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สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย



APPENDICES

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

APPENDIX A

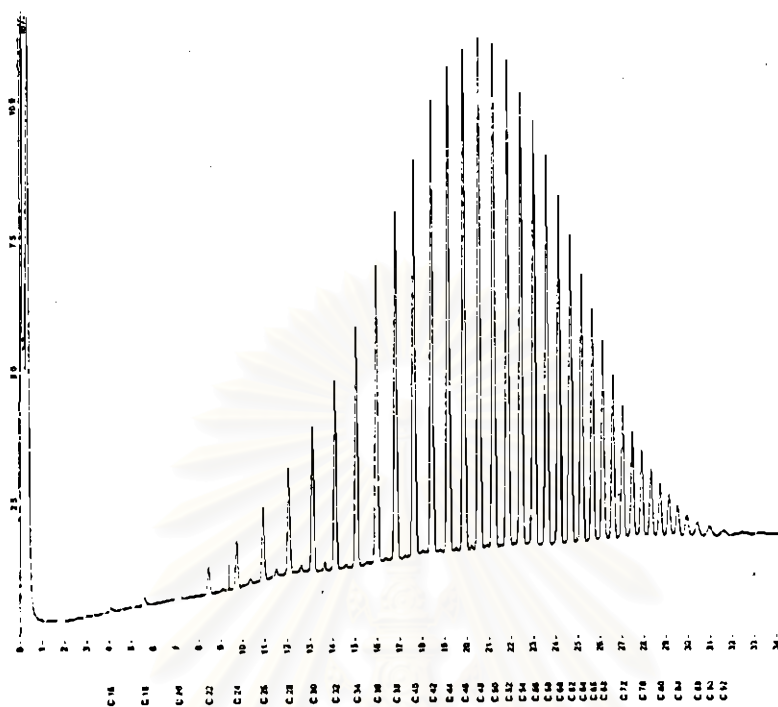


Figure A1 GC chromatogram of normal paraffin standards (C₁₉-C₉₂)

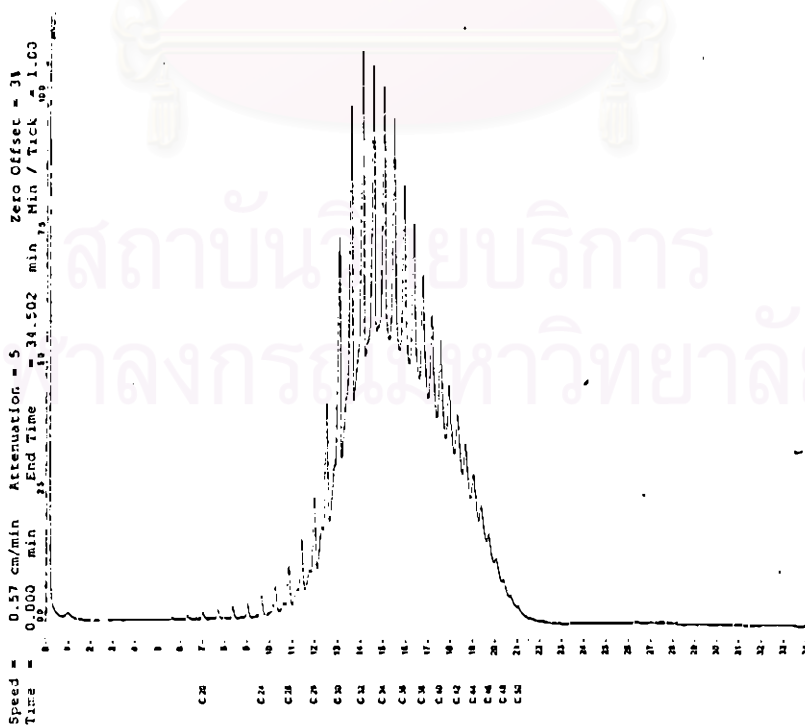


Figure A2 GC chromatogram of 500SW slack wax

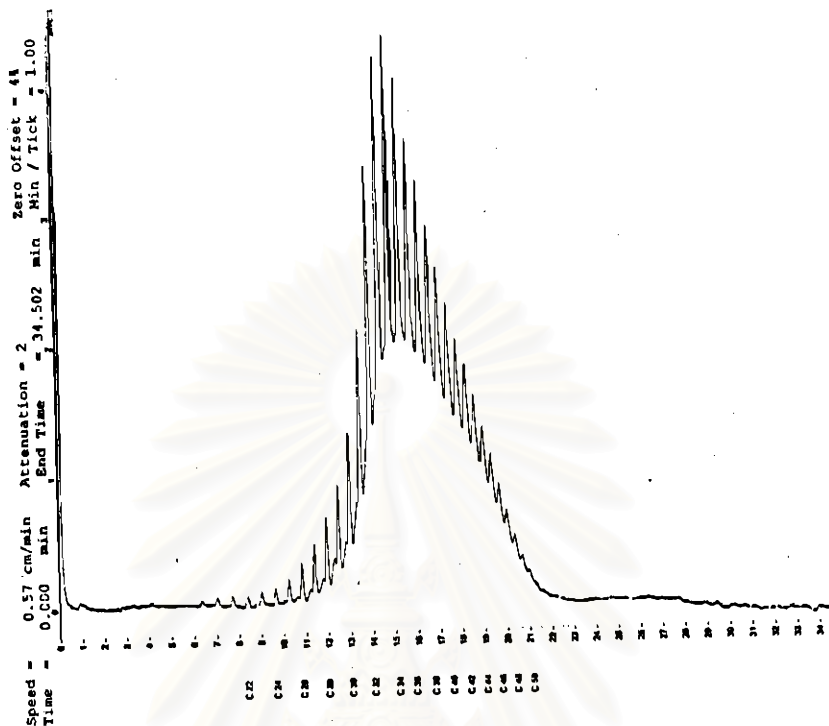


Figure A3 GC chromatogram of 600SW slack wax

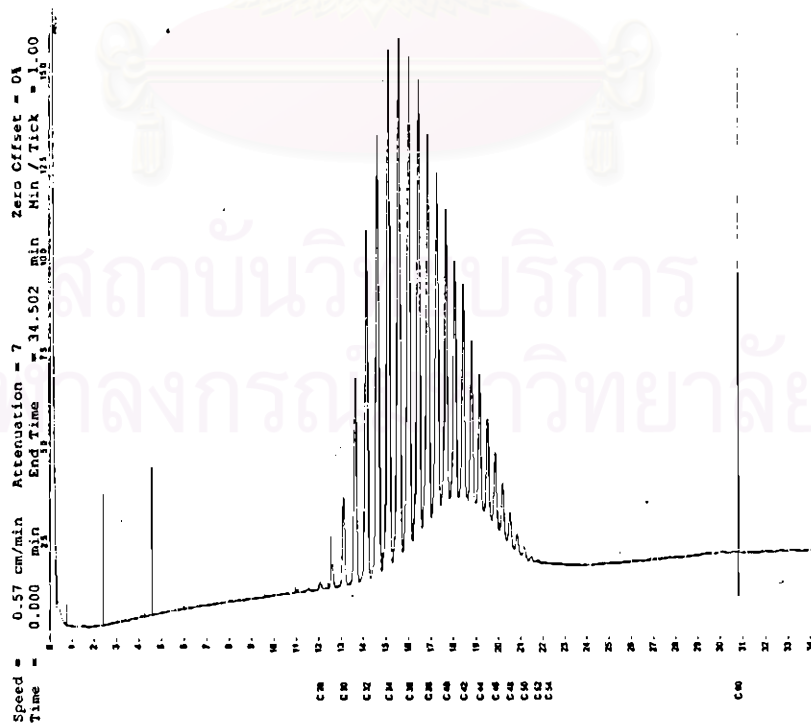


Figure A4 GC chromatogram of wax cake from 1st extraction of 500SW at 40°C by using MEK

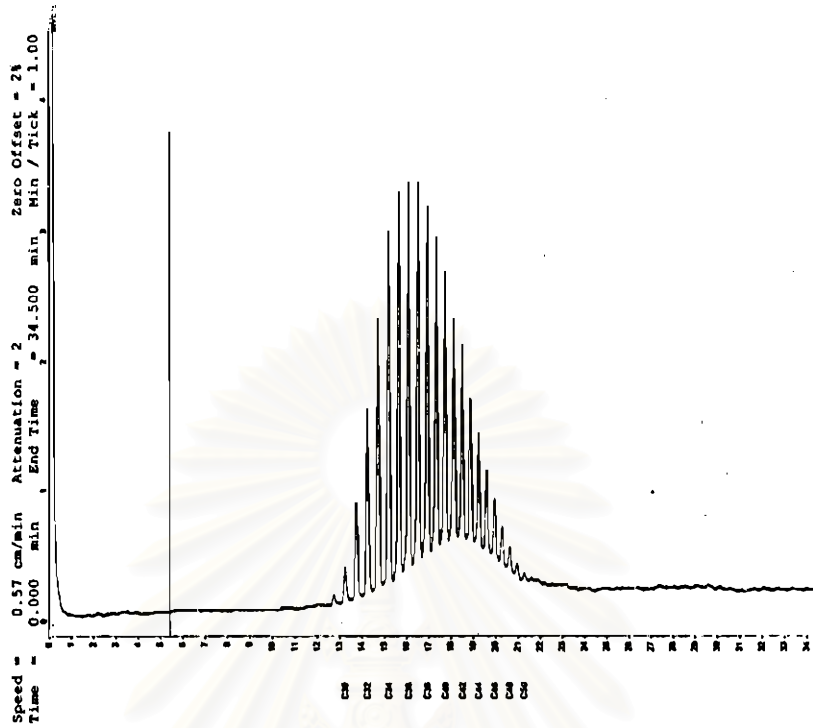


Figure A5 GC chromatogram of wax cake from 1st extraction of 500SW at 45°C by using MEK

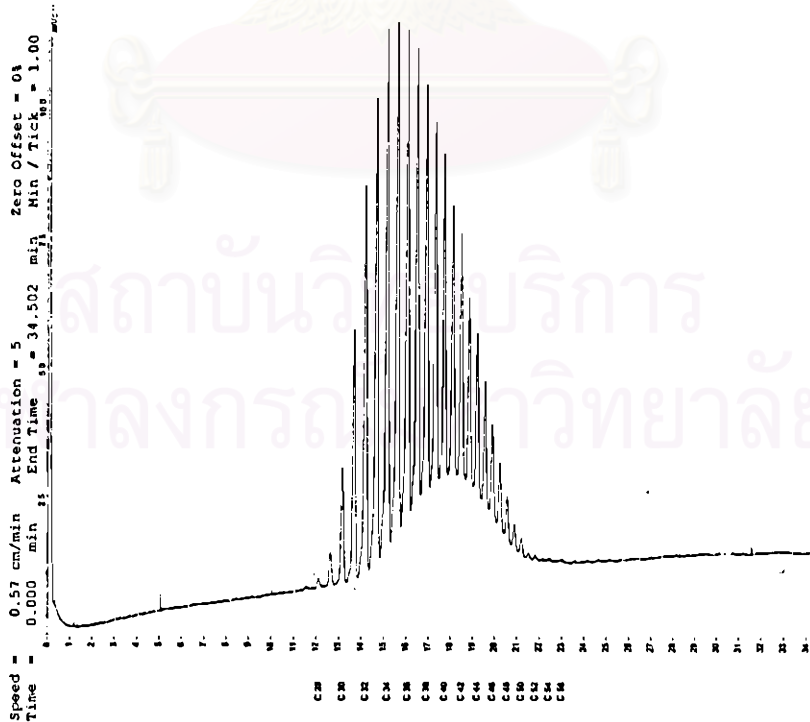


Figure A6 GC chromatogram of wax cake from 1st extraction of 500SW at 50°C by using MEK

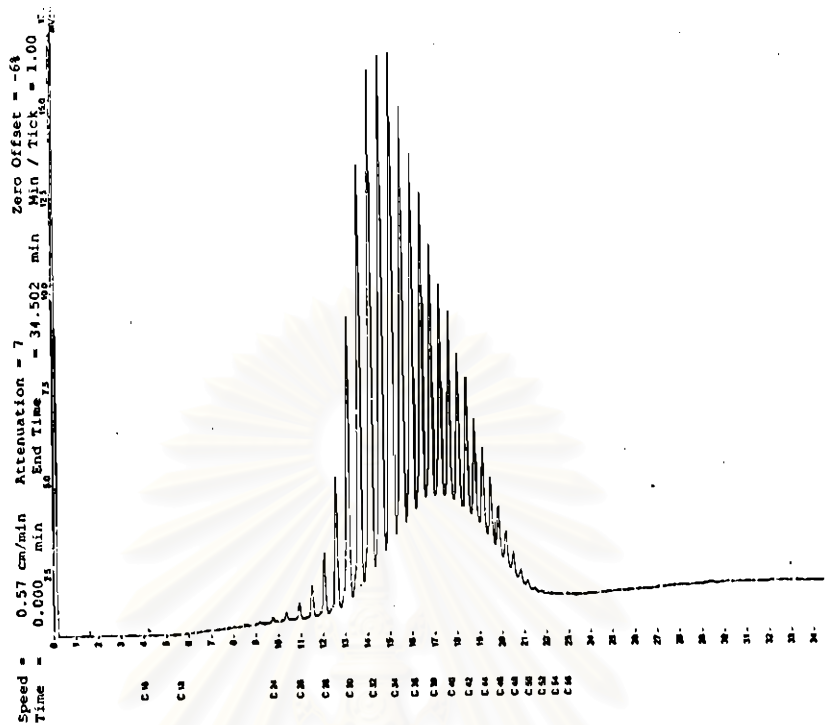


Figure A7 GC chromatogram of wax cake from 1st extraction of 500SW at 55°C by using MEK

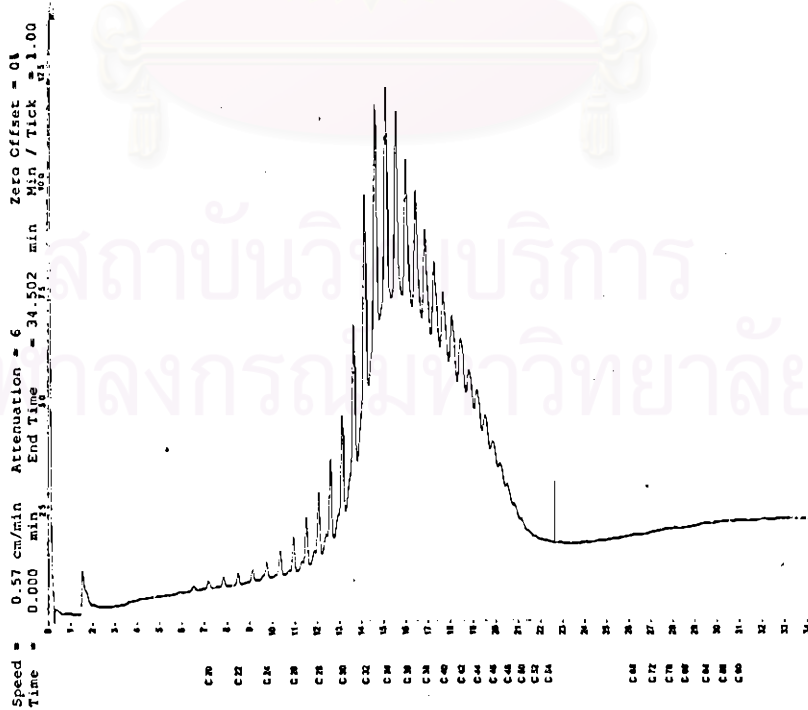


Figure A8 GC chromatogram of soluble wax from 1st extraction of 500SW at 40°C by using MEK

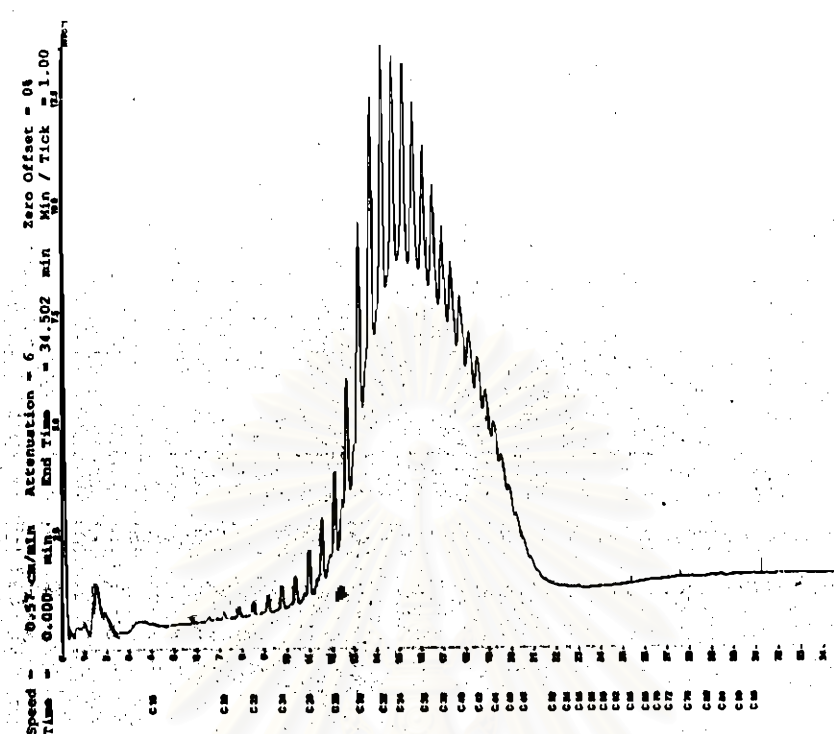


Figure A9 GC chromatogram of soluble wax from 1st extraction of 500SW at 45°C by using MEK

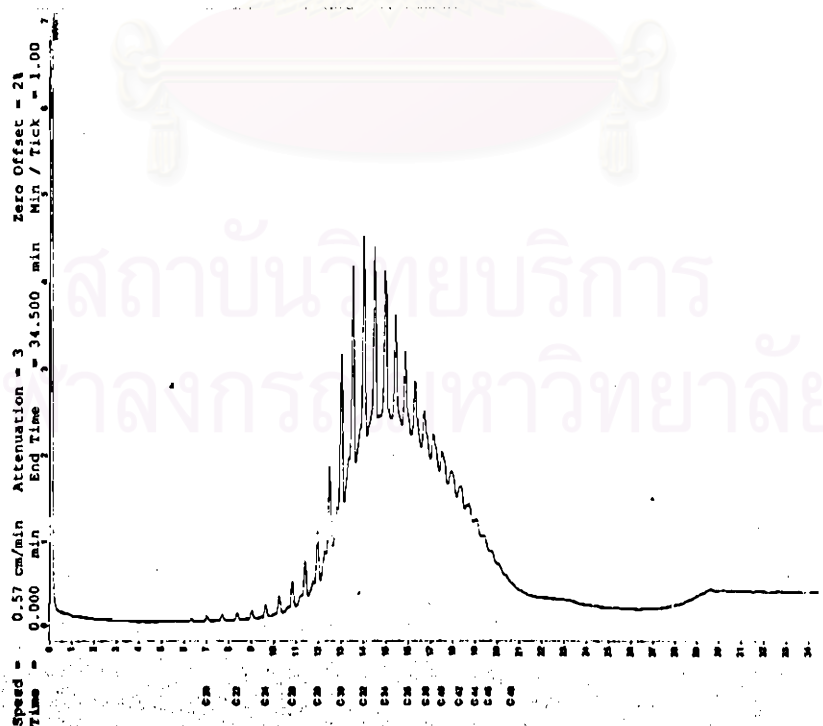


Figure A10 GC chromatogram of soluble wax from 1st extraction of 500SW at 50°C by using MEK

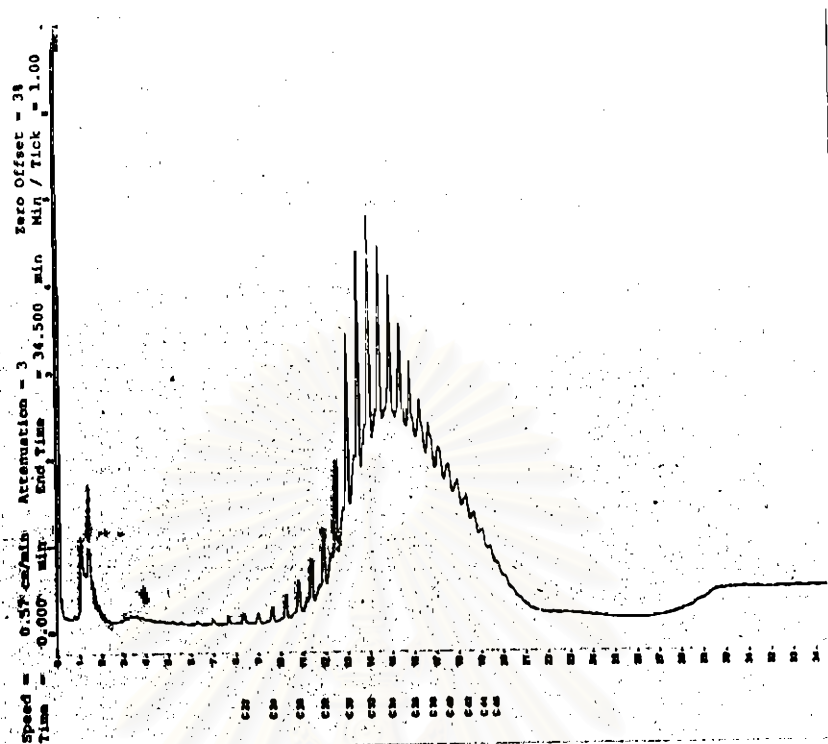


Figure A11 GC chromatogram of soluble wax from 1st extraction of 500SW at 55°C by using MEK

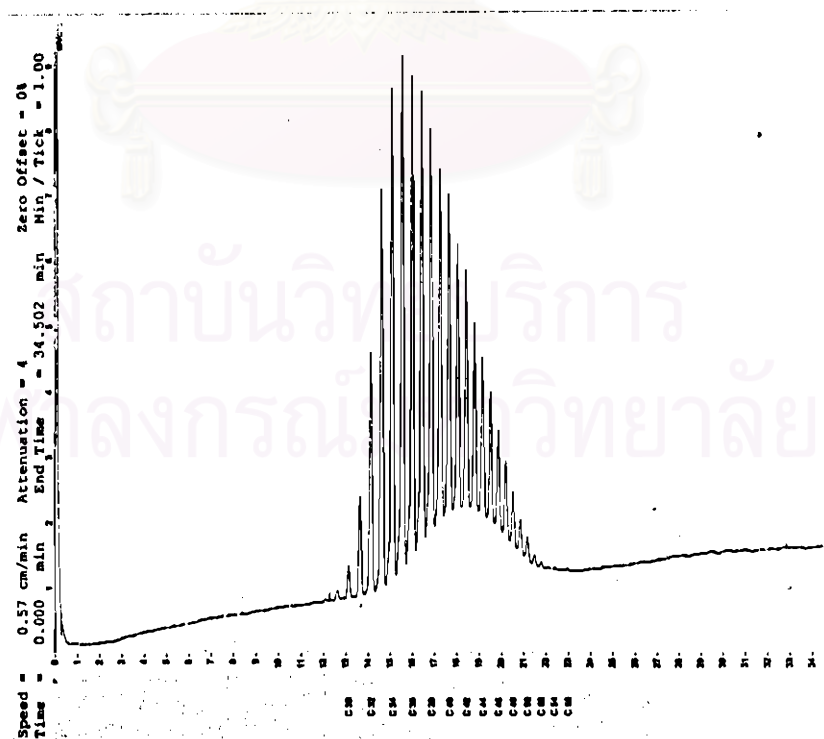


Figure A12 GC chromatogram of wax cake from 1st extraction of 600SW at 40°C by using MEK

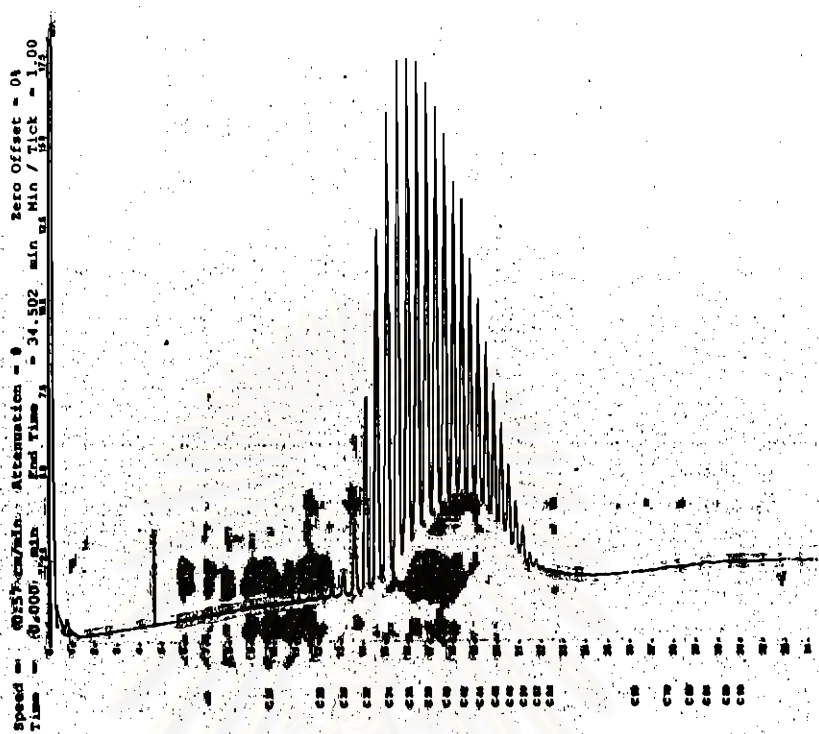


Figure A13 GC chromatogram of wax cake from 1st extraction of 600SW at 45°C by using MEK

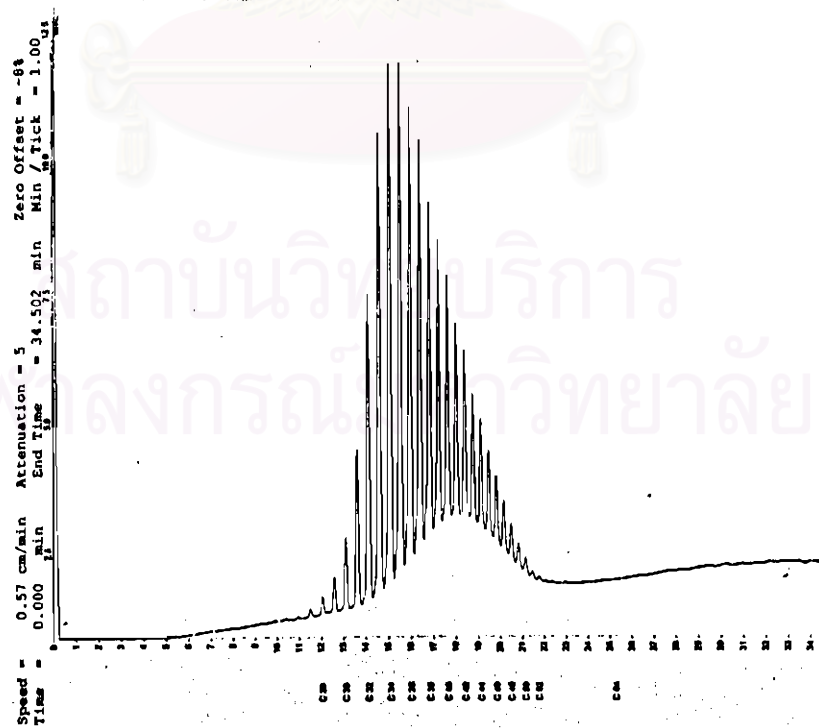


Figure A14 GC chromatogram of wax cake from 1st extraction of 600SW at 50°C by using MEK

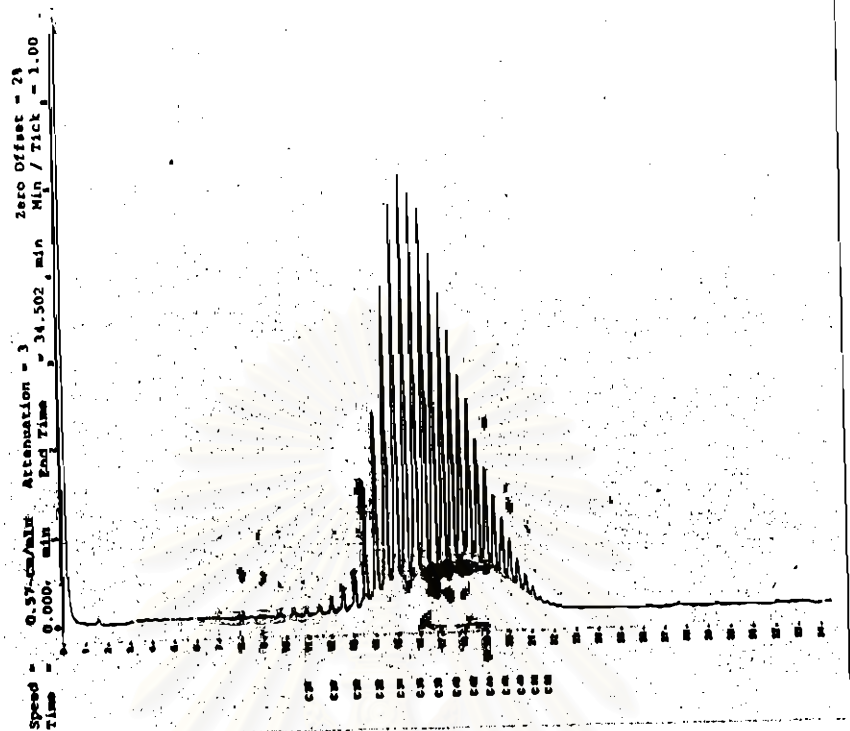


Figure A15 GC chromatogram of wax cake from 1st extraction of 600SW at 55°C by using MEK

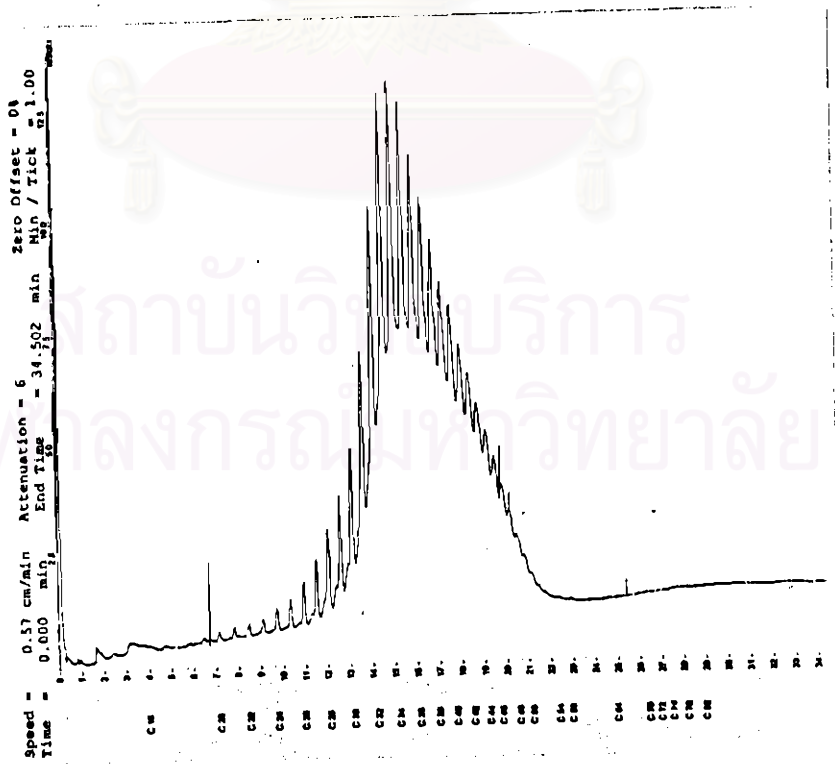


Figure A16 GC chromatogram of soluble wax from 1st extraction of 600SW at 40°C by using MEK

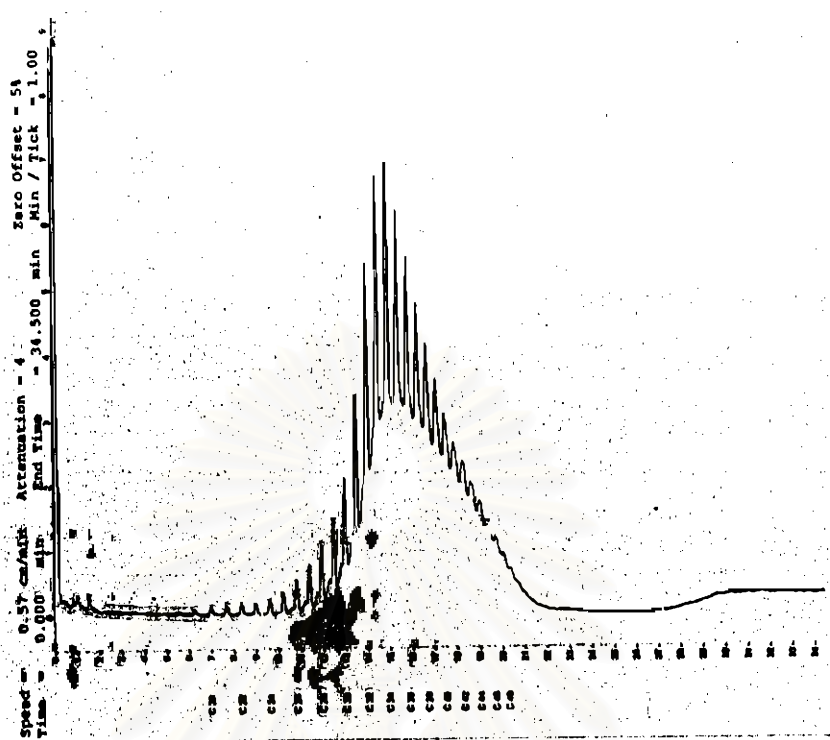


Figure A17 GC chromatogram of soluble wax from 1st extraction of 600SW at 45°C by using MEK

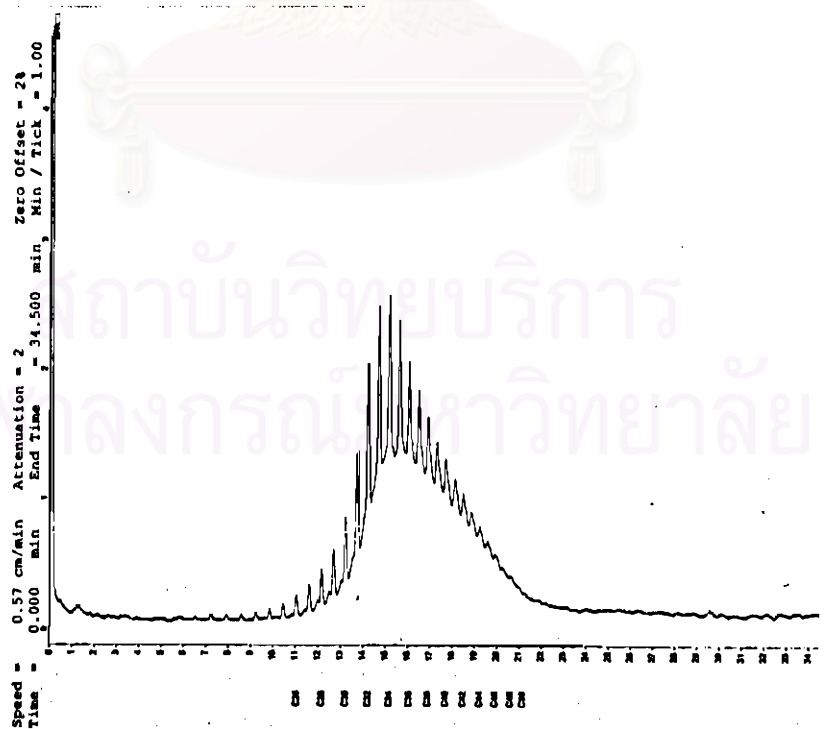


Figure A18 GC chromatogram of soluble wax from 1st extraction of 600SW at 50°C by using MEK

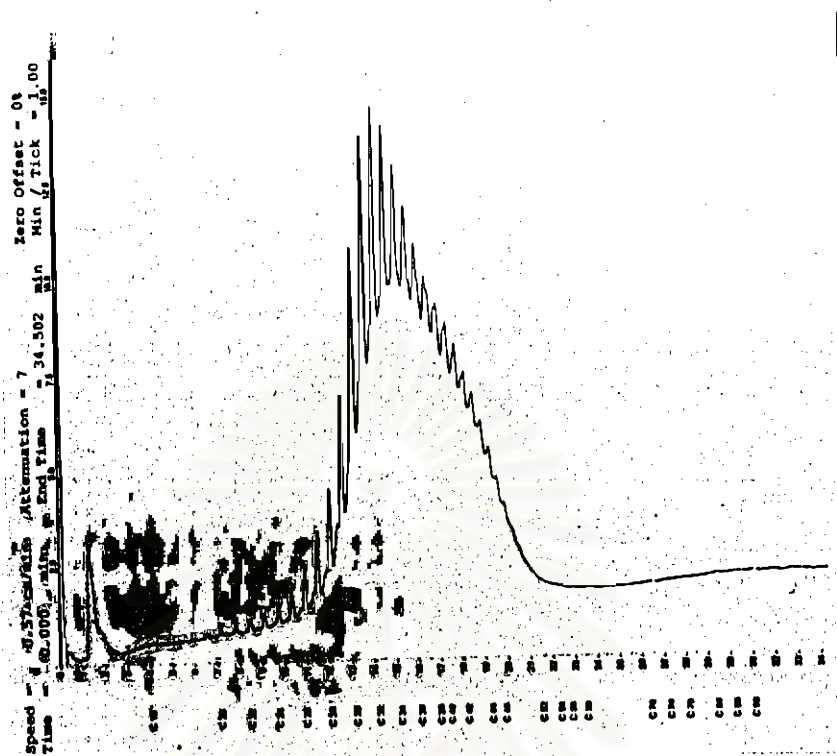


Figure A19 GC chromatogram of soluble wax from 1st extraction of 600SW at 55°C by using MEK

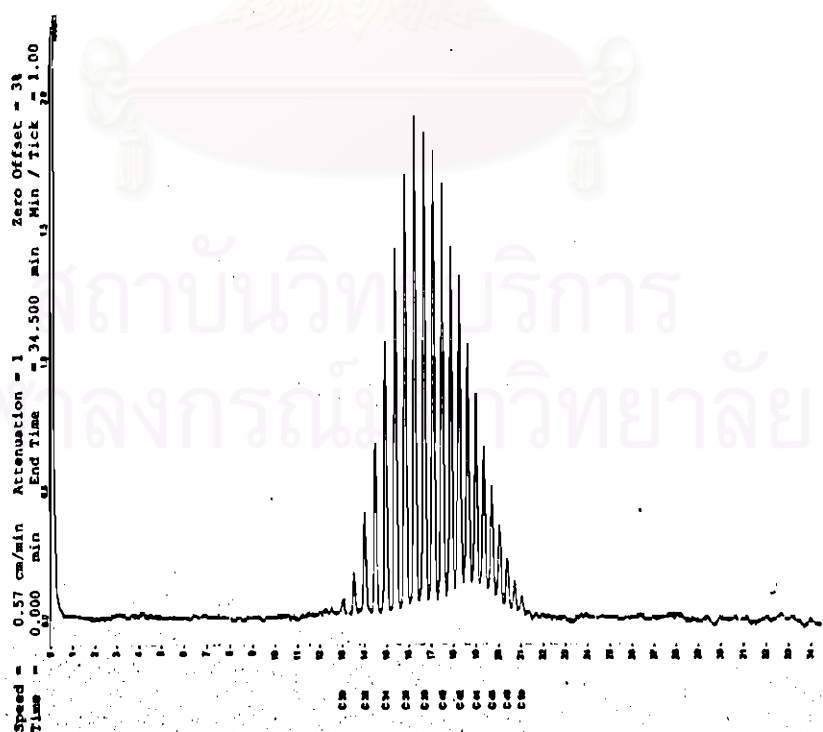


Figure A20 GC chromatogram of wax cake from extraction of 500SW at 15°C by using toluene

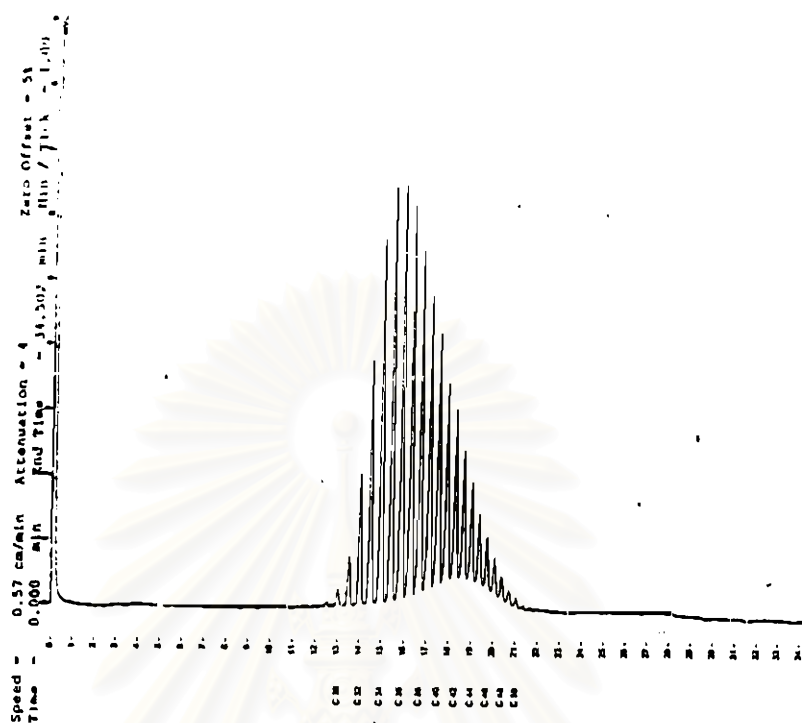


Figure A21 GC chromatogram of wax cake from extraction of 500SW at 20°C by using toluene

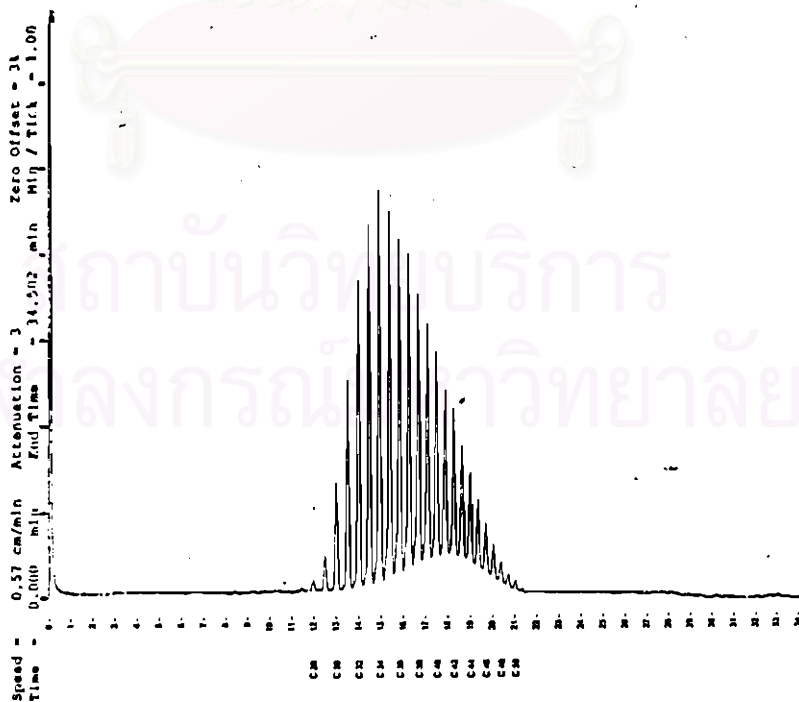


Figure A22 GC chromatogram of wax cake from extraction of 500SW at 25°C by using toluene

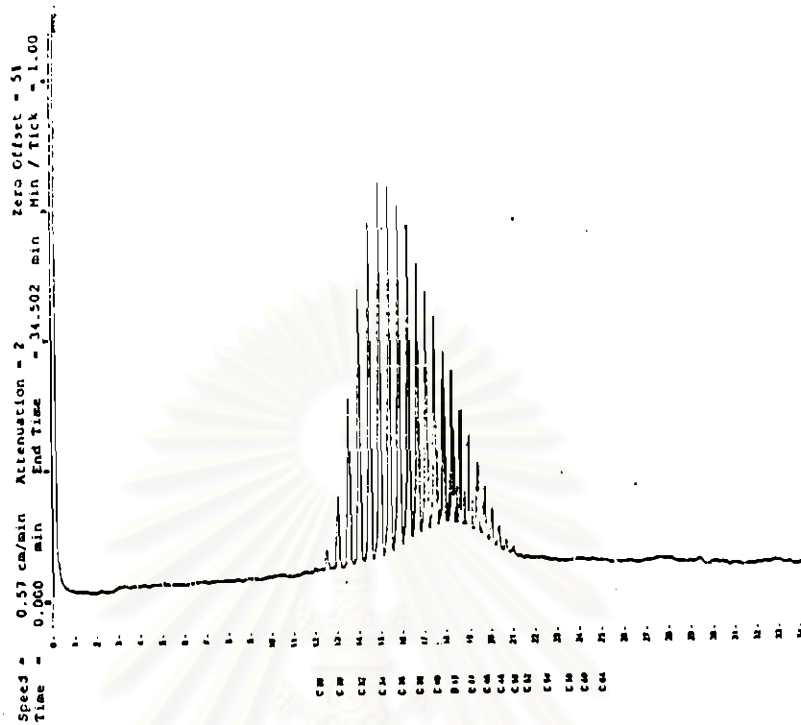


Figure A23 GC chromatogram of wax cake from extraction of 500SW at 30°C by using toluene

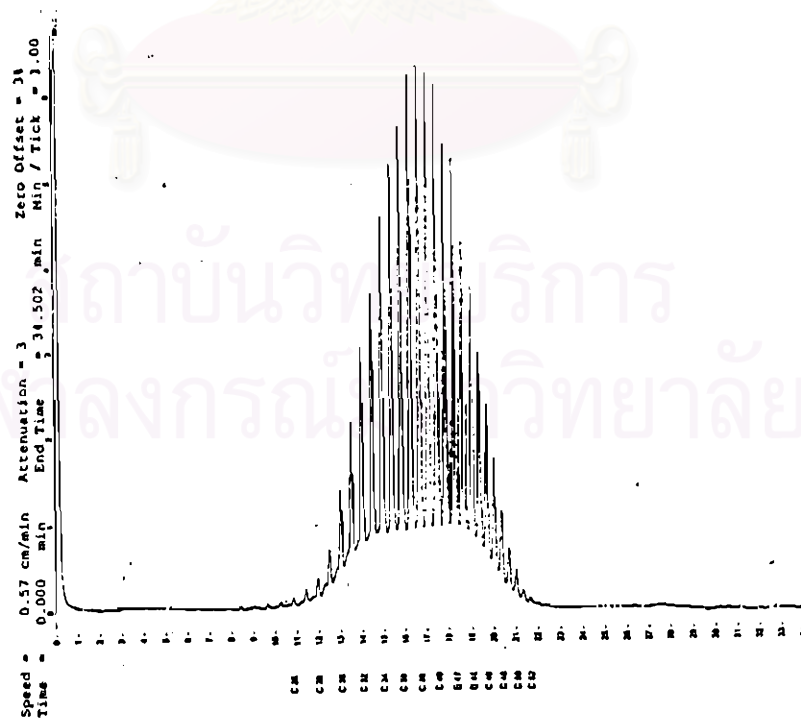


Figure A24 GC chromatogram of wax cake from extraction of 500SW at 35°C by using toluene

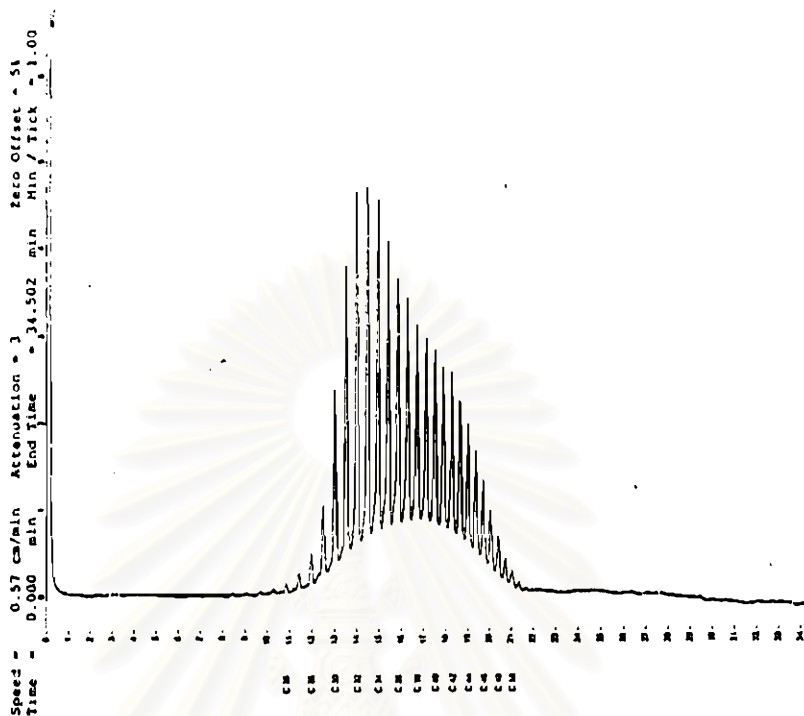


Figure A25 GC chromatogram of wax cake from extraction of 500SW at 40°C by using toluene

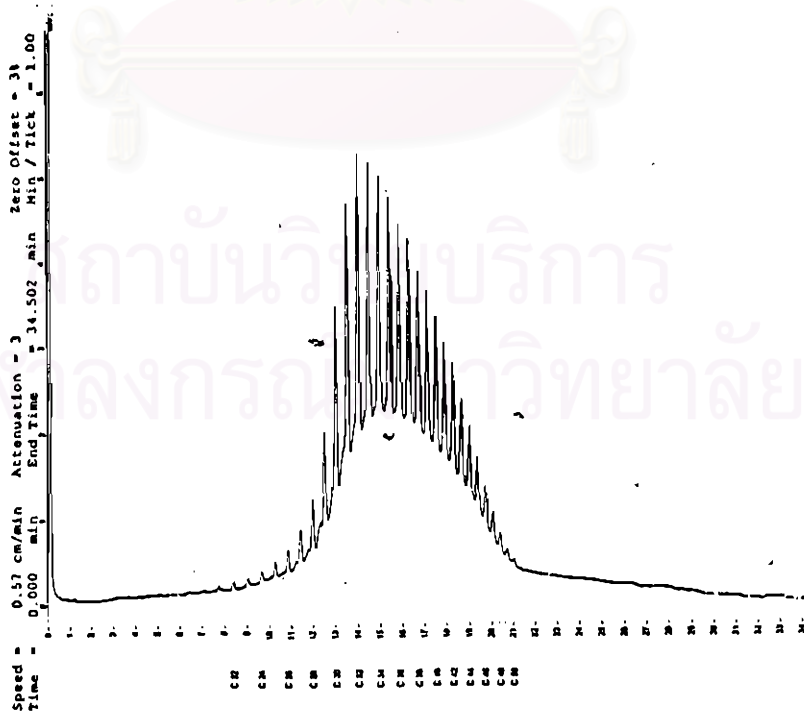


Figure A26 GC chromatogram of wax cake from extraction of 500SW at 45°C by using toluene

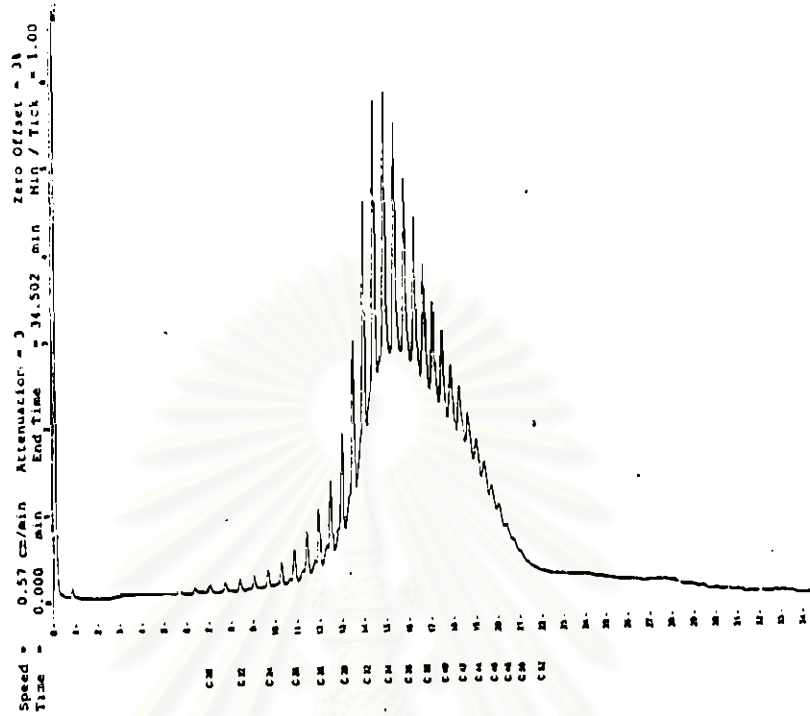


Figure A27 GC chromatogram of soluble wax from extraction of 500SW at 15°C by using toluene

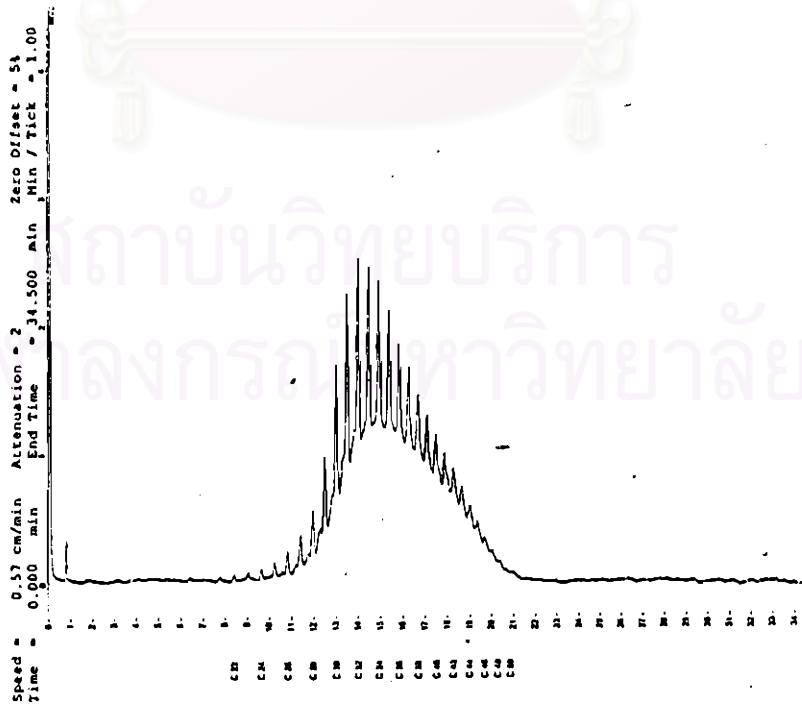


Figure A28 GC chromatogram of soluble wax from extraction of 500SW at 20°C by using toluene

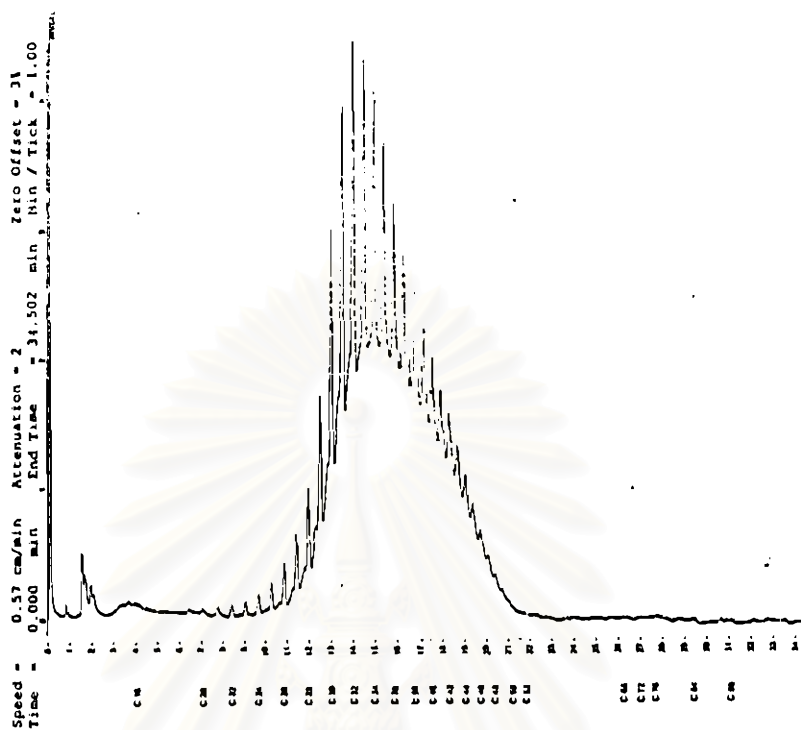


Figure A29 GC chromatogram of soluble wax from extraction of 500SW at 25°C by using toluene

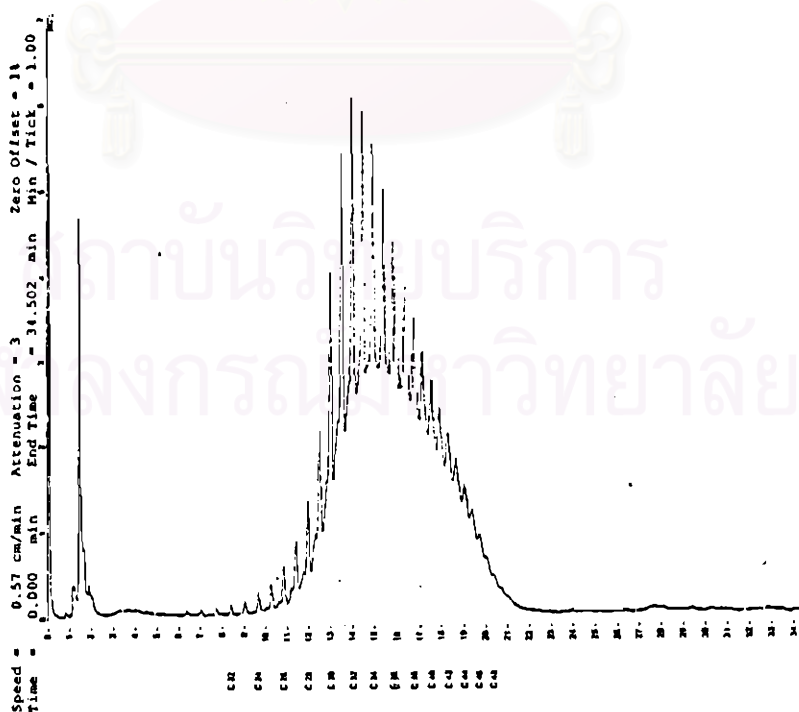


Figure A30 GC chromatogram of soluble wax from extraction of 500SW at 30°C by using toluene

