

## CHAPTER V

### CONCLUSION AND SUGGESTION

#### 5.1 Conclusion

In this work, 25% and 50% of epoxidised natural rubbers (ENR) were prepared by treatment of natural rubber latex with 12% and 32% of peracetic acid, respectively. The appropriate condition for the preparation of ENR was at the reaction temperature of 20 – 25 °C and 2 hours reaction time.

The amine crosslinked ENR membranes were prepared by crosslinking the neutralised ENR with amines including ethylenediamine, diethylenetriamine and *p*-phenylenediamine. These membranes were investigated for their mechanical properties, gel content, solvent swelling, permeability and permselectivity between chloroform and ethanol.

Results showed that the optimum conditions for preparing the appropriate membranes are presented in Table 5.1

**Table 5.1** The optimum conditions for preparing the membranes

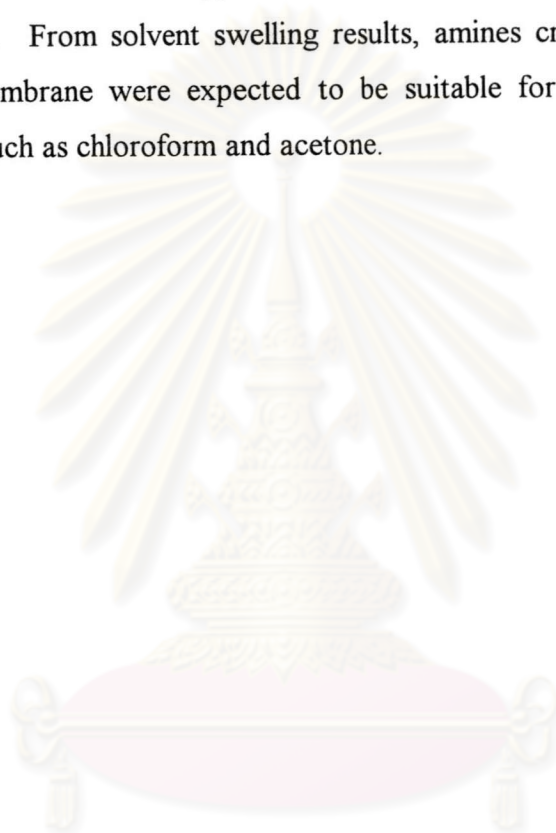
membrane	amine concentration	curing temperature	curing time
1. ethylenediamine crosslinked ENR	3	105 °C	10
2. diethylenetriamine	3	110 °C	10
3. <i>p</i> -phenylenediamine	3	120 °C	10

Comparison of permeability of these membranes for chloroform and ethanol indicated that chloroform was permeated through these membrane more than ethanol. Thus, permeability of chloroform and ethanol mixtures at three ratio were investigated. It was found that chloroform also permeated through these membranes faster than ethanol at chloroform and ethanol ratio of 75:25 and 50:50, while permeating at chloroform and ethanol ratio of 25:50 was very slow. Therefore, the amine crosslinked ENR membranes could be very useful to develop

into efficient membranes for separation of chloroform from the mixture of chloroform and ethanol.

## 5.2 Suggestion

The amine crosslinked ENR membrane should be further studied, *i.e.* crosslinked ENR with primary amines. The preparation of the ready used products could be possible in industrial applications of membrane containing amines as crosslinking agent. From solvent swelling results, amines crosslinked epoxidised natural rubber membrane were expected to be suitable for separation of other solvent mixtures such as chloroform and acetone.



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