal energy demand
of 700 kWh per ton of CO2 enables super-efficient operation / super low opex

Process Decoupling
enables the full utilization of wind and solar energy anywhere in the world, maximizing the efficiency of CAPEX investment

Rapid up-scaling
enabled by utilisation of industrially proven components such as crystallizers, centrifuges, and pumps

We progressed from lab experiment to demonstration scale in less than two years

Lab Scale

Nov 2022

1t CO2 p.a.

June 2023

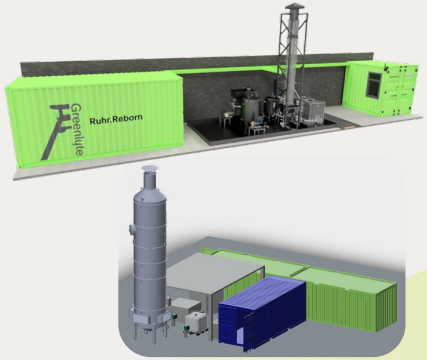
100t CO2 p.a.

Nov 2023

up to 2kt CO2 p.a.

Sep 2024

We want to be the leading DACU company



Our in-house labs and testing facilities enable super fast development speed

In-House Research

In-house labs and research test benches enable research cycles at high pace

On-Site Workshop & Plants

On-site manufacturing enables local plant development, scaling, and large experiments

We are a team of 50+ passionate researchers, engineers and entrepreneurs

Founder

Florian Hildebrand

CEO

Proven serial entrepreneur with strong industrial / business scaling track record and exceptional sales skills

Founder

Dr. Peter Behr

CSO

Leading researcher with over 15 years of carbon capture experience, various relevant publications and scientific accomplishments

Founder

Dr. Niklas Friederichsen

CTO

Experienced tech entrepreneur with expertise in bringing complex B2B products to life. Research track record in Material Chemistry and Operations Management

50+ People

20+ Engineers

10+ Scientists

10+ Business

Universität Duisburg Essen · Harvard University · University of Wisconsin-Madison · SpaceX · Evonik Kraft für Neues

RWTH Aachen University · Goethe Universität Frankfurt am Main · Massachusetts Institute of Technology · Volocopter · accenture

Imperial College London · Berkeley University of California · CBS Copenhagen Business School Handelshøjskolen · Qualifyze · McKinsey&Company

Greenlyte contributing to major SDGs

Economic Goals

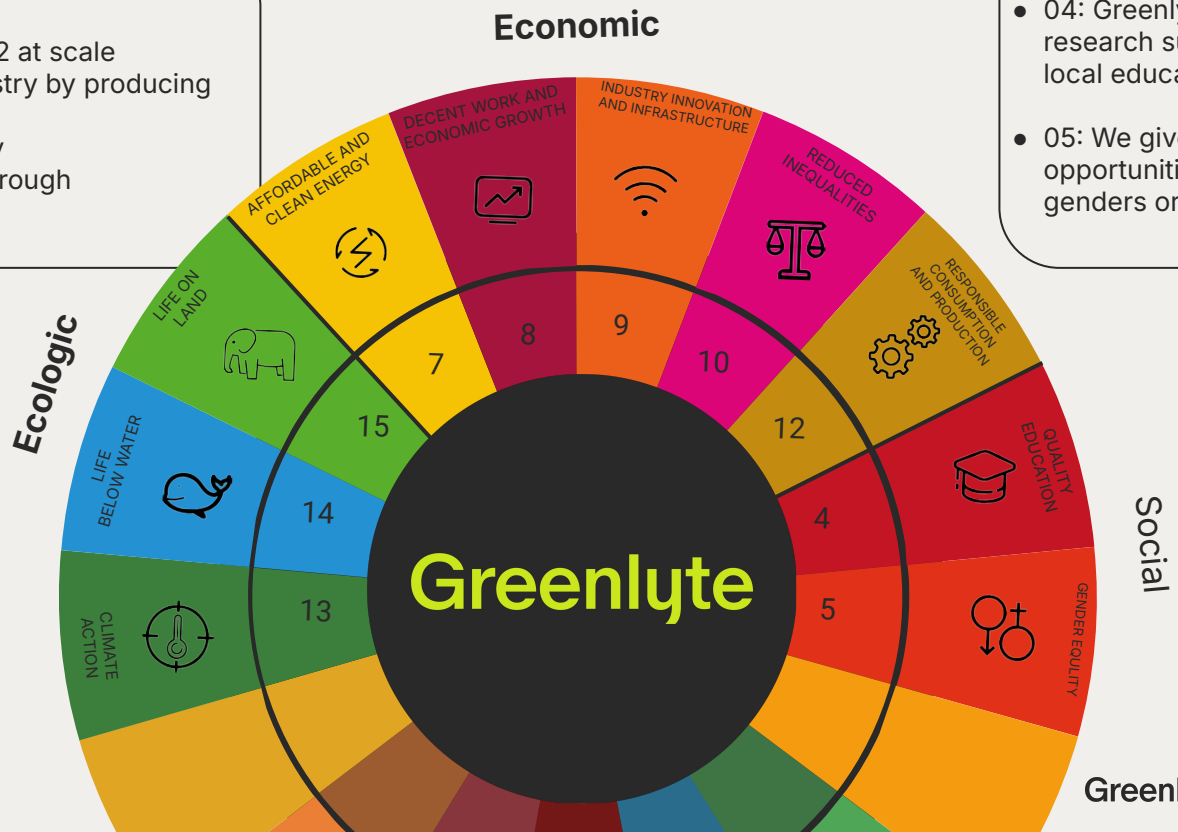
- **07**: Sustainable and affordable CO2 at scale
- **08**: DACU enables a sizeable industry by producing sustainable feedstock
- **09**: Innovation through technology
- **12**: Climate neutral consumption through sustainable feedstock

