

SUCCESS STORY



**GHENT
RENEWABLES**
A GTS COMPANY

Sustainability in a new dimension –
Key technology for green fuels

**BDI'S INNOVATIVE
PRETREATMENT TECHNOLOGY**



THE CHALLENGE

TURNING LOW-QUALITY WASTE INTO REFINERY-GRADE FEEDSTOCK

The transition to renewable fuels demands the use of increasingly diverse and low-quality waste-based feedstocks. While these materials offer significant sustainability benefits, they also carry impurities – including phosphorus, metals and other catalyst-deactivating substances – that pose serious challenges for downstream refining processes.

In Ghent, Belgium, the ambition was to establish a facility capable of transforming complex waste oils and fats into high-quality feedstock for renewable diesel and Sustainable Aviation Fuel (SAF). The project initially focused on upgrading intermediates from an existing biodiesel plant for use as alternative fuel, potentially in a marine fuel application. With the rapidly growing demand for SAF, driven by decarbonization targets and regulatory requirements, it evolved into a far more ambitious initiative. The project was developed in close cooperation with Cargill, one of the world's leading companies in food, feed and renewable resources trading companies.

The critical requirement: achieving purity levels low enough to protect the highly sensitive hydroprocessing catalysts used in SAF production. Unlike conventional biodiesel catalysts, SAF catalysts can be irreversibly damaged by even trace contamination. A pretreatment solution capable of reducing catalyst poisons to single-digit ppm levels was therefore indispensable









THE SOLUTION

TAILOR-MADE ADVANCED PRETREATMENT TECHNOLOGY

Building on a successful collaboration dating back to 2020, BDI partnered with Ghent Renewables to develop and implement a customized pretreatment solution. The project advanced through multiple stages – feasibility studies, feedstock evaluation, pre-engineering, detailed design and full execution. Extensive laboratory testing enabled the team to validate a wide range of feedstocks and successfully scale up the process to industrial level.

At the heart of the facility is BDI's proprietary Advanced PreTreatment technology, specifically engineered for highly challenging waste-based feedstocks. The plant was designed with two dedicated processing lines, enabling maximum flexibility to handle a broad spectrum of raw materials – from used cooking oil to other low-grade waste streams.

The technology efficiently removes contaminants such as phosphorus and metals, delivering a refinery-ready intermediate product suitable for renewable diesel and SAF production. This protects downstream catalysts, prevents fouling and significantly improves overall process efficiency – while maximising the value of otherwise difficult-to-utilise waste resources.

