

## LAMPIRAN

Lampiran 1: Preparasi larutan HCl 3N

Larutan stok HCl p.a 37 %

- Massa jenis = 1,17 g/mL
- Berat Molekul = 36,5 mol/g

$$[HCl] = \frac{1,17 \text{ g/mL} \times 1000 \text{ mL} \times 0,37}{36,5 \text{ mol/g} \times 1 \text{ L}}$$

$$[HCl] = 11,86 \text{ mol/L}$$

$$[HCl] = 11,86 \text{ N}$$

Pembuatan larutan HCl 3N

$$V_1 N_1 = V_2 N_2$$

$$V_1 (11,86 \text{ N}) = (500 \text{ mL}) (3 \text{ N})$$

$$V_1 = \frac{(500 \text{ mL}) (3 \text{ N})}{(11,86 \text{ N})}$$

$$V_1 = 126,5 \text{ mL}$$

Kesimpulan: larutan stok HCl 37 % sebanyak 126,5 mL dimasukkan dalam labu takar 500 mL dilanjutkan dengan penambahan air sampai tanda batas.

*Lampiran 2: Perhitungan ratio konsentrasi zeolit-molekul pengarah*

Hasil karakterisasi dengan AAS oleh Tarsilah<sup>[12]</sup> pada zeolit hasil dealuminasi dengan HCl 3N selama 3 jam menunjukkan SiO<sub>2</sub> sebesar 90,26 %. Jika zeolit yang digunakan adalah 100 gram maka SiO<sub>2</sub> dalam zeolit sebanyak 90,26 gram.

$$Si = \frac{Ar.Si}{BM.SiO_2} \times m_{SiO_2}$$

$$Si = \frac{28,09}{60,09} \times 90,26 \text{ gram}$$

$$Si = 42,19 \text{ gram}$$

atau

$$Si = 42,19\%$$

jika zeolit yang akan digunakan sebanyak 22 gram maka TMACl yang akan digunakan sebanyak:

$$22 \text{ gram zeolit} = 22 \times 0,4219 \text{ gram Si}$$

$$= 9,28 \text{ gram Si}$$

$$\text{mol Si} = 9 / 28,09$$

$$= 0,33 \text{ mol}$$

ratio template dengan Si adalah 1 : 10

$$\frac{\text{molSi}}{\text{molTMACl}} = \frac{10}{1}$$

$$\frac{0,33 \text{ mol}}{\text{molTMACl}} = \frac{10}{1}$$

$$\text{molTMACl} = \frac{0,33 \text{ mol}}{10}$$

$$\text{molTMACl} = 0,033$$

$$\text{beratTMACl} = 0,033 \cdot 109,5 \text{ gram}$$

$$\text{beratTMACl} = 3,61 \text{ gram}$$

Lampiran 3: Data Print out tekstur permukaan ZA dari metode adsorpsi gas N<sub>2</sub>

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

User ID	= yuli	User Setup	= 2
Sample ID	= ZA	Sample Cell Number	= 4
Sample Weight	= 0.2118 g	Sample Volume	= 0.2118 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Tue Jan 30 08:39:07 1996	Analysis End Time	= Tue Jan 30 08:39:07 1996

Multi BET (Adsorption)	
P/Po	BET Transform (1/{W[Po/P - 1]})
0.101931	10.179144
0.150902	14.600570
0.201431	19.860531
Slope	= 97.336405
Intercept	= 0.141274
Correlation Coefficient	= 0.999163
BET C	= 689.992311
Surface Area	= 7.566830 sq m
Specific Surface Area	= 35.726297 sq m/g

## Lampiran 3 (lanjutan)

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

User ID	= yuli	User Setup	= 2
Sample ID	= ZA	Sample Cell Number	= 4
Sample Weight	= 0.2118 g	Sample Volume	= 0.2118 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Tue Jan 30 08:39:07 1996	Analysis End Time	= Tue Jan 30 08:39:07 1996

Pore Radius (Ang)	DVR (Adsorption)	
	Pore Area (sq m/Å/g e-03)	Pore Volume (cc/Å/g e-03)
389.567823	0.116520	0.002270
188.137319	0.833778	0.007843
108.732739	4.263048	0.023177
78.869730	9.305969	0.036698
63.715287	19.046563	0.060678
52.560284	32.629993	0.085752
45.312574	50.251547	0.113851
39.252276	65.977027	0.129487
34.926850	109.240574	0.190771
31.282975	129.379258	0.202368
28.365257	184.503962	0.261675
25.797040	265.097370	0.341936
23.612834	283.423813	0.334622
21.463926	168.284362	0.180602
20.085125	269.638792	0.270786
18.588714	718.136854	0.667462
17.266451	945.851253	0.816575
16.259451	2320.750540	1.886707
15.016242	898.455014	0.674571
13.997296	1172.981172	0.820928
13.001217	1371.784045	0.891743
11.744037	1597.876296	0.938276
10.542043	2090.294937	1.101799
9.364500	6548.295224	3.066075

Total Pore Volume is 27.108689 e-03 cc/g for all pores less than 511.621451 Angstrom.

