

## LAMPIRAN

Lampiran 1. Kuantitas Produk Pirolisis.

Komposisi					Presentase Hasil Pirolisis			
Biomassa		Katalis						
Cangkang (g)	Plastik (g)	CaO (g)	Zeolit Alam (g)	Persentase Katalis	<i>Pyrolytic -oil (%)</i>	<i>Char (%)</i>	<i>Gas (%)</i>	<i>Wax (%)</i>
300	300	-	-	0%	14,30	24,70	48,50	12,50
300	300	75	75	25%	11,65	20,60	49,60	18,15
300	300	150	150	50%	12,75	17,10	58,55	11,55
300	300	225	225	75%	14,35	13,90	61,35	10,40
300	300	300	300	100%	9,35	12,45	65,55	12,65
300	-	225	-	75%	22,65	27,25	50,10	0
300	-	-	225	75%	24,2	14,95	60,85	0
-	300	225	-	75%	21,50	7,60	57,53	13,50
-	300	-	225	75%	1,70	3,80	61,15	33,35

Lampiran 2. Hasil Pengujian Densitas *Pyrolytic-oil*.

Komposisi Massa (g)				Persentase Katalis (%)	Pengujian Densitas		Hasil (gr/mL)	Hasil (kg/m <sup>3</sup> )
Cangkang	Plastik	CaO	Zeolit Alam		dalam (mL)	dalam (gr)		
300	300	300	300	0%	30	28,3	0,9433	943,30
300	300	225	225	25%	30	28,3	0,9433	943,30
300	300	150	150	50%	30	28,2	0,9400	940,00
300	300	75	75	75%	30	25,1	0,8367	836,70
300	300	0	0	100%	30	28,2	0,9400	940,00
300	-	225	-	75%	30	28,9	0,9633	963,30
300	-	-	225	75%	30	28,6	0,9533	953,30
-	300	225	-	75%	10	7,3	0,7300	730,00
-	300	-	225	75%	30	22,1	0,7367	736,70

Lampiran 3. Hasil Pengujian Viskositas *Pyrolytic-oil*.

Komposisi Massa				Persentase Katalis (%)	Pengujian Viskositas		Hasil (cP)
Cangkang	Plastik	CaO	Zeolit Alam		Ke-1 (cP)	Ke-2 (cP)	
300	300	300	300	0%	3,40	3,50	3,4500
300	300	225	225	25%	2,00	2,50	2,2500
300	300	150	150	50%	3,10	3,20	3,1500
300	300	75	75	75%	4,90	4,80	4,8500
300	300	0	0	100%	1,40	1,20	1,3000
300	-	225	-	75%	1,70	1,30	1,5000
300	-	-	225	75%	3,20	3,60	3,4000
-	300	225	-	75%	1,80	1,60	1,7000
-	300	-	225	75%	ND	ND	ND

Lampiran 4. Hasil Pengujian Derajat Keasaman *Pyrolytic-oil*.

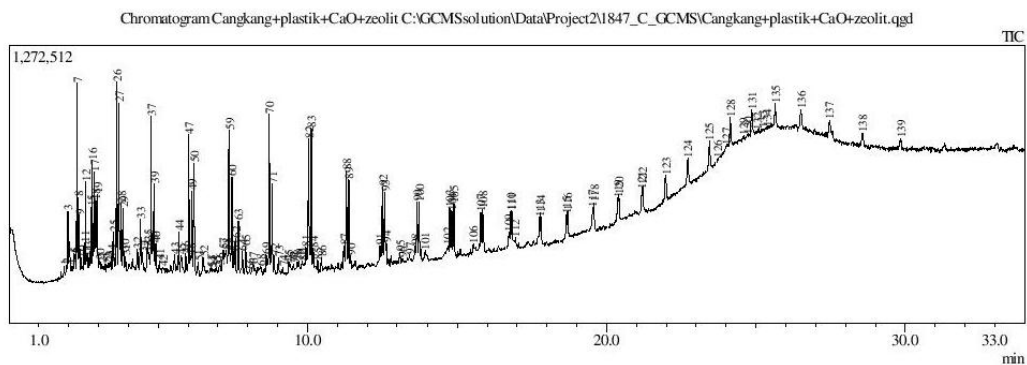
Komposisi Massa (g)				Persentase Katalis (%)	Pengujian Keasaman		Hasil
Cangkang	Plastik	CaO	Zeolit Alam		Ke-1	Ke-2	
300	300	300	300	0%	3,5	3,8	3,65
300	300	225	225	25%	4,4	4,5	4,45
300	300	150	150	50%	4,6	4,6	4,60
300	300	75	75	75%	5,7	5,7	5,70
300	300	0	0	100%	6,0	6,0	6,00
300	-	225	-	75%	4,6	4,5	4,55
300	-	-	225	75%	3,7	3,4	3,55
-	300	225	-	75%	7,4	7,3	7,35
-	300	-	225	75%	7,2	7,2	7,20

Lampiran 5. Hasil Pengujian Nilai Kalor *Pyrolytic-oil*.

