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APPENDICES

APPENDIX A

Triton X-100 Adsorption isotherm

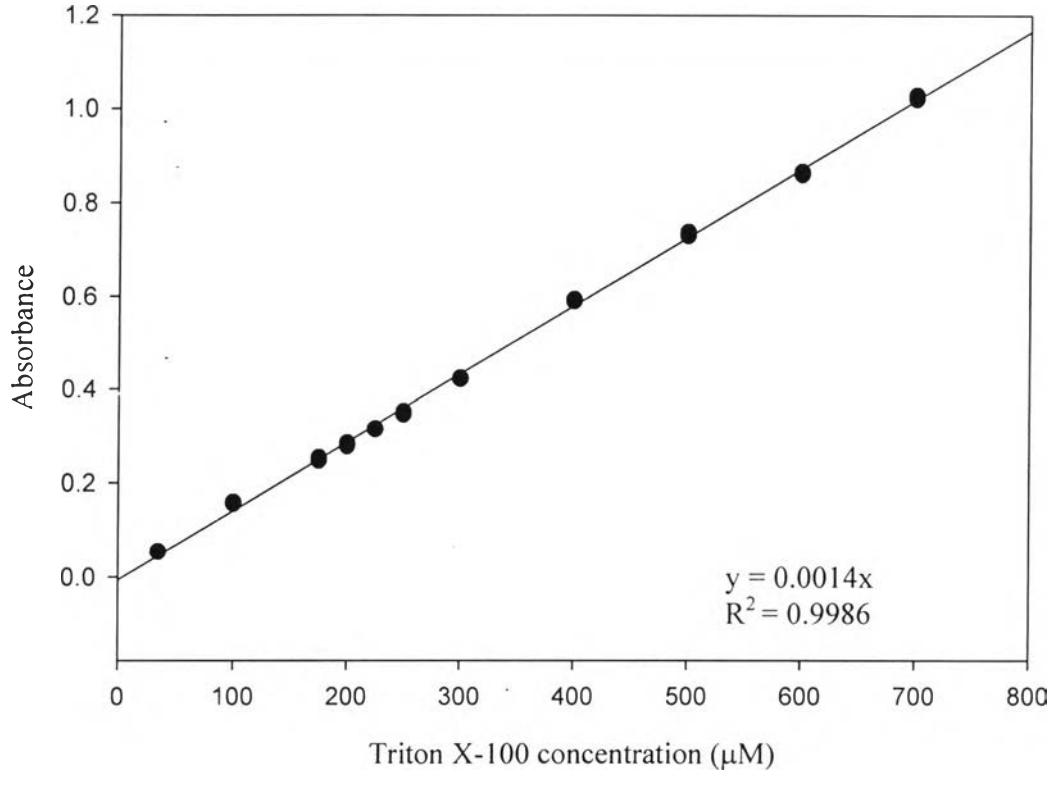

Figure A1 Calibration curve of Triton X-100 solution by UV-Spectrophotometer at 275 nm.

Table A.1 Data from calibration curve of Triton X-100 solution by UV-Spectrophotometer at 275 nm

Triton X-100 conc. (μM)	Abs. at 275 nm	Triton X-100 conc. (μM)	Abs. at 275 nm
35	0.054	250	0.351
100	0.156	250	0.352
100	0.159	300	0.424
100	0.158	300	0.421
175	0.254	300	0.421
175	0.248	400	0.589
175	0.25	400	0.592
175	0.247	400	0.593
200	0.284	500	0.737
200	0.281	500	0.729
200	0.285	500	0.732
200	0.278	600	0.863
225	0.314	600	0.86
225	0.315	600	0.865
250	0.345	700	1.028
250	0.349		

Table A.2 Data from Triton X-100 adsorption isotherm on Aerosil®OX50

Initial conc. (μM)	Equlibrium conc. (μM)	Adsorbed Surfactant (μmoles/g)
200	56.429	5.743
400	104.048	11.838
800	130.357	26.786
1000	138.333	34.467
1200	147.500	42.100
1500	155.000	53.800
1600	158.929	57.643
1700	165.357	61.386
1800	171.571	65.137
1900	181.374	70.899
2000	181.939	72.722
3000	226.310	110.948
3200	241.746	118.330
3400	257.381	125.705
3800	289.000	140.440
4000	352.500	145.204
4200	533.452	146.662
4400	687.071	148.517
4600	913.571	147.457
4800	1072.143	149.114
5000	1195.918	152.163
6000	2238.571	150.457
7000	3150.000	154.000
8000	4159.821	153.607
10000	6277.551	151.524

APPENDIX B

B1 Styrene adsolubilization at low surfactant (Triton X-100 adsorption 50 μmol/g)

