
ecohelix
WOODMER®
Making everyday life
more sustainable with
wood-based biopolymers

WORDS FROM THE FOUNDER

Focus on materials with better environmental footprint is further growing. Sustainability and principles of circular economy are driving both investment decisions and choices of the consumers. Need to replace fossil-based materials in our daily life products has become even more topical and the demand of new materials is increasing. Legislation and compliance requirements are further drivers of the change. The solution is intense research and partnership with innovative companies and large corporates, who jointly can create solutions and new materials helping to reduce the burden towards our nature.

Ecohelix is well positioned in this development. We have done intense research during the past years and have increased the market readiness of our solution and are working heavily to bring the first products into the markets. We have our demo scale production unit at Domsjö Fabriker fully operational and it produced WOODMER® biopolymer used in product development we conducted together with several partners.

Our raw material origins from certified forests and utilizes currently unused pulp industry side stream. Our technology enhances resource utilization and turns this side stream into valuable products, which provide a sustainable alternative to conventional polymers used in our daily life products. With this innovation we can help brand owners, manufacturers and formulators to increase the environmental friendliness of their products and to contribute to the development against emissions and global warming. Ecohelix WOODMER® bio-based polymers provide up to 98% emission reduction and 20 times higher performance in many applications.
Cooperation with our partners is very exciting.

We are constantly positively surprised on how WOODMER® can outperform oil-based chemicals, which have been in development for decades. Our customers are finding more and more potential on markets that are growing and where sustainability counts. Paper&board, packaging, construction, textile, cosmetics and homecare industries are ready for the transformation, and we are ready to produce solutions.

Petri Oinonen

Petri Oinonen, CEO and Founder
Ecohelix

WHO WE ARE?

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More than 10 years of research and development

WOODMER® product portfolio enhancing sustainability in material technology

Unique and patented technology to produce high performing wood-based biopolymers

Strong inhouse processing capacity from lab to industrial scale

Strategic partnerships with industry leaders

ECOHELIX VALUE CHAIN

CO_2

Sustainable raw material

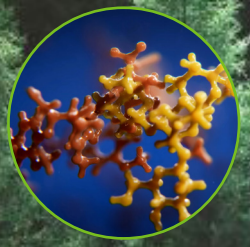
Fossil free, non-food based supply

Certified wood

Host biorefinery

Improved resource allocation

Hemicellulose and lignin



Ecohelix WOODMER® production

New high performing and sustainable polymer

WOODMER®

Formulators Converters Manufacturers

Reduced dependency on fossil-based materials

Sustainable products

Brand owners End users

Enhanced circularity

Net-Zero by 2050 (EU)

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WOODMER® PRODUCT LINE UP

PRODUCT	NATURE OF THE PRODUCT	BENEFITS	APPLICATIONS
WOODMER® Pulp	Sustainable paper chemical	Superior performance in paper chemical applications at a lower overall cost for the customer	Emulsifier for ASA, MSOHO and AKD
WOODMER® Bind	Water based adhesive	High dry content and low viscosity, enabling high wet tack and fast drying time - without microplastics problem	Paper and board Furniture
WOODMER® Seal	Water based heat seal coating solution	Fully wood-based monomaterial fulfilling increasingly tightening packaging oblications	Packaging materials (non-food)
WOODMER® Disperse	Multi-functional water based dispersing agent	Improves separation of particles, prevents clumping and enhances solids loading. Replacing oil-based dispersants for kaolin and other inorganic particles	Dispersant for polymers and inoragnic particles Emulsifier for oils
WOODMER® Cover (at a development stage)	Water based heat seal coating solution with barrier properties	Provides all-in-one heat seal coating solution with water, grease and oxygen resistance. Recyclable monomaterial.	Wide range of packaging materials
WOODMER® Boost (at a development stage)	Three in one textiles and plastic additive with UV-resistance, dyeability and biofiller functionalities	Provides application properties such as UV-resistance, dyeability or function as a bio-filler. Increases biobased content in plastic matrixes	Additive for polyester yarn

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WOODMER® Pulp

Sustainable paper chemical

Sustainable performance

WOODMER® Pulp is a high performing bio-based polymer, which can be used in several applications in paper chemicals.

WOODMER® Pulp is up to 20 times more efficient than currently used chemically modified starch in ASA emulsification. On top of high performance, it provides enhanced sustainability with 98% CO2 -eq avoidance compared to current oil- and food-based products.

Ecohelix solution

- Efficient hydrophobication with low dosage
- Good runnability proven in industrial scale
- Emulsions that are stable for at least 24h
- No interference with optical brightness of sized product
- No interference with strength properties of sized product
- Stable product performance tested for over 5 years
- Good sizing performance with different Kemira sizing agents (ASA, MSOHO, AKD)

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WOODMER® Pulp will be available in the markets through Kemira as FennoSize EE450 product.

Specific properties

- Anionic polymer without retention disturbance
- Surface active properties, reducing surface tension of the key components
- Dispersing and emulsifying properties

Application areas

- Emulsifier/stabilizer in ASA –sizing
- Surfactant in defoamer formulations
- Pulp charge control in the pulp and paper process

Sustainability

- Low CO_2 emissions, 0,582 CO_2 eq/kg or -1,059 O_2 eq/kg with biogenic uptake
- 98% biobased content (Dincertco certificate nr. 8C243)

Certifications

- Non-genotoxic (Eurofins through OECD 471 and 487)
- Approved as a paper chemical additive for use in food contact applications in EU (BfR) and US (FDA)

BIOBASED > 85 % DIN Geprüft

Further information

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WOODMER® Bind

Water based adhesive

Alternatives to traditional adhesives

Are you looking for alternatives to traditional adhesives? New alternatives, which are derived from renewable sources and reduce dependence on fossil-based materials and associated greenhouse gas emissions? Looking for solutions, which minimize environmental impact and reduce harmful chemicals?

Ecohelix solution

Ecohelix WOODMER® Bind is a water based adhesive, derived from wood. Raw material originates from pulp industry side streams, harnessing lignocellulosic side streams.

WOODMER® Bind can replace oil-based PVA adhesives as well as food-based adhesives such as starch, dextrin, and casein. This product is a biocomponent (less than 30%w) enhanced formulate and can be both liquid form (water-based) and a dry powder.

Specific properties

- High drymatter concentration (50w%)
- Low viscosity of ~1000 cP
- High wet tack and high solids
- Good penetration to porous materials
- Medium setting time

Application areas

- Paper and board
- Furniture
- Construction

Sustainability

- Non-genotoxic (Eurofins through OECD 471 and 487)
- Low CO_2 emissions, 0,677 CO_2 eq/kg or -0,104 O_2 eq/kg with biogenic uptake
- 98% biobased content (Dincertco certificate nr. 8C243)
- Does not form nanoparticles

Further information

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WOODMER® Seal

Bio-based heat seal coating solution
- improve circularity of packaging materials

Replacing fossil materials

Are you looking for new and sustainable materials to improve the environmental profile of your heat seal coatings? Replacing unsustainable polymers and avoiding harmful microplastics? Complying with tightening packaging regulations?

Ecohelix solution

Our heat seal coatings are derived from a sustainable raw material - responsibly sourced forests and pulp industry side streams. Bio-based alternative to plastics slashes reliance on fossil materials and boasts a carbon footprint of just 0.677 CO_2 eq/ton without biogenic updake.

Moreover, Ecohelix coatings can enable monomaterial structures with selected board grades. This improves recyclability and reduces waste. Ecohelix empowers you to meet tightening material regulations and chart a course towards a more sustainable future.

Usual properties on coated boards

- Grammage: 10-20 (g/m2)
- Heat-sealing time: 0,5-3 s
- Heat-sealing temperature: 100-180 (°C)

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Application areas

- Non-food flexible packaging
- Packaging materials in e-commerce, personal care&cosmetics, industrial and agriculture packaging

Sustainability

- Non-genotoxic (Eurofins through OECD 471 and 487)
- Low CO_2 emissions, 0,677 CO_2 eq/kg or -0,104 O_2 eq/kg with biogenic uptake
- 98% biobased content (Dincertco certificate nr. 8C243)
- Does not form nanoparticles

WOODMER® Seal Client Case

Client:

- Global furniture manufacturer

Challenge:

- Replacing plastic assembly parts bags to reduce emissions and microplastics

Solution:

- Wood-based heat seal coating solution with barrier properties
- Enable renewable solution with high performance
- Easy integration with existing coverter infrastructure

Further information

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WOODMER® Disperse

Versatile dispersing agent for water-based systems

Replacing fossil materials

Are you looking for new and sustainable materials to improve the environmental profile of your products? Reduction of CO_2 emissions and and avoidance of harmful polymers. Or even higher performance?

Ecohelix solution

Ecohelix WOODMER® Disperse is a bio-based, sustainable and renewable polymer. It is derived from pulp industry side stream by utilizing membrane filtration and enzymatic process to create completely new wood-based polymer with enhanced and controllable properties.

WOODMER® Disperse comes in a water solution of 40w%. By having a well-defined and narrow molecular weight together with the negative charges of the polymer, it is possible to improve the separation of particles in suspension preventing their clumping and enhancing the solids loading.

