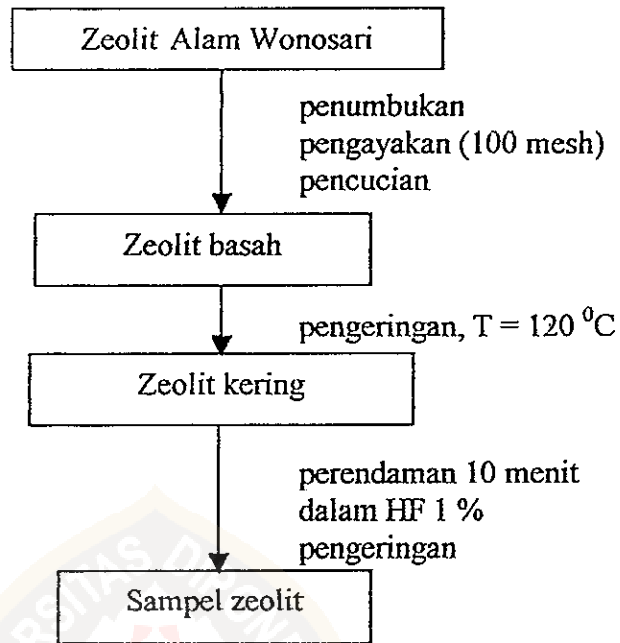
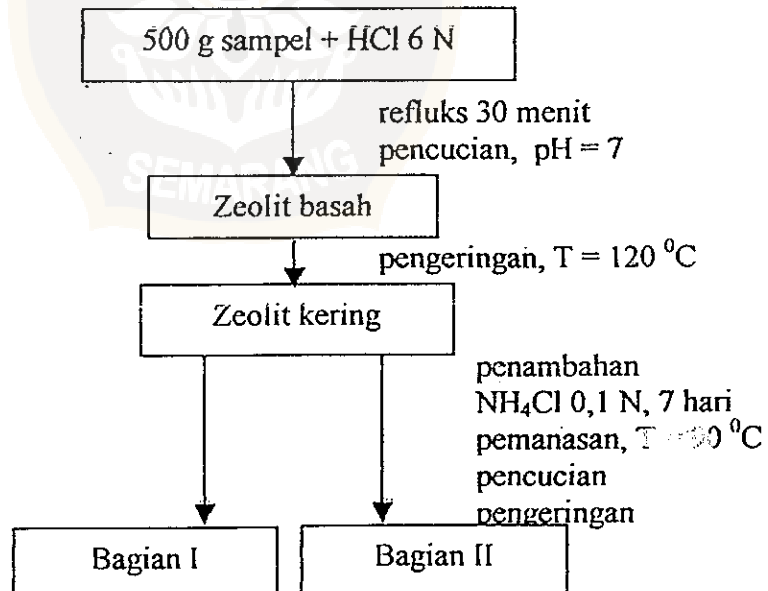


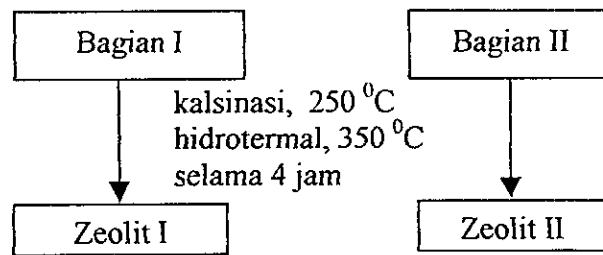
Lampiran A Diagram kerja modifikasi zeolit alam Wonosari

1.1 Preparasi Sampel Zeolit

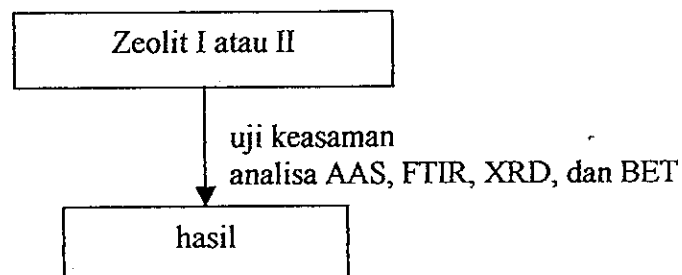


1.2 Dealuminasi Zeolit

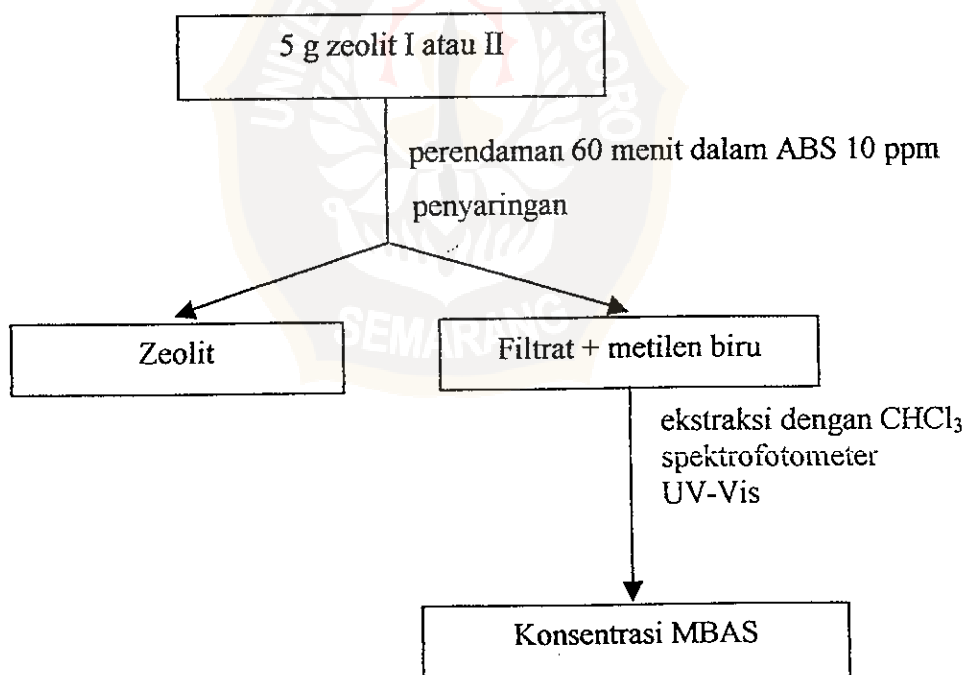




II. Karakterisasi Zeolit



III. Uji Aktivasi Zeolit



Lampiran B Perhitungan nilai keasaman zeolit

W_0 = Berat porselin

W_1 = Berat zeolit kering + berat porselin

W_2 = Berat zeolit kering + berat basa yang teradsorpsi oleh zeolit (NH_3) + berat porselin

$$\text{Jumlah Keasaman zeolit} = \frac{W_2 - W_1}{W_1 - W_0} \times \text{BM NH}_3$$

1. Jumlah Keasaman zeolit alam

$$\text{Jumlah Keasaman zeolit alam} = \frac{35,2549 - 35,2200}{35,2200 - 34,2761} \times 17 \text{ g/mol} = 0,628 \text{ g/mol}$$

2. Keasaman zeolit I

$$\text{Jumlah Keasaman zeolit I} = \frac{42,1424 - 42,0967}{42,0967 - 41,0957} \times 17 \text{ g/mol} = 0,776 \text{ g/mol}$$

3. Jumlah Keasaman zeolit II

$$\text{Jumlah Keasaman zeolit II} = \frac{33,7561 - 33,7029}{33,7029 - 32,7085} \times 17 \text{ g/mol} = 0,909 \text{ g/mol}$$

Lampiran C Perhitungan rasio Si/Al

Perhitungan Rasio Si/Al Zeolit

Berat Atom Si = 28,086 g/mol

Berat Atom Al = 26,982 g/mol

Metode = SNI 13-3608-1994

Sampel dalam keadaan kering (dipanaskan pada suhu 105 °C-110 °C)

