

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

Two types of mixed matrix membrane, SR/Ag-zeolite/PS and SR/PEG/PS were developed for olefin/paraffin separation. The permeability and selectivity of ethylene and ethane significantly improved when PEG was incorporated in the membrane phase.

Silicone rubber is not a suitable polymer to form Ag-zeolite mixed matrix membrane for olefin/paraffin separation due to the high permeabilities of olefin and paraffin on silicone rubber phase.

Ag-zeolite, which was added in the membrane, did not help olefin transport across the membrane due to the strong bonding between  $Ag^+$  and olefin.

The addition of water in the membrane could not contribute to the Ag-zeolite/olefin interaction.

In the future works, two types of mixed matrix membrane for olefin/paraffin separation should be developed. The first type is SR mix with other solvent such as triethylene glycol and glycerol on porous polysulfone support. The second type is solid dispersed cellulose-acetate based membranes with silicalite and Ag-zeolite as a carrier.