
BIODIESEL
(METHYL ESTER)
JJ-Lurgi
Engineered for you

LURGI BIODIESEL TECHNOLOGY

ABOUT US

Our Lurgi biodiesel technology is the outgrowth of decades of experience in advanced oils, fats and oleochemicals processing. We began building and designing biodiesel plants over 25 years ago and have been fine-tuning our processes ever since. With our engineering expertise, we can deliver the most robust and technologically advanced solution, maximizing return of investment in the shortest time possible.

QUALITY STANDARDS SURPASSED

The quality produced exceeds international EN 14214 and ASTM D6751 standards. The end product is ready for diesel-powered cars and engines and can be used as intermediate in surfactant and personal care applications after components have been separated by fractionation or distillation.

BIODIESEL PRODUCTION

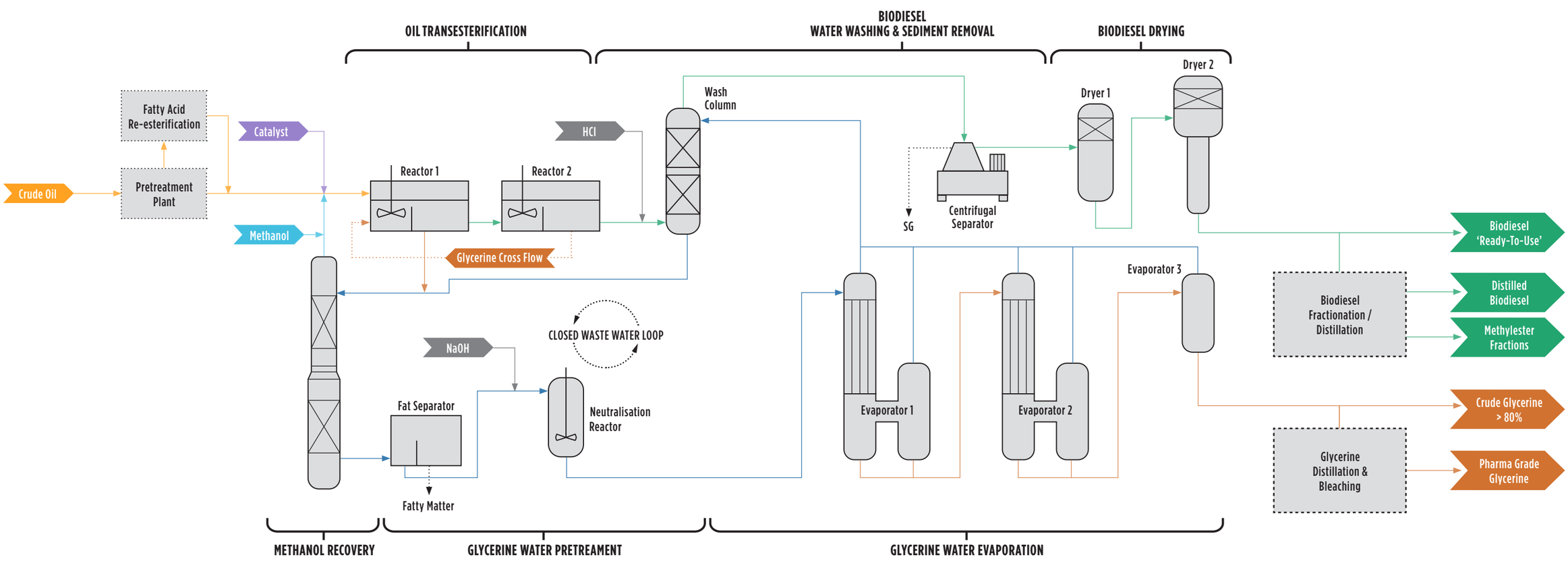
FLEXIBLE FEEDSTOCK

Our biodiesel technology features oil pretreatment to remove raw material impurities. We offer a range of oil pretreatment processes designed for the particular type of crude oil you use and have extensive experience in both chemical and physical refining processes.

Free fatty acids removed during oil pretreatment can be processed by re-esterification (glycerolysis) to a biodiesel feedstock again in order to boost overall yield and to ascertain a long-term profitability.

OIL TRANSESTERIFICATION WITH HIGH CONVERSION

The transesterification process combines refined oils with methanol and a catalyst under atmospheric pressure and temperatures around 60° C in multi-stage reactors to produce biodiesel (methyl esters) and glycerine. Our patented glycerine cross-flow design reduces catalyst consumption. The process offers high degree of conversion, yielding one kilogram of biodiesel for every one kilogram of feedstock.