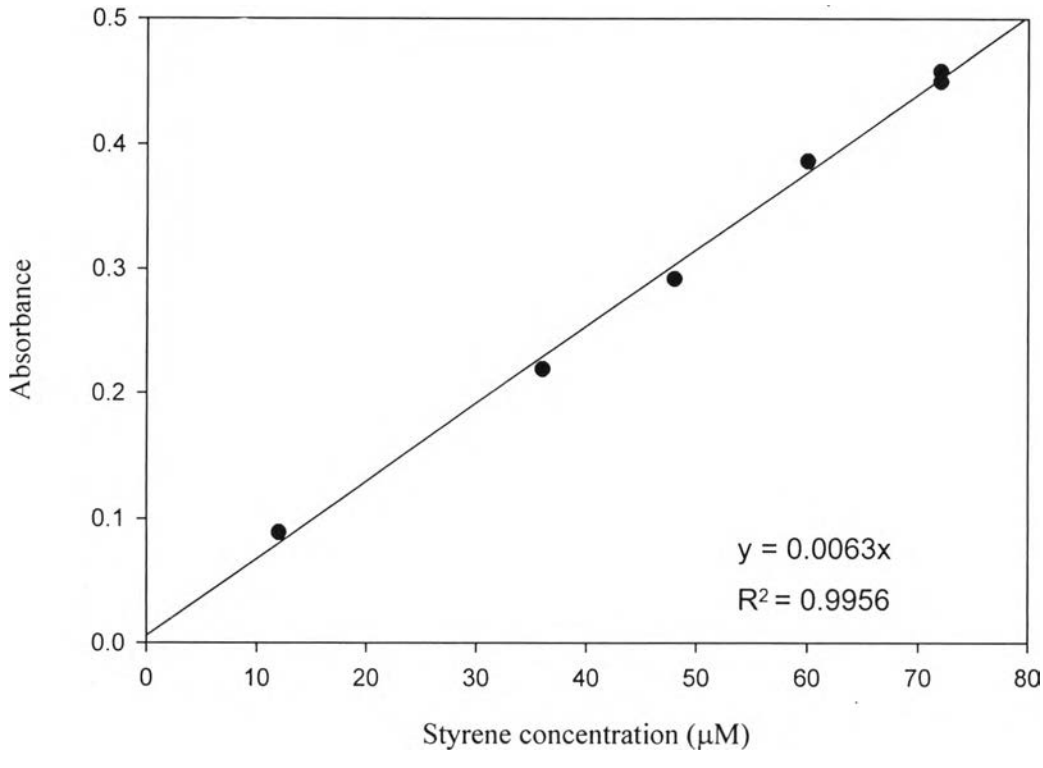

Figure B1 Calibration curve of styrene into Triton X-100 adsorption 50 μmol/g.

Table B.1 Data from styrene adsolubilization into Triton X-100 adsorption 50 μmol/g on Aerosil®OX50 by UV-Spectrophotometer at 246 nm

Initial styrene conc. (μM)	Equilibrium styrene conc. (μM)	Styrene adsolubilization (μmol/g)
200	143.492	2.260
400	285.291	4.588
600	417.341	7.306
800	468.159	13.274
1000	533.069	18.677
2000	962.963	41.481
4000	1656.085	93.757
8000	2640.212	214.392

B2 Styrene adsolubilization at high surfactant concentration (Triton X-100 adsorption 100 μmol/g)

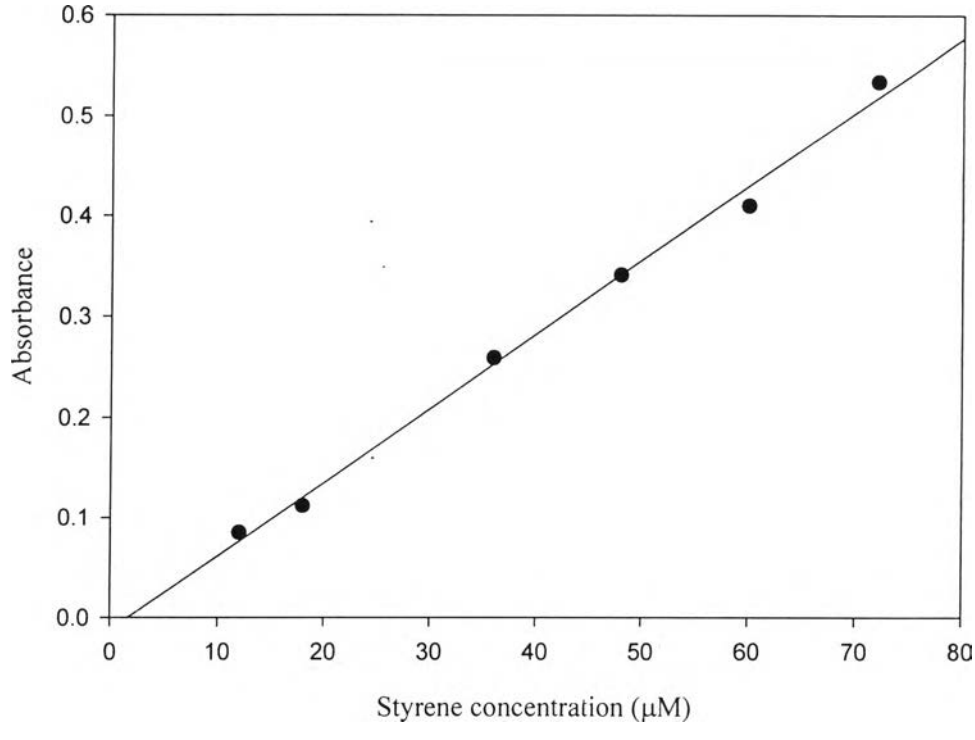

Figure B2 Calibration curve of styrene into Triton X-100 adsorption 100 μmol/g.

Table B.2 Data from styrene adsolubilization into Triton X-100 adsorption 100 μmol/g on Aerosil®OX50 by UV-Spectrophotometer at 246 nm

Initial styrene conc. (μM)	Equilibrium styrene conc. (μM)	Styrene adsolubilization (μmol/g)
500	281.362	8.746
1000	476.056	20.958
1500	727.700	30.892
2000	967.606	41.296
2500	1193.427	52.263
5000	1501.408	139.944
10000	2034.742	318.610
20000	2316.432	707.343
25000	2580.282	896.789

APPENDIX C

Calculation for amount of Triton X-100 loading, styrene loading and AIBN for Admicellar Polymerization

System

Silica 15 g.: Triton X-100 solution 250 ml.

