

## CONTENTS

### Essay

..... N. TAKAMATSU ..... (259)

### Special Articles: Physical and Chemical Utilization Technology of Carbon Dioxide

#### (Reviews)

Recent Examples of Carbon Dioxide Utilization Technologies and Perspective of Their Industrialization  
..... H. SUGIMOTO ..... (260)

Methanol Synthesis from Carbon Dioxide  
..... T. MUROI ..... (268)

CO<sub>2</sub> Reforming Process for Synthesis Gas Production  
..... F. YAGI ..... (274)

Conversion of Carbon Dioxide to Methane  
— For the Use of Renewable Energy in the Form of Usable Fuel —  
..... K. HASHIMOTO, N. KUMAGAI, K. IZUMIYA, H. TAKANO, Z. KATO ..... (279)

Utilization of CO<sub>2</sub> for Carbonic Acid Ester Synthesis  
..... N. MIYAKE ..... (287)

Current Trends in Supercritical Carbon Dioxide Technologies  
..... H. UCHIDA ..... (292)

### Original Paper

The Pyrolysis of Oil Sand Bitumen in the Presence of Water and Toluene  
..... K. OSATO, S. KATO, T. M. AIDA, M. WATANABE, R. L. SMITH, Jr, H. INOMATA ..... (303)

Influence of Polyethylene Terephthalate and Additive Effect of Converter Dust during Liquefaction of Waste Plastics  
..... Y. KAKUTA, M. SUGANO, K. HIRANO ..... (311)

### Lecture Note

#### Coal (13):

Catalytic Gasification of Coal ..... Y. OTSUKA ..... (317)

~~~~~  
Report on Symposium of Natural Gas Science Division ..... (327)

Report on the 7th Conference on Biomass Science ..... (328)

Entropy ..... (332)                      JIE Calendar ..... (333)

Bulletin Board ..... (333)                      From the Editors ..... (335)

~~~~~