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Leading Provider of MTO Engineering Services and Olefin Separation Technology Licensing



Wison Engineering is one of the leading providers of Methanol-to-Olefins (MTO) engineering services and olefin separation technology licensing. With more than 16 years of continuous practice in MTO plant engineering and R&D in olefin separation technologies, we have developed a complete system that covers licensing of MTO olefin separation technology, process package development, full-plant engineering design, procurement, construction, and digital delivery. This mature system is supported by extensive project execution experience.

We hold independent intellectual property rights in MTO olefin separation technology. Our proprietary "pre-cut & oil absorption" separation process is a core innovation, offering lower capital investment, reduced energy consumption, higher product recovery, and proven process reliability. We have granted twelve technology licenses, including applications in the world's largest million-ton-per-year MTO complex. In engineering services, our robust quality and HSE management systems ensure high-quality delivery that has been widely recognized by our clients.



UOP MTO/OCP Technology + Wison Olefin Separation Technology

Wison Engineering entered into a global collaboration agreement with Honeywell UOP in 2017. Leveraging UOP's advanced MTO/OCP technology together with Wison's proprietary olefin separation technology, we jointly provide MTO technology and full EPC services worldwide, offering the best solution to clients with maximized commercial value, high ethylene and propylene yields, and low energy consumption.

Wide propylene/ethylene ratio

- Propylene/ethylene ratio (P/E) = 1.0~1.5

Higher reaction pressure (0.28~0.3 MPa) (the 2nd-generation MTO reaction technology)

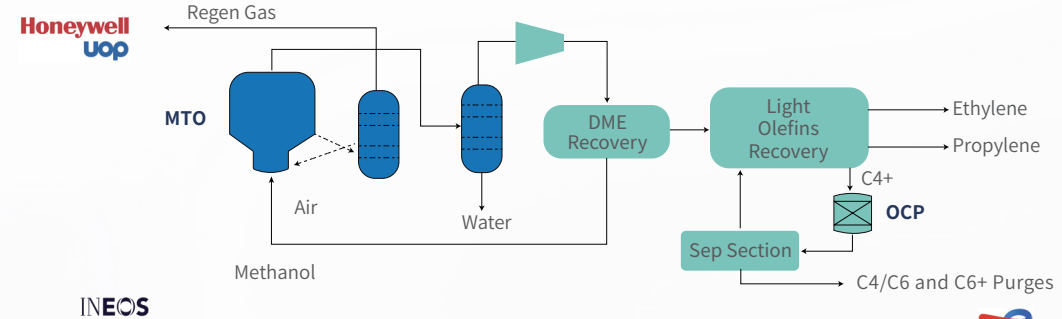
- Smaller reactors and therefore lower investment (12% less compared with low pressure design case)
- Higher inlet pressure of MTO product gas compressor and lower overall energy consumption
- Lower catalyst consumption of 0.16 ~ 0.20 kg/t methanol

Advanced "pre-cut & oil absorption" separation technology (the 3rd-generation MTO separation technology)

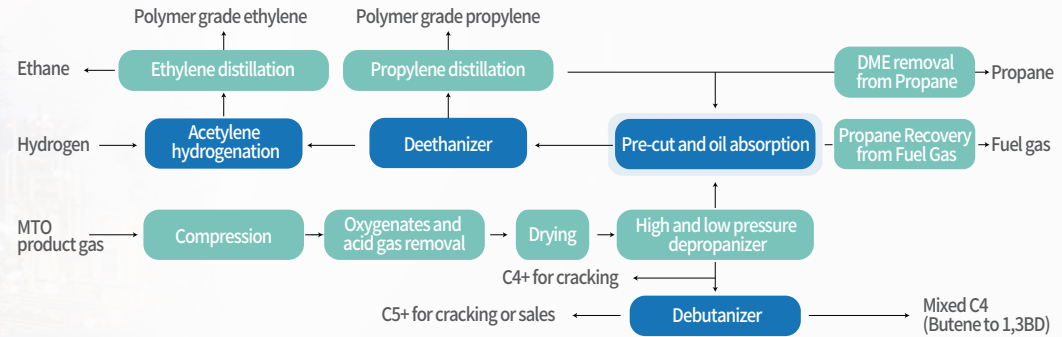
- Higher ethylene and propylene yields ($\geq 99.80\%$)
- Lower energy consumption (5~10% lower)
- Higher propane purity and higher propane production
- Recover DME to increase olefin yields