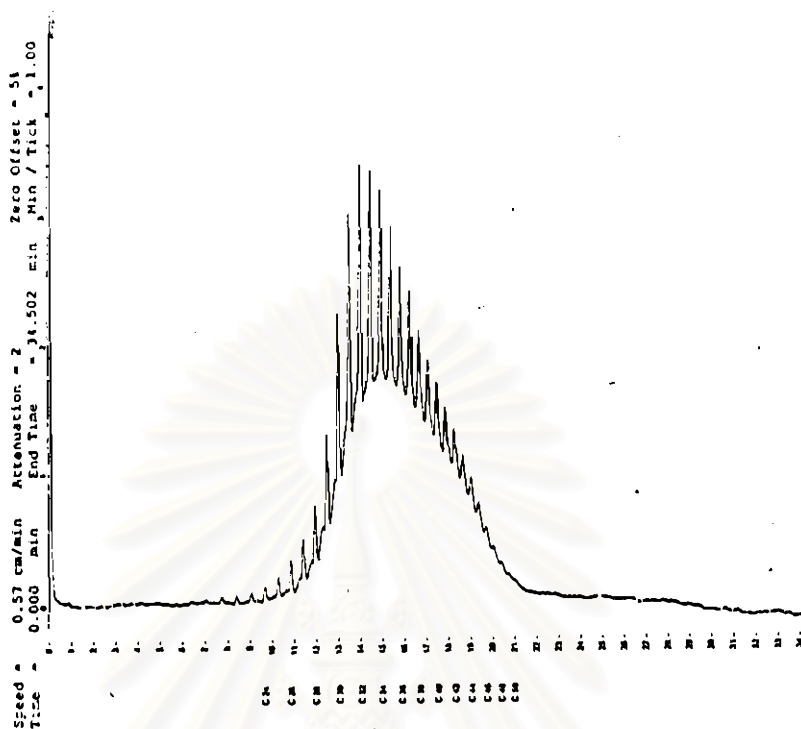


Figure A31 GC chromatogram of soluble wax from extraction of 500SW at 35°C by using toluene

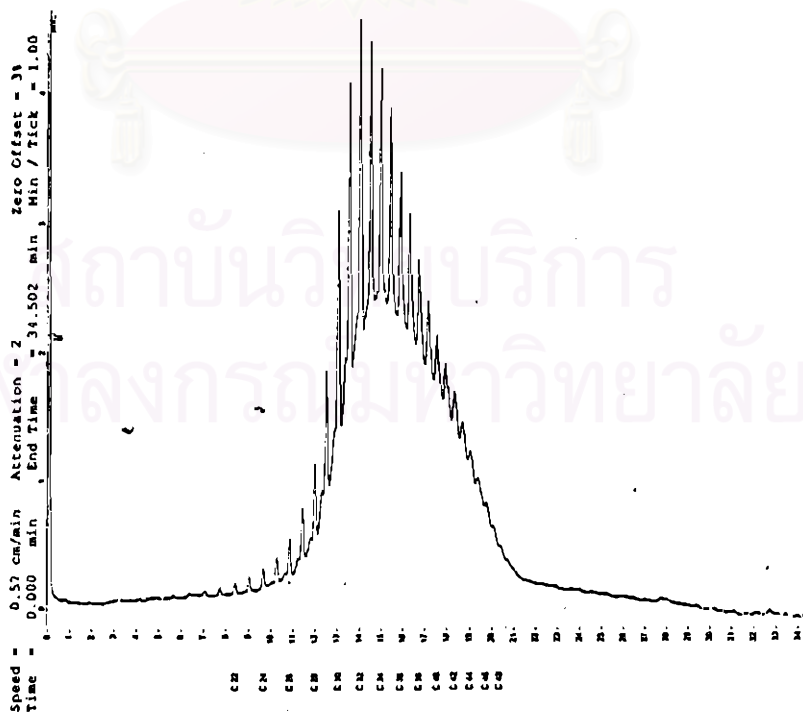


Figure A32 GC chromatogram of soluble wax from extraction of 500SW at 40°C by using toluene

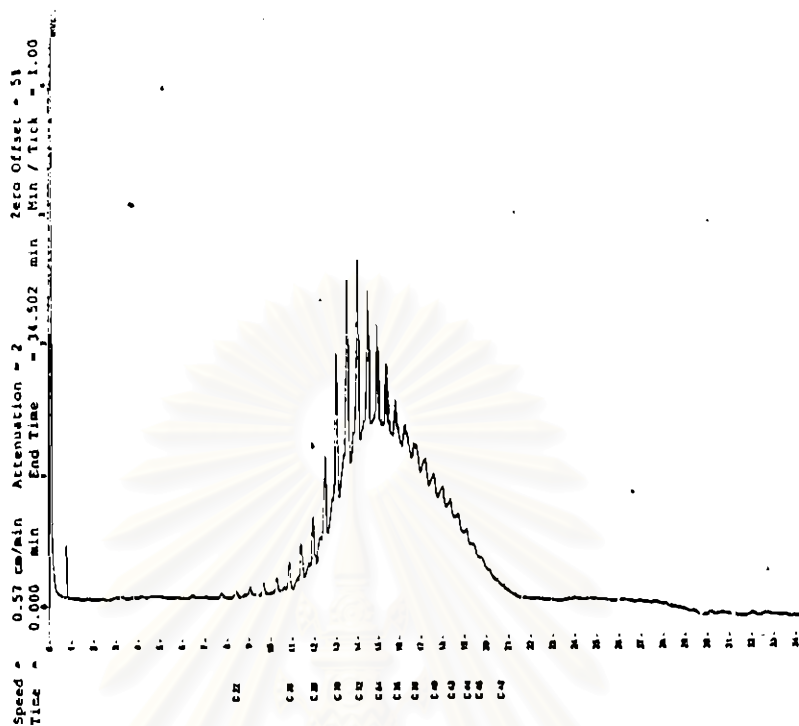


Figure A33 GC chromatogram of soluble wax from extraction of 500SW at 45°C by using toluene

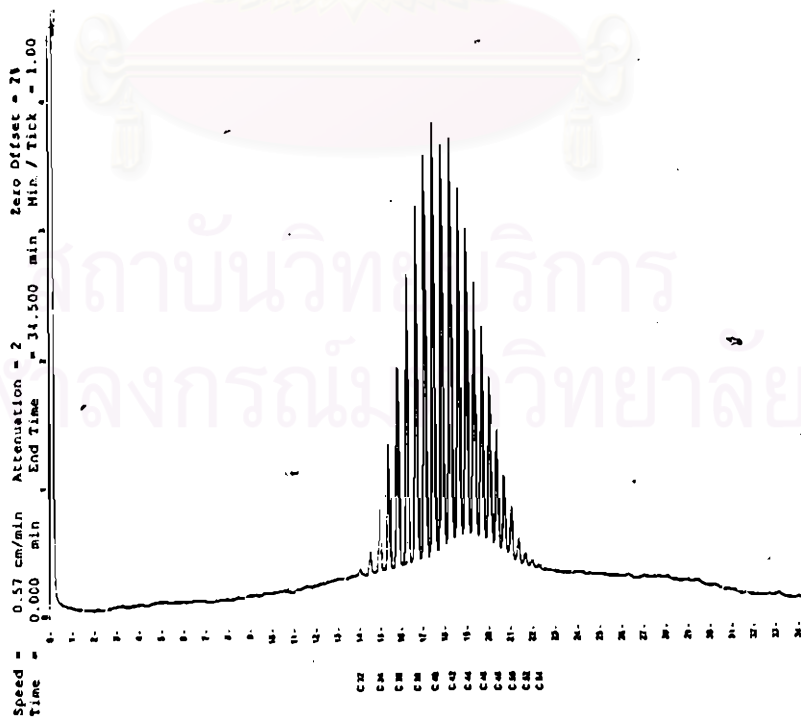


Figure A34 GC chromatogram of wax cake from extraction of 600SW at 15°C by using toluene

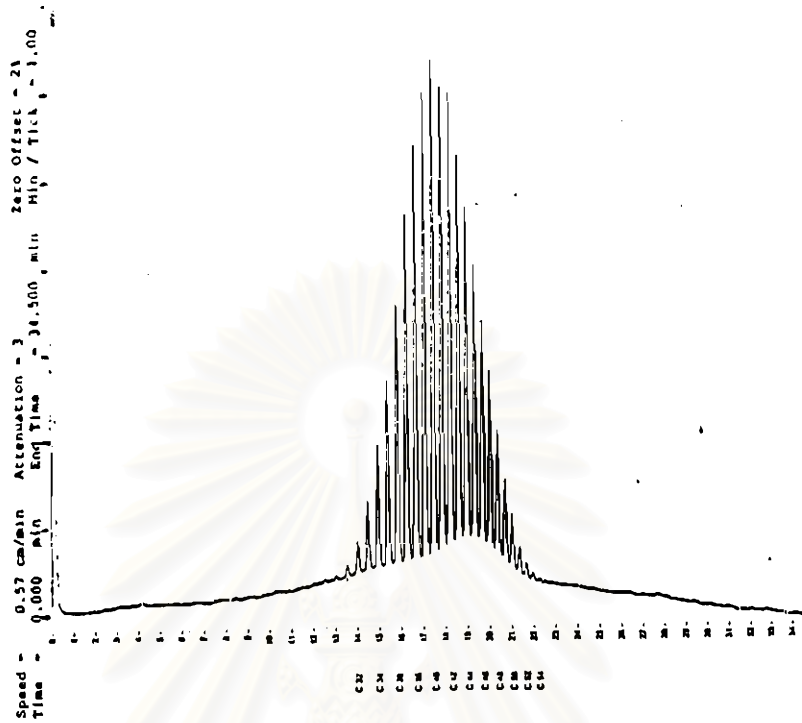


Figure A35 GC chromatogram of wax cake from extraction of 600SW at 20°C by using toluene

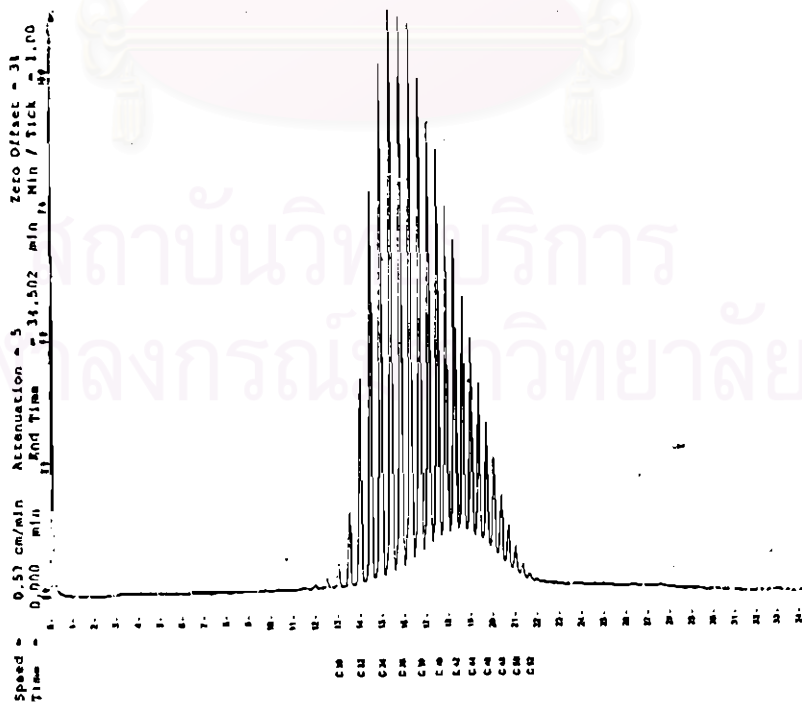


Figure A36 GC chromatogram of wax cake from extraction of 600SW at 25°C by using toluene

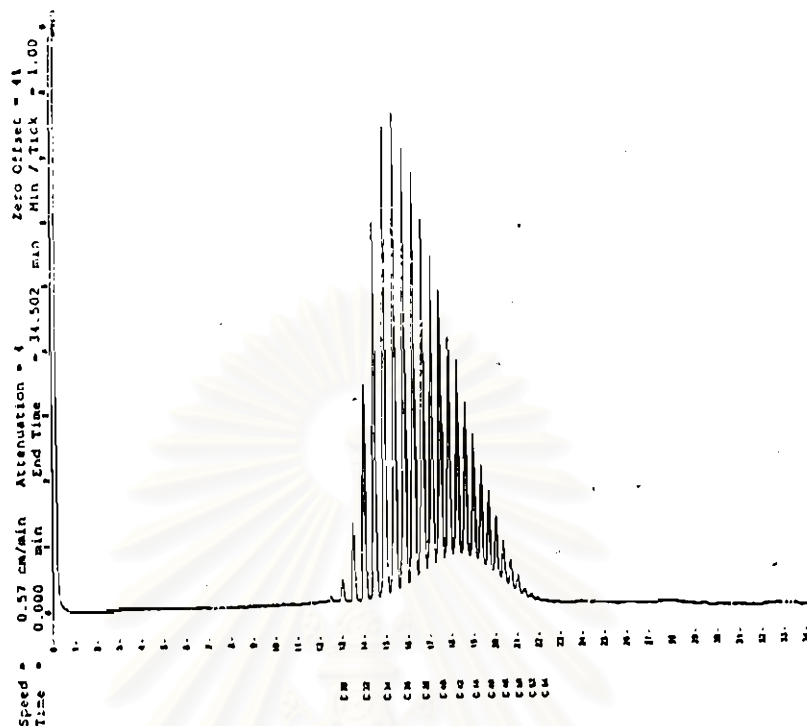


Figure A37 GC chromatogram of wax cake from extraction of 600SW at 30°C by using toluene

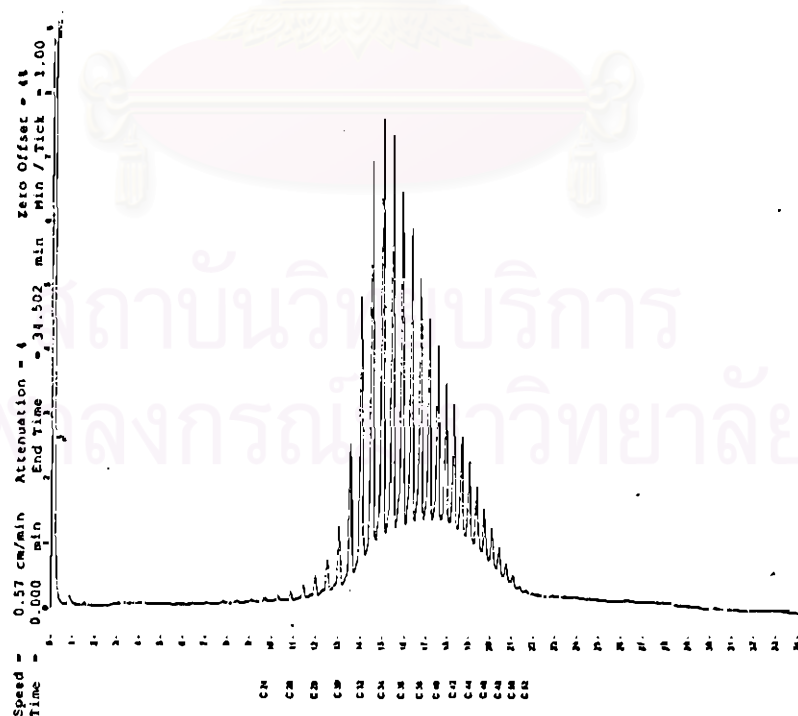


Figure A38 GC chromatogram of wax cake from extraction of 600SW at 35°C by using toluene

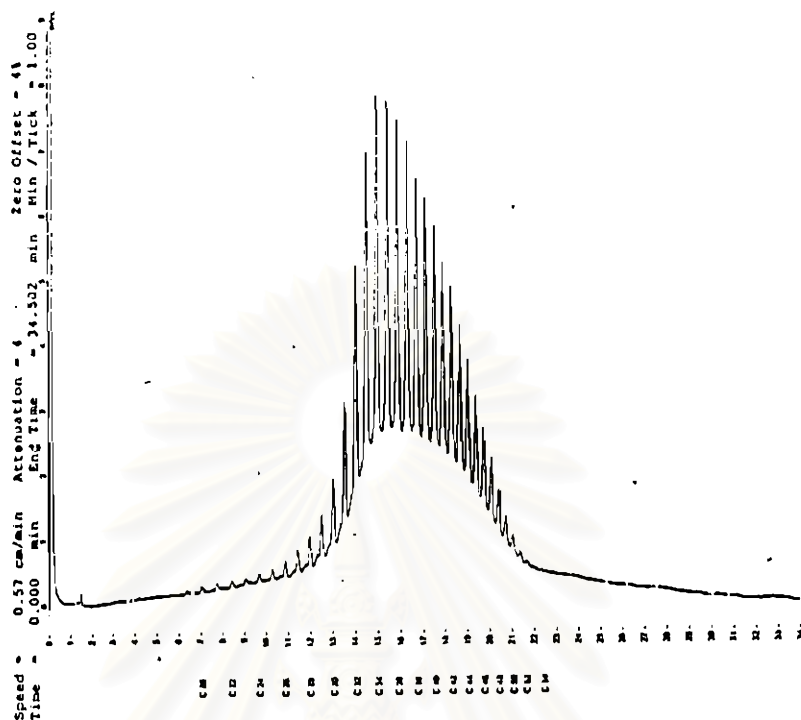


Figure A39 GC chromatogram of wax cake from extraction of 600SW at 40°C by using toluene

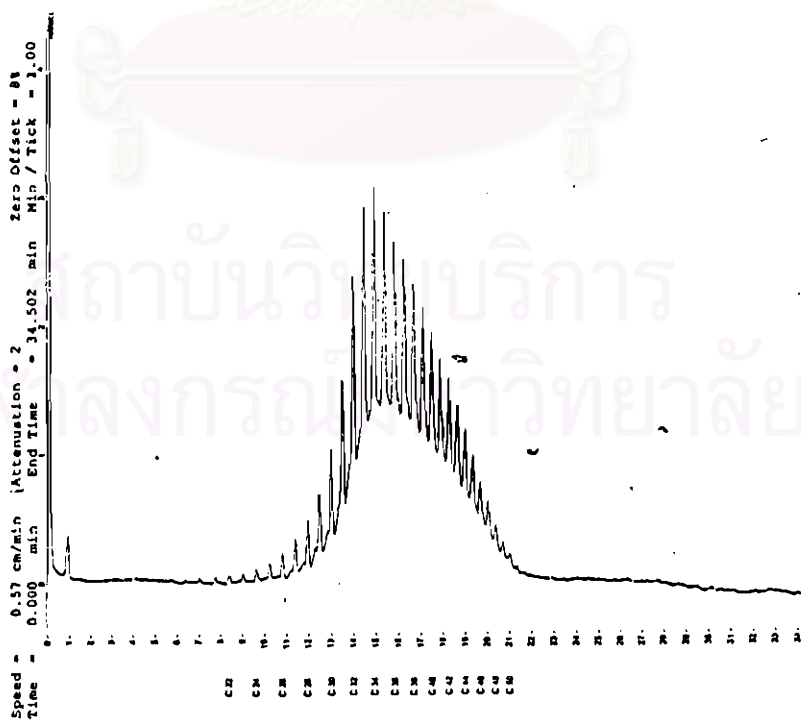


Figure A40 GC chromatogram of wax cake from extraction of 600SW at 45°C by using toluene

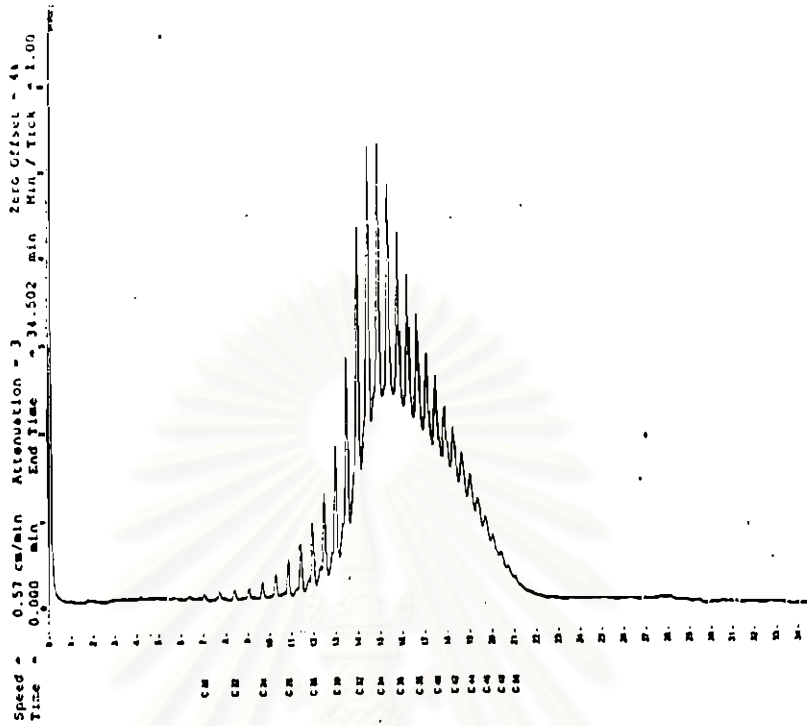


Figure A41 GC chromatogram of soluble wax from extraction of 600SW at 15°C by using toluene

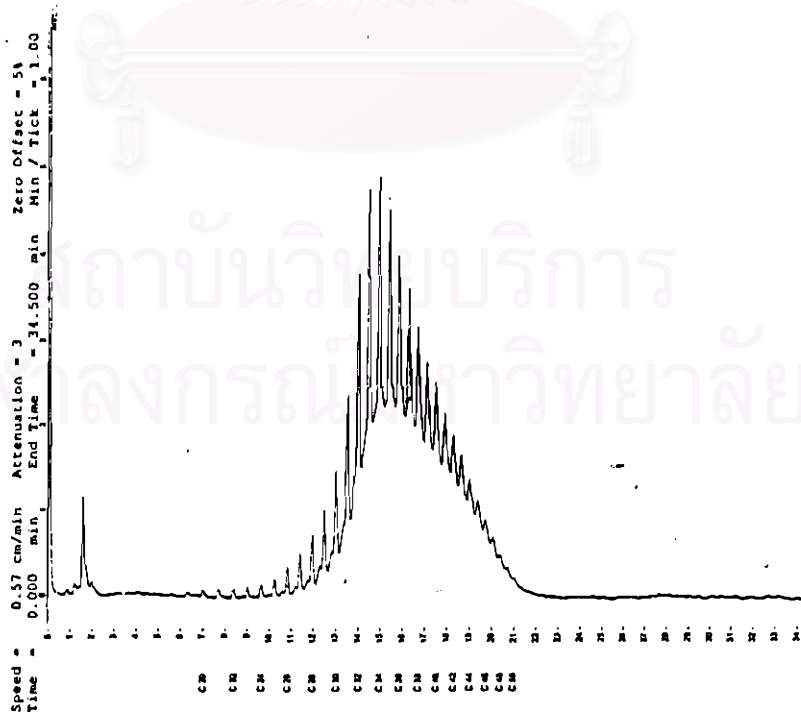


Figure A42 GC chromatogram of soluble wax from extraction of 600SW at 20°C by using toluene

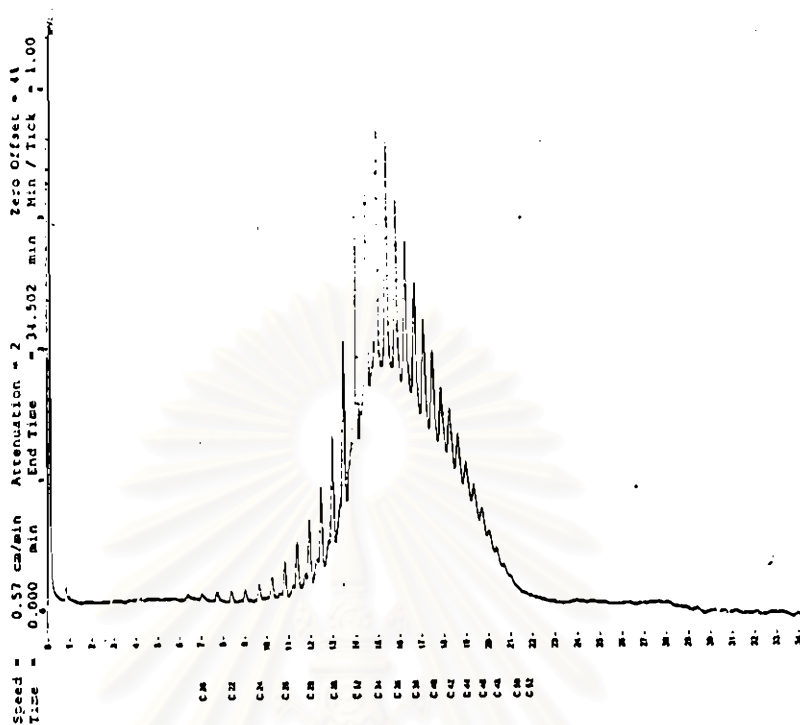


Figure A43 GC chromatogram of soluble wax from extraction of 600SW at 25°C by using toluene

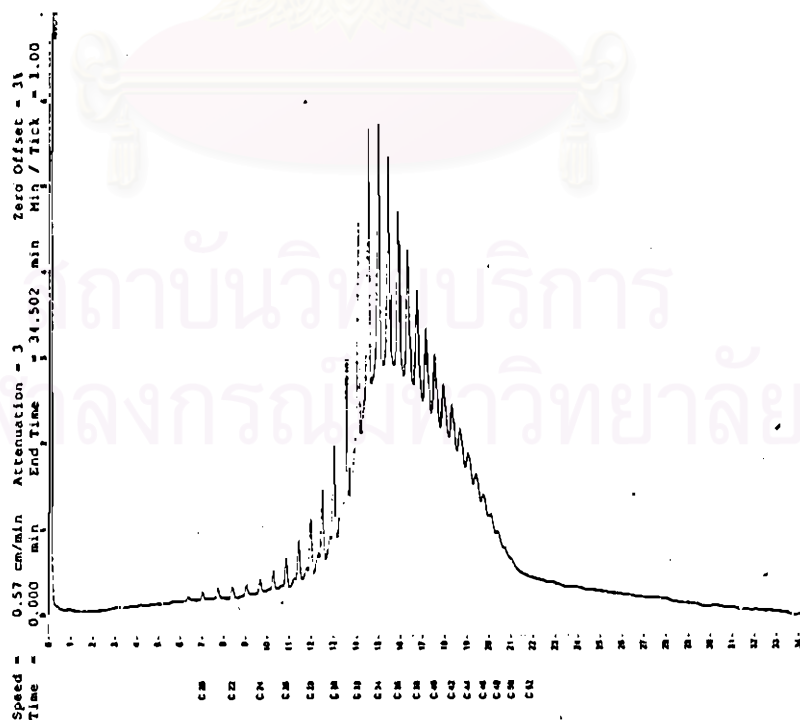


Figure A44 GC chromatogram of soluble wax from extraction of 600SW at 30°C by using toluene

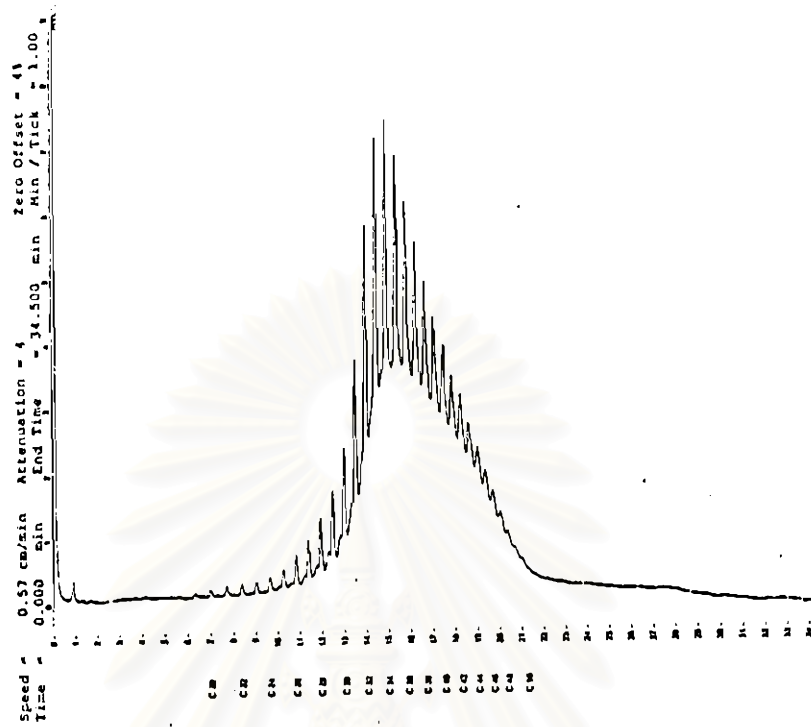


Figure A45 GC chromatogram of soluble wax from extraction of 600SW at 35°C by using toluene

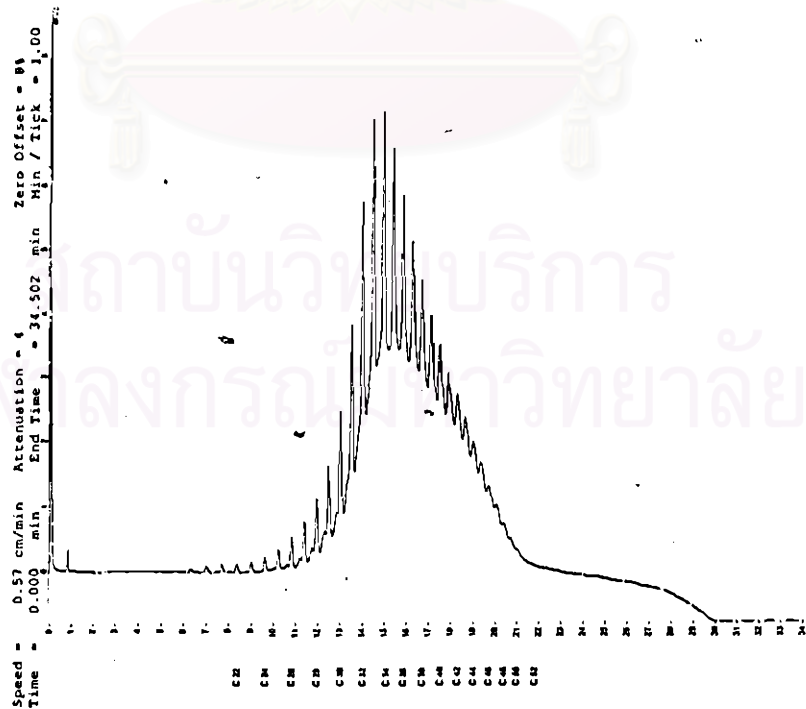


Figure A46 GC chromatogram of soluble wax from extraction of 600SW at 40°C by using toluene

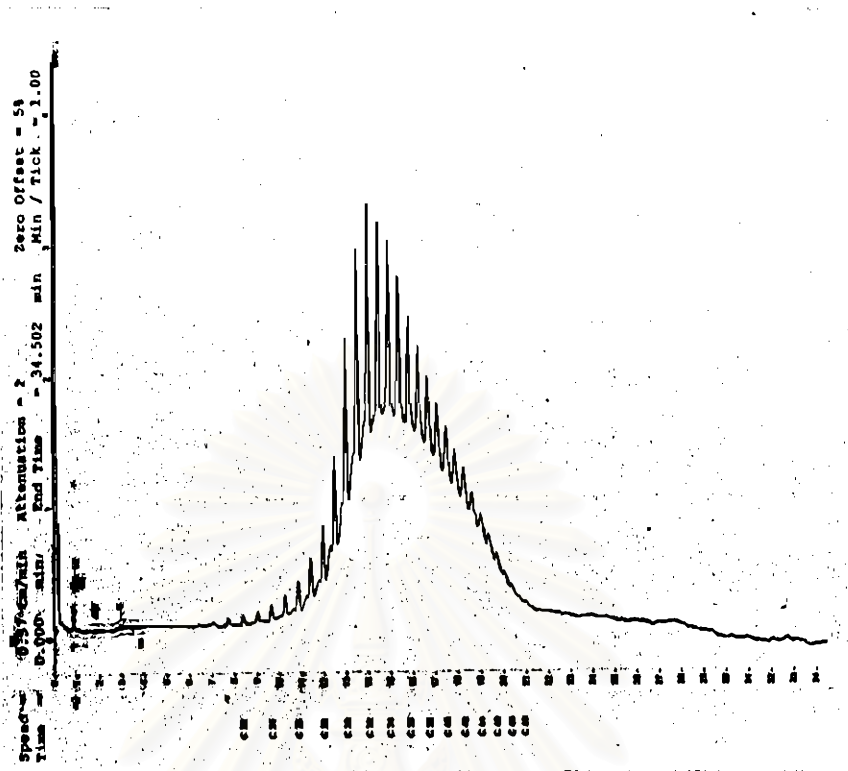


Figure A47 GC chromatogram of soluble wax from extraction of 600SW at 45°C by using toluene

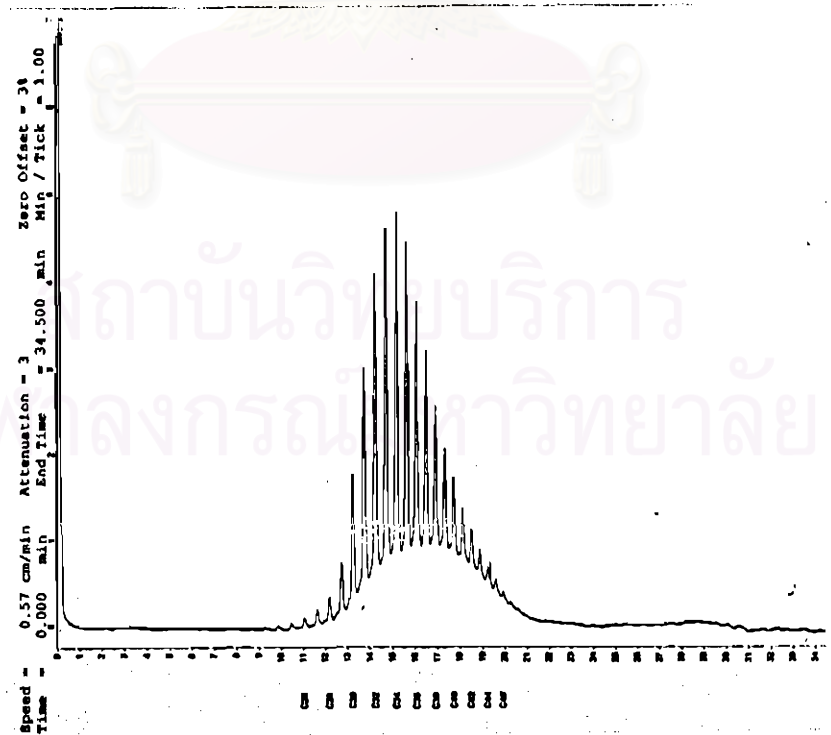


Figure A48 GC chromatogram of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 45°C by using MEK

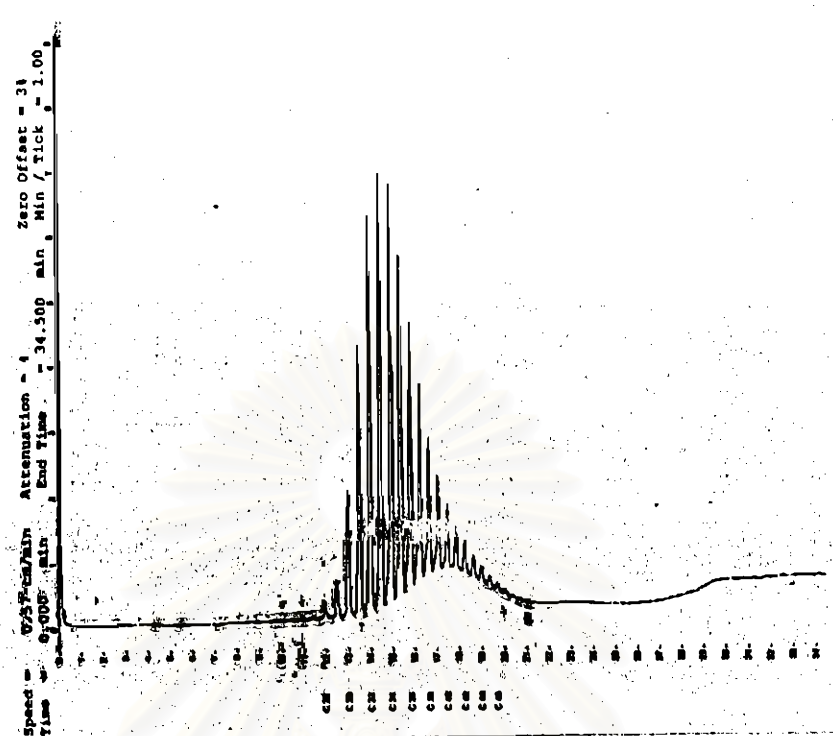


Figure A49 GC chromatogram of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 50°C by using MEK

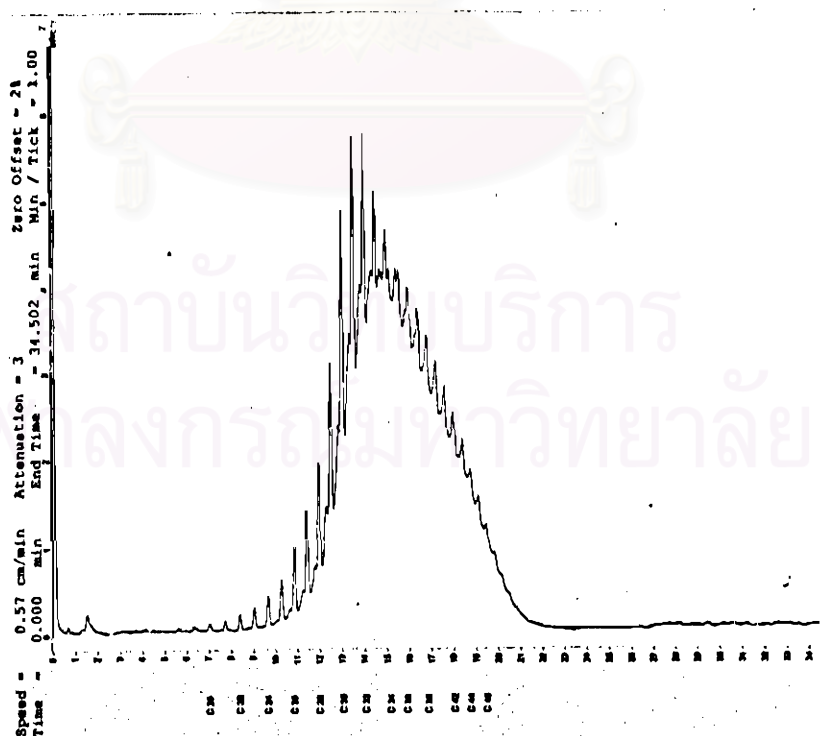


Figure A50 GC chromatogram of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 45°C by using MEK

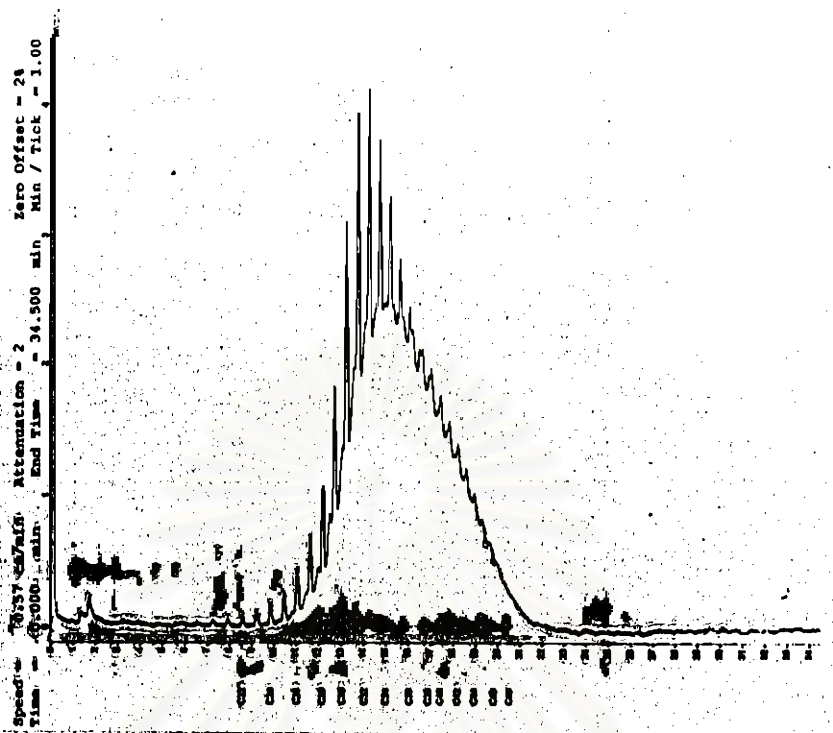


Figure A51 GC chromatogram of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 50°C by using MEK

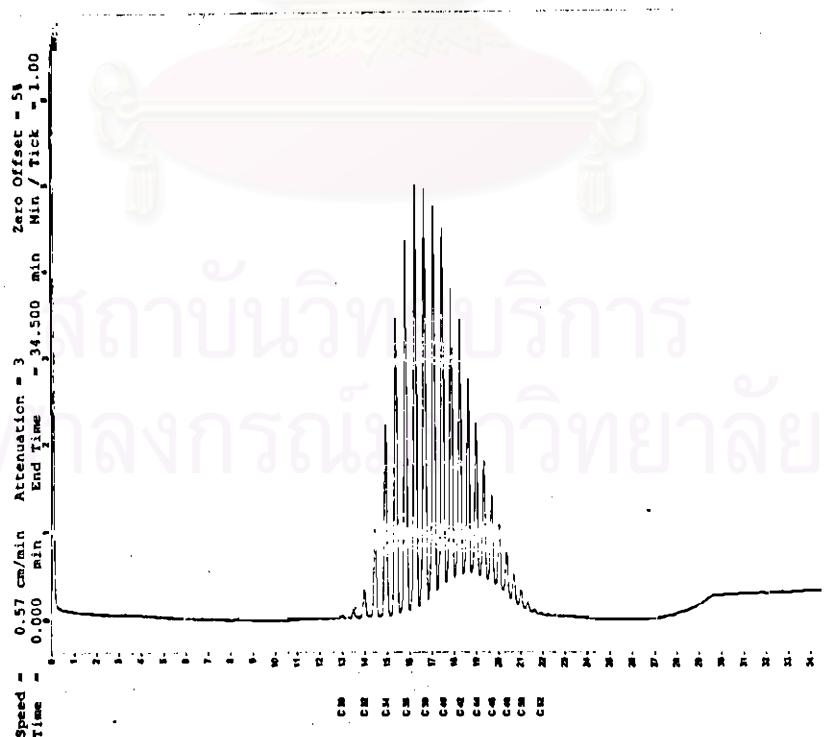


Figure A52 GC chromatogram of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 600SW) at 45°C by using MEK

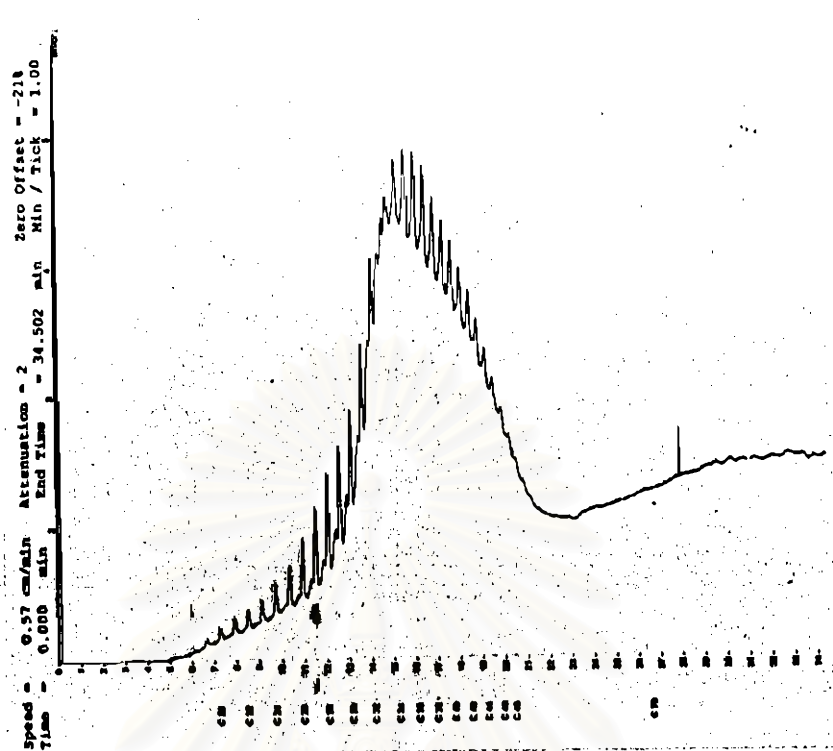


Figure A55 GC chromatogram of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 600SW) at 50°C by using MEK

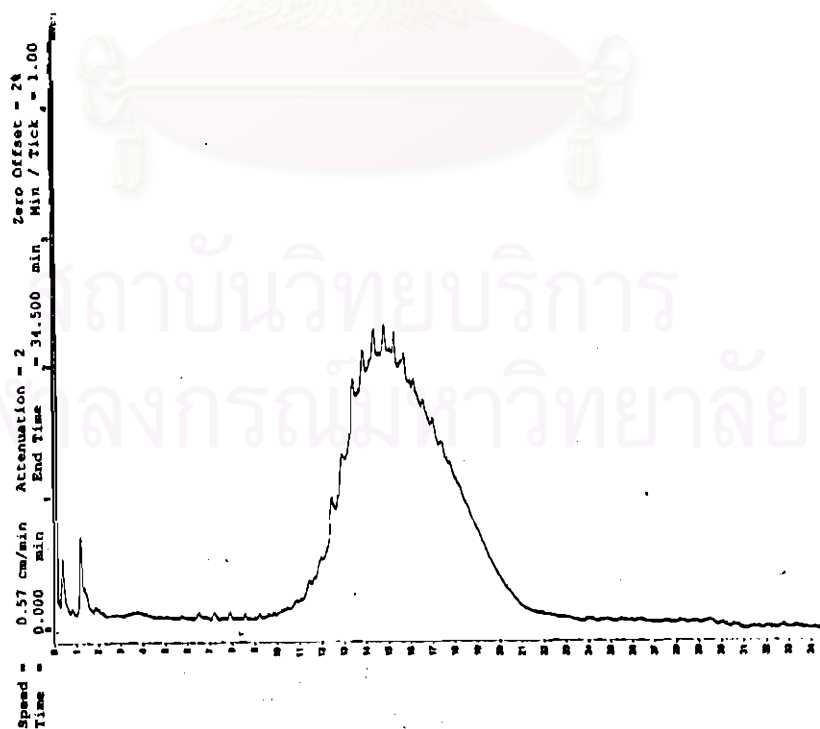


Figure A56 GC chromatogram of residual oil from fractional crystallization of 500SW at -20°C in MEK

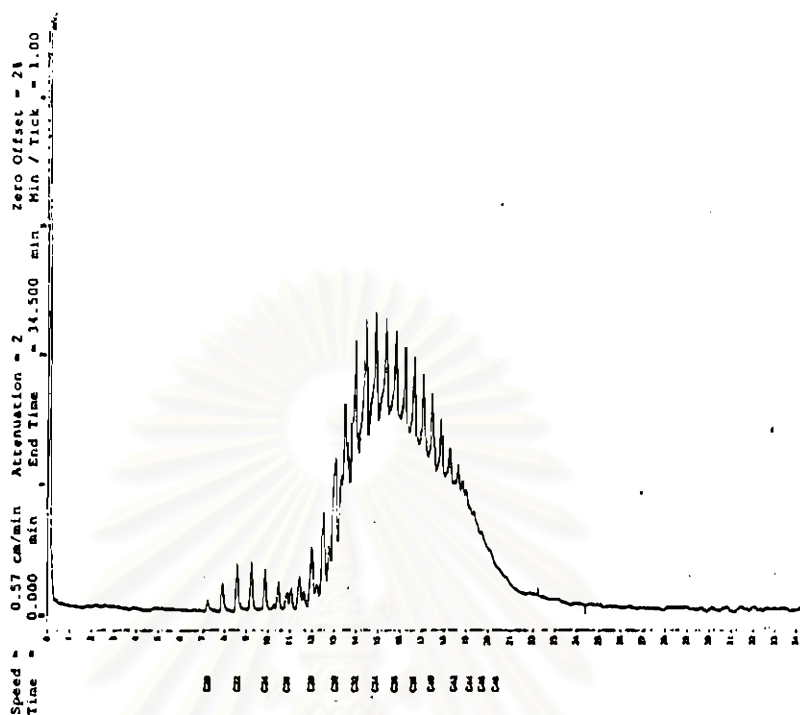


Figure A57 GC chromatogram of crystallized wax from fractional crystallization of 500SW at -20°C in MEK

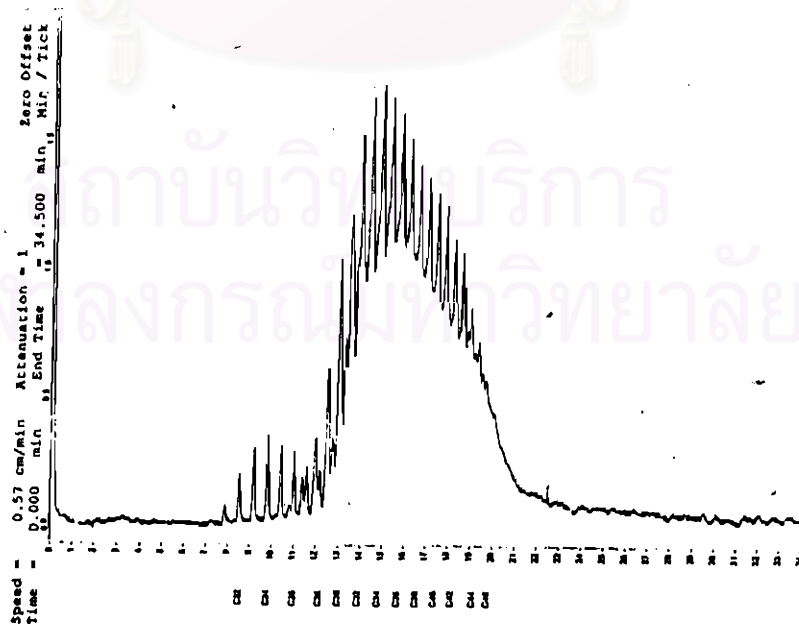


Figure A58 GC chromatogram of crystallized wax from fractional crystallization of 500SW at -10°C in MEK

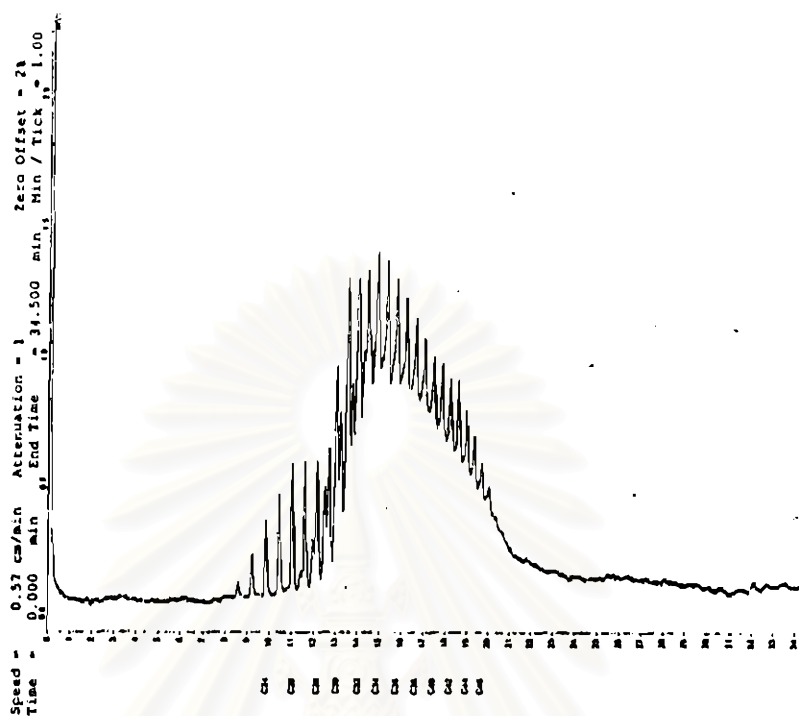


Figure A59 GC chromatogram of crystallized wax from fractional crystallization of 500SW at 0°C in MEK

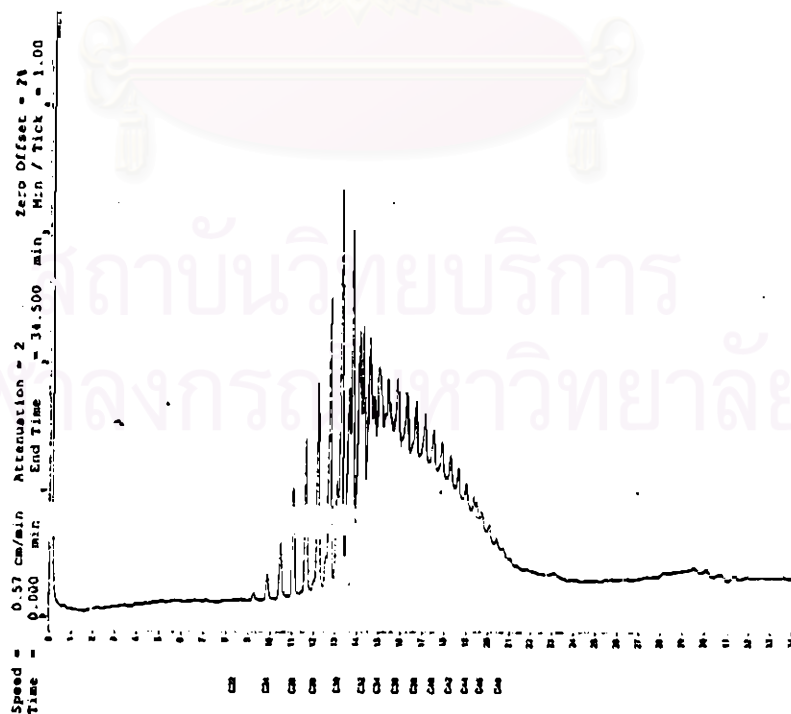


Figure A60 GC chromatogram of crystallized wax from fractional crystallization of 500SW at 10°C in MEK

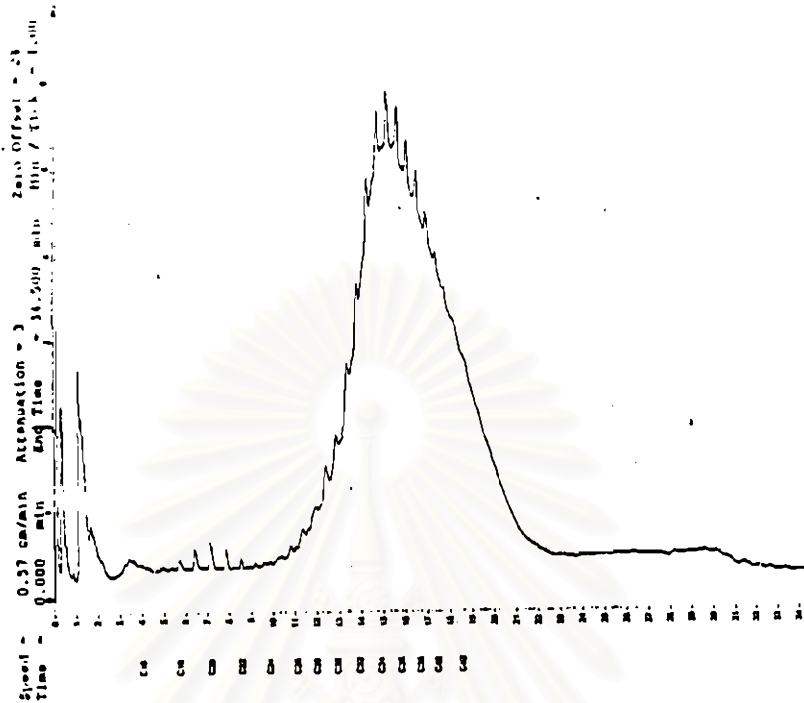


Figure A63 GC chromatogram of residual oil from fractional crystallization of 600SW at -20°C in MEK

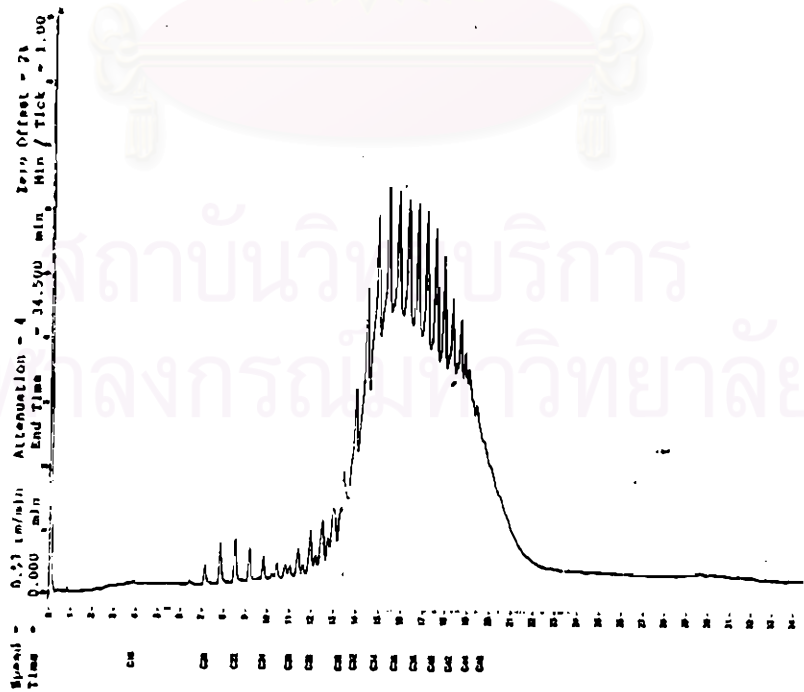


Figure A64 GC chromatogram of crystallized wax from fractional crystallization of 600SW at -20°C in MEK

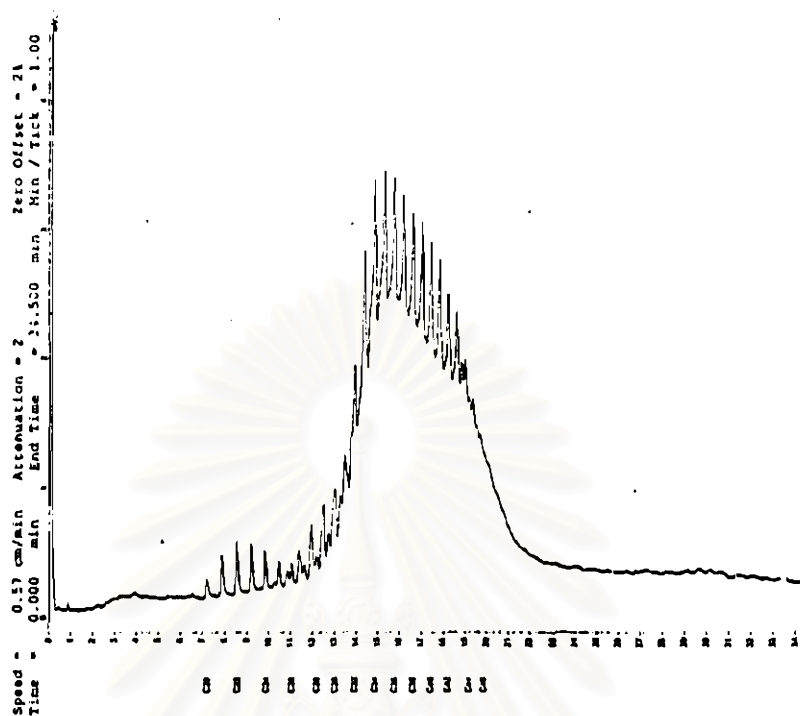


Figure A65 GC chromatogram of crystallized wax from fractional crystallization of 600SW at -10°C in MEK

