

# **Gas/Liquid Membranes For Natural Gas Upgrading**

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## **ABSTRACT**

A new project was initiated this quarter to develop gas/liquid membranes for natural gas upgrading. Efforts have concentrated on legal agreements, including alternative field sites.

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## **INTRODUCTION**

Gas Technology Institute (GTI) is conducting this research program whose objective is to develop gas/liquid membranes for natural gas upgrading to assist DOE in achieving their goal of developing novel methods of upgrading low quality natural gas to meet pipeline specifications.

Kværner Process Systems (KPS) and W. L. Gore & Associates (GORE) gas/liquid membrane contactors are based on expanded polytetrafluoroethylene (ePTFE) membranes acting as the contacting barrier between the contaminated gas stream and the absorbing liquid. These resilient membranes provide much greater surface area for transfer than other tower internals, with packing densities five to ten times greater, resulting in equipment 50 – 70% smaller and lower weight for the same treating service.

The scope of the research program is to (1) build and install a laboratory- and a field-scale gas/liquid membrane absorber; (2) operate the units with a low quality natural gas feed stream for sufficient time to verify the simulation model of the contactors and to project membrane life in this severe service; and (3) conducted an economic evaluation, based on the data, to quantify the impact of the technology. Chevron, one of the major producers of natural gas, has offered to host the test at a gas treating plant. KPS will use their position as a recognized leader in the construction of commercial amine plants for building the unit along with GORE providing the membranes. GTI will provide operator

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and data collection support during lab- and field-testing to assure proper analytical procedures are used. Kværner and GTI will perform the final economic evaluation. GTI will provide project management and be responsible for reporting and interactions with DOE on this project.

## ***EXECUTIVE SUMMARY***

The project has begun during the report period with the initial effort in establishing legal agreements and requirements for the laboratory unit in Des Plaines. Subcontract terms with Kværner are in negotiation. The cofunding agreement with Chevron is also under discussion, but is temporarily on hold as Chevron finalizes purchase agreements for gas supply at the Chinchaga Gas Plant in Alberta, Canada.

## ***EXPERIMENTAL***

No experimentation was performed this quarter.

## ***RESULTS AND DISCUSSION***

No results have been achieved at this point.

## ***CONCLUSION***

No conclusions have been reached at this point.

## ***REFERENCES***

None