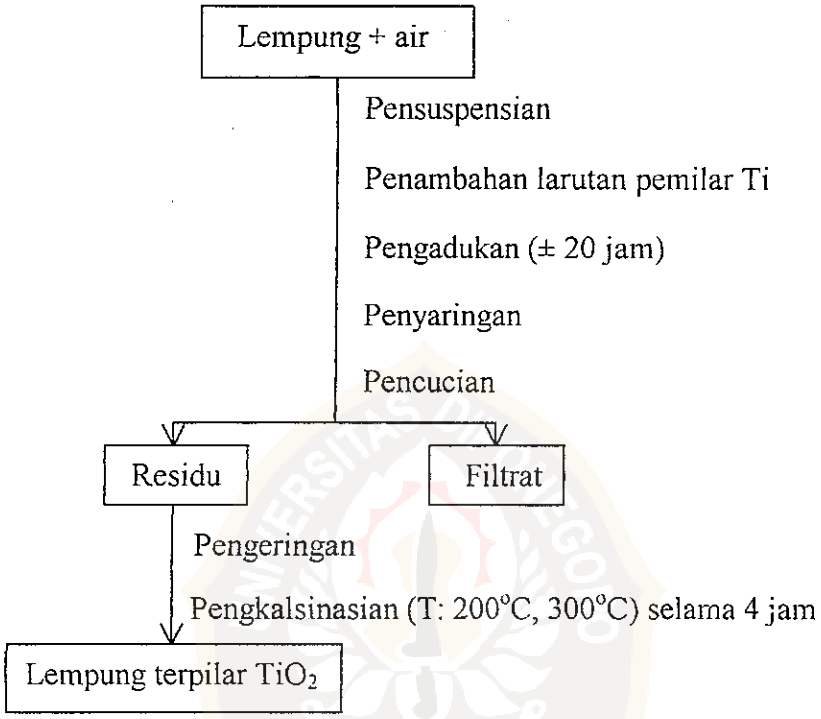
LAMPIRAN

Lampiran A. Skema Kerja Pembuatan Lempung Terpilar TiO_2



Lampiran B. Perhitungan Keasaman Lempung secara Gravimetri

1. Lempung Asli

Diketahui : $W_1 = 0{,}2011$ g

$W_2 = 0{,}2225$ g $- 0{,}2011$ g $= 0{,}0214$ g

$M_b = 79{,}10$ g/mol

dimana, K_a = keasaman lempung (mmol/g)

W_1 = berat lempung (gram)

W_2 = berat basa yang teradsorpsi (gram)

M_b = berat molekul piridin (Mr = 79,10 g mol)

Ditanyakan : K_a = ...?

Jawab : $$K_a = \frac{W_2}{M_b \times W_1} \times 1000$$

$$K_a = \frac{0{,}0214}{79{,}10 \times 0{,}2011} \times 1000$$

$$K_a = 1{,}3453 \text{ mmol/g}$$

2. Lempung Terpilar tanpa kalsinasi

Diketahui : $W_1 = 0{,}2031$ g

$W_2 = 0{,}2248$ g $- 0{,}2031$ g $= 0{,}0217$ g

$M_b = 79{,}10$ g/mol

Ditanyakan : K_a = ...?