Komposisi Massa (g)				Persentase Katalis (%)	Pengujian Nilai Kalor		Hasil (MJ/kg)
Cangkang	Plastik	CaO	Zeolit Alam		Ke-1 (MJ/kg)	Ke-2 (MJ/kg)	
300	300	75	75	75%	44,416	44,590	44,503
300	-	225	-	75%	26,294	25,373	25,834
300	-	-	225	75%	26,709	25,201	25,955
-	300	225	-	75%	45,951	45,993	45,972
-	300	-	225	75%	45,819	45,755	45,787

## Lampiran 6. Hasil Pengujian GC-MS *Pyrolytic-oil* Campuran Cangkang Sawit dan Plastik dengan Katalis (CaO + Zeolit alam) 75%.

Sample Information  
 Analyzed by : Admin  
 Analyzed : 7/9/2018 10:01:49 AM  
 Sample Name : Cangkang+plastik+CaO+zeolit  
 Sample ID :  
 Injection Volume : 0.10  
 Data File : C:\GCMSsolution\Data\Project2\1847\_C\_GCMS\Cangkang+plastik+CaO+zeolit.qgd  
 Tuning File : C:\GCMSsolution\System1\Tuning 01082017.qgt



Peak#	R.Time	I.Time	F.Time	Area	Area%	Height
1	1.837	1.783	1.892	157882	0.28	54513
2	1.933	1.892	1.950	140796	0.25	56686
3	1.971	1.950	2.092	951806	1.70	302766
4	2.117	2.092	2.142	106056	0.19	48919
5	2.183	2.142	2.200	263347	0.47	104433
6	2.219	2.200	2.242	193258	0.34	102746
7	2.272	2.242	2.300	1303802	2.33	884563
8	2.316	2.300	2.333	434076	0.77	361830
9	2.351	2.333	2.392	485891	0.87	279744
10	2.422	2.392	2.458	216962	0.39	81894
11	2.514	2.492	2.542	250110	0.45	148350
12	2.565	2.542	2.592	619689	1.11	428297
13	2.623	2.592	2.658	268847	0.48	100369
14	2.675	2.658	2.717	214048	0.38	79010
15	2.739	2.717	2.758	438282	0.78	310272
16	2.786	2.758	2.817	869648	1.55	523761
17	2.852	2.817	2.875	749649	1.34	468016
18	2.907	2.875	2.925	640695	1.14	335278
19	2.956	2.925	2.992	778010	1.39	365284
20	3.017	2.992	3.083	234658	0.42	58670
21	3.107	3.083	3.200	191856	0.34	43873
22	3.287	3.250	3.317	104073	0.19	36044
23	3.348	3.317	3.375	124404	0.22	43933
24	3.424	3.375	3.442	160580	0.29	69970
25	3.492	3.442	3.533	409304	0.73	180766
26	3.599	3.567	3.642	1494103	2.67	867726
27	3.671	3.642	3.717	1391970	2.48	770567
28	3.748	3.717	3.775	511207	0.91	309822
29	3.810	3.775	3.833	505121	0.90	286591
30	3.847	3.833	3.875	134535	0.24	86420
31	3.898	3.875	3.933	110975	0.20	65448
32	4.302	4.175	4.350	221491	0.40	89281
33	4.402	4.350	4.433	522602	0.93	229254
34	4.462	4.433	4.500	170604	0.30	77670
35	4.633	4.575	4.650	297461	0.53	137420
36	4.683	4.650	4.717	279253	0.50	88176
37	4.756	4.717	4.792	1252161	2.23	714156
38	4.808	4.792	4.825	230042	0.41	129821
39	4.851	4.825	4.892	738401	1.32	406037
40	4.914	4.892	4.992	276326	0.49	131988
41	5.038	5.000	5.067	111501	0.20	56228
42	5.141	5.117	5.233	125449	0.22	30299
43	5.535	5.442	5.575	203227	0.36	77966
44	5.684	5.650	5.725	368963	0.66	187077
45	5.759	5.725	5.892	319833	0.57	79595