Average pore radius is 116.684451 Angstrom.

## Lampiran 3 (lanjutan)

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

User ID	= yuli	User Setup	= 2
Sample ID	= ZA	Sample Cell Number	= 4
Sample Weight	= 0.2118 g	Sample Volume	= 0.2118 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Tue Jan 30 08:39:07 1996	Analysis End Time	= Tue Jan 30 08:39:07 1996

Pore Radius (Ang)	BJH (Adsorption)	
	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
389.567823	25531.712473	23.193264
188.137319	25497.952717	22.535678
108.732739	25403.630387	21.648401
78.869730	25208.882492	20.589627
63.715287	25078.196607	20.074269
52.560284	24768.391782	19.087304
45.312574	24571.164665	18.568988
39.252276	24146.485316	17.606822
34.926850	23904.380903	17.131665
31.282975	23360.217984	16.181370
28.365257	23061.814764	15.714623
25.797040	22410.697527	14.791168
23.612834	21984.575195	14.241533
21.463926	21202.043694	13.317644
20.085125	20943.420487	13.040090
18.588714	20614.251201	12.709520
17.266451	19341.680852	11.526748
16.259451	18516.444582	10.814303
15.016242	15867.261707	8.660589
13.997296	14658.930296	7.753360
13.001217	13846.062603	7.184462
11.744037	12063.889473	6.025941
10.542043	10122.158580	4.885753
9.364500	7637.227974	3.575941

Total Pore Volume is 27.108689 e-03 cc/g for  
all pores less than 511.621451 Angstrom.

Average pore radius is 116.684451 Angstrom.

Lampiran 4: Data Print out tekstur permukaan ZH-12 dari metode adsorpsi gas N<sub>2</sub>

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-12	Sample Cell Number	= 2
Sample Weight	= 0.9812 g	Sample Volume	= 0.9812 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sun Mar 10 10:08:24 2002	Analysis End Time	= Sun Mar 10 10:08:24 2002

Multi BET (Adsorption)

P/Po	BET Transform (1/{W[Po/P - 1]})
0.104193	4.808644
0.146762	6.863348
0.196330	9.019276
Slope	= 45.639724
Intercept	= 0.092435
Correlation Coefficient	= 0.999552
BET C	= 494.751196
Surface Area	= 74.718652 sq m
Specific Surface Area	= 76.150277 sq m/g

## Lampiran 4 (lanjutan)

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-12	Sample Cell Number	= 2
Sample Weight	= 0.9812 g	Sample Volume	= 0.9812 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sun Mar 10 10:08:24 2002	Analysis End Time	= Sun Mar 10 10:08:24 2002

Pore Radius (Ang)	DVR (Adsorption)	
	Pore Area (sq m/Å/g e-03)	Pore Volume (cc/Å/g e-03)
654.814469	0.029947	0.000980
185.980258	0.924116	0.008593
112.212769	3.985401	0.022361
81.258585	14.357691	0.058334
64.479538	48.451719	0.156207
53.541313	35.609227	0.095328
44.753041	60.925105	0.136329
39.060611	90.922360	0.177574
34.880239	126.752363	0.221058
31.252187	173.546823	0.271186
28.700091	220.931522	0.317038
26.029665	296.181198	0.385475
23.758163	398.667403	0.473580
21.871476	510.271504	0.558020
20.208384	625.083228	0.631596
18.764485	765.856975	0.718546
17.462069	806.316409	0.703998
16.260285	1142.402720	0.928790
15.123927	3836.284142	2.900984

Total Pore Volume is 49.432891 e-03 cc/g for all pores less than 1041.271548 Angstrom.

Average pore radius is 214.084154 Angstrom.

