

## C326409 : MAJOR BIOTECHNOLOGY

KEY WORD: ALCOHOL/GAS SENSOR/TIN OXIDE/THIN FILM/CARRIER GAS

LESAK PROMSONG : FABRICATION OF THIN FILM TIN OXIDE ALCOHOL GAS SENSOR. THESIS ADVISOR : ASST. PROF. MANA SRIYUDTHSAK, Dr. Eng. 145 pp. ISBN 974-583-538-2

Alcohol gas sensors, with platinum electrode, were fabricated from thin film tin oxide. The flow injection analysis (FIA) system for the gas measurement was also developed. The effect of oxygen content in carrier gas was investigated by this system. It was found that oxygen content about 20% has many merits, such as enhancing the dynamic range, reducing the background conductance and recovery time. These characteristics are very important in practical use. From the optimization of the bias voltage, a bias voltage of 3.0 volt showed a low deviation of sensor out put. The effort to improve gas sensor performance was done by doping with calcium oxide or aluminium to the tin oxide film, doping of 2% calcium can be increased the sensitivity and selectivity of the sensors, decreased the operating temperature from 500°C to 200°C - 300°C.

The gas sensor can measured alcohol concentration in the range of 1 - 10% by volume. The basic application of gas sensor was also done by the measurement of alcohol concentration in commercial wine, the results obtained from gas sensor was comparable to the value that labeled on the wine bottles.

ภาควิชา.....เทคโนโลยีทางชีวภาพ.....ลายมือชื่อนิสิต.....Lesak Pa.....

สาขาวิชา.....เทคโนโลยีทางชีวภาพ.....ลายมือชื่ออาจารย์ที่ปรึกษา.....Mana Sriyudthach.....

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