3.1 Perhitungan Rasio Si/Al Zeolit alam

kadar Si = 32,70 % kadar Al = 7,06 %

$$Si = \frac{32,70 \%}{28,086} = 1,3936 \%$$

$$Al = \frac{7,06 \%}{26,982} = 0,2616 \%$$

$$\frac{Si}{Al} = \frac{1,3936 \%}{0,2616 \%} = 4,354$$

3.2 Perhitungan Rasio Si/Al Zeolit-I

kadar Si = 39,80 % kadar Al = 4,40 %

$$Si = \frac{39,80\%}{28,086} = 1,4171 \%$$

$$Al = \frac{4,40 \%}{26,982} = 0,1631 \%$$

$$\frac{Si}{Al} = \frac{1,4171 \%}{0,1631 \%} = 8,690$$

3.3 Perhitungan Rasio Si/Al zeolit-II

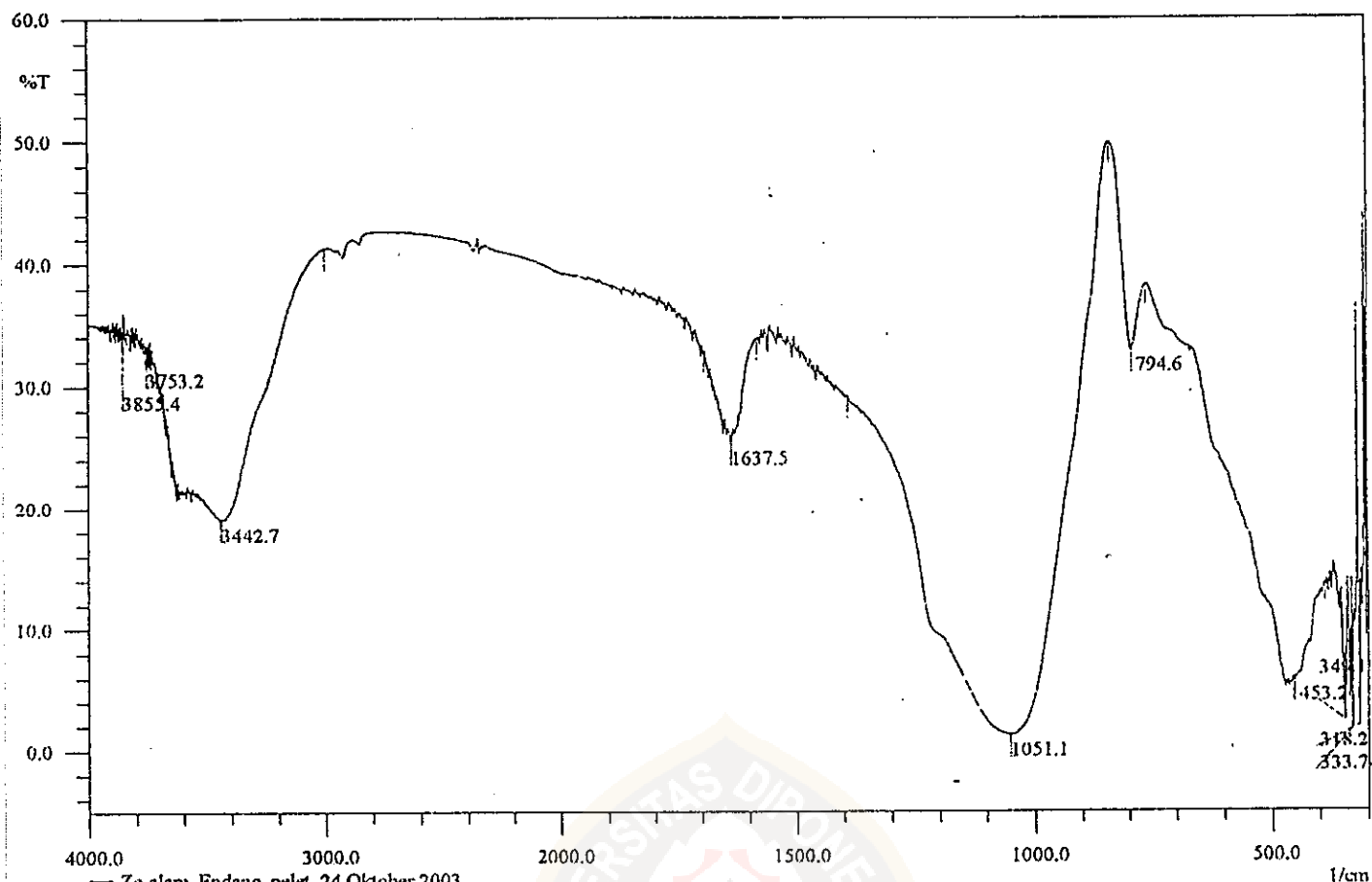
kadar Si = 36,60 % kadar Al = 4,20 %

$$Si = \frac{36,60 \%}{28,086} = 1,3031 \%$$

$$Al = \frac{4,20 \%}{26,982} = 0,1566 \%$$

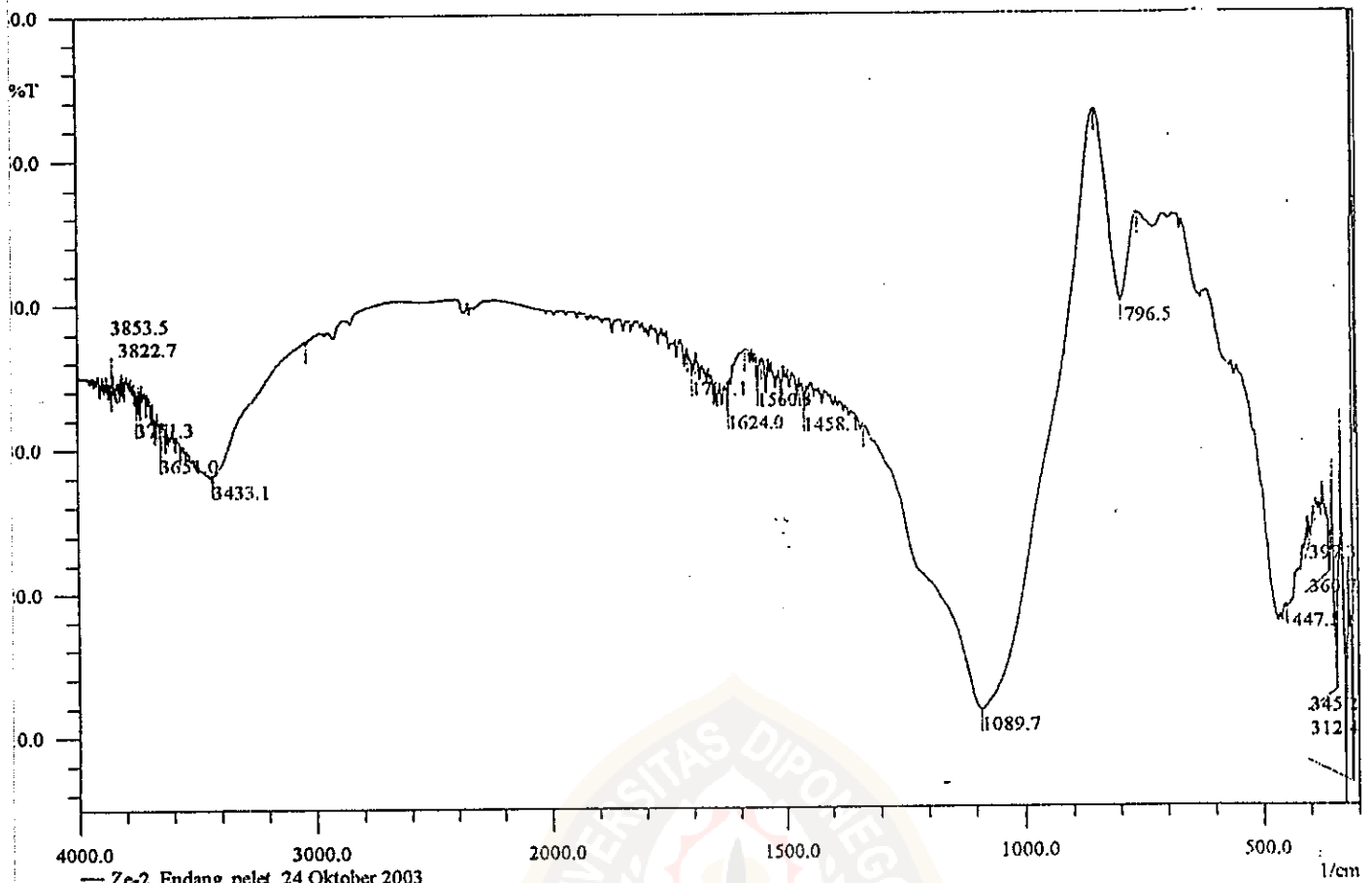
$$\frac{Si}{Al} = \frac{1,3031 \%}{0,1566 \%} = 8,371$$

Lampiran D Spektra FTIR



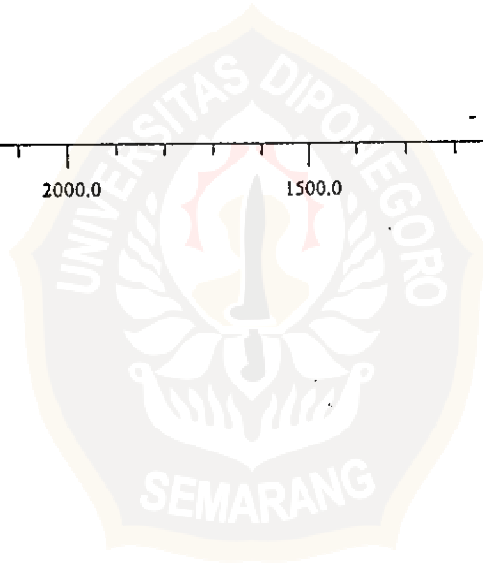
Peaktable of END-A1.IRS, 10 Peaks
 Threshold: 80, Noise: 1.5, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	318.2	1.947
2	333.7	1.713
3	349.1	2.424
4	453.2	5.799
5	794.6	32.847
6	1051.1	1.313
7	1637.5	25.335
8	3442.7	19.043
9	3753.2	31.806
10	3855.4	32.785

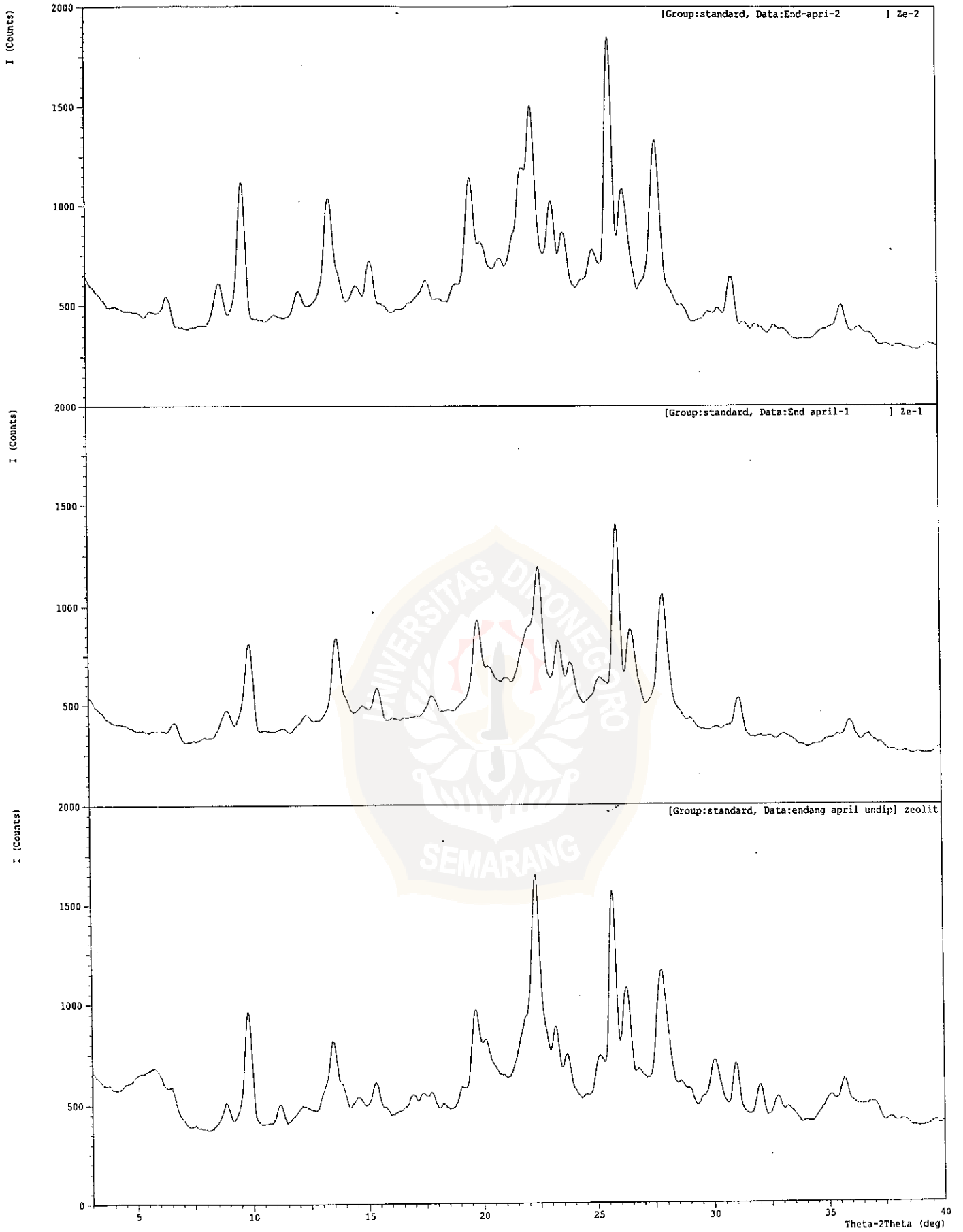


— Zn-2, Endang, pelet, 24 Oktober 2003
 Peaktable of END-S3.IRS, 17 Peaks
 Threshold: 80, Noise: 1.5, No Range Selection