## Lampiran 4 (lanjutan)

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-12	Sample Cell Number	= 2
Sample Weight	= 0.9812 g	Sample Volume	= 0.9812 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sun Mar 10 10:08:24 2002	Analysis End Time	= Sun Mar 10 10:08:24 2002

Pore Radius (Ang)	BJH (Adsorption)	
	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
654.814469	15042.168825	21.074373
185.980258	15017.291116	20.259859
112.212769	14918.473850	19.340956
81.258585	14756.653563	18.433041
64.479538	14450.761509	17.190223
53.541313	13857.082879	15.276217
44.753041	13514.399084	14.358830
39.060611	13029.856264	13.274591
34.880239	12717.831521	12.665197
31.252187	12093.072698	11.575611
28.700091	11689.206108	10.944525
26.029665	11075.666435	10.064093
23.758163	10316.318755	9.075814
21.871476	9527.272330	8.138500
20.208384	8611.761680	7.137321
18.764485	7654.122452	6.169704
17.462069	6615.788798	5.195514
16.260285	5608.657948	4.316185
15.123927	4289.735232	3.243882

Total Pore Volume is 49.432891 e-03 cc/g for all pores less than 1041.271548 Angstrom.

Average pore radius is 214.084154 Angstrom.



Lampiran 5: Data Print out tekstur permukaan ZH-18 dari metode adsorpsi gas N<sub>2</sub>

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-18	Sample Cell Number	= 4
Sample Weight	= 0.2868 g	Sample Volume	= 0.2868 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sat Mar 09 13:03:35 2002	Analysis End Time	= Sat Mar 09 13:03:35 2002

Multi BET (Adsorption)	
P/Po	BET Transform (1/{W[Po/P - 1]})
0.097560	3.133839
0.146698	4.675969
0.197713	6.333996
Slope	= 31.956175
Intercept	= 0.006700
Correlation Coefficient	= 0.999949
BET C	= 4770.345436
Surface Area	= 31.248307 sq m
Specific Surface Area	= 108.955044 sq m/g

## Lampiran 5 (lanjutan)

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-18	Sample Cell Number	= 4
Sample Weight	= 0.2868 g	Sample Volume	= 0.2868 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sat Mar 09 14:01:56 2002	Analysis End Time	= Sat Mar 09 14:01:56 2002

Pore Radius (Ang)	DVR (Adsorption)	
	Pore Area (sq m/Å/g e-03)	Pore Volume (cc/Å/g e-03)
659.822517	0.034183	0.001128
179.614793	1.058679	0.009508
107.237857	4.893874	0.026240
78.404802	11.962162	0.046895
63.342128	22.050107	0.069835
52.429226	40.350885	0.105778
45.525646	57.291230	0.130411
39.533235	87.941653	0.173831
35.503430	122.156950	0.216850
31.687980	165.967906	0.262959
28.478392	230.100391	0.327644
25.778862	291.145115	0.375269
23.393809	393.586586	0.460374
21.654463	337.819365	0.365765
20.304487	413.273224	0.419565
18.821726	802.846816	0.755548
17.459752	966.077888	0.843374

Total Pore Volume is 62.005664 e-03 cc/g for all pores less than 1060.394777 Angstrom.

Average pore radius is 214.649901 Angstrom.

## Lampiran 5 (lanjutan)

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-18	Sample Cell Number	= 4
Sample Weight	= 0.2868 g	Sample Volume	= 0.2868 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sat Mar 09 14:01:56 2002	Analysis End Time	= Sat Mar 09 14:01:56 2002

BJH (Adsorption)		
Pore Radius (Ang)	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
659.822517	8732.149228	15.211243
179.614793	8702.775003	14.242155
107.237857	8595.746256	13.280957
78.404802	8382.092799	12.135370
63.342128	8214.517426	11.478435
52.429226	7859.145519	10.352934
45.525646	7628.772545	9.749020
39.533235	7164.832850	8.692963
35.503430	6823.012172	8.017299
31.687980	6313.287015	7.112449
28.478392	5739.337956	6.203085
25.778862	5058.014332	5.232935
23.393809	4348.180809	4.318000
21.654463	3430.324448	3.244392
20.304487	3042.960285	2.824984
18.821726	2401.026131	2.173277
17.459752	1267.222164	1.106269

Total Pore Volume is 62.005664 e-03 cc/g for all pores less than 1060.394777 Angstrom.

Average pore radius is 214.649901 Angstrom.