BENEFITS & ADVANTAGES

WATER WASHING WITH NO MOVING PARTS

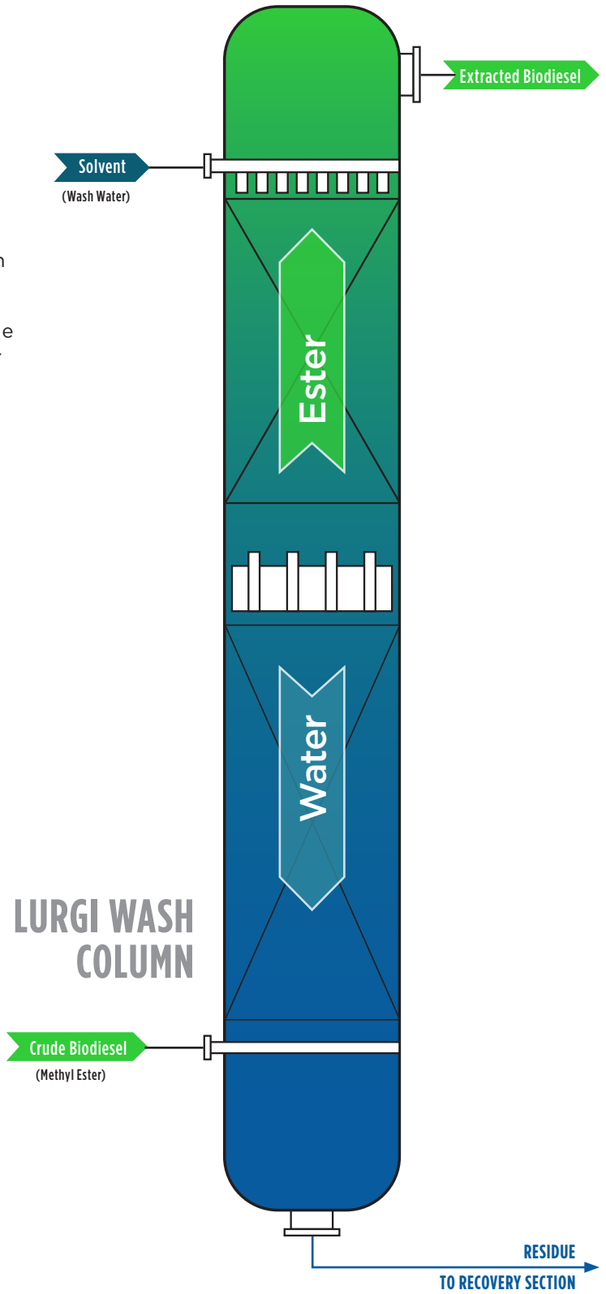
The Lurgi biodiesel washing technology uses a counter-flow extraction column in a multi-stage process for maximum contact time and efficiency. The washing water removes free glycerine, methanol and other soluble polar components.

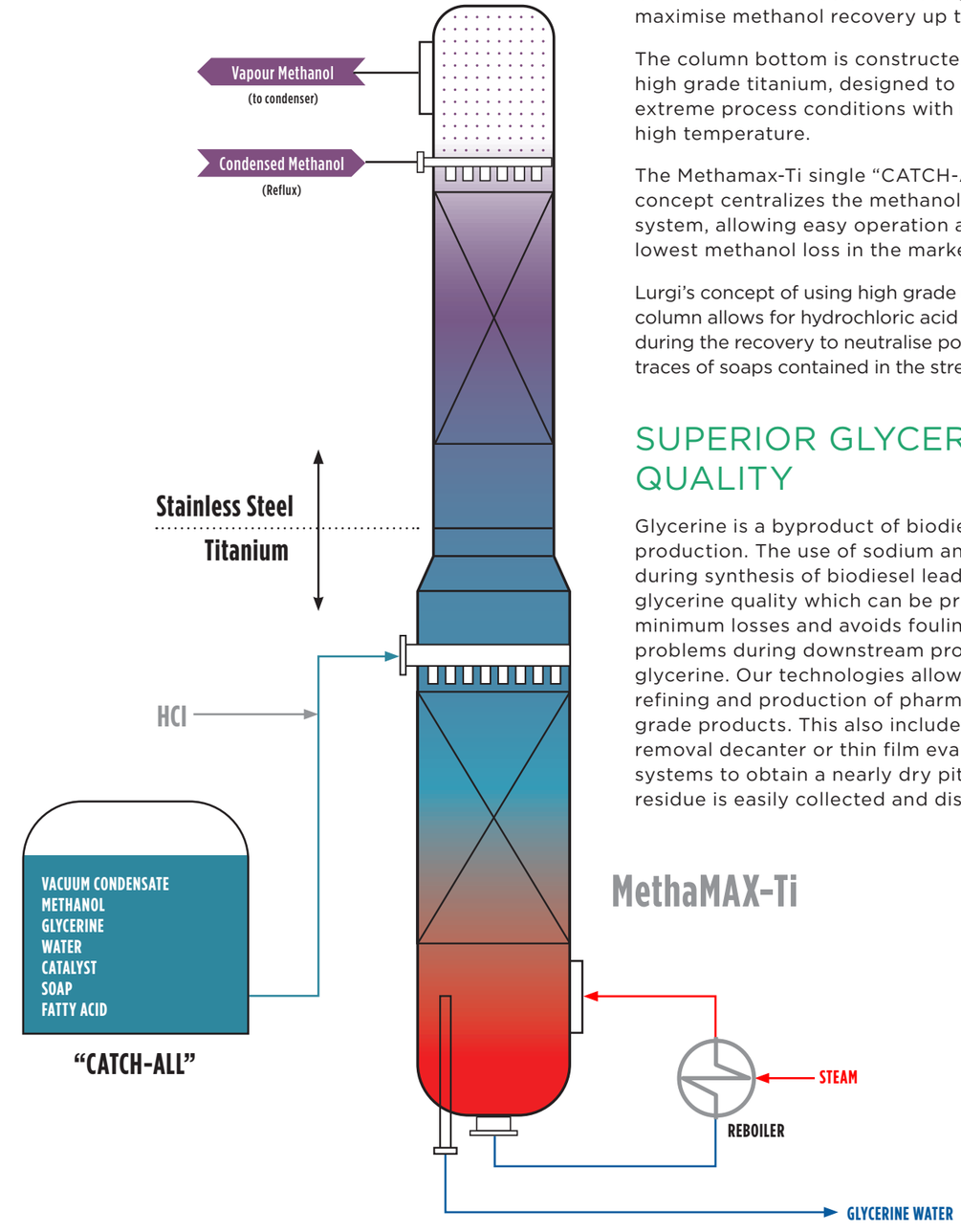
The utilization of Lurgi's wash column also means there is no use for high maintenance and power-consuming centrifuge separators in the plant.