Triton X-100

Molecular weight : 624 g/mol

Styrene

Molecular weight : 104.15 g/mol

Density : 0.906 ml./g

AIBN

Molecular weight : 164.21 g/mol

C1 TritonX-100 Loading calculation

Table C.1 Calculation of initial Triton X-100 concentration for Triton X-100 adsorption 50 and 100 μmol/g

Triton X-100 adsorption		Equilibrium Triton X-100 concentration		Initial Triton X-100 loading in the system	Total weight of Triton X-100
(μmol/g)	(μmol/15g)	(μM)	(μmol in 250 ml)	(μmol)	(g)
50	750	150	37.5	787.5	0.4914
100	1500	200	50	1550	0.9672

C 2 Styrene loading calculation

Table C.2 Calculation of initial styrene loading into Triton X-100 adsorption 50 μmol/g silica in the system

Styrene adsolubilization		Equilibrium styrene conc.		Initial styrene loading in the system (μmol)	Total volume of styrene (μl)
(μmol/g)	(μmol/15 g)	(μM)	(μmol in 250 ml)		
25	375	717.13	179.28	554.28	64.36
50	750	1100.71	275.18	1025.18	119.04
100	1500	1689.46	422.36	1922.36	223.22
150	2250	2170.67	542.67	2792.67	324.28
200	3000	2593.11	648.28	3648.28	423.62
250	3750	2976.62	744.15	4494.15	521.85
300	4500	3331.71	833.93	5332.93	619.24

Table C.3 Calculation of initial styrene loading into Triton X-100 adsorption 100 μmol/g silica in the system

Styrene adsolubilization		Equilibrium styrene conc.		Initial styrene loading in the system (μmol)	Total volume of styrene (μl)
(μmol/g)	(μmol/15 g)	(μM)	(μmol in 250 ml)		
50	750	1024.83	256.21	1006.21	116.84
100	1500	1371.41	342.85	1842.85	213.99
200	3000	1717.98	429.49	3429.50	398.22
300	4500	1920.71	480.18	4980.18	578.28
400	6000	2064.55	516.14	6516.14	756.63
500	7500	2176.13	544.03	8044.03	934.05
600	9000	2267.29	566.82	9566.82	1110.87

C 3 AIBN loading calculation

Ratio of AIBN = 1 mole AIBN : 15 mole styrene

Table C.4 Calculation of AIBN loading at Triton X-100 adsorption 50 μmol/g silica

Ratio of Triton X-100$_{adsorb}$: styrene$_{adsol}$	Total styrene (μmol)	AIBN loading	
		μmol	grams
25:50	554.28	39.95	6.07
50:50	1025.18	68.35	11.22
50:100	1922.36	128.16	21.01
50:150	2792.67	186.18	30.57
50:200	3648.28	243.22	39.94
50:250	4494.15	299.61	49.20
50:300	5332.93	355.53	58.38

Table C.5 Calculation of AIBN loading at Triton X-100 adsorption 100 μmol/g silica

Ratio of Triton X-100$_{adsorb}$: styrene$_{adsol}$	Total styrene (μmol)	AIBN loading	
		μmol	grams
100:50	1006.21	67.08	11.02
100:100	1842.85	122.86	20.17
100:200	3429.50	228.63	37.54
100:300	4980.18	332.01	54.52
100:400	6516.14	434.41	71.33
100:500	8044.03	536.27	88.06
100:600	9566.82	637.79	104.73

APPENDIX D

Data of Gel Permeation Chromatography

Table D.1 Sample name for gel permeation analysis

Ratio of Triton X-100$_{adsorb}$: styrene$_{adsol}$	Triton X-100$_{adsorb}$ (μmol/g of silica)	Styrene$_{adsol}$ (μmol/g of silica)	Sample name
1:0.5	50	25	L211
1:1	50	50	L112
1:2	50	100	L123
1:3	50	150	L134
1:4	50	200	L145
1:5	50	250	L156
1:6	50	300	50:300 (2)
1:0.5	100	50	H21
1:1	100	100	H112
1:2	100	200	Repeat 2
1:3	100	300	Repeat 1
1:4	100	400	100:400 (1)
1:5	100	500	100:500
1:6	100	600	100:600

Sample Information

SampleName	L211	Sample Type	Broad Unknown
Vial	4	Date Acquired	1/11/05 5:24:38 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
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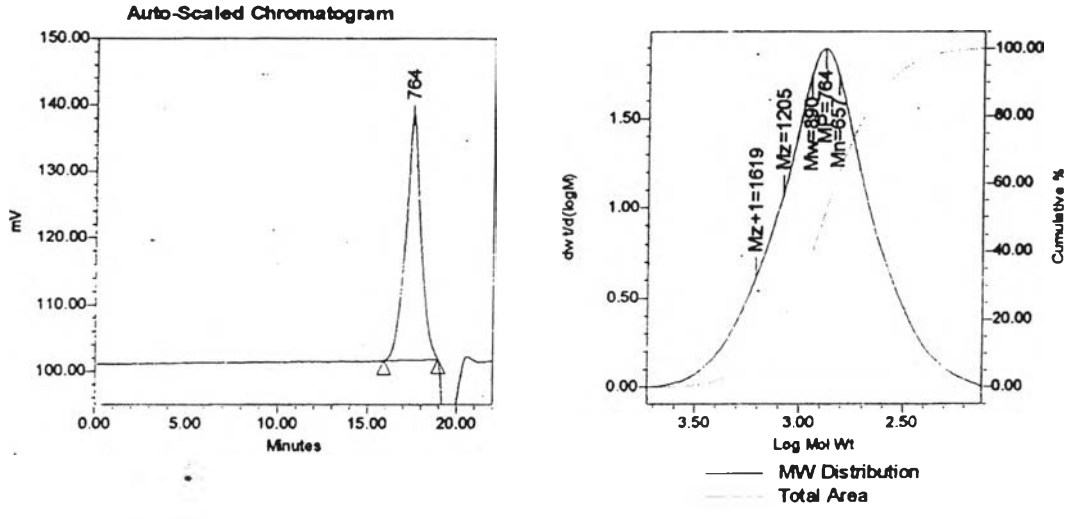

Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1						
2	657	890	764	1205	1619	1.353733