Lampiran 6: Data Print out tekstur permukaan ZH-24 dari metode adsorpsi gas N<sub>2</sub>

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-24	Sample Cell Number	= 4
Sample Weight	= 0.1489 g	Sample Volume	= 0.1489 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sun Mar 10 09:17:14 2002	Analysis End Time	= Sun Mar 10 09:17:14 2002

Multi BET (Adsorption)

P/Po

BET Transform  
(1/{W[Po/P - 1]})

0.091011  
0.149260  
0.201369

4.327003  
7.239187  
10.191550

Slope  
Intercept  
Correlation Coefficient  
BET C

= 53.079599  
= -0.561445  
= 0.999350  
= -93.541110

Surface Area  
Specific Surface Area

= 9.873666 sq m  
= 66.310719 sq m/g

## Lampiran 6 (lanjutan)

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-24	Sample Cell Number	= 4
Sample Weight	= 0.1489 g	Sample Volume	= 0.1489 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sun Mar 10 09:17:14 2002	Analysis End Time	= Sun Mar 10 09:17:14 2002

Pore Radius (Ang)	DVR (Adsorption)	
	Pore Area (sq m/Å/g e-03)	Pore Volume (cc/Å/g e-03)
721.146407	0.025044	0.000903
164.051823	0.914029	0.007497
110.031143	2.782602	0.015309
79.637096	5.833016	0.023226
64.049292	12.124837	0.038829
52.335988	26.021689	0.068094
44.701886	122.170287	0.273062
38.298920	43.047121	0.082433
34.287407	52.412668	0.089855
31.276855	76.104015	0.119015
28.173608	113.734284	0.160215
25.632242	111.030597	0.142298
23.578480	139.623674	0.164606

Total Pore Volume is 39.231303 e-03 cc/g for all pores less than 1216.707399 Angstrom.

Average pore radius is 312.788786 Angstrom.

## Lampiran 6 (lanjutan)

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

User ID	= yuli	User Setup	= 3
Sample ID	= ZH-24	Sample Cell Number	= 4
Sample Weight	= 0.1489 g	Sample Volume	= 0.1489 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 770.00 mm Hg
Adsorbate	= Nitrogen	Bath Temperature	= 77.35 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.1000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 60 sec
Adsorption Dwell Time	= 120 sec	Desorption Dwell Time	= 120 sec
Analysis Start Time	= Sun Mar 10 09:17:14 2002	Analysis End Time	= Sun Mar 10 09:17:14 2002

Pore Radius (Ang)	BJH (Adsorption)	
	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
721.146407	3181.071837	8.007683
164.051823	3154.725159	7.057692
110.031143	3097.905206	6.591622
79.637096	2970.247549	5.889306
64.049292	2883.271317	5.542979
52.335988	2686.065870	4.911436
44.701886	2499.697953	4.423748
38.298920	1509.363458	2.210257
34.287407	1307.052703	1.822843
31.276855	1132.871016	1.524231
28.173608	927.555322	1.203150
25.632242	528.499980	0.641008
23.578480	353.730065	0.417021

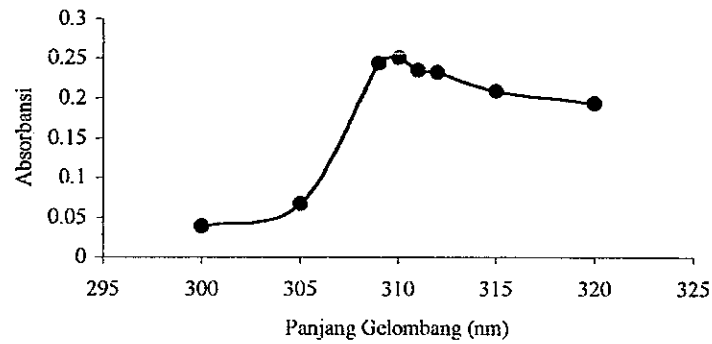
Total Pore Volume is 39.231303 e-03 cc/g for all pores less than 1216.707399 Angstrom.

Average pore radius is 312.788786 Angstrom.