The result is biodiesel of the highest purity. The wash water is recovered in the glycerine water evaporation process and reused in a closed, zero discharge waste water loop.

PRECIPITATE-FREE BIODIESEL

During biodiesel production, our integrated process step effectively agglomerates and removes sediment-forming compounds. The end product is a biodiesel that is clear, precipitate-free and highly stable over extended time periods with concentrations of sterol glycosides and mono-glycerides far below the set industrial standards. This, along with removal of polar compounds, is particularly important for higher blending ratios with ultra-low sulphur petrodiesel.





RECOVER MORE WITH MethaMAX-Ti

Our **MethaMAX-Ti** column is designed to maximise methanol recovery up to 99.95%.

The column bottom is constructed using high grade titanium, designed to withstand extreme process conditions with low pH and high temperature.

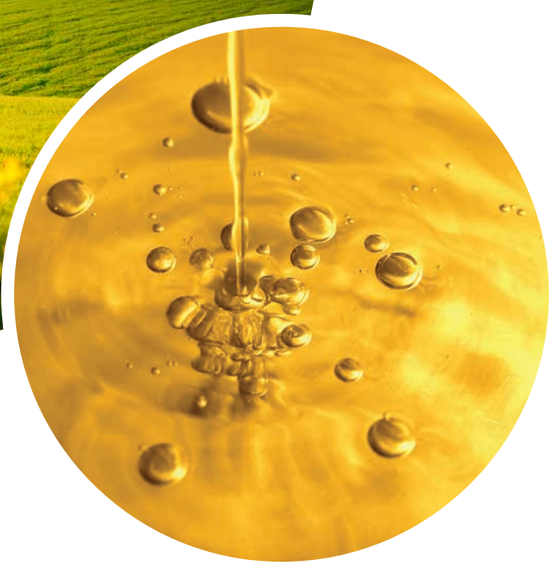
The Methamax-Ti single "CATCH-ALL" concept centralizes the methanol recovery system, allowing easy operation and the lowest methanol loss in the market.

Lurgi's concept of using high grade material column allows for hydrochloric acid to be added during the recovery to neutralise potential traces of soaps contained in the stream.

SUPERIOR GLYCERINE QUALITY

Glycerine is a byproduct of biodiesel production. The use of sodium and chloride during synthesis of biodiesel leads to superior glycerine quality which can be processed with minimum losses and avoids fouling and other problems during downstream processing of glycerine. Our technologies allow for further refining and production of pharmaceutical-grade products. This also includes use of salt removal decanter or thin film evaporation systems to obtain a nearly dry pitch and the residue is easily collected and disposed.

SETTING THE INDUSTRY BENCHMARK



- High methyl ester content with high degree of feedstock conversion.
- Low mono-/di-/tri-glycerides and low moisture content ensuring good product stability and low inclination of product to sedimentation.
- Consistently low glycerine content and acid value demonstrates highly efficient biodiesel washing step.
- Low methanol content demonstrates effective prevention of loss of hazardous reactants.
- Low and no detectable sediment content of total solids far below standard assuring problem-free use of biodiesel

LOW COSTS, MAXIMUM YIELD

- High efficiency: one kilogram of feedstock yields one kilogram of biodiesel.
- Robust, reliable equipment reduces maintenance costs, resulting in low OPEX.

ENVIRONMENTALLY RESPONSIBLE

- Low energy consumption with transesterification at low temperature and atmospheric pressure.
- Closed wash water loop minimizes effluent and zero wastewater discharge from core process units.

PROJECT LOCATIONS

ENGINEERED FOR YOU

OILSEEDS EXTRACTION | EDIBLE OILS | OLEOCHEMICALS | SPECIALTY FATS | BIODIESEL

OFFICES

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JJ-Lurgi

A joint venture between Jebsen & Jessen (SEA) and Air Liquide Global E & C Solutions Germany GmbH
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