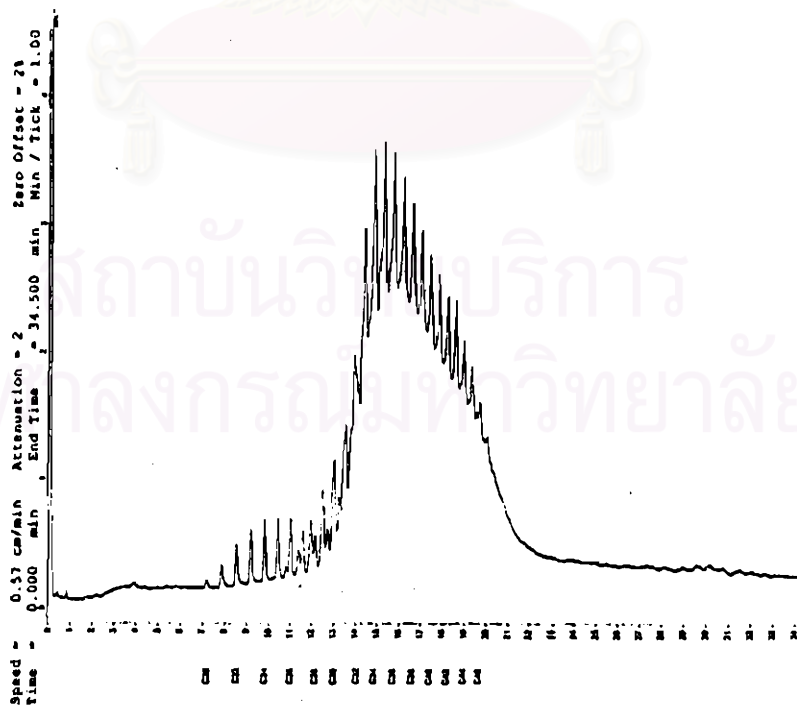


Figure A66 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 0°C in MEK

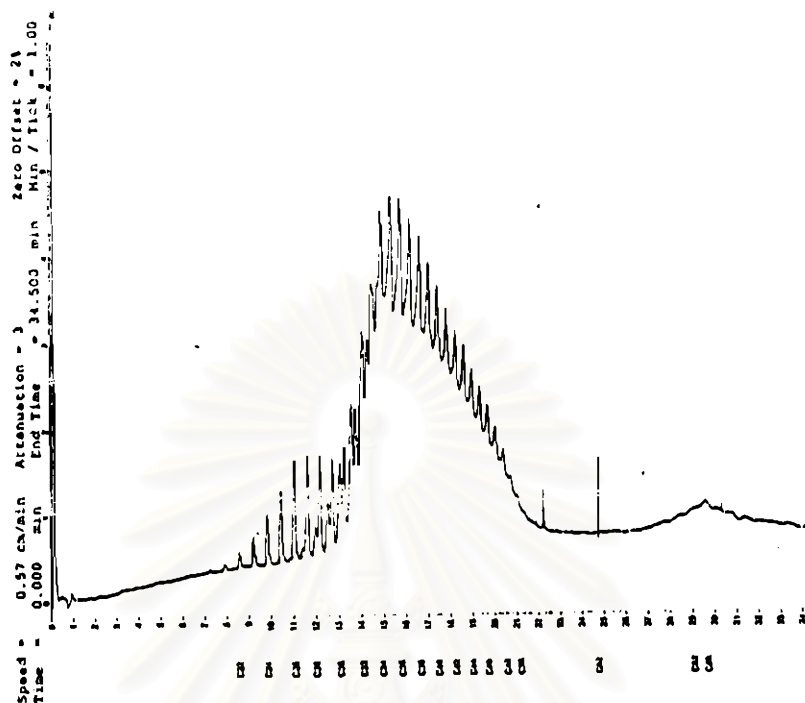


Figure A67 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 10°C in MEK

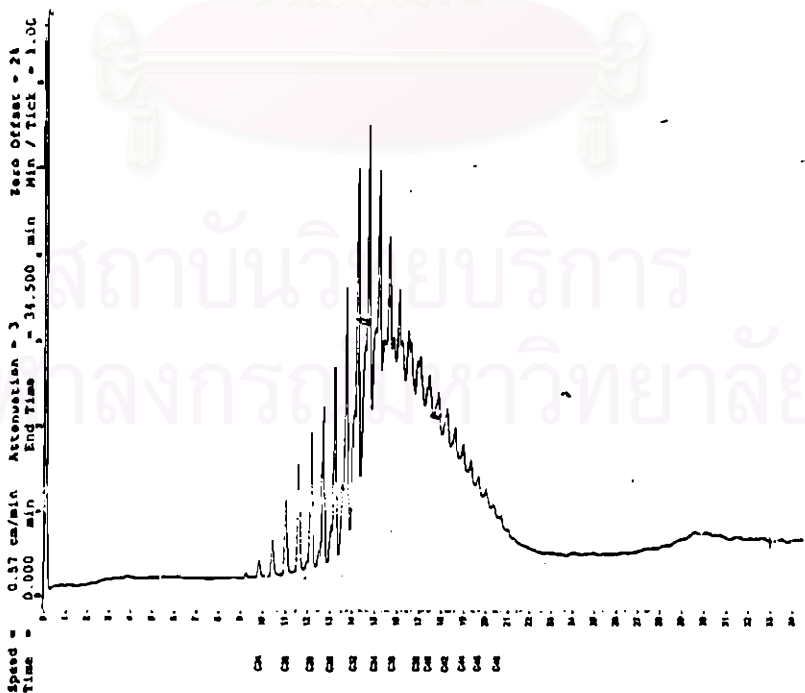


Figure A68 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 20°C in MEK

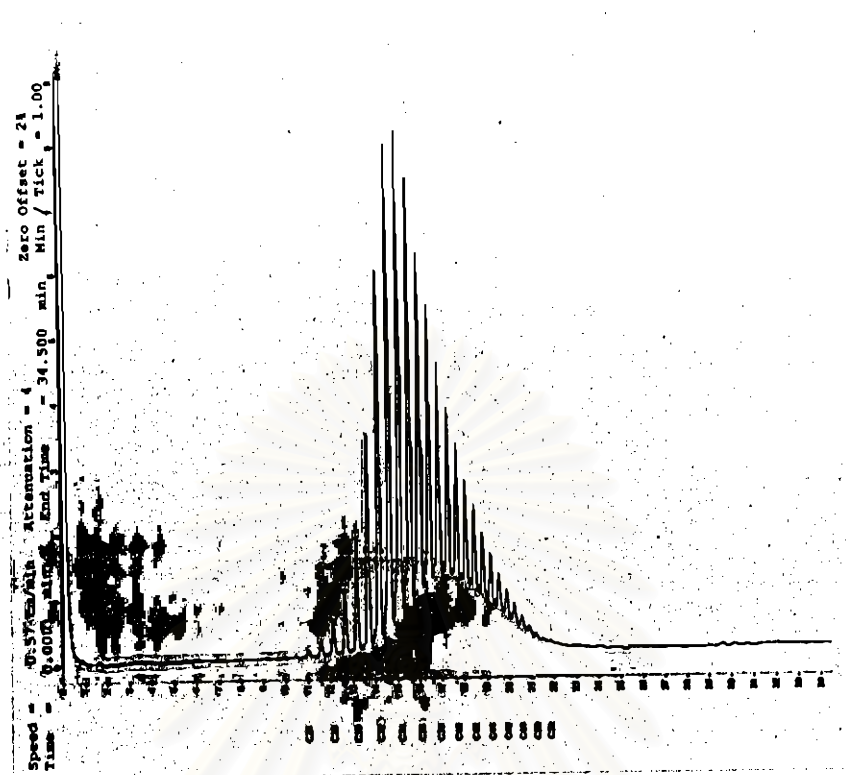


Figure A69 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 30°C in MEK

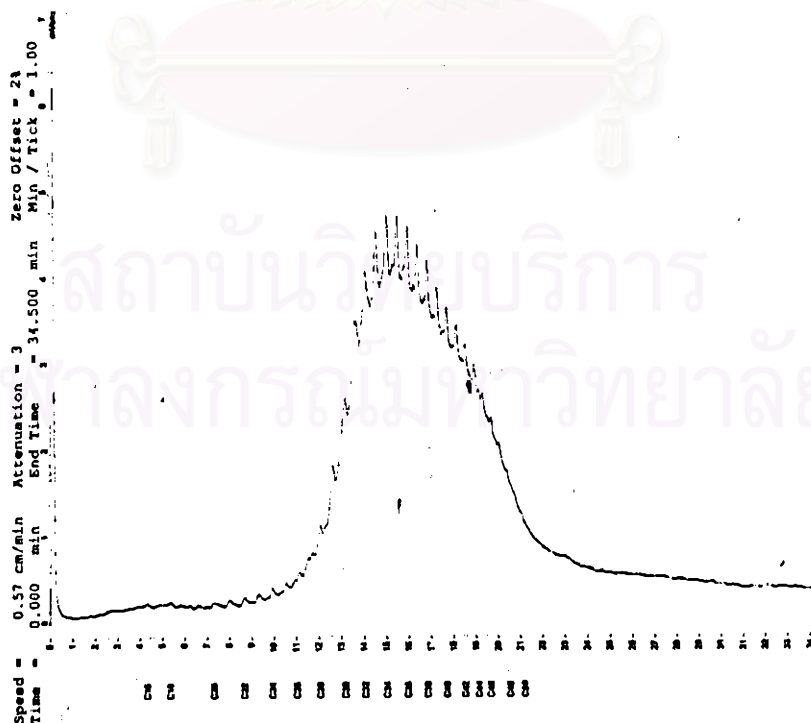


Figure A70 GC chromatogram of residual oil from fractional crystallization of 500SW at -20°C in toluene

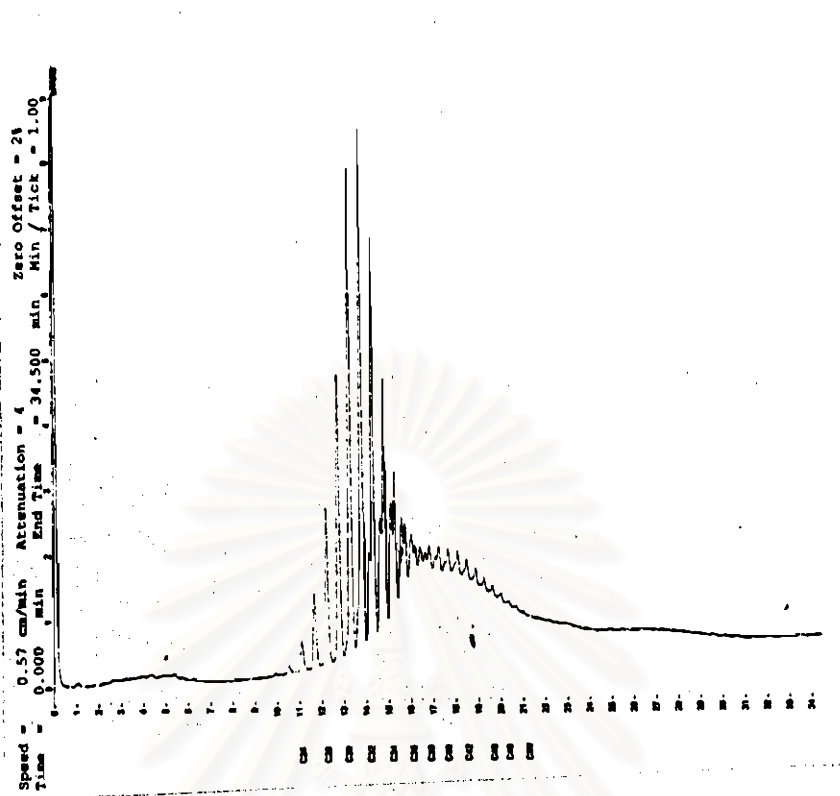


Figure A71 GC chromatogram of crystallized wax from fractional crystallization of 500SW at 0°C in toluene

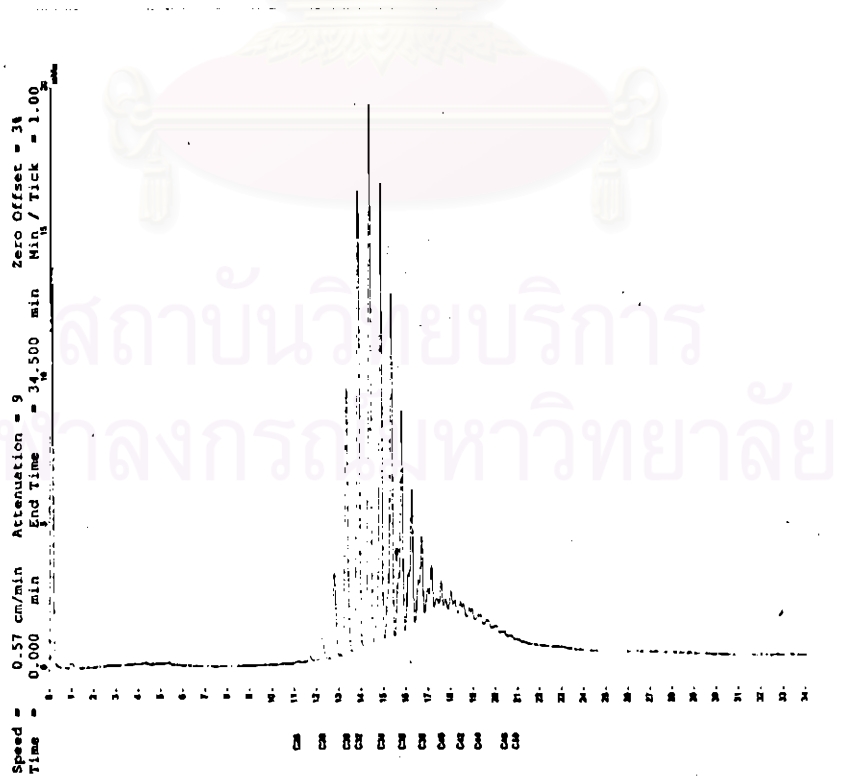


Figure A72 GC chromatogram of crystallized wax from fractional crystallization of 500SW at 10°C in toluene

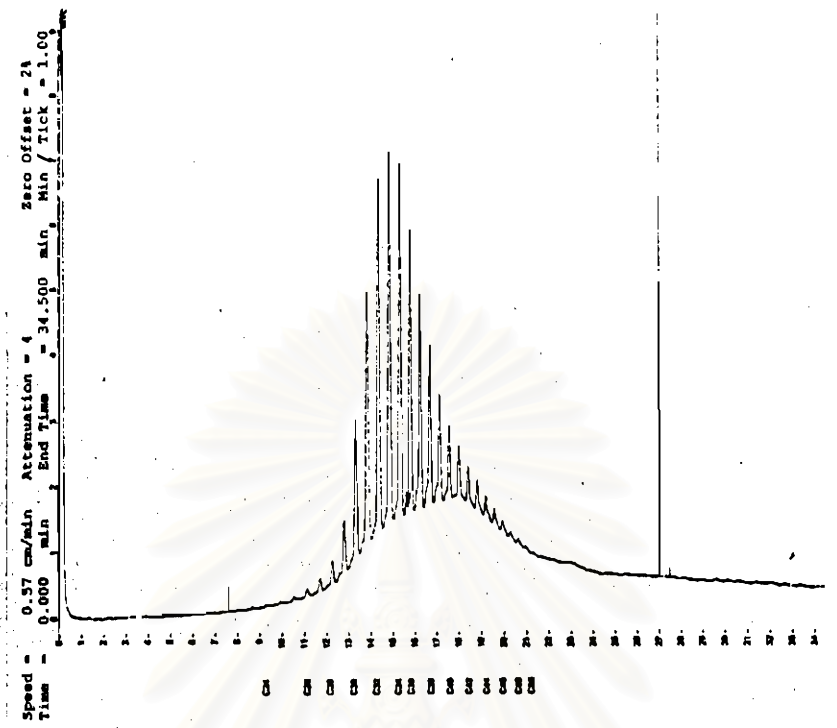


Figure A73 GC chromatogram of crystallized wax from fractional crystallization of 500SW at 20°C in toluene

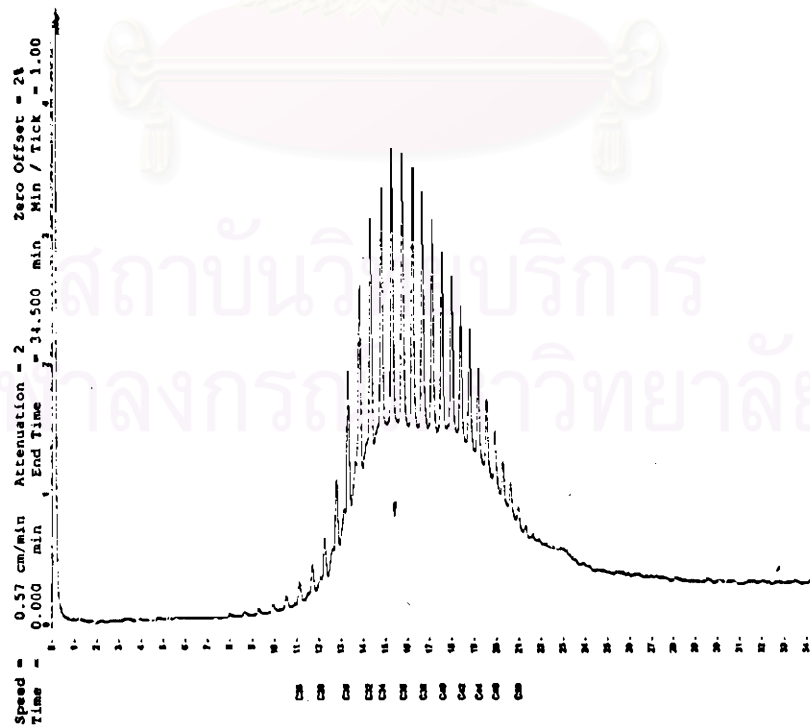


Figure A74 GC chromatogram of crystallized wax from fractional crystallization of 500SW at 30°C in toluene

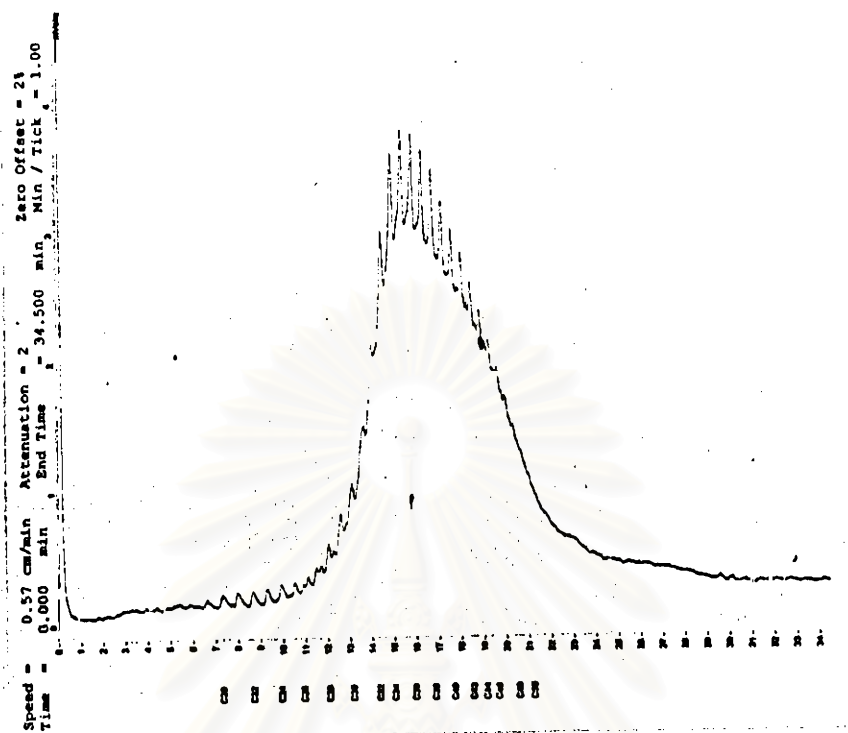


Figure A75 GC chromatogram of residual oil from fractional crystallization of 600SW at -20°C in toluene

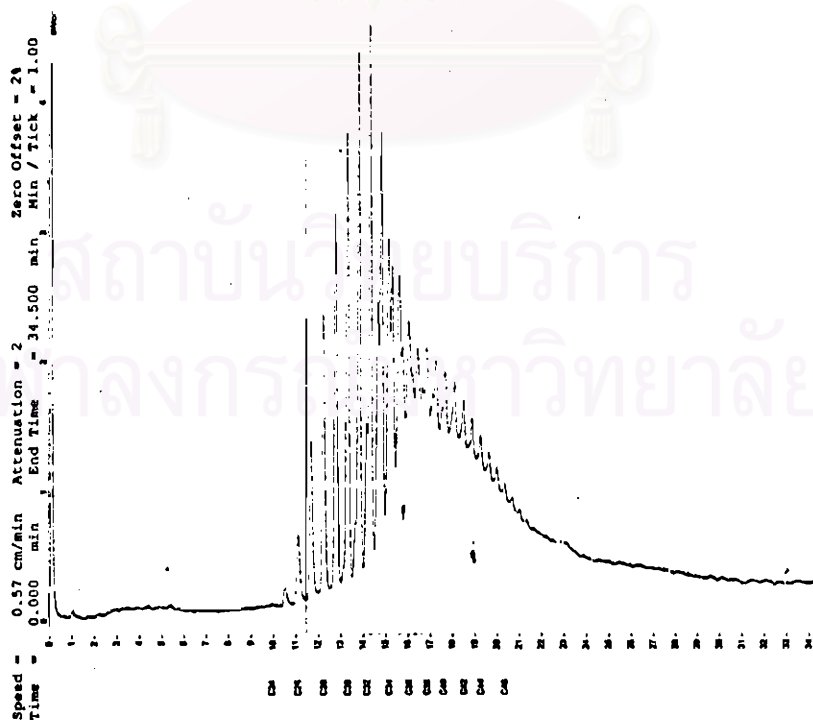


Figure A76 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 0°C in toluene

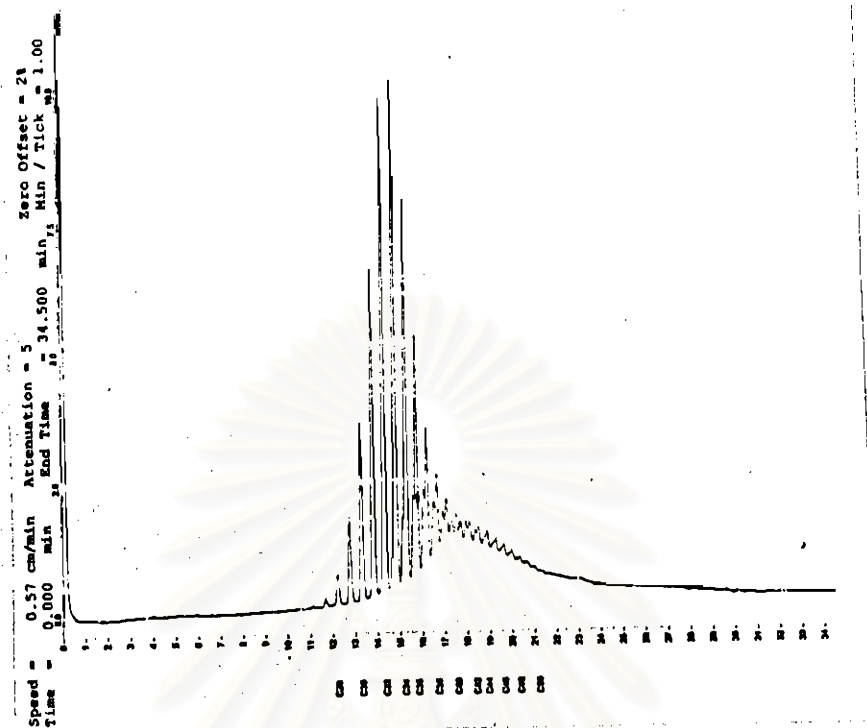


Figure A77 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 10°C in toluene

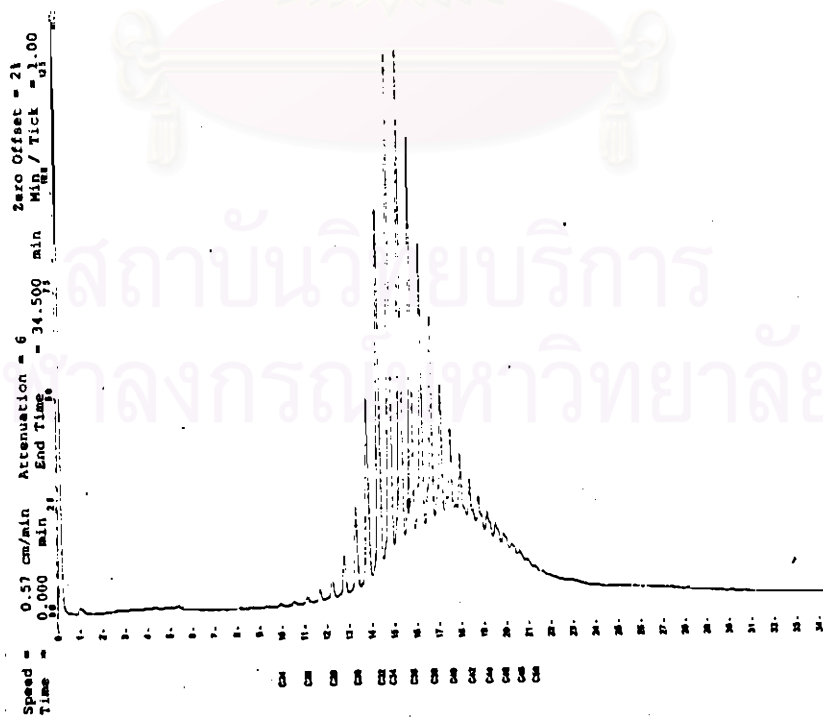


Figure A78 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 20°C in toluene

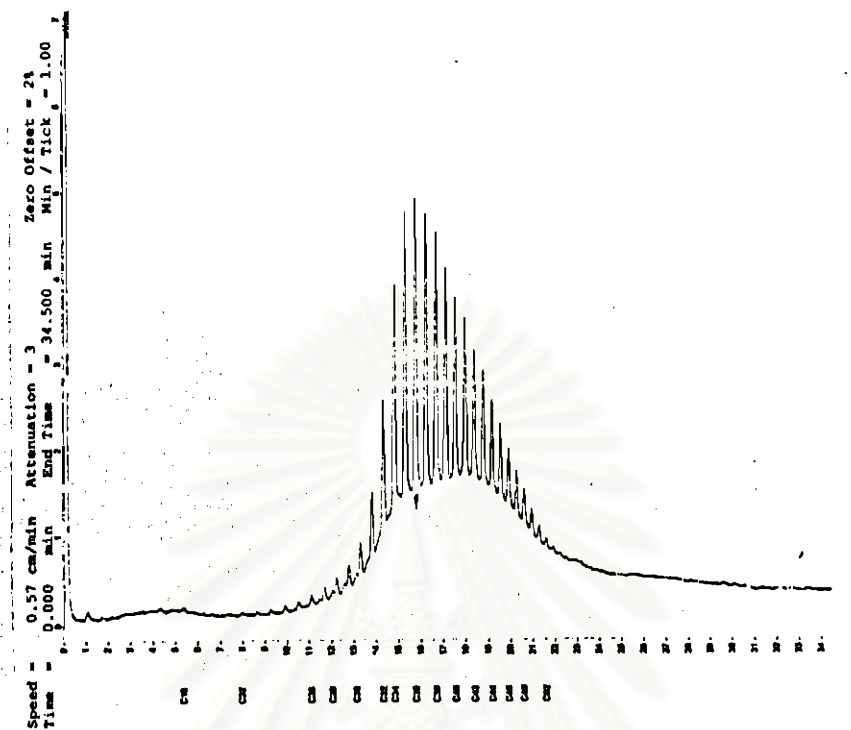


Figure A79 GC chromatogram of crystallized wax from fractional crystallization of 600SW at 30°C in toluene

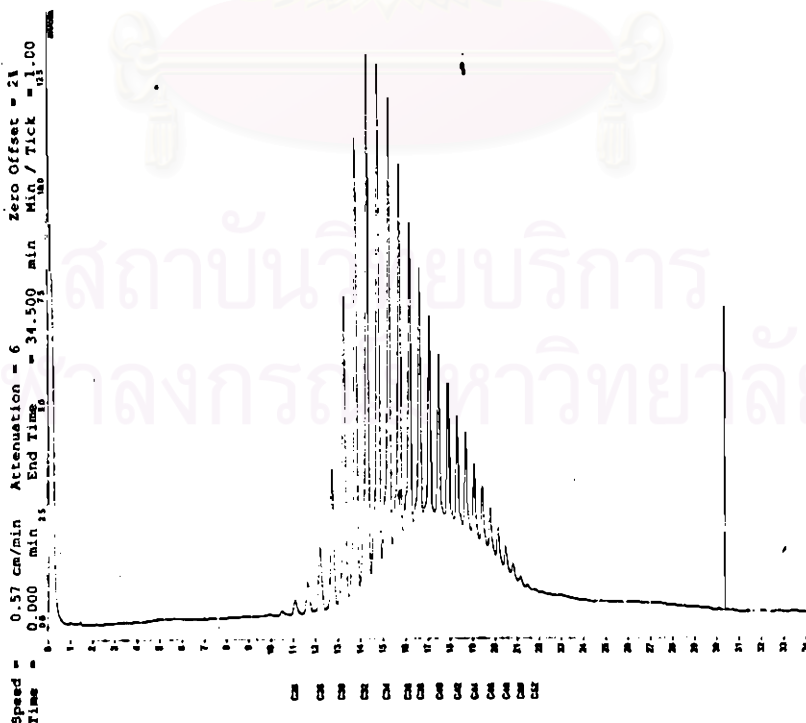


Figure A80 GC chromatogram of wax cake from extraction of 1g.500SW / 100ml MEK at 20°C

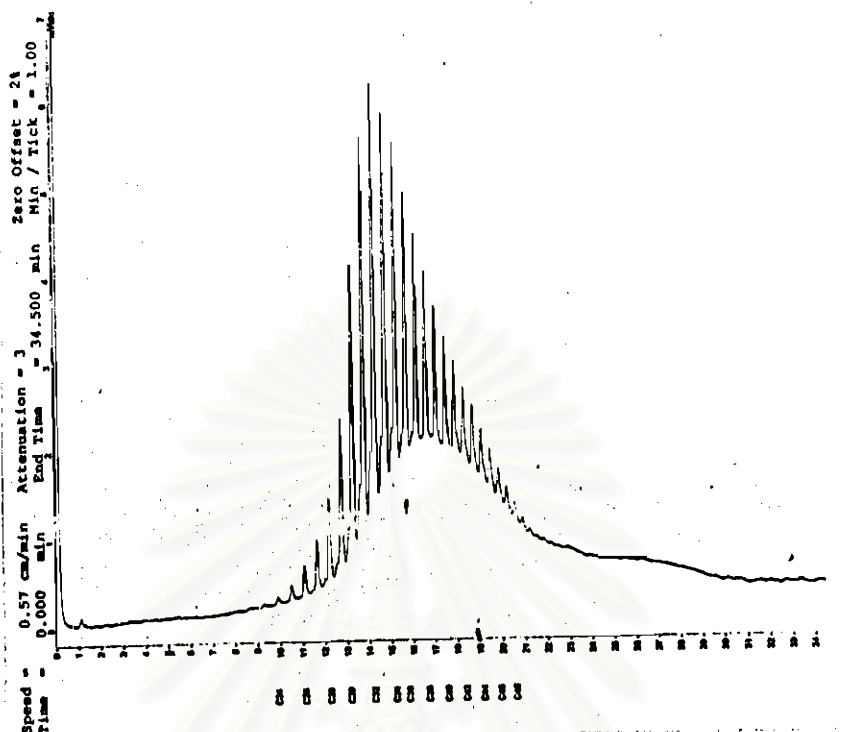


Figure A81 GC chromatogram of wax cake from extraction of 5g.500SW / 100ml MEK at 20°C

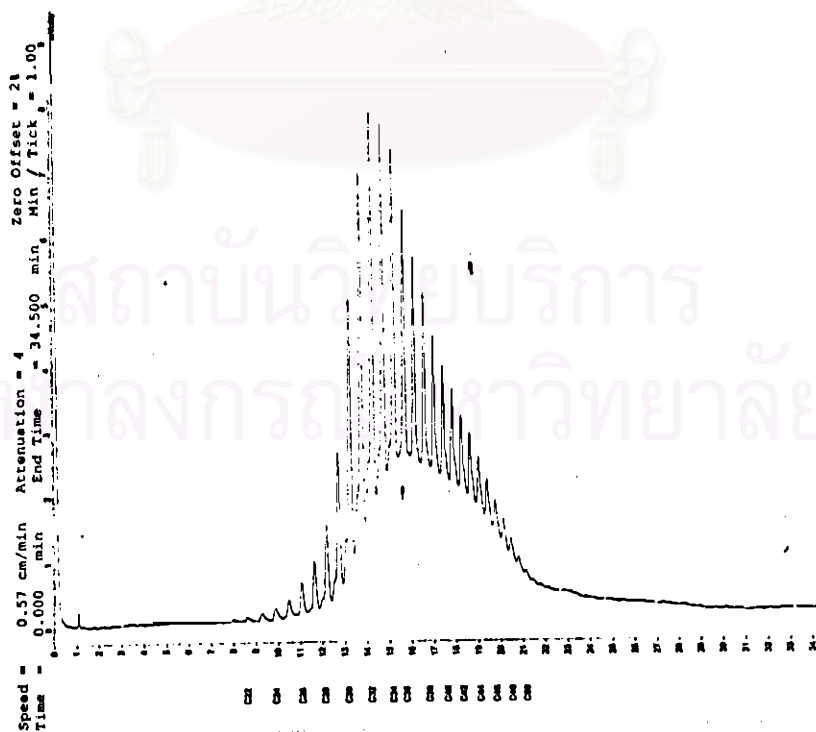


Figure A82 GC chromatogram of wax cake from extraction of 10g.500SW / 100ml MEK at 20°C

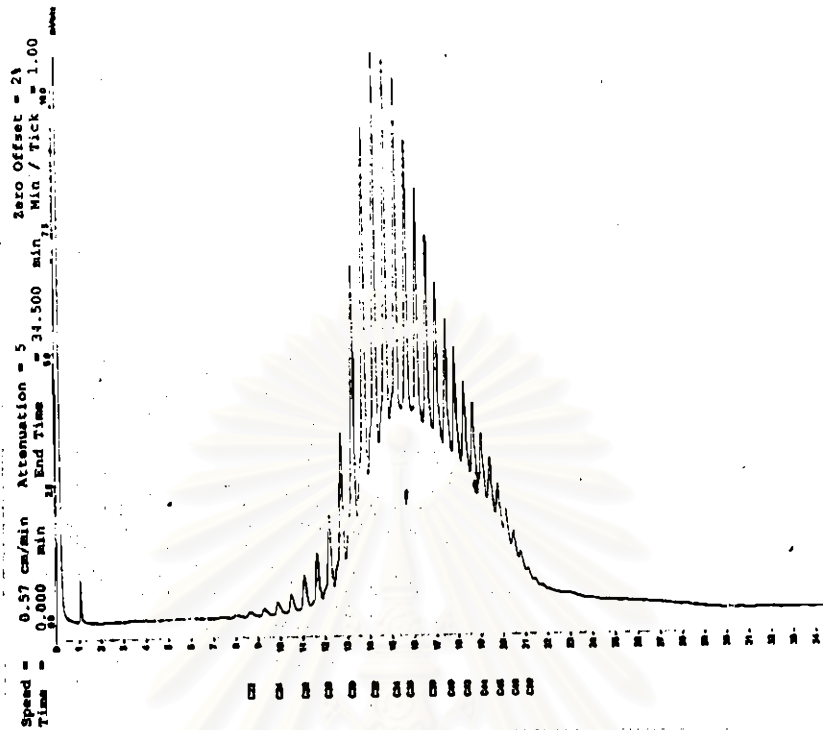


Figure A83 GC chromatogram of wax cake from extraction of 15g.500SW / 100ml MEK at 20°C

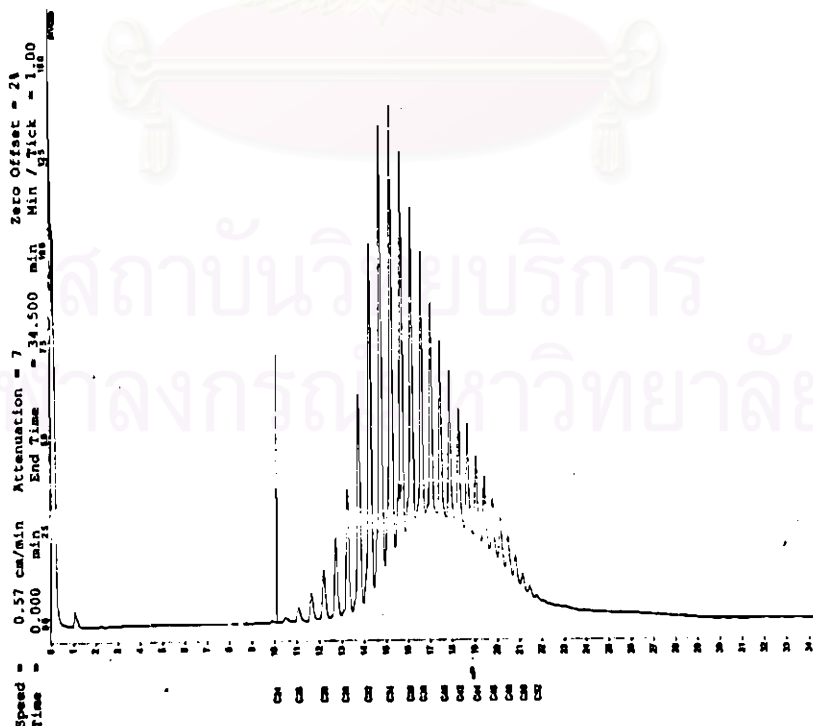


Figure A84 GC chromatogram of wax cake from extraction of 1g.600SW / 100ml MEK at 20°C

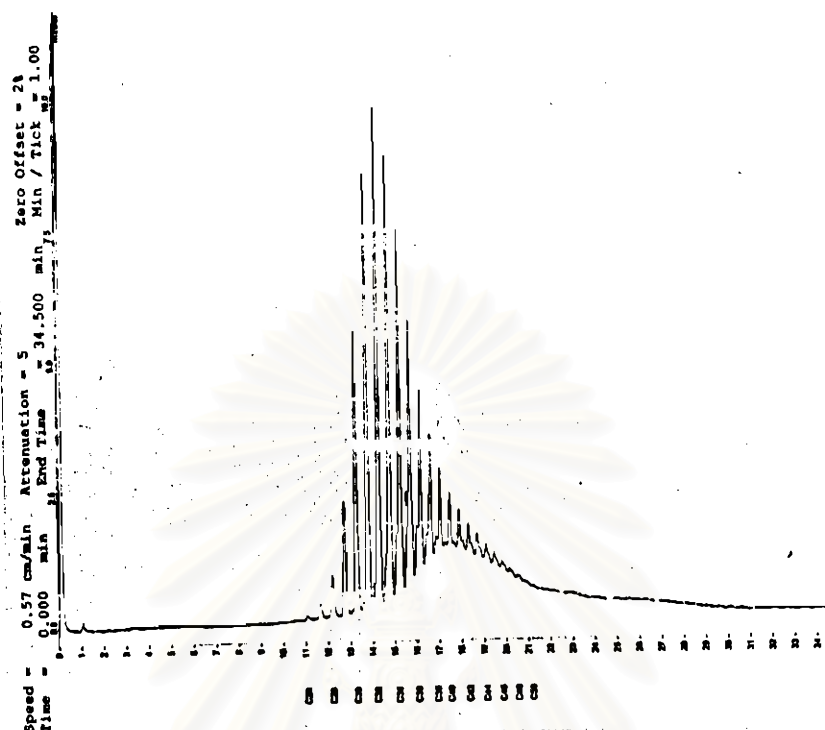


Figure A89 GC chromatogram of extracted wax from fractionation extraction of 500SW at 60°C by using MEK

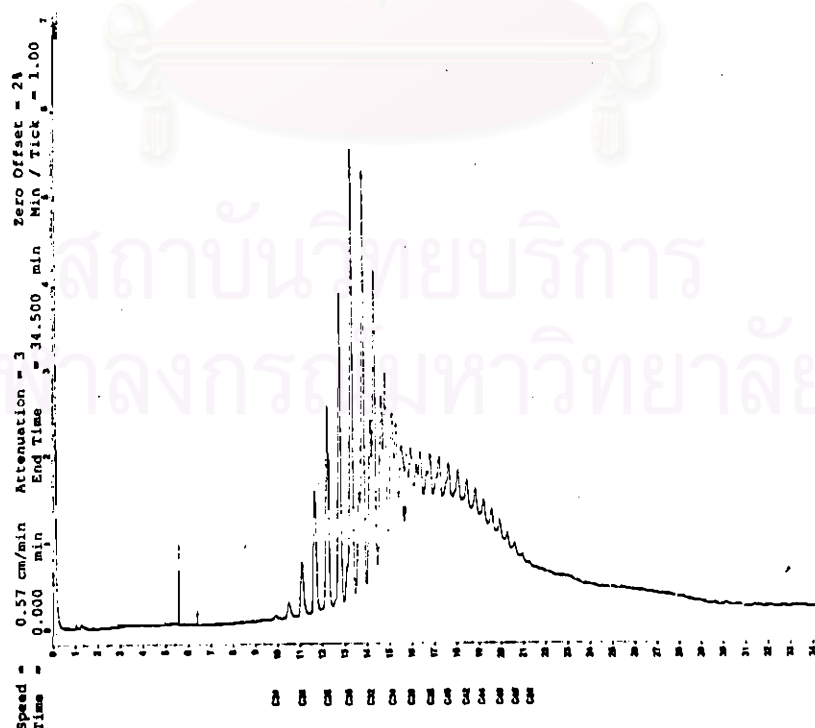


Figure A90 GC chromatogram of extracted wax from fractionation extraction of 500SW at 50°C by using MEK

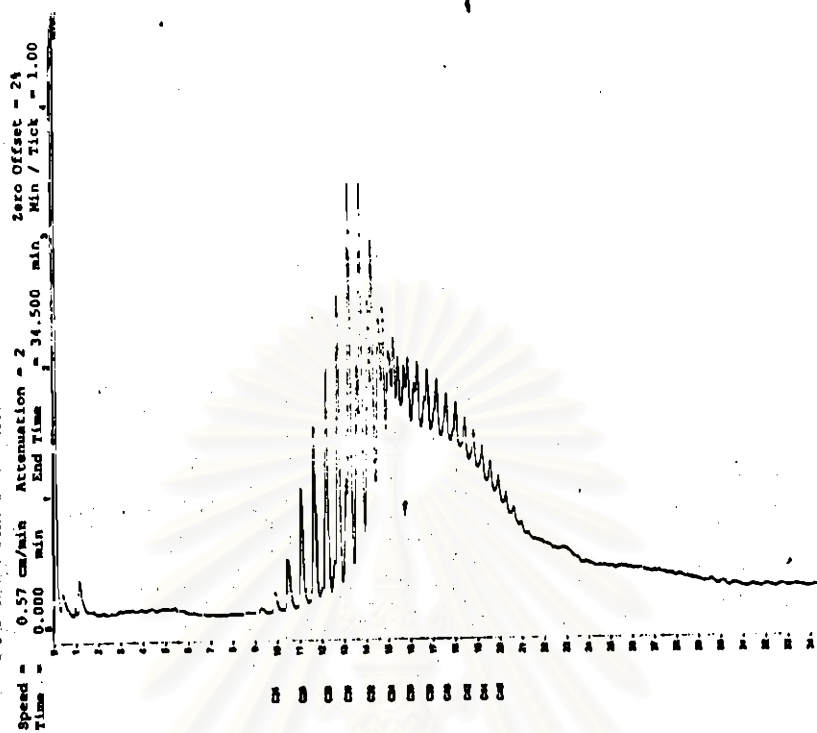


Figure A91 GC chromatogram of extracted wax from fractionation extraction of 500SW at 40°C by using MEK

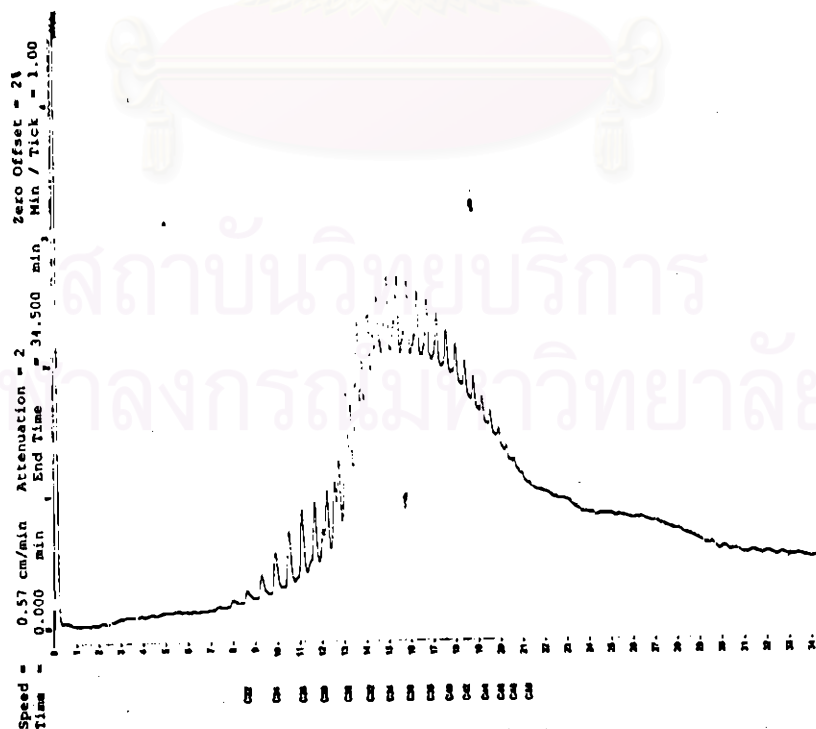


Figure A92 GC chromatogram of extracted wax from fractionation extraction of 500SW at 30°C by using MEK

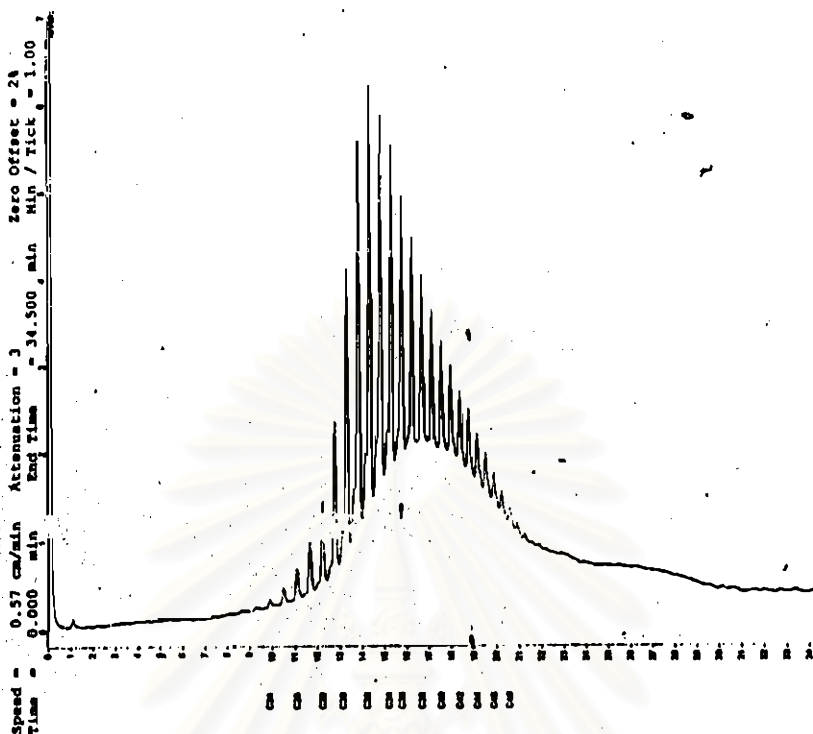


Figure A93 GC chromatogram of extracted wax from fractionation extraction of 500SW at 20°C by using MEK

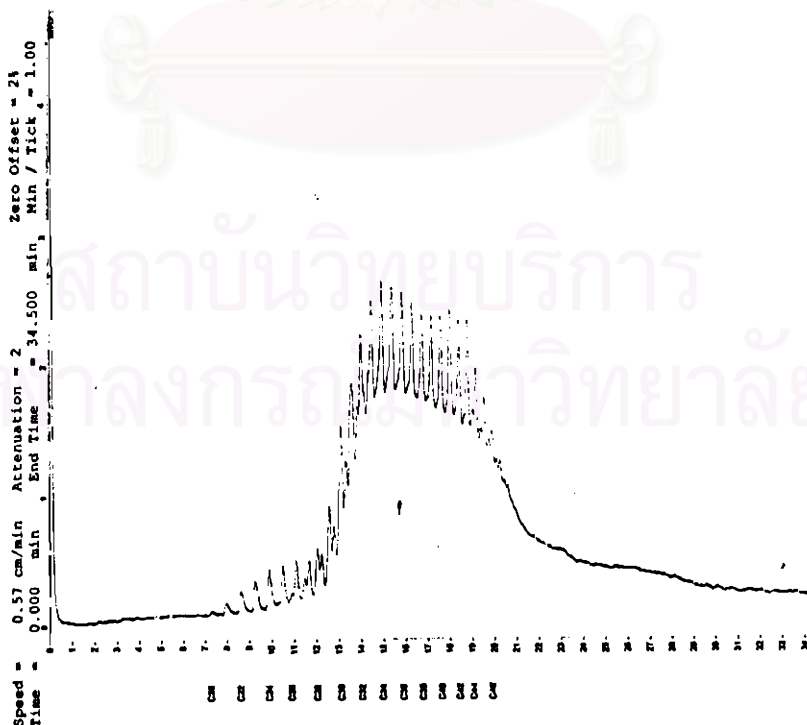


Figure A94 GC chromatogram of crystallized wax from fractionation crystallization of 500SW at 10°C in MEK

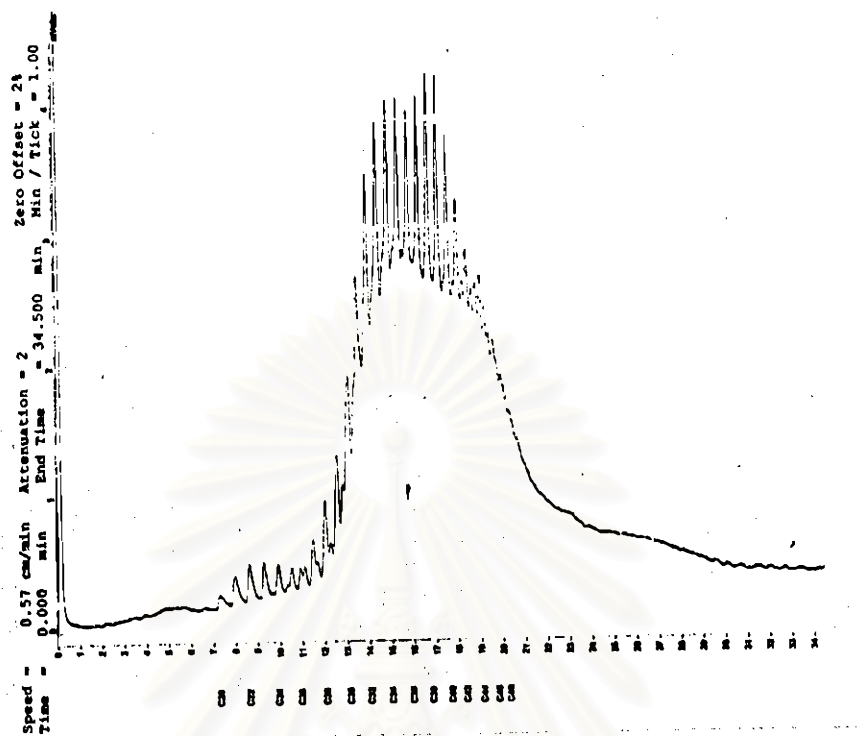


Figure A95 GC chromatogram of crystallized wax from fractionation crystallization of 500SW at 0°C in MEK

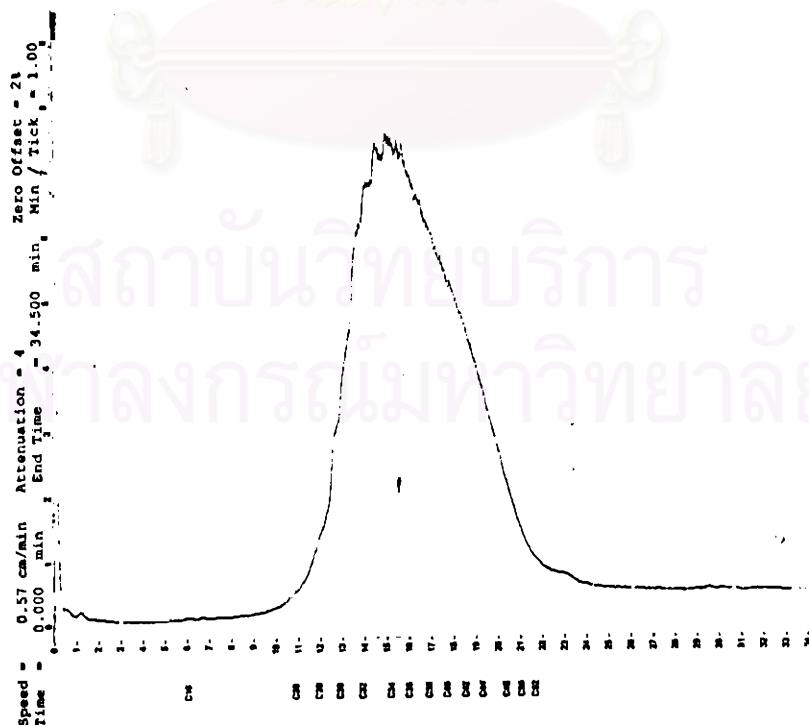


Figure A96 GC chromatogram of waxy-oil from fractionation crystallization of 500SW at -10°C in MEK

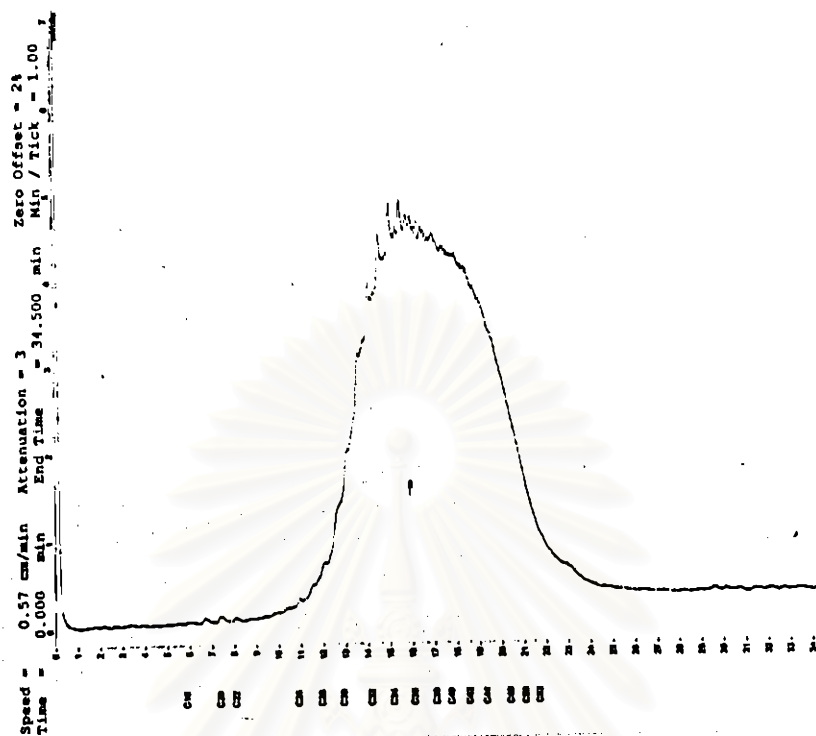


Figure A97 GC chromatogram of waxy-oil from fractionation crystallization of 500SW at -20°C in MEK

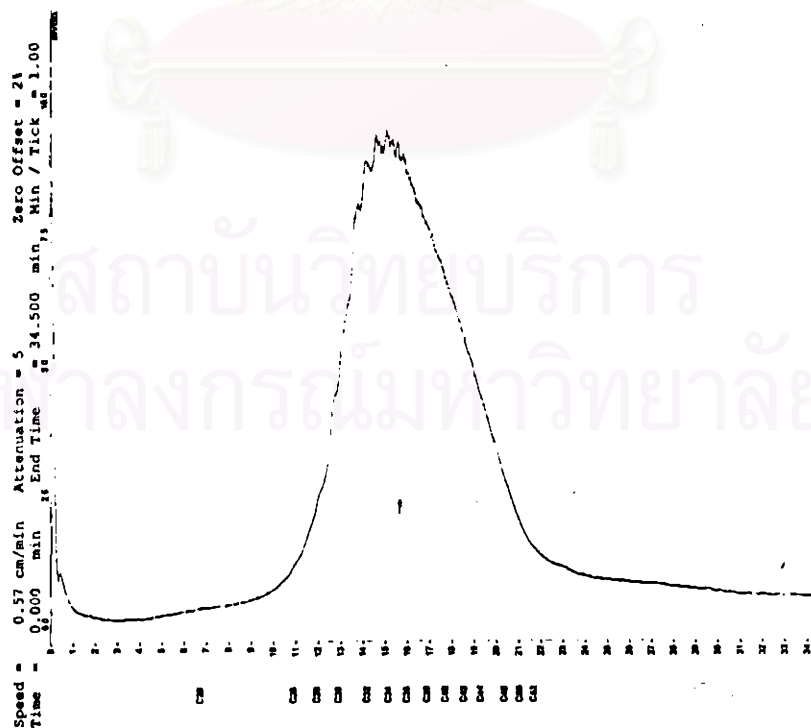


Figure A98 GC chromatogram of residual oil from fractionation crystallization of 500SW at -20°C in MEK

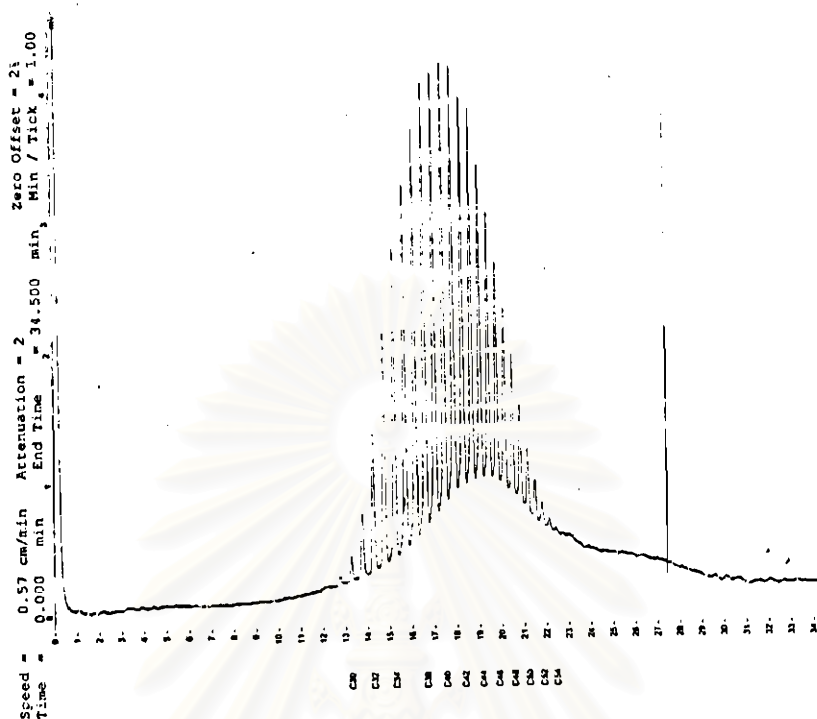


Figure A99 GC chromatogram of wax cake from fractionation extraction of 600SW at 60°C by using MEK