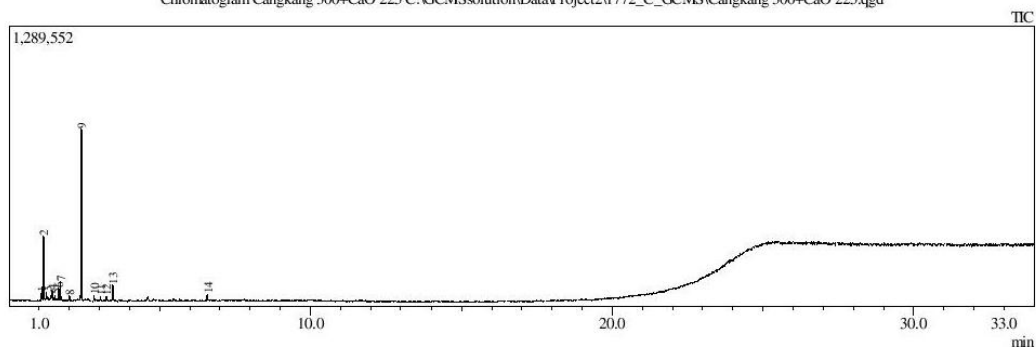
Peak#	R.Time	I.Time	F.Time	Area	Area%	Height
46	5.918	5.892	5.958	182221	0.33	89559
47	6.020	5.958	6.050	1188396	2.12	636946
48	6.075	6.050	6.092	169899	0.30	82056
49	6.123	6.092	6.158	666690	1.19	379586
50	6.191	6.158	6.267	1060211	1.89	508641
51	6.328	6.275	6.392	168295	0.30	61717
52	6.500	6.442	6.600	407025	0.73	88547
53	6.762	6.600	6.792	312036	0.56	41426
54	6.817	6.792	6.908	195703	0.35	35425
55	6.938	6.908	6.983	150818	0.27	42947
56	7.048	6.983	7.108	260991	0.47	51679
57	7.178	7.108	7.208	492840	0.88	120091
58	7.263	7.208	7.308	566325	1.01	118848
59	7.365	7.308	7.400	1443024	2.57	668128
60	7.468	7.400	7.500	1035319	1.85	453291
61	7.535	7.500	7.558	269381	0.48	111750
62	7.581	7.558	7.625	328386	0.59	172196
63	7.680	7.625	7.733	647066	1.15	253115
64	7.813	7.775	7.875	278344	0.50	112829
65	7.925	7.875	7.975	331281	0.59	133314
66	8.067	7.975	8.100	116759	0.21	24010
67	8.183	8.100	8.208	208126	0.37	51913
68	8.433	8.350	8.467	194523	0.35	41781
69	8.616	8.575	8.642	234075	0.42	95257
70	8.715	8.642	8.750	1507333	2.69	736965
71	8.813	8.750	8.850	944842	1.69	418638
72	8.879	8.850	8.917	170283	0.30	87352
73	9.025	8.917	9.058	234803	0.42	81145
74	9.168	9.058	9.208	133034	0.24	35752
75	9.372	9.267	9.400	184294	0.33	59816
76	9.425	9.400	9.467	135588	0.24	46380
77	9.533	9.467	9.567	177875	0.32	47142
78	9.649	9.567	9.675	226899	0.40	55814
79	9.707	9.675	9.750	186542	0.33	57974
80	9.816	9.750	9.850	220918	0.39	57727
81	9.944	9.850	9.992	571846	1.02	120699
82	10.031	9.992	10.083	1395962	2.49	614409
83	10.124	10.083	10.158	1303213	2.32	662917
84	10.185	10.158	10.225	246759	0.44	111635
85	10.339	10.225	10.367	237336	0.42	57492
86	10.466	10.425	10.517	135093	0.24	62019
87	11.211	11.175	11.258	278803	0.50	103346
88	11.295	11.258	11.342	1003133	1.79	449135
89	11.380	11.342	11.417	792630	1.41	407761
90	11.438	11.417	11.483	107794	0.19	59131
91	12.425	12.375	12.458	276265	0.49	88984
92	12.502	12.458	12.542	828776	1.48	360763
93	12.580	12.542	12.608	712196	1.27	336590
94	12.631	12.608	12.675	218763	0.39	104467
95	13.085	12.942	13.142	229936	0.41	56353
96	13.167	13.142	13.317	140197	0.25	25536
97	13.398	13.317	13.433	155891	0.28	37656
98	13.582	13.433	13.617	323948	0.58	75967
99	13.653	13.617	13.692	621633	1.11	275460
100	13.723	13.692	13.758	558811	1.00	270092
101	13.930	13.900	14.033	168324	0.30	44219
102	14.687	14.658	14.717	116981	0.21	46553
103	14.750	14.717	14.783	453316	0.81	216616
104	14.812	14.783	14.842	407669	0.73	205597
105	14.889	14.842	14.942	540612	0.96	238576
106	15.537	15.483	15.583	112660	0.20	35723
107	15.794	15.758	15.825	361782	0.65	171625
108	15.851	15.825	15.925	439805	0.78	189836
109	16.735	16.700	16.758	146061	0.26	61812
110	16.791	16.758	16.817	354193	0.63	160850
111	16.843	16.817	16.875	311480	0.56	160236
112	16.949	16.875	16.983	158331	0.28	43563
113	17.747	17.717	17.767	203898	0.36	107815
114	17.793	17.767	17.833	222888	0.40	126093
115	18.660	18.583	18.683	302706	0.54	112460
116	18.703	18.683	18.733	237618	0.42	125760
117	19.533	19.467	19.558	278446	0.50	93354
118	19.573	19.558	19.617	160625	0.29	110542
119	20.375	20.333	20.392	247825	0.44	102316
120	20.408	20.392	20.450	196443	0.35	113690
121	21.183	21.125	21.200	231688	0.41	95851
122	21.213	21.200	21.250	169409	0.30	108416
123	21.981	21.925	22.075	490895	0.88	124775
124	22.730	22.642	22.792	442271	0.79	118124
125	23.450	23.375	23.533	488778	0.87	131089