Jawab : $$K_a = \frac{W_2}{M_b \times W_1} \times 1000$$

$$K_a = \frac{0{,}0217}{79{,}10 \times 0{,}2031} \times 1000$$

$$K_a = 1{,}3507 \text{ mmol/g}$$

3. Lempung Terpilar TiO_2 kalsinasi 200°C

Diketahui : $W_1 = 0{,}2263$ g

$W_2 = 0{,}2685 \text{ g} - 0{,}2263 \text{ g} = 0{,}0422$ g

$M_b = 79{,}10$ g/mol

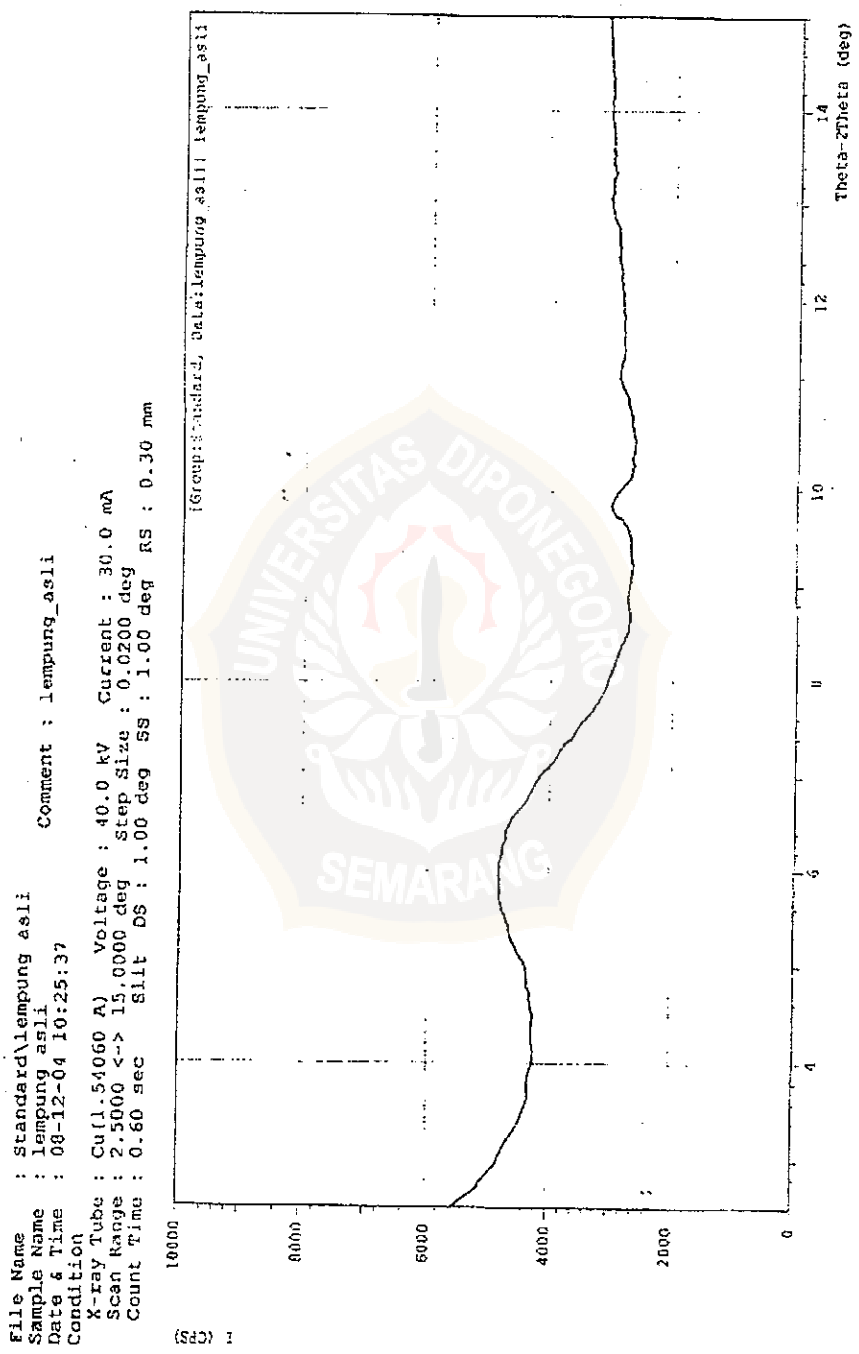
Ditanyakan : K_a = ...?

Jawab : $$K_a = \frac{W_2}{M_b \times W_1} \times 1000$$

$$K_a = \frac{0{,}0422}{79{,}10 \times 0{,}2263} \times 1000$$

$$K_a = 2{,}3575 \text{ mmol/g}$$

Lampiran C. Hasil XRD pada Lempung Asli



*** Basic Data Process ***

Group Name : Standard
Data Name : lempung asli
File Name : lempung asli.PKR
Sample Name : lempung asli
Comment : lempung_asli