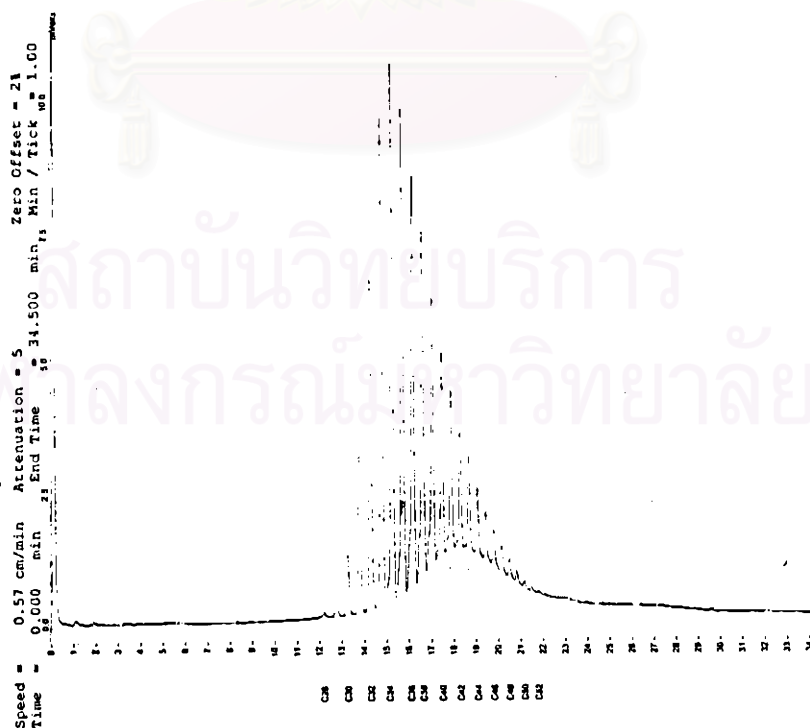


Figure A100 GC chromatogram of extracted wax from fractionation extraction of 600SW at 60°C by using MEK

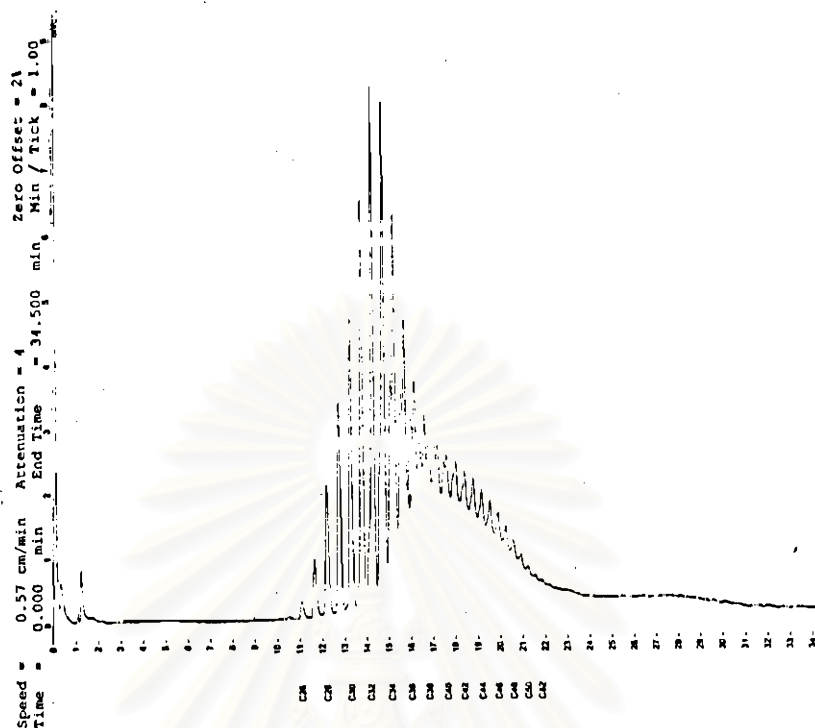


Figure A101 GC chromatogram of extracted wax from fractionation extraction of 600SW at 50°C by using MEK

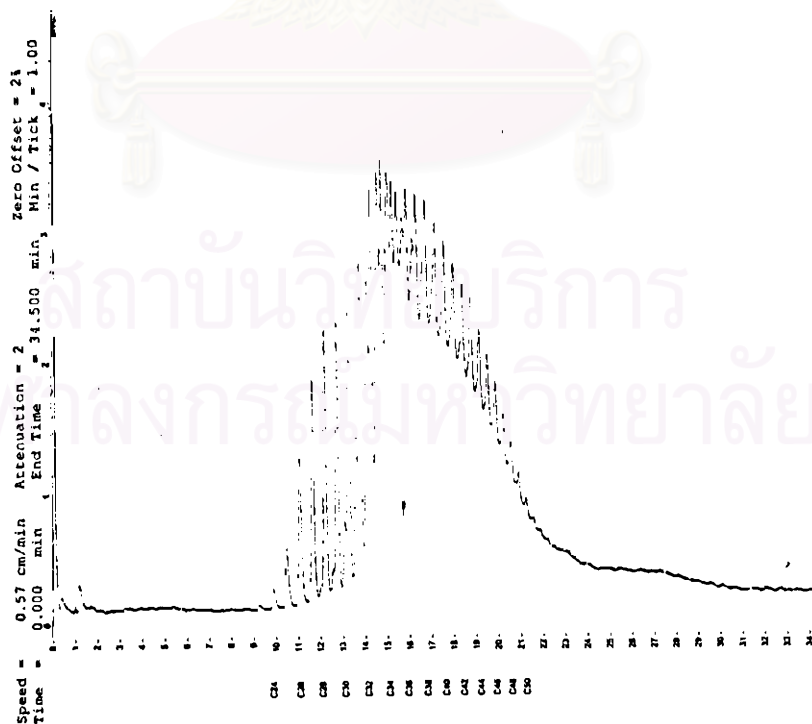


Figure A102 GC chromatogram of extracted wax from fractionation extraction of 600SW at 40°C by using MEK

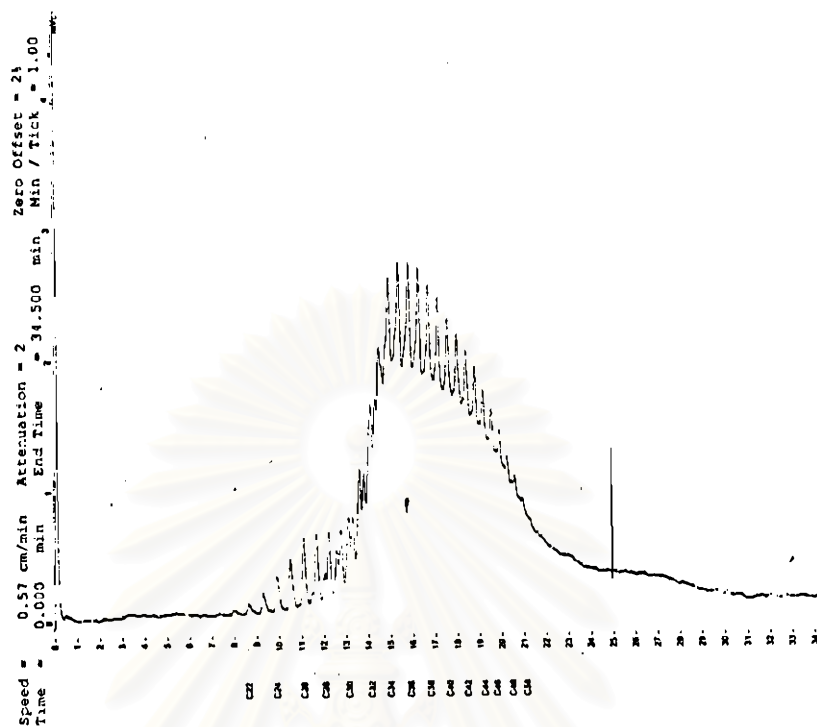


Figure A103 GC chromatogram of extracted wax from fractionation extraction of 600SW at 30°C by using MEK

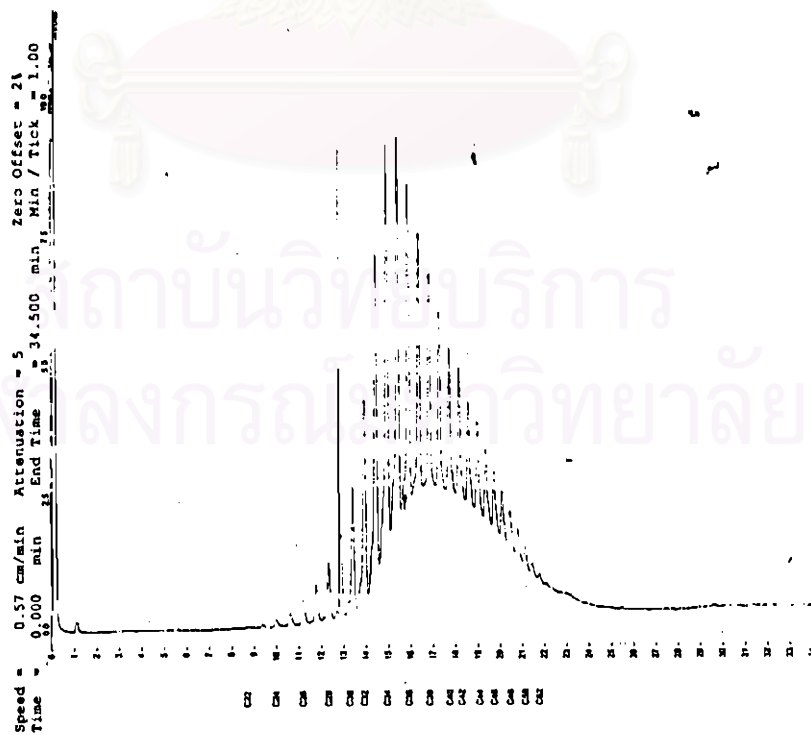


Figure A104 GC chromatogram of extracted wax from fractionation extraction of 600SW at 20°C by using MEK

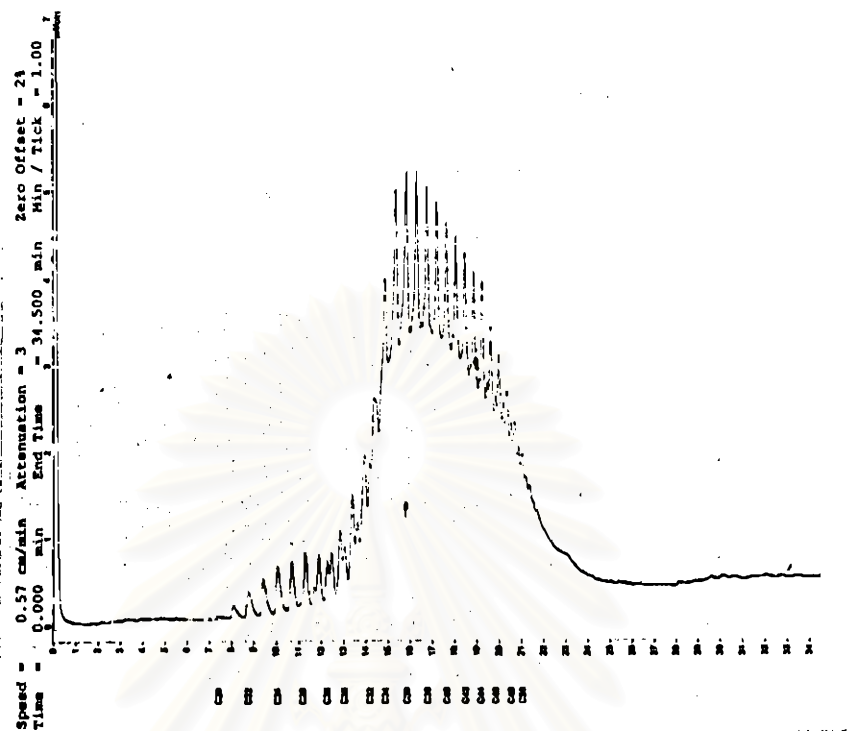


Figure A105 GC chromatogram of crystallized wax from fractionation crystallization of 600SW at 10°C in MEK

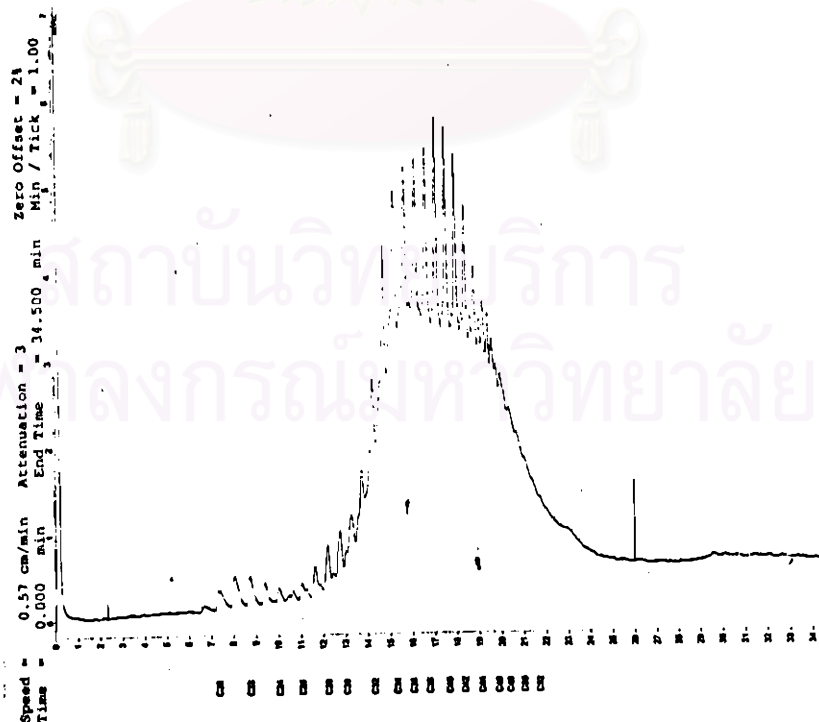


Figure A106 GC chromatogram of crystallized wax from fractionation crystallization of 600SW at 0°C in MEK.

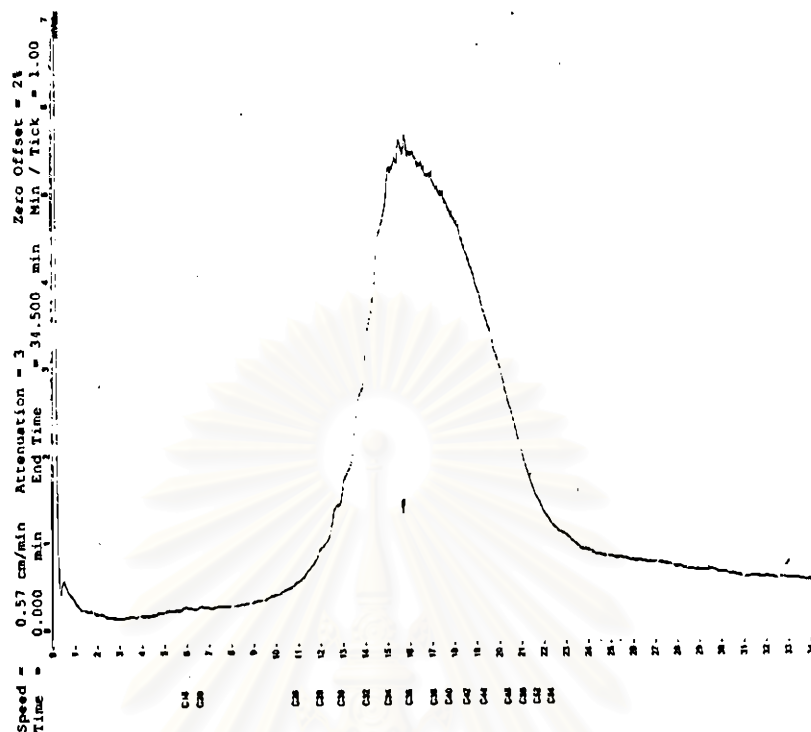


Figure A107 GC chromatogram of waxy-oil from fractionation crystallization of 600SW at -10°C in MEK

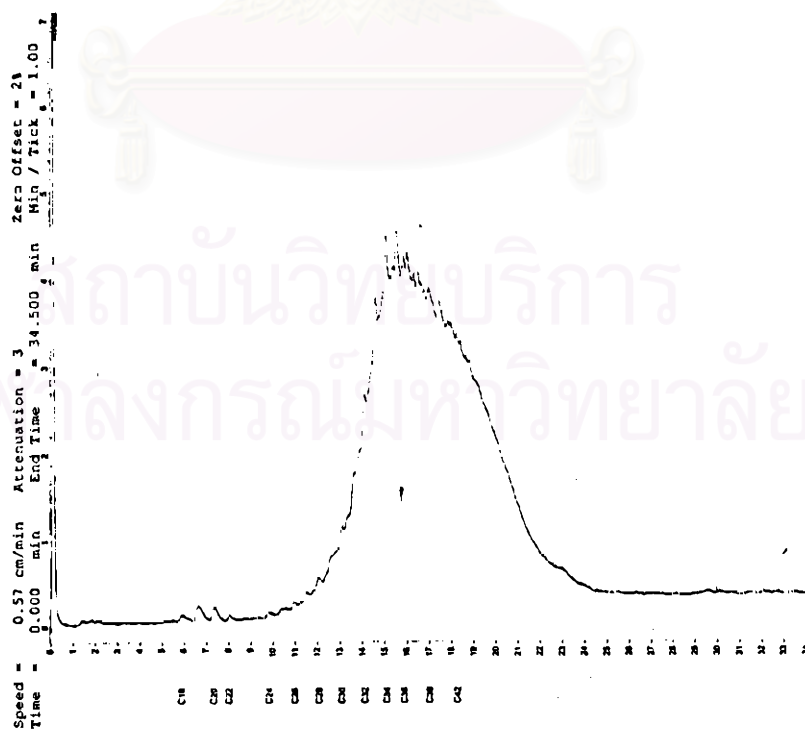


Figure A108 GC chromatogram of waxy-oil from fractionation crystallization of 600SW at -20°C in MEK

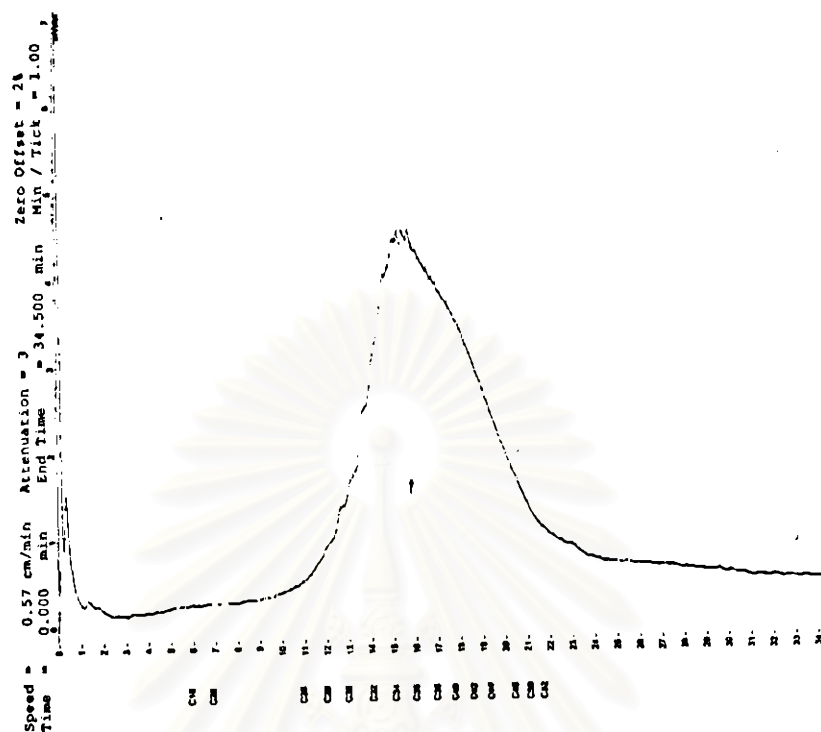


Figure A109 GC chromatogram of residual oil from fractionation crystallization of 600SW at -20°C in MEK

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APPENDIX B

Table B1 Chromatographic data of normal paraffin standards (C₁₉ - C₉₂)

Standard of Normal Paraffins					Standard of Normal Paraffins				
Peak No.	Peak Name	t _R (min)	t' _R	Log t' _R	Peak No.	Peak Name	t _R (min)	t' _R	Log t' _R
t _m	CS ₂	0.068	-	-	20	C54	22.519	22.451	1.351
1	C16	4.091	4.023	0.604	21	C56	23.103	23.035	1.362
2	C18	5.619	5.551	0.744	22	C58	23.660	23.592	1.372
3	C20	7.100	7.032	0.847	23	C60	24.200	24.132	1.382
4	C22	8.471	8.403	0.924	24	C62	24.723	24.655	1.391
5	C24	9.759	9.691	0.986	25	C64	25.229	25.161	1.400
6	C26	10.964	10.896	1.037	26	C66	25.715	25.647	1.409
7	C28	12.096	12.028	1.080	27	C68	26.189	26.121	1.416
8	C30	13.159	13.091	1.116	28	C70	26.648	26.580	1.424
9	C32	14.165	14.097	1.149	29	C72	27.096	27.028	1.431
10	C34	15.117	15.049	1.177	30	C74	27.531	27.463	1.438
11	C36	16.022	15.954	1.202	31	C76	27.954	27.886	1.445
12	C38	16.881	16.813	1.225	32	C78	28.371	28.303	1.451
13	C40	17.702	17.634	1.246	33	C80	28.776	28.708	1.458
14	C42	18.484	18.416	1.265	34	C82	29.176	29.108	1.464
15	C44	19.231	19.163	1.282	35	C84	29.569	29.501	1.469
16	C46	19.944	19.876	1.298	36	C86	29.962	29.894	1.475
17	C48	20.631	20.563	1.313	37	C88	30.446	30.378	1.482
18	C50	21.284	21.216	1.326	38	C90	31.003	30.935	1.490
19	C52	21.914	21.846	1.339	39	C92	31.612	31.544	1.498

Table B2 Chromatographic data of 500SW slack wax

Total Non = 80.47%, N = 19.53%

P/Na	Group	t' _R min	t' _R	Δt' _R	Log t' _R	A	% wt	P/Na	Group	t' _R min	t' _R	Δt' _R	Log t' _R	A	% wt	
CS2	Solvent	0.073	-	-	-	-	-	N	N	15.909	15.836	-0.118	1.199	2692	1.19	
C19	N	6.321	-	-	-	59	0.03	C37	Non	16.334	-	-	-	12538	5.55	
C20	N	7.033	6.960	-0.072	0.842	117	0.05	N	N	16.334	-	-	-	2348	1.04	
C21	N	7.732	-	-	-	140	0.06	C38	Non	16.755	-	-	-	10613	4.70	
C22	N	8.396	8.323	-0.080	0.920	182	0.08	N	N	16.755	16.682	-0.131	1.222	1902	0.84	
C23	N	9.039	-	-	-	215	0.10	C39	Non	17.161	-	-	-	9311	4.12	
C24	N	9.669	9.596	-0.095	0.982	280	0.12	N	N	17.161	-	-	-	1590	0.70	
C25	Non	10.276	-	-	-	177	0.08	C40	Non	17.557	-	-	-	8832	3.91	
N	N	10.276	-	-	-	394	0.17	N	N	17.557	17.484	-0.150	1.242	1486	0.66	
C26	Non	10.859	-	-	-	680	0.30	C41	Non	17.944	-	-	-	8004	3.54	
N	N	10.859	10.786	-0.110	1.032	552	0.24	N	N	17.944	-	-	-	1034	0.46	
C27	Non	11.247	-	-	-	1353	0.60	C42	Non	18.327	-	-	-	6555	2.90	
N	N	11.435	-	-	-	842	0.37	N	N	18.327	18.254	-0.162	1.261	889	0.39	
C28	Non	11.800	-	-	-	2695	1.19	C43	Non	18.691	-	-	-	5530	2.45	
N	N	11.991	11.918	-0.110	1.076	1024	0.45	N	N	18.691	-	-	-	740	0.33	
C29	Non	12.346	-	-	-	5062	2.24	C44	Non	19.063	-	-	-	4491	1.99	
N	N	12.535	-	-	-	1920	0.85	N	N	19.063	18.990	-0.173	1.278	598	0.26	
C30	Non	13.065	-	-	-	8286	3.67	C45	Non	19.406	-	-	-	3515	1.56	
N	N	13.065	12.992	-0.099	1.113	3564	1.58	N	N	19.406	-	-	-	382	0.17	
C31	Non	13.578	-	-	-	11770	5.21	C46	Non	19.741	-	-	-	2445	1.08	
N	N	13.578	-	-	-	4685	2.07	N	N	19.741	19.668	-0.208	1.293	236	0.10	
C32	Non	14.073	-	-	-	14310	6.33	C47	Non	20.078	-	-	-	1758	0.78	
N	N	14.073	14.000	-0.097	1.146	4738	2.10	N	N	20.078	-	-	-	177	0.08	
C33	Non	14.557	-	-	-	15356	6.79	C48	Non	20.402	-	-	-	1007	0.45	
N	N	14.557	-	-	-	3992	1.77	N	N	20.402	20.329	-0.234	1.308	119	0.05	
C34	Non	15.016	-	-	-	18395	8.14	C49	Non	20.719	-	-	-	263	0.12	
N	N	15.016	14.943	-0.106	1.174	3730	1.65	N	N	20.719	-	-	-	51	0.02	
C35	Non	15.472	-	-	-	14955	6.62	C50	Non	21.205	-	-	-	120	0.05	
N	N	15.472	-	-	-	3462	1.53	C51	Non	21.619	-	-	-	74	0.03	
C36	Non	15.909	-	-	-	13756	6.09	C52	Non	21.835	-	-	-	41	0.02	
														Total	226032	100.00

Table B3 Chromatographic data of 600SW slack wax

Total Non = 77.17%, N = 22.83%

P/Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	P/Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	
CS2	Solvent	0.070	-	-	-	-	-									
C19	N	6.418	-	-	-	40	0.05	C37	Non	15.883	15.813	-0.141	1.199	1370	1.69	
C20	N	7.033	6.963	-0.069	0.842	48	0.06		N	16.304	-	-	-	4698	5.81	
C21	N	7.722	-	-	-	56	0.07		N	16.304	-	-	-	1134	1.40	
C22	N	8.394	8.324	-0.079	0.920	68	0.08	C38	Non	16.729	-	-	-	4402	5.45	
C23	N	9.052	-	-	-	75	0.09		N	16.729	16.659	-0.154	1.221	957	1.18	
C24	N	9.677	9.607	-0.084	0.982	94	0.12	C39	Non	17.136	-	-	-	3920	4.85	
C25	Non	10.282	-	-	-	30	0.04		N	17.136	-	-	-	820	1.01	
	N	10.282	-	-	-	138	0.17	C40	Non	17.539	-	-	-	3482	4.31	
C26	Non	10.863	-	-	-	48	0.06		N	17.539	17.469	-0.165	1.242	725	0.90	
	N	10.863	10.793	-0.033	1.033	222	0.27	C41	Non	17.928	-	-	-	3090	3.82	
C27	Non	11.240	-	-	-	216	0.27		N	17.928	-	-	-	536	0.66	
	N	11.432	-	-	-	299	0.37	C42	Non	18.308	-	-	-	2837	3.51	
C28	Non	11.801	-	-	-	435	0.54		N	18.308	18.238	-0.178	1.260	482	0.60	
	N	11.984	11.914	-0.114	1.076	404	0.50	C43	Non	18.673	-	-	-	2521	3.12	
C29	Non	12.322	-	-	-	797	0.99		N	18.673	-	-	-	355	0.44	
	N	12.519	-	-	-	489	0.61	C44	Non	19.045	-	-	-	2123	2.63	
C30	Non	12.877	-	-	-	1132	1.40		N	19.045	18.975	-0.188	1.278	265	0.33	
	N	13.042	12.972	-0.119	1.113	745	0.92	C45	Non	19.388	-	-	-	1753	2.17	
C31	Non	13.553	-	-	-	1948	2.41		N	19.388	-	-	-	242	0.30	
	N	13.553	-	-	-	1123	1.39	C46	Non	19.737	-	-	-	1297	1.60	
C32	Non	14.041	-	-	-	3181	3.94		N	19.737	19.667	-0.209	1.293	171	0.21	
	N	14.041	13.971	-0.126	1.145	1782	2.20	C47	Non	20.081	-	-	-	1056	1.31	
C33	Non	14.524	-	-	-	4717	5.84		N	20.081	-	-	-	132	0.16	
	N	14.524	-	-	-	1998	2.47	C48	Non	20.417	-	-	-	736	0.91	
C34	Non	14.984	-	-	-	5511	6.82		N	20.417	20.347	-0.216	1.308	89	0.11	
	N	14.984	14.914	-0.135	1.173	1868	2.31	C49	Non	20.730	-	-	-	463	0.57	
C35	Non	15.443	-	-	-	6385	7.90		N	20.730	-	-	-	48	0.06	
	N	15.443	-	-	-	1681	2.08	C50	Non	21.211	-	-	-	218	0.27	
C36	Non	15.883	-	-	-	5241	6.48		N	21.211	-	-	-	75	0.09	
								C51	Non	21.651	-	-	-	58	0.07	
								C52	Non	21.842	-	-	-			
														Total	80826	100.00

Table B4 Chromatographic data of wax cake from 1st extraction of 500SW at 40 °C by using MEK

Total Non = 29.22%, N = 70.78%

P/No.	P/Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	P/No.	P/Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	
1m	CS ₂	Solvent	0.074	-	-	-	-	-										
1	C28	N	12.092	12.018	-0.010	1.079	134	0.08	14	C41	Non	17.724	17.650	0.016	1.246	6591	3.97	
2	C29	N	12.627	-	-	-	467	0.28		N	18.111	-	-	-	4668	2.81		
3	C30	Non	13.155	-	-	-	67	0.04		N	18.111	-	-	-	5104	3.07		
	N	13.155	13.081	-0.010	1.116	1879	1.13	15	C42	Non	18.489	-	-	-	4919	2.96		
4	C31	Non	13.679	-	-	-	123	0.07		N	18.489	18.424	0.008	1.265	4298	2.59		
	N	13.679	-	-	-	4445	2.67	16	C43	Non	18.851	-	-	-	4261	2.56		
5	C32	Non	14.181	-	-	-	282	0.17		N	18.851	-	-	-	3205	1.93		
	N	14.181	14.107	0.010	1.149	7814	4.70	17	C44	Non	19.208	-	-	-	3676	2.21		
6	C33	Non	14.687	-	-	-	699	0.42		N	19.208	19.134	-0.029	1.281	2775	1.67		
	N	14.687	-	-	-	10377	6.24	18	C45	Non	19.559	-	-	-	3293	1.98		
7	C34	Non	15.171	-	-	-	1101	0.66		N	19.559	-	-	-	2171	1.31		
	N	15.171	15.097	0.048	1.178	12322	7.41	19	C46	Non	19.902	-	-	-	1910	1.15		
8	C35	Non	15.632	-	-	-	1736	1.04		N	19.902	19.828	-0.048	1.297	1565	0.94		
	N	15.632	-	-	-	12378	7.45	20	C47	Non	20.234	-	-	-	1711	1.03		
9	C36	Non	16.076	-	-	-	2214	1.33		N	20.234	-	-	-	1141	0.69		
	N	16.076	16.002	0.048	1.204	11747	7.07	21	C48	Non	20.561	-	-	-	1332	0.80		
10	C37	Non	16.306	-	-	-	2908	1.75		N	20.561	20.487	-0.076	1.311	623	0.37		
	N	16.306	-	-	-	10837	6.52	22	C49	Non	20.879	-	-	-	869	0.52		
11	C38	Non	16.923	-	-	-	3454	2.08		N	20.879	-	-	-	353	0.21		
	N	16.923	16.849	0.036	1.226	9271	5.58	23	C50	Non	21.196	-	-	-	561	0.34		
12	C39	Non	17.329	-	-	-	3987	2.40		N	21.196	21.122	-0.094	1.324	194	0.12		
	N	17.329	-	-	-	7878	4.74	24	C51	Non	21.505	-	-	-	246	0.15		
13	C40	Non	17.724	-	-	-	4556	2.74		N	21.505	-	-	-	84	0.05		
																Total	166226	100.00

Table B7 Chromatographic data of wax cake from 1st extraction of 500SW at 55 °C by using MEK

Total Non = 43.12%, N = 56.88%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	16	C39	Non	16.923	16.848	0.035	1.226	6245	3.05	
1	C24	N	9.778	9.703	0.012	0.986	94	0.05			N	17.329	-	-	-	6987	3.41	
2	C25	N	10.377	-	-	-	174	0.08			N	17.329	-	-	-	5093	2.48	
3	C26	N	10.962	10.887	-0.009	1.036	347	0.17	17	C40	Non	17.724	-	-	-	6962	3.40	
4	C27	Non	11.531	-	-	-	86	0.04			N	17.724	17.649	0.015	1.246	4119	2.01	
		N	11.531	-	-	-	651	0.32	18	C41	Non	18.103	-	-	-	6361	3.10	
5	C28	Non	12.091	-	-	-	159	0.08			N	18.103	-	-	-	3074	1.50	
		N	12.091	12.016	-0.012	1.079	1297	0.63	19	C42	Non	18.484	-	-	-	5554	2.71	
6	C29	Non	12.637	-	-	-	428	0.21			N	18.484	18.409	-0.007	1.265	2778	1.36	
		N	12.637	-	-	-	3037	1.48	20	C43	Non	18.843	-	-	-	4719	2.30	
7	C30	Non	13.182	-	-	-	1017	0.30			N	18.843	-	-	-	2200	1.07	
		N	13.182	13.107	0.016	1.117	6881	3.36	21	C44	Non	19.204	-	-	-	4259	2.08	
8	C31	Non	13.714	-	-	-	1952	0.95			N	19.204	19.129	-0.034	1.281	1587	0.77	
		N	13.714	-	-	-	10684	5.21	22	C45	Non	19.551	-	-	-	3291	1.61	
9	C32	Non	14.226	-	-	-	3352	1.64			N	19.551	-	-	-	1258	0.61	
		N	14.226	14.151	0.054	1.150	12685	6.19	23	C46	Non	19.894	-	-	-	2861	1.40	
10	C33	Non	14.717	-	-	-	4227	2.06			N	19.894	19.819	-0.057	1.297	934	0.46	
		N	14.717	-	-	-	12812	6.25	24	C47	Non	20.228	-	-	-	1965	0.96	
11	C34	Non	15.191	-	-	-	5050	2.46			N	20.228	-	-	-	632	0.31	
		N	15.191	15.116	0.067	1.179	12407	6.05	25	C48	Non	20.553	-	-	-	1345	0.66	
12	C35	Non	15.642	-	-	-	5855	2.86			N	20.553	20.478	-0.085	1.311	382	0.19	
		N	15.642	-	-	-	10496	5.12	26	C49	Non	20.868	-	-	-	805	0.39	
13	C36	Non	16.081	-	-	-	6563	3.20			N	20.868	-	-	-	212	0.10	
		N	16.081	16.006	0.052	1.204	8844	4.32	27	C50	Non	21.189	-	-	-	423	0.21	
14	C37	Non	16.513	-	-	-	6945	3.39			N	21.189	21.114	-0.102	1.324	132	0.06	
		N	16.513	-	-	-	7480	3.65	28	C51	Non	21.494	-	-	-	210	0.10	
15	C38	Non	16.923	-	-	-	6992	3.41			N	21.494	-	-	-	52	0.03	
																Total	204955	100.00

Table B8 Chromatographic data of soluble wax from 1st extraction of 500SW at 40 °C by using MEK

Total Non = 80.95%, N = 19.05%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt
tm	CS ₂	Solvent	0.073	-	-	-	-	-	24	C37	Non	16.076	16.003	0.049	1.204	2873	1.18
1	C19	N	6.524	-	-	-	112	0.05			N	16.512	-	-	-	15158	6.21
2	C20	N	7.204	7.131	0.099	0.853	165	0.07			N	16.512	-	-	-	2747	1.13
3	C21	N	7.859	-	-	-	195	0.08	25	C38	Non	16.927	-	-	-	12655	5.19
4	C22	N	8.523	8.450	0.047	0.926	197	0.08			N	16.927	16.854	0.041	1.226	2334	0.96
5	C23	N	9.154	-	-	-	218	0.09	26	C39	Non	17.336	-	-	-	12379	5.07
		N	9.154	-	-	-	105	0.04			N	17.336	-	-	-	1978	0.81
6	C24	Non	9.762	-	-	-	231	0.09	27	C40	Non	17.723	-	-	-	10928	4.48
		N	9.762	9.689	-0.002	0.986	354	0.15			N	17.723	17.650	0.016	1.246	1501	0.62
7	C25	Non	10.368	-	-	-	490	0.20	28	C41	Non	18.121	-	-	-	9840	4.03
		N	10.368	-	-	-	398	0.16			N	18.121	-	-	-	1106	0.45
8	C26	Non	10.771	-	-	-	631	0.26	29	C42	Non	18.496	-	-	-	9051	3.71
9		N	10.962	10.889	-0.007	1.036	744	0.30			N	18.496	18.423	0.007	1.265	1071	0.44
10	C27	Non	11.328	-	-	-	886	0.36	30	C43	Non	18.862	-	-	-	7445	3.05
		N	11.328	-	-	-	1329	0.54			N	18.862	-	-	-	883	0.36
12	C28	Non	11.899	-	-	-	1168	0.48	31	C44	Non	19.212	-	-	-	6416	2.63
		N	12.094	12.021	-0.007	1.079	2390	0.94			N	19.212	19.139	-0.024	1.281	753	0.31
14	C29	Non	12.438	-	-	-	1507	0.62	32	C45	Non	19.565	-	-	-	5594	2.29
		N	12.636	-	-	-	3664	1.50			N	19.565	-	-	-	631	0.26
16	C30	Non	12.996	-	-	-	1903	0.78	33	C46	Non	19.886	-	-	-	4594	1.88
		N	13.170	13.097	0.006	1.117	6366	2.61			N	19.886	19.813	-0.063	1.296	304	0.12
18	C31	Non	13.694	-	-	-	3007	1.23	34	C47	Non	20.227	-	-	-	3292	1.35
		N	13.694	-	-	-	10181	4.17			N	20.227	-	-	-	203	0.08
19	C32	Non	14.205	-	-	-	4917	2.02	35	C48	Non	20.549	-	-	-	2641	1.08
		N	14.205	14.132	0.035	1.150	5563	2.28			N	20.549	20.476	-0.087	1.311	166	0.07
20	C33	Non	14.702	-	-	-	19456	7.98	36	C49	Non	20.863	-	-	-	1591	0.65
		N	14.702	-	-	-	4639	1.90			N	20.863	-	-	-	98	0.04
21	C34	Non	15.181	-	-	-	18256	7.48	37	C50	Non	21.167	-	-	-	1644	0.67
		N	15.181	15.108	0.059	1.179	3868	1.59	38	C51	Non	21.753	-	-	-	611	0.25
22	C35	Non	15.639	-	-	-	15738	6.45			N	21.753	-	-	-	194	0.08
		N	15.639	-	-	-			39	C52	Non	22.113	-	-	-		
23	C36	Non	16.076	-	-	-					Total	243958	100.00				

Table B13 Chromatographic data of wax cake from 1st extraction of 600SW at 45 °C by using MEK

Total Non = 33.39%, N = 66.61%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.072	-	-	-	-	-	14	C41	Non	18.132	-	-	-	6455	2.97	
1	C28	N	12.085	12.013	-0.015	1.079	61	0.03		N		18.132	-	-	-	8113	3.73	
2	C29	N	12.623	-	-	-	123	0.06	15	C42	Non	18.514	-	-	-	6875	3.16	
3	C30	N	13.146	13.074	-0.017	1.116	446	0.20		N		18.514	18.442	0.026	1.265	7220	3.32	
4	C31	Non	13.658	-	-	-	62	0.03	16	C43	Non	18.874	-	-	-	6014	2.76	
		N	13.658	-	-	-	1743	0.80		N		18.874	-	-	-	5738	2.64	
5	C32	Non	14.168	-	-	-	271	0.12	17	C44	Non	19.230	-	-	-	5641	2.59	
		N	14.168	14.096	-0.001	1.149	5089	2.34		N		19.230	19.158	-0.005	1.282	4995	2.29	
6	C33	Non	14.672	-	-	-	781	0.36	18	C45	Non	19.580	-	-	-	4652	2.14	
		N	14.672	-	-	-	9677	4.45		N		19.580	-	-	-	4018	1.85	
7	C34	Non	15.160	-	-	-	1490	0.68	19	C46	Non	19.922	-	-	-	4034	1.85	
		N	15.160	15.088	0.039	1.178	13012	5.98		N		19.922	19.850	-0.026	1.297	3082	1.42	
8	C35	Non	15.626	-	-	-	2318	1.06	20	C47	Non	20.251	-	-	-	3391	1.56	
		N	15.626	-	-	-	14327	6.58		N		20.251	-	-	-	2336	1.07	
9	C36	Non	16.081	-	-	-	3313	1.52	21	C48	Non	20.574	-	-	-	2473	1.14	
7		N	16.081	16.009	0.055	1.204	14102	6.48		N		20.574	20.502	-0.061	1.311	1623	0.75	
10	C37	Non	16.516	-	-	-	4296	1.97	22	C49	Non	20.889	-	-	-	1783	0.82	
		N	16.516	-	-	-	13568	6.23		N		20.889	-	-	-	1055	0.48	
11	C38	Non	16.936	-	-	-	5132	2.36	23	C50	Non	21.201	-	-	-	1011	0.46	
		N	16.936	16.864	0.051	1.226	12209	5.61		N		21.201	21.129	-0.087	1.324	788	0.36	
12	C39	Non	17.345	-	-	-	5567	2.56	24	C51	Non	21.522	-	-	-	606	0.28	
		N	17.345	-	-	-	11082	5.09		N		21.522	-	-	-	320	0.15	
13	C40	Non	17.743	-	-	-	6107	2.81	25	C52	Non	21.813	-	-	-	417	0.19	
		N	17.743	17.671	0.037	1.247	10049	4.62		N		21.813	21.741	-0.105	1.337	218	0.10	
																Total	217683	100.00

Table B14 Chromatographic data of wax cake from 1st extraction of 600SW at 50 °C by using MEK

Total Non = 35.01%, N = 64.99%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-			N	17.690	17.615	-0.019	1.245	3809	3.27	
1	C27	N	11.511	-	-	-	92	0.08	15	C41	Non	18.074	-	-	-	3713	3.19	
2	C28	N	12.080	12.005	-0.023	1.079	274	0.24		N		18.074	-	-	-	2836	2.44	
3	C29	N	12.616	-	-	-	565	0.49	16	C42	Non	18.454	-	-	-	3727	3.20	
4	C30	Non	13.142	-	-	-	88	0.08		N		18.454	18.379	-0.037	1.264	2406	2.07	
		N	13.142	13.067	-0.024	1.116	1110	0.95	17	C43	Non	18.821	-	-	-	3225	2.77	
5	C31	Non	13.656	-	-	-	203	0.17		N		18.821	-	-	-	1806	1.55	
		N	13.656	-	-	-	2422	2.08	18	C44	Non	19.179	-	-	-	2761	2.37	
6	C32	Non	14.165	-	-	-	309	0.27		N		19.179	19.104	-0.059	1.281	1574	1.35	
		N	14.165	14.09	-0.007	1.148	4980	4.28	19	C45	Non	19.530	-	-	-	2337	2.01	
7	C33	Non	14.658	-	-	-	776	0.67		N		19.530	-	-	-	1283	1.10	
		N	14.658	-	-	-	7575	6.51	20	C46	Non	19.876	-	-	-	1882	1.62	
8	C34	Non	15.139	-	-	-	1237	1.06		N		19.876	19.801	-0.075	1.296	1017	0.87	
		N	15.139	15.064	0.015	1.177	8733	7.51	21	C47	Non	20.212	-	-	-	1479	1.27	
9	C35	Non	15.598	-	-	-	1669	1.43		N		20.212	-	-	-	823	0.71	
		N	15.598	-	-	-	8482	7.29	22	C48	Non	20.544	-	-	-	1126	0.97	
10	C36	Non	16.039	-	-	-	2168	1.86		N		20.544	20.469	-0.094	1.311	493	0.42	
		N	16.039	15.964	0.01	1.203	7632	6.56	23	C49	Non	20.863	-	-	-	819	0.70	
11	C37	Non	16.471	-	-	-	2619	2.23		N		20.863	-	-	-	309	0.27	
		N	16.471	-	-	-	6730	5.78	24	C50	Non	21.184	-	-	-	461	0.40	
12	C38	Non	16.887	-	-	-	2952	2.54		N		21.184	21.109	-0.107	1.324	203	0.17	
		N	16.887	16.812	-0.001	1.225	5642	4.85	25	C51	Non	21.490	-	-	-	293	0.25	
13	C39	Non	17.292	-	-	-	3269	2.81		N		21.490	-	-	-	100	0.09	
		N	17.292	-	-	-	4670	4.01	26	C52	Non	21.799	-	-	-	54	0.05	
14	C40	Non	17.690	-	-	-	3566	3.06		N		21.799	21.724	-0.122	1.336	60	0.05	
																Total	116359	100.00

Table B17 Chromatographic data of soluble wax from 1st extraction of 600SW at 45 °C by using MEK

Total Non = 79.36%, N = 20.64%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₂	Solvent	0.068	-	-	-	-	-	23	C36	Non	15.859	-	-	-	8616	6.78		
1	C19	N	6.266	-	-	-	50	0.04	N	N	15.859	15.791	-0.163	1.198	1961	1.54			
2	C20	N	6.994	6.926	-0.106	0.840	114	0.09	24	C37	Non	16.291	-	-	-	7876	6.19		
3	C21	N	7.688	-	-	-	134	0.11	N	N	16.291	-	-	-	1616	1.27			
4	C22	N	8.371	8.303	-0.100	0.919	139	0.11	25	C38	Non	16.708	-	-	-	6746	5.31		
5	C23	N	9.007	-	-	-	140	0.11	N	N	16.708	16.640	-0.173	1.221	1235	0.97			
6	C24	N	9.641	9.573	-0.118	0.981	178	0.14	26	C39	Non	17.122	-	-	-	6189	4.87		
7	C25	Non	10.256	-	-	-	98	0.08	N	N	17.122	-	-	-	954	0.75			
		N	10.256	-	-	-	336	0.19	27	C40	Non	17.511	-	-	-	5444	4.28		
8	C26	Non	10.828	-	-	-	213	0.17	N	N	17.511	17.443	-0.191	1.241	777	0.61			
		N	10.828	10.760	-0.136	1.031	361	0.28	28	C41	Non	17.910	-	-	-	4768	3.75		
9	C27	Non	11.295	-	-	-	446	0.35	N	N	17.910	-	-	-	548	0.43			
10		N	11.406	-	-	-	492	0.39	29	C42	Non	18.301	-	-	-	4377	3.44		
11	C28	Non	11.767	-	-	-	789	0.62	N	N	18.301	18.233	-0.183	1.260	513	0.40			
12		N	11.954	11.886	-0.142	1.075	668	0.53	30	C43	Non	18.657	-	-	-	3659	2.88		
13	C29	Non	12.294	-	-	-	1370	1.08	N	N	18.657	-	-	-	351	0.28			
14		N	12.493	-	-	-	816	0.64	31	C44	Non	19.036	-	-	-	3182	2.50		
15	C30	Non	12.834	-	-	-	2149	1.69	N	N	19.036	18.968	-0.195	1.278	276	0.22			
16		N	13.014	12.946	-0.145	1.112	1079	0.85	32	C45	Non	19.447	-	-	-	2456	1.93		
17	C31	Non	13.403	-	-	-	3490	2.74	N	N	19.447	-	-	-	196	0.15			
18		N	13.530	-	-	-	1693	1.33	33	C46	Non	19.706	-	-	-	2016	1.59		
19	C32	Non	14.021	-	-	-	5497	4.32	N	N	19.706	19.638	-0.238	1.293	151	0.12			
		N	14.021	13.953	-0.144	1.144	2893	2.28	34	C47	Non	20.082	-	-	-	1561	1.23		
20	C33	Non	14.503	-	-	-	7648	6.01	N	N	20.082	-	-	-	77	0.06			
		N	14.503	-	-	-	3141	2.47	35	C48	Non	20.344	-	-	-	1090	0.86		
21	C34	Non	14.966	-	-	-	9688	7.62	36	C49	Non	20.647	-	-	-	811	0.64		
		N	14.966	14.898	-0.151	1.173	3011	2.37	37	C50	Non	20.998	-	-	-	554	0.44		
22	C35	Non	15.423	-	-	-	9748	7.67	38	C51	Non	21.289	-	-	-	424	0.33		
		N	15.423	-	-	-	2444	1.92									Total	127149	100.00

Table B18 Chromatographic data of soluble wax from 1st extraction of 600SW at 50 °C by using MEK

Total Non = 81.18%, N = 18.82%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₂	Solvent	0.075	-	-	-	-	-	17	C38	Non	16.518	-	-	-	503	1.17		
1	C24	N	9.864	9.789	0.098	0.990	48	0.11	N	N	16.518	-	-	-	2456	5.70			
2	C25	N	10.477	-	-	-	72	0.17	N	N	16.924	16.849	0.036	1.226	411	0.95			
3	C26	N	11.069	10.994	0.098	1.041	114	0.26	18	C39	Non	17.334	-	-	-	2174	5.04		
4	C27	Non	11.634	-	-	-	45	0.10	N	N	17.334	-	-	-	317	0.74			
		N	11.634	-	-	-	154	0.36	19	C40	Non	17.744	-	-	-	1884	4.37		
5	C28	Non	12.182	-	-	-	201	0.47	N	N	17.744	17.669	0.035	1.247	249	0.58			
		N	12.182	12.107	0.079	1.083	204	0.47	20	C41	Non	18.128	-	-	-	1674	3.88		
6	C29	Non	12.524	-	-	-	396	0.92	N	N	18.128	-	-	-	215	0.50			
7		N	12.719	-	-	-	254	0.59	21	C42	Non	18.507	-	-	-	1424	3.30		
8	C30	Non	13.052	-	-	-	669	1.55	N	N	18.507	18.432	0.016	1.265	189	0.44			
9		N	13.243	13.168	0.077	1.119	340	0.79	22	C43	Non	18.894	-	-	-	1243	2.88		
10	C31	Non	13.755	-	-	-	1222	2.83	N	N	18.894	-	-	-	110	0.26			
		N	13.755	-	-	-	546	1.27	23	C44	Non	19.254	-	-	-	1042	2.42		
11	C32	Non	14.246	-	-	-	1963	4.55	N	N	19.254	19.179	0.016	1.282	100	0.23			
		N	14.246	14.171	0.074	1.151	839	1.95	24	C45	Non	19.601	-	-	-	895	2.08		
12	C33	Non	14.731	-	-	-	2835	6.57	N	N	19.601	-	-	-	70	0.16			
		N	14.731	-	-	-	965	2.24	25	C46	Non	19.956	-	-	-	616	1.43		
13	C34	Non	15.184	-	-	-	3763	8.73	N	N	19.956	19.881	0.005	1.298	46	0.11			
		N	15.184	15.109	0.06	1.179	983	2.28	26	C47	Non	20.298	-	-	-	532	1.23		
14	C35	Non	15.648	-	-	-	3502	8.12	27	C48	Non	20.628	-	-	-	378	0.88		
		N	15.648	-	-	-	797	1.85	28	C49	Non	20.855	-	-	-	228	0.53		
15	C36	Non	16.081	-	-	-	2938	6.81	29	C50	Non	21.155	-	-	-	159	0.37		
		N	16.081	16.006	0.052	1.204	589	1.37	30	C51	Non	21.514	-	-	-	55	0.13		
16	C37	Non	16.518	-	-	-	2714	6.29									Total	43123	100.00

Table B19 Chromatographic data of soluble wax from 1st extraction of 600SW at 55 °C by using MEK

Total Non = 86.57%, N = 13.43%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.076	-	-	-	-	-			N	15.646	-	-	-	2152	0.62	
1	C19	N	6.539	-	-	-	133	0.04	22	C36	Non	16.09	-	-	-	21059	6.09	
2	C20	N	7.197	7.121	0.089	0.852	161	0.05			N	16.09	16.014	0.06	1.204	1984	0.57	
3	C21	N	7.853	-	-	-	223	0.06	23	C37	Non	16.515	-	-	-	19551	5.65	
4	C22	N	8.503	8.427	0.024	0.925	232	0.07			N	16.515	-	-	-	1716	0.50	
5	C23	N	9.127	-	-	-	280	0.08	24	C38	Non	17.024	-	-	-	17496	5.06	
6	C24	Non	9.760	-	-	-	72	0.02			N	17.024	16.948	0.135	1.229	1151	0.33	
		N	9.760	9.684	-0.007	0.986	518	0.15	25	C39	Non	17.428	-	-	-	15701	4.54	
7	C25	Non	10.367	-	-	-	515	0.15			N	17.428	-	-	-	1154	0.33	
		N	10.367	-	-	-	643	0.19	26	C40	Non	17.809	-	-	-	14107	4.08	
8	C26	Non	10.759	-	-	-	1060	0.31			N	17.809	17.733	0.099	1.248	1025	0.30	
9		N	10.962	10.886	-0.01	1.036	985	0.28	27	C41	Non	18.211	-	-	-	12389	3.58	
10	C27	Non	11.336	-	-	-	2129	0.62			N	18.211	-	-	-	680	0.20	
11		N	11.337	-	-	-	1400	0.40	28	C42	Non	18.575	-	-	-	12273	3.55	
12	C28	Non	11.974	-	-	-	3889	1.12			N	18.575	18.499	0.083	1.267	568	0.16	
13		N	12.101	12.025	-0.003	1.08	1888	0.55	29	C43	Non	18.919	-	-	-	8658	2.50	
14	C29	Non	12.461	-	-	-	7775	2.25			N	18.919	-	-	-	420	0.12	
15		N	12.659	-	-	-	3066	0.89	30	C44	Non	19.283	-	-	-	7460	2.16	
16	C30	Non	13.203	-	-	-	13062	3.78			N	19.283	19.207	0.044	1.283	416	0.12	
		N	13.203	13.127	0.036	1.118	5391	1.56	31	C45	Non	19.620	-	-	-	6500	1.88	
17	C31	Non	13.728	-	-	-	19374	5.60			N	19.620	-	-	-	267	0.08	
		N	13.728	-	-	-	6534	1.89	32	C46	Non	19.884	-	-	-	4068	1.18	
18	C32	Non	14.238	-	-	-	22186	6.41			N	19.884	19.808	-0.068	1.296	149	0.04	
		N	14.238	14.162	0.065	1.151	6169	1.78	33	C47	Non	19.974	-	-	-	3308	0.96	
19	C33	Non	14.725	-	-	-	24608	7.11	34	C48	Non	20.583	-	-	-	2938	0.85	
		N	14.725	-	-	-	4283	1.24	35	C49	Non	20.803	-	-	-	2298	0.66	
20	C34	Non	15.193	-	-	-	28607	8.27	36	C50	Non	21.119	-	-	-	1637	0.47	
		N	15.193	15.117	0.068	1.179	2891	0.84	37	C51	Non	21.586	-	-	-	913	0.26	
21	C35	Non	15.646	-	-	-	25370	7.39	38	C52	Non	21.832	-	-	-	329	0.10	
																Total	346011	100.00

Table B20 Chromatographic data of wax cake from extraction of 500SW at 15 °C by using toluene

Total Non = 14.63%, N = 85.37%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.070	-	-	-	-	-	12	C41	Non	17.931	-	-	-	206	1.24	
1	C30	N	13.033	12.963	-0.128	1.112	54	0.32			N	17.931	-	-	-	1076	6.46	
2	C31	N	13.562	-	-	-	113	0.68	13	C42	Non	18.309	-	-	-	284	1.71	
3	C32	N	14.048	13.978	-0.119	1.145	297	1.78			N	18.309	18.239	-0.177	1.261	946	5.68	
4	C33	N	14.523	-	-	-	500	3.00	14	C43	Non	18.683	-	-	-	300	1.80	
5	C34	N	14.986	14.916	-0.133	1.173	812	4.88			N	18.683	-	-	-	714	4.29	
6	C35	Non	15.439	-	-	-	62	0.37	15	C44	Non	19.042	-	-	-	278	1.67	
		N	15.439	-	-	-	1094	6.57			N	19.042	18.972	-0.191	1.278	570	3.42	
7	C36	Non	15.880	-	-	-	79	0.47	16	C45	Non	19.40	-	-	-	249	1.50	
		N	15.880	15.810	-0.144	1.198	1297	7.79			N	19.40	-	-	-	425	2.55	
8	C37	Non	16.314	-	-	-	128	0.77	17	C46	Non	19.741	-	-	-	179	1.07	
		N	16.314	-	-	-	1438	8.63			N	19.741	19.671	-0.205	1.293	313	1.88	
9	C38	Non	16.732	-	-	-	147	0.88	18	C47	Non	20.093	-	-	-	145	0.87	
		N	16.732	16.662	-0.151	1.221	1438	8.63			N	20.093	-	-	-	215	1.29	
10	C39	Non	17.141	-	-	-	148	0.89	19	C48	Non	20.423	-	-	-	76	0.46	
		N	17.141	-	-	-	1364	8.19	20	C49	N	20.423	20.353	-0.210	1.308	135	0.81	
11	C40	Non	17.542	-	-	-	156	0.94	21	C50	N	20.750	-	-	-	77	0.46	
		N	17.542	17.472	-0.162	1.242	1290	7.75	22	C51	N	21.072	21.002	-0.214	1.322	50	0.30	
																Total	16655	100.00

Table B21 Chromatographic data of wax cake from extraction of 500SW at 20 °C by using toluene

Total Non = 18.60% , N = 81.40%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.068	-	-	-	-	-										
1	C29	N	12.517	-	-	-	57	0.10	13	C41	Non	17.539	17.471	-0.163	1.242	3215	5.68	
2	C30	Non	13.044	-	-	-	57	0.10	N	N	N	17.930	-	-	-	943	1.67	
		N	13.044	12.976	-0.115	1.113	190	0.34				2549	4.50					
3	C31	Non	13.542	-	-	-	80	0.14	N	N	N	18.305	-	-	-	1028	1.82	
		N	13.542	-	-	-	594	1.05				18.305	18.237	-0.176	1.260	2148	3.79	
4	C32	Non	14.036	-	-	-	112	0.20	N	N	N	18.676	-	-	-	1123	1.98	
		N	14.036	13.968	-0.129	1.147	1598	2.82				18.676	-	-	-	1535	2.71	
5	C33	Non	14.517	-	-	-	154	0.27	N	N	N	19.043	-	-	-	980	1.73	
		N	14.517	-	-	-	3009	5.32				19.043	18.975	-0.188	1.278	1189	2.10	
6	C34	Non	14.983	-	-	-	193	0.34	N	N	N	19.396	-	-	-	840	1.48	
		N	14.983	14.915	-0.134	1.173	4440	7.84				19.396	-	-	-	883	1.56	
7	C35	Non	15.440	-	-	-	254	0.45	N	N	N	19.745	-	-	-	661	1.17	
		N	15.440	-	-	-	5056	8.93				19.745	19.677	-0.199	1.293	620	1.10	
8	C36	Non	15.885	-	-	-	357	0.63	N	N	N	20.086	-	-	-	554	0.98	
		N	15.885	15.817	-0.137	1.199	5100	9.01				20.086	-	-	-	409	0.72	
9	C37	Non	16.316	-	-	-	453	0.80	N	N	N	20.419	-	-	-	322	0.57	
		N	16.316	-	-	-	4925	8.70				20.419	20.351	-0.212	1.308	255	0.45	
10	C38	Non	16.733	-	-	-	580	1.02	N	N	N	20.742	-	-	-	171	0.30	
		N	16.733	16.665	-0.148	1.221	4318	7.63				20.742	-	-	-	138	0.24	
11	C39	Non	17.141	-	-	-	710	1.25	N	N	N	21.069	-	-	-	115	0.20	
		N	17.141	-	-	-	3718	6.37				21.069	21.001	-0.215	1.322	90	0.16	
12	C40	Non	17.539	-	-	-	845	1.49	23	C51	N	21.376	-	-	-	42	0.07	
																Total	56610	100.00