Ir.	Pos. (1/cm)	Inten. (%T)
	312.4	6.511
	327.9	4.210
	345.2	12.873
	360.7	21.218
	397.3	23.589
	447.5	18.787
	796.5	40.098
	1089.7	11.646
	1458.1	32.574
0	1560.3	34.321
1	1624.0	33.884
2	1701.1	35.134
3	3433.1	28.138
4	3651.0	29.956
5	3751.3	32.442
6	3822.7	33.409
7	3853.5	32.620



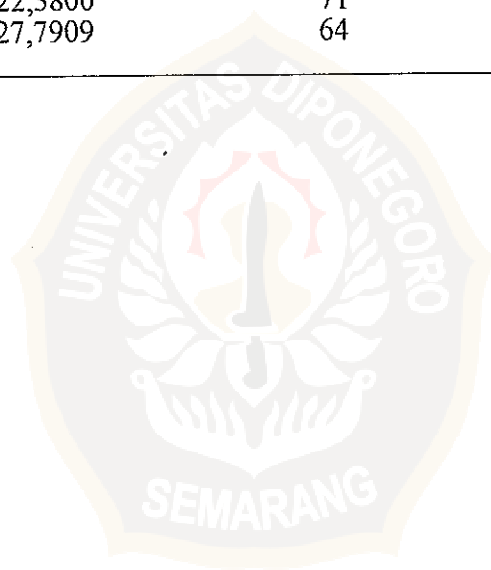
Lampiran E Spektra XRD



Lampiran F Data XRD

Tabel pola difraksi sinar-X pada tiga puncak tertinggi.

Sampel	2 theta (deg)	Intensitas (counts)	d (Å)
Zeolit Alam	22,3033	100	3,98
	25,6612	92	3,47
	27,7820	58	3,21
Zeolit I	25,9715	100	3,43
	22,5800	73	3,94
	27,9771	68	3,19
Zeolit II	25,7886	100	3,45
	22,3800	71	3,97
	27,7909	64	3,21

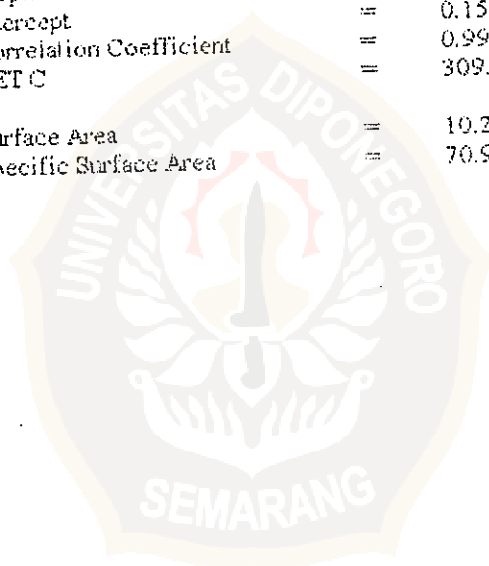


Lampiran G Data BET

Quantachrome Corporation
NOVA Data Analysis Package Ver. 2.00
File Name = inron-b0.dat

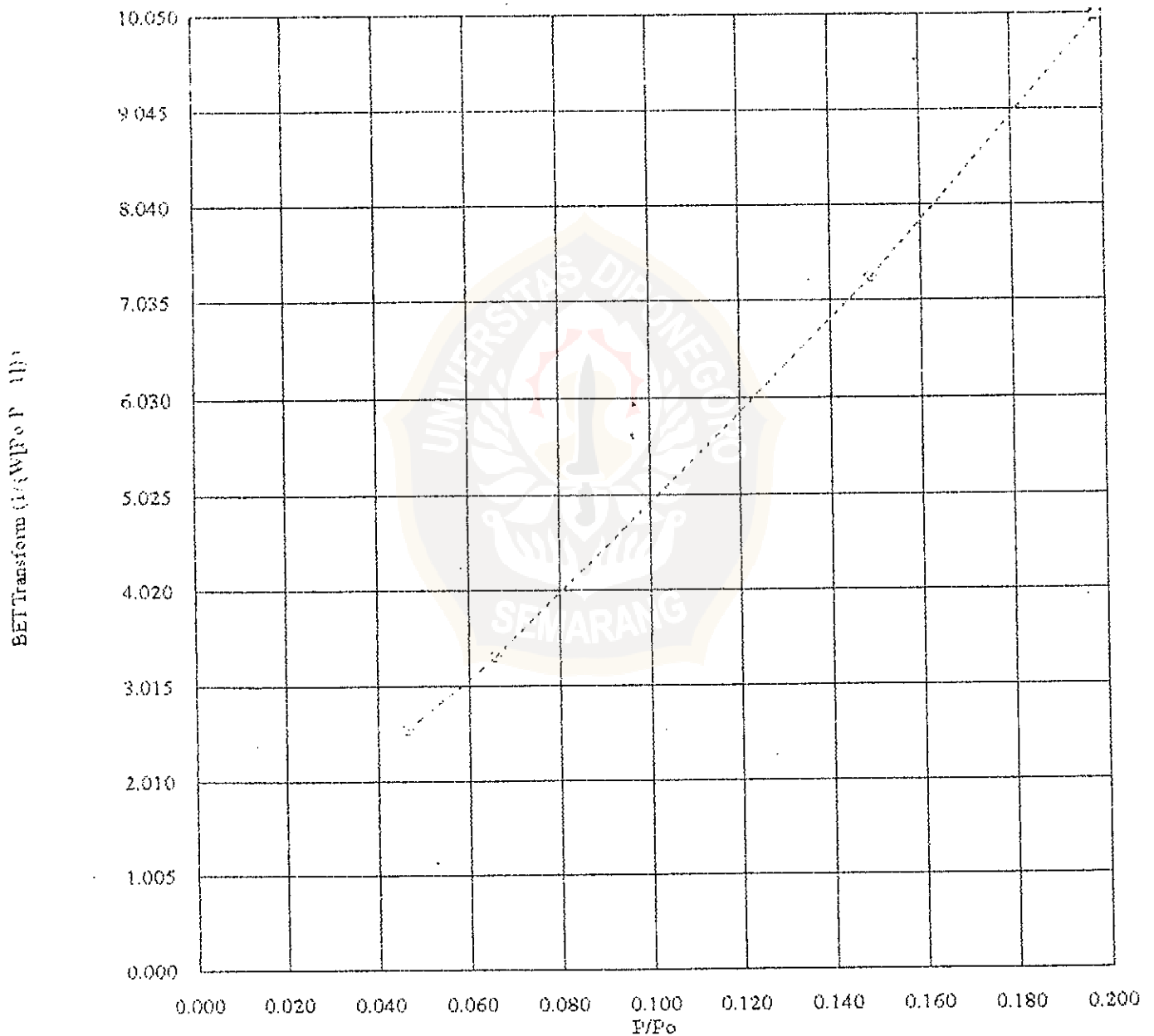
ser (1)	= inron	User Setup	= 5
sample ID	= B0 (zeolit alam)	Sample Cell Number	= 2
sample Weight	= 0.1437 g	Sample Volume	= 0.1437 cc
sample Density	= 1.0000 g/cc		
is Type	= User	Po	= 750.33 mm Hg
isorbate	= N2	Bath Temperature	= 77.40 deg K
dsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
dsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
dsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

Multi BET (Adsorption)		BET Transform (1/{W(Po/P - 1)})
P/Po		
0.046554		2.560403
0.065990		3.309616
0.149116		7.267966
0.199026		10.022525
Slope	=	48.898244
Intercept	=	0.158440
Correlation Coefficient	=	0.999017
BET C	=	309.623785
Surface Area	=	10.201212 sq m
Specific Surface Area	=	70.989644 sq m/g



Sample ID	= Imron	User Setup	= 5
Sample Weight	= 0.1437 g	Sample Cell Number	= 2
Sample Density	= 1.0000 g/cc	Sample Volume	= 0.1437 cc
Type	= User	Po	= 750.33 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Absorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Absorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Absorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

Multi BET (Adsorption)



User ID	= Imron	User Setup	= 5
Sample ID	= B0	Sample Cell Number	= 2
Sample Weight	= 0.1437 g	Sample Volume	= 0.1437 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.33 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	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