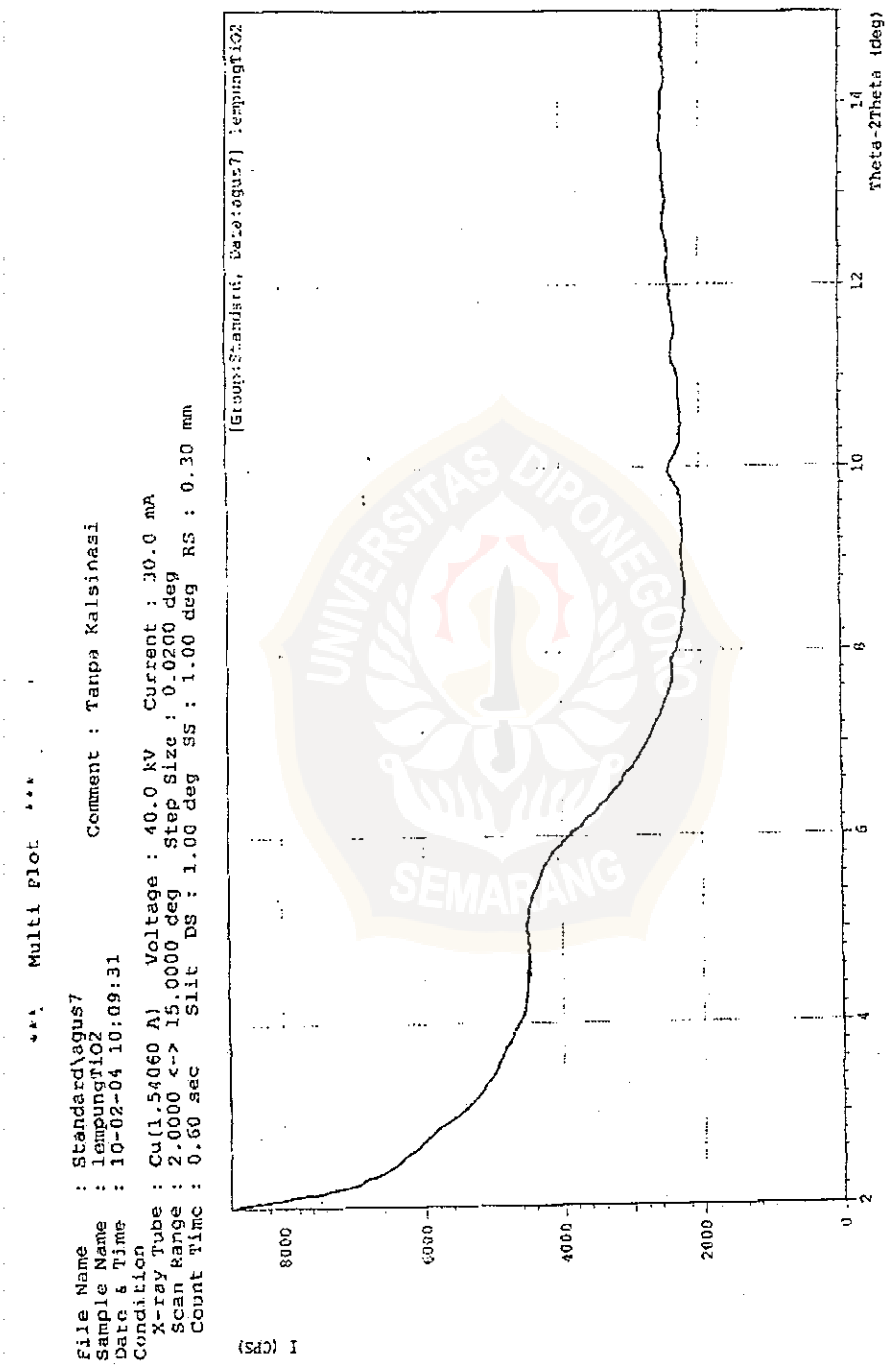
Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	1	6.2174	14.20420	100	2.18240	504	56066
2	2	9.8472	8.97500	28	0.30310	141	2254
3	4	12.9800	6.81502	23	0.55500	115	9326

Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	6.2174	14.20420	100	2.18240	504	56066
2	9.8472	8.97500	28	0.30310	141	2254
3	11.2890	7.83177	15	0.56200	77	3292
4	12.9800	6.81502	23	0.55500	115	9326