Peak#	R.Time	I.Time	F.Time	Area	Area%	Height
126	23.725	23.708	23.967	176912	0.32	15236
127	23.992	23.967	24.092	199630	0.36	32862
128	24.147	24.092	24.225	463075	0.83	138650
129	24.600	24.583	24.683	100755	0.18	27444
130	24.725	24.683	24.800	170708	0.30	26849
131	24.866	24.800	24.950	570201	1.02	132584
132	25.058	24.950	25.167	329658	0.59	31174
133	25.217	25.200	25.317	176003	0.31	32468
134	25.367	25.317	25.583	488382	0.87	32691
135	25.644	25.583	25.758	597001	1.07	129366
136	26.513	26.442	26.575	311366	0.56	84423
137	27.469	27.425	27.542	182856	0.33	58405
138	28.572	28.550	28.642	187767	0.33	62379
139	29.849	29.808	29.892	114399	0.20	42882
				5605501	100.00	24524602

## Lampiran 7. Hasil Pengujian GC-MS *Pyrolytic-oil* berbahan Cangkang Sawit dengan Katalis CaO 75%.

Sample Information  
 Analyzed by : Admin  
 Analyzed : 6/4/2018 5:33:06 PM  
 Sample Name : Cangkang 300+CaO 225  
 Sample ID : 11  
 Injection Volume : 0.10  
 Data File : C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Cangkang 300+CaO 225.qgd  
 Tuning File : C:\GCMSsolution\System\Tune1\Tuning 01082017.qgt

Chromatogram Cangkang 300+CaO 225 C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Cangkang 300+CaO 225.qgd



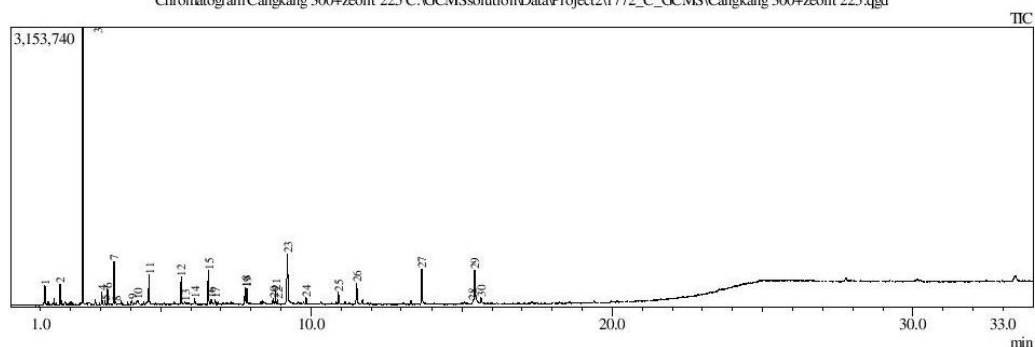
Peak#	R.Time	I.Time	F.Time	Peak Report TIC		Height
				Area	Area%	
1	1.075	1.058	1.092	38519	1.96	35889
2	1.143	1.092	1.158	352473	17.95	298425
3	1.242	1.158	1.417	171011	8.71	36712
4	1.433	1.417	1.450	38693	1.97	45165
5	1.517	1.450	1.633	52293	2.66	24203
6	1.651	1.633	1.675	70055	3.57	55542
7	1.708	1.675	1.733	70043	3.57	81598
8	1.992	1.975	2.042	39413	2.01	22049
9	2.397	2.375	2.458	904438	46.06	783315
10	2.824	2.800	2.850	28946	1.47	23902
11	3.035	3.008	3.067	28904	1.47	21941
12	3.223	3.192	3.258	27610	1.41	17344
13	3.443	3.408	3.467	97176	4.95	69027
14	6.574	6.542	6.608	43840	2.23	27647
				1963414	100.00	1542759

