

CPOC - Carigali- PTTEPI Operating Company

Offshore CO₂ Membrane Facility**LOCATION**Offshore Southeast Asia
JDA Block B-17**TYPE**Cynara® CO₂ Removal
Membrane System**SIZE**

650mm scfd

ENVIRONMENT

Offshore Fixed Platform

YEAR AWARDED

2006

PROJECT VALUE

unspecified

SCOPEMembrane technology,
membrane & valve skids,
pretreatment equipment,
automation & controls**STATUS**Equipment delivery 2008
Start-up 2009

Cynara® membrane skid delivered for CPOC Project Carigali - PTTEPI Operating Company, in South East Asia

PROJECT DESCRIPTION

The Offshore CPOC production platform, in the Malaysia – Thailand Joint Development Area (JDA) Block B-17, is designed to process 650 MMSCFD Inlet gas, and must reduce the CO₂ from 43% inlet content to 23% sales gas content. Carigali – PTTEPI Operating Company SDN BHD (CPOC) selected NATCO Cynara® membrane technology for this important project. Cynara membranes are the industry-leading technology advanced and perfected by NATCO to deliver the highest separation recovery rates, greatest efficiency, and lowest cost solution. The membranes have the longest useful life because their robust design can handle condensing hydrocarbons in the gas stream. Cynara membranes have the largest amount of membrane surface area in each device. This efficient design translates into the smallest footprint and lowest capital cost available for the restrictive offshore environment.



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Multiple Cynara membrane skids loaded for delivery

SCOPE OF SUPPLY

NATCO provides turnkey supply of membrane technology, process design, detailed engineering, equipment fabrication and start-up supervision for the membrane and valve skids and pre-treatment equipment including separation, filtration, dehydration and hydrocarbon dewpointing. NATCO's industry leading TEST™ Automation & Control systems provide the programmable logic to operate the system. NATCO can also provide aftermarket service and support, as well as replacement membrane elements throughout the practical life of the offshore production platform.

The project was managed between the NATCO Houston and Malaysia Scomi/NATCO execution centers as a turn-key project including local Malaysian fabrication. Membrane elements are fabricated at NATCO's fabrication facility in Pittsburg, CA. The membrane skids will utilize eighty (80) 16" NATCO Cynara membrane elements to process the gas.

MILESTONES

- Project Awarded – 2006
- Equipment Delivered – 2008
- Equipment Start-up – 2009

ACHIEVEMENTS

- Solved technical challenges surrounding high CO₂ content and condensing liquid environment with robust Cynara membrane technology
- Additional space and weight savings achieved through implementation of value-engineering
- Project was completed and equipment delivered to customer on-time and on-budget
- Customer satisfaction and established relationships have led to joint technology development opportunities and additional project awards

RELATED PROJECTS AND EXAMPLES

- Carigali Hess Operating Company Phase I & Phase II
- Tangga Barat Cluster
- ENI Libya Bouri Offshore Project
- Chevron Pailin

TECHNOLOGY OVERVIEW

Cynara's gas separation modules operate on the basis of selective permeation. The technology takes advantage of the fact that CO₂ and H₂S dissolve and diffuse into polymeric materials. If a pressure differential is set up on opposing sides of a polymeric film (membrane), transport across the film (permeation) will occur. When a natural gas stream containing CO₂ is fed to a membrane, the CO₂ will permeate the membrane at a faster rate than the natural gas components. Thus, the feed stream is separated into a CO₂ rich, low pressure permeate stream and a CO₂-depleted, high pressure natural gas stream.

Cynara's membrane modules consist of hundreds of thousands of asymmetric hollow fibers. Pressurized gas flows into the membrane case, where it contacts the fiber bundle. Gas flows radially inward. As the gas traverses the bundle, CO₂ selectively permeates the fiber. There are many inherent advantages of this design.

Inherent advantages:

- maximize surface area per unit volume
- minimal pressure drop
- maximum separation
- withstands condensing hydrocarbons

CONTACT US

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