Integrated with advanced OCP process

- Efficient cracking of C4+ by-products to maximize ethylene and propylene yields
- 2.5~2.55 ton methanol/ton olefins



Typical Advanced MTO/OCP (the 2nd-generation MTO reaction technology) Flow Diagram



Wison MTO Olefin Separation Process Block Flow Diagram (the 3rd-generation MTO separation technology)
(Mixed C4 can be processed by Wison's proprietary oxidative dehydrogenation technology for producing butadiene to maximize profit)

Full Project Life Cycle Technology and Engineering Services Capability



• 300 KTA, 600 KTA, and 1,000 KTA MTO olefin separation technology licensing and PDP delivery



• FEED and engineering design of the whole MTO unit



• Well-rounded EPC capability



• Commissioning and start-up service

Wison MTO Engineering & Olefin Separation Technology (12 Licensed Facilities, 7 Commissioned)

Licensees and Projects	Licensors	Wison Scope
Pucheng Clean Energy Chemical Co., Ltd. 680 KTA DMT0-II Demonstration Unit	DI/CP/Wison	PDP
Wison (Nanjing) Clean Energy Co., Ltd. 300 KTA MTO Project	UOP/Wison	PDP/BED/EPC
Shandong Yangmei Hengtong Chemical Co., Ltd. 300 KTA MTO Plant	UOP/Wison	PDP/BED/EPC
Shenhua Xinjiang 680 KTA MTO in Coal-based New Materials Project	Shenhua/Wison	PDP/BED
Jiangsu Sailboat Petrochemical Co., Ltd. 850 KTA MTO Project	UOP/Wison	PDP
Jilin Connell Chemical Industry Co., Ltd. 300 KTA MTO Project	UOP/Wison	PDP/BED/EPC
Shandong Dongrun Clean Energy Co., Ltd. 300 KTA MTO Project	UOP/Wison	PDP/BED/EPC
Shandong Lianmeng Chemical Group Co., Ltd. 300 KTA MTO Project	UOP/Wison	PDP/BED
Shandong Liaocheng Meiwu New Materials Technology Co., Ltd. 300 KTA MTO Project	UOP/Wison	PDP/BED
Shandong Better Clean Energy Co., Ltd. 300 KTA MTO Project	UOP/Wison	PDP
Chengzhi Nanjing Clean Energy Co., Ltd. 600 KTA MTO Project	UOP/Wison	PDP/BED/EPC
Guangxi Huayi Energy Chemical Co., Ltd. 1,000 KTA MTO Project	UOP/Wison	PDP/BED/EPC

Project Case

Guangxi Huayi Energy Chemical 1000 KTA MTO Project



Service Scope: 1, 000 KTA MTO (UOP/Wison technology)

Contract Type: PDP, BED, EPC

Time: Jan 2024 – Dec 2025

Project Description:

- Wison's first million-ton MTO project, also UOP's largest global MTO unit
- Application of UOP 2nd MTO & Wison 3rd separation technology

Chengzhi Nanjing 600 KTA MTO Project



Service Scope: 600 KTA MTO (UOP/Wison technology)

Contract Type: PDP, BED, EPC

Time: Nov 2017 – May 2019

Project Description:

- Wison's 3rd olefin separation technology first industrial deployment
- Ethylene and propylene quality meet polymer-grade standards, with recovery rates of 99.94% and 99.97% separately
- DME recovery rate from propane: 99.97%
- Facility throughput exceeded design capacity while meeting guaranteed energy performance

Shandong Yangmei Hengtong 300 KTA MTO Project



Service Scope: 300 KTA MTO (UOP/Wison technology)

Contract Type: PDP, BED, EPC

Time: Jun 2013 – Jan 2015

Project Description:

- One-time startup, world's highest olefins recovery rate at the time of startup
- Ethylene and propylene quality meet polymer-grade standards, with recovery rates of 99.89% and 99.96% separately
- Winner of China's National Quality Engineering Award (2018–2019)

Wison Nanjing 300 KTA MTO Project



Service Scope: 300 KTA MTO (UOP/Wison technology)

Contract Type: PDP, BED, EPC

Time: Jul 2011 – Jun 2013

Project Description:

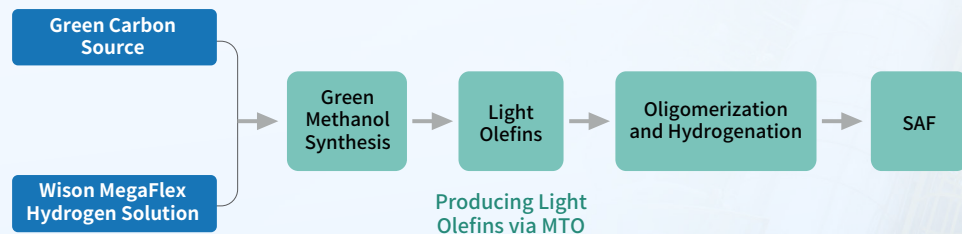
- Wison's olefin separation technology's first industrial application
- Wison's propane-to-DME process first deployment
- First close collaboration between UOP and Wison in MTO, with the first industrial application of UOP MTO & OCP technologies

Green Methanol-to-Sustainable Aviation Fuel (SAF)

The demand for sustainable aviation fuel (SAF) is rising rapidly. Compared to conventional jet fuel, SAF can cut CO₂ emissions by over 80% and is a key enabler for the aviation industry to achieve net-zero emissions by 2050. Global demand is expected to reach around 3.5 million barrels per day by 2030–2050. Expanding renewable feedstock sources is essential to long-term decarbonization.

Green methanol, synthesized from green carbon sources and green hydrogen, is a critical feedstock route. MTO plays a pivotal role in converting green methanol to SAF. Light olefins are first produced through MTO, and then oligomerized and hydrogenated to yield hydrocarbon products with carbon distribution matching aviation fuel standards. This enables the production of high-quality SAF.

Our client is committed to replacing traditional fossil fuels with clean energy, focusing on green hydrogen as a core feedstock to achieve sustainable development between new energy and green chemical products. One of our clients is developing a 1,000 KTA biomass methanol project with a 100 KTA green methanol-to-SAF facility. Powered by abundant wind energy resources, the project will produce high-quality SAF via UOP's new process using green methanol as feedstock, advancing the latest decarbonization practice in aviation. This initiative supports the client's green transition and contributes to the low-carbon future of aviation.



Project Case

Feasibility Study for a 100 KTA SAF Plant

Client Challenge: The client, a global leader in clean energy, planned to leverage its abundant wind power resources to develop a 1,000 KTA biomass methanol project, followed by a 100 KTA sustainable aviation fuel (SAF) production facility. To ensure international competitiveness in both technical feasibility and economic performance, the client urgently required a clear process technology roadmap, an optimized investment return model, and a comprehensive assessment across multiple dimensions, including feedstock, energy consumption, and carbon intensity.

Solution: Wison Engineering undertook the integrated feasibility study for this project, covering feedstock pathway analysis, process technology selection, key equipment configuration, full-process system design, investment evaluation, and economic modeling. Through a systematic comparison of multiple representative pathways, the study comprehensively evaluated differences in feedstock adaptability, technology maturity, unit energy consumption, carbon intensity, and total investment cost. The analysis ultimately identified Methanol-to-Jet as the optimal technical route.

Methanol-to-Jet (MTJ) Process Overview: In the MTJ pathway, green methanol is first dehydrated via the MTO process to produce short-chain olefins. These are then oligomerized into long-chain alkenes and iso-olefins, which are further hydrogenated into alkanes. Finally, fractionation produces qualified fuel components that meet SAF standards. This pathway offers readily available feedstock, lower carbon emissions, and higher process maturity, making it one of the most cost-effective SAF solutions in the near future.