Sample Information

SampleName	L112	Sample Type	Broad Unknown
Vial	1	Date Acquired	1/11/05 4:07:29 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
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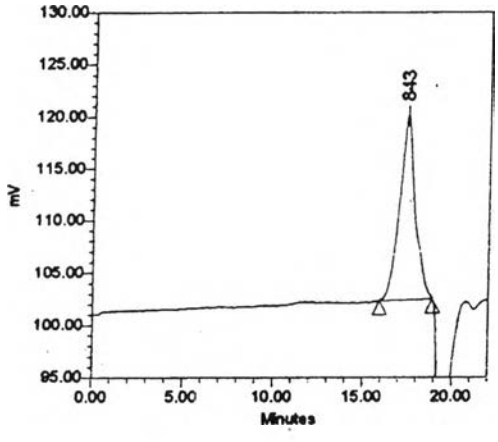
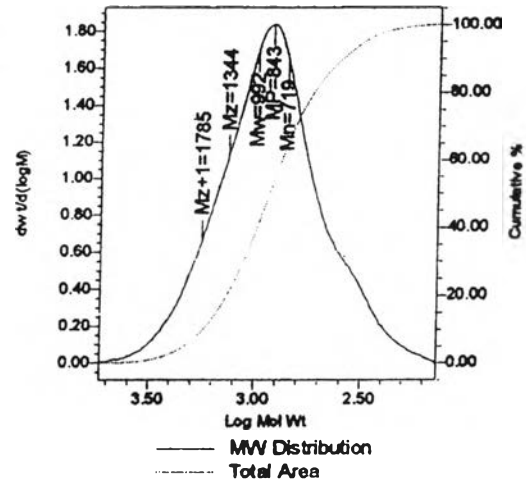
Run Time	22.0 Minutes		

Auto-Scaled Chromatogram





Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
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2	719	992	843	1344	1785	1.379277

Sample Information

SampleName	L123	Sample Type	Broad Uniknown
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Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
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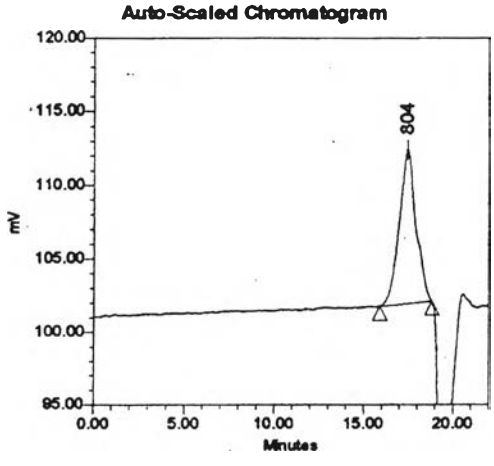
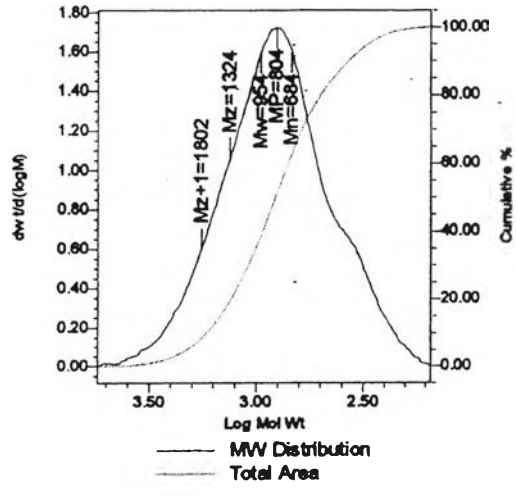
Run Time	22.0 Minutes		





Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1						
2	684	954	804	1324	1802	1.394824

Sample Information

SampleName	L134	Sample Type	Broad Unknown
Vial	6	Date Acquired	1/11/05 6:16:05 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
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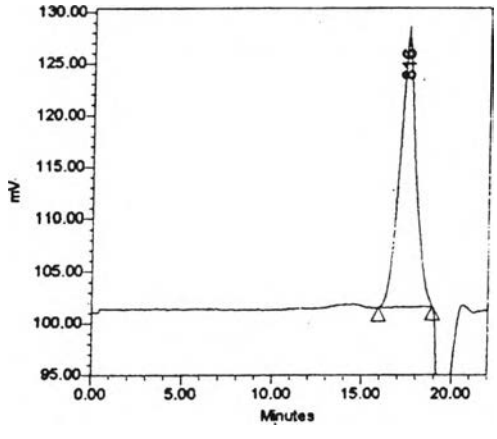
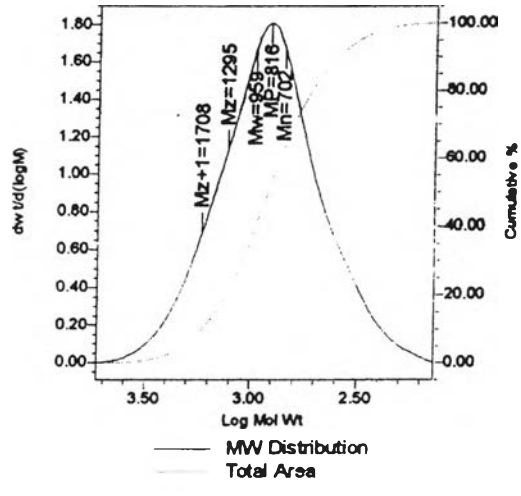
Run Time	22.0 Minutes		

Auto-Scaled Chromatogram





Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1						
2	702	959	816	1295	1708	1.367258

Sample Information

SampleName	L145	Sample Type	Broad Uniknown
Vial	5	Date Acquired	1/11/05 5:50:21 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
Channel	SATIN	Date Processed	1/12/05 6:24:06 AM
Run Time	22.0 Minutes		

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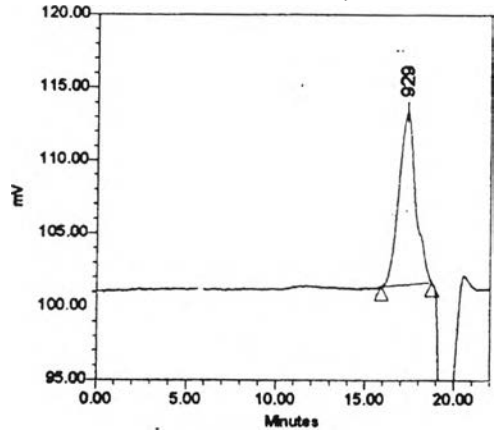

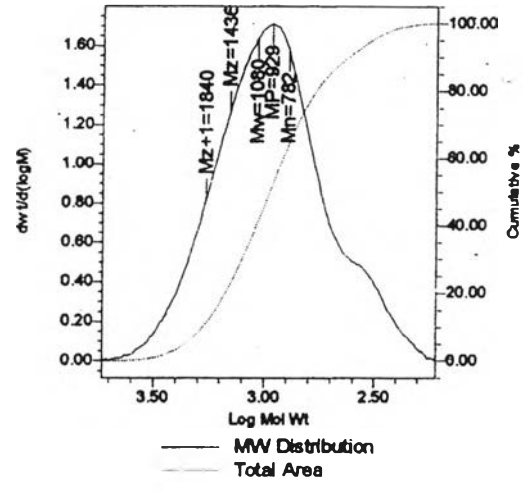

Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1						
2	782	1080	929	1436	1840	1.381737

Sample Information

SampleName	L156	Sample Type	Broad Unknown
Vial	2	Date Acquired	1/11/05 4:33:13 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
Channel	SATIN	Date Processed	1/12/05 8:23:03 AM
Run Time	22.0 Minutes		

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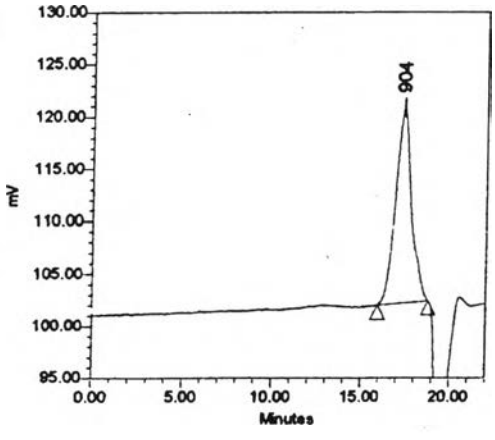
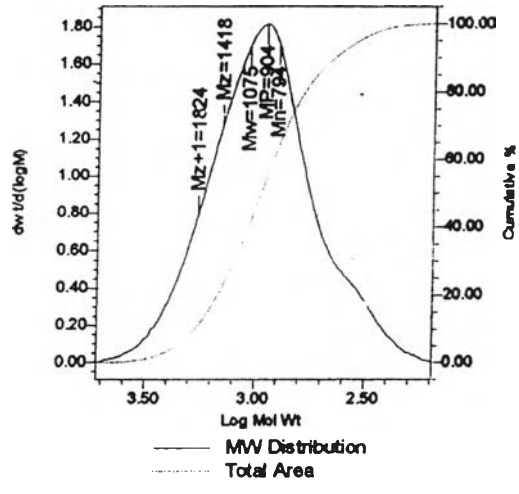




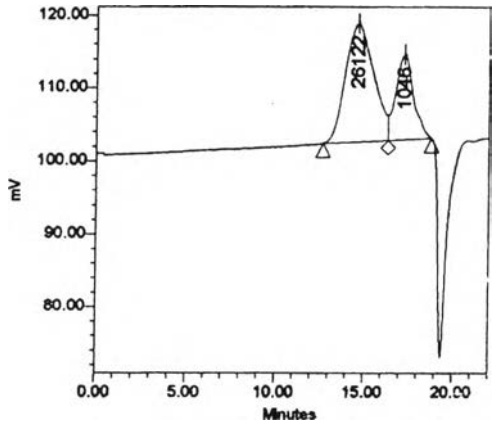
Peak Results

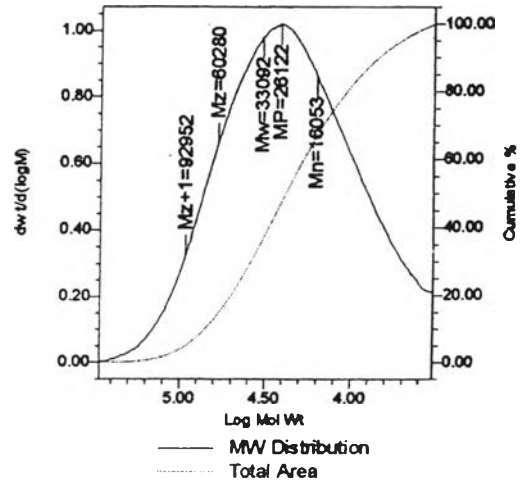
	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1						
2	794	1075	904	1418	1824	1.354285

Sample Information

SampleName	50:300 (2)	Sample Type	Broad Unknown
Vial	1	Date Acquired	12/14/04 11:14:09 AM
Injection	1	Acq Method Set	Y2004_1_MethR_THF_30C_4
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_1
Channel	SATIN	Date Processed	12/14/04 11:43:18 AM
Run Time	22.0 Minutes		

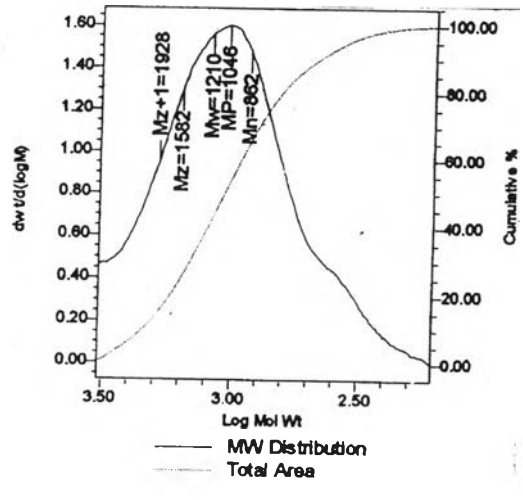
Auto-Scaled Chromatogram





Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1	16053	33092	26122	60280	92952	2.061468
2	862	1210	1046	1582	1928	1.403859