Ecologic Goals

- **14** & **15**: Sustainable Power-to-X to save ecosystems from exploitation
- **13**: By reducing atmospheric CO2

Social Goals

- 04: Greenlyte's research supports local education
- 05: We give opportunities across genders or ethnicities



Highlighted successes

Coverage in 70+ News Outlets

Greenlyte on Time Square
(Norrsken Impact/100 Startup)

Conversation with Vice-Chancellor
Robert Habeck

Ex-Finance Minister Christian Lindner
visits Greenlyte HQ in Essen

Backed by leading investors and global champions

Investors

AENU
CARBON REMOVAL PARTNERS
EARLYBIRD
EFRE.NRW
GREEN GENERATION FUND
PARTECH

Partners

PHOENIX CONTACT
wilo
iqony
uniper
ZBT
atmosfair
5-HT Digital Hub Chemistry & Health
klöckner & co
RITTAL
DACStorE
ESSEN WIRTSCHAFT
ifm
H2UB
STÄUBLI
ZUKUNFT GAS
EVONIK

Associations & Network

AIRMINERS
Carbon Business Council
Direct Air Capture Coalition
RWTH AACHEN UNIVERSITY
RENEWABLE CARBON INITIATIVE
aireg Aviation Initiative for Renewable Energy in Germany e.V.
CO2 VALUE EUROPE

Amir Oranim, TripleW (IL)

Highly Pure Lactic Acid and Lactate Salts via Food Waste Fermentation

Making Waste History!

TripleW Upcycles Food Waste into High-Value, High-Demand Lactic Acid, Utilizing a Climate Transformative Technology.

November 2024

Introduction

Raised $62M

in equity financing and grants:

LG Technology Ventures

Firstime

Israel Oil&Gas Fund Limited Partenship

Elah Fund

GS Holdings

Consensus Business Group

millennium foodtech

Horizon 2020 European Union Funding for Research & Innovation

VLAIO

BIRD Israel-U.S. Binational Industrial Research and Development Foundation

INNOVATION FUND
Deploying innovative net-zero technologies for climate neutrality

32 Employees

12 Patent families most are granted in worldwide territories

14 Clients Validated TripleW lactic acid for different applications

An Experienced International Management Team

Tal Shapira, M.Sc.

CEO & Co-Founder
Belgium

Amir Oranim, MBA

COO & Co-Founder
Israel

Maarten Campman, Ph.D.

President of Manufacturing
Belgium

Dennis Wiliquet

Senior VP of Sales
US

Rotem Tidhar, Ph.D.

VP of R&D
Israel

Reinout de Boeck, M.Sc.

VP of Engineering
Belgium

The Problems

Food Waste Management Facilities Suffer from Low Product Returns.

Boundless Lactic Acid Market Held Up by High Prices

Digestion
Heavily Dependent on Government Subsidies

Incineration
Banned in Europe

Landfill
Banned by Regulation in Major EU Countries

Food Crops Account For >50% Of Production Cost

Commodities' Prices are Rising

Production is Far from Target Markets

The Answer

Triple Win

1

Convert Food Waste into a Valuable Resource with Improved Value

2

Increased Lactic Acid Profitability Compared to Legacy Production

3

Transformative Climate Technology with Major Decarbonization Impact

How does it work?

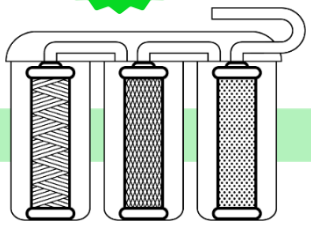
TripleW proprietary bioprocess delivers lactic acid made entirely from food waste, our IP portfolio covers fermentation, product purification, and PLA waste upcycling. The technology keeps putting carbon to good use!

Food Waste

PATENT PROTECTED

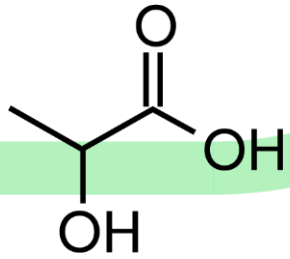
Proprietary Lactic Acid Fermentation Process

PATENT PROTECTED



Proprietary Lactic Acid Purification Process

Profit $



Circulac™

Lactic Acid product that decarbonizes food waste

PLA Bioplastic Produced with off-the-shelf Technology

Profit $

Proprietary PLA waste upcycling process back to lactic acid

PATENT PROTECTED

Reduced Disposal $

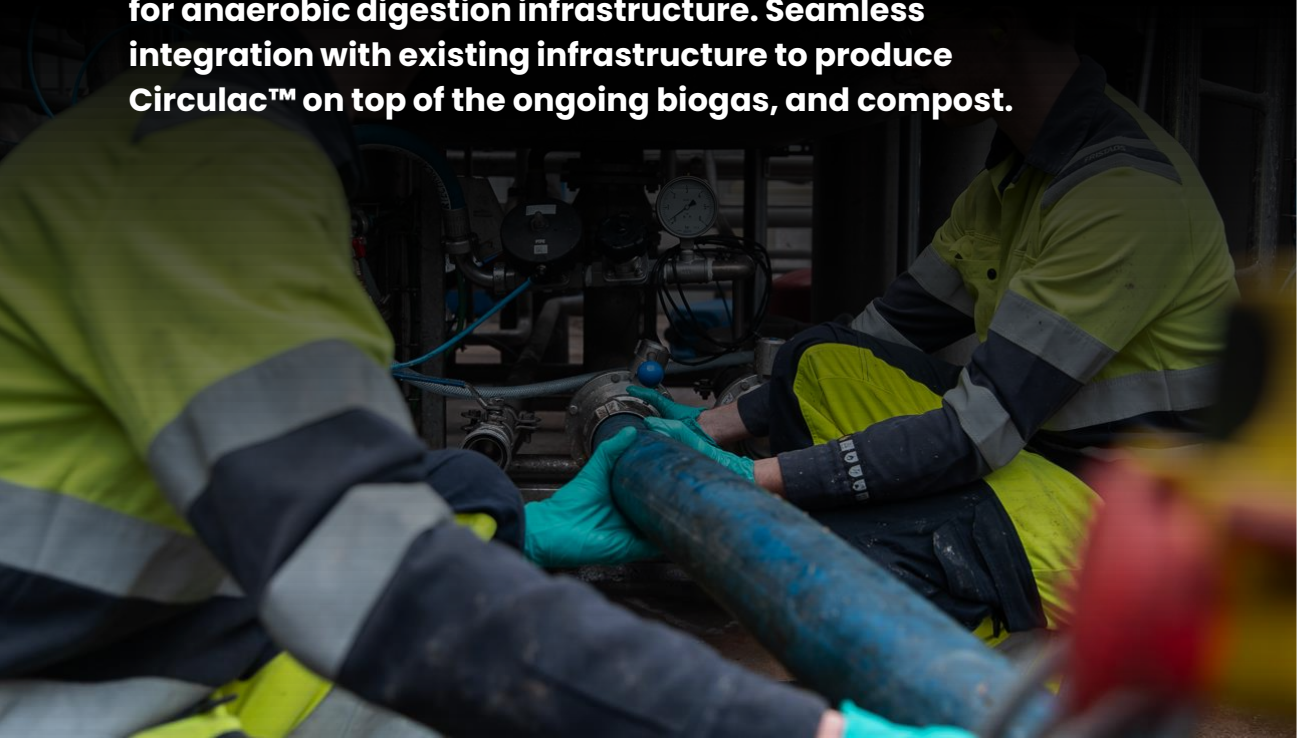
TripleW Technology Delivers Circulac™

Commercial Launch ›

Our Industrial Lactic Acid Production in Belgium

TripleW produces and sells the first ever lactic acid made from food waste. The in-house design demonstration facility completed process R&D and three years of validation campaigns at 10-ton food waste per day scale.