*Lampiran 7: Penentuan % adsorpsi dengan metode spektrofotometri UV*

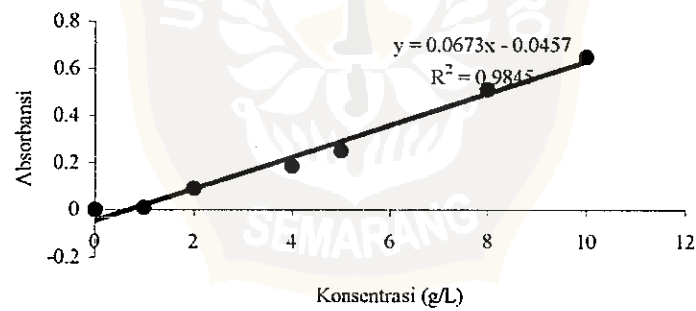
**a. Benzena**

- Penentuan panjang gelombang maksimum



Gambar 7.1 Panjang gelombang maksimum benzena

- Kurva standar benzena



Gambar 7.2 Kurva standar benzena

Lampiran 7 (lanjutan)

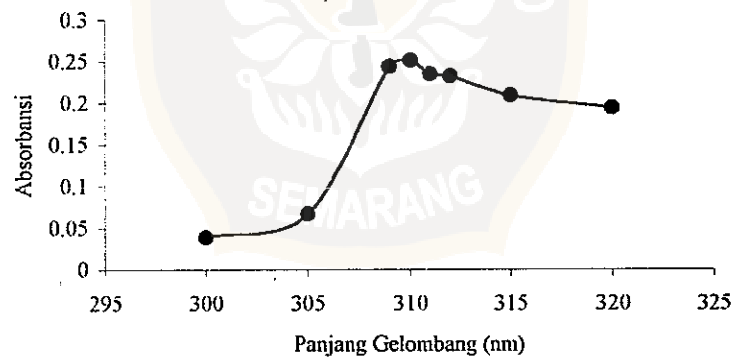
- Penentuan konsentrasi

Tabel 7.1 Penentuan konsentrasi benzena yang teradsorpsi

Adsorben	Absorbansi	Konsentrasi awal (g/L)	Konsentrasi sisa (g/L)	Konsentrasi teradsorpsi (g/L)	% adsorpsi
ZA	0.213	5	3.84	1.16	23,3
ZH-6	0.012	5	0.84	4.16	83,2
ZH-12	0.006	5	0.75	4.25	85,0
ZH-18	0.052	5	1.43	3.57	71,4
ZH-24	0.071	5	1.71	3.29	65,8
ZH-30	0.059	5	1.54	3.46	69,2

b. Asam Stearat

- Penentuan panjang gelombang maksimum

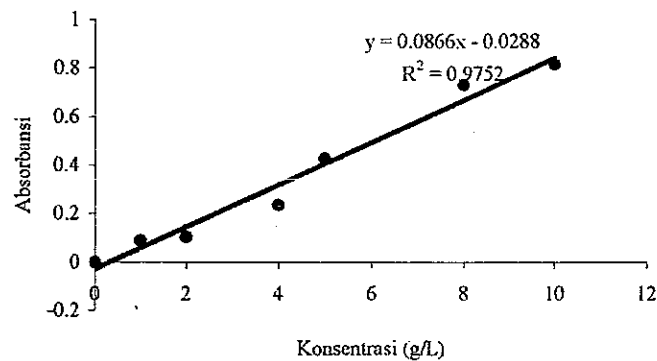


Gambar 7.3 Penentuan panjang gelombang maksimum asam stearat.



## Lampiran 7 (lanjutan)

## - Kurva standar asam stearat



Gambar 7.4 Kurva standar asam stearat

## - Penentuan konsentrasi

Tabel 7.2 Penentuan konsentrasi asam stearat yang teradsorpsi

Adsorben	Absorbansi	Konsentrasi awal (g/L)	Konsentrasi sisa (g/L)	Konsentrasi teradsorpsi (g/L)	% adsorpsi
ZA	0,355	5	4,43	0,57	11,4
ZH-6	0,310	5	3,91	1,09	21,8
ZH-12	0,131	5	1,84	2,16	63,0
ZH-18	0,159	5	2,16	1,84	56,8
ZH-24	0,005	5	0,39	4,61	92,2
ZH-30	0,020	5	0,56	4,44	88,2

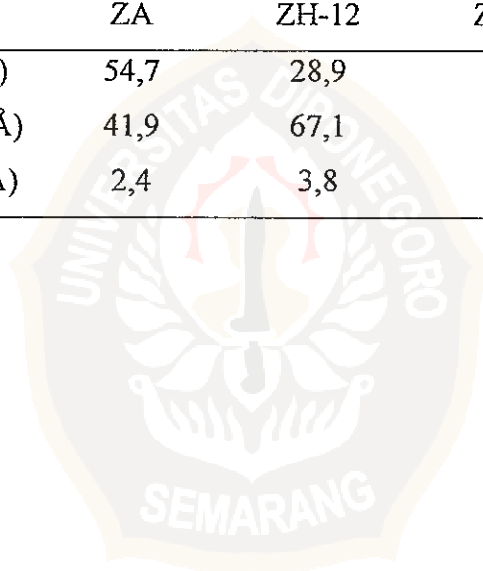
*Lampiran 8: Distribusi ukuran dan volume pori zeolit.*