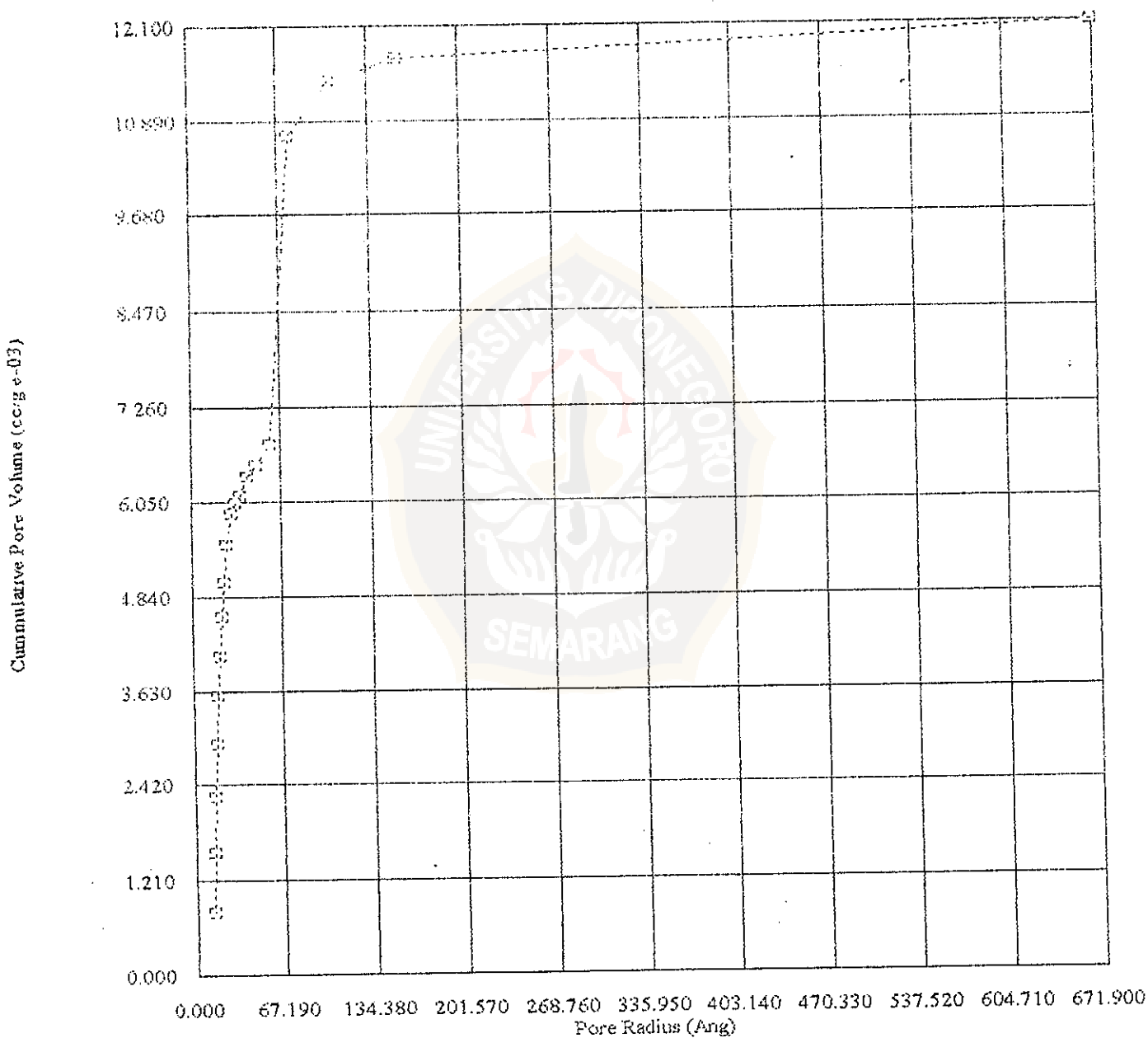
Pore Radius (Ang)	BJH (Adsorption)	
	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
671.850213	8063.994008	12.087704
156.443161	8052.088690	11.687775
106.212391	8015.704836	11.403175
75.614453	7883.794762	10.702650
59.724800	6844.997657	6.775247
49.200789	6755.600628	6.508286
42.451279	6698.081266	6.366786
36.831135	6583.025956	6.122573
33.134859	6534.841745	6.033839
29.476886	6454.315992	5.900429
26.528001	6185.169812	5.503749
24.154072	5826.971712	5.028635
22.117825	5460.365747	4.585884
20.332313	4999.675509	4.076411
18.738422	4512.847991	3.581494
17.335071	3833.206172	2.944724
16.079891	3040.493201	2.257637
14.926501	2169.147913	1.557080
13.854068	1152.696436	0.798477

Total Pore Volume is 39.884630 e-03 cc/g for all pores less than 1129.710206 Angstrom.

Average pore radius is 11.236746 Angstrom.

User ID	= Imron	User Setup	= 5
Sample ID	= B0	Sample Cell Number	= 2
Sample Weight	= 0.1437 g	Sample Volume	= 0.1437 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.33 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	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

BJH (Adsorption)



User ID = Inren User Setup = 5
 Sample ID = B0 Sample Cell Number = 2
 Sample Weight = 0.1437 g Sample Volume = 0.1437 cc
 Sample Density = 1.0000 g/cc
 P₀ Type = User P₀ = 750.33 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 = Mon Dec 22 23:28:32 2003 Analysis End Time = Mon Dec 22 00:41:28 2003

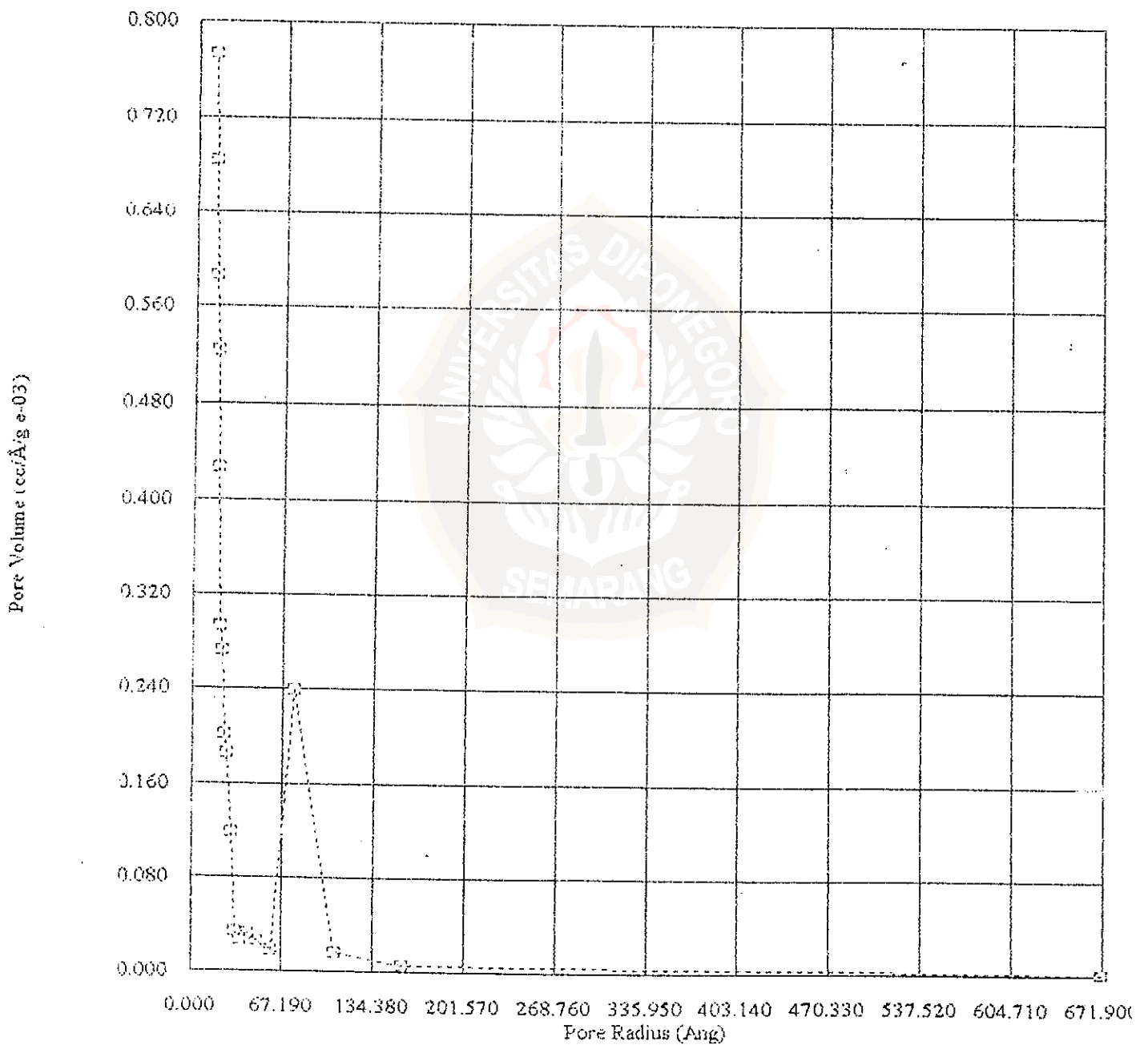
Pore Radius (Ang)	DVR (Adsorption)	
	Pore Area (sq m/Å/g e-03)	Pore Volume (cc/Å/g e-03)
671.850213	0.012209	0.000410
156.443161	0.653459	0.005111
106.212391	2.945558	0.015643
75.614453	63.290505	0.239284
59.724800	5.817791	0.017373
49.200789	10.123305	0.024904
42.451279	14.718333	0.031241
36.831135	14.076007	0.025922
33.134859	20.286387	0.033610
29.476886	80.425276	0.118534
26.528001	140.401961	0.186229
24.154072	166.895210	0.201560
22.117825	245.587250	0.271593
20.332313	287.188371	0.291960
18.738422	455.330797	0.426609
17.335071	603.250613	0.522870
16.079891	728.373577	0.585608
14.926501	915.316365	0.683124
13.854068	1114.389811	0.771942

Total Pore Volume is 39.884630 e-03 cc/g for all pores less than 1129.710206 Angstrom.

Average pore radius is 11.236746 Angstrom.