Lampiran D. Hasil XRD pada Lempung Terpilar tanpa kalsinasi



*** Basic Data Process ***

Group Name : Standard
Data Name : agus7
File Name : agus7.PKR
Sample Name : lempungTiO2
Comment : Tanpa Kalsinasi

Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	1	5.4676	16.15030	100	1.43930	262	19164
2	6	13.6000	6.50569	30	1.27120	78	7545
3	3	9.9590	8.87449	26	0.27190	69	973

Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	5.4676	16.15030	100	1.43930	262	19164
2	9.0200	9.79613	4	0.12000	10	66
3	9.9590	8.87449	26	0.27190	69	973
4	11.2410	7.86510	16	0.29340	41	1115
5	12.3000	7.19021	16	0.00000	43	0
6	13.6000	6.50569	30	1.27120	78	7545

*** Basic Data Process ***

Group Name : Standard
Data Name : agus8
File Name : agus8.PKR
Sample Name : lempungTiO2
Comment : Kalsinasi 200 C

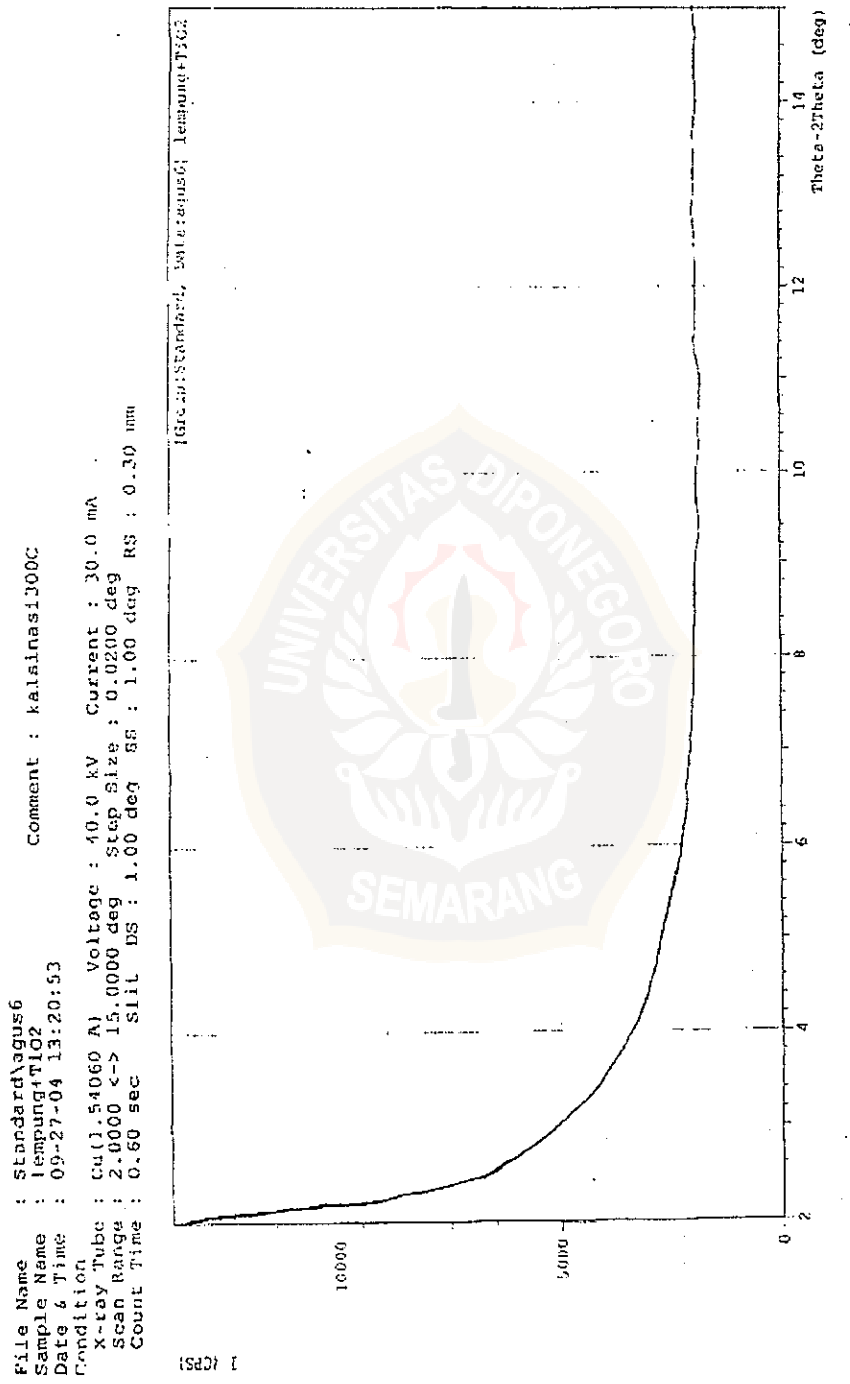
Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	6	12.9800	6.81502	100	1.28000	66	3688
2	7	13.8000	6.41186	92	0.00000	61	0
3	5	12.2400	7.22532	56	0.84000	37	1013

Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	4.9600	17.80190	6	0.08000	4	20
2	8.3420	10.59073	38	0.75600	25	1277
3	9.8516	8.97100	15	0.24330	10	103
4	11.6200	7.60941	32	0.80000	21	695
5	12.2400	7.22532	56	0.84000	37	1013
6	12.9800	6.81502	100	1.28000	66	3688
7	13.8000	6.41186	92	0.00000	61	0

Lampiran F. Hasil XRD pada Lempung Terpilar TiO_2 kalsinasi 300°C



*** Basic Data Process ***

Group Name : Standard
Data Name : agus6
File Name : agus6.PKR
Sample Name : lempung+TiO2
Comment : kalsinasi300C

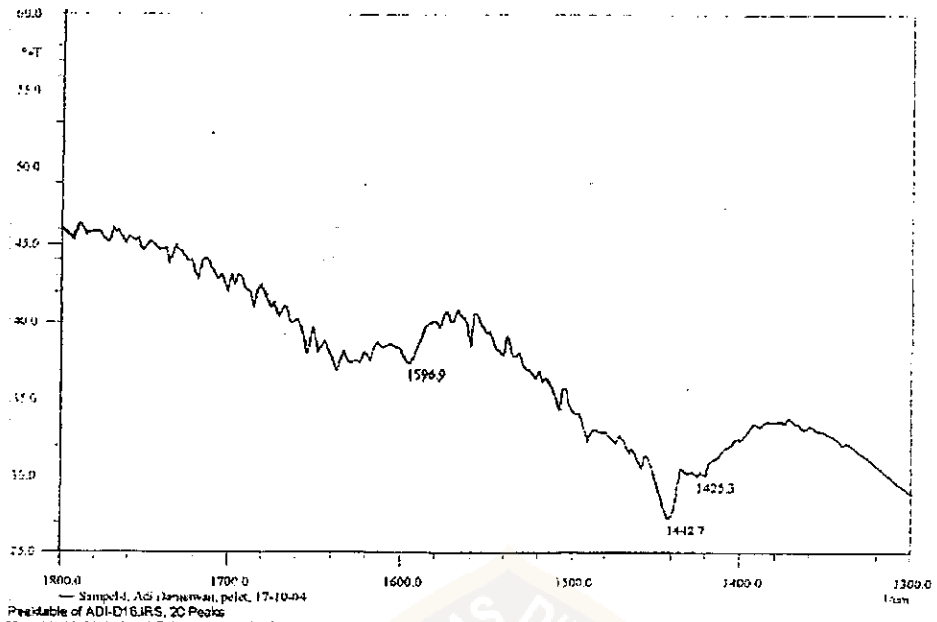
Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	11	13.6000	6.50569	100	0.81340	50	2075
2	10	12.8000	6.91045	96	0.70400	48	1741
3	12	14.3800	6.15452	84	0.00000	42	0

Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	5.0600	17.45031	8	0.06000	4	12
2	6.0583	14.57686	8	0.06330	4	14
3	6.7616	13.06216	8	0.02330	4	4
4	7.3493	12.01889	18	0.04140	9	33
5	7.9380	11.12881	16	0.03600	8	21
6	9.9075	8.92051	20	0.09500	10	94
7	10.6533	8.29763	6	0.02670	3	5
8	11.4200	7.74222	68	0.49720	34	1362
9	12.1600	7.27268	60	0.00000	30	0
10	12.8000	6.91045	96	0.70400	48	1741
11	13.6000	6.50569	100	0.81340	50	2075
12	14.3800	6.15452	84	0.00000	42	0