Tabel 8.1 Distribusi ukuran pori zeolit

Ukuran pori	% distribusi ukuran pori			
	ZA	ZH-12	ZH-18	ZH-24
Mikropori (<20 Å)	83,7	43,6	23,8	0
Mesopori (20-500 Å)	16,3	56,3	76,1	99,8
Makropori (>500 Å)	0	0,1	0,1	0,2

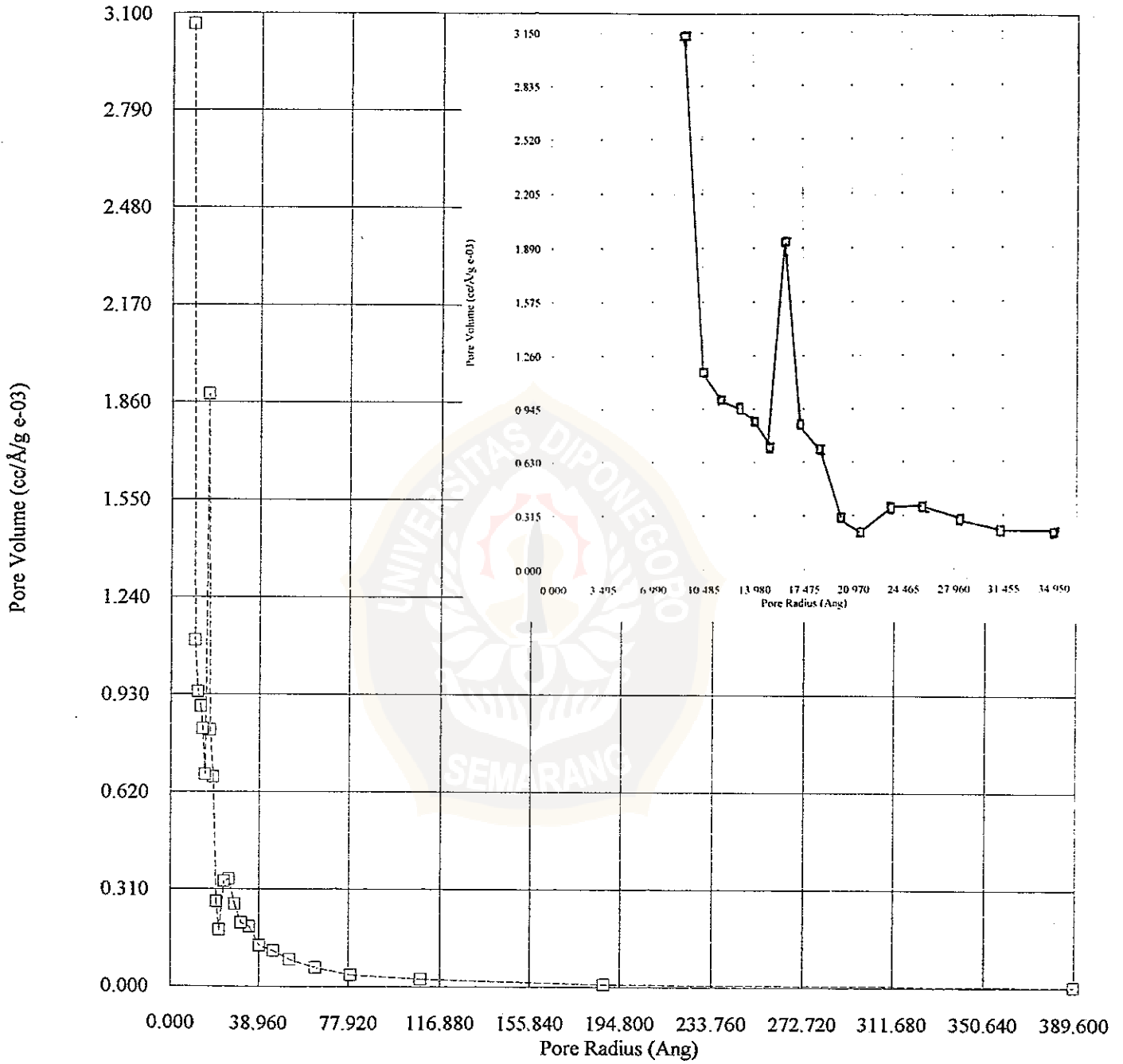
