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SILICALITE MEMBRANE AS A MOLECULAR FILTER FOR SELECTIVE GAS SENSOR DEVICES

The aim of this research is to study of utilization of zeolite membrane (silicalite) with semiconductor gas sensor devices (SnO_2) for improves the sensor selectivity. The research is started with the synthesis of silicalite membrane on a smooth and rough supports. After template removed with a chemical and thermal assisted, the membrane was characterized. The second step is study of permeation properties of the membrane with ethylene and water vapor at various permeation temperatures. The third step is study of tin oxide thin film synthesis by an ultrasonic spray pyrolysis and characterization of physical and chemical properties of tin oxide films. The fourth step is study of fabrication of tin oxide thin film gas sensors and signal testing with ethylene and water vapor. The last step is study of fabrication of silicalite membrane with tin oxide thin film gas sensors and signal testing with ethylene and water vapor.