Sample Information

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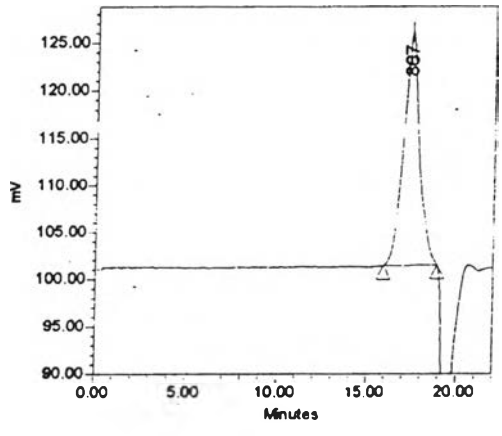
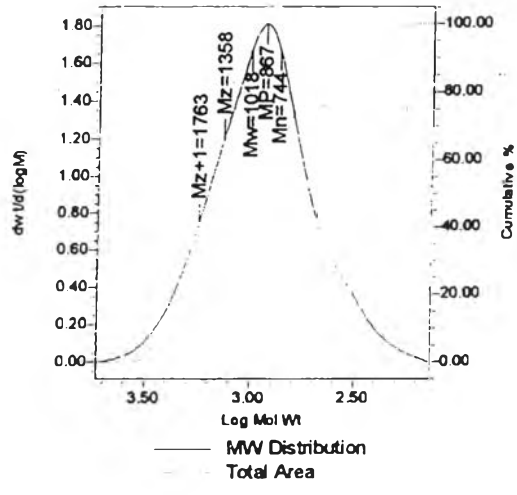
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
Channel	SATIN	Date Processed	1/12/05 8:35:09 AM
Run Time	22.0 Minutes		

Auto-Scaled Chromatogram





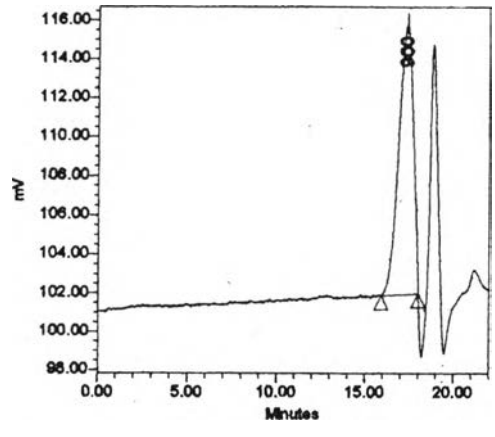
Peak Results

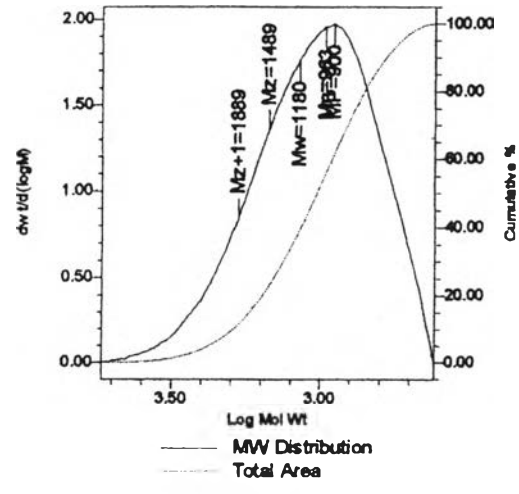
	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1						
2	744	1018	867	1358	1763	1.367834

Sample Information

SampleName	H 112	Sample Type	Broad Unknown
Vial	6	Date Acquired	1/19/05 11:59:40 AM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
Channel	SATIN	Date Processed	1/19/05 3:15:38 PM
Run Time	22.0 Minutes		

Auto-Scaled Chromatogram





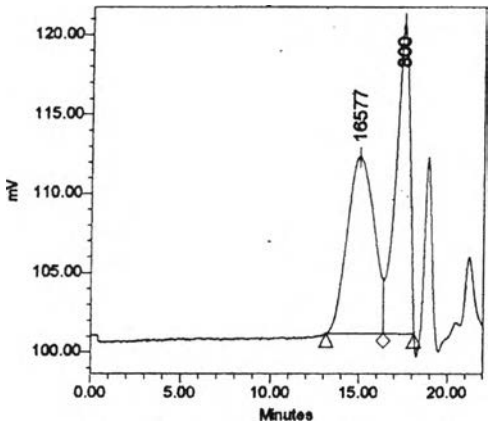
Peak Results

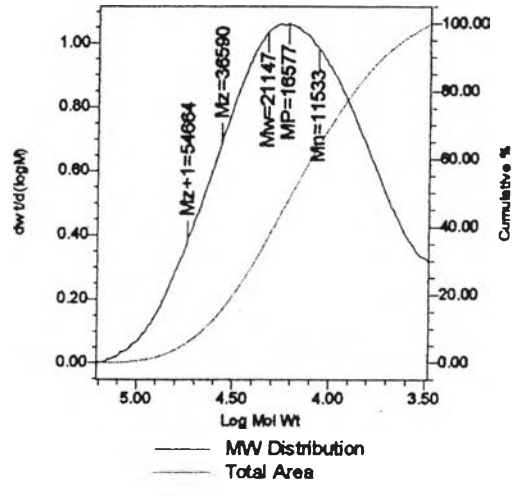
	Mn	Mw	MP	Mz	Mz+1	Polydisperstty
1						
2	963	1180	900	1489	1889	1.225423

Sample Information

SampleName	Repeat 2	Sample Type	Broad Unknown
Vial	9	Date Acquired	1/19/05 1:16:48 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
Channel	SATIN	Date Processed	1/19/05 3:16:27 PM
Run Time	22.0 Minutes		