Tabel 8.2 Distribusi volume pori zeolit

Ukuran pori	% distribusi volume pori			
	ZA	ZH-12	ZH-18	ZH-24
Mikropori (<20 Å)	54,7	28,9	14,2	0
Mesopori (20-500 Å)	41,9	67,1	79,1	88,1
Makropori (>500 Å)	2,4	3,8	6,7	12,1



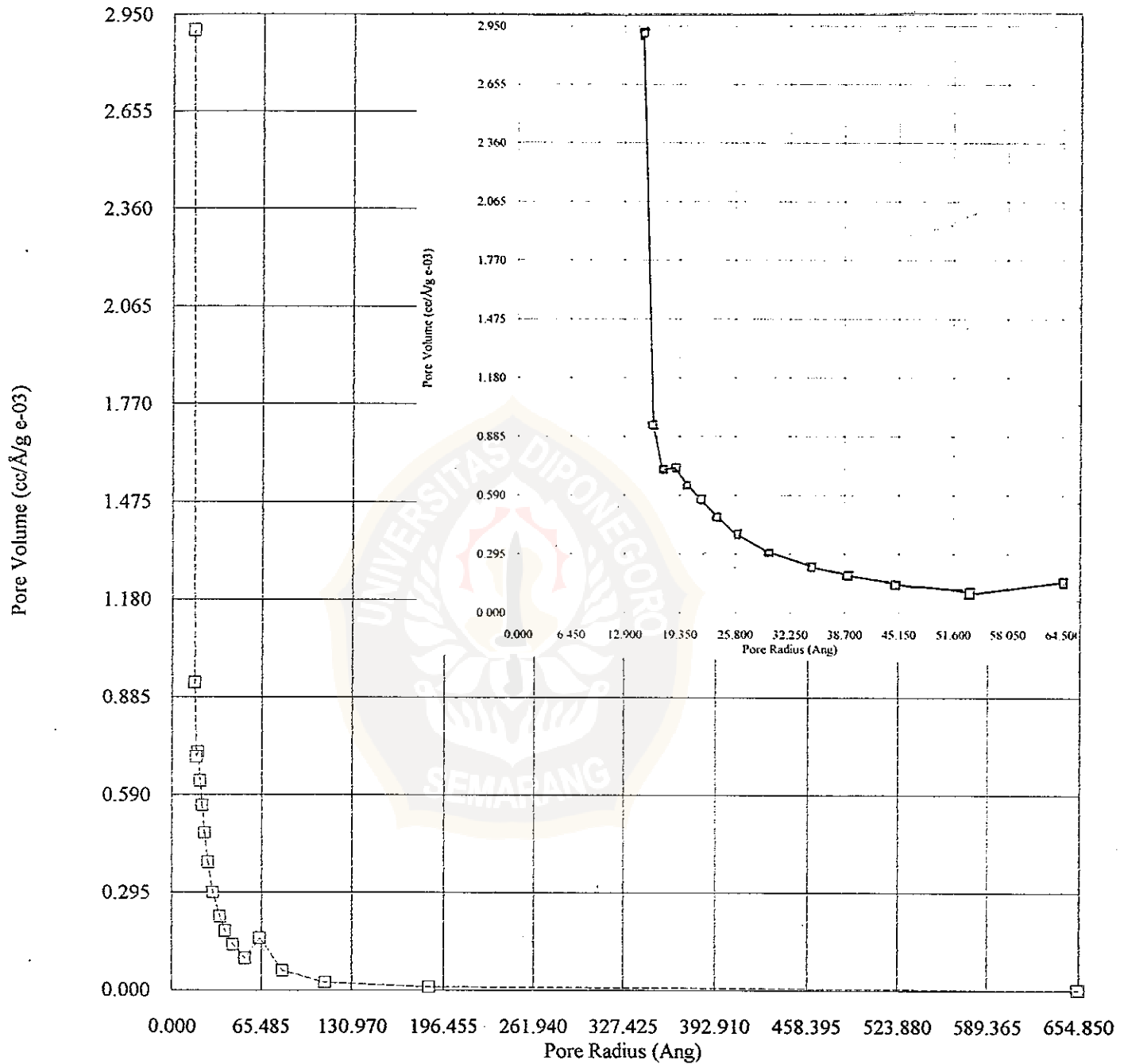
Lampiran 9: Kurva DVR zeolit.

