

## The construction of the world's largest polyethylene plant

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In recent years, there have been many plans for chemical plant construction projects in the Gulf of Mexico, for the purposes of monetizing cheap gas following the shale gas revolution. Whilst the labor shortage in the United States (US) was worsening, there was a tendency to increase the size of the plants, shorten delivery time and lower costs. It was under these conditions that this project was planned as the world's first full modularization of the world's largest polyethylene plant, with a shorter delivery time compared to similar size plants.

Normally, modularization results in longer delivery times compared to traditional methods, due to doubling the number of deliveries i.e. material delivery to the module yard followed by module delivery to the construction site. We achieved the shortest delivery time, which was shorter than traditional methods by implementing strategic engineering & procurement policies, utilization of actual data from previous projects, module maximization with DX (3D CAD, 4D simulator, etc.) and high precision engineering.

In addition, for cost reduction, we implemented early participation of our US construction partner, AWP (Advanced Work Package) adoption and layout improvement, to achieve construction of the framework effectively and without re-work or wasted drawings and materials.

Furthermore, in the most important phase of module fabrication in China, we were impacted by the COVID-19 pandemic, causing challenges as to how to deal with the movement restrictions and accelerate the delivery time during the pandemic.

Under such tight restrictions, we tried to improve productivity and quality. For example, we shared the latest engineering, construction, quality information using cloud, and executed remote inspections utilizing real time 360-degree cameras, without the need to dispatch inspectors to the site.

Through these efforts, we completed the project On Time and On Budget during the COVID-19 pandemic. In addition, our customer was highly appreciative of our ZERO recordable injury achieved during the entire project period.

This experience and knowledge will also be applied to the modularization of CO2 capture plants and small modular reactors, whose demand is expected to grow rapidly, and will greatly contribute to decarbonization on a global scale.

Judging by this outstanding achievement and potential for future development, this project is worthy of the Engineering Commendation Award.



Module Yard in China



Module Shipment



Ethylene Complex