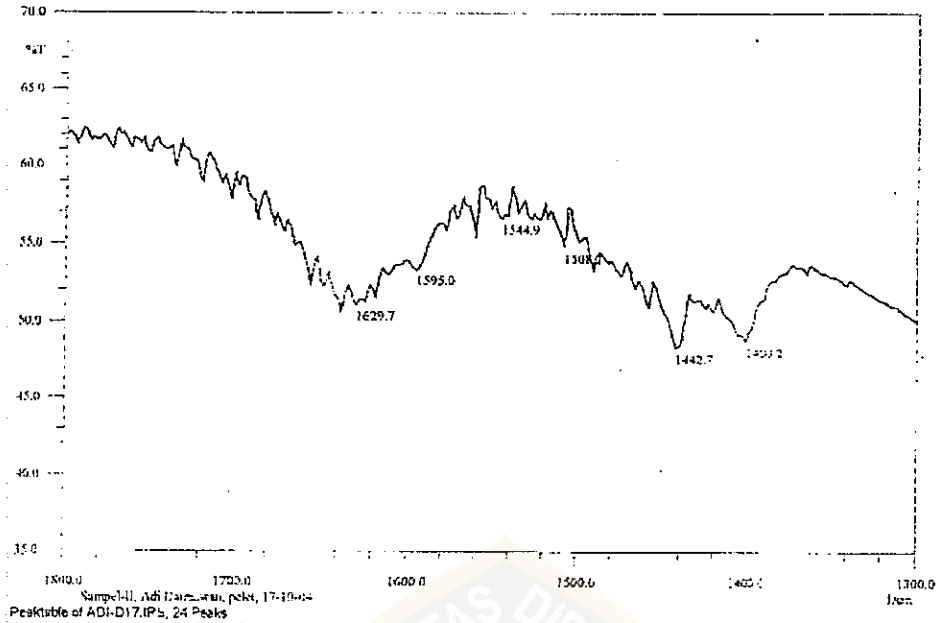
Lampiran G. Hasil Spektra IR pada Lempung Asli



— Sampel-1, Asli Jamanwati, pelet, 17-10-04
Peaktable of ADI-D16.IRS, 20 Peaks
Threshhold: 80, Noise: 1.5, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	424.3	9.538
2	462.9	3.162
3	520.7	5.033
4	704.0	35.851
5	750.3	41.792
6	798.5	27.953
7	877.6	25.806
8	1043.4	0.805
9	1425.3	30.034
10	1442.7	27.242
11	1596.9	37.346
12	2345.3	47.768
13	2362.6	47.294
14	3433.1	33.994
15	3620.1	29.515
16	3651.0	29.943
17	3712.7	41.579
18	3735.9	43.087
19	3753.2	43.206
20	3856.4	43.322

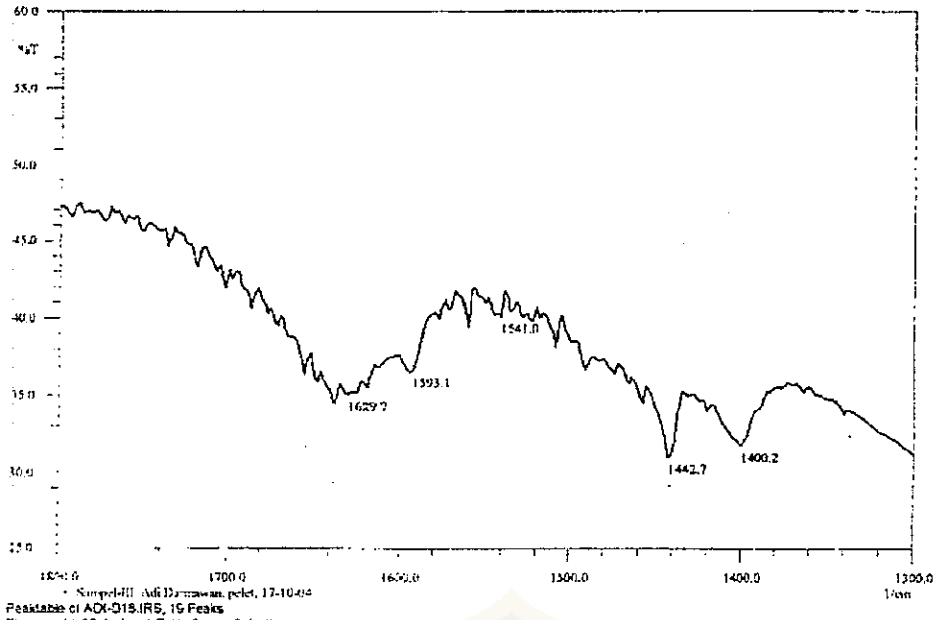
Lampiran H. Hasil Spektra IR pada Lempung Terpilar tanpa kalsinasi