Kurva DVR zeolit alam



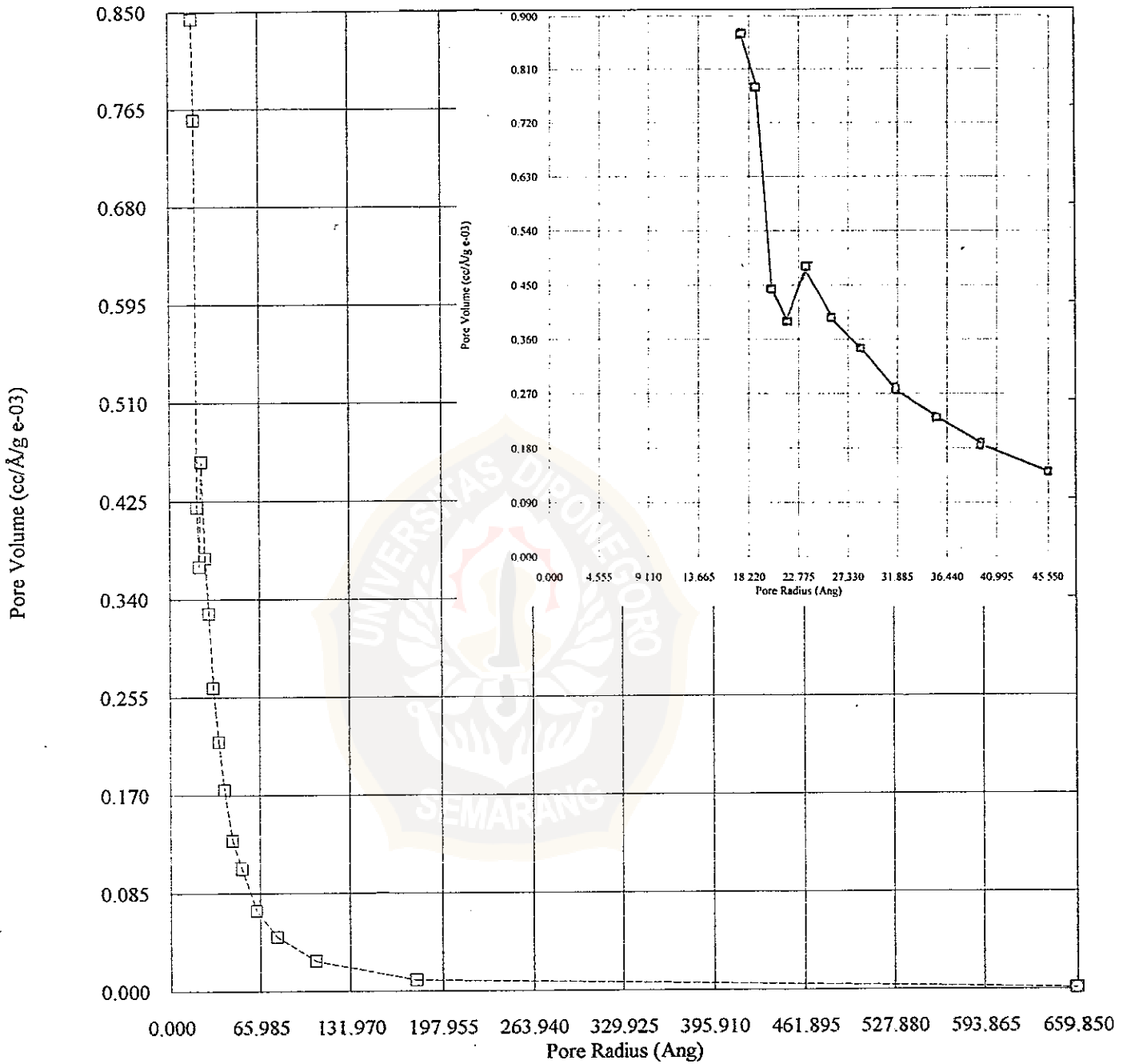
## Lampiran 9 (Lanjutan)

## Kurva DVR ZH-12



Lampiran 9 (lanjutan)

Kurva DVR ZH-18



Lampiran 9 (lanjutan)

Kurva DVR ZH-24