Table B22 Chromatographic data of wax cake from extraction of 500SW at 25 °C by using toluene

Total Non = 24.61% , N = 75.39%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.067	-	-	-	-	-										
1	C28	N	12.007	11.940	-0.088	1.077	97	0.20	13	C40	Non	17.544	-	-	-	1048	2.21	
2	C29	Non	12.530	-	-	-	43	0.09	N	N	N	17.544	17.477	-0.157	1.242	1913	4.03	
		N	12.530	-	-	-	305	0.64				17.934	-	-	-	1075	2.26	
3	C30	Non	13.048	-	-	-	50	0.11	N	N	N	18.309	-	-	-	1516	3.19	
		N	13.048	12.981	-0.110	1.113	962	2.03				18.309	18.242	-0.174	1.261	1050	2.21	
4	C31	Non	13.554	-	-	-	100	0.21	N	N	N	18.684	-	-	-	1320	2.78	
		N	13.554	-	-	-	1894	3.99				18.684	-	-	-	956	2.01	
5	C32	Non	14.050	-	-	-	142	0.30	N	N	N	19.048	-	-	-	832	1.75	
		N	14.050	13.983	-0.114	1.145	2867	6.04				19.048	18.981	-0.182	1.278	801	1.69	
6	C33	Non	14.528	-	-	-	239	0.35	N	N	N	19.401	-	-	-	672	1.42	
		N	14.528	-	-	-	3301	6.95				19.401	-	-	-	582	1.23	
7	C34	Non	14.996	-	-	-	341	0.72	N	N	N	19.750	-	-	-	539	1.14	
		N	14.996	14.929	-0.120	1.174	3665	7.72				19.750	19.683	-0.193	1.294	424	0.89	
8	C35	Non	15.449	-	-	-	442	0.93	N	N	N	20.093	-	-	-	378	0.80	
		N	15.449	-	-	-	3519	7.41				20.093	-	-	-	301	0.63	
9	C36	Non	15.886	-	-	-	613	1.29	N	N	N	20.426	-	-	-	249	0.52	
		N	15.886	15.819	-0.135	1.199	3244	6.83				20.426	20.359	-0.204	1.308	194	0.41	
10	C37	Non	16.319	-	-	-	769	1.62	N	N	N	20.752	-	-	-	148	0.31	
		N	16.319	-	-	-	2978	6.27				20.752	-	-	-	112	0.24	
11	C38	Non	16.736	-	-	-	908	1.91	N	N	N	21.077	-	-	-	75	0.16	
		N	16.736	16.669	-0.144	1.221	2544	5.36				21.077	21.010	-0.206	1.322	72	0.15	
12	C39	Non	17.145	-	-	-	950	2.00	N	N	N	21.397	-	-	-	42	0.09	
		N	17.145	-	-	-	2192	4.62				21.397	-	-	-			
																Total	47470	100.00

Table B23 Chromatographic data of wax cake from extraction of 500SW at 30 °C by using toluene

Total Non = 26.90% , N = 73.10%

P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₂	Solvent	0.061	-	-	-	-	-	12	C40	Non	17.558	-	-	-	700	2.29		
1	C29	Non	12.549	-	-	-	55	0.18	N	N	17.558	17.497	-0.137	1.242	1283	4.19			
		N	12.549	-	-	-	116	0.38	13	C41	Non	17.944	-	-	-	731	2.39		
2	C30	Non	13.077	-	-	-	56	0.18	N	N	17.944	-	-	-	1022	3.34			
		N	13.077	13.016	-0.075	1.114	429	1.40	14	C42	Non	18.324	-	-	-	737	2.41		
3	C31	Non	13.581	-	-	-	105	0.34	N	N	18.324	18.263	-0.153	1.261	886	2.89			
		N	13.581	-	-	-	972	3.18	15	C43	Non	18.691	-	-	-	664	2.17		
4	C32	Non	14.073	-	-	-	140	0.46	N	N	18.691	-	-	-	680	2.22			
		N	14.073	14.012	-0.085	1.146	1639	5.35	16	C44	Non	19.052	-	-	-	580	1.89		
5	C33	Non	14.551	-	-	-	256	0.84	N	N	19.052	18.991	-0.172	1.278	541	1.77			
		N	14.551	-	-	-	1902	6.21	17	C45	Non	19.403	-	-	-	506	1.65		
6	C34	Non	15.019	-	-	-	274	0.90	N	N	19.403	-	-	-	378	1.24			
		N	15.019	14.958	-0.091	1.174	2259	7.38	18	C46	Non	19.750	-	-	-	401	1.31		
7	C35	Non	15.471	-	-	-	291	0.95	N	N	19.750	19.689	-0.187	1.294	273	0.89			
		N	15.471	-	-	-	2236	7.37	19	C47	Non	20.084	-	-	-	299	0.98		
8	C36	Non	15.911	-	-	-	371	1.21	N	N	20.084	-	-	-	187	0.61			
		N	15.911	15.85	-0.104	1.2	2122	6.93	20	C48	Non	20.420	-	-	-	202	0.66		
9	C37	Non	16.340	-	-	-	467	1.53	N	N	20.420	20.359	-0.204	1.308	110	0.36			
		N	16.340	-	-	-	2001	6.54	21	C49	Non	20.746	-	-	-	127	0.41		
10	C38	Non	16.755	-	-	-	556	1.82	N	N	20.746	-	-	-	61	0.20			
		N	16.755	16.694	-0.119	1.222	1754	5.73	22	C50	Non	21.072	-	-	-	66	0.22		
11	C39	Non	17.161	-	-	-	619	2.02	N	N	21.072	21.011	-0.205	1.322	43	0.14			
		N	17.161	-	-	-	1490	4.87									Total	30607	100.00

Table B24 Chromatographic data of wax cake from extraction of 500SW at 35 °C by using toluene

Total Non = 43.97% , N = 56.03%

P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₂	Solvent	0.068	-	-	-	-	-			N	17.166	-	-	-	4165	4.67		
1	C26	N	10.877	10.809	-0.087	1.033	49	0.05	17	C40	Non	17.568	-	-	-	2224	2.49		
2	C27	Non	11.457	-	-	-	119	0.13	N	N	17.568	17.500	-0.134	1.243	4033	4.52			
		N	11.457	-	-	-	118	0.13	18	C41	Non	17.957	-	-	-	2184	2.45		
3	C28	Non	12.011	-	-	-	377	0.42	N	N	17.957	-	-	-	3608	4.04			
		N	12.011	11.943	-0.085	1.077	162	0.18	19	C42	Non	18.335	-	-	-	2147	2.41		
4	C29	Non	12.341	-	-	-	755	0.85	N	N	18.335	18.267	-0.149	1.261	3426	3.84			
5		N	12.537	-	-	-	323	0.36	20	C43	Non	18.701	-	-	-	2012	2.26		
6	C30	Non	12.896	-	-	-	1301	1.46	N	N	18.701	-	-	-	2723	3.05			
7		N	13.064	12.996	-0.095	1.113	688	0.77	21	C44	Non	19.069	-	-	-	1879	2.11		
8	C31	Non	13.568	-	-	-	1924	2.16	N	N	19.069	19.001	-0.162	1.278	2236	2.51			
		N	13.568	-	-	-	1108	1.24	22	C45	Non	19.417	-	-	-	1587	1.78		
9	C32	Non	14.057	-	-	-	2177	2.44	N	N	19.417	-	-	-	1722	1.93			
		N	14.057	13.989	-0.108	1.145	1773	1.99	23	C46	Non	19.767	-	-	-	1308	1.47		
10	C33	Non	14.540	-	-	-	2412	2.70	N	N	19.767	19.699	-0.177	1.294	1312	1.47			
		N	14.540	-	-	-	2193	2.46	24	C47	Non	20.106	-	-	-	1007	1.13		
11	C34	Non	15.006	-	-	-	2696	3.02	N	N	20.106	-	-	-	916	1.03			
		N	15.006	14.938	-0.111	1.174	2809	3.15	25	C48	Non	20.439	-	-	-	633	0.71		
12	C35	Non	15.460	-	-	-	2406	2.70	N	N	20.439	20.371	-0.192	1.309	550	0.62			
		N	15.460	-	-	-	3309	3.71	26	C49	Non	20.765	-	-	-	473	0.53		
13	C36	Non	15.905	-	-	-	2439	2.73	N	N	20.765	-	-	-	314	0.35			
		N	15.905	15.837	-0.117	1.199	3725	4.18	27	C50	Non	21.088	-	-	-	209	0.23		
14	C37	Non	16.336	-	-	-	2308	2.59	N	N	21.088	21.020	-0.196	1.322	203	0.23			
		N	16.336	-	-	-	4172	4.68	28	C51	Non	21.400	-	-	-	114	0.13		
15	C38	Non	16.758	-	-	-	2287	2.56	N	N	21.400	-	-	-	90	0.10			
		N	16.758	16.69	-0.123	1.222	4215	4.72	29	C52	N	21.710	21.642	-0.204	1.335	40	0.04		
16	C39	Non	17.166	-	-	-	2230	2.52									Total	89210	100.00

Table B25 Chromatographic data of wax cake from extraction of 500SW at 40 °C by using toluene

Total Non = 46.08% , N = 53.92%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.067	-	-	-	-	-	15	C39	Non	17.144	-	-	-	1983	3.05	
1	C26	N	10.873	10.806	-0.090	1.033	70	0.11		N	N	17.144	-	-	-	1662	2.56	
2	C27	Non	11.441	-	-	-	124	0.19	16	C40	Non	17.542	-	-	-	1969	3.03	
		N	11.441	-	-	-	127	0.20		N	N	17.542	17.475	-0.159	1.242	1588	2.44	
3	C28	Non	11.995	-	-	-	284	0.44	17	C41	Non	17.933	-	-	-	1734	2.67	
		N	11.995	11.928	-0.100	1.076	263	0.40		N	N	17.933	-	-	-	1454	2.24	
4	C29	Non	12.344	-	-	-	556	0.86	18	C42	Non	18.313	-	-	-	1670	2.57	
5		N	12.531	-	-	-	674	1.04		N	N	18.313	18.246	-0.170	1.261	1461	2.25	
6	C30	Non	13.030	-	-	-	925	1.42	19	C43	Non	18.679	-	-	-	1356	2.09	
		N	13.030	12.983	-0.108	1.113	1574	2.42		N	N	18.679	-	-	-	1207	1.86	
7	C31	Non	13.556	-	-	-	1336	2.06	20	C44	Non	19.046	-	-	-	1203	1.85	
		N	13.556	-	-	-	2588	3.98		N	N	19.046	18.979	-0.184	1.278	1073	1.65	
8	C32	Non	14.048	-	-	-	1588	2.44	21	C45	Non	19.402	-	-	-	961	1.48	
		N	14.048	13.981	-0.116	1.145	3228	4.97		N	N	19.402	-	-	-	877	1.35	
9	C33	Non	14.526	-	-	-	1818	2.80	22	C46	Non	19.747	-	-	-	799	1.23	
		N	14.526	-	-	-	3228	4.97		N	N	19.747	19.680	-0.196	1.294	689	1.06	
10	C34	Non	14.993	-	-	-	1944	2.99	23	C47	Non	20.087	-	-	-	558	0.86	
		N	14.993	14.926	-0.123	1.173	3094	4.76		N	N	20.087	-	-	-	513	0.79	
11	C35	Non	15.444	-	-	-	2103	3.23	24	C48	Non	20.422	-	-	-	387	0.60	
		N	15.444	-	-	-	2717	4.18		N	N	20.422	20.355	-0.208	1.308	326	0.50	
12	C36	Non	15.884	-	-	-	2107	3.24	25	C49	Non	20.752	-	-	-	232	0.36	
		N	15.884	15.817	-0.137	1.199	2348	3.61		N	N	20.752	-	-	-	190	0.29	
13	C37	Non	16.313	-	-	-	2013	3.10	26	C50	Non	21.069	-	-	-	164	0.25	
		N	16.313	-	-	-	2097	3.23		N	N	21.069	21.002	-0.214	1.322	129	0.20	
14	C38	Non	16.732	-	-	-	2142	3.29	27	C51	N	21.384	-	-	-	52	0.08	
		N	16.732	16.665	-0.148	1.221	1827	2.81										
																Total	65012	100.00

Table B26 Chromatographic data of wax cake from extraction of 500SW at 45 °C by using toluene

Total Non = 72.72% , N = 27.28%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.071	-	-	-	-	-	20	C37	Non	15.921	15.850	-0.104 <td>1.200</td> <td>1720</td> <td>1.73</td>	1.200	1720	1.73	
1	C21	N	7.779	-	-	-	40	0.04		N	N	16.346	-	-	-	5008	5.04	
2	C22	Non	8.424	-	-	-	64	0.06		N	N	16.346	-	-	-	1628	1.64	
		N	8.424	8.353	-0.050	0.921	45	0.05	21	C38	Non	16.767	-	-	-	4136	4.17	
3	C23	Non	9.083	-	-	-	171	0.17		N	N	16.767	16.696	-0.117	1.222	1406	1.42	
		N	9.083	-	-	-	59	0.06	22	C39	Non	17.177	-	-	-	4009	4.04	
4	C24	Non	9.698	-	-	-	301	0.30		N	N	17.177	-	-	-	1344	1.35	
		N	9.698	9.650	-0.041	0.984	113	0.11	23	C40	Non	17.573	-	-	-	3473	3.50	
5	C25	Non	10.307	-	-	-	433	0.46		N	N	17.573	17.502	-0.132	1.243	1218	1.23	
		N	10.307	-	-	-	146	0.15	24	C41	Non	17.961	-	-	-	3285	3.31	
6	C26	Non	10.896	-	-	-	524	0.53		N	N	17.961	-	-	-	1025	1.03	
		N	10.896	10.825	-0.071	1.034	207	0.21	25	C42	Non	18.340	-	-	-	2845	2.87	
7	C27	Non	11.237	-	-	-	898	0.90		N	N	18.340	18.269	-0.147	1.261	931	0.94	
8		N	11.472	-	-	-	305	0.31	26	C43	Non	18.714	-	-	-	2451	2.47	
9	C28	Non	11.807	-	-	-	1294	1.30		N	N	18.714	-	-	-	730	0.74	
10		N	12.020	11.949	-0.079	1.077	432	0.44	27	C44	Non	19.071	-	-	-	2123	2.14	
11	C29	Non	12.339	-	-	-	1961	1.97		N	N	19.071	19.000	-0.163	1.278	567	0.57	
12		N	12.556	-	-	-	951	0.96	28	C45	Non	19.431	-	-	-	1590	1.60	
13	C30	Non	13.081	-	-	-	3107	3.13		N	N	19.431	-	-	-	442	0.45	
		N	13.081	13.010	-0.081	1.114	1629	1.64	29	C46	Non	19.772	-	-	-	1231	1.24	
14	C31	Non	13.591	-	-	-	4348	4.38		N	N	19.772	19.701	-0.175	1.294	323	0.33	
		N	13.591	-	-	-	2203	2.22	30	C47	Non	20.118	-	-	-	838	0.84	
15	C32	Non	14.081	-	-	-	4945	4.98		N	N	20.118	-	-	-	233	0.23	
		N	14.081	14.010	-0.087	1.146	2619	2.64	31	C48	Non	20.448	-	-	-	549	0.55	
16	C33	Non	14.561	-	-	-	5359	5.40		N	N	20.448	20.377	-0.186	1.309	142	0.14	
		N	14.561	-	-	-	2383	2.40	32	C49	Non	20.779	-	-	-	355	0.36	
17	C34	Non	15.028	-	-	-	6052	6.09		N	N	20.779	-	-	-	68	0.07	
		N	15.028	15.057	0.008	1.177	2213	2.23	33	C50	Non	21.091	-	-	-	188	0.19	
18	C35	Non	15.477	-	-	-	5475	5.51		N	N	21.091	-	-	-	49	0.05	
		N	15.477	-	-	-	1922	1.94	34	C51	Non	21.091	-	-	-	69	0.07	
19	C36	Non	15.921	-	-	-	5105	5.14										
																Total	99300	100.00

Table B29 Chromatographic data of soluble wax from extraction of 500SW at 25 °C by using toluene

Total Non = 80.22%, N = 19.78%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt		
1m	CS ₂	Solvent	0.067	-	-	-	-	-	20	C37	Non	16.323	-	-	-	4893	5.58		
1	C21	N	7.782	-	-	-	55	0.06			N	16.323	-	-	-	850	0.97		
2	C22	N	8.436	8.369	-0.034	0.922	70	0.08	21	C38	Non	16.742	-	-	-	4103	4.68		
3	C23	N	9.076	-	-	-	57	0.07			N	16.742	16.675	-0.138	1.222	744	0.85		
4	C24	N	9.687	9.620	-0.071	0.983	99	0.11	22	C39	Non	17.149	-	-	-	3849	4.39		
5	C25	Non	10.294	-	-	-	132	0.15			N	17.149	-	-	-	611	0.70		
		N	10.294	-	-	-	128	0.15	23	C40	Non	17.552	-	-	-	3116	3.55		
6	C26	Non	10.874	-	-	-	236	0.27			N	17.552	17.485	-0.149	1.242	510	0.58		
		N	10.874	10.807	-0.089	1.033	257	0.29	24	C41	Non	17.931	-	-	-	3023	3.45		
7	C27	Non	11.448	-	-	-	556	0.63			N	17.931	-	-	-	428	0.49		
		N	11.448	-	-	-	351	0.40	25	C42	Non	18.317	-	-	-	2536	2.89		
8	C28	Non	11.805	-	-	-	1073	1.22			N	18.317	18.25	-0.166	1.261	358	0.41		
9		N	12.001	11.934	-0.094	1.076	449	0.51	26	C43	Non	18.683	-	-	-	2285	2.61		
10	C29	Non	12.333	-	-	-	1912	2.18			N	18.683	-	-	-	248	0.28		
11		N	12.540	-	-	-	769	0.88	27	C44	Non	19.053	-	-	-	1742	1.99		
12	C30	Non	12.881	-	-	-	3185	3.63			N	19.053	18.986	-0.177	1.278	203	0.23		
13		N	13.058	12.991	-0.100	1.113	1460	1.67	28	C45	Non	19.398	-	-	-	1389	1.58		
14	C31	Non	13.564	-	-	-	4539	5.18			N	19.398	-	-	-	141	0.16		
		N	13.564	-	-	-	1816	2.07	29	C46	Non	19.747	-	-	-	1051	1.20		
15	C32	Non	14.058	-	-	-	5318	6.07			N	19.747	19.68	-0.196	1.294	105	0.12		
		N	14.058	13.991	-0.106	1.145	1976	2.25	30	C47	Non	20.058	-	-	-	732	0.83		
16	C33	Non	14.536	-	-	-	5890	6.72			N	20.058	-	-	-	55	0.06		
		N	14.536	-	-	-	1788	2.04	31	C48	Non	20.404	-	-	-	487	0.56		
17	C34	Non	15.001	-	-	-	6705	7.65			N	20.404	20.337	-0.226	1.308	41	0.05		
		N	15.001	14.934	-0.115	1.174	1535	1.75	32	C49	Non	20.643	-	-	-	301	0.34		
18	C35	Non	15.451	-	-	-	5922	6.75			N	20.923	-	-	-	203	0.23		
		N	15.451	-	-	-	1235	1.41	34	C51	Non	21.241	-	-	-	140	0.16		
19	C36	Non	15.892	-	-	-	4965	5.66	35	C52	Non	21.561	-	-	-	49	0.06		
		N	15.892	15.825	-0.129	1.199	1003	1.14									Total	87674	100.00

Table B30 Chromatographic data of soluble wax from extraction of 500SW at 30 °C by using toluene

Total Non = 80.92%, N = 19.08%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	
1m	CS ₂	Solvent	0.072	-	-	-	-	-	21	C36	Non	15.901	-	-	-	7084	5.81	
1	C21	N	7.741	-	-	-	78	0.06			N	15.901	15.829	-0.125	1.199	1298	1.07	
2	C22	N	8.411	8.339	-0.064	0.921	82	0.07	22	C37	Non	16.338	-	-	-	6979	5.73	
3	C23	Non	9.063	-	-	-	52	0.04			N	16.338	-	-	-	1155	0.95	
		N	9.063	-	-	-	121	0.10	23	C38	Non	16.755	-	-	-	5969	4.90	
4	C24	Non	9.679	-	-	-	106	0.09			N	16.755	16.683	-0.130	1.222	942	0.77	
		N	9.679	9.621	-0.07	0.983	159	0.13	24	C39	Non	17.166	-	-	-	5263	4.32	
5	C25	Non	10.289	-	-	-	253	0.21			N	17.166	-	-	-	784	0.64	
		N	10.289	-	-	-	194	0.16	25	C40	Non	17.559	-	-	-	4651	3.82	
6	C26	Non	10.873	-	-	-	414	0.34			N	17.559	17.487	-0.147	1.242	669	0.55	
		N	10.873	10.801	-0.095	1.033	351	0.29	26	C41	Non	17.955	-	-	-	4047	3.32	
7	C27	Non	11.241	-	-	-	823	0.68			N	17.955	-	-	-	521	0.43	
8		N	11.455	-	-	-	464	0.38	27	C42	Non	18.335	-	-	-	3447	2.83	
9	C28	Non	11.804	-	-	-	1446	1.19			N	18.335	18.263	-0.153	1.261	447	0.37	
10		N	12.005	11.933	-0.095	1.076	639	0.52	28	C43	Non	18.683	-	-	-	3272	2.69	
11	C29	Non	12.349	-	-	-	2605	2.14			N	18.683	-	-	-	332	0.27	
12		N	12.542	-	-	-	1076	0.88	29	C44	Non	19.069	-	-	-	2516	2.07	
13	C30	Non	12.899	-	-	-	4367	3.58			N	19.069	18.997	-0.166	1.278	263	0.22	
14		N	13.068	12.996	-0.095	1.113	1981	1.63	30	C45	Non	19.410	-	-	-	1998	1.64	
15	C31	Non	13.404	-	-	-	5962	4.89			N	19.410	-	-	-	182	0.15	
16		N	13.578	-	-	-	2597	2.13	31	C46	Non	19.745	-	-	-	1586	1.30	
17	C32	Non	14.074	-	-	-	7513	6.17			N	19.745	19.673	-0.203	1.293	132	0.11	
		N	14.074	14.002	-0.095	1.146	2685	2.20	32	C47	Non	19.962	-	-	-	1118	0.92	
18	C33	Non	14.552	-	-	-	7634	6.27			N	19.962	-	-	-	65	0.05	
		N	14.552	-	-	-	2298	1.89	33	C48	Non	20.391	-	-	-	722	0.59	
19	C34	Non	15.016	-	-	-	9960	8.18			N	20.696	-	-	-	449	0.37	
		N	15.016	14.944	-0.105	1.174	2104	1.73	35	C50	Non	20.969	-	-	-	320	0.26	
20	C35	Non	15.470	-	-	-	7754	6.36			N	21.306	-	-	-	207	0.17	
		N	15.470	-	-	-	1626	1.33	37	C52	Non	21.654	-	-	-	68	0.06	
																Total	121830	100.00

Table B31 Chromatographic data of soluble wax from extraction of 500SW at 35 °C by using toluene

Total Non = 81.48%, N = 18.52%

P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.072	-	-	-	-	-	20	C37	Non	16.319	-	-	-	3929	5.51	
1	C23	N	9.041	-	-	-	72	0.10				16.319	-	-	-	720	1.01	
2	C24	N	9.682	9.610	-0.081	0.982	89	0.12	21	C38	Non	16.741	-	-	-	3612	5.06	
3	C25	Non	10.295	-	-	-	136	0.19				16.741	16.669	-0.144	1.221	565	0.79	
		N	10.295	-	-	-	101	0.14	22	C39	Non	17.152	-	-	-	3084	4.32	
4	C26	Non	10.871	-	-	-	226	0.32				17.152	-	-	-	490	0.69	
		N	10.871	10.799	-0.097	1.033	190	0.27	23	C40	Non	17.548	-	-	-	2744	3.85	
5	C27	Non	11.239	-	-	-	439	0.62				17.548	17.476	-0.158	1.242	441	0.62	
6		N	11.434	-	-	-	288	0.40	24	C41	Non	17.933	-	-	-	2572	3.61	
7	C28	Non	11.789	-	-	-	868	1.22				17.933	-	-	-	343	0.48	
8		N	11.999	11.927	-0.101	1.076	351	0.49	25	C42	Non	18.320	-	-	-	2080	2.92	
9	C29	Non	12.343	-	-	-	1600	2.24				18.320	18.248	-0.168	1.261	295	0.41	
10		N	12.534	-	-	-	550	0.77	26	C43	Non	18.688	-	-	-	1858	2.60	
11	C30	Non	12.881	-	-	-	2472	3.47				18.688	-	-	-	218	0.31	
12		N	13.054	12.982	-0.109	1.113	1133	1.59	27	C44	Non	19.046	-	-	-	1497	2.10	
13	C31	Non	13.395	-	-	-	3713	5.21				19.046	18.974	-0.902	1.278	175	0.25	
14		N	13.565	-	-	-	1270	1.78	28	C45	Non	19.400	-	-	-	1190	1.67	
15	C32	Non	14.054	-	-	-	4096	5.74				19.400	-	-	-	118	0.17	
		N	14.054	13.982	-0.115	1.145	1574	2.21	29	C46	Non	19.751	-	-	-	904	1.27	
16	C33	Non	14.534	-	-	-	5274	7.39				19.751	19.679	-0.197	1.294	78	0.11	
		N	14.534	-	-	-	1263	1.77	30	C47	Non	20.049	-	-	-	602	0.84	
17	C34	Non	15.002	-	-	-	5129	7.19				20.049	-	-	-	50	0.07	
		N	15.002	14.930	-0.119	1.174	1106	1.55	31	C48	Non	20.404	-	-	-	453	0.64	
18	C35	Non	15.451	-	-	-	4710	6.60				20.404	-	-	-	318	0.45	
		N	15.451	-	-	-	960	1.35	32	C49	Non	20.694	-	-	-	194	0.27	
19	C36	Non	15.891	-	-	-	4144	5.81				21.003	-	-	-	185	0.26	
		N	15.891	15.819	-0.135	1.199	769	1.08	34	C51	Non	21.307	-	-	-	93	0.13	
									35	C52	Non	21.604	-	-	-			
																Total	71331	100.00

Table B32 Chromatographic data of soluble wax from extraction of 500SW at 40 °C by using toluene

Total Non = 82.73%, N = 17.27%

P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	21	C36	Non	15.479	-	-	-	1198	1.30	
1	C21	N	7.746	-	-	-	45	0.05				15.916	-	-	-	5915	6.40	
2	C22	N	8.431	8.356	-0.047	0.921	91	0.10				15.916	15.841	-0.113	1.199	935	1.01	
3	C23	N	9.064	-	-	-	108	0.12	22	C37	Non	16.351	-	-	-	4707	5.09	
4	C24	Non	9.708	-	-	-	59	0.06				16.351	-	-	-	806	0.87	
		N	9.708	9.633	-0.058	0.983	130	0.14	23	C38	Non	16.769	-	-	-	4625	5.00	
5	C25	Non	10.311	-	-	-	232	0.24				16.769	16.769	-0.044	1.224	683	0.74	
		N	10.311	-	-	-	159	0.17	24	C39	Non	17.174	-	-	-	3904	4.22	
6	C26	Non	10.898	-	-	-	425	0.46				17.174	-	-	-	504	0.55	
		N	10.898	10.823	-0.073	1.034	220	0.24	25	C40	Non	17.573	-	-	-	3535	3.82	
7	C27	Non	11.248	-	-	-	799	0.86				17.573	17.498	-0.136	1.242	375	0.41	
8		N	11.471	-	-	-	272	0.29	26	C41	Non	17.968	-	-	-	3289	3.56	
9	C28	Non	11.817	-	-	-	1243	1.34				17.968	-	-	-	345	0.37	
10		N	12.023	11.948	-0.08	1.077	432	0.47	27	C42	Non	18.334	-	-	-	2721	2.94	
11	C29	Non	12.376	-	-	-	2202	2.38				18.334	18.259	-0.157	1.261	296	0.32	
12		N	12.559	-	-	-	714	0.77	28	C43	Non	18.707	-	-	-	2423	2.62	
13	C30	Non	12.924	-	-	-	3324	3.60				18.707	-	-	-	207	0.22	
14		N	13.078	13.033	-0.088	1.114	1517	1.64	29	C44	Non	19.072	-	-	-	1923	2.08	
15	C31	Non	13.424	-	-	-	4969	5.37				19.072	18.997	-0.166	1.278	157	0.17	
16		N	13.592	-	-	-	1711	1.85	30	C45	Non	19.425	-	-	-	1458	1.58	
17	C32	Non	14.083	-	-	-	5542	5.99				19.425	-	-	-	133	0.14	
		N	14.083	14.008	-0.089	1.146	2017	2.18	31	C46	Non	19.769	-	-	-	1120	1.21	
18	C33	Non	14.562	-	-	-	7582	8.20				19.769	19.694	-0.182	1.294	90	0.10	
		N	14.562	-	-	-	1461	1.58	32	C47	Non	20.039	-	-	-	807	0.87	
19	C34	Non	15.021	-	-	-	6392	6.91				20.372	-	-	-	516	0.56	
		N	15.021	14.946	-0.103	1.174	1360	1.47	34	C49	Non	20.691	-	-	-	386	0.42	
20	C35	Non	15.479	-	-	-	6145	6.65	35	C50	Non	20.901	-	-	-	251	0.27	
																Total	92450	100.00

Table B33 Chromatographic data of soluble wax from extraction of 500SW at 45 °C by using toluene

Total Non = 85.61%, N = 14.39%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.066	-	-	-	-	-			N	15.434	-	-	-	393	0.77	
1	C22	N	8.403	8.337	-0.066	0.921	30	0.10	20	C36	Non	15.873	-	-	-	3098	6.10	
2	C23	N	9.061	-	-	-	63	0.13			N	15.873	15.807	-0.147	1.198	259	0.51	
3	C24	N	9.667	9.601	-0.090	0.982	74	0.15	21	C37	Non	16.421	-	-	-	3058	6.02	
4	C25	Non	10.276	-	-	-	52	0.10			N	16.421	-	-	-	97	0.19	
		N	10.276	-	-	-	88	0.17	22	C38	Non	16.828	-	-	-	2584	5.09	
5	C26	Non	10.614	-	-	-	144	0.28			N	16.828	16.762	-0.051	1.224	96	0.19	
6		N	10.868	10.802	-0.094	1.033	150	0.30	23	C39	Non	17.254	-	-	-	2288	4.50	
7	C27	Non	11.231	-	-	-	353	0.69			N	17.254	-	-	-	165	0.32	
8		N	11.435	-	-	-	222	0.44	24	C40	Non	17.628	-	-	-	1811	3.57	
9	C28	Non	11.778	-	-	-	712	1.40			N	17.628	17.562	-0.072	1.244	144	0.28	
10		N	11.991	11.925	-0.103	1.076	296	0.58	25	C41	Non	17.987	-	-	-	1755	3.46	
11	C29	Non	12.321	-	-	-	1268	2.50			N	17.987	-	-	-	124	0.24	
12		N	12.523	-	-	-	482	0.95	26	C42	Non	18.395	-	-	-	1431	2.82	
13	C30	Non	12.862	-	-	-	2093	4.12			N	18.395	18.329	-0.087	1.263	122	0.24	
14		N	13.043	12.977	-0.114	1.113	877	1.73	27	C43	Non	18.753	-	-	-	1303	2.57	
15	C31	Non	13.546	-	-	-	2988	5.88			N	18.753	-	-	-	76	0.15	
		N	13.546	-	-	-	1016	2.00	28	C44	Non	19.132	-	-	-	991	1.95	
16	C32	Non	14.040	-	-	-	3389	6.67			N	19.132	19.066	-0.097	1.280	45	0.09	
		N	14.040	13.974	-0.123	1.145	1076	2.12	29	C45	Non	19.334	-	-	-	820	1.61	
17	C33	Non	14.514	-	-	-	3707	7.30	30	C46	Non	19.646	-	-	-	609	1.20	
		N	14.514	-	-	-	843	1.66	31	C47	Non	20.004	-	-	-	408	0.80	
18	C34	Non	14.976	-	-	-	4321	8.51	32	C48	Non	20.296	-	-	-	279	0.55	
		N	14.976	14.910	-0.139	1.173	549	1.08	33	C49	Non	20.679	-	-	-	206	0.41	
19	C35	Non	15.434	-	-	-	3656	7.20	34	C50	Non	21.006	-	-	-	161	0.32	
																Total	50794	100.00

Table B34 Chromatographic data of wax cake from extraction of 600SW at 15 °C by using toluene

Total Non = 20.69%, N = 79.31%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
	CS ₂	Solvent	0.072	-	-	-	-	-	12	C43	Non	18.712	-	-	-	617	1.91		
1	C32	N	14.063	13.991	-0.106	1.145	66	0.20			N	18.712	-	-	-	2117	6.54		
2	C33	N	14.542	-	-	-	133	0.41	13	C44	Non	19.073	-	-	-	688	2.13		
3	C34	Non	15.011	-	-	-	78	0.24			N	19.073	19.001	-0.162	1.278	1833	5.66		
		N	15.011	14.939	-0.110	1.174	374	1.16	14	C45	Non	19.430	-	-	-	701	2.17		
4	C35	Non	15.465	-	-	-	122	0.38			N	19.430	-	-	-	1504	4.65		
		N	15.465	-	-	-	735	2.27	15	C46	Non	19.779	-	-	-	587	1.81		
5	C36	Non	15.906	-	-	-	171	0.53			N	19.779	19.707	-0.169	1.294	1259	3.89		
		N	15.906	15.834	-0.120	1.199	1177	3.64	16	C47	Non	20.120	-	-	-	457	1.41		
6	C37	Non	16.339	-	-	-	214	0.66			N	20.120	-	-	-	1007	3.11		
		N	16.339	-	-	-	1705	5.27	17	C48	Non	20.454	-	-	-	386	1.19		
7	C38	Non	16.761	-	-	-	267	0.83			N	20.454	20.382	-0.181	1.309	717	2.22		
		N	16.761	16.689	-0.124	1.222	2100	6.49	18	C49	Non	20.780	-	-	-	287	0.89		
8	C39	Non	17.170	-	-	-	301	0.93			N	20.780	-	-	-	467	1.44		
		N	17.170	-	-	-	2389	7.38	19	C50	Non	21.100	-	-	-	214	0.66		
9	C40	Non	17.569	-	-	-	375	1.16			N	21.100	21.028	-0.188	1.322	297	0.92		
		N	17.569	17.497	-0.137	1.242	2585	7.99	20	C51	Non	21.419	-	-	-	141	0.44		
10	C41	Non	17.961	-	-	-	451	1.39			N	21.419	-	-	-	145	0.45		
		N	17.961	-	-	-	2482	7.67	21	C52	Non	21.726	-	-	-	99	0.31		
11	C42	Non	18.341	-	-	-	539	1.67			N	21.726	21.654	-0.192	1.335	85	0.26		
		N	18.341	18.269	-0.147	1.261	2489	7.69									Total	32361	100.00

Table B35 Chromatographic data of wax cake from extraction of 600SW at 20 °C by using toluene

Total Non = 23.26%, N = 76.74%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₁	Solvent	0.069	-	-	-	-	-	12	C42	Non	18.316	-	-	-	1022	1.71	
1	C31	Non	13.549	-	-	-	122	0.20	N	N	18.316	18.247	-0.169	1.261	4203	7.03		
		N	13.549	-	-	-	95	0.16	13	C43	Non	18.688	-	-	-	1159	1.94	
2	C32	Non	14.034	-	-	-	217	0.36	N	N	18.688	-	-	-	3530	5.90		
		N	14.034	13.965	-0.132	1.145	294	0.49	14	C44	Non	19.052	-	-	-	1250	2.09	
3	C33	Non	14.523	-	-	-	359	0.60	N	N	19.052	18.983	-0.180	1.278	3019	5.05		
		N	14.523	-	-	-	614	1.03	15	C45	Non	19.407	-	-	-	1126	1.88	
4	C34	Non	14.984	-	-	-	431	0.72	N	N	19.407	-	-	-	2525	4.22		
		N	14.984	14.915	-0.134	1.173	1096	1.83	16	C46	Non	19.751	-	-	-	912	1.53	
5	C35	Non	15.439	-	-	-	473	0.79	N	N	19.751	19.682	-0.194	1.294	2100	3.51		
		N	15.439	-	-	-	1678	2.81	17	C47	Non	20.093	-	-	-	778	1.30	
6	C36	Non	15.882	-	-	-	558	0.93	N	N	20.093	-	-	-	1653	2.76		
		N	15.882	15.813	-0.141	1.199	2381	3.98	18	C48	Non	20.424	-	-	-	613	1.03	
7	C37	Non	16.316	-	-	-	999	1.00	N	N	20.424	20.355	-0.208	1.308	1139	1.94		
		N	16.316	-	-	-	3209	5.37	19	C49	Non	20.751	-	-	-	501	0.84	
8	C38	Non	16.737	-	-	-	655	1.10	N	N	20.751	-	-	-	752	1.26		
		N	16.737	16.668	-0.145	1.221	3780	6.32	20	C50	Non	21.073	-	-	-	353	0.59	
9	C39	Non	17.148	-	-	-	741	1.24	N	N	21.073	21.004	-0.212	1.322	475	0.79		
		N	17.148	-	-	-	4283	7.16	21	C51	Non	21.388	-	-	-	240	0.40	
10	C40	Non	17.548	-	-	-	789	1.32	N	N	21.388	-	-	-	113	0.19		
		N	17.548	17.479	-0.155	1.242	4568	7.64	22	C52	Non	21.691	-	-	-	143	0.24	
11	C41	Non	17.938	-	-	-	869	1.45	N	N	21.691	21.622	-0.224	1.334	50	0.08		
		N	17.938	-	-	-	4305	7.20										
																Total	59792	100.00

Table B36 Chromatographic data of wax cake from extraction of 600SW at 25 °C by using toluene

Total Non = 24.67%, N = 75.33%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₁	Solvent	0.068	-	-	-	-	-	13	C41	Non	17.973	-	-	-	2493	2.13	
1	C29	Non	12.551	-	-	-	137	0.12	N	N	17.973	-	-	-	4923	4.20		
2	C30	Non	13.076	-	-	-	40	0.03	14	C42	Non	18.351	-	-	-	2596	2.22	
		N	13.076	13.008	-0.083	1.114	379	0.32	N	N	18.351	18.283	-0.133	1.262	4430	3.78		
3	C31	Non	13.576	-	-	-	88	0.08	15	C43	Non	18.719	-	-	-	2514	2.15	
		N	13.576	-	-	-	1113	0.95	N	N	18.719	-	-	-	3472	2.96		
4	C32	Non	14.070	-	-	-	255	0.22	16	C44	Non	19.080	-	-	-	2409	2.06	
		N	14.070	14.002	-0.095	1.146	3171	2.71	N	N	19.080	19.012	-0.151	1.279	2883	2.46		
5	C33	Non	14.558	-	-	-	354	0.30	17	C45	Non	19.435	-	-	-	2243	1.91	
		N	14.558	-	-	-	5950	5.08	N	N	19.435	-	-	-	2282	1.95		
6	C34	Non	15.033	-	-	-	566	0.48	18	C46	Non	19.776	-	-	-	1807	1.54	
		N	15.033	14.965	-0.084	1.175	8009	6.84	N	N	19.776	19.708	-0.168	1.294	1802	1.54		
7	C35	Non	15.487	-	-	-	766	0.65	19	C47	Non	20.118	-	-	-	1477	1.26	
		N	15.487	-	-	-	8746	7.47	N	N	20.118	-	-	-	1378	1.18		
8	C36	Non	15.929	-	-	-	1009	0.86	20	C48	Non	20.450	-	-	-	1142	0.97	
		N	15.929	15.861	-0.093	1.200	8699	7.43	N	N	20.450	20.382	-0.181	1.309	936	0.80		
9	C37	Non	16.361	-	-	-	1302	1.11	21	C49	Non	20.775	-	-	-	854	0.73	
		N	16.361	-	-	-	8429	7.20	N	N	20.775	-	-	-	595	0.51		
10	C38	Non	16.780	-	-	-	1661	1.42	22	C50	Non	21.094	-	-	-	581	0.50	
		N	16.780	16.712	-0.101	1.223	7558	6.45	N	N	21.094	21.026	-0.190	1.322	373	0.32		
11	C39	Non	17.184	-	-	-	1990	1.70	23	C51	Non	21.406	-	-	-	303	0.26	
		N	17.184	-	-	-	6703	5.72	N	N	21.406	-	-	-	173	0.15		
12	C40	Non	17.581	-	-	-	2276	1.94	24	C52	Non	21.714	-	-	-	176	0.15	
		N	17.581	17.513	-0.121	1.243	6012	5.13	N	N	21.714	21.646	-0.200	1.335	87	0.07		
																Total	117142	100.00

Table B39 Chromatographic data of wax cake from extraction of 600SW at 40 °C by using toluene

Total Non = 63.16%, N = 36.84%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
	CS ₁	Solvent	0.069	-	-	-	-	-	23	C38	Non	16.761	-	-	-	5435	4.32
1	C20	N	7.076	7.007	-0.025	0.845	80	0.06	N	N	16.761	16.692	-0.121	1.222	3215	2.56	
2	C21	N	7.749	-	-	-	94	0.07	24	C39	Non	17.170	-	-	-	4947	3.93
3	C22	N	8.424	8.355	-0.048	0.921	109	0.09	N	N	17.170	-	-	-	2939	2.34	
4	C23	N	9.084	-	-	-	117	0.09	25	C40	Non	17.569	-	-	-	4740	3.77
5	C24	N	9.702	9.633	-0.058	0.983	104	0.08	N	N	17.569	17.500	-0.134	1.243	2690	2.14	
6	C25	N	10.302	-	-	-	130	0.10	26	C41	Non	17.954	-	-	-	4387	3.49
7	C26	N	10.877	10.808	-0.088	1.033	207	0.16	N	N	17.954	-	-	-	2254	1.79	
8	C27	Non	11.248	-	-	-	213	0.17	27	C42	Non	18.338	-	-	-	3999	3.18
9	N	N	11.459	-	-	-	282	0.22	N	N	18.338	18.269	-0.147	1.261	2106	1.67	
10	C28	Non	11.801	-	-	-	460	0.37	28	C43	Non	18.705	-	-	-	3739	2.97
11	N	N	12.011	11.942	-0.086	1.077	375	0.30	N	N	18.705	-	-	-	1743	1.39	
12	C29	Non	12.366	-	-	-	756	0.60	29	C44	Non	19.066	-	-	-	3128	2.49
13	N	N	12.546	-	-	-	643	0.51	N	N	19.066	18.997	-0.166	1.278	1420	1.13	
14	C30	Non	12.876	-	-	-	1327	1.06	30	C45	Non	19.421	-	-	-	2745	2.18
15	N	N	13.066	12.997	-0.094	1.113	834	0.66	N	N	19.421	-	-	-	1104	0.88	
16	C31	Non	13.573	-	-	-	2194	1.74	31	C46	Non	19.766	-	-	-	2264	1.80
N	N	N	13.575	-	-	-	1482	1.18	N	N	19.766	19.697	-0.179	1.294	848	0.67	
17	C32	Non	14.071	-	-	-	3721	2.96	32	C47	Non	20.107	-	-	-	1803	1.43
N	N	N	14.071	14.002	-0.095	1.146	2671	2.12	N	N	20.107	-	-	-	670	0.53	
18	C33	Non	14.552	-	-	-	5473	4.35	33	C48	Non	20.433	-	-	-	1349	1.07
N	N	N	14.552	-	-	-	3730	2.97	N	N	20.433	20.364	-0.199	1.308	447	0.36	
19	C34	Non	15.021	-	-	-	6249	4.97	34	C49	Non	20.760	-	-	-	973	0.77
N	N	N	15.021	14.952	-0.097	1.174	4151	3.30	N	N	20.760	-	-	-	278	0.22	
20	C35	Non	15.472	-	-	-	6273	4.99	35	C50	Non	21.085	-	-	-	796	0.63
N	N	N	15.472	-	-	-	3975	3.16	N	N	21.085	21.016	-0.200	1.322	179	0.14	
21	C36	Non	15.913	-	-	-	5837	4.64	36	C51	Non	21.396	-	-	-	506	0.40
N	N	N	15.913	15.844	-0.110	1.199	3745	2.98	N	N	21.396	-	-	-	87	0.07	
22	C37	Non	16.345	-	-	-	5783	4.60	37	C52	Non	21.702	-	-	-	336	0.27
N	N	N	16.345	-	-	-	3580	2.85	N	N	21.702	21.633	-0.213	1.335	43	0.03	
									Total								
									125765 100.00								

Table B40 Chromatographic data of wax cake from extraction of 600SW at 45 °C by using toluene

Total Non = 73.97%, N = 26.03%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
	CS ₁	Solvent	0.084	-	-	-	-	-	20	C37	Non	16.301	-	-	-	3184	5.42
1	C22	N	8.403	8.319	-0.084	0.920	55	0.09	N	N	16.301	-	-	-	974	1.66	
2	C23	N	9.044	-	-	-	72	0.12	21	C38	Non	16.726	-	-	-	3145	5.36
3	C24	N	9.689	9.605	-0.086	0.982	95	0.16	N	N	16.726	16.642	-0.171	1.221	851	1.45	
4	C25	Non	10.289	-	-	-	84	0.14	22	C39	Non	17.135	-	-	-	2505	4.27
N	N	N	10.289	-	-	-	115	0.20	N	N	17.135	-	-	-	836	1.42	
5	C26	Non	10.869	-	-	-	95	0.16	23	C40	Non	17.534	-	-	-	2368	4.03
N	N	N	10.869	10.785	-0.111	1.032	154	0.26	N	N	17.534	17.450	-0.184	1.241	747	1.27	
6	C27	Non	11.254	-	-	-	196	0.33	24	C41	Non	17.919	-	-	-	2260	3.85
7	N	N	11.421	-	-	-	240	0.41	N	N	17.919	-	-	-	544	0.93	
8	C28	Non	11.776	-	-	-	381	0.65	25	C42	Non	18.306	-	-	-	2016	3.43
9	N	N	11.996	11.912	-0.116	1.075	290	0.49	N	N	18.306	18.222	-0.194	1.260	523	0.89	
10	C29	Non	12.329	-	-	-	670	1.14	26	C43	Non	18.679	-	-	-	1607	2.74
11	N	N	12.517	-	-	-	371	0.63	N	N	18.679	-	-	-	489	0.83	
12	C30	Non	12.851	-	-	-	934	1.59	27	C44	Non	19.041	-	-	-	1448	2.47
13	N	N	13.044	12.960	-0.131	1.112	593	1.01	N	N	19.041	18.957	-0.206	1.277	369	0.63	
14	C31	Non	13.552	-	-	-	1495	2.55	28	C45	Non	19.396	-	-	-	1256	2.14
N	N	N	13.552	-	-	-	857	1.46	N	N	19.396	-	-	-	275	0.47	
15	C32	Non	14.041	-	-	-	2288	3.90	29	C46	Non	19.743	-	-	-	939	1.60
N	N	N	14.041	13.957	-0.140	1.144	1262	2.15	N	N	19.743	19.659	-0.217	1.293	206	0.35	
16	C33	Non	14.521	-	-	-	3167	5.39	30	C47	Non	20.089	-	-	-	711	1.21
N	N	N	14.521	-	-	-	1410	2.40	N	N	20.089	-	-	-	173	0.29	
17	C34	Non	14.983	-	-	-	4147	7.06	31	C48	Non	20.417	-	-	-	503	0.86
N	N	N	14.983	14.899	-0.150	1.173	1334	2.27	N	N	20.417	20.333	-0.230	1.308	91	0.15	
18	C35	Non	15.439	-	-	-	3986	6.79	32	C49	Non	20.747	-	-	-	318	0.54
N	N	N	15.439	-	-	-	1190	2.03	N	N	20.747	-	-	-	58	0.10	
19	C36	Non	15.878	-	-	-	3464	5.90	33	C50	Non	21.065	-	-	-	277	0.47
N	N	N	15.878	15.794	-0.160	1.198	1064	1.81	N	N	21.065	20.981	-0.235	1.321	47	0.08	
									Total								
									58729 100.00								

Table B41 Chromatographic data of soluble wax from extraction of 600SW at 15 °C by using toluene

Total Non = 75.49% , N = 24.51%

P/No.	P/Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt		
im	CS ₂	Solvent	0.075	-	-	-	-	-	21	C36	Non	15.888	-	-	-	6258	6.55		
1	C20	N	7.064	6.989	-0.043	0.844	42	0.04			N	15.888	15.813	-0.141	1.199	1546	1.62		
2	C21	Non	7.759	-	-	-	52	0.05	22	C37	Non	16.322	-	-	-	5724	5.99		
		N	7.759	-	-	-	46	0.05			N	16.322	-	-	-	1431	1.50		
3	C22	Non	8.417	-	-	-	56	0.06	23	C38	Non	16.739	-	-	-	4892	5.12		
		N	8.417	8.342	-0.061	0.921	65	0.07			N	16.739	16.664	-0.149	1.221	1211	1.27		
4	C23	Non	9.057	-	-	-	58	0.06	24	C39	Non	17.148	-	-	-	4417	4.62		
		N	9.057	-	-	-	109	0.11			N	17.148	-	-	-	925	0.97		
5	C24	Non	9.682	-	-	-	87	0.09	25	C40	Non	17.542	-	-	-	3955	4.14		
		N	9.682	9.607	-0.084	0.982	133	0.14			N	17.542	17.467	-0.167	1.242	790	0.83		
6	C25	Non	10.285	-	-	-	115	0.12	26	C41	Non	17.935	-	-	-	3464	3.62		
		N	10.285	-	-	-	205	0.21			N	17.935	-	-	-	608	0.64		
7	C26	Non	10.868	-	-	-	197	0.21	27	C42	Non	18.318	-	-	-	3203	3.35		
		N	10.868	10.793	-0.103	1.033	314	0.33			N	18.318	18.243	-0.173	1.261	552	0.58		
8	C27	Non	11.229	-	-	-	295	0.31	28	C43	Non	18.677	-	-	-	2740	2.87		
9		N	11.439	-	-	-	441	0.46			N	18.677	-	-	-	426	0.45		
10	C28	Non	11.807	-	-	-	522	0.55	29	C44	Non	19.050	-	-	-	2363	2.47		
		N	11.990	11.915	-0.113	1.076	585	0.61			N	19.050	18.975	-0.188	1.278	347	0.36		
12	C29	Non	12.339	-	-	-	875	0.92	30	C45	Non	19.396	-	-	-	1915	2.00		
13		N	12.328	-	-	-	755	0.79			N	19.396	-	-	-	231	0.24		
14	C30	Non	12.877	-	-	-	1308	1.37	31	C46	Non	19.744	-	-	-	1607	1.68		
		N	13.049	12.974	-0.117	1.113	1012	1.06			N	19.744	19.669	-0.207	1.293	181	0.19		
16	C31	Non	13.558	-	-	-	2377	2.49	32	C47	Non	20.079	-	-	-	1102	1.15		
		N	13.558	-	-	-	1404	1.47			N	20.079	-	-	-	133	0.14		
17	C32	Non	14.049	-	-	-	3540	3.70	33	C48	Non	20.418	-	-	-	834	0.87		
		N	14.049	13.974	-0.123	1.145	2508	2.62			N	20.418	20.343	-0.220	1.308	92	0.10		
18	C33	Non	14.531	-	-	-	5063	5.30	34	C49	Non	20.718	-	-	-	618	0.65		
		N	14.531	-	-	-	2836	2.97			N	20.718	-	-	-	44	0.05		
19	C34	Non	14.995	-	-	-	6836	7.15	35	C50	Non	21.044	-	-	-	338	0.35		
		N	14.995	14.920	-0.129	1.173	2519	2.64			N	21.044	-	-	-	209	0.22		
20	C35	Non	15.451	-	-	-	6973	7.29	37	C52	Non	21.616	-	-	-	169	0.18		
		N	15.451	-	-	-	1938	2.03											
									Total									95591	100.00

Table B42 Chromatographic data of soluble wax from extraction of 600SW at 20 °C by using toluene

Total Non = 77.13% , N = 22.87%

P/No.	P/Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt		
im	CS ₂	Solvent	0.072	-	-	-	-	-	24	C37	Non	15.897	15.825	-0.129	1.199	1450	1.63		
1	C19	N	6.336	-	-	-	42	0.05			N	16.329	-	-	-	5298	5.97		
2	C20	N	7.037	6.965	-0.067	0.842	76	0.09			N	16.329	-	-	-	1315	1.48		
3	C21	N	7.747	-	-	-	89	0.10	25	C38	Non	16.745	-	-	-	4873	5.49		
4	C22	N	8.414	8.342	-0.061	0.921	92	0.10			N	16.745	16.673	-0.140	1.222	1043	1.17		
5	C23	N	9.054	-	-	-	98	0.11	26	C39	Non	17.156	-	-	-	4105	4.62		
6	C24	N	9.672	9.600	-0.091	0.982	110	0.12			N	17.156	-	-	-	891	1.00		
7	C25	N	10.292	-	-	-	152	0.17	27	C40	Non	17.546	-	-	-	3938	4.43		
8	C26	Non	10.653	-	-	-	57	0.06			N	17.546	17.474	-0.160	1.242	790	0.89		
9		N	10.874	10.802	-0.094	1.033	246	0.28	28	C41	Non	17.948	-	-	-	3298	3.71		
10	C27	Non	11.254	-	-	-	200	0.23			N	17.948	-	-	-	618	0.70		
11		N	11.445	-	-	-	336	0.38	29	C42	Non	18.319	-	-	-	2998	3.38		
12	C28	Non	11.803	-	-	-	433	0.49			N	18.319	18.247	-0.169	1.261	479	0.54		
13		N	11.999	11.927	-0.101	1.076	454	0.51	30	C43	Non	18.687	-	-	-	2708	3.05		
14	C29	Non	12.333	-	-	-	878	0.99			N	18.687	-	-	-	393	0.44		
15		N	12.528	-	-	-	564	0.64	31	C44	Non	19.052	-	-	-	2146	2.42		
16	C30	Non	12.881	-	-	-	1368	1.54			N	19.052	18.980	-0.183	1.278	306	0.34		
17		N	13.061	12.989	-0.102	1.113	721	0.81	32	C45	Non	19.404	-	-	-	1836	2.07		
18	C31	Non	13.564	-	-	-	2263	2.55			N	19.404	-	-	-	231	0.26		
		N	13.564	-	-	-	1175	1.32	33	C46	Non	19.755	-	-	-	1376	1.55		
19	C32	Non	14.059	-	-	-	3634	4.09			N	19.755	19.683	-0.193	1.294	178	0.20		
		N	14.059	13.987	-0.11	1.145	2011	2.26	34	C47	Non	20.087	-	-	-	1088	1.23		
20	C33	Non	14.541	-	-	-	5295	5.96			N	20.087	-	-	-	118	0.13		
		N	14.541	-	-	-	2307	2.60	35	C48	Non	20.42	-	-	-	732	0.82		
21	C34	Non	15.008	-	-	-	6783	7.64			N	20.42	20.348	-0.215	1.308	64	0.07		
		N	15.008	14.936	-0.113	1.174	2158	2.43	36	C49	Non	20.743	-	-	-	563	0.63		
22	C35	Non	15.458	-	-	-	6414	7.22			N	20.743	-	-	-	301	0.34		
		N	15.458	-	-	-	1803	2.03	37	C50	Non	20.42	-	-	-	165	0.19		
23	C36	Non	15.897	-	-	-	5753	6.48			N	20.743	-	-	-				
									Total									88813	100.00

Table B45 Chromatographic data of soluble wax from extraction of 600SW at 35 °C by using toluene

Total Non = 78.42%, N = 21.58%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.076	-	-	-	-	-			N	15.894	15.818	-0.136	1.199	2032	1.51	
1	C19	N	6.343	-	-	-	67	0.05	24	C37	Non	16.327	-	-	-	7947	5.91	
2	C20	N	7.041	6.965	-0.067	0.842	109	0.08			N	16.327	-	-	-	1865	1.39	
3	C21	N	7.737	-	-	-	121	0.09	25	C38	Non	16.738	-	-	-	7417	5.52	
4	C22	N	8.405	8.329	-0.074	0.920	127	0.09			N	16.738	16.662	-0.151	1.221	1511	1.12	
5	C23	N	9.052	-	-	-	145	0.11	26	C39	Non	17.142	-	-	-	6332	4.71	
6	C24	N	9.677	9.601	-0.09	0.982	171	0.13			N	17.142	-	-	-	1261	0.94	
7	C25	N	10.282	-	-	-	236	0.18	27	C40	Non	17.548	-	-	-	6024	4.48	
8	C26	Non	10.637	-	-	-	144	0.11			N	17.548	17.472	-0.162	1.242	1052	0.78	
9		N	10.859	10.783	-0.113	1.032	314	0.23	28	C41	Non	17.927	-	-	-	5231	3.89	
10	C27	Non	11.249	-	-	-	373	0.28			N	17.927	-	-	-	797	0.59	
11		N	11.436	-	-	-	486	0.36	29	C42	Non	18.316	-	-	-	4647	3.46	
12	C28	Non	11.791	-	-	-	822	0.61			N	18.316	18.240	-0.176	1.261	714	0.53	
13		N	11.983	11.907	-0.121	1.075	542	0.40	30	C43	Non	18.682	-	-	-	4170	3.10	
14	C29	Non	12.337	-	-	-	1299	0.97			N	18.682	-	-	-	563	0.42	
15		N	12.528	-	-	-	818	0.61	31	C44	Non	19.042	-	-	-	3371	2.51	
16	C30	Non	12.869	-	-	-	2054	1.53			N	19.042	18.966	-0.197	1.277	376	0.28	
17		N	13.051	12.975	-0.116	1.113	1077	0.80	32	C45	Non	19.394	-	-	-	2952	2.20	
18	C31	Non	13.557	-	-	-	3225	2.40			N	19.394	-	-	-	292	0.22	
		N	13.557	-	-	-	1894	1.41	33	C46	Non	19.724	-	-	-	2235	1.66	
19	C32	Non	14.052	-	-	-	5503	4.09			N	19.724	19.648	-0.228	1.293	228	0.17	
		N	14.052	13.976	-0.121	1.145	2910	2.16	34	C47	Non	20.083	-	-	-	1726	1.28	
20	C33	Non	14.531	-	-	-	7891	5.87			N	20.083	-	-	-	138	0.12	
		N	14.531	-	-	-	3344	2.49	35	C48	Non	20.403	-	-	-	1219	0.91	
21	C34	Non	15.000	-	-	-	10511	7.82			N	20.403	20.327	-0.236	1.308	111	0.08	
		N	15.000	14.924	-0.125	1.173	3184	2.37	36	C49	Non	20.647	-	-	-	845	0.63	
22	C35	Non	15.456	-	-	-	9755	7.25	37	C50	Non	20.964	-	-	-	550	0.41	
		N	15.456	-	-	-	2520	1.87	38	C51	Non	21.314	-	-	-	311	0.23	
23	C36	Non	15.894	-	-	-	8902	6.62										
																Total	134481	100.00