## Lampiran 8. Hasil Pengujian GC-MS *Pyrolytic-oil* berbahan Cangkang Sawit dengan Katalis Zeolit alam 75%.

Analyzed by : Admin  
 Analyzed : 6/4/2018 6:10:58 PM  
 Sample Name : Cangkang 300+zeolit 225  
 Sample ID : 12  
 Injection Volume : 0.10  
 Data File : C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Cangkang 300+zeolit 225.qgd  
 Tuning File : C:\GCMSsolution\System1\Tune\1\Tuning 01082017.qgt

### Sample Information

Chromatogram Cangkang 300+zeolit 225 C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Cangkang 300+zeolit 225.qgd



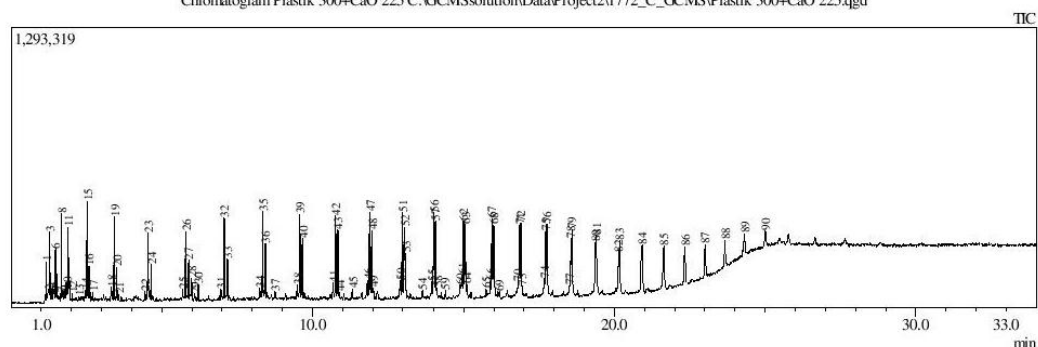
Peak#	R.Time	I.Time	F.Time	Peak Report TIC		Height
				Area	Area%	
1	1.142	1.125	1.158	121762	0.99	207653
2	1.648	1.625	1.692	268321	2.18	232008
3	2.400	2.367	2.467	3140877	25.50	3110643
4	3.037	3.008	3.075	211236	1.72	148794
5	3.141	3.075	3.167	56181	0.46	42168
6	3.225	3.167	3.275	266978	2.17	178011
7	3.445	3.400	3.483	719489	5.84	485062
8	3.508	3.483	3.533	51091	0.41	31198
9	4.030	4.008	4.075	96044	0.78	45869
10	4.210	4.075	4.467	298093	2.42	48440
11	4.602	4.467	4.658	648085	5.26	329792
12	5.673	5.633	5.717	499465	4.06	306258
13	5.817	5.717	5.833	80862	0.66	27403
14	6.119	6.092	6.150	84603	0.69	54462
15	6.575	6.533	6.642	637083	5.17	383101
16	6.674	6.642	6.708	119904	0.97	59129
17	6.808	6.708	6.842	112898	0.92	58082
18	7.804	7.767	7.833	307646	2.50	181403
19	7.861	7.833	7.908	290725	2.36	169195
20	8.740	8.708	8.775	95271	0.77	56001
21	8.810	8.775	8.850	244381	1.98	143731
22	8.877	8.850	8.908	74737	0.61	43700
23	9.214	9.142	9.267	1265330	10.27	545143
24	9.834	9.800	9.875	108570	0.88	67206
25	10.910	10.875	10.967	243039	1.97	133140
26	11.517	11.475	11.558	393814	3.20	227403
27	13.667	13.617	13.742	725280	5.89	395734
28	15.367	15.342	15.392	80912	0.66	33352
29	15.427	15.392	15.542	943491	7.66	378497
30	15.635	15.542	15.692	130578	1.06	56411
				12316746	100.00	8178989



## Lampiran 9. Hasil Pengujian GC-MS *Pyrolytic-oil* Berbahan Plastik dengan Katalis CaO 75%.

Sample Information  
 Analyzed by : Admin  
 Analyzed : 6/4/2018 6:48:41 PM  
 Sample Name : Plastik 300+CaO 225  
 Sample ID : 13  
 Injection Volume : 0.10  
 Data File : C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Plastik 300+CaO 225.qgd  
 Tuning File : C:\GCMSsolution\System1\Tuning 01082017.qgt

Chromatogram Plastik 300+CaO 225 C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Plastik 300+CaO 225.qgd

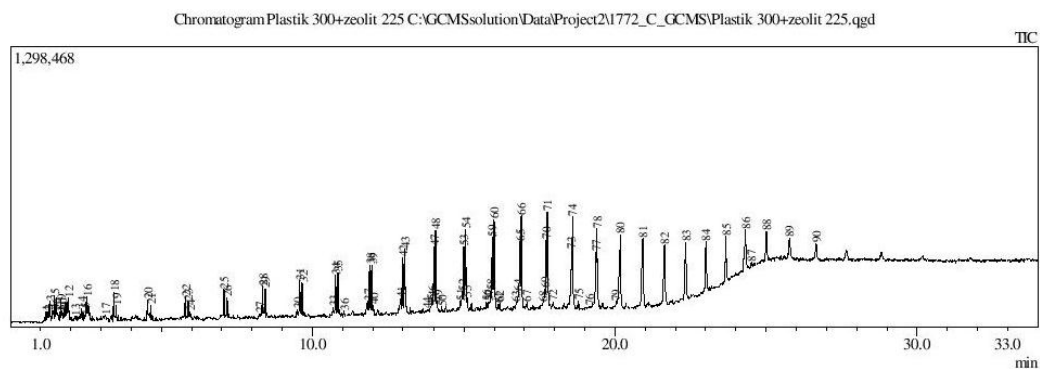


Peak#	R.Time	L.Time	F.Time	Area	Area%	Height
1	1.169	1.100	1.208	288763	1.02	189038
2	1.225	1.208	1.267	235333	0.83	56716
3	1.284	1.267	1.317	337308	1.19	324581
4	1.358	1.317	1.375	93922	0.33	63271
5	1.392	1.375	1.417	108097	0.38	49709
6	1.459	1.417	1.508	548628	1.93	240563
7	1.633	1.508	1.650	294746	1.04	39527
8	1.673	1.650	1.700	408539	1.44	406896
9	1.758	1.700	1.775	100577	0.35	45290
10	1.842	1.775	1.867	244561	0.86	55013
11	1.883	1.867	1.975	588006	2.07	341534
12	2.025	1.975	2.042	44505	0.16	36202
13	2.242	2.225	2.433	121811	0.43	20079
14	2.452	2.433	2.467	54085	0.19	51184
15	2.516	2.467	2.533	499323	1.76	459075
16	2.582	2.533	2.608	235277	0.83	161812
17	2.700	2.650	2.725	62172	0.22	40543
18	3.314	3.283	3.383	185831	0.65	60920
19	3.418	3.383	3.450	467528	1.65	389234
20	3.505	3.450	3.533	241706	0.85	157559
21	3.559	3.533	3.592	50859	0.18	33680
22	4.442	4.417	4.492	66157	0.23	40028
23	4.540	4.492	4.617	500330	1.76	310369
24	4.639	4.617	4.675	223468	0.79	165489
25	5.683	5.658	5.708	70042	0.25	46329
26	5.785	5.708	5.825	506359	1.78	315771
27	5.889	5.825	5.917	315403	1.11	184659
28	5.985	5.917	6.017	221294	0.78	104844
29	6.083	6.058	6.183	91906	0.32	28499
30	6.206	6.183	6.242	117620	0.41	73993
31	6.967	6.942	7.042	117164	0.41	46663
32	7.070	7.042	7.108	611049	2.15	375645
33	7.171	7.108	7.208	344572	1.21	188027
34	8.248	8.217	8.292	86989	0.31	43407
35	8.342	8.292	8.375	620192	2.19	397883
36	8.437	8.375	8.475	462971	1.63	249084
37	8.761	8.733	8.783	46874	0.17	31796
38	9.488	9.450	9.533	134699	0.47	62881
39	9.575	9.533	9.608	631319	2.22	386251
40	9.664	9.608	9.692	481295	1.70	272727
41	10.680	10.642	10.725	138507	0.49	66130
42	10.759	10.725	10.800	639220	2.25	379226
43	10.842	10.800	10.875	517810	1.82	316999
44	10.895	10.875	10.933	51559	0.18	31065
45	11.318	11.292	11.358	70037	0.25	43823

Peak#	R.Time	I.Time	F.Time	Area	Area%	Height
46	11.817	11.792	11.858	112828	0.40	68862
47	11.892	11.858	11.925	629628	2.22	388228
48	11.966	11.925	12.000	523209	1.84	308743
49	12.017	12.000	12.050	64446	0.23	46698
50	12.906	12.875	12.942	131204	0.46	69925
51	12.973	12.942	13.008	645131	2.27	385738
52	13.042	13.008	13.058	557622	1.97	316729
53	13.075	13.058	13.117	317382	1.12	196630
54	13.636	13.608	13.675	51340	0.18	32387
55	13.947	13.917	13.975	95589	0.34	57090
56	14.007	13.975	14.033	648772	2.29	383406
57	14.069	14.033	14.100	654593	2.31	346130
58	14.117	14.100	14.142	59334	0.21	44491
59	14.396	14.367	14.442	65200	0.23	37238
60	14.875	14.850	14.917	124197	0.44	45188
61	14.940	14.917	14.967	189125	0.67	96091
62	14.996	14.967	15.025	657881	2.32	346527
63	15.052	15.025	15.083	597704	2.11	332837
64	15.117	15.083	15.158	136289	0.48	56252
65	15.742	15.717	15.867	146561	0.52	36747
66	15.892	15.867	15.908	134812	0.48	76062
67	15.943	15.908	15.967	661199	2.33	362615
68	15.996	15.967	16.067	706189	2.49	333379
69	16.192	16.067	16.217	116041	0.41	25697
70	16.800	16.775	16.825	97794	0.34	51450
71	16.852	16.825	16.875	547671	1.93	317250
72	16.899	16.875	16.925	545466	1.92	329884
73	16.942	16.925	16.975	59206	0.21	40659
74	17.675	17.642	17.700	146868	0.52	66317
75	17.724	17.700	17.742	481957	1.70	288959
76	17.766	17.742	17.833	600432	2.12	324493
77	18.517	18.492	18.533	65418	0.23	33078
78	18.563	18.533	18.583	501246	1.77	251641
79	18.600	18.583	18.667	491545	1.73	296886
80	19.369	19.308	19.383	460371	1.62	230308
81	19.403	19.383	19.475	529724	1.87	261882
82	20.142	20.108	20.158	299818	1.06	160415
83	20.177	20.158	20.250	418234	1.47	223628
84	20.924	20.842	21.000	737384	2.60	213975
85	21.646	21.583	21.725	587425	2.07	186083
86	22.341	22.275	22.400	502412	1.77	170883
87	23.018	22.967	23.083	367994	1.30	143985
88	23.672	23.625	23.733	291372	1.03	116127
89	24.316	24.275	24.375	190631	0.67	83319
90	25.010	24.967	25.067	148483	0.52	61886
				28376140	100.00	15630812

## Lampiran 10. Hasil Pengujian GC-MS *Pyrolytic-oil* Berbahan Plastik dengan Katalis Zeolit alam 75%.

Sample Information  
 Analyzed by : Admin  
 Analyzed : 6/4/2018 7:26:32 PM  
 Sample Name : Plastik 300+zeolit 225  
 Sample ID : 14  
 Injection Volume : 0.10  
 Data File : C:\GCMSsolution\Data\Project2\1772\_C\_GCMS\Plastik 300+zeolit 225.qgd  
 Tuning File : C:\GCMSsolution\System1\Tuning 01082017.qgt



Peak#	R.Time	I.Time	F.Time	Area	Area%	Height
1	1.182	1.142	1.208	106181	0.38	49234
2	1.250	1.208	1.267	111251	0.40	48065
3	1.299	1.267	1.342	218652	0.79	94808
4	1.403	1.342	1.442	190471	0.69	51915
5	1.458	1.442	1.475	120097	0.43	123047
6	1.493	1.475	1.550	255866	0.92	78381
7	1.567	1.550	1.592	57225	0.21	41656
8	1.636	1.592	1.650	73003	0.26	45882
9	1.673	1.650	1.692	128357	0.46	99331
10	1.710	1.692	1.733	75927	0.27	48635
11	1.758	1.733	1.808	132647	0.48	40827
12	1.924	1.808	1.975	476276	1.72	105719
13	2.150	2.042	2.283	150139	0.54	21554
14	2.352	2.333	2.383	82736	0.30	55034
15	2.475	2.425	2.500	67984	0.25	23893
16	2.515	2.500	2.650	369026	1.33	108310
17	3.147	2.958	3.192	134103	0.48	19439
18	3.418	3.383	3.450	207410	0.75	134618
19	3.502	3.450	3.533	137244	0.50	70401
20	4.537	4.500	4.558	170753	0.62	96463
21	4.638	4.558	4.675	187833	0.68	71530
22	5.783	5.750	5.825	133454	0.48	93177
23	5.887	5.858	5.908	109433	0.40	75280
24	5.934	5.908	5.967	65138	0.24	31358
25	7.068	7.033	7.100	211384	0.76	130821
26	7.169	7.100	7.200	164982	0.60	93312
27	8.258	8.225	8.308	63029	0.23	17071
28	8.339	8.308	8.367	246896	0.89	144254
29	8.435	8.408	8.467	207664	0.75	130563
30	9.491	9.450	9.533	95485	0.35	36867
31	9.574	9.533	9.608	310585	1.12	168426
32	9.662	9.608	9.700	309323	1.12	157040
33	10.679	10.633	10.725	110681	0.40	38892
34	10.758	10.725	10.808	356877	1.29	186402
35	10.840	10.808	10.875	347903	1.26	200452
36	11.040	10.933	11.075	60705	0.22	22888
37	11.816	11.750	11.850	178767	0.65	61035
38	11.890	11.850	11.933	445789	1.61	228900
39	11.965	11.933	11.992	405701	1.47	229512
40	12.015	11.992	12.050	65801	0.24	43089
41	12.907	12.883	12.942	150654	0.54	66878
42	12.973	12.942	13.008	489872	1.77	258523
43	13.042	13.008	13.158	778938	2.82	299661
44	13.789	13.675	13.833	69627	0.25	16440
45	13.908	13.833	13.925	109618	0.40	30003

Peak#	R.Time	L.Time	F.Time	Area	Area%	Height
46	13.945	13.925	13.975	155399	0.56	68451
47	14.007	13.975	14.033	561416	2.03	304321
48	14.068	14.033	14.100	701814	2.54	378737
49	14.117	14.100	14.142	72003	0.26	45849
50	14.258	14.142	14.367	86010	0.31	20626
51	14.877	14.850	14.908	108226	0.39	43372
52	14.940	14.908	14.967	209581	0.76	88658
53	14.997	14.967	15.025	598043	2.16	295657
54	15.053	15.025	15.083	697503	2.52	377789
55	15.105	15.083	15.158	137361	0.50	57457
56	15.742	15.708	15.775	74023	0.27	34925
57	15.824	15.775	15.842	84747	0.31	34978
58	15.892	15.842	15.908	210345	0.76	85724
59	15.943	15.908	15.967	640408	2.31	334636
60	15.995	15.967	16.067	903023	3.26	419123
61	16.136	16.067	16.158	82993	0.30	30766
62	16.188	16.158	16.217	63392	0.23	36021
63	16.733	16.683	16.775	132101	0.48	28465
64	16.800	16.775	16.825	194515	0.70	81241
65	16.851	16.825	16.875	598440	2.16	312058
66	16.898	16.875	16.967	829491	3.00	430091
67	17.092	16.967	17.117	84821	0.31	26443
68	17.600	17.575	17.650	113344	0.41	23992
69	17.675	17.650	17.700	220545	0.80	90421
70	17.725	17.700	17.742	550240	1.99	319479
71	17.767	17.742	17.833	877769	3.17	447357
72	17.953	17.883	17.992	87790	0.32	31626
73	18.567	18.492	18.583	657676	2.38	261446
74	18.600	18.583	18.692	701980	2.54	414250
75	18.790	18.767	18.842	76457	0.28	37682
76	19.142	19.125	19.308	113027	0.41	11021
77	19.369	19.308	19.383	599832	2.17	256459
78	19.403	19.383	19.475	737998	2.67	363499
79	20.033	20.008	20.092	82030	0.30	21864
80	20.176	20.092	20.267	1170760	4.23	336168
81	20.923	20.825	21.025	1032795	3.73	310430
82	21.646	21.567	21.750	865731	3.13	264487
83	22.344	22.267	22.408	775393	2.80	257203
84	23.019	22.958	23.092	631863	2.28	222883
85	23.673	23.600	23.758	597934	2.16	209104
86	24.318	24.225	24.392	653703	2.36	189131
87	24.517	24.392	24.558	79345	0.29	22752
88	25.011	24.958	25.092	364420	1.32	128965
89	25.783	25.700	25.850	315587	1.14	93593
90	26.660	26.600	26.717	196651	0.71	68820
				27670012	100.00	12107606