Peaktable of ADI-D17.IPs, 24 Peaks
Threshhold: 80, Noise: 1.5, No Range Selection

Nr	Pos. (1/cm)	Inten. (%T)
1	420.5	25.788
2	447.5	19.985
3	470.6	15.360
4	522.7	19.166
5	704.0	36.387
6	795.5	37.705
7	920.0	37.040
8	1047.3	13.485
9	1400.2	46.716
10	1442.7	48.277
11	1508.2	54.731
12	1544.9	36.587
13	1595.0	53.341
14	1629.7	51.064
15	2380.0	58.824
16	2929.7	46.309
17	3232.5	38.795
18	3422.4	33.571
19	3651.0	43.948
20	3712.7	51.568
21	3735.9	52.230
22	3849.0	51.342
23	3855.4	49.564
24	3870.9	50.734

Lampiran I. Hasil Spektra IR pada Lempung Terpilar TiO_2 kalsinasi 200°C



Peaktable of ADI-015.IRS, 19 Peaks
Threshhold: 80, Noise: 1.5, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	414.7	9.348
2	450.1	7.354
3	464.8	3.383
4	704.0	17.282
5	756.5	17.979
6	920.0	18.661
7	1047.3	2.721
8	1400.2	31.749
9	1442.7	30.993
10	1541.0	40.060
11	1593.1	36.585
12	1629.7	35.015
13	2360.0	45.691
14	3232.5	24.100
15	3423.4	20.025
16	3691.5	37.091
17	3736.9	39.297
18	3855.4	37.106
19	3870.8	37.709

Lampiran J. Hasil Adsorpsi gas N_2 pada Lempung Terpilar TiO_2

Quantachrome Corporation
NOVA Data Analysis Package Ver. 2.00
File Name = lemotio2.cat

User ID	= Slamet	User Samp	= 5
Sample ID	= Lempung TiO2	Sample Cell Number	= 2
Sample Weight	= 0.3120 g	Sample Volume	= 0.3120 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.69 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Thu Oct 21 08:46:39 2004	Analysis End Time	= Thu Oct 21 11:02:49 2004

Multi BET (Adsorption)

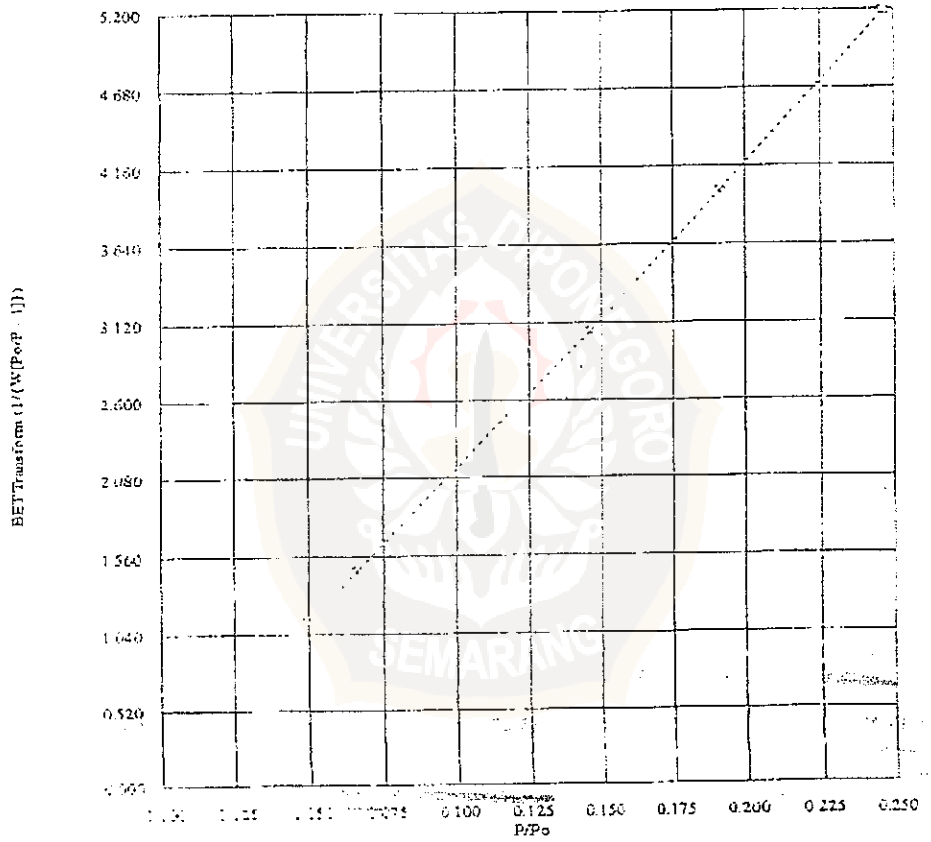
P/Po	BET Transform (1/{W[Po/P - 1]})
0.049693	1.132341
0.066549	1.475538
0.146197	3.070339
0.191873	4.006463
0.246631	5.186262

Slope	=	20.485974
Intercept	=	0.102290
Correlation Coefficient	=	0.999885
BET C	=	201.272709
Surface Area	=	52.778359 sq m
Specific Surface Area	=	169.150565 sq m/g

Quantachrome Corporation
NOVA Data Analysis Package Ver. 2.00
File Name = lemotio2.dat

User ID	= Slamet	User Setup	= 5
Sample ID	= Lempung TiO2	Sample Cell Number	= 2
Sample Weight	= 0.3120 g	Sample Volume	= 0.3120 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.69 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Thu Oct 21 08:46:39 2004	Analysis End Time	= Thu Oct 21 11:02:49 2004

Multi BET (Adsorption)



Quantachrome Corporation
NOVA Data Analysis Package Ver. 2.00
File Name = lemotio2.dat

User ID	= Slamet	User Setup	= 5
Sample ID	= Lempung TiO2	Sample Cell Number	= 2
Sample Weight	= 0.3120 g	Sample Volume	= 0.3120 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.69 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Thu Oct 21 08:46:39 2004	Analysis End Time	= Thu Oct 21 11:02:49 2004

DVR (Adsorption)

Pore Radius (Ang)	Pore Area (sq m/Å/g e-03)	Pore Volume (cc/Å/g e-03)
391.017836	0.305576	0.005974
167.652857	3.889661	0.032606
99.675215	19.590383	0.097634
73.104534	49.366973	0.180447
58.703097	105.152659	0.308639
48.251201	187.821257	0.453130
42.119907	269.910416	0.568430
36.629238	435.053595	0.796785
32.292784	634.425456	1.024368
29.061919	1002.421303	1.456614
26.070491	1942.075597	2.531543
23.786747	1810.841074	2.153701
21.792721	2348.960494	2.559512
20.017483	3007.213667	3.009842
18.374679	3888.315759	3.572328
17.080069	4801.084835	4.100143
15.964561	5757.746439	4.595995
14.800462	7337.586697	5.429984
13.735825	9044.956579	6.211997

Total Pore Volume is 131.616423 e-03 cc/g for all pores less than 542.237863 Angstrom

Average pore radius is 15.562044 Angstrom

Quantachrome Corporation
NOVA Data Analysis Package Ver. 2.00
File Name = lemotio2 .dat

User ID	= Slamet	User Setup	= 5
Sample ID	= Lampung TiO2	Sample Cell Number	= 2
Sample Weight	= 0.3120 g	Sample Volume	= 0.3120 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.69 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Thu Oct 21 08:46:39 2004	Analysis End Time	= Thu Oct 21 11:02:49 2004

DVR (Adsorption)