Table B46 Chromatographic data of soluble wax from extraction of 600SW at 40 °C by using toluene

Total Non = 78.74%, N = 21.26%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.073	-	-	-	-	-			N	15.893	15.820	-0.134	1.199	2027	1.47	
1	C21	N	7.733	-	-	-	95	0.07	22	C37	Non	16.319	-	-	-	8146	5.91	
2	C22	N	8.403	8.330	-0.073	0.920	111	0.08			N	16.319	-	-	-	1726	1.25	
3	C23	N	9.048	-	-	-	141	0.10	23	C38	Non	16.740	-	-	-	7456	5.41	
4	C24	Non	9.672	-	-	-	33	0.04			N	16.740	16.667	-0.146	1.221	1380	1.00	
		N	9.672	9.599	-0.092	0.982	175	0.13	24	C39	Non	17.147	-	-	-	6476	4.70	
5	C25	Non	10.276	-	-	-	184	0.13			N	17.147	-	-	-	1135	0.82	
		N	10.276	-	-	-	235	0.17	25	C40	Non	17.558	-	-	-	5894	4.28	
6	C26	Non	10.651	-	-	-	263	0.19			N	17.558	17.485	-0.149	1.242	978	0.71	
7		N	10.863	10.790	-0.106	1.033	419	0.30	26	C41	Non	17.939	-	-	-	5430	3.94	
8	C27	Non	11.238	-	-	-	423	0.31			N	17.939	-	-	-	706	0.51	
9		N	11.431	-	-	-	584	0.42	27	C42	Non	18.334	-	-	-	4706	3.42	
10	C28	Non	11.793	-	-	-	808	0.59			N	18.334	18.261	-0.155	1.261	632	0.46	
11		N	11.986	11.913	-0.115	1.076	802	0.58	28	C43	Non	18.681	-	-	-	4201	3.05	
12	C29	Non	12.332	-	-	-	1395	1.01			N	18.681	-	-	-	471	0.34	
13		N	12.524	-	-	-	1096	0.80	29	C44	Non	19.034	-	-	-	3492	2.54	
14	C30	Non	12.875	-	-	-	3265	1.64			N	19.034	18.961	-0.202	1.277	356	0.26	
15		N	13.051	12.978	-0.113	1.113	1432	1.04	30	C45	Non	19.396	-	-	-	2815	2.04	
16	C31	Non	13.559	-	-	-	3751	2.72			N	19.396	-	-	-	296	0.21	
		N	13.559	-	-	-	2110	1.53	31	C46	Non	19.751	-	-	-	2269	1.65	
17	C32	Non	14.054	-	-	-	5834	4.24			N	19.751	19.678	-0.198	1.293	212	0.15	
		N	14.054	13.981	-0.116	1.145	3032	2.20	32	C47	Non	20.067	-	-	-	1696	1.23	
18	C33	Non	14.534	-	-	-	8319	6.04			N	20.067	-	-	-	155	0.11	
		N	14.534	-	-	-	3297	2.39	33	C48	Non	20.417	-	-	-	1256	0.91	
19	C34	Non	15.001	-	-	-	10637	7.72			N	20.417	20.344	-0.219	1.308	86	0.06	
		N	15.001	14.928	-0.121	1.174	3109	2.26	34	C49	Non	20.732	-	-	-	775	0.56	
20	C35	Non	15.454	-	-	-	10397	7.55	35	C50	Non	21.006	-	-	-	702	0.51	
		N	15.454	-	-	-	2488	1.81	36	C51	Non	21.671	-	-	-	177	0.13	
21	C36	Non	15.893	-	-	-	8472	6.15	37	C52	Non	21.828	-	-	-	142	0.10	
																Total	137720	100.00

Table B47 Chromatographic data of soluble wax from extraction of 600SW at 45 °C by using toluene

Total Non = 80.85% , N = 19.15%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.076	-	-	-	-	-			N	15.445	-	-	-	860	1.31	
1	C22	N	8.398	8.327	-0.076	0.92	41	0.06	19	C36	Non	15.887	-	-	-	4054	6.16	
2	C23	Non	9.044	-	-	-	63	0.10			N	15.887	15.816	-0.138	1.199	663	1.01	
		N	9.044	-	-	-	74	0.11	20	C37	Non	16.317	-	-	-	3701	5.63	
3	C24	Non	9.69	-	-	-	104	0.16			N	16.317	-	-	-	588	0.89	
		N	9.69	9.619	-0.072	0.983	97	0.15	21	C38	Non	16.735	-	-	-	3150	4.79	
4	C25	Non	10.285	-	-	-	173	0.26			N	16.735	16.664	-0.149	1.221	488	0.74	
		N	10.285	-	-	-	118	0.18	22	C39	Non	17.144	-	-	-	2728	4.15	
5	C26	Non	10.632	-	-	-	300	0.46			N	17.144	-	-	-	418	0.64	
6		N	10.866	10.795	-0.101	1.033	186	0.28	23	C40	Non	17.545	-	-	-	2619	3.98	
7	C27	Non	11.252	-	-	-	527	0.80			N	17.545	17.474	-0.16	1.242	370	0.56	
8		N	11.431	-	-	-	271	0.41	24	C41	Non	17.931	-	-	-	2218	3.37	
9	C28	Non	11.809	-	-	-	937	1.42			N	17.931	-	-	-	282	0.43	
10		N	11.995	11.924	-0.104	1.076	315	0.48	25	C42	Non	18.319	-	-	-	1852	2.82	
11	C29	Non	12.297	-	-	-	1458	2.22			N	18.319	18.248	-0.168	1.261	253	0.38	
12		N	12.53	-	-	-	674	1.02	26	C43	Non	18.683	-	-	-	1604	2.44	
13	C30	Non	13.052	-	-	-	2382	3.62			N	18.683	-	-	-	193	0.29	
		N	13.052	12.981	-0.11	1.113	1145	1.74	27	C44	Non	19.044	-	-	-	1282	1.95	
14	C31	Non	13.562	-	-	-	3560	5.41			N	19.044	18.973	-0.19	1.278	155	0.24	
		N	13.562	-	-	-	1483	2.25	28	C45	Non	19.395	-	-	-	1032	1.57	
15	C32	Non	14.047	-	-	-	3826	5.82			N	19.395	-	-	-	105	0.16	
		N	14.047	13.976	-0.121	1.145	1513	2.30	29	C46	Non	19.747	-	-	-	727	1.11	
16	C33	Non	14.528	-	-	-	4775	7.26			N	19.747	19.676	-0.2	1.293	85	0.13	
		N	14.528	-	-	-	1193	1.81	30	C47	Non	20.051	-	-	-	523	0.80	
17	C34	Non	14.991	-	-	-	4744	7.21			N	20.381	-	-	-	334	0.51	
		N	14.991	14.92	-0.129	1.173	1025	1.56	31	C48	Non	20.641	-	-	-	185	0.28	
18	C35	Non	15.445	-	-	-	4223	6.42			N	20.948	-	-	-	110	0.17	
Total																	65786	100.00

Table B48 Chromatographic data of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 45 °C by using MEK

Total Non = 28.64% , N = 71.36%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.068	-	-	-	-	-	12	C39	Non	17.107	-	-	-	1472	2.84	
1	C28	N	11.972	11.904	-0.124	1.075	116	0.22			N	17.107	-	-	-	1233	2.38	
2	C29	N	12.495	-	-	-	420	0.81	13	C40	Non	17.503	-	-	-	1738	3.36	
3	C30	N	13.015	12.947	-0.144	1.112	1523	2.94			N	17.503	17.435	-0.199	1.241	711	1.37	
4	C31	Non	13.525	-	-	-	95	0.18	14	C41	Non	17.892	-	-	-	1757	3.40	
		N	13.525	-	-	-	3233	6.25			N	17.892	-	-	-	436	0.84	
5	C32	Non	14.020	-	-	-	188	0.36	15	C42	Non	18.277	-	-	-	1395	2.70	
		N	14.020	13.952	-0.145	1.144	4969	9.60			N	18.277	18.209	-0.207	1.260	358	0.69	
6	C33	Non	14.499	-	-	-	303	0.59	16	C43	Non	18.649	-	-	-	1025	1.98	
		N	14.499	-	-	-	5150	9.95			N	18.649	-	-	-	260	0.50	
7	C34	Non	14.968	-	-	-	461	0.89	17	C44	Non	19.009	-	-	-	850	1.64	
		N	14.968	14.900	-0.149	1.173	5104	9.86			N	19.009	18.941	-0.222	1.277	197	0.38	
8	C35	Non	15.418	-	-	-	695	1.34	18	C45	Non	19.369	-	-	-	637	1.23	
		N	15.418	-	-	-	4614	8.92			N	19.369	-	-	-	135	0.26	
9	C36	Non	15.859	-	-	-	880	1.70	19	C46	Non	19.725	-	-	-	429	0.83	
		N	15.859	15.791	-0.163	1.198	3580	6.92			N	19.725	19.657	-0.219	1.293	95	0.18	
10	C37	Non	16.283	-	-	-	1015	1.96	20	C47	Non	20.060	-	-	-	332	0.64	
		N	16.283	-	-	-	2755	5.32			N	20.060	-	-	-	58	0.11	
11	C38	Non	16.701	-	-	-	1419	2.74	21	C48	Non	20.361	-	-	-	132	0.26	
		N	16.701	16.633	-0.180	1.220	1936	3.74			N	20.361	20.293	-0.270	1.307	42	0.08	
Total																	51748	100.00

Table B49 Chromatographic data of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 50 °C by using MEK

Total Non = 56.50%, N = 43.50%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
tm	CS ₂	Solvent	0.079	-	-	-	-	-			N	16.546	-	-	-	1739	3.22
1	C25	N	10.532	-	-	-	48	0.09	14	C38	Non	16.963	-	-	-	2311	4.28
2	C26	N	11.079	11.000	0.104	1.041	72	0.13			N	16.963	16.884	0.071	1.227	1250	2.32
3	C27	N	11.661	-	-	-	136	0.25	15	C39	Non	17.366	-	-	-	2193	4.06
4	C28	Non	12.211	-	-	-	119	0.22			N	17.366	-	-	-	876	1.62
		N	12.211	12.132	0.104	1.083	247	0.46	16	C40	Non	17.764	-	-	-	2118	3.92
5	C29	Non	12.751	-	-	-	455	0.84			N	17.764	17.685	0.051	1.247	629	1.17
		N	12.751	-	-	-	453	0.84	17	C41	Non	18.153	-	-	-	1782	3.30
6	C30	Non	13.271	-	-	-	923	1.71			N	18.153	-	-	-	391	0.72
		N	13.271	13.192	0.101	1.120	1100	2.04	18	C42	Non	18.526	-	-	-	1498	2.78
7	C31	Non	13.781	-	-	-	1435	2.66			N	18.526	18.447	0.031	1.265	321	0.59
		N	13.781	-	-	-	1988	3.68	19	C43	Non	18.899	-	-	-	1245	2.31
8	C32	Non	14.281	-	-	-	1914	3.55			N	18.899	-	-	-	213	0.39
		N	14.281	14.202	0.105	1.152	2713	5.03	20	C44	Non	19.264	-	-	-	996	1.85
9	C33	Non	14.759	-	-	-	2107	3.90			N	19.264	19.185	0.022	1.282	151	0.28
		N	14.759	-	-	-	3007	5.57	21	C45	Non	19.621	-	-	-	736	1.36
10	C34	Non	15.222	-	-	-	2286	4.24			N	19.621	-	-	-	106	0.20
		N	15.222	15.143	0.094	1.180	3092	5.73	22	C46	Non	19.959	-	-	-	574	1.06
11	C35	Non	15.676	-	-	-	2314	4.29			N	19.959	19.880	0.004	1.298	76	0.14
		N	15.676	-	-	-	2677	4.96	23	C47	Non	20.298	-	-	-	371	0.69
12	C36	Non	16.111	-	-	-	2336	4.33			N	20.569	-	-	-	226	0.42
		N	16.111	16.032	0.078	1.204	2191	4.06	24	C48	Non	20.569	-	-	-	141	0.26
13	C37	Non	16.546	-	-	-	2349	4.35			N	20.839	-	-	-	63	0.12
									25	C49	Non	20.839	-	-	-		
									26	C50	Non	21.157	-	-	-		
									Total								
									53968 100.00								

Table B50 Chromatographic data of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 45 °C by using MEK

Total Non = 85.12%, N = 14.88%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
tm	CS ₂	Solvent	0.076	-	-	-	-	-			N	16.096	16.020	0.066	1.204	322	0.81
1	C25	N	10.483	-	-	-	51	0.13	18	C37	Non	16.526	-	-	-	2237	5.60
2	C26	Non	11.084	-	-	-	72	0.18			N	16.526	-	-	-	259	0.65
		N	11.084	11.0078	0.112	1.041	104	0.26	19	C38	Non	16.929	-	-	-	2009	5.03
3	C27	Non	11.645	-	-	-	172	0.43			N	16.929	16.853	0.040	1.226	195	0.49
		N	11.645	-	-	-	159	0.40	20	C39	Non	17.346	-	-	-	1725	4.32
4	C28	Non	11.984	-	-	-	441	1.10			N	17.346	-	-	-	167	0.42
		N	12.193	12.117	0.089	1.083	207	0.52	21	C40	Non	17.760	-	-	-	1487	3.72
5	C29	Non	12.535	-	-	-	981	2.46			N	17.760	17.684	0.050	1.247	139	0.35
6	C29	Non	12.535	-	-	-	981	2.46	22	C41	Non	18.134	-	-	-	1277	3.20
7	C29	Non	12.733	-	-	-	315	0.79			N	18.134	-	-	-	114	0.29
8	C30	Non	13.076	-	-	-	1672	4.19	23	C42	Non	18.517	-	-	-	1091	2.73
		N	13.251	13.175	0.084	1.119	604	1.51			N	18.517	18.441	0.025	1.265	100	0.25
10	C31	Non	13.601	-	-	-	2423	6.07	24	C43	Non	18.876	-	-	-	944	2.36
11	C31	Non	13.762	-	-	-	765	1.92			N	18.876	-	-	-	57	0.14
12	C32	Non	14.074	-	-	-	2858	7.16	25	C44	Non	19.236	-	-	-	733	1.84
13	C32	Non	14.251	14.175	0.078	1.151	740	1.85			N	19.236	19.160	-0.003	1.282	42	0.11
14	C33	Non	14.734	-	-	-	3577	8.96	26	C45	Non	19.482	-	-	-	599	1.50
		N	14.734	-	-	-	631	1.58	27	C46	Non	19.822	-	-	-	488	1.22
15	C34	Non	15.193	-	-	-	3110	7.79			N	19.822	-	-	-	306	0.77
		N	15.193	15.117	0.068	1.179	562	1.41	28	C47	Non	20.187	-	-	-	185	0.46
16	C35	Non	15.653	-	-	-	3059	7.66			N	20.523	-	-	-	78	0.20
		N	15.653	-	-	-	407	1.02	29	C48	Non	20.523	-	-	-		
17	C36	Non	16.096	-	-	-	2456	6.15			N	20.868	-	-	-		
									30	C49	Non	20.868	-	-	-		
									Total								
									39920 100.00								

Table B51 Chromatographic data of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 500SW) at 50 °C by using MEK

Total Non = 88.67%, N = 11.33%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.074	-	-	-	-	-	24		N	15.726	-	-	-	428	0.36	
1	C20	N	7.299	7.225	0.193	0.858	48	0.04	25	C36	Non	16.000	-	-	-	7126	6.04	
2	C21	N	7.887	-	-	-	65	0.06	26		N	16.049	15.975	0.021	1.203	310	0.26	
3	C22	N	8.517	8.443	0.040	0.926	102	0.09	27	C37	Non	16.576	-	-	-	6753	5.72	
4	C23	N	9.149	-	-	-	195	0.17			N	16.576	-	-	-	541	0.46	
5	C24	Non	9.773	-	-	-	33	0.03	28	C38	Non	16.985	-	-	-	6325	5.36	
		N	9.773	9.699	0.008	0.986	208	0.18			N	16.985	16.911	0.098	1.228	474	0.40	
6	C25	Non	10.375	-	-	-	133	0.11	29	C39	Non	17.385	-	-	-	6195	5.25	
		N	10.375	-	-	-	286	0.24			N	17.385	-	-	-	386	0.33	
7	C26	Non	10.960	-	-	-	356	0.30	30	C40	Non	17.781	-	-	-	5116	4.33	
		N	10.960	10.886	-0.010	1.036	453	0.38			N	17.781	17.707	0.073	1.248	245	0.21	
8	C27	Non	11.531	-	-	-	661	0.56	31	C41	Non	18.128	-	-	-	4504	3.81	
		N	11.531	-	-	-	660	0.56			N	18.128	-	-	-	246	0.21	
9	C28	Non	11.885	-	-	-	1468	1.24	32	C42	Non	18.533	-	-	-	4028	3.41	
10		N	12.091	12.017	-0.011	1.079	739	0.63			N	18.533	18.459	0.043	1.266	261	0.22	
11	C29	Non	12.442	-	-	-	2730	2.31	33	C43	Non	18.872	-	-	-	2980	2.52	
12		N	12.632	-	-	-	1068	0.90			N	18.872	-	-	-	287	0.24	
13	C30	Non	12.986	-	-	-	4600	3.90	34	C44	Non	19.265	-	-	-	2319	1.96	
14		N	13.164	13.090	-0.001	1.116	1629	1.38			N	19.265	19.191	0.028	1.283	205	0.17	
15	C31	Non	13.497	-	-	-	6728	5.70	35	C45	Non	19.601	-	-	-	2001	1.69	
16		N	13.682	-	-	-	1727	1.46			N	19.601	-	-	-	97	0.08	
17	C32	Non	13.981	-	-	-	8131	6.89	36	C46	Non	19.920	-	-	-	1758	1.49	
18		N	14.176	14.102	0.005	1.149	1285	1.09			N	19.920	19.846	-0.03	1.297	41	0.03	
19	C33	Non	14.477	-	-	-	10046	8.51	37	C47	Non	19.926	-	-	-	692	0.59	
20		N	14.658	-	-	-	508	0.43	38	C48	Non	20.476	-	-	-	377	0.32	
21	C34	Non	15.025	-	-	-	10256	8.69	39	C49	Non	20.733	-	-	-	109	0.09	
22		N	15.177	15.103	0.054	1.179	173	0.15	40	C50	Non	21.253	-	-	-	52	0.04	
23	C35	Non	15.568	-	-	-	9933	8.41										
																Total	118077	100.00

Table B52 Chromatographic data of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 600SW) at 45 °C by using MEK

Total Non = 24.55%, N = 75.45%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.069	-	-	-	-	-			N	18.279	18.210	-0.206	1.260	2338	5.09	
1	C31	N	13.526	-	-	-	76	0.17	13	C43	Non	18.649	-	-	-	1191	2.59	
2	C32	N	14.001	13.932	-0.165	1.144	251	0.55			N	18.649	-	-	-	1710	3.72	
3	C33	N	14.479	-	-	-	772	1.68	14	C44	Non	19.013	-	-	-	1125	2.45	
4	C34	N	14.954	14.885	-0.164	1.172	1728	3.76			N	19.013	18.944	-0.219	1.277	1315	2.86	
5	C35	Non	15.408	-	-	-	132	0.29	15	C45	Non	19.365	-	-	-	1018	2.22	
		N	15.408	-	-	-	2705	5.89			N	19.365	-	-	-	1015	2.21	
6	C36	Non	15.847	-	-	-	222	0.48	16	C46	Non	19.714	-	-	-	868	1.89	
		N	15.847	15.778	-0.176	1.198	3413	7.43			N	19.714	19.645	-0.231	1.293	748	1.63	
7	C37	Non	16.283	-	-	-	316	0.69	17	C47	Non	20.056	-	-	-	690	1.50	
		N	16.283	-	-	-	3897	8.48			N	20.056	-	-	-	534	1.16	
8	C38	Non	16.702	-	-	-	483	1.05	18	C48	Non	20.387	-	-	-	552	1.20	
		N	16.702	16.633	-0.180	1.220	3839	8.36			N	20.387	20.318	-0.245	1.307	347	0.76	
9	C39	Non	17.111	-	-	-	691	1.50	19	C49	Non	20.702	-	-	-	369	0.80	
		N	17.111	-	-	-	3617	7.87			N	20.702	-	-	-	228	0.50	
10	C40	Non	17.514	-	-	-	944	2.06	20	C50	Non	21.039	-	-	-	238	0.52	
		N	17.514	17.445	-0.189	1.241	3271	7.12			N	21.039	20.970	-0.246	1.321	134	0.29	
11	C41	Non	17.899	-	-	-	1067	2.32	21	C51	Non	21.350	-	-	-	193	0.42	
		N	17.899	-	-	-	2650	5.77			N	21.350	-	-	-	69	0.15	
12	C42	Non	18.279	-	-	-	1079	2.35	22	C52	Non	21.907	-	-	-	96	0.21	
																Total	45931	100.00

Table B53 Chromatographic data of wax cake from 2nd extraction of MEK-soluble wax (from 1st extraction of 600SW) at 50 °C by using MEK

Total Non = 41.75%, N = 58.25%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.073	-	-	-	-	-	13	C40	Non	17.733	-	-	-	1326	3.66	
1	C28	N	12.177	12.104	0.076	1.082	81	0.32	N	N	17.733	17.660	0.026	1.246	1130	3.12		
2	C29	N	12.711	-	-	-	110	0.30	14	C41	Non	18.123	-	-	-	1327	3.67	
3	C30	N	13.238	13.165	0.074	1.119	200	0.55	N	N	18.123	-	-	-	730	2.02		
4	C31	Non	13.744	-	-	-	105	0.29	15	C42	Non	18.504	-	-	-	1227	3.39	
		N	13.744	-	-	-	453	1.25	N	N	18.504	18.431	0.015	1.265	536	1.48		
5	C32	Non	14.233	-	-	-	252	0.70	16	C43	Non	18.878	-	-	-	1089	3.01	
		N	14.233	14.160	0.063	1.151	1052	2.91	N	N	18.878	-	-	-	344	0.95		
6	C33	Non	14.716	-	-	-	536	1.48	17	C44	Non	19.237	-	-	-	865	2.39	
		N	14.716	-	-	-	1884	5.21	N	N	19.237	19.164	0.001	1.282	254	0.70		
7	C34	Non	15.185	-	-	-	765	2.11	18	C45	Non	19.598	-	-	-	663	1.83	
		N	15.185	15.112	0.063	1.179	2540	7.02	N	N	19.598	-	-	-	163	0.45		
8	C35	Non	15.641	-	-	-	853	2.36	19	C46	Non	19.946	-	-	-	527	1.46	
		N	15.641	-	-	-	2744	7.58	N	N	19.946	19.873	-0.003	1.298	130	0.36		
9	C36	Non	16.081	-	-	-	1032	2.85	20	C47	Non	20.284	-	-	-	351	0.97	
		N	16.081	16.008	0.054	1.204	2682	7.41	N	N	20.284	-	-	-	74	0.20		
10	C37	Non	16.510	-	-	-	1121	3.10	21	C48	Non	20.584	-	-	-	276	0.76	
		N	16.510	-	-	-	2415	6.67	N	N	20.584	20.511	-0.052	1.311	62	0.17		
11	C38	Non	16.931	-	-	-	1231	3.46	22	C49	Non	20.904	-	-	-	144	0.40	
		N	16.931	16.858	0.045	1.226	1978	5.47	N	N	20.904	-	-	-	43	0.12		
12	C39	Non	17.336	-	-	-	1299	3.39	23	C50	Non	21.241	-	-	-	101	0.28	
		N	17.336	-	-	-	1473	4.07	Total								36188	100.00

Table B54 Chromatographic data of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 600SW) at 45 °C by using MEK

Total Non = 87.60%, N = 12.40%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	17	C38	Non	16.518	-	-	-	503	1.17	
1	C24	N	9.864	9.789	0.098	0.990	48	0.11	Non	N	16.924	-	-	-	2456	5.70		
2	C25	N	10.477	-	-	-	72	0.17	N	N	16.924	16.849	0.036	1.226	411	0.95		
3	C26	N	11.069	10.994	0.098	1.041	114	0.26	18	C39	Non	17.334	-	-	-	2174	5.04	
4	C27	Non	11.634	-	-	-	45	0.10	N	N	17.334	-	-	-	317	0.74		
		N	11.634	-	-	-	154	0.36	19	C40	Non	17.744	-	-	-	1884	4.37	
5	C28	Non	12.182	-	-	-	201	0.47	N	N	17.744	17.669	0.035	1.247	249	0.58		
		N	12.182	12.107	0.079	1.083	204	0.47	20	C41	Non	18.128	-	-	-	1674	3.88	
6	C29	Non	12.524	-	-	-	396	0.92	N	N	18.128	-	-	-	215	0.50		
7		N	12.719	-	-	-	254	0.59	21	C42	Non	18.507	-	-	-	1424	3.30	
8	C30	Non	13.052	-	-	-	669	1.55	N	N	18.507	18.432	0.016	1.265	189	0.44		
		N	13.243	13.168	0.077	1.119	340	0.79	22	C43	Non	18.894	-	-	-	1243	2.88	
10	C31	Non	13.755	-	-	-	1222	2.83	N	N	18.894	-	-	-	110	0.26		
		N	13.755	-	-	-	546	1.27	23	C44	Non	19.254	-	-	-	1042	2.42	
11	C32	Non	14.246	-	-	-	1963	4.55	N	N	19.254	19.179	0.016	1.282	100	0.23		
		N	14.246	14.171	0.074	1.151	839	1.95	24	C45	Non	19.601	-	-	-	895	2.08	
12	C33	Non	14.731	-	-	-	2835	6.57	N	N	19.601	-	-	-	70	0.16		
		N	14.731	-	-	-	965	2.24	25	C46	Non	19.956	-	-	-	616	1.43	
13	C34	Non	15.184	-	-	-	3763	8.73	N	N	19.956	19.881	0.005	1.298	46	0.11		
		N	15.184	15.109	0.06	1.179	983	2.28	26	C47	Non	20.298	-	-	-	532	1.23	
14	C35	Non	15.648	-	-	-	3502	8.12	27	C48	Non	20.628	-	-	-	378	0.88	
		N	15.648	-	-	-	797	1.85	28	C49	Non	20.855	-	-	-	228	0.53	
15	C36	Non	16.081	-	-	-	2938	6.81	29	C50	Non	21.155	-	-	-	159	0.37	
		N	16.081	16.006	0.052	1.204	589	1.37	30	C51	Non	21.514	-	-	-	55	0.13	
16	C37	Non	16.518	-	-	-	2714	6.29	Total								43123	100.00



Table B55 Chromatographic data of soluble wax from 2nd extraction of MEK-soluble wax (from 1st extraction of 600SW) at 50 °C by using MEK

Total Non = 89.65%, N = 10.35%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
	CS ₁	Solvent	0.068	-	-	-	-	-	23	C36	Non	15.859	-	-	-	8616	6.78		
1	C19	N	6.266	-	-	-	30	0.04				15.859	15.791	-0.163	1.198	1961	1.54		
2	C20	N	6.994	6.926	-0.106	0.840	114	0.09	24	C37	Non	16.291	-	-	-	7876	6.19		
3	C21	N	7.688	-	-	-	134	0.11				16.291	-	-	-	1616	1.27		
4	C22	N	8.371	8.303	-0.100	0.919	139	0.11	25	C38	Non	16.708	-	-	-	6746	5.31		
5	C23	N	9.007	-	-	-	140	0.11				16.708	16.640	-0.173	1.221	1235	0.97		
6	C24	N	9.641	9.573	-0.118	0.981	178	0.14	26	C39	Non	17.122	-	-	-	6189	4.87		
7	C25	Non	10.256	-	-	-	98	0.08				17.122	-	-	-	954	0.75		
		N	10.256	-	-	-	236	0.19	27	C40	Non	17.511	-	-	-	5444	4.28		
8	C26	Non	10.828	-	-	-	213	0.17				17.511	17.443	-0.191	1.241	777	0.61		
		N	10.828	10.760	-0.136	1.031	361	0.28	28	C41	Non	17.910	-	-	-	4768	3.75		
9	C27	Non	11.295	-	-	-	446	0.35				17.910	-	-	-	548	0.43		
10		N	11.406	-	-	-	492	0.39	29	C42	Non	18.301	-	-	-	4377	3.44		
11	C28	Non	11.767	-	-	-	789	0.62				18.301	18.233	-0.183	1.260	513	0.40		
12		N	11.954	11.886	-0.142	1.075	668	0.53	30	C43	Non	18.657	-	-	-	3659	2.88		
13	C29	Non	12.294	-	-	-	1370	1.08				18.657	-	-	-	351	0.28		
14		N	12.493	-	-	-	816	0.64	31	C44	Non	19.036	-	-	-	3182	2.50		
15	C30	Non	12.834	-	-	-	2149	1.69				19.036	18.968	-0.195	1.278	276	0.22		
16		N	13.014	12.946	-0.145	1.112	1079	0.85	32	C45	Non	19.447	-	-	-	2456	1.93		
17	C31	Non	13.403	-	-	-	3490	2.74				19.447	-	-	-	196	0.15		
18		N	13.530	-	-	-	1693	1.33	33	C46	Non	19.706	-	-	-	2016	1.59		
19	C32	Non	14.021	-	-	-	3497	4.32				19.706	19.638	-0.238	1.293	151	0.12		
		N	14.021	13.953	-0.144	1.144	2893	2.28	34	C47	Non	20.082	-	-	-	1561	1.23		
20	C33	Non	14.503	-	-	-	7648	6.01				20.082	-	-	-	77	0.06		
		N	14.503	-	-	-	3141	2.47	35	C48	Non	20.344	-	-	-	1090	0.86		
21	C34	Non	14.966	-	-	-	9688	7.62	36	C49	Non	20.647	-	-	-	811	0.64		
		N	14.966	14.898	-0.151	1.173	3011	2.37	37	C50	Non	20.998	-	-	-	554	0.44		
22	C35	Non	15.423	-	-	-	9748	7.67	38	C51	Non	21.289	-	-	-	424	0.33		
		N	15.423	-	-	-	2444	1.92									Total	127149	100.00

Table B56 Chromatographic data residual oil from fractional crystallization of 500SW at -20 °C in MEK

Total Non = 96.82%, N = 3.18%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₁	Solvent	0.075	-	-	-	-	-	16	C34	Non	14.879	-	-	-	6496	9.94	
1	C19	N	6.499	-	-	-	51	0.08				14.879	14.804	-0.245	1.170	184	0.28	
2	C20	N	7.204	7.129	0.097	0.853	66	0.10	17	C35	Non	15.333	-	-	-	5211	7.97	
3	C21	N	7.907	-	-	-	59	0.09				15.333	-	-	-	108	0.17	
4	C22	N	8.586	8.511	0.108	0.929	47	0.07	18	C36	Non	15.761	-	-	-	5083	7.78	
5	C23	N	9.257	-	-	-	44	0.07				15.761	15.686	-0.268	1.195	91	0.14	
6	C24	N	-	-	-	-	0	0.00	19	C37	Non	16.198	-	-	-	4232	6.47	
7	C25	N	-	-	-	-	0	0.00				16.198	-	-	-	82	0.13	
8	C26	Non	10.871	-	-	-	195	0.30	20	C38	Non	16.632	-	-	-	3674	5.62	
		N	10.871	10.796	-0.100	1.033	40	0.06				16.632	16.557	-0.256	1.218	74	0.11	
9	C27	Non	11.459	-	-	-	557	0.85	21	C39	Non	17.036	-	-	-	3182	4.87	
		N	11.459	-	-	-	68	0.10				17.036	-	-	-	79	0.12	
10	C28	Non	12.010	-	-	-	915	1.40	22	C40	Non	17.413	-	-	-	3080	4.71	
		N	12.010	11.935	-0.093	1.076	48	0.07				17.413	17.338	-0.296	1.238	69	0.11	
11	C29	Non	12.486	-	-	-	2018	3.09	23	C41	Non	18.034	-	-	-	2950	4.51	
		N	12.486	-	-	-	240	0.37	24	C42	Non	18.328	-	-	-	2667	4.08	
12	C30	Non	12.967	-	-	-	2618	4.00	25	C43	Non	18.691	-	-	-	1466	2.24	
		N	12.967	12.892	-0.199	1.110	192	0.29	26	C44	Non	19.049	-	-	-	1341	2.05	
13	C31	Non	13.486	-	-	-	4496	6.88	27	C45	Non	19.430	-	-	-	915	1.40	
		N	13.486	-	-	-	163	0.25	28	C46	Non	19.796	-	-	-	603	0.92	
14	C32	Non	13.934	-	-	-	4701	7.19	29	C47	Non	20.128	-	-	-	434	0.66	
		N	13.934	13.859	-0.238	1.141	218	0.33	30	C48	Non	20.455	-	-	-	274	0.42	
15	C33	Non	14.438	-	-	-	5984	9.15	31	C49	Non	20.772	-	-	-	156	0.24	
		N	14.438	-	-	-	158	0.24	32	C50	Non	21.117	-	-	-	43	0.07	
																Total	65372	100.00

Table B59 Chromatographic data of crystallized wax from fractional crystallization of 500SW at 0 °C in MEK

Total Non = 82.42% , N = 17.58%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
1	C23	N	9.211	-	-	-	116	0.34	22	C37	Non	16.635	-	-	-	1865	5.48
2	C24	N	9.841	9.763	0.072	0.989	212	0.62	23	C38	Non	17.036	-	-	-	1625	4.77
3	C25	N	10.453	-	-	-	280	0.82	24	C39	Non	17.036	16.958	0.145	1.229	190	0.56
4	C26	N	11.047	10.969	0.073	1.040	365	1.07	25	C40	Non	17.446	-	-	-	1397	4.10
5	C27	Non	11.421	-	-	-	68	0.20	26	C41	Non	17.446	-	-	-	187	0.55
6		N	11.618	-	-	-	384	1.13	27	C42	Non	17.845	-	-	-	1346	3.95
7	C28	Non	11.976	-	-	-	212	0.62	28	C43	Non	17.845	17.767	0.133	1.249	205	0.60
8		N	12.172	12.094	0.066	1.082	359	1.05	29	C44	Non	18.218	-	-	-	1075	3.16
9	C29	Non	12.536	-	-	-	479	1.41	30	C45	Non	18.218	-	-	-	208	0.61
10		N	12.719	-	-	-	343	1.01	31	C46	Non	18.601	-	-	-	964	2.83
11	C30	Non	13.059	-	-	-	1176	3.46	32	C47	Non	18.601	18.523	0.107	1.267	228	0.67
12		N	13.251	13.173	0.082	1.119	324	0.95	33	C48	Non	18.972	-	-	-	870	2.56
13	C31	Non	13.569	-	-	-	2029	5.96	34	C49	Non	18.972	-	-	-	173	0.51
14		N	13.774	-	-	-	155	0.46	35	C50	Non	19.323	-	-	-	696	2.05
15	C32	Non	14.056	-	-	-	2585	7.60	36			19.323	19.245	0.082	1.284	132	0.39
16		N	14.288	14.210	0.113	1.152	121	0.36	37			19.663	-	-	-	622	1.83
17	C33	Non	14.453	-	-	-	3358	9.87	38			19.663	-	-	-	98	0.29
18		N	14.901	-	-	-	456	1.34	39			20.021	-	-	-	482	1.42
19	C34	Non	15.345	-	-	-	2302	6.76	40			20.021	19.943	0.067	1.299	50	0.15
20		N	15.345	15.267	0.218	1.183	404	1.19	41			20.256	-	-	-	351	1.03
21	C35	Non	15.776	-	-	-	2176	6.39	42			20.529	-	-	-	236	0.69
22		N	15.776	-	-	-	415	1.23	43			20.867	-	-	-	103	0.30
23	C36	Non	16.204	-	-	-	1971	5.79	44			21.178	-	-	-	63	0.19
24		N	16.204	16.126	0.172	1.207	331	0.97									
									Total								
									34033 100.00								

Table B60 Chromatographic data of crystallized wax from fractional crystallization of 500SW at 10°C in MEK

Total Non = 73.93% , N = 26.07%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
1	C23	N	9.273	-	-	-	80	0.16	21	C38	Non	16.702	-	-	-	2495	4.91
2	C24	N	9.896	9.817	0.126	0.991	165	0.32	22	C39	Non	16.702	16.623	-0.190	1.220	370	0.73
3	C25	N	10.514	-	-	-	322	0.63	23	C40	Non	17.108	-	-	-	2414	4.75
4	C26	N	11.094	11.015	0.119	1.041	557	1.10	24	C41	Non	17.108	-	-	-	327	0.64
5	C27	N	11.671	-	-	-	902	1.78	25	C42	Non	17.509	-	-	-	1973	3.88
6	C28	N	12.329	12.150	0.122	1.084	1189	2.34	26	C43	Non	17.509	17.430	-0.204	1.241	267	0.53
7	C29	Non	12.578	-	-	-	111	0.22	27	C44	Non	17.907	-	-	-	1877	3.70
8		N	12.767	-	-	-	1659	3.27	28	C45	Non	17.907	-	-	-	237	0.47
9	C30	Non	13.139	-	-	-	1042	2.05	29	C46	Non	18.281	-	-	-	1560	3.07
10		N	13.292	13.213	0.122	1.121	2176	4.28	30	C47	Non	18.281	18.202	-0.214	1.260	173	0.34
11	C31	Non	13.632	-	-	-	2088	4.11	31	C48	Non	18.659	-	-	-	1493	2.94
12		N	13.803	-	-	-	1764	3.47	32	C49	Non	18.659	-	-	-	151	0.30
13	C32	Non	14.127	-	-	-	3311	6.52	33	C50	Non	19.029	-	-	-	1257	2.47
14		N	14.297	14.218	0.121	1.152	892	1.76	34			19.029	18.950	-0.213	1.277	113	0.22
15	C33	Non	14.604	-	-	-	3359	6.61	35			19.382	-	-	-	1215	2.39
16		N	14.793	-	-	-	314	0.62	36			19.382	-	-	-	84	0.17
17	C34	Non	15.020	-	-	-	2512	4.95	37			19.723	-	-	-	677	1.33
18		N	15.020	14.941	-0.108	1.174	298	0.59	38			19.723	19.644	-0.232	1.293	59	0.12
19	C35	Non	15.427	-	-	-	3227	6.35	39			20.085	-	-	-	575	1.13
20		N	15.427	-	-	-	310	0.61	40			20.085	-	-	-	61	0.12
21	C36	Non	15.859	-	-	-	2819	5.55	41			20.407	-	-	-	485	0.95
22		N	15.859	15.780	-0.174	1.198	379	0.75	42			20.619	-	-	-	315	0.62
23	C37	Non	16.279	-	-	-	2437	4.80	43			20.936	-	-	-	179	0.35
24		N	16.279	-	-	-	391	0.77	44			21.235	-	-	-	134	0.26
									Total								
									50795 100.00								

Table B61 Chromatographic data of crystallized wax from fractional crystallization of 500SW at 20 °C in MEK

Total Non = 48.22% , N = 51.78%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.073	-	-	-	-	-	15	C38	Non	16.760	-	-	-	1790	4.34	
1	C26	N	11.081	11.008	0.112	1.041	54	0.13	16		N	16.944	16.871	0.058	1.227	118	0.29	
2	C27	N	11.646	-	-	-	155	0.38	17	C39	Non	17.337	-	-	-	1330	3.22	
3	C28	N	12.198	12.125	0.097	1.083	419	1.02	18		N	17.481	-	-	-	92	0.22	
4	C29	Non	12.743	-	-	-	110	0.27	19	C40	Non	17.890	-	-	-	1262	3.06	
		N	12.743	-	-	-	1075	2.61			N	17.890	17.817	0.183	1.250	107	0.26	
5	C30	Non	13.269	-	-	-	300	0.73	20	C41	Non	18.247	-	-	-	998	2.42	
		N	13.269	13.196	0.105	1.120	2567	6.22			N	18.247	-	-	-	101	0.24	
6	C31	Non	13.779	-	-	-	584	1.42	21	C42	Non	18.652	-	-	-	910	2.21	
		N	13.779	-	-	-	4009	9.72			N	18.652	18.579	0.163	1.269	54	0.13	
7	C32	Non	14.271	-	-	-	842	2.04	22	C43	Non	18.991	-	-	-	712	1.73	
		N	14.271	14.198	0.101	1.152	4117	9.98			N	18.991	-	-	-	46	0.11	
8	C33	Non	14.751	-	-	-	1037	2.51	23	C44	Non	19.346	-	-	-	619	1.50	
		N	14.751	-	-	-	3741	9.07			N	19.346	19.273	0.110	1.284	44	0.11	
9	C34	Non	15.212	-	-	-	1737	4.21	24	C45	Non	19.739	-	-	-	453	1.10	
		N	15.212	15.139	0.090	1.180	2336	5.66			N	19.739	-	-	-	48	0.12	
10	C35	Non	15.661	-	-	-	1782	4.32	25	C46	Non	20.067	-	-	-	382	0.93	
		N	15.661	-	-	-	1332	3.23	26	C47	Non	20.459	-	-	-	252	0.61	
11	C36	Non	15.938	-	-	-	1972	4.78	27	C48	Non	20.639	-	-	-	136	0.33	
12		N	16.096	16.023	0.069	1.204	666	1.61	28	C49	Non	20.874	-	-	-	93	0.23	
13	C37	Non	16.351	-	-	-	2546	6.17	29	C50	Non	21.276	-	-	-	42	0.10	
14		N	16.516	-	-	-	279	0.68										
																Total	41249	100.00

Table B62 Chromatographic data of crystallized wax from fractional crystallization of 500SW at 30 °C in MEK

Total Non = 33.13% , N = 66.87%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.075	-	-	-	-	-	12	C40	Non	17.754	-	-	-	1025	2.85	
1	C29	N	12.729	-	-	-	95	0.26			N	17.754	17.679	0.045	1.247	1269	3.53	
2	C30	N	13.251	13.176	0.085	1.119	362	1.01	13	C41	Non	18.145	-	-	-	1136	3.16	
3	C31	Non	13.756	-	-	-	66	0.18			N	18.145	-	-	-	925	2.57	
		N	13.756	-	-	-	944	2.62	14	C42	Non	18.524	-	-	-	1155	3.21	
4	C32	Non	14.256	-	-	-	175	0.49			N	18.524	18.449	0.033	1.265	740	2.06	
		N	14.256	14.181	0.084	1.151	1713	4.76	15	C43	Non	18.897	-	-	-	988	2.75	
5	C33	Non	14.734	-	-	-	298	0.83			N	18.897	-	-	-	506	1.41	
		N	14.734	-	-	-	2316	6.44	16	C44	Non	19.266	-	-	-	803	2.23	
6	C34	Non	15.201	-	-	-	413	1.15			N	19.266	19.191	0.028	1.283	396	1.10	
		N	15.201	15.126	0.077	1.179	2767	7.69	17	C45	Non	19.622	-	-	-	648	1.80	
7	C35	Non	15.654	-	-	-	556	1.55			N	19.622	-	-	-	297	0.83	
		N	15.654	-	-	-	2757	7.66	18	C46	Non	19.970	-	-	-	508	1.41	
8	C36	Non	16.096	-	-	-	709	1.97			N	19.970	19.895	0.019	1.298	204	0.57	
		N	16.096	16.021	0.067	1.204	2572	7.15	19	C47	Non	20.306	-	-	-	384	1.07	
9	C37	Non	16.529	-	-	-	753	2.09			N	20.306	-	-	-	129	0.36	
		N	16.529	-	-	-	2368	6.58	20	C48	Non	20.650	-	-	-	271	0.75	
10	C38	Non	16.946	-	-	-	897	2.49			N	20.650	20.575	0.012	1.313	72	0.20	
		N	16.946	16.871	0.058	1.227	1950	5.42	21	C49	Non	20.958	-	-	-	117	0.33	
11	C39	Non	17.353	-	-	-	1015	2.82			N	20.958	-	-	-	56	0.16	
		N	17.353	-	-	-	1576	4.38	22	C50	N	21.257	21.182	-0.034	1.325	40	0.11	
																Total	35971	100.00

Table B63 Chromatographic data of residual oil from fractional crystallization of 600SW
at -20 °C in MEK

Total Non = 96.03% , N = 3.97%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₇	Solvent	0.081	-	-	-	-	-			N	14.881	14.800	-0.249	1.170	592	0.40		
1	C19	N	6.451	-	-	-	340	0.23	17	C35	Non	15.326	-	-	-	14776	9.97		
2	C20	N	7.179	7.098	0.066	0.851	375	0.25			N	15.326	-	-	-	522	0.35		
3	C21	N	7.871	-	-	-	359	0.17	18	C36	Non	15.769	-	-	-	12872	8.69		
4	C22	N	8.569	8.488	0.085	0.928	131	0.09			N	15.769	15.688	-0.266	1.195	487	0.33		
5	C23	N	-	-	-	-	0	0.00	19	C37	Non	16.211	-	-	-	11961	8.07		
6	C24	N	-	-	-	-	0	0.00			N	16.211	-	-	-	277	0.19		
7	C25	N	-	-	-	-	0	0.00	20	C38	Non	16.644	-	-	-	10952	7.39		
8	C26	Non	10.811	-	-	-	188	0.13			N	16.644	16.563	-0.25	1.219	350	0.24		
		N	10.811	10.730	-0.166	1.030	76	0.05	21	C39	Non	17.059	-	-	-	8985	6.06		
9	C27	Non	11.427	-	-	-	707	0.48			N	17.059	-	-	-	239	0.16		
		N	11.427	-	-	-	128	0.09	22	C40	Non	17.439	-	-	-	8860	5.98		
10	C28	Non	11.983	-	-	-	1485	1.00			N	17.439	17.358	-0.276	1.239	135	0.09		
		N	11.983	11.902	-0.126	1.075	194	0.13	23	C41	Non	17.821	-	-	-	7035	4.75		
11	C29	Non	12.465	-	-	-	2401	1.62	24	C42	Non	18.190	-	-	-	6667	4.50		
		N	12.465	-	-	-	305	0.21	25	C43	Non	18.510	-	-	-	4932	3.33		
12	C30	Non	12.919	-	-	-	2855	1.93	26	C44	Non	19.032	-	-	-	4396	2.97		
		N	12.919	12.838	-0.253	1.108	274	0.18	27	C45	Non	19.272	-	-	-	2618	1.77		
13	C31	Non	13.453	-	-	-	5082	3.43	28	C46	Non	19.786	-	-	-	1822	1.23		
		N	13.453	-	-	-	341	0.23	29	C47	Non	20.026	-	-	-	1572	1.06		
14	C32	Non	13.917	-	-	-	6868	4.63	30	C48	Non	20.534	-	-	-	1372	0.93		
		N	13.917	13.836	-0.261	1.141	332	0.22	31	C49	Non	20.788	-	-	-	560	0.38		
15	C33	Non	14.411	-	-	-	10602	7.15	32	C50	Non	21.291	-	-	-	510	0.34		
		N	14.411	-	-	-	533	0.36	33	C51	Non	21.520	-	-	-	92	0.06		
16	C34	Non	14.881	-	-	-	12145	8.19									Total	148205	100.00

Table B64 Chromatographic data of crystallized wax from fractional crystallization of 600SW
at -20 °C in MEK

Total Non = 86.47% , N = 13.53%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₇	Solvent	0.079	-	-	-	-	-	22	C36	Non	16.209	-	-	-	5606	7.05		
1	C20	N	7.207	7.128	0.096	0.852	136	0.17			N	16.209	16.130	0.176	1.207	718	0.90		
2	C21	N	7.891	-	-	-	278	0.35	23	C37	Non	16.629	-	-	-	4721	5.94		
3	C22	N	8.571	8.492	0.089	0.929	330	0.42			N	16.629	-	-	-	669	0.84		
4	C23	N	9.224	-	-	-	297	0.37	24	C38	Non	17.052	-	-	-	4461	5.61		
5	C24	N	9.863	9.784	0.093	0.990	234	0.29			N	17.052	16.973	0.160	1.229	708	0.89		
6	C25	N	10.469	-	-	-	148	0.19	25	C39	Non	17.452	-	-	-	3822	4.81		
7	C26	Non	10.854	-	-	-	126	0.16			N	17.452	-	-	-	683	0.86		
8		N	11.052	10.973	0.077	1.040	112	0.14	26	C40	Non	17.849	-	-	-	3600	4.53		
9	C27	Non	11.419	-	-	-	290	0.36			N	17.849	17.770	0.136	1.249	644	0.81		
10		N	11.636	-	-	-	86	0.11	27	C41	Non	18.228	-	-	-	3287	4.14		
11	C28	Non	11.981	-	-	-	582	0.73			N	18.228	-	-	-	483	0.61		
12		N	12.201	12.122	0.094	1.083	66	0.08	28	C42	Non	18.617	-	-	-	3012	3.79		
13	C29	Non	12.525	-	-	-	956	1.20			N	18.617	18.538	0.122	1.268	399	0.50		
14		N	12.761	-	-	-	78	0.10	29	C43	Non	18.841	-	-	-	3115	3.92		
15	C30	Non	13.038	-	-	-	1443	1.82	30		N	18.997	-	-	-	172	0.22		
16		N	13.292	13.213	0.122	1.121	143	0.18	31	C44	Non	19.357	-	-	-	2444	3.07		
17	C31	Non	13.939	-	-	-	3769	4.74			N	19.357	19.278	0.115	1.285	85	0.11		
		N	13.939	-	-	-	455	0.57	32	C45	Non	19.694	-	-	-	2011	2.53		
18	C32	Non	14.423	-	-	-	3991	5.02	33	C46	Non	20.151	-	-	-	1636	2.06		
		N	14.423	14.344	0.247	1.156	1047	1.32	34	C47	Non	20.403	-	-	-	1183	1.49		
19	C33	Non	14.881	-	-	-	4981	6.27	35	C48	Non	20.844	-	-	-	580	0.73		
		N	14.881	-	-	-	1293	1.63	36	C49	Non		-	-	-	462	0.58		
20	C34	Non	15.332	-	-	-	5391	6.78	37	C50	Non	21.157	-	-	-	235	0.30		
		N	15.332	15.253	0.204	1.183	1053	1.32	38	C51	Non	21.595	-	-	-	74	0.09		
21	C35	Non	15.774	-	-	-	6580	8.28									Total	79484	100.00

Table B67 Chromatographic data of crystallized wax from fractional crystallization of 600SW at 10 °C in MEK

Total Non = 84.51% , N = 15.49%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.085	-	-	-	-	-			N	16.681	-	-	-	949	0.90	
1	C21	N	7.941	-	-	-	70	0.07	25	C38	Non	17.093	-	-	-	5436	5.15	
2	C22	N	8.594	8.509	0.106	0.929	163	0.15			N	17.093	17.008	0.195	1.230	722	0.68	
3	C23	N	9.241	-	-	-	297	0.28	26	C39	Non	17.494	-	-	-	5412	5.13	
4	C24	N	9.871	9.786	0.095	0.990	431	0.41			N	17.494	-	-	-	664	0.63	
5	C25	N	10.477	-	-	-	619	0.59	27	C40	Non	17.889	-	-	-	4491	4.25	
6	C26	N	11.078	10.993	0.097	1.041	839	0.79			N	17.889	17.804	0.170	1.250	563	0.53	
7	C27	Non	11.449	-	-	-	102	0.10	28	C41	Non	18.264	-	-	-	4217	3.99	
8		N	11.651	-	-	-	868	0.82			N	18.264	-	-	-	499	0.47	
9	C28	Non	12.023	-	-	-	343	0.32	29	C42	Non	18.647	-	-	-	3717	3.52	
10		N	12.208	12.123	0.095	1.083	840	0.80			N	18.647	18.562	0.146	1.268	461	0.44	
11	C29	Non	12.568	-	-	-	689	0.65	30	C43	Non	19.016	-	-	-	3227	3.06	
12		N	12.749	-	-	-	760	0.72			N	19.016	-	-	-	361	0.34	
13	C30	Non	13.096	-	-	-	1489	1.41	31	C44	Non	19.370	-	-	-	2766	2.62	
14		N	13.279	13.194	0.103	1.120	678	0.64			N	19.370	19.285	0.122	1.285	336	0.32	
15	C31	Non	13.627	-	-	-	3052	2.89	32	C45	Non	19.728	-	-	-	2402	2.27	
16		N	13.802	-	-	-	552	0.52			N	19.728	-	-	-	268	0.27	
17	C32	Non	14.115	-	-	-	6607	6.26	33	C46	Non	20.078	-	-	-	2230	2.11	
18		N	14.304	14.219	0.122	1.152	325	0.31			N	20.078	19.993	0.117	1.300	225	0.21	
19	C33	Non	14.516	-	-	-	10407	9.86	34	C47	Non	20.404	-	-	-	1683	1.59	
20		N	14.955	-	-	-	922	0.87			N	20.404	-	-	-	158	0.15	
21	C34	Non	15.398	-	-	-	8191	7.76	35	C48	Non	20.742	-	-	-	765	0.72	
		N	15.398	15.313	0.264	1.185	1245	1.18			N	20.742	20.657	0.094	1.315	50	0.05	
22	C35	Non	15.830	-	-	-	7115	6.74	36	C49	Non	20.874	-	-	-	642	0.61	
		N	15.830	-	-	-	1374	1.30	37	C50	Non	21.203	-	-	-	315	0.30	
23	C36	Non	16.261	-	-	-	6900	6.54	38	C51	Non	21.581	-	-	-	203	0.19	
		N	16.261	16.176	0.222	1.208	1098	1.04	39	C52	Non	21.973	-	-	-	89	0.08	
24	C37	Non	16.681	-	-	-	6736	6.38										
																Total	105383	100.00

Table B68 Chromatographic data of crystallized wax from fractional crystallization of 600SW at 20 °C in MEK

Total Non = 77.96% , N = 22.04%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
	CS ₂	Solvent	0.077	-	-	-	-	-	25	C38	Non	16.934	-	-	-	5313	6.00	
1	C23	N	9.254	-	-	-	49	0.06			N	16.934	16.857	0.044	1.226	295	0.33	
2	C24	N	9.859	9.782	0.091	0.990	163	0.18	26	C39	Non	17.341	-	-	-	4540	5.13	
3	C25	N	10.464	-	-	-	332	0.37			N	17.341	-	-	-	167	0.19	
4	C26	N	11.061	10.984	0.088	1.040	649	0.73	27	C40	Non	17.801	-	-	-	4095	4.62	
5	C27	N	11.631	-	-	-	937	1.06			N	17.801	17.724	0.09	1.248	141	0.16	
6	C28	Non	11.989	-	-	-	159	0.18	28	C41	Non	18.186	-	-	-	3585	4.05	
7		N	12.181	12.104	0.076	1.082	1213	1.37			N	18.186	-	-	-	91	0.10	
8	C29	Non	12.534	-	-	-	324	0.37	29	C42	Non	18.551	-	-	-	3971	3.35	
9		N	12.722	-	-	-	1403	1.58			N	18.551	18.474	0.058	1.266	47	0.05	
10	C30	Non	13.071	-	-	-	678	0.77	30	C43	Non	18.981	-	-	-	2466	2.78	
11		N	13.246	13.169	0.078	1.119	1689	1.91			N	18.981	-	-	-	193	0.22	
12	C31	Non	13.589	-	-	-	1480	1.67	31	C44	Non	19.351	-	-	-	1995	2.25	
13		N	13.756	-	-	-	2234	2.32			N	19.351	19.274	0.111	1.284	162	0.18	
14	C32	Non	14.094	-	-	-	3101	3.30	32	C45	Non	19.683	-	-	-	1622	1.83	
15		N	14.248	14.171	0.074	1.151	2855	3.22			N	19.683	-	-	-	131	0.15	
16	C33	Non	14.581	-	-	-	5038	5.69	33	C46	Non	20.034	-	-	-	1375	1.55	
17		N	14.727	-	-	-	2748	3.10			N	20.034	19.957	0.081	1.300	108	0.12	
18	C34	Non	15.036	-	-	-	6886	7.78	34	C47	Non	20.356	-	-	-	966	1.09	
19		N	15.199	15.122	0.073	1.179	1775	2.00			N	20.356	-	-	-	58	0.07	
20	C35	Non	15.404	-	-	-	8815	9.95	35	C48	Non	20.567	-	-	-	813	0.92	
21		N	15.654	-	-	-	1052	1.19	36	C49	Non	20.887	-	-	-	499	0.56	
22	C36	Non	15.836	-	-	-	6277	7.09	37	C50	Non	21.197	-	-	-	345	0.39	
23		N	16.086	16.009	0.055	1.204	570	0.64	38	C51	Non	21.512	-	-	-	225	0.25	
24	C37	Non	16.521	-	-	-	5378	6.07	39	C52	Non	21.985	-	-	-	97	0.11	
		N	16.521	-	-	-	455	0.51										
																Total	88560	100.00

Table B69 Chromatographic data of crystallized wax from fractional crystallization of 600SW at 30 °C in MEK

Total Non = 41.45% , N = 58.55%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	
Im	CS ₂	Solvent	0.073	-	-	-	-	-	15	C40	Non	17.728	-	-	-	2828	3.74	
1	C26	N	11.028	10.955	0.059	1.039	70	0.09			N	17.728	17.655	0.021	1.246	1491	1.97	
2	C27	N	11.602	-	-	-	174	0.23	16	C41	Non	18.12	-	-	-	2398	3.17	
3	C28	N	12.156	12.083	0.055	1.082	402	0.53			N	18.12	-	-	-	1075	1.42	
4	C29	Non	12.694	-	-	-	40	0.05	17	C42	Non	18.499	-	-	-	2080	2.75	
		N	12.694	-	-	-	712	0.94			N	18.499	18.426	0.010	1.265	904	1.20	
5	C30	Non	13.222	-	-	-	113	0.15	18	C43	Non	18.869	-	-	-	1850	2.45	
		N	13.222	13.149	0.058	1.118	1271	1.68			N	18.869	-	-	-	661	0.87	
6	C31	Non	13.733	-	-	-	274	0.36	19	C44	Non	19.233	-	-	-	1451	1.92	
		N	13.733	-	-	-	2435	3.22			N	19.233	19.16	-0.003	1.282	514	0.68	
7	C32	Non	14.230	-	-	-	538	0.71	20	C45	Non	19.591	-	-	-	1237	1.64	
		N	14.230	14.157	0.060	1.150	4404	5.83			N	19.591	-	-	-	415	0.55	
8	C33	Non	14.709	-	-	-	1021	1.35	21	C46	Non	19.933	-	-	-	970	1.28	
		N	14.709	-	-	-	5899	7.81			N	19.933	19.86	-0.016	1.297	300	0.40	
9	C34	Non	15.182	-	-	-	1593	2.11	22	C47	Non	20.277	-	-	-	682	0.90	
		N	15.182	15.109	0.060	1.179	6018	7.97			N	20.277	-	-	-	187	0.25	
10	C35	Non	15.632	-	-	-	1994	2.64	23	C48	Non	20.594	-	-	-	527	0.70	
		N	15.632	-	-	-	5245	6.94			N	20.594	20.521	-0.042	1.312	143	0.19	
11	C36	Non	16.079	-	-	-	2408	3.19	24	C49	Non	20.924	-	-	-	309	0.41	
		N	16.079	16.006	0.052	1.204	4217	5.58			N	20.924	-	-	-	96	0.13	
12	C37	Non	16.508	-	-	-	2706	3.58	25	C50	Non	21.261	-	-	-	224	0.30	
		N	16.508	-	-	-	3252	4.30			N	21.261	21.188	-0.028	1.326	43	0.06	
13	C38	Non	16.923	-	-	-	2932	3.88	26	C51	Non	20.924	-	-	-	103	0.14	
		N	16.923	16.850	0.037	1.226	2470	3.27	27	C52	Non	21.261	-	-	-	55	0.07	
14	C39	Non	17.334	-	-	-	2983	3.95										
		N	17.334	-	-	-	1831	2.42										
																Total	75545	100.00