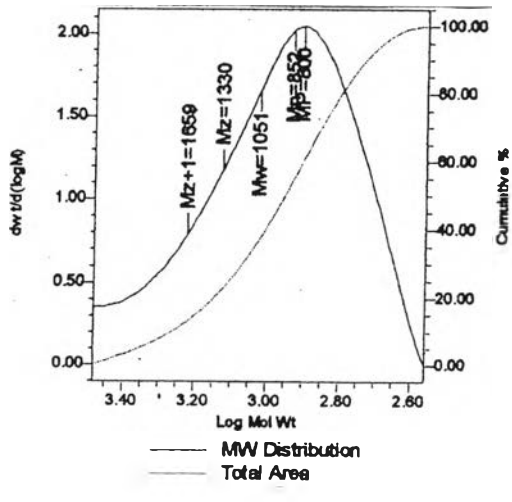
Auto-Scaled Chromatogram





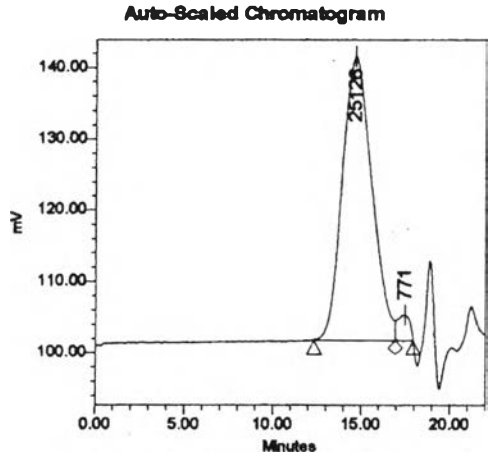
Peak Results

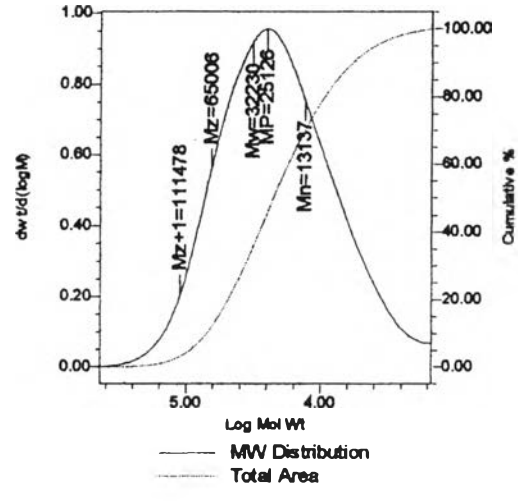
	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1	11533	21147	16577	36590	54664	1.833580
2	852	1051	800	1330	1659	1.233397



Sample Information

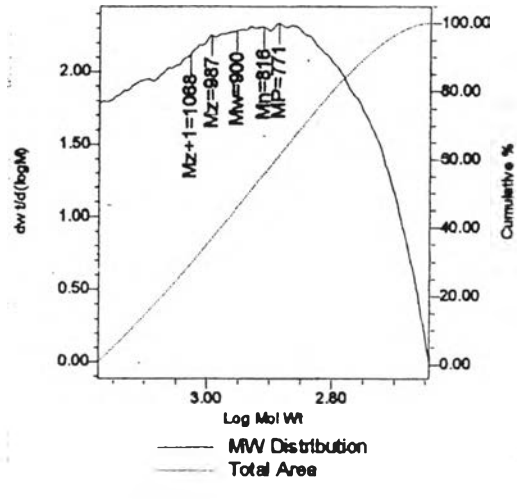
SampleName	Repeat 1	Sample Type	Broad Unknown
Vial	8	Date Acquired	1/19/05 12:51:06 PM
Injection	1	Acq Method Set	Y2005_MethR_THF_30C_2
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_2
Channel	SATIN	Date Processed	1/19/05 3:16:09 PM
Run Time	22.0 Minutes		





Peak Results

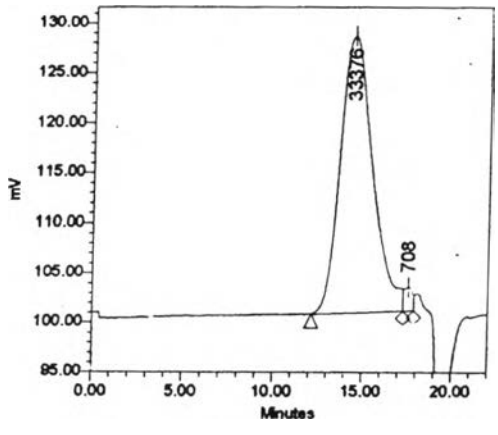
	Mn	Mw	MP	Mz	Mz+1	Polydisperstty
1	13137	32230	25126	65006	111478	2.453295
2	816	900	771	987	1068	1.102592

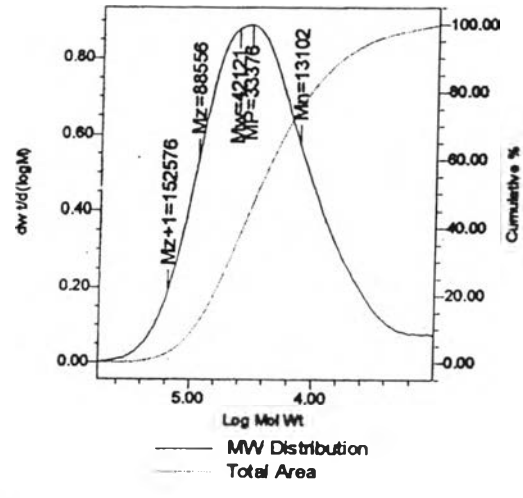


Sample Information

SampleName	100:400 (1)	Sample Type	Broad Uniknown
Vial	3	Date Acquired	12/14/04 12:44:34 PM
Injection	1	Acq Method Set	Y2004_1_MethR_THF_30C_4
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_1
Channel	SATIN	Date Processed	12/14/04 2:20:16 PM
Run Time	22.0 Minutes		

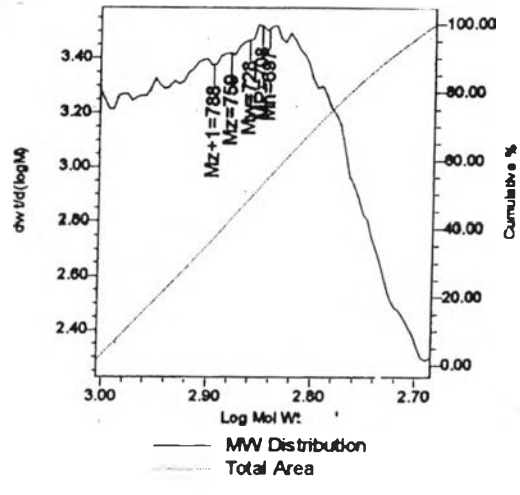
Auto-Scaled Chromatogram





Peak Results

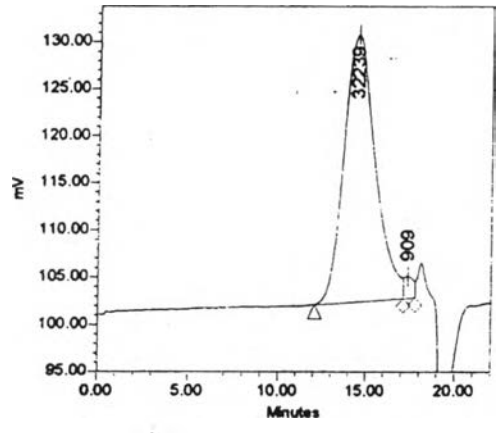
	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1	13102	42121	33376	88556	152576	3.214660
2	697	728	708	759	788	1.043766

