

## C125504 : MAJOR CHEMICAL TECHNOLOGY

KEY WORD : KINETICS, SULPHUR DECOMPOSITION, COAL CARBONIZATION

SOMRUEDEE RIMPASUT : KINETICS OF COAL SULPHUR DECOMPOSITION DURING CARBONIZATION. THESIS ADVISOR : PROF.SOMCHAI OSUWAN, 99 PP.

ISBN 974-581-597-7

Temperature and carbonizing time affect the decomposition of sulphur in coals. Experiments were preformed on two coal samples from Ma Moh and Pang Pu Dam. Carbonization was carried out at various temperatures; 400, 450, 500, 600 and 700°C and at varied times; 0, 10, 20, 30, 60 and 90 minutes. It was found that total sulphur, sulphate sulphur and pyritic sulphur in coal decomposed more at higher temperature and longer carbonizing time. For Ma Moh coal, pyritic sulphur and sulphate sulphur decomposed completely at 500°C 90 minutes and 600°C 10 minutes respectively, while for Bang Pu Dam coal, the complete decompositions occurred at 700°C 20 minutes and 700°C 10 minutes respectively. It was also found that parts of sulphate sulphur and pyritic sulphur decomposed into sulphide sulphur form as sulphide sulphur was found at higher temperature and longer time. Organic sulphur was almost unaffected in this experiment.

Reaction rates for the decomposition of total sulphur, sulphate sulphur and pyritic sulphur were found to be represented by second order, first order and first order respectively for both coal samples.