Table B70 Chromatographic data of residual oil from fractional crystallization of 500SW at -20 °C in toluene

Total Non = 93.61% , N = 6.39%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	Λ	% wt	
Im	CS ₂	Solvent	0.090	-	-	-	-	-	17	C35	Non	15.511	-	-	-	10594	7.87	
1	C19	N	6.581	-	-	-	45	0.03			N	15.511	-	-	-	653	0.49	
2	C20	N	7.326	7.236	0.204	0.859	52	0.04	18	C36	Non	15.974	-	-	-	9460	7.03	
3	C21	N	8.001	-	-	-	90	0.07			N	15.974	15.884	-0.070	1.200	538	0.40	
4	C22	N	8.694	8.604	0.201	0.934	92	0.07	19	C37	Non	16.419	-	-	-	8639	6.42	
5	C23	Non	9.316	-	-	-	44	0.03			N	16.419	-	-	-	470	0.35	
		N	9.316	-	-	-	95	0.07	20	C38	Non	16.861	-	-	-	8203	6.09	
6	C24	Non	9.962	-	-	-	125	0.09			N	16.861	16.771	-0.042	1.224	452	0.34	
		N	9.962	9.872	0.181	0.994	100	0.07	21	C39	Non	17.296	-	-	-	7050	5.24	
7	C25	Non	10.561	-	-	-	255	0.19			N	17.296	-	-	-	372	0.28	
		N	10.561	-	-	-	74	0.05	22	C40	Non	17.726	-	-	-	6507	4.83	
8	C26	Non	11.163	-	-	-	550	0.41			N	17.726	17.636	0.002	1.246	331	0.25	
		N	11.163	11.073	0.177	1.044	67	0.05	23	C41	Non	18.154	-	-	-	6460	4.80	
9	C27	Non	11.731	-	-	-	1161	0.86			N	18.154	-	-	-	303	0.23	
		N	11.731	-	-	-	51	0.04	24	C42	Non	18.539	-	-	-	5765	4.28	
10	C28	Non	12.084	-	-	-	1201	0.89			N	18.539	18.449	0.033	1.265	221	0.16	
		N	12.084	11.994	-0.034	1.078	171	0.13	25	C43	Non	18.939	-	-	-	4387	3.26	
11	C29	Non	12.642	-	-	-	3079	2.29			N	18.939	-	-	-	171	0.13	
		N	12.642	-	-	-	379	0.28	26	C44	Non	19.329	-	-	-	4178	3.10	
12	C30	Non	13.193	-	-	-	5130	3.81			N	19.329	19.239	0.076	1.284	143	0.11	
		N	13.193	13.103	0.012	1.117	492	0.37	27	C45	Non	19.683	-	-	-	3079	2.29	
13	C31	Non	13.611	-	-	-	7140	5.30			N	19.683	-	-	-	99	0.07	
		N	13.611	-	-	-	806	0.60	28	C46	Non	20.051	-	-	-	1759	1.31	
14	C32	Non	14.073	-	-	-	7811	5.80			N	20.051	19.961	0.085	1.300	73	0.05	
		N	14.073	13.983	-0.114	1.145	762	0.57	29	C47	Non	20.247	-	-	-	1549	1.15	
15	C33	Non	14.566	-	-	-	9331	6.93	30	C48	Non	20.565	-	-	-	1376	1.02	
		N	14.566	-	-	-	741	0.55	31	C49	Non	20.909	-	-	-	785	0.58	
16	C34	Non	15.044	-	-	-	9774	7.26	32	C50	Non	21.225	-	-	-	418	0.31	
		N	15.044	14.954	-0.095	1.174	764	0.57	33	C51	Non	21.526	-	-	-	190	0.14	
																Total	134607	100.00

Table B71 Chromatographic data of crystallized wax from fractional crystallization of 500SW at 0 °C in toluene

Total Non = 55.65% , N = 44.35%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
(m)	CS ₂	Solvent	0.078	-	-	-	-	-	15	C39	Non	17.296	-	-	-	2762	4.08	
1	C25	N	10.533	-	-	-	113	0.17			N	17.296	-	-	-	256	0.38	
2	C26	N	11.139	11.061	0.165	1.043	387	0.57	16	C40	Non	17.721	-	-	-	2631	3.88	
3	C27	N	11.701	-	-	-	956	1.41			N	17.721	17.643	0.009	1.246	256	0.38	
4	C28	N	12.269	12.191	0.163	1.086	1941	2.86	17	C41	Non	18.144	-	-	-	2440	3.60	
5	C29	N	12.816	-	-	-	3534	5.22			N	18.144	-	-	-	337	0.50	
6	C30	Non	13.356	-	-	-	183	0.27	18	C42	Non	18.541	-	-	-	2032	3.00	
		N	13.356	13.278	0.187	1.123	5801	8.56			N	18.541	18.463	0.047	1.266	230	0.34	
7	C31	Non	13.876	-	-	-	773	1.14	19	C43	Non	18.931	-	-	-	1835	2.71	
		N	13.876	-	-	-	5965	8.80			N	18.931	-	-	-	167	0.25	
8	C32	Non	14.377	-	-	-	1503	2.22	20	C44	Non	19.311	-	-	-	1437	2.12	
		N	14.377	14.299	0.202	1.155	4611	6.88			N	19.311	19.233	0.070	1.284	115	0.17	
9	C33	Non	14.869	-	-	-	2457	3.63	21	C45	Non	19.686	-	-	-	1186	1.75	
		N	14.869	-	-	-	2659	3.92			N	19.686	-	-	-	111	0.16	
10	C34	Non	15.347	-	-	-	3104	4.58	22	C46	Non	20.056	-	-	-	945	1.39	
		N	15.347	15.269	0.220	1.183	1405	2.07			N	20.056	19.978	0.102	1.300	84	0.12	
11	C35	Non	15.811	-	-	-	3341	4.93	23	C47	Non	20.378	-	-	-	656	0.97	
		N	15.811	-	-	-	630	0.93			N	20.378	-	-	-	42	0.06	
12	C36	Non	16.261	-	-	-	3339	4.93	24	C48	Non	20.743	-	-	-	505	0.75	
		N	16.261	16.183	0.229	1.209	344	0.51			N	20.743	-	-	-	321	0.47	
13	C37	Non	16.702	-	-	-	3138	4.63	25	C49	Non	20.928	-	-	-	172	0.25	
		N	16.702	-	-	-	112	0.17	26	C50	Non	21.266	-	-	-	85	0.13	
14	C38	Non	16.876	-	-	-	2864	4.23	27	C51	Non	21.577	-	-	-	-	-	-
		N	16.876	16.798	-0.015	1.225	0	0.00										
																Total	67765	100.00

Table B72 Chromatographic data of crystallized wax from fractional crystallization of 500SW at 10 °C in toluene

Total Non = 39.42% , N = 60.58%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
(m)	CS ₂	Solvent	0.075	-	-	-	-	-			N	16.743	16.668	-0.145	1.221	2065	1.71	
1	C27	N	11.239	-	-	-	81	0.07	13	C39	Non	17.176	-	-	-	4496	3.71	
2	C28	N	11.862	11.787	-0.241	1.071	184	0.13			N	17.176	-	-	-	1028	0.85	
3	C29	Non	12.384	-	-	-	94	0.08	14	C40	Non	17.609	-	-	-	4224	3.49	
		N	12.384	-	-	-	722	0.60			N	17.609	17.534	-0.100	1.243	612	0.51	
4	C30	Non	12.963	-	-	-	208	0.17	15	C41	Non	18.034	-	-	-	3903	3.22	
		N	12.963	12.888	-0.203	1.110	2793	2.31			N	18.034	-	-	-	478	0.39	
5	C31	Non	13.471	-	-	-	530	0.44	16	C42	Non	18.446	-	-	-	3485	2.88	
		N	13.471	-	-	-	8529	7.04			N	18.446	18.371	-0.045	1.264	289	0.24	
6	C32	Non	14.006	-	-	-	974	0.80	17	C43	Non	18.847	-	-	-	3096	2.56	
		N	14.006	13.931	-0.166	1.143	11460	9.47			N	18.847	-	-	-	249	0.21	
7	C33	Non	14.424	-	-	-	1456	1.20	18	C44	Non	19.234	-	-	-	2558	2.11	
		N	14.424	-	-	-	12065	9.97			N	19.234	19.159	-0.004	1.282	151	0.12	
8	C34	Non	14.991	-	-	-	1667	1.38	19	C45	Non	19.616	-	-	-	2190	1.81	
		N	14.991	14.916	-0.133	1.173	11617	9.60			N	19.616	-	-	-	130	0.11	
9	C35	Non	15.389	-	-	-	1973	1.63	20	C46	Non	20.073	-	-	-	2030	1.68	
		N	15.389	-	-	-	10917	9.02	21	C47	Non	20.426	-	-	-	1158	0.96	
10	C36	Non	15.851	-	-	-	3553	2.93	22	C48	Non	20.642	-	-	-	760	0.63	
		N	15.851	15.776	-0.178	1.197	6016	4.97	23	C49	Non	20.931	-	-	-	469	0.39	
11	C37	Non	16.301	-	-	-	4129	3.41	24	C50	Non	21.266	-	-	-	229	0.19	
		N	16.301	-	-	-	3954	3.27	25	C51	Non	21.587	-	-	-	84	0.07	
12	C38	Non	16.743	-	-	-	4460	3.68										
																Total	121066	100.00

Table B75 Chromatographic data of residual oil from fractional crystallization of 600SW
at -20 °C in toluene

Total Non = 91.92% , N = 8.08%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₁	Solvent	0.090	-	-	-	-	-	18	C36	Non	15.953	-	-	-	7784	8.45		
1	C19	N	6.641	-	-	-	50	0.05	N	N	15.953	15.863	-0.091	1.200	631	0.68			
2	C20	N	7.336	7.246	0.214	0.86	110	0.12	19	C37	Non	16.391	-	-	-	6797	7.38		
3	C21	N	7.976	-	-	-	145	0.16	N	N	16.391	-	-	-	421	0.46			
4	C22	N	8.694	8.604	0.201	0.934	132	0.14	20	C38	Non	16.837	-	-	-	6417	6.96		
5	C23	N	9.299	-	-	-	105	0.11	N	N	16.837	16.747	-0.066	1.223	483	0.52			
6	C24	N	9.934	9.844	0.153	0.993	123	0.13	21	C39	Non	17.266	-	-	-	5562	6.04		
7	C25	N	10.557	-	-	-	82	0.09	N	N	17.266	-	-	-	395	0.43			
8	C26	Non	11.051	-	-	-	158	0.17	22	C40	Non	17.691	-	-	-	5139	5.58		
		N	11.051	-	-	-	0	0.00	N	N	17.691	17.601	-0.033	1.245	314	0.34			
9	C27	Non	11.736	-	-	-	313	0.34	23	C41	Non	18.111	-	-	-	5028	5.46		
		N	11.736	-	-	-	51	0.06	N	N	18.111	-	-	-	249	0.27			
10	C28	Non	12.078	-	-	-	532	0.60	24	C42	Non	18.511	-	-	-	4301	4.88		
		N	12.078	11.988	-0.04	1.078	162	0.18	N	N	18.511	18.421	0.005	1.265	193	0.21			
11	C29	Non	12.621	-	-	-	671	0.73	25	C43	Non	18.901	-	-	-	3540	3.84		
		N	12.621	-	-	-	213	0.23	N	N	18.901	-	-	-	124	0.13			
12	C30	Non	13.148	-	-	-	1577	1.71	26	C44	Non	19.281	-	-	-	3300	3.58		
		N	13.148	13.058	-0.033	1.115	199	0.22	N	N	19.281	19.191	0.028	1.283	64	0.07			
13	C31	Non	13.679	-	-	-	2539	2.76	27	C45	Non	19.639	-	-	-	2412	2.62		
		N	13.679	-	-	-	302	0.33	N	N	19.639	-	-	-	92	0.10			
14	C32	Non	14.344	-	-	-	4280	4.63	28	C46	Non	20.021	-	-	-	1488	1.61		
		N	14.344	14.254	0.157	1.153	369	0.40	29	C47	Non	20.247	-	-	-	1323	1.44		
15	C33	Non	14.552	-	-	-	4901	5.32	30	C48	Non	20.565	-	-	-	1206	1.31		
		N	14.552	-	-	-	660	0.72	31	C49	Non	20.911	-	-	-	741	0.80		
16	C34	Non	15.031	-	-	-	6632	7.20	32	C50	Non	21.225	-	-	-	419	0.45		
		N	15.031	14.941	-0.108	1.174	835	0.91	33	C51	Non	21.525	-	-	-	210	0.23		
17	C35	Non	15.489	-	-	-	7209	7.82									Total	92140	100.00
		N	15.489	-	-	-	937	1.02											

Table B76 Chromatographic data of crystallized wax from fractional crystallization of 600SW
at 0 °C in toluene

Total Non = 60.30% , N = 39.70%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₁	Solvent	0.078	-	-	-	-	-	15	C39	Non	17.274	-	-	-	2828	4.85		
1	C25	N	10.528	-	-	-	160	0.27	N	N	17.274	-	-	-	397	0.68			
2	C26	N	11.114	11.036	0.14	1.042	518	0.89	16	C40	Non	17.708	-	-	-	2356	4.04		
3	C27	N	11.481	-	-	-	1357	2.33	N	N	17.708	17.630	-0.004	1.246	496	0.85			
4	C28	N	12.256	12.178	0.15	1.085	1835	3.15	17	C41	Non	18.114	-	-	-	2104	3.61		
5	C29	N	12.802	-	-	-	2359	4.05	N	N	18.114	-	-	-	410	0.70			
6	C30	Non	13.334	-	-	-	-1	0.00	18	C42	Non	18.519	-	-	-	1841	3.16		
		N	13.334	13.256	0.165	1.122	2820	4.84	N	N	18.519	18.441	0.025	1.265	362	0.62			
7	C31	Non	13.852	-	-	-	334	0.57	19	C43	Non	18.909	-	-	-	1673	2.87		
		N	13.852	-	-	-	3139	5.39	N	N	18.909	-	-	-	244	0.42			
8	C32	Non	14.354	-	-	-	1102	1.89	20	C44	Non	19.288	-	-	-	1447	2.48		
		N	14.354	14.276	0.179	1.154	3203	5.50	N	N	19.288	19.210	0.047	1.283	181	0.31			
9	C33	Non	14.851	-	-	-	2360	4.05	21	C45	Non	19.642	-	-	-	1090	1.87		
		N	14.851	-	-	-	2334	4.01	N	N	19.642	-	-	-	140	0.24			
10	C34	Non	15.331	-	-	-	3548	6.09	22	C46	Non	20.017	-	-	-	895	1.54		
		N	15.331	15.253	0.204	1.183	1151	1.98	N	N	20.017	19.939	0.063	1.299	109	0.19			
11	C35	Non	15.799	-	-	-	3853	6.61	23	C47	Non	20.361	-	-	-	642	1.10		
		N	15.799	-	-	-	394	0.68	N	N	20.361	-	-	-	69	0.12			
12	C36	Non	16.064	-	-	-	3026	5.19	24	C48	Non	20.688	-	-	-	425	0.73		
		N	16.064	15.986	0.032	1.203	690	1.18	N	N	20.688	20.610	0.047	1.314	61	0.10			
13	C37	Non	16.461	-	-	-	2371	4.07	25	C49	Non	21.041	-	-	-	262	0.45		
		N	16.461	-	-	-	314	0.54	26	C50	Non	21.369	-	-	-	105	0.18		
14	C38	Non	16.874	-	-	-	2872	4.93									Total	58267	100.00
		N	16.874	16.796	-0.017	1.225	391	0.67											

Table B81 Chromatographic data of wax cake from extraction of 5 g 500SW / 100 ml MEK at 20 °C

Total Non = 58.00% , N = 42.00%

P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₇	Solvent	0.074	-	-	-	-	-	15	C38	Non	17.128	-	-	-	3564	4.82	
1	C24	N	9.903	9.829	0.138	0.992	80	0.11	N	N	17.128	17.054	0.241	1.231	1195	1.62		
2	C25	N	10.528	-	-	-	155	0.21	16	C39	Non	17.557	-	-	-	3331	4.50	
3	C26	N	11.101	11.027	0.131	1.042	281	0.38	N	N	17.557	-	-	-	931	1.26		
4	C27	N	11.681	-	-	-	434	0.59	17	C40	Non	17.971	-	-	-	2963	4.01	
5	C28	N	12.241	12.167	0.139	1.085	755	1.02	N	N	17.971	17.897	0.263	1.252	812	1.10		
6	C29	Non	12.788	-	-	-	253	0.34	18	C41	Non	18.371	-	-	-	2522	3.41	
		N	12.788	-	-	-	1396	1.89	N	N	18.371	-	-	-	619	0.84		
7	C30	Non	13.321	-	-	-	881	1.19	19	C42	Non	18.777	-	-	-	2127	2.88	
		N	13.321	13.247	0.156	1.122	2708	3.66	N	N	18.777	18.703	0.287	1.271	534	0.72		
8	C31	Non	13.841	-	-	-	1529	2.07	20	C43	Non	19.153	-	-	-	1788	2.42	
		N	13.841	-	-	-	3775	5.10	N	N	19.153	-	-	-	423	0.57		
9	C32	Non	14.347	-	-	-	2243	3.03	21	C44	Non	19.529	-	-	-	1421	1.92	
		N	14.347	14.273	0.176	1.154	4067	5.50	N	N	19.529	19.455	0.292	1.289	337	0.46		
10	C33	Non	14.842	-	-	-	2774	3.75	22	C45	Non	19.893	-	-	-	1103	1.49	
		N	14.842	-	-	-	3577	4.84	N	N	19.893	-	-	-	216	0.29		
11	C34	Non	15.324	-	-	-	3320	4.49	23	C46	Non	20.241	-	-	-	845	1.14	
		N	15.324	15.250	0.201	1.183	2976	4.02	N	N	20.241	20.167	0.291	1.304	131	0.18		
12	C35	Non	15.791	-	-	-	3601	4.87	24	C47	Non	20.581	-	-	-	526	0.71	
		N	15.791	-	-	-	2305	3.12	N	N	20.581	-	-	-	117	0.16		
13	C36	Non	16.249	-	-	-	4178	5.65	25	C48	Non	20.891	-	-	-	270	0.37	
		N	16.249	16.175	0.221	1.208	1737	2.35	N	N	20.891	20.817	0.254	1.318	64	0.09		
14	C37	Non	16.691	-	-	-	3616	4.89	26	C49	Non	21.222	-	-	-	75	0.10	
		N	16.691	-	-	-	1399	1.89										
																Total	73954	100.00

Table B82 Chromatographic data of wax cake from extraction of 10 g 500SW / 100 ml MEK at 20 °C

Total Non = 63.61% , N = 36.39%

P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₇	Solvent	0.075	-	-	-	-	-	18	C38	Non	17.081	-	-	-	5318	4.50		
1	C21	N	7.972	-	-	-	63	0.05	N	N	17.081	17.006	0.193	1.230	1654	1.40			
2	C22	N	8.629	8.554	0.151	0.932	85	0.07	19	C39	Non	17.506	-	-	-	4630	3.92		
3	C23	N	9.296	-	-	-	127	0.11	N	N	17.506	-	-	-	1362	1.15			
4	C24	N	9.917	9.842	0.151	0.993	194	0.16	20	C40	Non	17.926	-	-	-	4105	3.47		
5	C25	N	10.512	-	-	-	293	0.25	N	N	17.926	17.851	0.217	1.251	1200	1.02			
6	C26	N	11.099	11.024	0.128	1.042	464	0.39	21	C41	Non	18.321	-	-	-	4082	3.45		
7	C27	Non	11.676	-	-	-	60	0.05	N	N	18.321	-	-	-	935	0.79			
		N	11.676	-	-	-	724	0.61	22	C42	Non	18.711	-	-	-	3376	2.86		
8	C28	Non	12.229	-	-	-	352	0.30	N	N	18.711	18.636	0.220	1.270	762	0.64			
		N	12.229	12.154	0.126	1.084	1121	0.95	23	C43	Non	19.087	-	-	-	3079	2.61		
9	C29	Non	12.771	-	-	-	852	0.72	N	N	19.087	-	-	-	661	0.56			
		N	12.771	-	-	-	1995	1.69	24	C44	Non	19.466	-	-	-	2456	2.08		
10	C30	Non	13.304	-	-	-	1982	1.68	N	N	19.466	19.391	0.228	1.287	498	0.42			
		N	13.304	13.229	0.138	1.121	3795	3.21	25	C45	Non	19.816	-	-	-	2132	1.80		
11	C31	Non	13.821	-	-	-	3298	2.79	N	N	19.816	-	-	-	339	0.29			
		N	13.821	-	-	-	5120	4.33	26	C46	Non	20.173	-	-	-	1524	1.29		
12	C32	Non	14.324	-	-	-	4410	3.73	N	N	20.173	20.098	0.222	1.303	265	0.22			
		N	14.324	14.249	0.152	1.153	5372	4.55	27	C47	Non	20.511	-	-	-	1160	0.98		
13	C33	Non	14.811	-	-	-	5593	4.73	N	N	20.511	-	-	-	194	0.16			
		N	14.811	-	-	-	4490	3.80	28	C48	Non	20.837	-	-	-	777	0.66		
14	C34	Non	15.286	-	-	-	6208	5.25	N	N	20.837	20.762	0.199	1.317	95	0.08			
		N	15.286	15.211	0.162	1.182	3809	3.22	29	C49	Non	21.174	-	-	-	462	0.39		
15	C35	Non	15.749	-	-	-	6917	5.85	N	N	21.174	-	-	-	48	0.04			
		N	15.749	-	-	-	2889	2.44	30	C50	Non	21.452	-	-	-	239	0.20		
16	C36	Non	16.204	-	-	-	6390	5.41	N	N	21.452	21.377	0.161	1.329	40	0.03			
		N	16.204	16.129	0.175	1.207	2356	1.99	31	C51	Non	21.809	-	-	-	175	0.15		
17	C37	Non	16.653	-	-	-	5642	4.77									Total	118195	100.00
		N	16.653	-	-	-	2026	1.71											

Table B83 Chromatographic data of wax cake from extraction of 15 g 500SW / 100 ml MEK at 20 °C

Total Non = 66.88% , N = 33.12%

P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.074	-	-	-	-	-			N	16.669	-	-	-	2916	1.62	
1	C21	N	7.954	-	-	-	104	0.06	18	C38	Non	17.109	-	-	-	7941	4.40	
2	C22	N	8.669	8.595	0.192	0.934	149	0.08	N	N	N	17.109	17.035	0.222	1.231	2390	1.33	
3	C23	N	9.284	-	-	-	182	0.10	19	C39	Non	17.526	-	-	-	7308	4.05	
4	C24	N	9.924	9.850	0.159	0.993	245	0.14	N	N	N	17.526	-	-	-	2027	1.12	
5	C25	N	10.514	-	-	-	346	0.19	20	C40	Non	17.941	-	-	-	6890	3.82	
6	C26	N	11.102	11.028	0.132	1.042	633	0.35	N	N	N	17.941	17.867	0.233	1.252	1787	0.99	
7	C27	Non	11.681	-	-	-	133	0.07	21	C41	Non	18.343	-	-	-	5811	3.22	
	N	N	11.681	-	-	-	938	0.32	N	N	N	18.343	-	-	-	1417	0.79	
8	C28	Non	12.244	-	-	-	735	0.41	22	C42	Non	18.726	-	-	-	5176	2.87	
	N	N	12.244	12.170	0.142	1.085	1450	0.80	N	N	N	18.726	18.652	0.236	1.270	1169	0.65	
9	C29	Non	12.789	-	-	-	1810	1.00	23	C43	Non	19.111	-	-	-	4500	2.50	
	N	N	12.789	-	-	-	2606	1.44	N	N	N	19.111	-	-	-	961	0.53	
10	C30	Non	13.318	-	-	-	3727	2.07	24	C44	Non	19.472	-	-	-	3654	2.03	
	N	N	13.318	13.244	0.153	1.122	5083	2.82	N	N	N	19.472	19.398	0.235	1.287	758	0.42	
11	C31	Non	13.836	-	-	-	5991	3.32	25	C45	Non	19.833	-	-	-	3121	1.73	
	N	N	13.836	-	-	-	6926	3.84	N	N	N	19.833	-	-	-	536	0.30	
12	C32	Non	14.346	-	-	-	7885	4.37	26	C46	Non	20.171	-	-	-	2239	1.24	
	N	N	14.346	14.272	0.175	1.154	7148	3.96	N	N	N	20.171	20.097	0.221	1.303	399	0.22	
13	C33	Non	14.837	-	-	-	9553	5.30	27	C47	Non	20.511	-	-	-	1698	0.94	
	N	N	14.837	-	-	-	6229	3.45	N	N	N	20.511	-	-	-	285	0.16	
14	C34	Non	15.311	-	-	-	10114	5.61	28	C48	Non	20.833	-	-	-	1149	0.64	
	N	N	15.311	15.237	0.188	1.182	5300	2.94	N	N	N	20.833	20.759	0.196	1.317	122	0.07	
15	C35	Non	15.771	-	-	-	10910	6.05	29	C49	Non	21.173	-	-	-	679	0.38	
	N	N	15.771	-	-	-	4109	2.38	N	N	N	21.173	-	-	-	80	0.04	
16	C36	Non	16.231	-	-	-	9856	5.46	30	C50	Non	21.461	-	-	-	372	0.21	
	N	N	16.231	16.157	0.203	1.208	3389	1.88	N	N	N	21.461	21.387	0.171	1.330	49	0.03	
17	C37	Non	16.669	-	-	-	9363	5.19										
																Total	180348	100.00

Table B84 Chromatographic data of wax cake from extraction of 1 g 600SW / 100 ml MEK at 20 °C

Total Non = 48.61% , N = 51.39%

P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _r , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	16	C39	Non	17.529	-	-	-	6629	3.96	
1	C24	N	10.148	10.073	0.382	1.003	145	0.09	N	N	N	17.529	-	-	-	3390	2.03	
2	C25	N	10.516	-	-	-	163	0.10	17	C40	Non	17.946	-	-	-	6357	3.80	
3	C26	N	11.102	11.027	0.131	1.042	354	0.21	N	N	N	17.946	17.871	0.227	1.252	2985	1.78	
4	C27	N	11.666	-	-	-	715	0.43	18	C41	Non	18.339	-	-	-	5478	3.27	
5	C28	N	12.226	12.151	0.123	1.084	1251	0.75	N	N	N	18.339	-	-	-	2334	1.39	
6	C29	Non	12.769	-	-	-	166	0.10	19	C42	Non	18.733	-	-	-	4973	2.97	
	N	N	12.769	-	-	-	1899	1.13	N	N	N	18.733	18.658	0.242	1.270	2020	1.21	
7	C30	Non	13.301	-	-	-	370	0.22	20	C43	Non	19.104	-	-	-	4363	2.61	
	N	N	13.301	13.226	0.135	1.121	2988	1.79	N	N	N	19.104	-	-	-	1682	1.01	
8	C31	Non	13.818	-	-	-	815	0.49	21	C44	Non	19.474	-	-	-	3663	2.19	
	N	N	13.818	-	-	-	5150	3.08	N	N	N	19.474	19.399	0.236	1.287	1385	0.83	
9	C32	Non	14.329	-	-	-	1729	1.03	22	C45	Non	19.833	-	-	-	3333	1.99	
	N	N	14.329	14.254	0.157	1.153	8626	5.16	N	N	N	19.833	-	-	-	1003	0.60	
10	C33	Non	14.831	-	-	-	3206	1.92	23	C46	Non	20.183	-	-	-	2533	1.51	
	N	N	14.831	-	-	-	11119	6.65	N	N	N	20.183	20.108	0.232	1.303	818	0.49	
11	C34	Non	15.307	-	-	-	4579	2.74	24	C47	Non	20.516	-	-	-	2073	1.24	
	N	N	15.307	15.232	0.183	1.182	10874	6.50	N	N	N	20.516	-	-	-	634	0.38	
12	C35	Non	15.773	-	-	-	5804	3.47	25	C48	Non	20.846	-	-	-	1523	0.91	
	N	N	15.773	-	-	-	8799	5.26	N	N	N	20.846	20.771	0.208	1.317	383	0.23	
13	C36	Non	16.231	-	-	-	7577	4.53	26	C49	Non	21.184	-	-	-	984	0.59	
	N	N	16.231	16.156	0.202	1.208	7039	4.21	N	N	N	21.184	-	-	-	252	0.15	
14	C37	Non	16.676	-	-	-	7543	4.51	27	C50	Non	21.491	-	-	-	383	0.35	
	N	N	16.676	-	-	-	5427	3.24	N	N	N	21.491	21.416	0.200	1.330	167	0.10	
15	C38	Non	17.108	-	-	-	6737	4.03	28	C51	Non	21.811	-	-	-	364	0.22	
	N	N	17.108	17.033	0.220	1.231	4343	2.60								Total	167327	100.00

Table B85 Chromatographic data of wax cake from extraction of 5 g 600SW / 100 ml MEK at 20 °C

Total Non = 55.57% , N = 44.43%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.073	-	-	-	-	-	19	C39	Non	17.321	-	-	-	5550	4.74	
1	C21	N	8.124	-	-	-	41	0.04	N			17.321	-	-	-	2043	1.75	
2	C22	N	8.726	8.653	0.250	0.937	51	0.04	20	C40	Non	17.763	-	-	-	4751	4.06	
3	C23	N	9.376	-	-	-	62	0.05	N			17.763	17.690	0.056	1.247	1881	1.61	
4	C24	N	9.999	9.926	0.235	0.996	147	0.13	21	C41	Non	18.191	-	-	-	4101	3.50	
5	C25	N	10.608	-	-	-	271	0.23	N			18.191	-	-	-	1471	1.26	
6	C26	N	11.208	11.135	0.239	1.046	450	0.38	22	C42	Non	18.604	-	-	-	3875	3.31	
7	C27	N	11.781	-	-	-	653	0.56	N			18.604	18.531	0.115	1.267	1232	1.05	
8	C28	N	12.346	12.273	0.245	1.088	975	0.83	23	C43	Non	19.006	-	-	-	3001	2.56	
9	C29	N	12.809	-	-	-	1487	1.27	N			19.006	-	-	-	1024	0.87	
10	C30	N	13.431	13.358	0.267	1.125	2051	1.75	24	C44	Non	19.389	-	-	-	2721	2.32	
11	C31	Non	13.951	-	-	-	381	0.33	N			19.389	19.316	0.153	1.285	819	0.70	
	N		13.951	-	-	-	3275	2.80	25	C45	Non	19.761	-	-	-	2208	1.89	
12	C32	Non	14.467	-	-	-	1521	1.30	N			19.761	-	-	-	668	0.57	
	N		14.467	14.394	0.297	1.158	5330	4.55	26	C46	Non	20.128	-	-	-	1747	1.49	
13	C33	Non	14.974	-	-	-	3270	2.79	N			20.128	20.055	0.179	1.302	547	0.47	
	N		14.974	-	-	-	6458	5.52	27	C47	Non	20.479	-	-	-	1386	1.18	
14	C34	Non	15.461	-	-	-	4899	4.19	N			20.479	-	-	-	416	0.36	
	N		15.461	15.245	0.169	1.183	5826	4.98	28	C48	Non	20.811	-	-	-	886	0.76	
15	C35	Non	15.938	-	-	-	5528	4.72	N			20.811	20.738	0.175	1.316	244	0.21	
	N		15.938	-	-	-	4775	4.08	29	C49	Non	21.153	-	-	-	562	0.48	
16	C36	Non	16.299	-	-	-	5730	4.90	N			21.153	-	-	-	162	0.14	
	N		16.299	16.226	0.272	1.210	3822	3.27	30	C50	Non	21.472	-	-	-	303	0.26	
17	C37	Non	16.407	-	-	-	6558	5.60	N			21.472	21.399	0.183	1.330	99	0.08	
	N		16.407	-	-	-	3200	2.73	31	C51	Non	21.789	-	-	-	79	0.07	
18	C38	Non	16.868	-	-	-	5939	5.07	N			21.789	-	-	-	41	0.04	
	N		16.868	16.795	-0.018	1.225	2482	2.12	32	C52	Non	22.097	-	-	-	48	0.04	
																Total	117047	100.00

Table B86 Chromatographic data of wax cake from extraction of 10 g 600SW / 100 ml MEK at 20 °C

Total Non = 64.35% , N = 35.65%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.073	-	-	-	-	-	18	C38	Non	17.099	-	-	-	7392	4.72	
1	C21	N	7.989	-	-	-	46	0.03	N			17.099	17.026	0.213	1.231	2734	1.75	
2	C22	N	8.639	8.566	0.163	0.932	91	0.06	19	C39	Non	17.514	-	-	-	6889	4.40	
3	C23	N	9.284	-	-	-	139	0.09	N			17.514	-	-	-	2247	1.44	
4	C24	N	9.898	9.825	0.134	0.992	220	0.14	20	C40	Non	17.929	-	-	-	6519	4.17	
5	C25	N	10.524	-	-	-	316	0.20	N			17.929	17.856	0.222	1.251	1982	1.27	
6	C26	N	11.099	11.026	0.130	1.042	508	0.32	21	C41	Non	18.331	-	-	-	5569	3.56	
7	C27	N	12.110	-	-	-	766	0.49	N			18.331	-	-	-	1520	0.97	
8	C28	Non	12.226	-	-	-	140	0.09	22	C42	Non	18.714	-	-	-	4983	3.18	
	N		12.226	12.153	0.125	1.084	1099	0.70	N			18.714	18.641	0.225	1.270	1289	0.82	
9	C29	Non	12.773	-	-	-	399	0.25	23	C43	Non	19.091	-	-	-	4338	2.77	
	N		12.773	-	-	-	1515	0.97	N			19.091	-	-	-	1121	0.72	
10	C30	Non	13.294	-	-	-	945	0.60	24	C44	Non	19.468	-	-	-	3635	2.32	
	N		13.294	13.221	0.130	1.121	2207	1.41	N			19.468	19.395	0.232	1.287	899	0.57	
11	C31	Non	13.818	-	-	-	2202	1.41	25	C45	Non	19.826	-	-	-	3290	2.10	
	N		13.818	-	-	-	3475	2.22	N			19.826	-	-	-	607	0.39	
12	C32	Non	14.321	-	-	-	4187	2.68	26	C46	Non	20.176	-	-	-	2470	1.58	
	N		14.321	14.248	0.151	1.153	5521	3.53	N			20.176	20.103	0.227	1.303	538	0.34	
13	C33	Non	14.819	-	-	-	6614	4.23	27	C47	Non	20.514	-	-	-	2009	1.28	
	N		14.819	-	-	-	6790	4.34	N			20.514	-	-	-	420	0.27	
14	C34	Non	15.297	-	-	-	8114	5.18	28	C48	Non	20.836	-	-	-	1478	0.94	
	N		15.297	15.224	0.175	1.182	6331	4.05	N			20.836	20.763	0.200	1.317	216	0.14	
15	C35	Non	15.762	-	-	-	8756	5.59	29	C49	Non	21.163	-	-	-	936	0.60	
	N		15.762	-	-	-	5805	3.71	N			21.163	-	-	-	159	0.10	
16	C36	Non	16.218	-	-	-	10087	6.45	30	C50	Non	21.472	-	-	-	654	0.42	
	N		16.218	16.145	0.191	1.208	3771	2.41	N			21.472	21.399	0.183	1.330	103	0.07	
17	C37	Non	16.661	-	-	-	8695	5.56	31	C51	Non	21.769	-	-	-	402	0.26	
	N		16.661	-	-	-	3303	2.11	N			21.769	-	-	-	59	0.04	
																Total	156500	100.00

Table B87 Chromatographic data of wax cake from extraction of 15 g 600SW / 100 ml MEK at 20 °C

Total Non = 64.43% , N = 35.57%

P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	16	C35	Non	15.744	-	-	-	10921	8.47	
1	C19	N	6.009	-	-	-	141	0.11	N	N	15.744	-	-	-	381	0.30		
2	C20	N	6.853	6.776	-0.256	0.830	370	0.29	17	C36	Non	16.204	-	-	-	10528	8.16	
3	C21	N	7.461	-	-	-	302	0.23	18	C37	Non	16.646	-	-	-	9325	7.23	
4	C22	N	8.183	8.106	-0.297	0.908	92	0.07	19	C38	Non	17.077	-	-	-	8548	6.63	
5	C24	Non	9.891	-	-	-	66	0.05	20	C39	Non	17.503	-	-	-	7957	6.17	
6	C25	Non	10.311	-	-	-	153	0.12	21	C40	Non	17.914	-	-	-	7445	5.77	
7	C26	Non	11.078	-	-	-	330	0.26	22	C41	Non	18.317	-	-	-	6580	5.10	
8	C27	Non	12.110	-	-	-	577	0.45	23	C42	Non	18.711	-	-	-	5866	4.55	
9	C28	Non	12.208	-	-	-	894	0.69	24	C43	Non	19.086	-	-	-	5088	3.94	
10	C29	Non	12.757	-	-	-	1562	1.21	25	C44	Non	19.454	-	-	-	4493	3.48	
11	C30	Non	13.286	-	-	-	2755	2.14	26	C45	Non	19.813	-	-	-	3544	2.75	
12	C31	Non	13.801	-	-	-	4668	3.62	27	C46	Non	20.157	-	-	-	3039	2.36	
13	C32	Non	14.311	-	-	-	6945	5.38	28	C47	Non	20.506	-	-	-	2207	1.71	
		N	14.311	14.060	-0.037	1.147	163	0.13	29	C48	Non	20.836	-	-	-	1880	1.46	
14	C33	Non	14.801	-	-	-	9120	7.07	30	C49	Non	21.156	-	-	-	1058	0.82	
		N	14.801	-	-	-	306	0.24	31	C50	Non	21.481	-	-	-	667	0.52	
15	C34	Non	15.118	-	-	-	10141	7.86	32	C51	Non	21.759	-	-	-	347	0.27	
		N	15.118	15.041	-0.008	1.177	436	0.34	33	C52	Non	21.759	-	-	-	101	0.08	
																Total	128996	100.00

Table B88 Chromatographic data of wax cake from fractionation extraction of 500SW at 60 °C by using MEK

Total Non = 26.56% , N = 73.44%

P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R . min	t' _R	Δt' _R	Log t' _R	A	% wt
tm	CS ₂	Solvent	0.074	-	-	-	-	-	13	C40	Non	17.962	-	-	-	1420	3.23
1	C28	Non	12.233	-	-	-	52	0.08	N	N	17.962	17.888	0.254	1.252	3306	5.19	
2	C29	Non	12.757	-	-	-	84	0.13	14	C41	Non	18.366	-	-	-	1671	2.62
		N	12.757	-	-	-	69	0.11	N	N	18.366	-	-	-	2603	4.08	
3	C30	Non	13.294	-	-	-	293	0.46	15	C42	Non	18.757	-	-	-	1638	2.57
		N	13.294	13.22	0.129	1.121	247	0.39	N	N	18.757	18.683	0.267	1.271	2179	3.42	
4	C31	Non	13.814	-	-	-	877	1.38	16	C43	Non	19.136	-	-	-	1578	2.48
		N	13.814	-	-	-	798	1.25	N	N	19.136	-	-	-	1611	2.53	
5	C32	Non	14.320	-	-	-	123	0.19	17	C44	Non	19.506	-	-	-	1537	2.41
		N	14.320	14.246	0.149	1.153	1886	2.96	N	N	19.506	19.432	0.269	1.288	1206	1.89	
6	C33	Non	14.818	-	-	-	211	0.33	18	C45	Non	19.871	-	-	-	1302	2.04
		N	14.818	-	-	-	3100	4.86	N	N	19.871	-	-	-	871	1.37	
7	C34	Non	15.302	-	-	-	297	0.47	19	C46	Non	20.218	-	-	-	963	1.51
		N	15.302	15.228	0.179	1.182	4233	6.64	N	N	20.218	20.144	0.268	1.304	637	1.00	
8	C35	Non	15.773	-	-	-	446	0.70	20	C47	Non	20.563	-	-	-	759	1.19
		N	15.773	-	-	-	4709	7.39	N	N	20.563	-	-	-	451	0.71	
9	C36	Non	16.236	-	-	-	610	0.96	21	C48	Non	20.891	-	-	-	512	0.80
		N	16.236	16.162	0.208	1.208	4774	7.49	N	N	20.891	20.817	0.254	1.318	266	0.42	
10	C37	Non	16.684	-	-	-	788	1.24	22	C49	Non	21.221	-	-	-	293	0.46
		N	16.684	-	-	-	4684	7.35	N	N	21.221	-	-	-	136	0.21	
11	C38	Non	17.119	-	-	-	1021	1.60	23	C50	Non	21.536	-	-	-	147	0.23
		N	17.119	17.045	0.232	1.231	4225	6.63	N	N	21.536	21.462	0.246	1.331	84	0.13	
12	C39	Non	17.544	-	-	-	1225	1.92	24	C51	Non	21.856	-	-	-	45	0.07
		N	17.544	-	-	-	3737	5.86	N	N	21.856	-	-	-	50	0.08	

Table B89 Chromatographic data of extracted wax from fractionation extraction of 500SW at 60 °C by using MEK

Total Non = 35.41% , N = 64.59%

P/ No.	P/ Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	
1	C26	Solvent	0.074	-	-	-	-	-	13	C38	Non	17.112	-	-	-	2795	3.86	
		N	11.108	11.034	0.138	1.042	72	0.10			N	17.112	17.038	0.225	1.231	1007	1.39	
2	C27	N	11.684	-	-	-	223	0.31	14	C39	Non	17.532	-	-	-	2600	3.59	
3	C28	N	12.234	12.160	0.132	1.084	635	0.88			N	17.532	-	-	-	681	0.94	
4	C29	N	12.781	-	-	-	1788	2.47	15	C40	Non	17.949	-	-	-	2441	3.37	
		Non	13.318	-	-	-	68	0.09			N	17.949	17.875	0.241	1.252	524	0.72	
		N	13.318	13.244	0.153	1.122	4335	5.99	16	C41	Non	18.359	-	-	-	2205	3.05	
6	C31	Non	13.837	-	-	-	235	0.32			N	18.359	-	-	-	302	0.42	
		N	13.837	-	-	-	6682	9.24	17	C42	Non	18.744	-	-	-	2064	2.85	
7	C32	Non	14.345	-	-	-	440	0.61			N	18.744	18.670	0.254	1.271	279	0.39	
		N	14.345	14.271	0.174	1.154	7083	9.79	18	C43	Non	19.126	-	-	-	1701	2.35	
8	C33	Non	14.836	-	-	-	618	0.85			N	19.126	-	-	-	196	0.27	
		N	14.836	-	-	-	6974	9.64	19	C44	Non	19.501	-	-	-	1520	2.10	
9	C34	Non	15.318	-	-	-	898	1.24			N	19.501	19.427	0.264	1.288	127	0.18	
		N	15.318	15.244	0.195	1.183	6006	8.30	20	C45	Non	19.859	-	-	-	1134	1.57	
10	C35	Non	15.781	-	-	-	1397	1.93			N	19.859	-	-	-	91	0.13	
		N	15.781	-	-	-	4378	6.05	21	C46	Non	20.211	-	-	-	882	1.22	
11	C36	Non	16.234	-	-	-	1836	2.54			N	20.211	20.137	0.261	1.303	73	0.10	
		N	16.234	16.160	0.206	1.208	3108	4.30	22	C47	Non	20.554	-	-	-	623	0.86	
12	C37	Non	16.679	-	-	-	2195	3.03			N	20.554	-	-	-	56	0.08	
		N	16.679	-	-	-	2067	2.86										
																Total	72339	100.00

Table B90 Chromatographic data of extracted wax from fractionation extraction of 500SW at 50 °C by using MEK

Total Non = 65.37% , N = 34.63%

P/ No.	P/ Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t _R	Δt _R	Log t _R	A	% wt	
		Solvent	0.078	-	-	-	-	-	15	C38	Non	16.827	-	-	-	2865	4.51	
1	C24	N	9.908	9.83	0.139	0.992	45	0.07			N	16.827	16.749	-0.064	1.223	358	0.56	
2	C25	N	10.514	-	-	-	170	0.27	16	C39	Non	17.241	-	-	-	2784	4.38	
3	C26	N	11.104	11.026	0.13	1.042	563	0.89			N	17.241	-	-	-	339	0.53	
4	C27	N	11.681	-	-	-	1188	1.87	17	C40	Non	17.651	-	-	-	2657	4.18	
5	C28	N	12.239	12.161	0.133	1.084	1942	3.06			N	17.651	17.573	-0.061	1.244	276	0.43	
6	C29	Non	12.786	-	-	-	70	0.11	18	C41	Non	18.084	-	-	-	2458	3.87	
		N	12.786	-	-	-	2887	4.54			N	18.084	-	-	-	238	0.37	
7	C30	Non	13.319	-	-	-	501	0.79	19	C42	Non	18.487	-	-	-	2075	3.27	
		N	13.319	13.241	0.15	1.121	4011	6.31			N	18.487	18.409	-0.007	1.265	208	0.33	
8	C31	Non	13.833	-	-	-	1351	2.13	20	C43	Non	18.871	-	-	-	1955	3.08	
		N	13.833	-	-	-	3674	5.78			N	18.871	-	-	-	197	0.31	
9	C32	Non	14.331	-	-	-	2446	3.85	21	C44	Non	19.234	-	-	-	1573	2.48	
		N	14.331	14.253	0.156	1.153	2575	4.05			N	19.234	19.156	-0.007	1.282	179	0.28	
10	C33	Non	14.824	-	-	-	3399	5.35	22	C45	Non	19.599	-	-	-	1314	2.07	
		N	14.824	-	-	-	1339	2.11			N	19.599	-	-	-	154	0.24	
11	C34	Non	15.313	-	-	-	3873	6.10	23	C46	Non	19.951	-	-	-	1077	1.70	
		N	15.313	15.235	0.186	1.182	615	0.97			N	19.951	19.873	-0.003	1.298	143	0.23	
12	C35	Non	15.556	-	-	-	3443	5.42	24	C47	Non	20.306	-	-	-	777	1.22	
		N	15.556	-	-	-	0	0.00			N	20.306	-	-	-	87	0.14	
13	C36	Non	15.979	-	-	-	3091	4.87	25	C48	Non	20.642	-	-	-	539	0.85	
		N	15.979	15.901	-0.053	1.201	328	0.52			N	20.642	20.564	0.001	1.313	73	0.11	
14	C37	Non	16.392	-	-	-	2902	4.57	26	C49	Non	20.951	-	-	-	382	0.60	
		N	16.392	-	-	-	369	0.58			N	20.951	-	-	-	41	0.06	
																Total	63531	100.00

Table B93 Chromatographic data of extracted wax from fractionation extraction of 500SW at 20 °C by using MEK

Total Non = 58.00% , N = 42.00%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
Im	CS ₂	Solvent	0.074	-	-	-	-	-	15	C38	Non	17.128	-	-	-	3564	4.82		
1	C24	N	9.903	9.829	0.138	0.992	80	0.11	N			17.128	17.054	0.241	1.231	1195	1.62		
2	C25	N	10.528	-	-	-	155	0.21	16	C39	Non	17.557	-	-	-	3331	4.50		
3	C26	N	11.101	11.027	0.131	1.042	281	0.38	N			17.557	-	-	-	931	1.26		
4	C27	N	11.681	-	-	-	434	0.59	17	C40	Non	17.971	-	-	-	2963	4.01		
5	C28	N	12.241	12.167	0.139	1.085	755	1.02	N			17.971	17.897	0.263	1.252	812	1.10		
6	C29	Non	12.788	-	-	-	253	0.34	18	C41	Non	18.371	-	-	-	2522	3.41		
N			12.788	-	-	-	1396	1.89	N			18.371	-	-	-	619	0.84		
7	C30	Non	13.321	-	-	-	881	1.19	19	C42	Non	18.777	-	-	-	2127	2.88		
N			13.321	13.247	0.156	1.122	2708	3.66	N			18.777	18.703	0.287	1.271	534	0.72		
8	C31	Non	13.841	-	-	-	1529	2.07	20	C43	Non	19.153	-	-	-	1788	2.42		
N			13.841	-	-	-	3775	5.10	N			19.153	-	-	-	423	0.57		
9	C32	Non	14.347	-	-	-	2243	3.03	21	C44	Non	19.529	-	-	-	1421	1.92		
N			14.347	14.273	0.176	1.154	4067	5.30	N			19.529	19.455	0.292	1.289	337	0.46		
10	C33	Non	14.842	-	-	-	2774	3.75	22	C45	Non	19.893	-	-	-	1103	1.49		
N			14.842	-	-	-	3577	4.84	N			19.893	-	-	-	216	0.29		
11	C34	Non	15.324	-	-	-	3320	4.49	23	C46	Non	20.241	-	-	-	845	1.14		
N			15.324	15.250	0.201	1.183	2976	4.02	N			20.241	20.167	0.291	1.304	131	0.18		
12	C35	Non	15.791	-	-	-	3601	4.87	24	C47	Non	20.581	-	-	-	526	0.71		
N			15.791	-	-	-	2305	3.12	N			20.581	-	-	-	117	0.16		
13	C36	Non	16.249	-	-	-	4178	5.65	25	C48	Non	20.891	-	-	-	270	0.37		
N			16.249	16.175	0.221	1.208	1737	2.35	N			20.891	20.817	0.254	1.318	64	0.09		
14	C37	Non	16.691	-	-	-	3616	4.89	26	C49	Non	21.222	-	-	-	75	0.10		
N			16.691	-	-	-	1399	1.89									Total	73954	100.00

Table B94 Chromatographic data of crystallized wax from fractionation crystallization of 500SW at 10 °C in MEK

Total Non = 82.87% , N = 17.13%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
Im	CS ₂	Solvent	0.077	-	-	-	-	-	18	C37	Non	15.905	15.828	-0.126	1.199	658	1.03		
1	C20	N	7.293	7.216	0.184	0.858	52	0.08	N			16.353	-	-	-	3755	5.90		
2	C21	N	7.961	-	-	-	123	0.19	N			16.353	-	-	-	567	0.89		
3	C22	N	8.637	8.56	0.157	0.932	219	0.34	19	C38	Non	16.786	-	-	-	3180	4.99		
4	C23	N	9.271	-	-	-	270	0.42	N			16.786	16.709	-0.104	1.222	551	0.87		
5	C24	N	9.913	9.836	0.145	0.992	324	0.51	20	C39	Non	17.221	-	-	-	3090	4.85		
6	C25	N	10.512	-	-	-	311	0.49	N			17.221	-	-	-	513	0.81		
7	C26	Non	11.109	-	-	-	48	0.08	21	C40	Non	17.639	-	-	-	2870	4.51		
N			11.109	11.032	0.136	1.042	295	0.46	N			17.639	17.562	-0.072	1.244	575	0.90		
8	C27	Non	11.679	-	-	-	125	0.20	22	C41	Non	18.042	-	-	-	2496	3.92		
N			11.679	-	-	-	243	0.38	N			18.042	-	-	-	629	0.99		
9	C28	Non	12.241	-	-	-	378	0.59	23	C42	Non	18.451	-	-	-	2395	3.76		
N			12.241	12.164	0.136	1.085	218	0.34	N			18.451	18.374	-0.042	1.264	549	0.86		
10	C29	Non	12.813	-	-	-	1004	1.58	24	C43	Non	18.836	-	-	-	2215	3.48		
N			12.813	-	-	-	180	0.28	N			18.836	-	-	-	616	0.97		
11	C30	Non	13.351	-	-	-	2312	3.63	25	C44	Non	19.219	-	-	-	2346	3.68		
N			13.351	13.274	0.183	1.123	155	0.24	N			19.219	19.142	-0.021	1.281	454	0.71		
12	C31	Non	13.601	-	-	-	2828	4.44	26	C45	Non	19.589	-	-	-	1767	2.77		
N			13.601	-	-	-	0	0.00	N			19.589	-	-	-	215	0.34		
13	C32	Non	14.044	-	-	-	2903	4.56	27	C46	Non	19.931	-	-	-	1418	2.23		
N			14.044	13.967	-0.130	1.145	719	1.13	N			19.931	19.854	-0.022	1.297	111	0.17		
14	C33	Non	14.517	-	-	-	3507	5.51	28	C47	Non	20.294	-	-	-	1044	1.64		
N			14.517	-	-	-	740	1.16	N			20.294	-	-	-	48	0.08		
15	C34	Non	14.979	-	-	-	3904	6.13	29	C48	Non	20.479	-	-	-	419	0.66		
N			14.979	14.902	-0.147	1.173	800	1.26	30	C49	Non	20.619	-	-	-	409	0.64		
16	C35	Non	15.444	-	-	-	3994	6.27	31	C50	Non	20.789	-	-	-	269	0.42		
N			15.444	-	-	-	775	1.22	32	C51	Non	20.986	-	-	-	271	0.43		
17	C36	Non	15.905	-	-	-	3832	6.02									Total	63689	100.00

Table B95 Chromatographic data of crystallized wax from fractionation crystallization of 500SW at 0 °C in MEK

Total Non = 85.24% , N = 14.76%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
tm	CS ₂	Solvent	0.078	-	-	-	-	-	18	C36	Non	15.943	-	-	-	6295	6.39
1	C19	N	6.774	-	-	-	48	0.05	15.943	N	15.943	15.865	-0.089	1.200	991	1.01	
2	C20	N	7.311	7.233	0.201	0.859	196	0.20	16.384	Non	16.384	-	-	-	6014	6.10	
3	C21	N	7.984	-	-	-	372	0.38	16.384	N	16.384	-	-	-	1040	1.06	
4	C22	N	8.644	8.566	0.163	0.932	400	0.41	16.821	Non	16.821	-	-	-	5049	5.13	
5	C23	N	9.318	-	-	-	326	0.33	16.821	N	16.821	16.743	-0.070	1.223	1277	1.30	
6	C24	N	9.926	9.848	0.157	0.993	258	0.26	17.253	Non	17.253	-	-	-	4800	4.87	
7	C25	Non	10.533	-	-	-	40	0.04	17.253	N	17.253	-	-	-	1311	1.33	
		N	10.533	-	-	-	171	0.17	17.676	Non	17.676	-	-	-	4523	4.59	
8	C26	Non	11.132	-	-	-	140	0.14	17.676	N	17.676	17.598	-0.036	1.245	878	0.89	
		N	11.132	11.054	0.158	1.043	142	0.14	18.093	Non	18.093	-	-	-	4450	4.52	
9	C27	Non	11.727	-	-	-	332	0.34	18.093	N	18.093	-	-	-	534	0.54	
		N	11.727	-	-	-	109	0.11	18.494	Non	18.494	-	-	-	4098	4.16	
10	C28	Non	12.296	-	-	-	735	0.75	18.494	N	18.494	18.416	0.000	1.265	268	0.27	
		N	12.296	12.218	0.190	1.087	68	0.07	19.103	Non	19.103	-	-	-	3890	3.95	
11	C29	Non	12.859	-	-	-	1539	1.56	19.103	N	19.103	-	-	-	136	0.14	
		N	12.859	-	-	-	118	0.12	19.288	Non	19.288	-	-	-	3488	3.54	
12	C30	Non	13.131	-	-	-	3020	3.07	19.288	N	19.288	19.210	0.047	1.283	131	0.13	
		N	13.131	13.053	-0.038	1.115	0	0.00	19.651	Non	19.651	-	-	-	2717	2.76	
13	C31	Non	13.568	-	-	-	3518	3.57	19.651	N	19.651	-	-	-	127	0.13	
		N	13.568	-	-	-	1298	1.32	20.006	Non	20.006	-	-	-	2351	2.39	
14	C32	Non	14.052	-	-	-	4005	4.07	20.006	N	20.006	19.928	0.052	1.299	96	0.10	
		N	14.052	13.974	-0.123	1.145	1335	1.36	20.164	Non	20.164	-	-	-	1826	1.85	
15	C33	Non	14.533	-	-	-	5038	5.11	20.301	Non	20.301	-	-	-	1323	1.34	
		N	14.533	-	-	-	1344	1.36	20.608	Non	20.608	-	-	-	832	0.84	
16	C34	Non	15.007	-	-	-	5953	6.04	21.475	Non	21.475	-	-	-	501	0.51	
		N	15.007	14.929	-0.120	1.174	1352	1.37	21.786	Non	21.786	-	-	-	250	0.25	
17	C35	Non	15.483	-	-	-	6245	6.34	22.101	Non	22.101	-	-	-	120	0.12	
		N	15.483	-	-	-	1097	1.11									
Total																98515	100.00

Table B96 Chromatographic data of waxy-oil from fractionation crystallization of 500SW at -10 °C in MEK

Total Non = 100.00% , N = 0.00%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
tm	CS ₂	Solvent	0.075	-	-	-	-	-	15	C39	Non	17.321	-	-	-	12583	5.25
1	C25	Non	10.413	-	-	-	83	0.03	17.696	Non	17.696	-	-	-	11785	4.91	
2	C26	Non	10.887	-	-	-	367	0.15	18.118	Non	18.118	-	-	-	10365	4.32	
3	C27	Non	11.432	-	-	-	997	0.42	18.525	Non	18.525	-	-	-	8873	3.70	
4	C28	Non	11.940	-	-	-	2082	0.87	18.916	Non	18.916	-	-	-	7333	3.06	
5	C29	Non	12.398	-	-	-	3260	1.36	19.288	Non	19.288	-	-	-	6405	2.67	
6	C30	Non	12.894	-	-	-	6522	2.72	19.662	Non	19.662	-	-	-	5088	2.12	
7	C31	Non	13.481	-	-	-	12497	5.21	20.010	Non	20.010	-	-	-	4840	2.02	
8	C32	Non	13.906	-	-	-	16525	6.89	20.354	Non	20.354	-	-	-	3784	1.58	
9	C33	Non	14.663	-	-	-	20701	8.63	20.698	Non	20.698	-	-	-	2852	1.19	
10	C34	Non	15.186	-	-	-	33116	13.81	21.040	Non	21.040	-	-	-	1987	0.83	
11	C35	Non	15.639	-	-	-	18660	7.78	21.364	Non	21.364	-	-	-	1208	0.50	
12	C36	Non	15.983	-	-	-	17238	7.19	21.667	Non	21.667	-	-	-	680	0.28	
13	C37	Non	16.481	-	-	-	15746	6.56	22.005	Non	22.005	-	-	-	436	0.18	
14	C38	Non	16.881	-	-	-	13854	5.78									
Total																239867	100.00

Table B97 Chromatographic data of waxy-oil from fractionation crystallization of 500SW at -20 °C in MEK

Total Non = 99.01% , N = 0.99%

P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
im	CS ₂	Solvent	0.078	-	-	-	-	-	14	C36	Non	16.064	-	-	-	13615	8.28	
1	C19	N	6.709	-	-	-	96	0.06	15	C37	Non	16.514	-	-	-	12640	7.68	
2	C20	N	7.276	7.198	0.166	0.857	113	0.07	16	C38	Non	17.042	-	-	-	11881	7.22	
3	C21	N	8.068	-	-	-	44	0.03	17	C39	Non	17.281	-	-	-	10603	6.45	
4	C26	Non	10.889	-	-	-	102	0.06	18	C40	Non	17.702	-	-	-	9531	5.79	
5	C27	Non	11.431	-	-	-	330	0.20	19	C41	Non	18.132	-	-	-	8691	5.28	
6	C28	Non	11.932	-	-	-	782	0.48	20	C42	Non	18.325	-	-	-	7823	4.76	
7	C29	Non	12.394	-	-	-	1288	0.78	21	C43	Non	18.915	-	-	-	6860	4.17	
8	C30	Non	12.896	-	-	-	2755	1.67	22	C44	Non	19.296	-	-	-	6336	3.85	
9	C31	Non	13.489	-	-	-	5882	3.58	23	C45	Non	19.681	-	-	-	5105	3.10	
10	C32	Non	14.153	-	-	-	8118	4.93	24	C46	Non	20.010	-	-	-	4246	2.58	
		N	14.153	14.075	-0.022	1.148	335	0.20	25	C47	Non	20.354	-	-	-	3385	2.06	
11	C33	Non	14.639	-	-	-	11422	6.94	26	C48	Non	20.698	-	-	-	2508	1.52	
		N	14.639	-	-	-	482	0.29	27	C49	Non	21.040	-	-	-	1595	0.97	
12	C34	Non	15.141	-	-	-	12562	7.64	28	C50	Non	21.364	-	-	-	941	0.57	
		N	15.141	15.063	0.014	1.177	347	0.21	29	C51	Non	21.664	-	-	-	604	0.37	
13	C35	Non	15.608	-	-	-	13006	7.91	30	C52	Non	22.005	-	-	-	227	0.14	
		N	15.608	-	-	-	260	0.16										
																Total	164515	100.00