The technology can deliver up to 5X increase in revenues for anaerobic digestion infrastructure. Seamless integration with existing infrastructure to produce Circulac™ on top of the ongoing biogas, and compost.

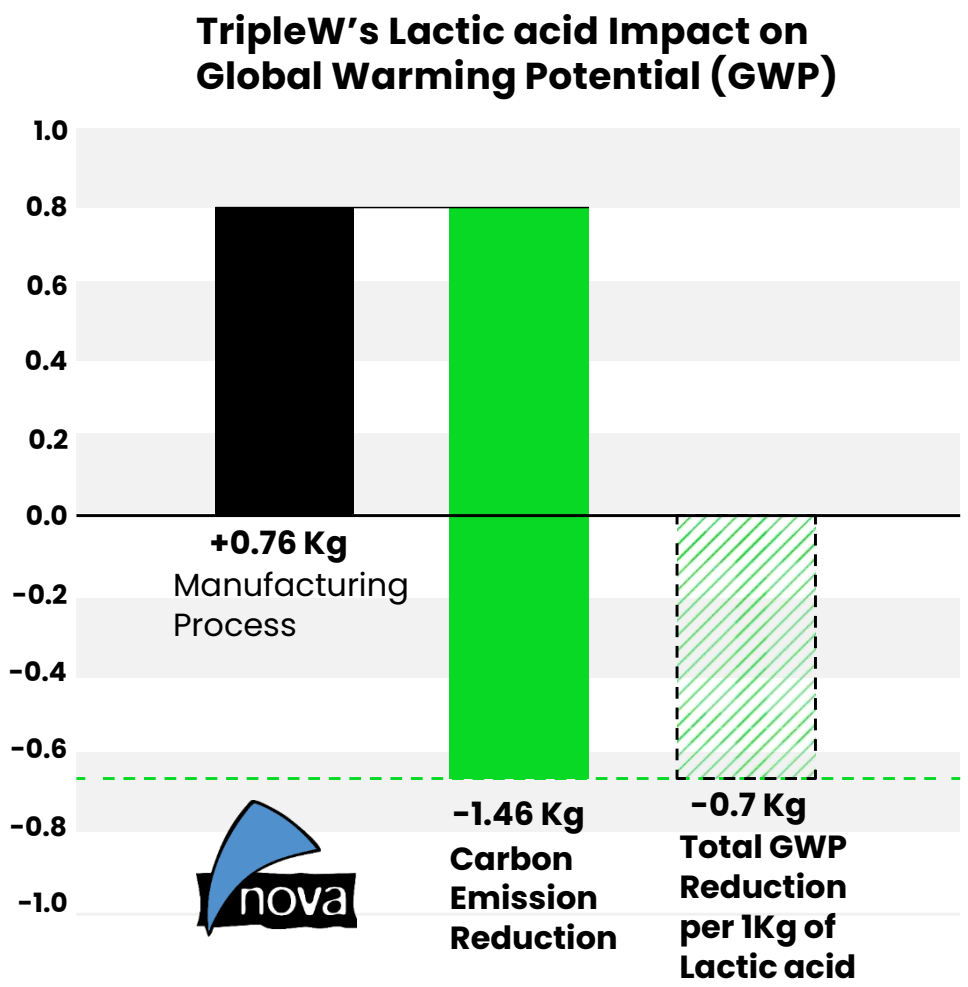


Decarbonization Impact Backed by Regulatory Tailwind

Increased Incentives to Support GHG Reduction and Circularity

Approved “End of Waste” Status Allows Circulac™ Applicability in Multiple Markets

EU Deforestation Legislation implications on Lactic Acid Legacy Sugar feedstock



FUTURE

Port of Antwerp

TripleW FUTURE Project

The First-of-a-Kind Waste to Product Commercial Hub for TripleW, Backed by Strong Industrial Partners, Clients, VLAIO and The Port of Antwerp-Brugges

