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## APPENDICES

**Appendix A** : Composition of liquid residue & distillate (Initial Molar ratio of Acetic:Ethanol = 1:1, without catalyst)

	Liquid residue		Distillate		
	15	60	15	60	90
Time kept for saponification (min)					
Acetic moles(in 2ml)	0.03	0.03	0.0024	0.0023	0.0024
EA moles(in 2ml)	0.0003	0.0009	0.003	0.0026	0.004
EA conc (mol/l)	0.15	0.45	1.5	1.3	2

At the end of experiment, Liquid residue temperature = 117 C

Vapour temperature = 110 C

Distillate volume = 46.4 ml

**Appendix B** : Composition of liquid residue & distillate (Initial Molar ratio of Acetic : Ethanol = 1:1, with 1ml of sulphuric acid catalyst)

Time kept for saponification (min)	Liquid residue				Distillate			
	30	60	90	120	30	60	90	120
Acetic moles(in 2ml)	-	0.02	0.02	0.02	0.0004	0.0004	0.0004	0.0004
EA moles(in 2ml)	-	0.0005	0.0005	0.0006	0.0082	0.0087	0.0087	0.00887
EA conc	-	0.25	0.25	0.3	4.1	4.35	4.35	4.435



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At the end of experiment, Liquid residue temperature = 105 C  
 Vapour temperature = 103 C  
 Distillate volume = 62.8 ml

**Appendix C** : Composition of liquid residue & distillate (Initial Molar ratio of Acetic :  
Ethanol = 1:2, with 1ml of sulphuric acid catalyst)

	Liquid residue		Distillate			
	30	60	90	30	60	90
Time kept for saponification (min)	30	60	90	30	60	90
Acetic moles(in 2ml)	-	0.0054	0.0054	0.0001	0.0001	0.0001
EA moles(in 2ml)	-	0.0004	0.00057	0.0088	0.00887	0.0088
EA conc	-	0.2	0.285	4.4	4.435	4.4



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At the end of experiment, Liquid residue temperature = 110 C  
Vapour temperature = 107 C  
Distillate volume = 81.5 ml



**Appendix D** : Composition of liquid residue & distillate (Initial Molar ratio of Acetic : Ethanol = 2:1, with 1ml of sulphuric acid catalyst)

	Liquid residue			Distillate		
Time kept for saponification (min)	30	60	90	30	60	90
Acetic moles(in 2ml)	0.035	0.03	0.03	0.0017	0.0017	0.0017
EA moles(in 2ml)	0.0005	0.0005	0.0006	0.007	0.008	0.009
EA conc	0.25	0.25	0.3	3.5	4	4.5



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At the end of experiment, Liquid residue temperature = 110 C  
 Vapour temperature = 105 C  
 Distillate volume = 43.8 ml