RESULTS & CUSTOMER BENEFITS

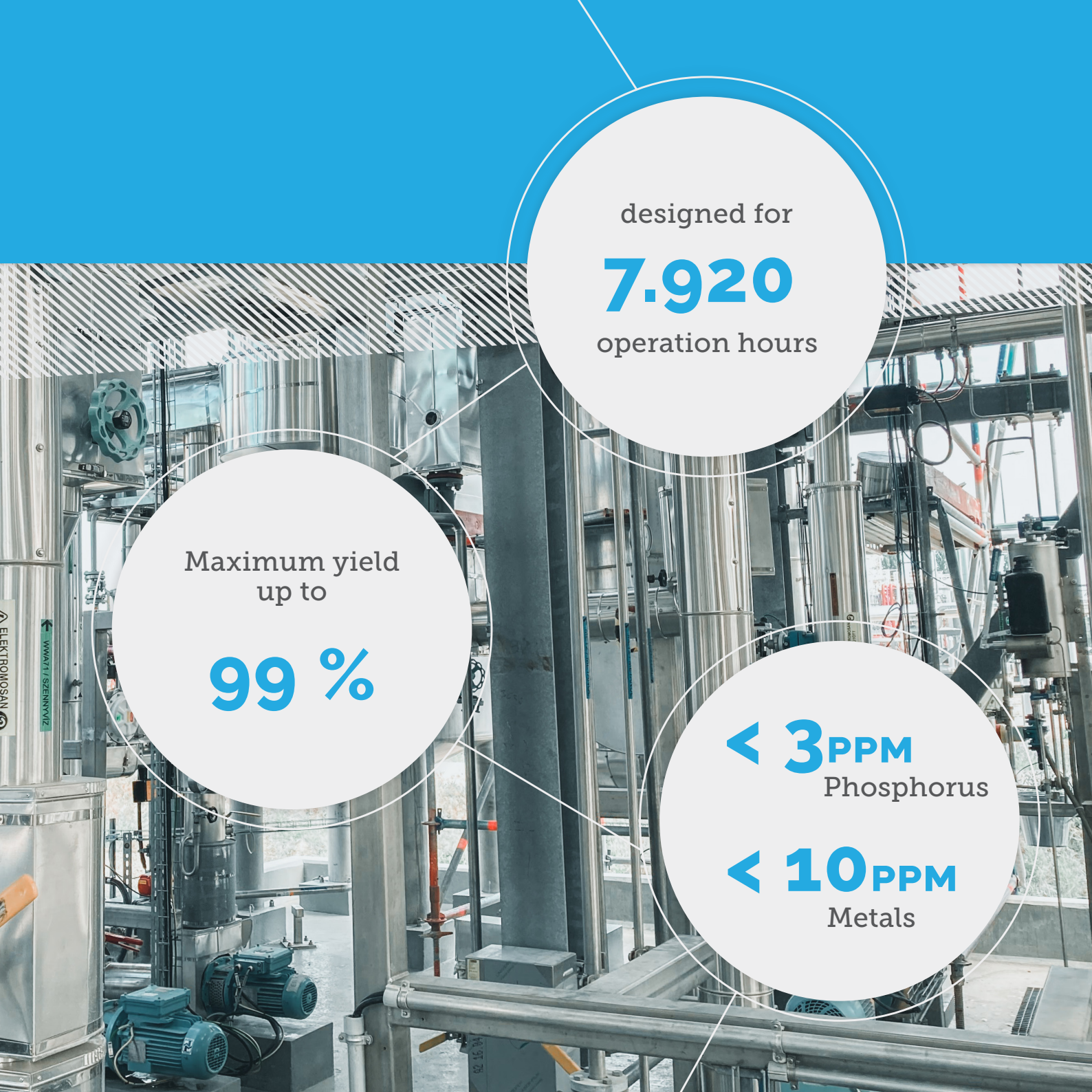
A NEW BENCHMARK FOR SAF PRETREATMENT

The project represents a significant milestone in advancing renewable fuel production through BDI's innovative Advanced PreTreatment technology. Today, the facility reliably processes a wide range of heterogeneous waste feedstocks and consistently delivers output that meets the stringent purity requirements of SAF and renewable diesel production.

Thanks to its robust process design and exceptional feedstock flexibility, the plant achieves outstanding operational performance and product quality: phosphorus levels are reduced to below 3 ppm, metal concentrations to below 10 ppm – effectively safeguarding downstream catalysts and ensuring stable refinery operations. Yields of up to 99% and a guaranteed 7,920 operating hours further underline the plant's economic and technical performance.

The successful implementation also demonstrates the strength of the long-term partnership between BDI and Ghent Renewables. Through close collaboration, precise engineering and seamless project execution, both companies have established a benchmark for industrial-scale pretreatment solutions – and a landmark project for the global transition towards sustainable fuels.





designed for
7.920
operation hours

Maximum yield
up to

99 %

< 3PPM
Phosphorus

< 10PPM
Metals



CUSTOMER STATEMENT



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“We chose BDI because of their proven expertise in advanced pretreatment technologies and their strong track record in delivering complex industrial-scale projects reliably and efficiently. What particularly convinced us was the combination of feedstock flexibility, deep process know-how and the collaborative partnership approach throughout the entire project lifecycle.”

GHENT RENEWABLES

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