The project was Awarded EUR 9.5M CAPEX grant from the EU INNOVATION FUND

CIRCLE FLAGSHIP PROJECT

Port of Amsterdam

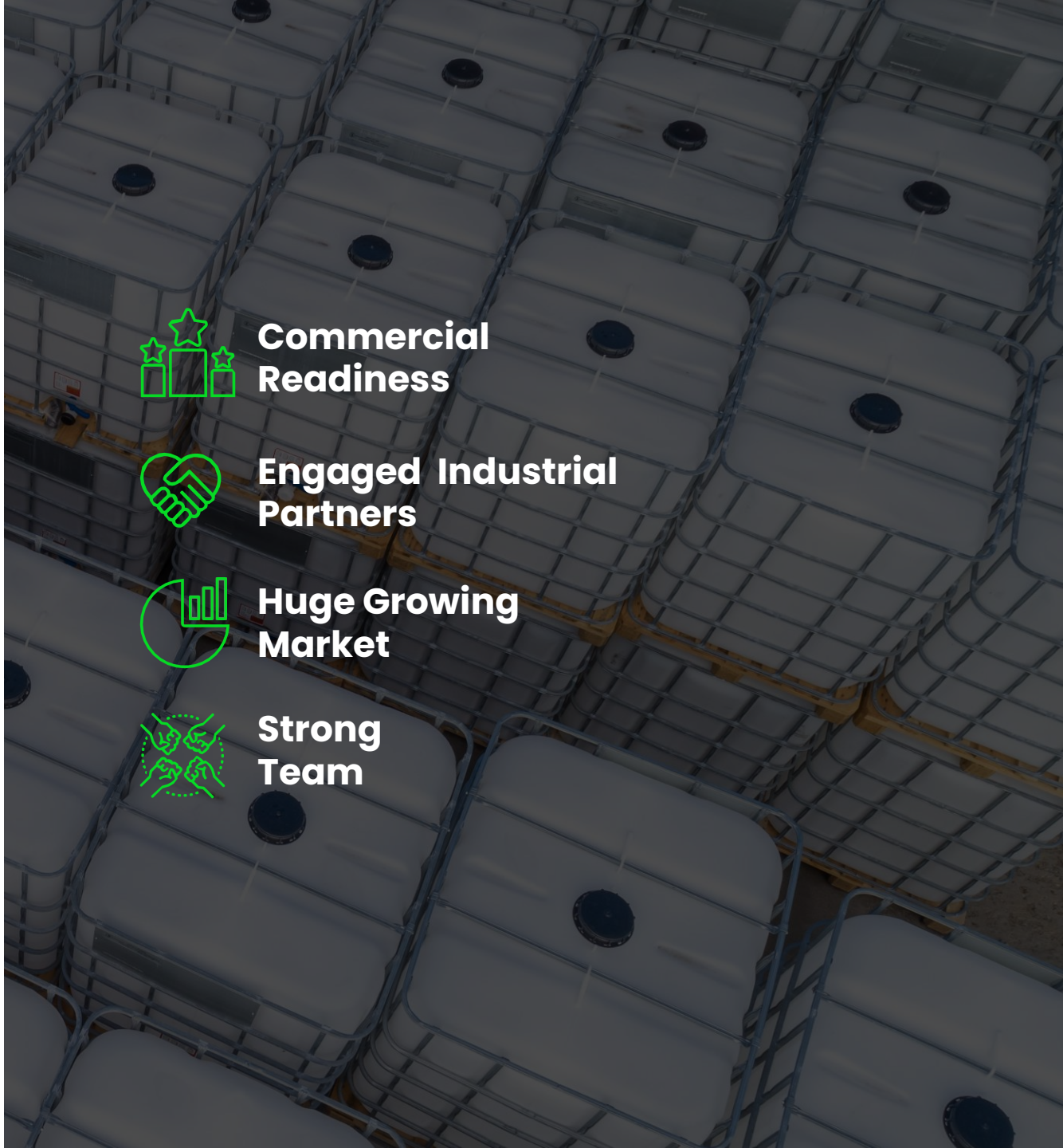
A competitive bioeconomy for a sustainable future

Bio-based Industries Consortium

Co-funded by the European Union

Pipeline Project – Upgrading an Existing Biogas Facility, Backed by a Strong Consortium

Let’s Make Waste History



Headquarters
Benny Gaon 12,, Netanya, Israel
Tel +972-76-5303-777
Info@triplew.co

Thank you for joining us!

Stay connected and learn more about our upcoming events.

🌐 RCI Homepage
💼 RCI LinkedIn