User ID	= Ironon	User Setup	= 5
Sample ID	= B0	Sample Cell Number	= 2
Sample Weight	= 0.1437 g	Sample Volume	= 0.1437 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.33 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	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

DVR (Adsorption)



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NOVA Data Analysis Package Ver. 2.00
File Name = inron-b0.dat

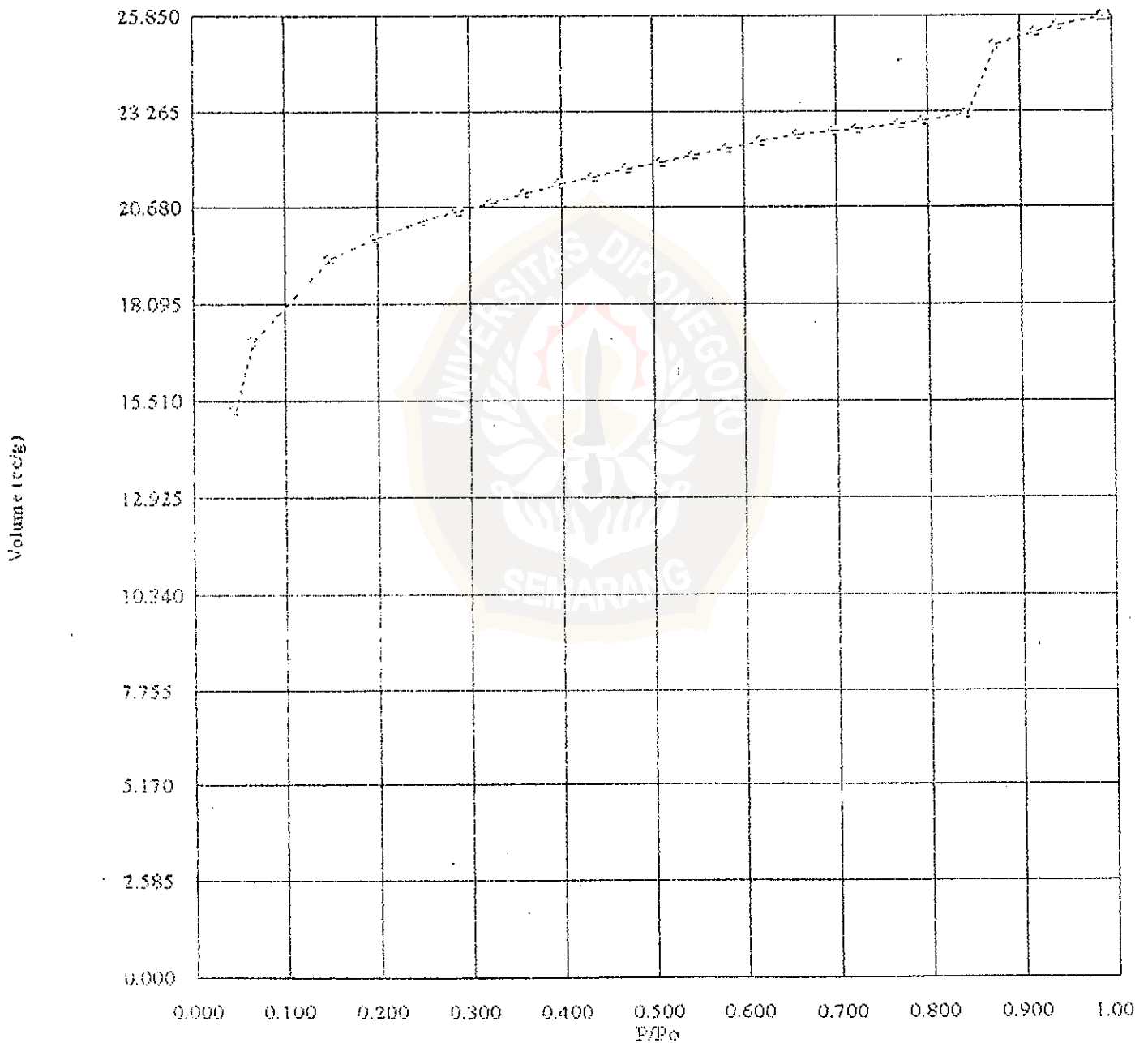
User ID	= inron	User Setup	= 5
Sample ID	= B0	Sample Cell Number	= 2
Sample Weight	= 0.1437 g	Sample Volume	= 0.1437 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.33 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

ISOTHERM (Adsorption)

P/Po	Volume (cc/g)
0.046554	15.258300
0.065990	17.080577
0.149116	19.292813
0.199026	19.836626
0.249421	20.291819
0.289254	20.562114
0.326656	20.805272
0.363825	21.041814
0.400509	21.267043
0.437064	21.492499
0.474293	21.709566
0.511713	21.891487
0.547965	22.080975
0.584667	22.255101
0.620953	22.444389
0.660440	22.615927
0.698249	22.698506
0.724951	22.758336
0.771670	22.907085
0.797014	22.997890
0.844312	23.186813
0.875642	25.056288
0.920094	25.419892
0.944876	25.574350
0.991577	25.821263

User ID	= Imron	User Setup	= 5
Sample ID	= B0	Sample Cell Number	= 2
Sample Weight	= 0.1437 g	Sample Volume	= 0.1437 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.33 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	= Mon Dec 22 23:28:32 2003	Analysis End Time	= Mon Dec 22 00:41:28 2003

ISOTHERM (Adsorption)

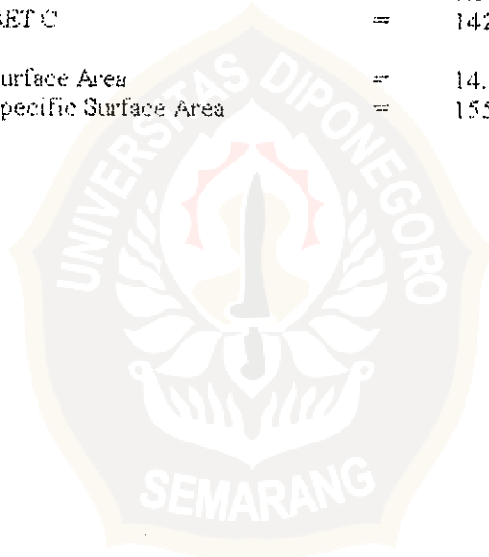


User ID	= Ironon	User Setup	= 5
Sample ID	= B1(zeolit II)	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.96 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 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	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

Multi BET (Adsorption)

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

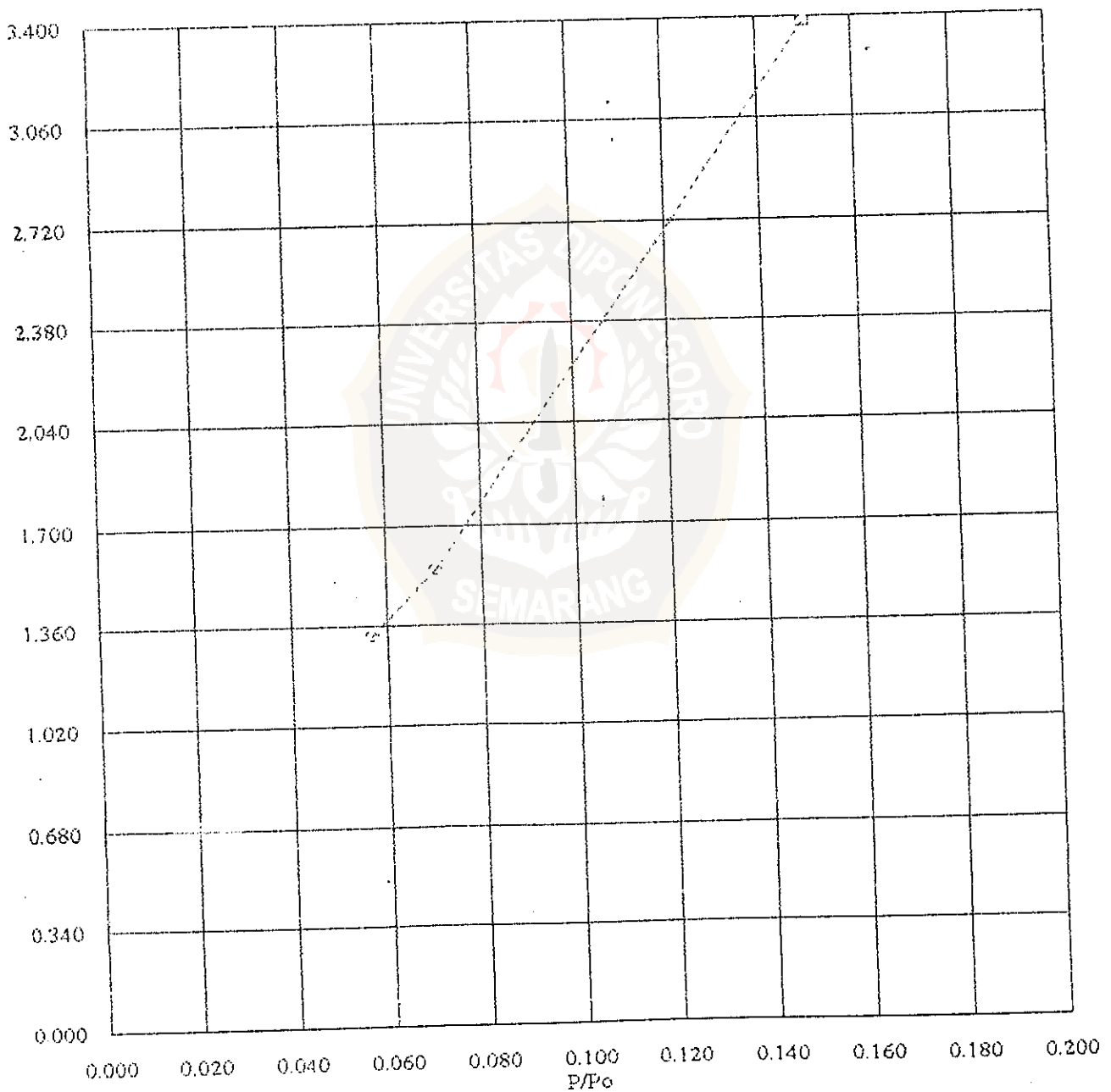
0.056780	1.323545
0.070592	1.552793
0.150029	3.380634
Slope	= 22.385990
Intercept	= 0.015692
Correlation Coefficient	= 0.999359
BET C	= 1427.566077
Surface Area	= 14.544633 sq m
Specific Surface Area	= 155.457815 sq m/g



Quantachrome Corporation
NOVA Data Analysis Package Ver. 2.00
File Name = imron-b.dat

er ID	= Imron	User Setup	= 5
Sample ID	= B1	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Type	= User	Po	= 749.96 mm Hg
Absorbate	= 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	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

Multi BET (Adsorption)



User ID	= ironon	User Setup	= 5
Sample ID	= B1	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.96 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	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

Pore Radius (Ang)	BJH (Adsorption)	
	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
593.935000	774.570243	6.550850
153.084301	746.346503	5.712697