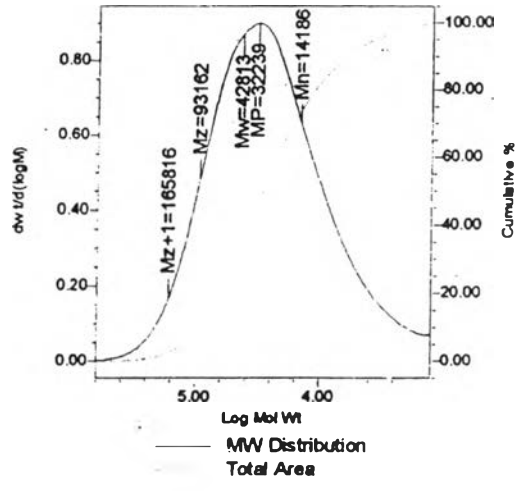


Sample Information

SampleName	100:500	Sample Type	Broad Unknown
Vial	4	Date Acquired	12/14/04 1:10:16 PM
Injection	1	Acq Method Set	Y2004_1_MethR_THF_30C_4
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_1
Channel	SATIN	Date Processed	12/14/04 2:20:48 PM
Run Time	22.0 Minutes		

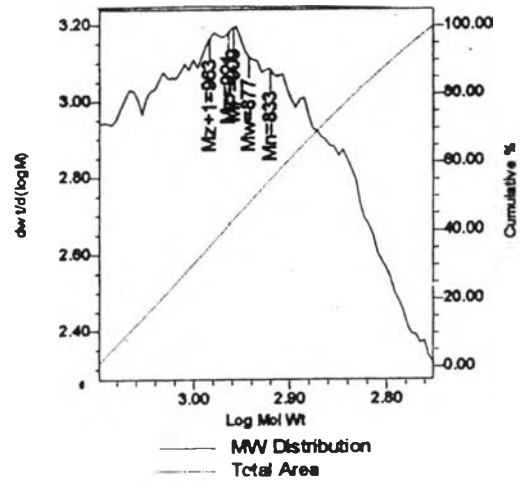
Auto-Scaled Chromatogram





Peak Results

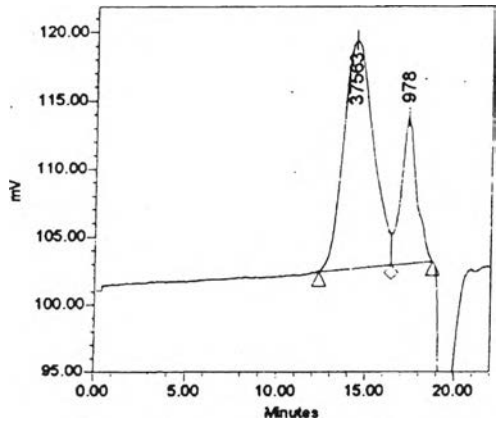
	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1	14186	42813	32239	93162	165816	3.017991
2	833	877	909	921	963	1.052801

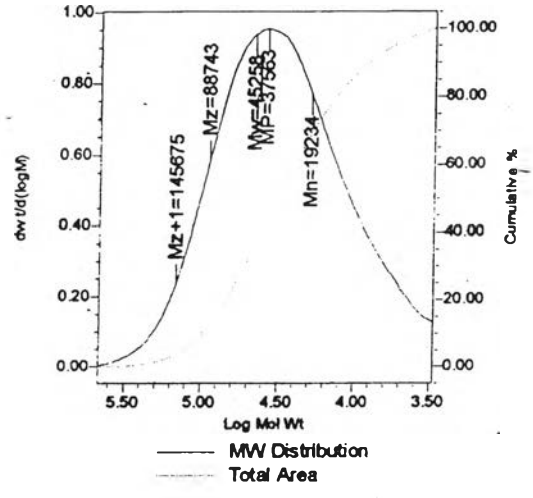


Sample Information

SampleName	100.600	Sample Type	Broad Unknown
Vial	2	Date Acquired	12/14/04 12:18:49 PM
Injection	1	Acq Method Set	Y2004_1_MethR_THF_30C_4
Injection Volume	100.00 ul	Processing Method	Y2005_ProcR_THF_30C_1
Channel	SATIN	Date Processed	12/14/04 2:16:15 PM
Run Time	22.0 Minutes		

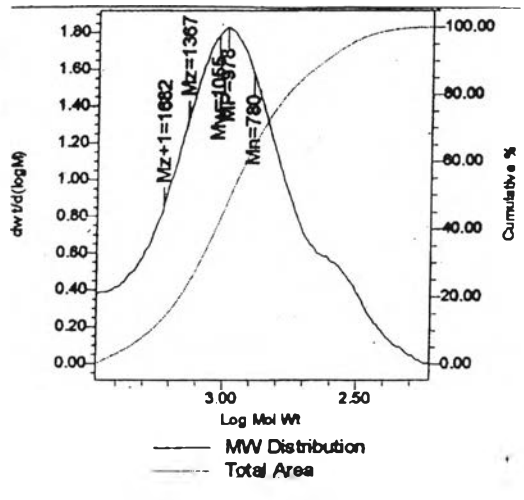
Auto-Scaled Chromatogram





Peak Results

	Mn	Mw	MP	Mz	Mz+1	Polydispersity
1	19234	45258	37563	88743	145675	2.352987
2	780	1055	978	1367	1682	1.351922



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