Table B98 Chromatographic data of residual oil from fractionation crystallization of 500SW at -20 °C in MEK

Total Non = 100.007% , N = 0.00%

P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
im	CS ₂	Solvent	0.078	-	-	-	-	-	15	C39	Non	17.279	-	-	-	15078	5.70	
1	C25	Non	10.436	-	-	-	156	0.06	16	C40	Non	17.701	-	-	-	13878	5.24	
2	C26	Non	10.899	-	-	-	687	0.26	17	C41	Non	18.132	-	-	-	12002	4.53	
3	C27	Non	11.429	-	-	-	1809	0.68	18	C42	Non	18.325	-	-	-	10042	3.79	
4	C28	Non	11.940	-	-	-	3438	1.30	19	C43	Non	18.915	-	-	-	8202	3.10	
5	C29	Non	12.403	-	-	-	5113	1.93	20	C44	Non	19.284	-	-	-	7128	2.69	
6	C30	Non	12.901	-	-	-	9290	3.51	21	C45	Non	19.664	-	-	-	5374	2.03	
7	C31	Non	13.489	-	-	-	16960	6.41	22	C46	Non	20.010	-	-	-	4233	1.60	
8	C32	Non	14.179	-	-	-	18843	7.12	23	C47	Non	20.354	-	-	-	3210	1.21	
9	C33	Non	14.663	-	-	-	22352	8.45	24	C48	Non	20.698	-	-	-	2253	0.85	
10	C34	Non	15.142	-	-	-	23530	8.89	25	C49	Non	21.040	-	-	-	1400	0.53	
11	C35	Non	15.623	-	-	-	21978	8.30	26	C50	Non	21.364	-	-	-	807	0.30	
12	C36	Non	15.971	-	-	-	20695	7.82	27	C51	Non	21.676	-	-	-	538	0.20	
13	C37	Non	16.419	-	-	-	18824	7.11	28	C52	Non	22.005	-	-	-	207	0.08	
14	C38	Non	16.876	-	-	-	16636	6.29										
																Total	264663	100.00

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Table B99 Chromatographic data of wax cake from fractionation extraction of 600SW at 60 °C by using MEK

Total Non = 34.497% , N = 65.51%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-										
1	C29	N	12.767	-	-	-	49	0.11	14	C42	Non	18.354	-	-	-	2178	4.76	
2	C30	N	13.301	13.226	0.135	1.121	141	0.31				18.746	-	-	-	1353	2.96	
3	C31	Non	13.813	-	-	-	73	0.16				18.746	18.671	0.255	1.271	2004	4.38	
		N	13.813	-	-	-	358	0.78	15	C43	Non	19.128	-	-	-	1316	2.88	
4	C32	Non	14.313	-	-	-	124	0.27				19.128	-	-	-	1657	3.62	
		N	14.313	14.238	0.141	1.153	797	1.74	16	C44	Non	19.501	-	-	-	1296	2.83	
5	C33	Non	14.802	-	-	-	208	0.45				19.501	19.426	0.263	1.288	1374	3.00	
		N	14.802	-	-	-	1334	2.92	17	C45	Non	19.862	-	-	-	1162	2.54	
6	C34	Non	15.283	-	-	-	302	0.66				19.862	-	-	-	1131	2.47	
		N	15.283	15.208	0.159	1.182	1778	3.89	18	C46	Non	20.212	-	-	-	1058	2.31	
7	C35	Non	15.751	-	-	-	444	0.97				20.212	20.137	0.261	1.303	902	1.97	
		N	15.751	-	-	-	2083	4.55	19	C47	Non	20.556	-	-	-	859	1.88	
8	C36	Non	16.216	-	-	-	580	1.27				20.556	-	-	-	714	1.56	
		N	16.216	16.141	0.187	1.207	2340	5.12	20	C48	Non	20.892	-	-	-	650	1.42	
9	C37	Non	16.666	-	-	-	752	1.64				20.892	20.817	0.254	1.318	488	1.07	
		N	16.666	-	-	-	2517	5.50	21	C49	Non	21.221	-	-	-	493	1.08	
10	C38	Non	17.101	-	-	-	933	2.04				21.221	-	-	-	279	0.61	
		N	17.101	17.026	0.213	1.231	2545	5.56	22	C50	Non	21.534	-	-	-	319	0.70	
11	C39	Non	17.532	-	-	-	1055	2.31				21.534	21.459	0.243	1.331	188	0.41	
		N	17.532	-	-	-	2491	5.45	23	C51	Non	21.862	-	-	-	206	0.45	
12	C40	Non	17.949	-	-	-	1182	2.58				21.862	-	-	-	108	0.24	
		N	17.949	17.874	0.240	1.252	2478	5.42	24	C52	Non	22.170	-	-	-	112	0.24	
13	C41	Non	18.354	-	-	-	1281	2.80				22.170	22.095	0.249	1.344	53	0.12	
																Total	45745	100.00

Table B100 Chromatographic data of extracted wax from fractionation extraction of 600SW at 60 °C by using MEK

Total Non = 30.19% , N = 69.81%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.074	-	-	-	-	-										
1	C28	N	12.234	12.160	0.132	1.084	115	0.19	14	C41	Non	18.336	-	-	-	3078	3.73	
2	C29	N	12.764	-	-	-	318	0.39				18.336	-	-	-	1420	1.72	
3	C30	N	13.296	13.222	0.131	1.121	930	1.13	15	C42	Non	18.725	-	-	-	2420	2.93	
4	C31	N	13.804	-	-	-	2348	2.85				18.725	18.651	0.235	1.270	1111	1.35	
5	C32	Non	14.318	-	-	-	35	0.04	16	C43	Non	19.104	-	-	-	2014	2.44	
		N	14.318	14.244	0.147	1.153	4954	6.01				19.104	-	-	-	836	1.01	
6	C33	Non	14.818	-	-	-	232	0.28	17	C44	Non	19.474	-	-	-	1640	1.99	
		N	14.818	-	-	-	7329	8.89				19.474	19.400	0.237	1.287	641	0.78	
7	C34	Non	15.299	-	-	-	475	0.58	18	C45	Non	19.833	-	-	-	1393	1.69	
		N	15.299	15.225	0.176	1.182	8015	9.72				19.833	-	-	-	490	0.59	
8	C35	Non	15.767	-	-	-	707	0.86	19	C46	Non	20.186	-	-	-	1130	1.36	
		N	15.767	-	-	-	7478	9.07				20.186	20.112	0.236	1.303	330	0.40	
9	C36	Non	16.222	-	-	-	1102	1.34	20	C47	Non	20.527	-	-	-	845	1.02	
		N	16.222	16.148	0.194	1.208	6405	7.77				20.527	-	-	-	242	0.29	
10	C37	Non	16.666	-	-	-	1643	1.99	21	C48	Non	20.864	-	-	-	565	0.69	
		N	16.666	-	-	-	5199	6.31				20.864	20.790	0.227	1.317	153	0.19	
11	C38	Non	17.097	-	-	-	2096	2.54	22	C49	Non	21.192	-	-	-	366	0.44	
		N	17.097	17.023	0.210	1.231	3971	4.82				21.192	-	-	-	84	0.10	
12	C39	Non	17.522	-	-	-	2448	2.97	23	C50	Non	21.515	-	-	-	155	0.19	
		N	17.522	-	-	-	2906	3.52				21.515	21.441	0.225	1.331	58	0.07	
13	C40	Non	17.935	-	-	-	2516	3.05	24	C51	Non	21.824	-	-	-	43	0.05	
		N	17.935	17.861	0.227	1.251	2190	2.66				21.824	-	-	-	41	0.05	
																Total	82457	100.00

Table B101 Chromatographic data of extracted wax from fractionation extraction of 600SW at 50 °C by using MEK

Total Non = 60.71% , N = 39.29%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	15	C39	Non	17.234	-	-	-	4453	4.66	
1	C25	N	10.516	-	-	-	58	0.06	N	N	17.234	-	-	-	442	0.46		
2	C26	N	11.119	11.044	0.148	1.043	254	0.27	16	C40	Non	17.666	-	-	-	4080	4.27	
3	C27	N	11.676	-	-	-	844	0.88	N	N	17.666	17.591	-0.043	1.245	419	0.44		
4	C28	N	12.233	12.158	0.130	1.084	1879	1.97	17	C41	Non	18.056	-	-	-	3664	3.84	
5	C29	N	12.778	-	-	-	2772	2.90	N	N	18.056	-	-	-	404	0.42		
6	C30	Non	13.311	-	-	-	143	0.15	18	C42	Non	18.461	-	-	-	3380	3.54	
N	N	13.311	13.236	0.145	1.121	3731	3.91	N	N	18.461	18.386	-0.030	1.264	395	0.41			
7	C31	Non	13.824	-	-	-	332	0.35	19	C43	Non	18.844	-	-	-	2892	3.03	
N	N	13.824	-	-	-	5136	5.38	N	N	18.844	-	-	-	382	0.40			
8	C32	Non	14.331	-	-	-	1305	1.37	20	C44	Non	19.211	-	-	-	2395	2.51	
N	N	14.331	14.256	0.159	1.153	6242	6.54	N	N	19.211	19.136	-0.027	1.281	376	0.39			
9	C33	Non	14.819	-	-	-	2929	3.07	21	C45	Non	19.589	-	-	-	2042	2.14	
N	N	14.819	-	-	-	3674	5.94	N	N	19.589	-	-	-	361	0.38			
10	C34	Non	15.296	-	-	-	4786	5.01	22	C46	Non	19.938	-	-	-	1653	1.73	
N	N	15.296	15.221	0.172	1.182	3713	3.89	N	N	19.938	19.863	-0.013	1.298	353	0.37			
11	C35	Non	15.761	-	-	-	5732	6.00	23	C47	Non	20.271	-	-	-	1320	1.38	
N	N	15.761	-	-	-	2018	2.11	N	N	20.271	-	-	-	269	0.28			
12	C36	Non	16.206	-	-	-	3547	5.81	24	C48	Non	20.601	-	-	-	1083	1.13	
N	N	16.206	16.131	0.177	1.207	1037	1.09	N	N	20.601	20.526	-0.037	1.312	165	0.17			
13	C37	Non	16.657	-	-	-	5054	5.29	25	C49	Non	20.931	-	-	-	677	0.71	
N	N	16.657	-	-	-	546	0.57	N	N	20.931	-	-	-	116	0.12			
14	C38	Non	16.826	-	-	-	4004	4.19	26	C50	Non	21.249	-	-	-	376	0.39	
N	N	16.826	-	-	-	0	0.00	N	N	21.249	21.174	-0.042	1.325	73	0.08			
																Total	95506	100.00

Table B102 Chromatographic data of extracted wax from fractionation extraction of 600SW at 40 °C by using MEK

Total Non = 77.73% , N = 22.27%

P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/ No.	P/ Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.075	-	-	-	-	-	16	C38	Non	16.811	-	-	-	5161	5.69	
1	C23	N	9.256	-	-	-	41	0.05	N	N	16.811	16.736	-0.077	1.223	1060	1.17		
2	C24	N	9.892	9.817	0.126	0.991	165	0.18	17	C39	Non	17.231	-	-	-	5027	5.54	
3	C25	N	10.496	-	-	-	450	0.50	N	N	17.231	-	-	-	902	0.99		
4	C26	N	11.094	11.019	0.123	1.042	1014	1.12	18	C40	Non	17.651	-	-	-	4267	4.70	
5	C27	N	11.672	-	-	-	1431	1.58	N	N	17.651	17.576	-0.058	1.244	678	0.75		
6	C28	Non	12.226	-	-	-	142	0.16	19	C41	Non	18.051	-	-	-	3483	3.84	
N	N	12.226	12.151	0.123	1.084	1614	1.78	N	N	18.051	-	-	-	624	0.69			
7	C29	Non	12.771	-	-	-	237	0.26	20	C42	Non	18.458	-	-	-	3412	3.76	
N	N	12.771	-	-	-	1655	1.82	N	N	18.458	18.383	-0.033	1.264	563	0.62			
8	C30	Non	13.296	-	-	-	635	0.70	21	C43	Non	18.841	-	-	-	3105	3.42	
N	N	13.296	13.221	0.130	1.121	1666	1.84	N	N	18.841	-	-	-	543	0.60			
9	C31	Non	13.814	-	-	-	1509	1.66	22	C44	Non	19.212	-	-	-	2760	3.04	
N	N	13.814	-	-	-	1736	1.91	N	N	19.212	19.137	-0.026	1.281	418	0.46			
10	C32	Non	14.321	-	-	-	3477	3.83	23	C45	Non	19.577	-	-	-	2362	2.60	
N	N	14.321	14.246	0.149	1.153	1751	1.93	N	N	19.577	-	-	-	375	0.41			
11	C33	Non	14.813	-	-	-	5079	5.60	24	C46	Non	19.938	-	-	-	2007	2.21	
N	N	14.813	-	-	-	1073	1.18	N	N	19.938	19.863	-0.013	1.298	306	0.34			
12	C34	Non	15.301	-	-	-	5992	6.60	25	C47	Non	20.272	-	-	-	1339	1.48	
N	N	15.301	-	-	-	0	0.00	N	N	20.272	-	-	-	195	0.21			
13	C35	Non	15.512	-	-	-	6231	6.87	26	C48	Non	20.622	-	-	-	1225	1.35	
N	N	15.512	-	-	-	322	0.35	N	N	20.622	20.547	-0.016	1.312	138	0.15			
14	C36	Non	15.941	-	-	-	5888	6.49	27	C49	Non	20.948	-	-	-	865	0.95	
N	N	15.941	15.866	-0.088	1.200	612	0.67	N	N	20.948	-	-	-	97	0.11			
15	C37	Non	16.371	-	-	-	5720	6.30	28	C50	Non	21.274	-	-	-	601	0.66	
N	N	16.371	-	-	-	721	0.79	N	N	21.274	21.199	-0.017	1.326	55	0.06			
																Total	90729	100.00

Table B105 Chromatographic data of crystallized wax from fractionation crystallization of 600SW at 10 °C in MEK

Total Non = 82.53% , N = 17.47%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
Im	CS ₂	Solvent	0.074	-	-	-	-	-	18	C38	Non	16.808	-	-	-	8468	7.33
1	C21	N	7.448	-	-	-	50	0.04	N			16.808	16.734	-0.079	1.223	1330	1.15
2	C22	N	8.224	8.150	-0.253	0.911	214	0.19	19	C39	Non	17.254	-	-	-	6931	6.00
3	C23	N	8.778	-	-	-	448	0.39	N			17.254	-	-	-	1094	0.95
4	C24	N	9.539	9.465	-0.226	0.976	619	0.54	20	C40	Non	17.676	-	-	-	6474	5.60
5	C25	N	10.079	-	-	-	697	0.60	N			17.676	17.602	-0.032	1.245	1028	0.89
6	C26	N	10.803	10.729	-0.167	1.030	639	0.55	21	C41	Non	18.089	-	-	-	5923	5.13
7	C27	Non	11.309	-	-	-	42	0.04	N			18.089	-	-	-	893	0.77
		N	11.309	-	-	-	628	0.54	22	C42	Non	18.503	-	-	-	4845	4.19
8	C28	Non	11.904	-	-	-	157	0.14	N			18.503	18.429	0.013	1.265	870	0.75
		N	11.904	11.830	-0.198	1.072	525	0.45	23	C43	Non	18.891	-	-	-	4696	4.06
9	C29	Non	12.481	-	-	-	376	0.33	N			18.891	-	-	-	819	0.71
		N	12.481	-	-	-	474	0.41	24	C44	Non	19.272	-	-	-	3699	3.20
10	C30	Non	13.052	-	-	-	849	0.73	N			19.272	19.198	0.035	1.283	821	0.71
		N	13.052	12.978	-0.113	1.113	342	0.30	25	C45	Non	19.646	-	-	-	3685	3.19
11	C31	Non	13.637	-	-	-	1830	1.58	N			19.646	-	-	-	593	0.51
		N	13.637	-	-	-	220	0.19	26	C46	Non	20.009	-	-	-	3279	2.84
12	C32	Non	14.219	-	-	-	3265	2.83	N			20.009	19.935	0.061	1.299	463	0.40
		N	14.219	14.145	0.048	1.150	204	0.18	27	C47	Non	20.364	-	-	-	2785	2.41
13	C33	Non	14.424	-	-	-	3989	3.45	N			20.364	-	-	-	317	0.27
		N	14.424	-	-	-	0	0.00	28	C48	Non	20.716	-	-	-	2191	1.90
14	C34	Non	14.903	-	-	-	5246	4.54	N			20.716	20.642	0.079	1.314	191	0.17
		N	14.903	14.829	-0.220	1.171	1313	1.14	29	C49	Non	21.056	-	-	-	1778	1.54
15	C35	Non	15.404	-	-	-	7457	6.45	N			21.056	-	-	-	89	0.08
		N	15.404	-	-	-	1747	1.51	30	C50	Non	21.382	-	-	-	1108	0.96
16	C36	Non	15.880	-	-	-	7844	6.79	N			21.382	21.308	0.092	1.328	50	0.04
		N	15.880	15.806	-0.148	1.198	1893	1.64	31	C51	Non	21.529	-	-	-	239	0.21
17	C37	Non	16.349	-	-	-	8062	6.98	32	C52	Non	21.671	-	-	-	179	0.15
		N	16.349	-	-	-	1590	1.38			Total				115558	100.00	

Table B106 Chromatographic data of crystallized wax from fractionation crystallization of 600SW at 0 °C in MEK

Total Non = 85.14% , N = 14.86%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
Im	CS ₂	Solvent	0.082	-	-	-	-	-	20	C38	Non	16.743	-	-	-	8204	6.55
1	C19	N	6.689	-	-	-	127	0.10	N			16.743	16.661	-0.152	1.221	1736	1.39
2	C20	N	7.369	7.287	0.255	0.862	458	0.37	21	C39	Non	17.209	-	-	-	7440	5.94
3	C21	N	8.084	-	-	-	685	0.55	N			17.209	-	-	-	1934	1.54
4	C22	N	8.762	8.680	0.277	0.938	561	0.45	22	C40	Non	17.644	-	-	-	6653	5.31
5	C23	N	9.419	-	-	-	352	0.28	N			17.644	17.562	-0.072	1.244	1720	1.37
6	C24	N	10.049	9.967	0.276	0.998	203	0.16	23	C41	Non	18.067	-	-	-	6140	4.90
7	C25	Non	10.464	-	-	-	63	0.05	N			18.067	-	-	-	1442	1.15
8	C26	Non	11.073	-	-	-	121	0.10	24	C42	Non	18.483	-	-	-	3936	4.74
9	C27	Non	11.227	-	-	-	287	0.23	N			18.483	18.401	-0.015	1.264	998	0.80
10	C28	Non	11.817	-	-	-	437	0.35	25	C43	Non	18.882	-	-	-	5745	4.59
11	C29	Non	12.476	-	-	-	670	0.53	N			18.882	-	-	-	581	0.46
12	C30	Non	13.049	-	-	-	1138	0.91	26	C44	Non	19.271	-	-	-	5116	4.08
13	C31	Non	13.301	-	-	-	1280	1.02	N			19.271	19.189	0.026	1.283	436	0.35
14	C32	Non	13.774	-	-	-	2264	1.81	27	C45	Non	19.487	-	-	-	4957	3.96
15	C33	Non	14.298	-	-	-	4484	3.58	N			19.487	-	-	-	199	0.16
		N	14.298	-	-	-	862	0.69	28	C46	Non	20.026	-	-	-	3919	3.13
16	C34	Non	14.924	-	-	-	5867	4.68	N			20.026	19.944	0.068	1.299	172	0.14
		N	14.924	14.842	-0.207	1.171	1288	1.03	29	C47	Non	20.161	-	-	-	3140	2.51
17	C35	Non	15.308	-	-	-	7850	6.27	30	C48	Non	20.372	-	-	-	2131	1.70
		N	15.308	-	-	-	1584	1.26	31	C49	Non	20.686	-	-	-	1639	1.31
18	C36	Non	15.797	-	-	-	8632	6.89	32	C50	Non	21.013	-	-	-	1440	1.15
		N	15.797	15.715	-0.239	1.196	1604	1.28	33	C51	Non	21.358	-	-	-	1101	0.88
19	C37	Non	16.280	-	-	-	9176	7.32	34	C52	Non	21.699	-	-	-	827	0.66
		N	16.280	-	-	-	1676	1.34			Total				125273	100.00	

Table B107 Chromatographic data of waxy oil from fractionation crystallization of 600SW at -10 °C in MEK

Total Non = 100.00% , N = 0.00%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	
tm	CS ₂	Solvent	0.077	-	-	-	-	-	14	C39	Non	17.302	-	-	-	11073	6.73	
1	C26	Non	10.851	-	-	-	125	0.08	15	C40	Non	17.716	-	-	-	9893	6.01	
2	C27	Non	11.396	-	-	-	362	0.22	16	C41	Non	18.154	-	-	-	8854	5.38	
3	C28	Non	11.940	-	-	-	773	0.47	17	C42	Non	18.516	-	-	-	7699	4.68	
4	C29	Non	12.392	-	-	-	1207	0.73	18	C43	Non	18.907	-	-	-	6635	4.04	
5	C30	Non	12.894	-	-	-	2223	1.35	19	C44	Non	19.284	-	-	-	5714	3.47	
6	C31	Non	13.474	-	-	-	3994	2.43	20	C45	Non	19.653	-	-	-	4841	2.94	
7	C32	Non	14.010	-	-	-	6169	3.75	21	C46	Non	20.019	-	-	-	3811	2.31	
8	C33	Non	14.512	-	-	-	9753	5.92	22	C47	Non	20.363	-	-	-	3060	1.86	
9	C34	Non	15.001	-	-	-	12626	7.67	23	C48	Non	20.707	-	-	-	2260	1.37	
10	C35	Non	15.381	-	-	-	15612	9.48	24	C49	Non	21.040	-	-	-	1554	0.94	
11	C36	Non	15.930	-	-	-	16135	9.80	25	C50	Non	21.364	-	-	-	955	0.58	
12	C37	Non	16.403	-	-	-	15223	9.25	26	C51	Non	21.663	-	-	-	640	0.39	
13	C38	Non	17.051	-	-	-	13177	8.00	27	C52	Non	21.996	-	-	-	265	0.16	
																Total	164653	100.00

Table B108 Chromatographic data of waxy oil from fractionation crystallization of 600SW at -20 °C in MEK

Total Non = 93.30% , N = 1.70%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt		
tm	CS ₂	Solvent	0.077	-	-	-	-	-	17	C35	Non	15.599	-	-	-	10921	8.29		
1	C19	N	6.009	-	-	-	141	0.11		N		15.599	-	-	-	381	0.29		
2	C20	N	6.853	6.776	-0.256	0.83	370	0.28	18	C36	Non	16.064	-	-	-	10528	7.99		
3	C21	N	7.461	-	-	-	302	0.23	19	C37	Non	16.554	-	-	-	9325	7.08		
4	C22	N	8.183	8.106	-0.297	0.908	92	0.07	20	C38	Non	17.041	-	-	-	8548	6.49		
5	C23	Non	0.000	-	-	-	0	0.00	21	C39	Non	17.501	-	-	-	7957	6.04		
		N	0.000	-	-	-	0	0.00	22	C40	Non	17.698	-	-	-	7445	5.65		
6	C24	Non	9.847	9.926	0.235	0.996	66	0.05	23	C41	Non	18.136	-	-	-	6580	4.99		
7	C25	Non	10.627	-	-	-	153	0.12	24	C42	Non	18.517	-	-	-	5866	4.45		
8	C26	Non	11.413	11.135	0.239	1.046	330	0.25	25	C43	Non	18.907	-	-	-	5088	3.86		
9	C27	Non	11.914	-	-	-	577	0.44	26	C44	Non	19.284	-	-	-	4493	3.41		
10	C28	Non	12.382	12.273	0.245	1.088	894	0.68	27	C45	Non	19.662	-	-	-	3544	2.69		
11	C29	Non	12.886	-	-	-	1562	1.19	28	C46	Non	20.01	-	-	-	3039	2.31		
12	C30	Non	13.403	13.358	0.267	1.125	2755	2.09	29	C47	Non	20.371	-	-	-	2207	1.68		
13	C31	Non	13.984	-	-	-	4668	3.54	30	C48	Non	20.698	-	-	-	1880	1.43		
		N	14.494	-	-	-	6945	5.27	31	C49	Non	21.074	-	-	-	1058	0.80		
14	C32	Non	14.137	14.06	-0.037	1.147	163	0.12	32	C50	Non	21.389	-	-	-	667	0.51		
15	C33	Non	14.631	-	-	-	9120	6.92	33	C51	Non	21.714	-	-	-	347	0.26		
		N	14.631	-	-	-	3056	2.32	34	C52	Non	22.032	-	-	-	101	0.08		
16	C34	Non	15.118	-	-	-	10141	7.70									Total	131746	100.00
		N	15.118	15.041	-0.008	1.177	436	0.33											

Table B109 Chromatographic data of residual oil from fractionation crystallization of 600SW at -20 °C in MEK

Total Non = 100.00% , N = 0.00%

P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt	P/No.	P/Na	Group	t _R , min	t' _R	Δt' _R	Log t' _R	A	% wt
tm	CS ₂	Solvent	0.077	-	-	-	-	-	14	C39	Non	17.289	-	-	-	7757	6.29
1	C26	Non	10.877	-	-	-	137	0.11	15	C40	Non	17.686	-	-	-	7057	5.72
2	C27	Non	11.413	-	-	-	392	0.32	16	C41	Non	18.149	-	-	-	6231	5.05
3	C28	Non	11.939	-	-	-	845	0.68	17	C42	Non	18.517	-	-	-	5171	4.19
4	C29	Non	12.399	-	-	-	1310	1.06	18	C43	Non	18.906	-	-	-	4323	3.50
5	C30	Non	12.899	-	-	-	3212	2.60	19	C44	Non	19.286	-	-	-	3579	2.90
6	C31	Non	13.48	-	-	-	4982	4.04	20	C45	Non	19.654	-	-	-	2933	2.38
7	C32	Non	14.01	-	-	-	6881	5.58	21	C46	Non	20.019	-	-	-	2199	1.78
8	C33	Non	14.511	-	-	-	8491	6.88	22	C47	Non	20.363	-	-	-	1711	1.39
9	C34	Non	15.007	-	-	-	10122	8.20	23	C48	Non	20.707	-	-	-	1209	0.98
10	C35	Non	15.379	-	-	-	12062	9.78	24	C49	Non	21.041	-	-	-	792	0.64
11	C36	Non	15.930	-	-	-	11903	9.65	25	C50	Non	21.364	-	-	-	479	0.39
12	C37	Non	16.393	-	-	-	10294	8.34	26	C51	Non	21.663	-	-	-	329	0.27
13	C38	Non	16.876	-	-	-	8843	7.17	27	C52	Non	21.996	-	-	-	143	0.12

APPENDIX C

Figure C1 Carbon distribution curves of wax cake from fractionation of 500SW slack wax

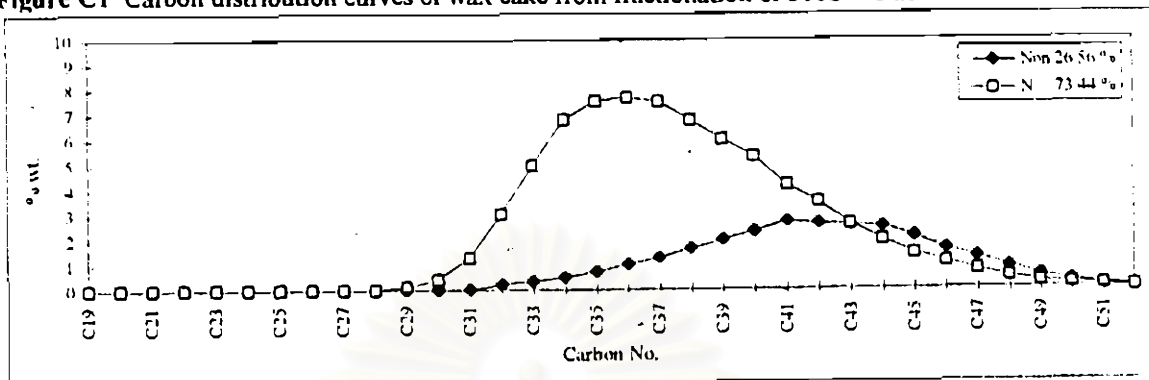


Figure C2 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 60 °C

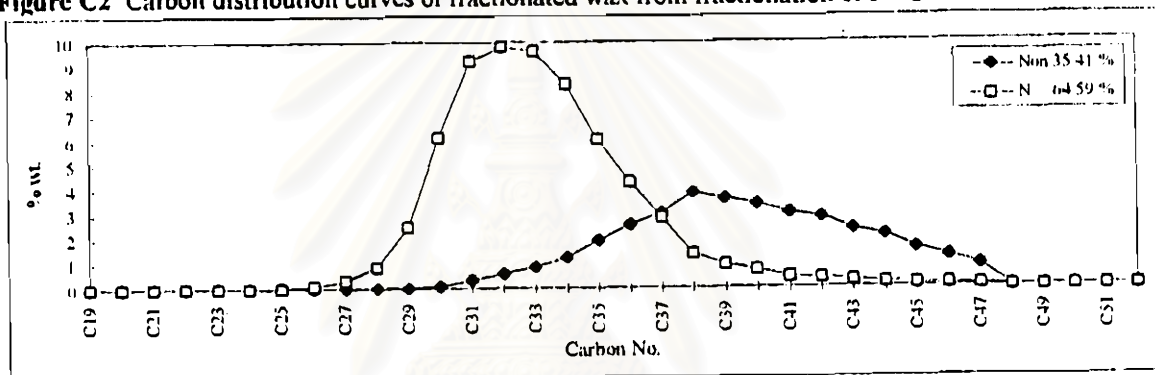


Figure C3 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 50 °C

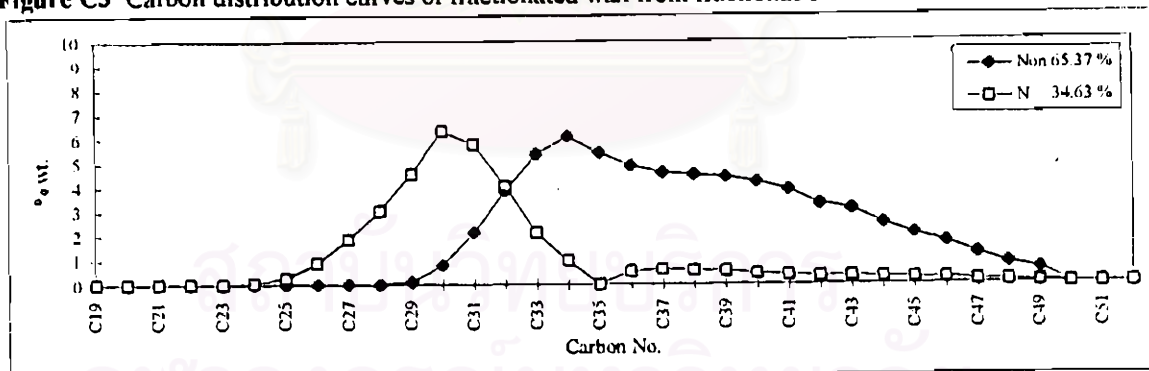


Figure C4 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 40 °C

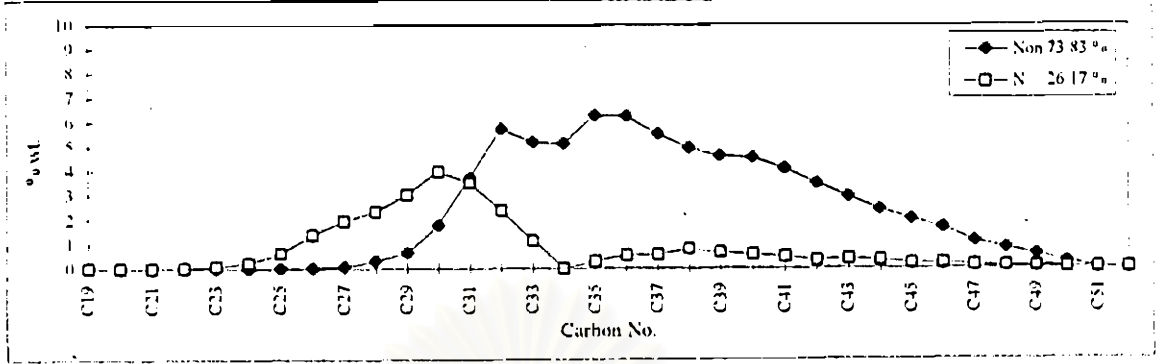


Figure C5 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 30 °C

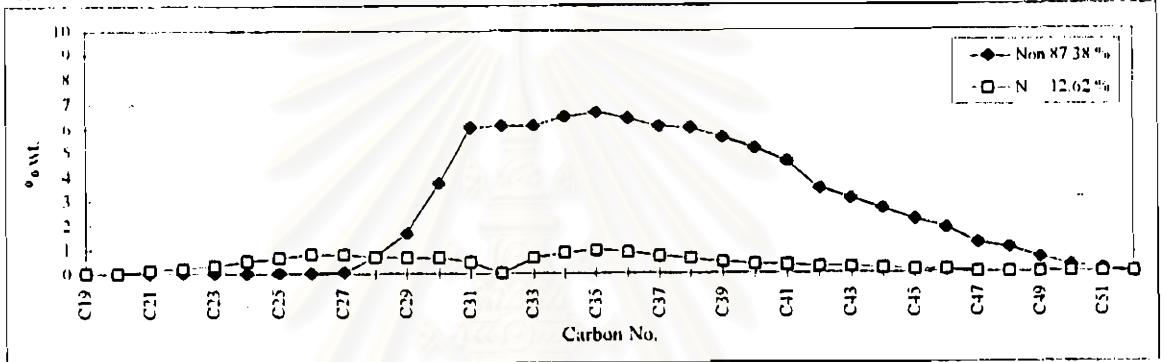


Figure C6 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 20 °C

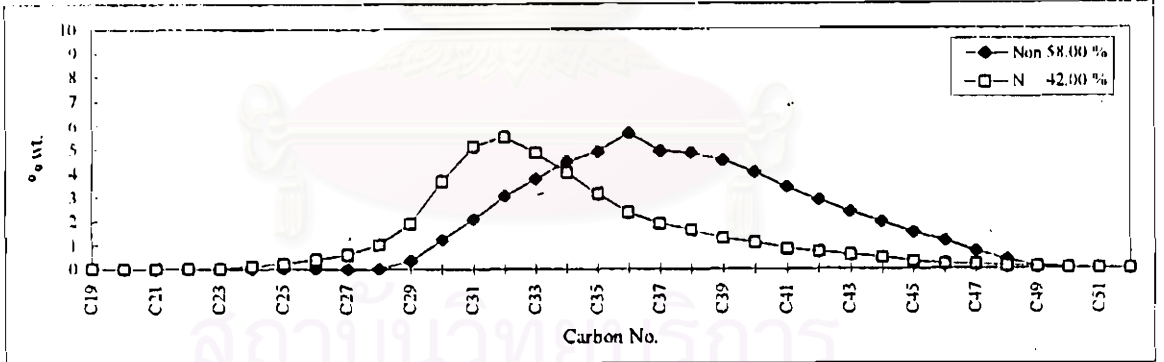


Figure C7 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 10 °C

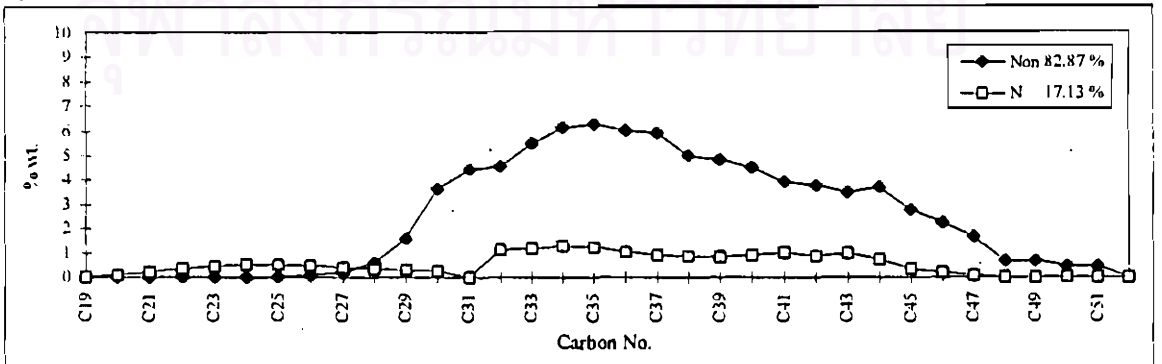


Figure C8 Carbon distribution curves of fractionated wax from fractionation of 500SW slack wax at 0 °C

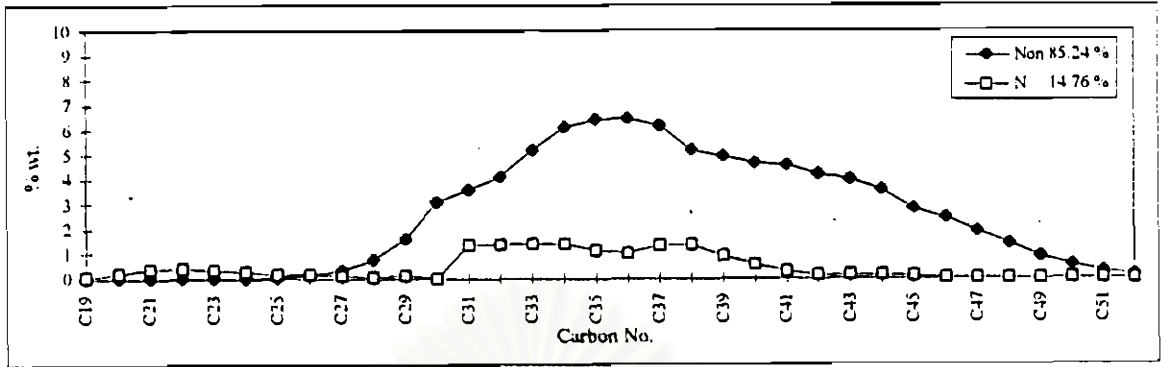


Figure C9 Carbon distribution curves of fractionated oil from fractionation of 500SW slack wax at -10 °C

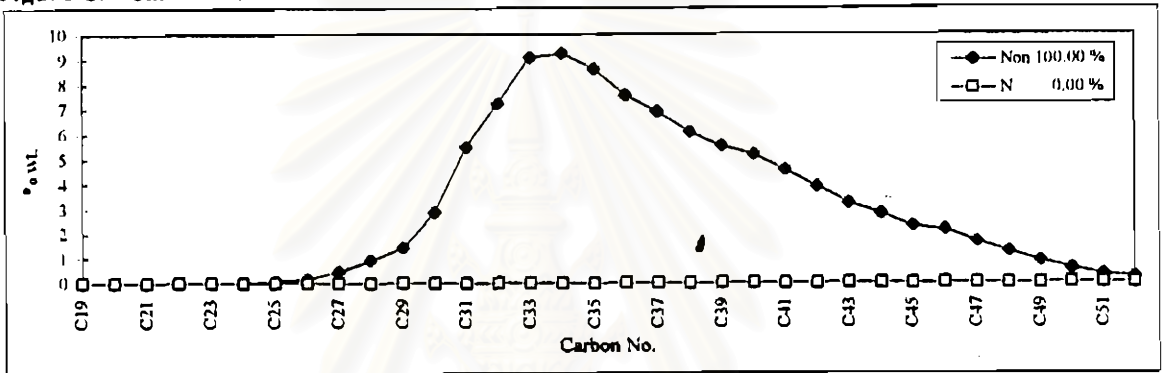


Figure C10 Carbon distribution curves of fractionated oil from fractionation of 500SW slack wax at -20 °C

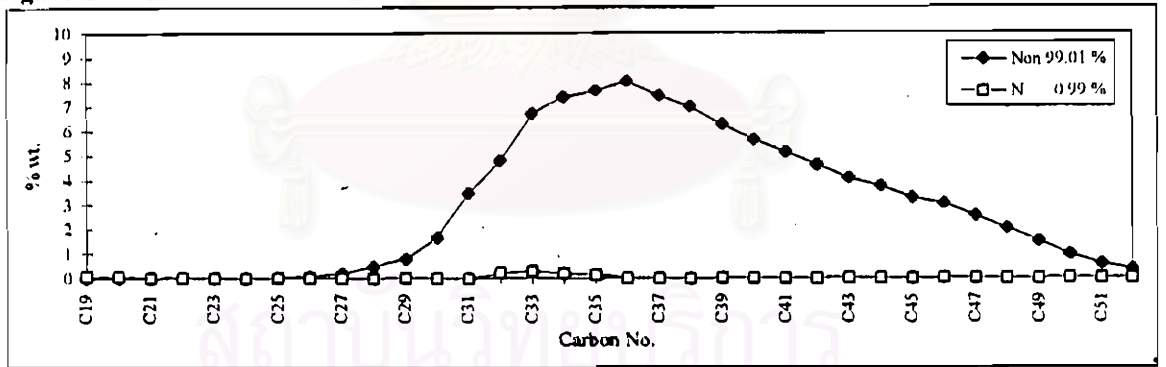


Figure C11 Carbon distribution curves of residual oil from fractionation of 500SW slack wax

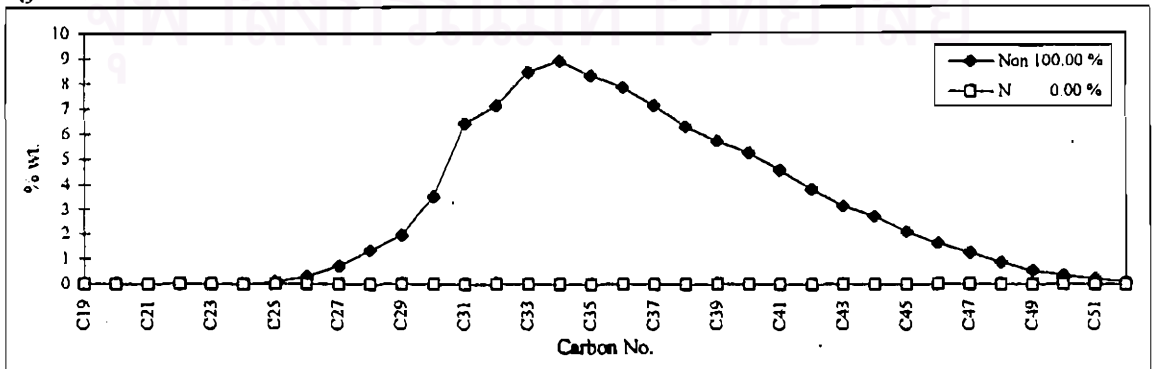


Figure C12 Carbon distribution curves of wax cake from fractionation of 600SW slack wax

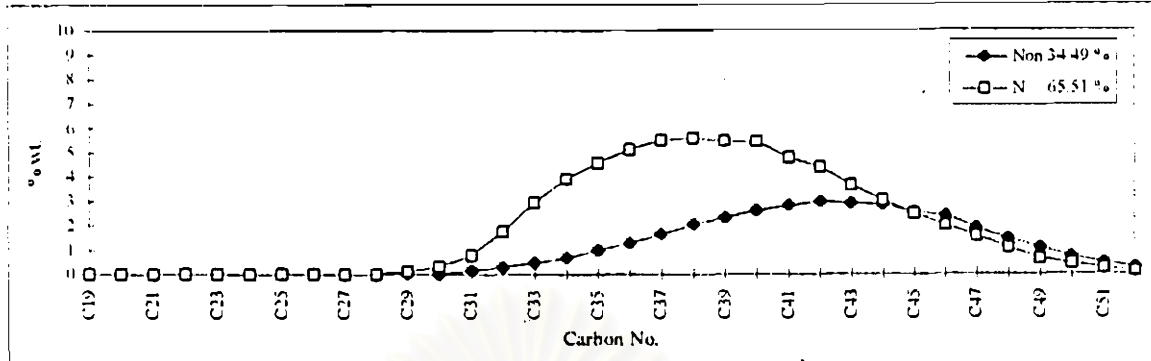


Figure C13 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 60 °C

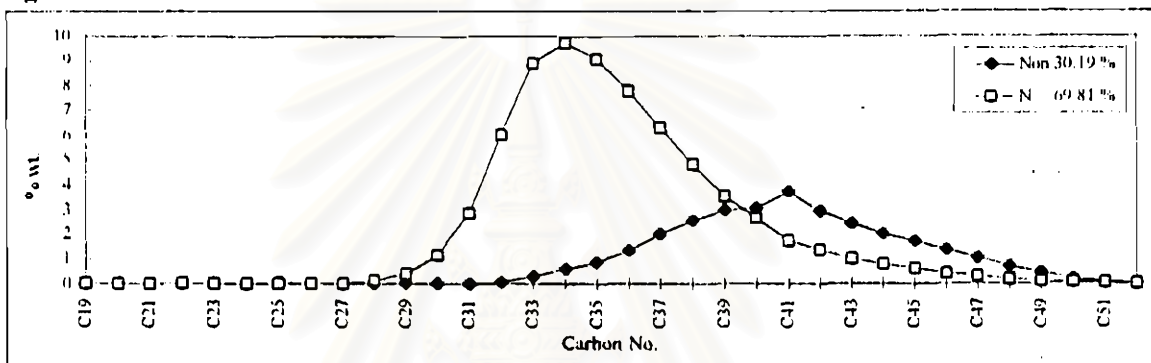


Figure C14 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 50 °C

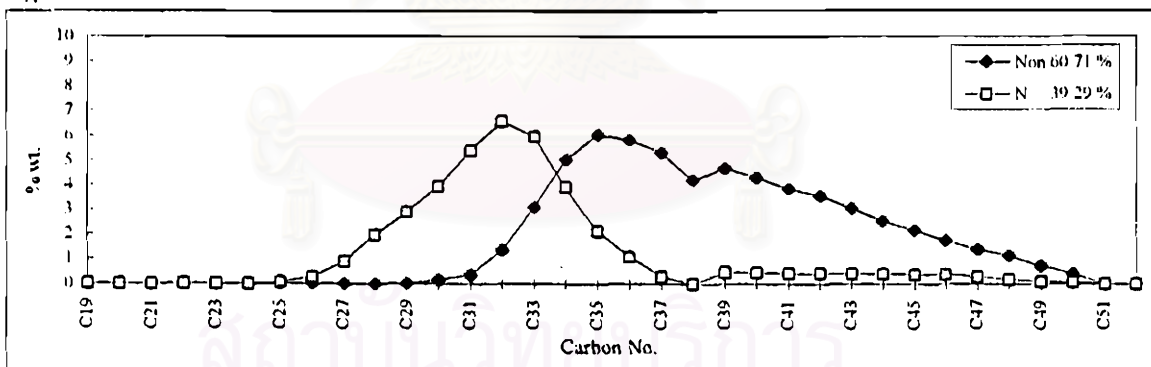


Figure C15 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 40 °C

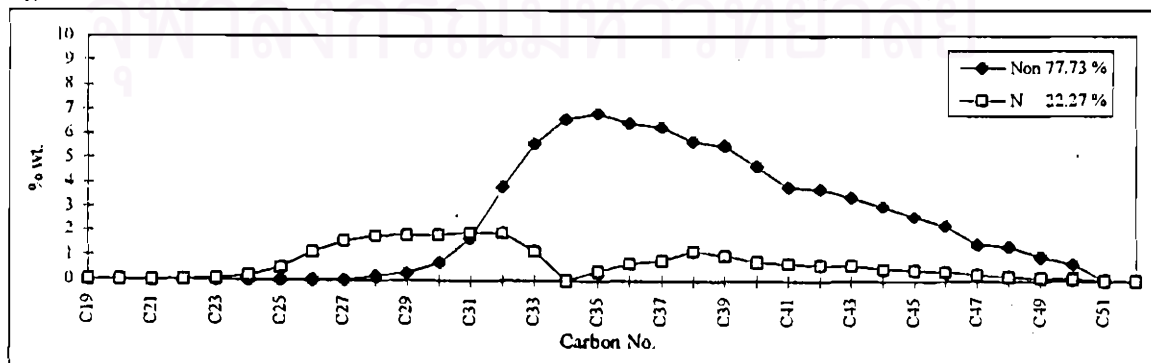


Figure C16 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 30 °C

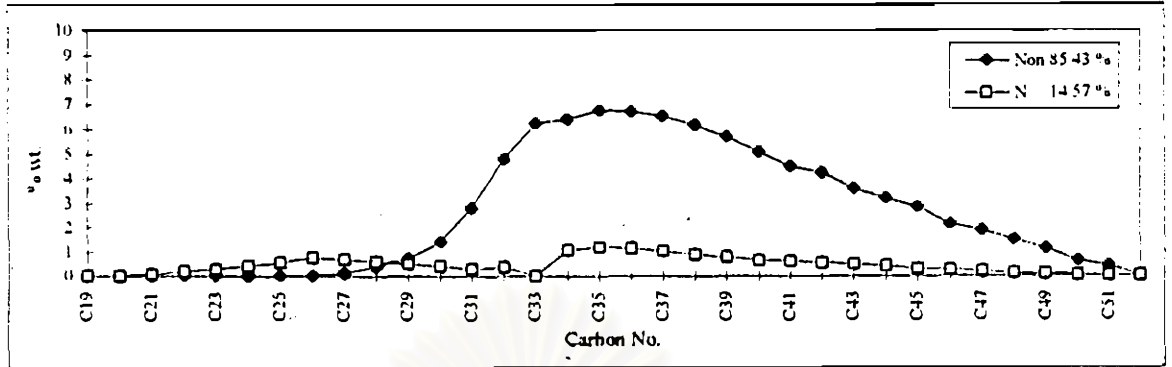


Figure C17 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 20 °C

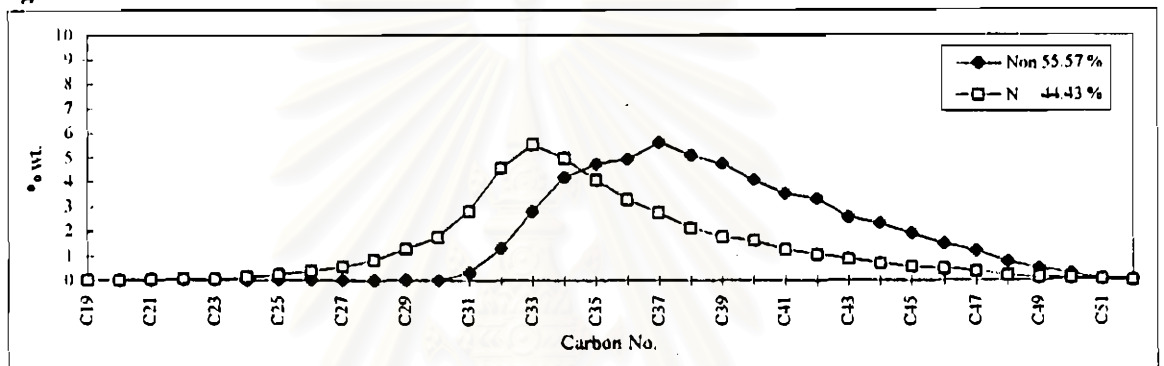


Figure C18 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 10 °C

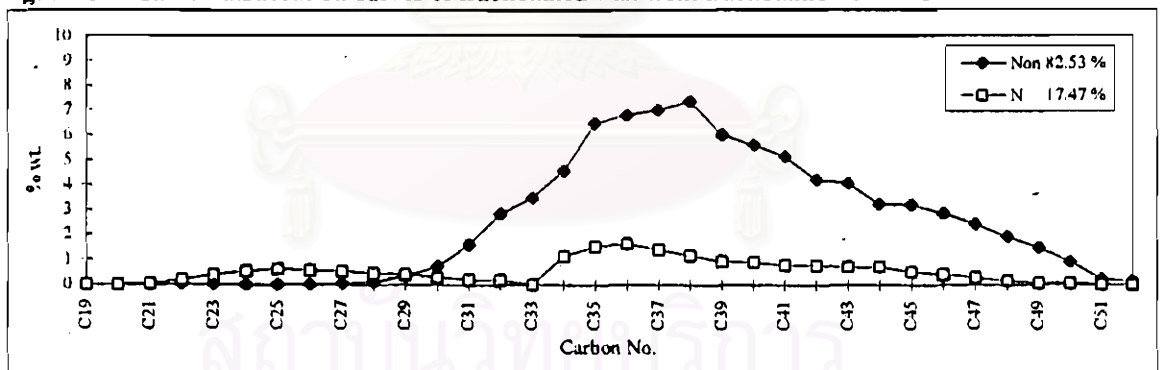


Figure C19 Carbon distribution curves of fractionated wax from fractionation of 600SW slack wax at 0 °C

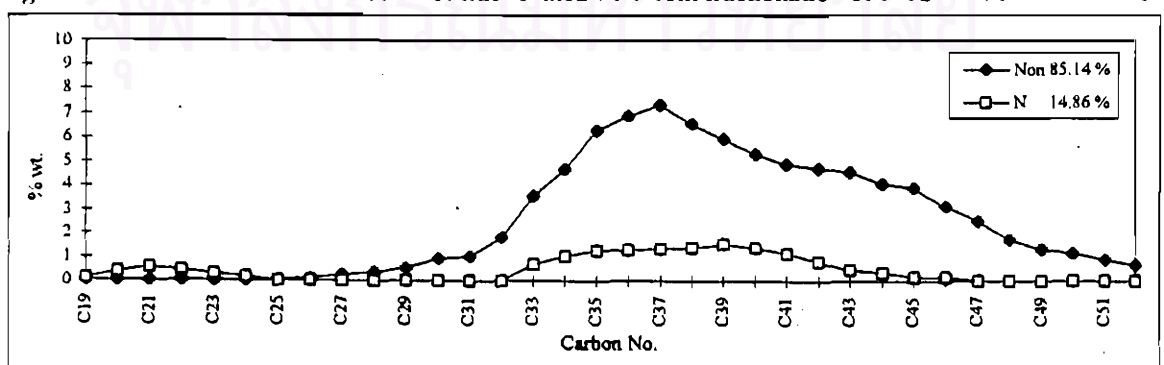


Figure C20 Carbon distribution curves of fractionated oil from fractionation of 600SW slack wax at -10 °C

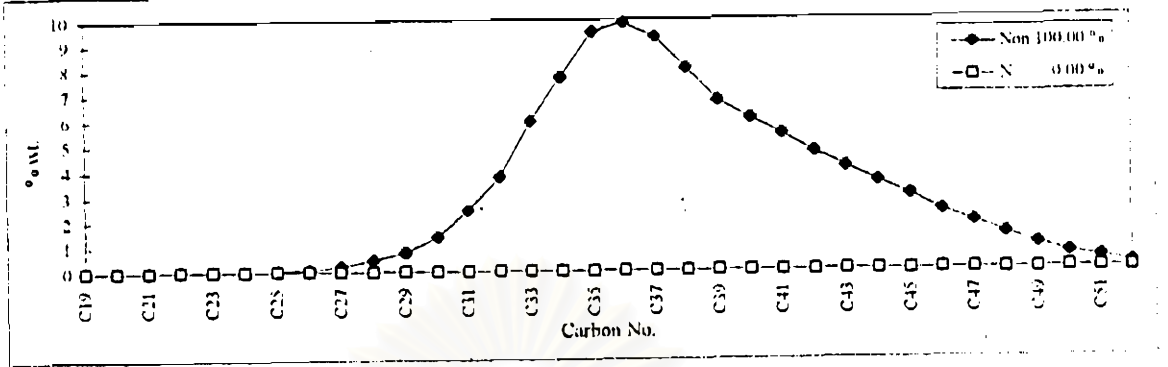


Figure C21 Carbon distribution curves of fractionated oil from fractionation of 600SW slack wax at -20 °C

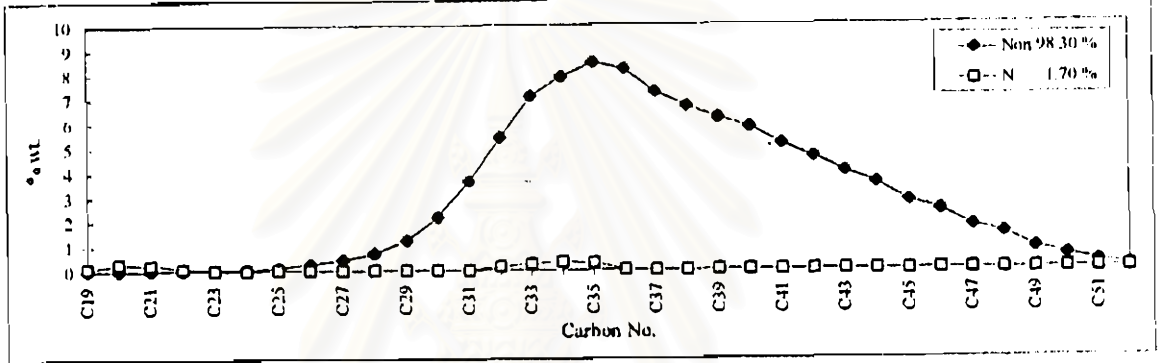
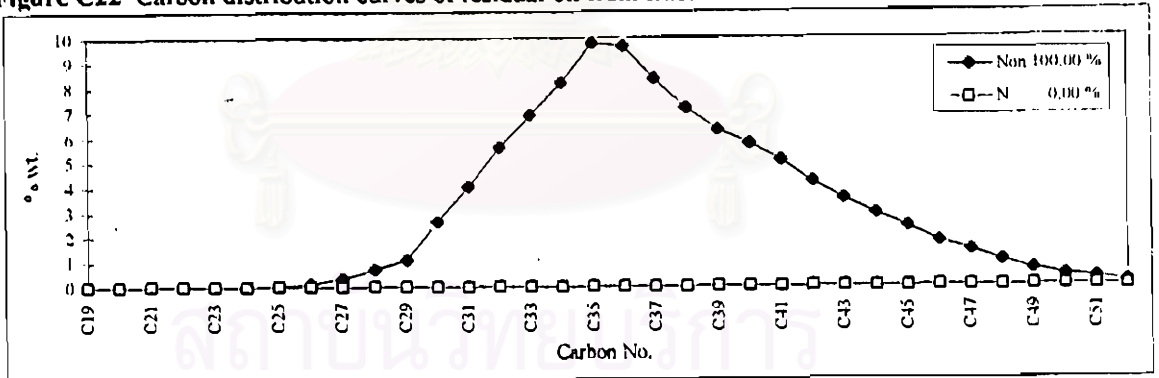


Figure C22 Carbon distribution curves of residual oil from fractionation of 600SW slack wax



จุฬาลงกรณ์มหาวิทยาลัย



VITA

Mr. Chakrapong Saengarun was born on July 30, 1965 in Bangkok. He received his Bachelor of Science Degree in Chemistry from the Department of Chemistry, Faculty of Science, Ramkhamhaeng University in 1988. He began his master's degree study in the Program of Petrochemistry and Polymer science, Faculty of Science, Chulalongkorn University, in 1997 and completed the program in 2000.



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย