



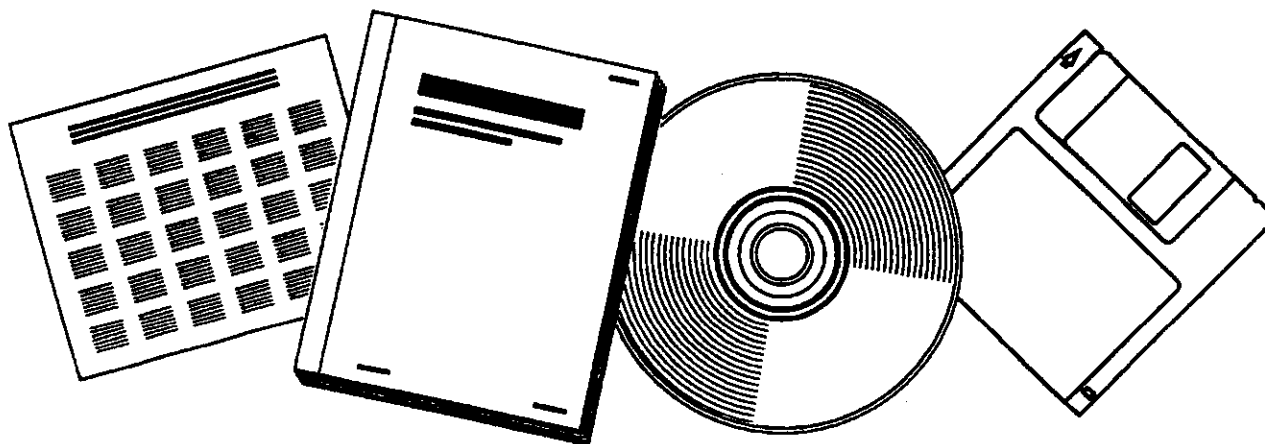
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**LIQUID PHASE METHANOL PROCESS DEVELOPMENT
UNIT: INSTALLATION, OPERATION, AND SUPPORT
STUDIES. TASK 5. LAPORTE LPMEOH PDU
RENOVATION, INSTALLATION, AND SHAKEDOWN
(RUN F-1)**

AIR PRODUCTS AND CHEMICALS, INC.
ALLENTOWN, PA

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LIQUID PHASE METHANOL PROCESS DEVELOPMENT UNIT:
INSTALLATION, OPERATION, AND SUPPORT STUDIES

Topical Report

Task 5: LaPorte LPMEOH* PDU Renovation, Installation, and Shakedown (Run F-1)

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ABSTRACT

This report details the experimental studies and events occurring during the 4-month period of commissioning and shakedown of the LaPorte LPMEOH* Process Development Unit (PDU) installed and operated under DOE Contract No. DE-AC22-81PC30019. Following the resolution of commissioning problems, a 10-day shakedown run was completed. Operation of the PDU was smooth, and the mechanical integrity and process flexibility of the unit was demonstrated. Significant data were collected on ebullated bed expansion characteristics, catalyst attrition, catalyst performance, and gas holdup in both the two- and three-phase reactor systems. Catalyst surface chemistry analyses were performed to monitor the catalyst condition. The reactor performance for various operating conditions was comparable to laboratory autoclave results. Carbon monoxide conversion ranged from 9 to 50%, and a maximum of 7,271 kg (8 tons) methanol per day was produced.

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