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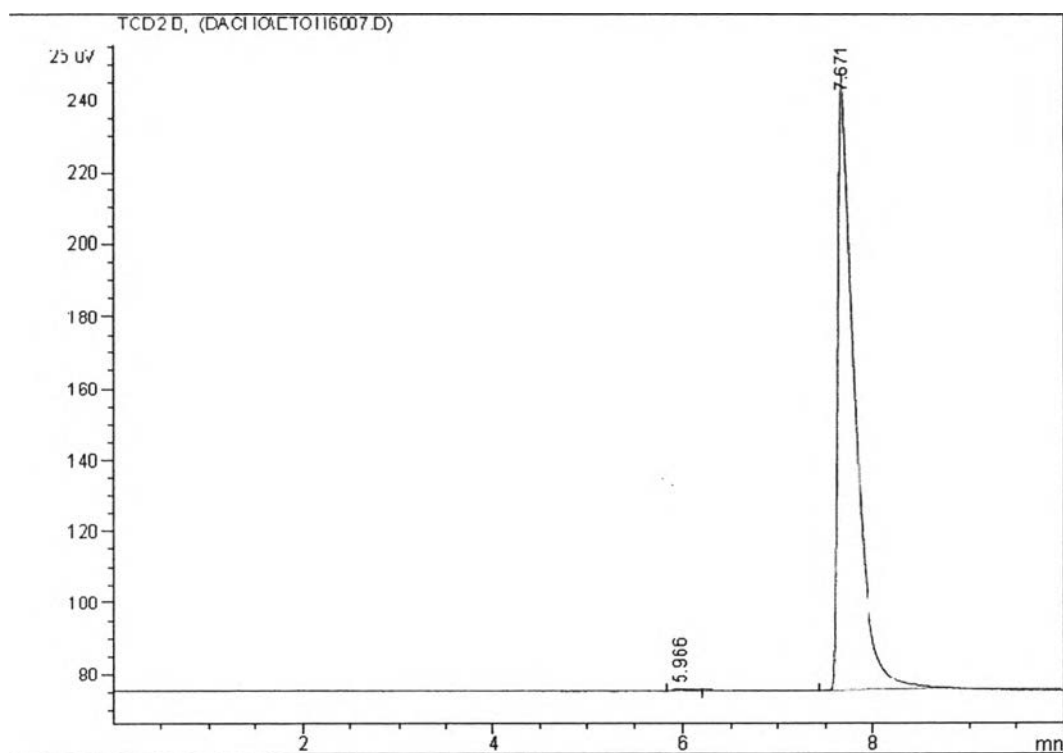
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## APPENDIX

### Appendix A GC Chromatogram of Samples



**Figure A1** GC chromatogram of water:ethanol mixture at 0.31:99.69%

**Table A1** Peak area and % area of water and ethanol from GC

Peak #	Ret Time, Type (min)	Width (min)	Area [pA*s]	Height [pA]	Area %	Component
1	5.966, VV	0.1598	6.81089	5.19883e-1	0.31340	Water
2	7.671, VB	0.1687	2166.40161	171.07175	99.68660	Ethanol

## CURRICULUM VITAE

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2. Kuanchertchoo, N.; Kunnakorn, D.; Kulprathipanja, S.; Aungkavattana, P.; Atong, D.; Hemra, K.; Rirksomboon, T.; and Wongkasemjit, S. Oriented NaA zeolite Membrane formation and performance using seeding and electrophoretic techniques, In Advanced Metal and Metal Oxide Technology, Transworld Research Network, 2009, 141-155.
3. Kunnakorn, D.; Rirksomboon, T.; Aungkavattana, P.; Kuanchertchoo, N.; Atong, D.; Hemra, K.; Kulprathipanja, S.; and Wongkasemjit, S. Optimization of synthesis time for high performance of NaA zeolite membranes synthesized via autoclave for water-ethanol separation, Desalination, accepted.
4. Kunnakorn, D.; Rirksomboon, T.; Aungkavattana, P.; Kuanchertchoo, N.; Atong, D.; Hemra, K.; Kulprathipanja, S.; and Wongkasemjit, S. Techno-economic comparison of energy usage between azeotropic distillation and hybrid system for water-ethanol separation, Polymer Engineering and Science, submitted.



**Presentations:**

1. Kunnakorn, D.; Rirksomboon, T.; Aungkavattana, P.; Kuanchertchoo, N.; Atong, D.; Kulprathipanja, S.; and Wongkasemjit, S. (2008, November 16-21) Optimization of Synthesized Sodium a (NaA) Zeolite Membranes. Paper presented at AICHE 2008 Annual Meeting, Philadelphia, Pennsylvania, USA.
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