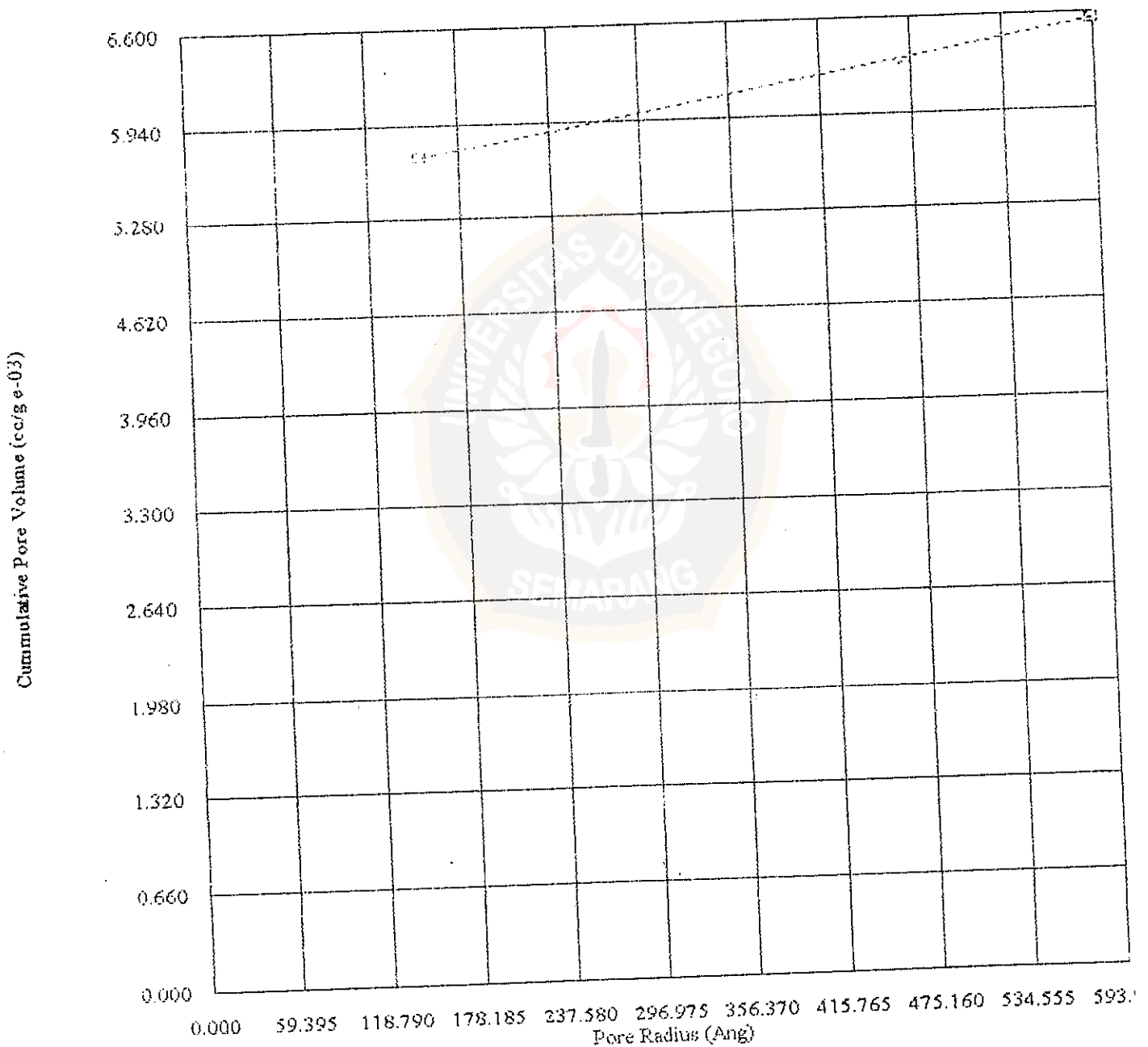
Total Pore Volume is 78.165705 e-03 cc/g for
 all pores less than 967.408782 Angstrom.

Average pore radius is 10.056195 Angstrom.



User ID	= Imron	User Setup	= 5
Sample ID	= Bf	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.96 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	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

BJH (Adsorption)



ser ID	= Imron	User Setup	= 5
mple ID	= B1	Sample Cell Number	= 2
mple Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
mple Density	= 1.0000 g/cc		
Type	= User	Po	= 749.96 mm Hg
isorbate	= N2	Bath Temperature	= 77.40 deg K
isorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
isorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
isorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
alysis Start Time	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

Pore Radius (Ang)	DVR (Adsorption)		Pore Volume (cc/Å/g e-03)
	Pore Area (sq m/Å/g e-03)		
593.935000	0.035132		0.001043
153.084301	9.527970		0.072929

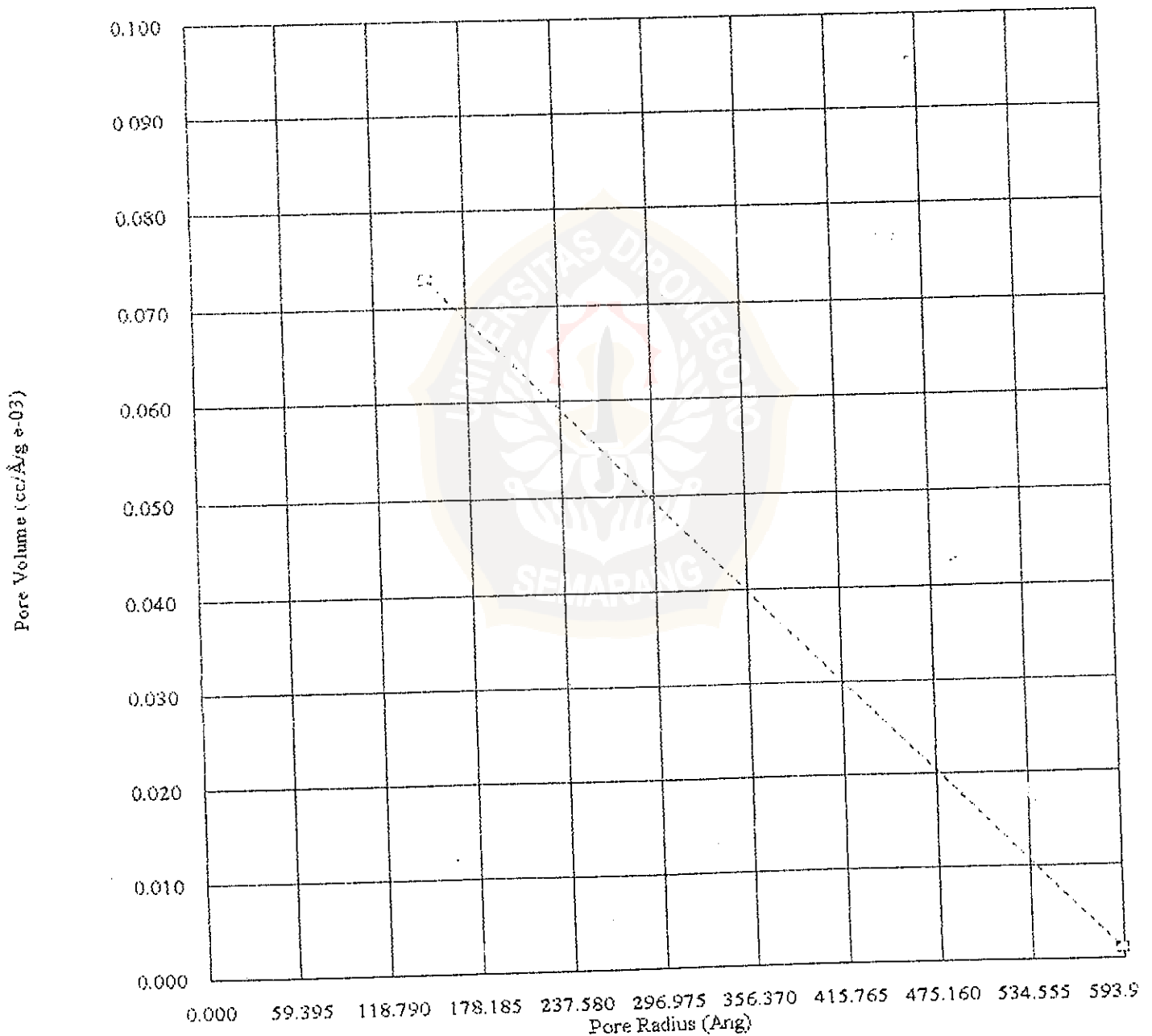
Total Pore Volume is 78.165705 e-03 cc/g for
all pores less than 967.408782 Angstrom.

Average pore radius is 10.056195 Angstrom.



User ID	= Imron	User Setup	= 5
Sample ID	= B4	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.96 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	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

DVR (Adsorption)



User ID	= Imron	User Setup	= 5
Sample ID	= B 1	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Mo Type	= User	Po	= 749.96 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	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

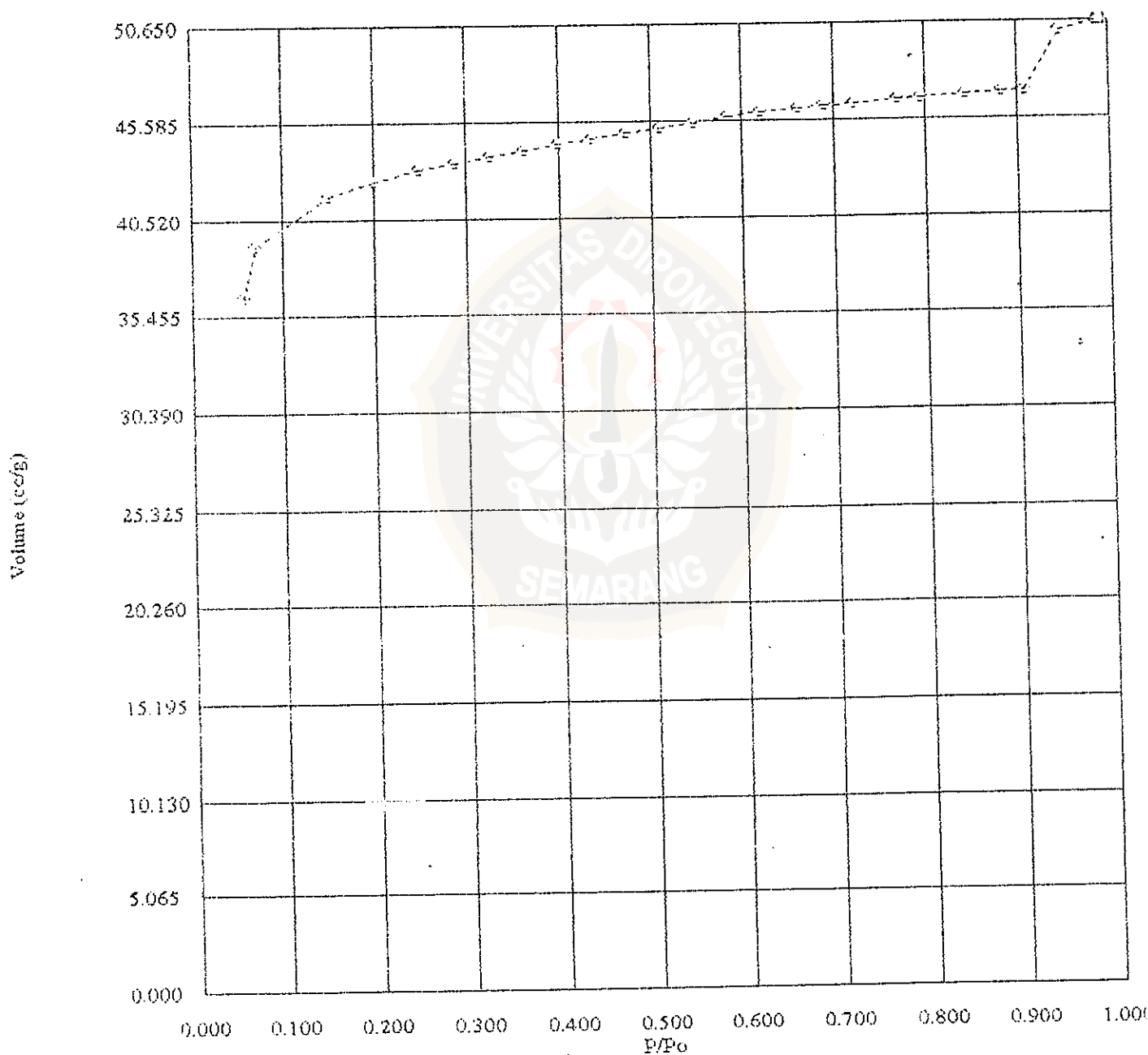
ISOTHERM (Adsorption)

P/Po	Volume (cc/g)
0.056780	36.391263
0.070592	39.137138
0.150029	41.775961
0.199298	42.477793
0.249657	43.069845
0.288964	43.407252
0.326463	43.764657
0.363459	44.063037
0.399816	44.365944
0.437358	44.642834
0.473775	44.928876
0.511057	45.193417
0.547924	45.481680
0.585284	45.774832
0.620628	46.014455
0.661320	46.212277
0.689515	46.334026
0.722341	46.390359
0.771098	46.611961
0.796386	46.705584
0.843318	46.860397
0.883542	46.973290
0.909427	47.000732
0.947229	50.090596
0.990171	50.604387



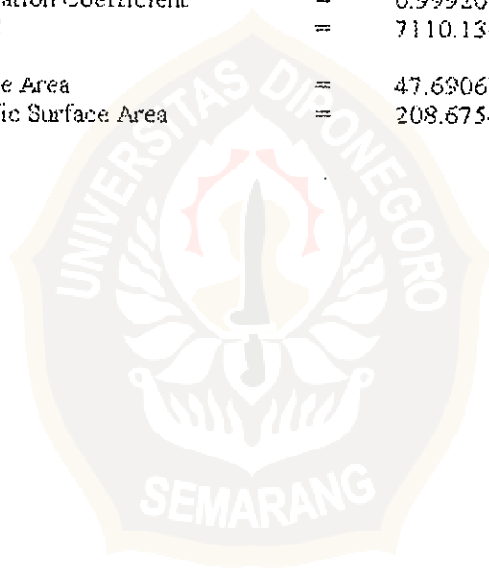
User ID	= Imron	User Setup	= 5
Sample ID	= B1	Sample Cell Number	= 2
Sample Weight	= 0.0936 g	Sample Volume	= 0.0936 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 749.96 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Sun Dec 21 01:07:53 2003	Analysis End Time	= Sun Dec 21 02:20:00 2003

ISOTHERM (Adsorption)



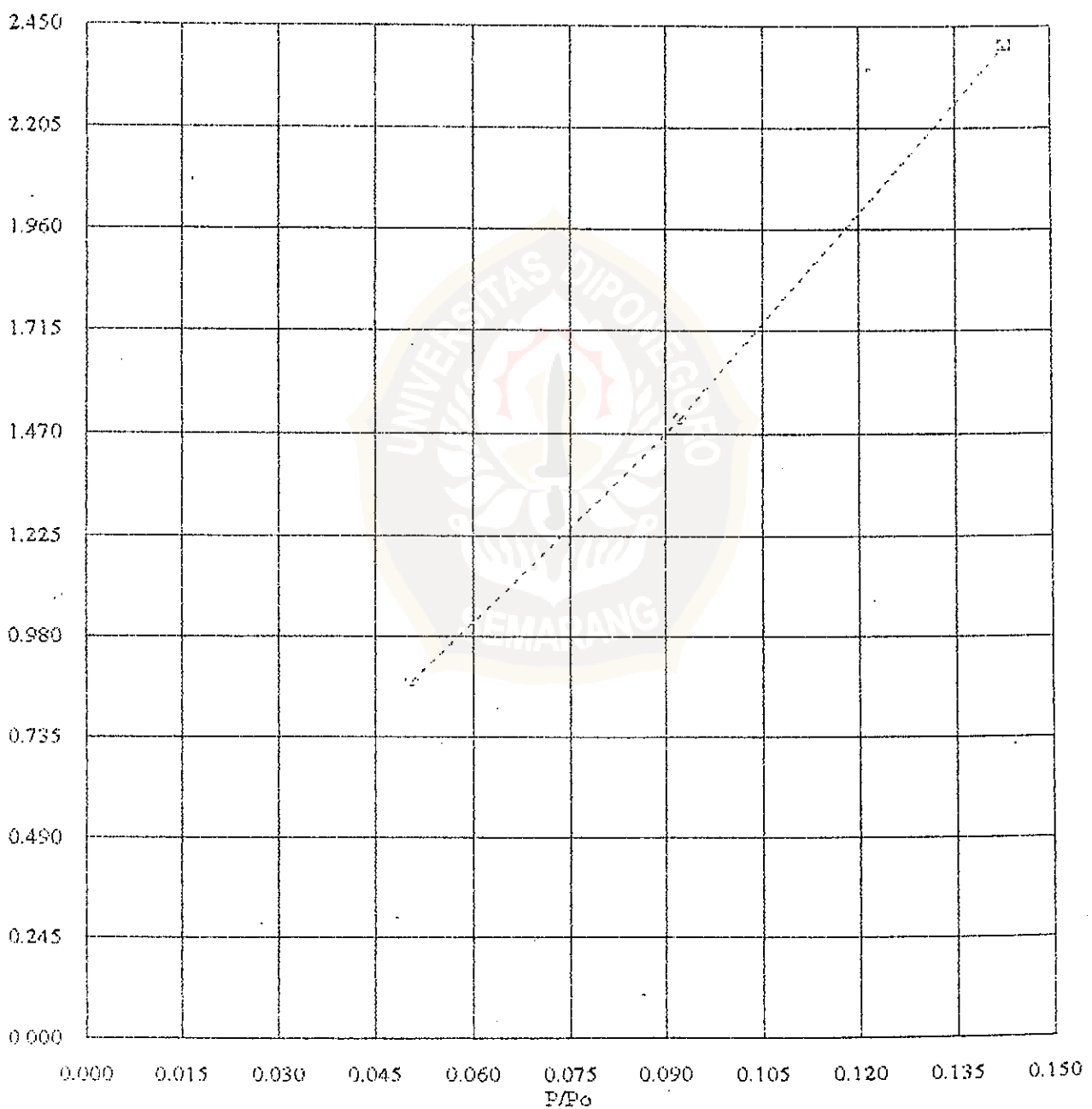
ser ID	= iron	User Setup	= 5
sample ID	= A1 zeolit D	Sample Cell Number	= 2
sample Weight	= 0.2285 g	Sample Volume	= 0.2285 cc
sample Density	= 1.0000 g/cc		
Flow Type	= User	Po	= 750.32 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 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	= Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

Multi BET (Adsorption)	
P/Po	BET Transform (1/(W[Po/P - 1]))
0.050783	0.869264
0.092185	1.505112
0.142960	2.403754
Slope	= 16.686331
Intercept	= 0.002347
Correlation Coefficient	= 0.999203
BET C	= 7110.138699
Surface Area	= 47.690676 sq m
Specific Surface Area	= 208.675401 sq m/g



User ID	= Imron	User Setup	= 5
Sample ID	= A1	Sample Cell Number	= 2
Sample Weight	= 0.2285 g	Sample Volume	= 0.2285 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.32 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	= Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

Multi BET (Adsorption)



ID	= Imron	User Setup	= 5
Sample ID	= A1	Sample Cell Number	= 2
Sample Weight	= 0.2285 g	Sample Volume	= 0.2285 cc
Sample Density	= 1.0000 g/cc		
Operator	= User	Po	= 750.32 mm Hg
Gas	= 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	= Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

