



RETHINKING FEEDSTOCK PATHWAYS

For Bioenergy Production

OVERVIEW

altEnrich

Extracts carbohydrates from agricultural residues
Feedstock agnostic technology for bioenergy applications
Enhances sustainability by lowering energy use and waste
Reduces supply chain costs with consistent, densified carbohydrates

altEnhance

Recovers slippage carbohydrates from waste streams
Increases operational efficiency in bioenergy and agri-processing
Promotes circular economies by reintegrating valuable resources
Reduces waste solid generation from biorefineries

altEN Biogas

Optimizes biomass pretreatment for improved biogas yields
Lowers operational costs and increased methane production
Extends equipment life by minimising H₂S production
Zero-liquid discharge process and generates organic bio-fertilizers

altENol

Catalytic process for maximising fermentable sugar generation
Integrates with existing biorefineries for improved efficiency
Compatible with enzymatic hydrolysis for improved extraction of sugars from cellulosic streams

OVERVIEW

altENrich by altEN is a groundbreaking feedstock-agnostic technology that extracts, densifies and provides carbohydrates from agricultural residues. This innovation unlocks new opportunities for industries such as bioenergy, textiles, and more.

KEY BENEFITS

Provides a reliable feedstock of refined carbohydrates, replacing traditional biomass

Enhances supply chains with consistent, densified carbohydrates

Lowers transportation costs and reduces the frequency of shipments

Improves process control with predictable feedstock quality

Optimizes operational costs by reducing effluents

Boosts yields, leading to significant bottom-line improvements

FEATURES:



Biomass Expertise

We analyze agricultural residues using our expertise in biomass composition



Feedstock Agnostic Technology

A proprietary pretreatment process is applied, adaptable to various biomass types



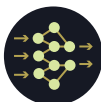
Carbohydrate Enhancement

This patented process increases the carbohydrate content, making residues suitable for bioenergy and industrial use



Customization

The process can be customised to each customer's specific needs for optimal results



High-Performance Output

The result is a densified carbohydrate feedstock for industrial applications

SUSTAINABILITY IMPACT

Optimized energy consumption throughout the process

Significant reduction in effluent generation for customers

Substantial reduction in the logistical footprint of input supply chains

altENhance

Carbohydrate and Lignin recovery
for greater operational efficiency

OVERVIEW

altENhance by altEN is a cutting-edge technology designed to recover valuable resources—carbohydrates and lignin—from waste streams in bioenergy and agri-based operations. The recovered carbohydrates can be recycled for energy generation.

KEY BENEFITS

Maximises carbohydrates usage through recycling

Enhances profitability through resource recovery

Reduces operational costs by minimizing waste

FEATURES:



Waste Stream Treatment

altENhance separates components from the waste streams generated in a biorefinery.



Resource Extraction

High-value carbohydrates and lignin are extracted from the waste



Reintegration

Extracted resources from waste streams are reintegrated into industrial or energy processes, improving efficiency



Sustainability

Supports a circular economy by minimizing waste and promoting zero-liquid discharge

SUSTAINABILITY IMPACT

Increases efficiency by converting waste into usable resources

Promotes circular economy principles through resource recovery

Reduces waste and supports zero-liquid discharge efforts

altEN Biogas

Optimized Biomass Pretreatment
for Efficient Biogas Production

OVERVIEW

altEN Biogas is a proprietary technology designed to enhance biogas production by optimizing biomass pre-treatment. Utilizing a cost-effective chemical process, it significantly improves carbohydrate availability for anaerobic fermentation, leading to higher biogas yields.

KEY BENEFITS

Cost-effective biomass pre-treatment, further enhanced with altENrich technology

Increased methane production for improved yield

Reduced H₂S production, lowering corrosion risks and extending plant life

Supports zero-liquid discharge for more sustainable operations

FEATURES:



Chemical Pre-treatment

A cost-effective chemical process breaks down biomass efficiently



Carbohydrate availability

Enhanced availability of carbohydrates for better fermentation



Increased Methane

More carbohydrates result in higher methane production



Improved Efficiency

Boosts overall biogas production and operational efficiency

SUSTAINABILITY IMPACT

Maximizes carbohydrate recovery, reducing waste

Zero-liquid discharge reduces water use and waste generation

Produces organic bio-fertilizer, promoting sustainable farming practices

OVERVIEW

altENol is pioneering a new era of sustainable bioethanol production. By leveraging advanced chemo hydrolytic processes, altENol's catalytic pretreatment reduces enzyme dependency by up to 70%, dramatically cutting costs while enhancing operational efficiency. This breakthrough approach sets a new standard for bioethanol production.

KEY BENEFITS

Consistent output through catalytic pretreatment

Accelerates production time by up to 40%

Reduces Unit Operations in ethanol production

FEATURES:



Catalytic Pretreatment

The process uses a catalytic method to break down biomass into fermentable sugars



Seamless Integration

Easily integrates with existing biorefineries without major changes



Increased Efficiency

Shortens process time and improves overall production efficiency

SUSTAINABILITY IMPACT

Reduced water usage in production

Minimal effluent generation, reducing environmental impact



SUSTAINABLE DEVELOPMENT GOALS

altM's Commitment to UN SDGs

Aligning with the United Nations
Sustainable Development Goals



SDG 7: Affordable and Clean Energy

Our technologies, such as altEnrich and altEnhance, revolutionize the use of agricultural residues to produce clean bioenergy. By optimizing biomass pretreatment and enhancing carbohydrate recovery, we enable higher yields in biogas and bioethanol production, reducing reliance on fossil fuels and promoting sustainable energy solutions. This directly contributes to making energy more affordable, accessible, and environmentally friendly.



SDG 9: Industry, Innovation, and Infrastructure

We are pushing the boundaries of industrial innovation with altEnrich and altEnhance technologies that streamline bioenergy production and resource recovery. By maximizing efficiency and reducing waste, we help industries develop resilient, low-impact infrastructure. Our solutions foster sustainable industrialization by improving supply chains, enhancing process control, and reducing operational costs through innovative biomass utilization.



SDG 11: Sustainable Cities and Communities

Our technologies play a crucial role in building sustainable cities by reducing the environmental impact of industrial and energy processes. Through efficient waste recovery and optimization of energy use, we help create circular economies that minimize waste, support zero-liquid discharge, and encourage the use of organic bio-fertilizers—promoting more sustainable and resilient urban communities.

SDG 12: Responsible Consumption and Production



With altEnrich and altEnhance, we enable industries to adopt more responsible consumption and production practices. By transforming agricultural residues and waste streams into valuable resources, we reduce raw material consumption, lower waste generation, and create efficient supply chains. Our technologies support closed-loop processes that align with the goal of sustainable production and reduced environmental footprints.

SDG 13: Climate Action



Our technologies directly address climate change by enhancing the efficiency of bioenergy production, thus reducing greenhouse gas emissions. By replacing fossil fuels with renewable, biomass-based energy and promoting waste minimization, we contribute to significant reductions in industrial carbon footprints. Our commitment to sustainable resource management helps mitigate climate impacts and fosters resilience to environmental challenges.

SDG 17: Partnerships for the Goals



At altEN, we understand that sustainable development relies on collaboration. Our technologies, like altEnrich and altEnhance, are designed to foster partnerships with agricultural producers, industry stakeholders, and research institutions. By integrating our innovative solutions, we promote resource sharing and knowledge transfer, driving collective action towards sustainable practices and climate resilience. Together, we can achieve transformative change for a sustainable future.