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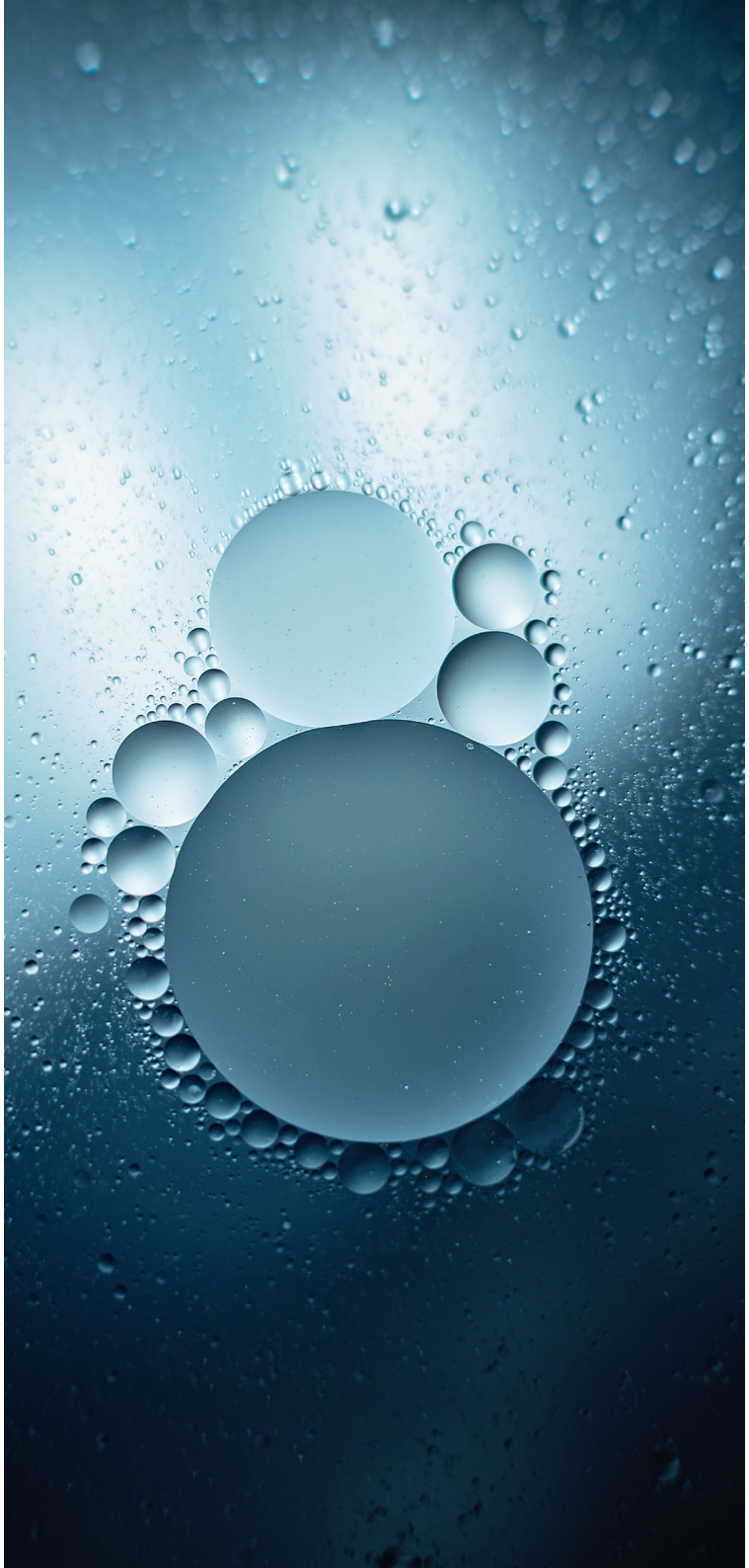

Specific properties

- High charge density over wide pH range
- Tunable molecular weight
- Good viscosity control

Sustainability

- Low CO_2 emissions, 0,582 CO_2 eq/kg or -1,059 O_2 eq/kg with biogenic uptake
- 98% biobased content (Dincertco certificate nr. 8C243)

Application areas

WOODMER® Disperse can replace fossil-based dispersants such as fluorocarbon polymers, polyacrylates, polyamide and stearates also proven effective for pigment dispersion making it a useful polymer in various applications as dispersing agent, emulsifier or dispersing resin in following products:

- Paints and inks
- Cleaning products
- Personal care products
- Construction materials

Further information

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ECOHELIX TEAM

Management

Petri Oinonen
Founder and CEO
16 years in biotech and biorefineries

Eleonor Sallfeldt
CFO
20 + years in finance

Oskar Schmidt
CTO
Stora Enso/Cellutech
10 years in engineering

Capable team of 12 experts in the fields of chemistry, industrial production, R&D innovation and product development, sales, customer management and marketing

Board

Morgan Sadarangani, Chairman
CEO of Molindo Energy

Dick Carrick
Former pulp mill owner, industrialist

Boris Gyllhamn
Investment Manager Almi Invest Greentech

Roger Lodén
CEO of Urus AB Söderberg&Partners

Petri Oinonen

Investors and grants

almi invest

molindo

Private greentech investors

Biobased Industries Consortium

VINNOVA
Sweden's Innovation Agency

Partners

ADITYA BIRLA
Domsjö

kemira

novonesis

Advisors

Christer Svanholm
Engineering Eurocon

Lars Alenius
Host mill intel Domsjö Fabriker

Margareta Yderskog
IP strategy Epiroc, Saab, Ericsson

Jari Oinonen
Marketing and Sales CWT, Fortum, Finnair

Bengt Joensson
Sales Domsjö Fabriker, Borregaard, Shell

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