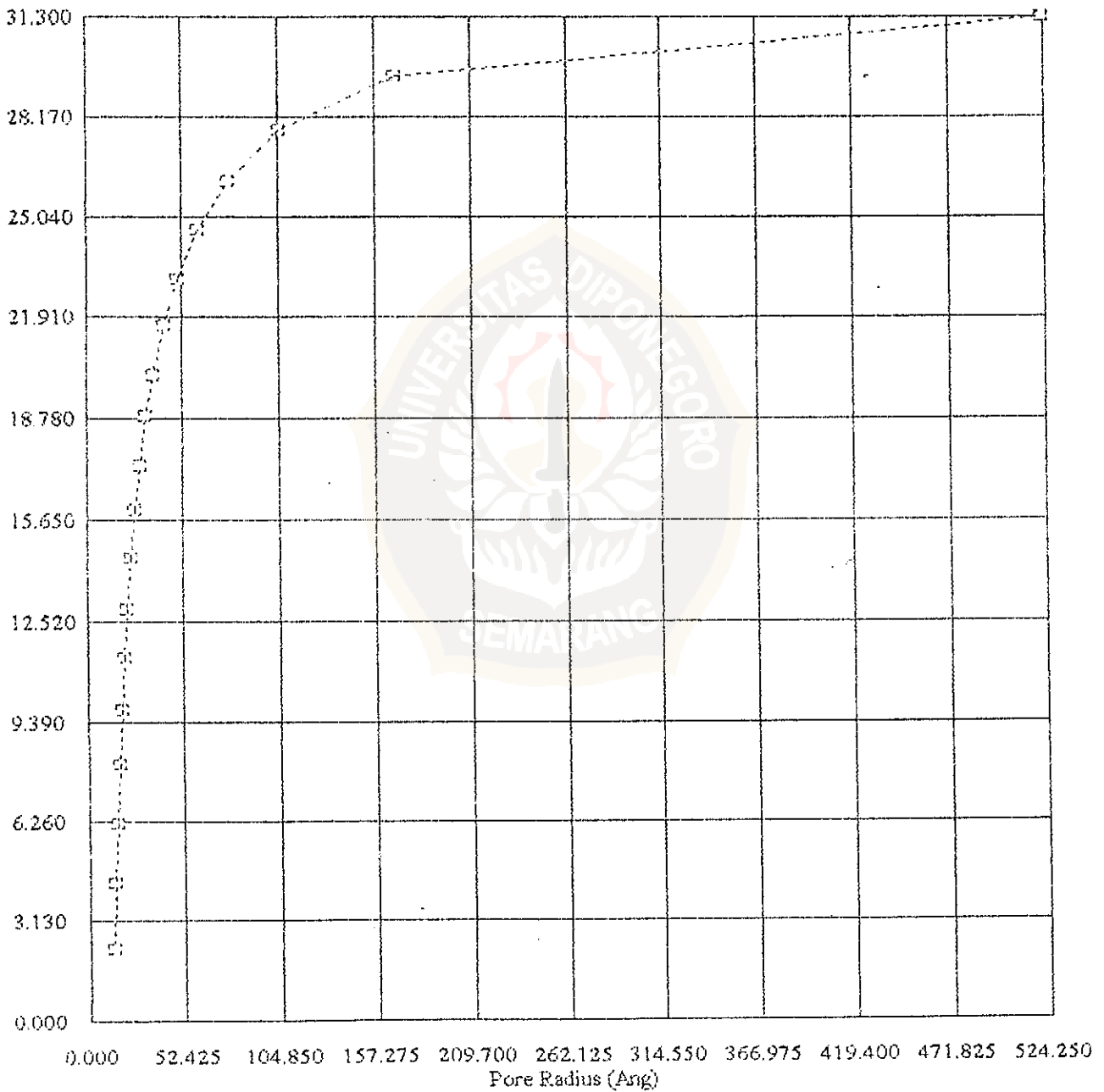
Pore Radius (Ang)	BJH (Adsorption)	
	Cummulative Pore Area (sq m/g e-03)	Cummulative Pore Volume (cc/g e-03)
524.223117	23175.296319	31.281394
168.659261	23105.086107	29.441103
105.395013	22903.605876	27.742028
77.524978	22598.008960	26.131608
60.916760	22207.457614	24.617734
50.237804	21898.288333	23.066887
42.637929	21131.598569	21.643424
36.935679	20405.525053	20.095511
32.450232	19736.750669	18.860429
28.938637	18785.326850	17.316733
26.277625	17842.320910	15.952267
23.918565	16704.452795	14.457244
21.923260	15407.806868	12.906548
20.209236	14041.526253	11.408882
18.652624	12419.252371	9.769636
17.234128	10578.850351	8.053220
15.957375	8416.616789	6.190009
14.802375	6073.975247	4.320889
13.738960	3283.269765	2.255436

Total Pore Volume is 110.438631 e-03 cc/g for all pores less than 807.638346 Angstrom.

Average pore radius is 10.584729 Angstrom.

ser ID	= Imron	User Setup	= 5
sample ID	= A1	Sample Cell Number	= 2
sample Weight	= 0.2285 g	Sample Volume	= 0.2285 cc
sample Density	= 1.0000 g/cc		
isotherm Type	= User	Po	= 750.32 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	= Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

BJH (Adsorption)

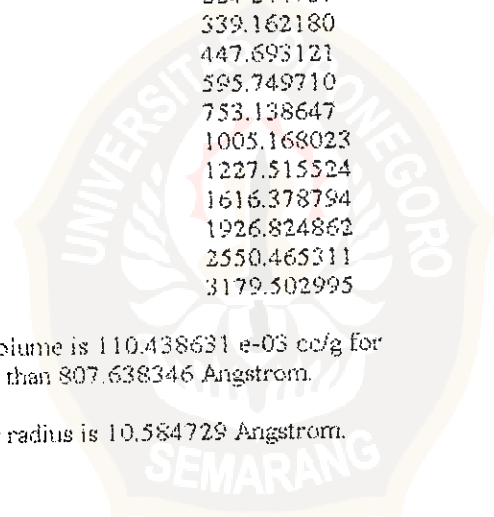


User ID	= Imron	User Setup	= 5
Sample ID	= A1	Sample Cell Number	= 2
Sample Weight	= 0.2285 g	Sample Volume	= 0.2285 cc
Sample Density	= 1.0000 g/cc		
Po Type	= User	Po	= 750.32 mm Hg
Adsorbate	= N2	Bath Temperature	= 77.40 deg K
Adsorption Tolerance	= 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
Adsorption Equil Time	= 60 sec	Desorption Equil Time	= 0 sec
Adsorption Dwell Time	= 180 sec	Desorption Dwell Time	= 0 sec
Analysis Start Time	= Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

Pore Radius (Ang)	DVR (Adsorption)		Pore Volume (cc/A/g e-03)
	Pore Area (sq m/A/g e-03)		
524.223117	0.113250		0.002968
168.659261	1.209933		0.018636
105.395013	8.642888		0.045546
77.524978	19.161697		0.074276
60.916760	39.671740		0.120834
50.237804	66.486720		0.167007
42.637929	108.752275		0.231849
36.935679	141.446703		0.261221
32.450232	224.244737		0.363840
28.938637	339.162180		0.490745
26.377625	447.693121		0.588216
23.918565	595.749710		0.712474
21.923260	753.138647		0.825563
20.209236	1005.168023		1.015684
18.652624	1227.515524		1.144819
17.234126	1616.378794		1.392844
15.957375	1926.824862		1.537353
14.802375	2550.465311		1.887647
13.738960	3179.502995		2.184153

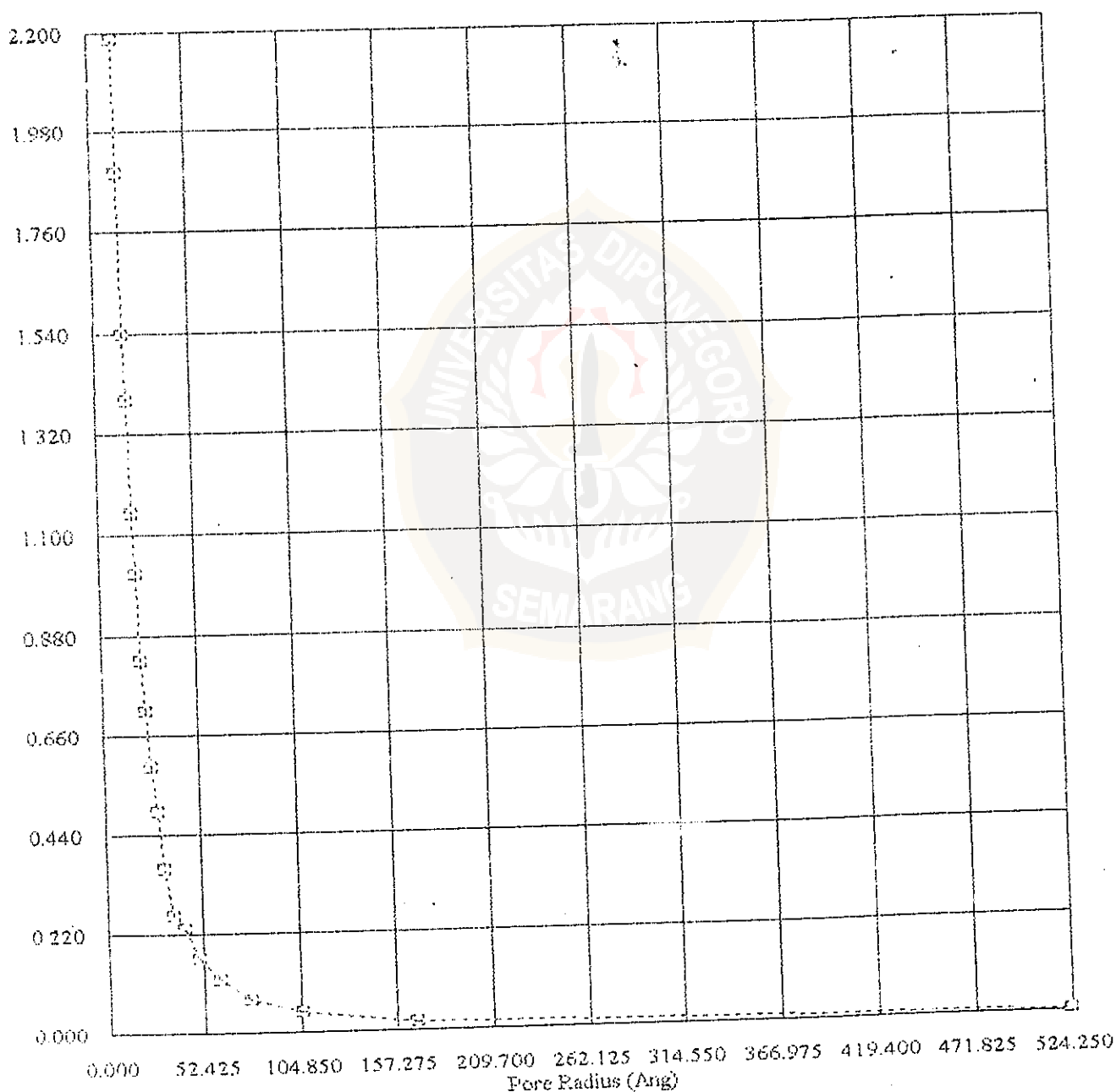
Total Pore Volume is 110.438631 e-03 cc/g for all pores less than 807.638346 Angstrom.

Average pore radius is 10.584729 Angstrom.



ID	= Imron	User Setup	= 5
Sample ID	= A1	Sample Cell Number	= 2
Sample Weight	= 0.2285 g	Sample Volume	= 0.2285 cc
Sample Density	= 1.0000 g/cc		
Operator	= User	Po	= 750.32 mm Hg
Substrate	= 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	= Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

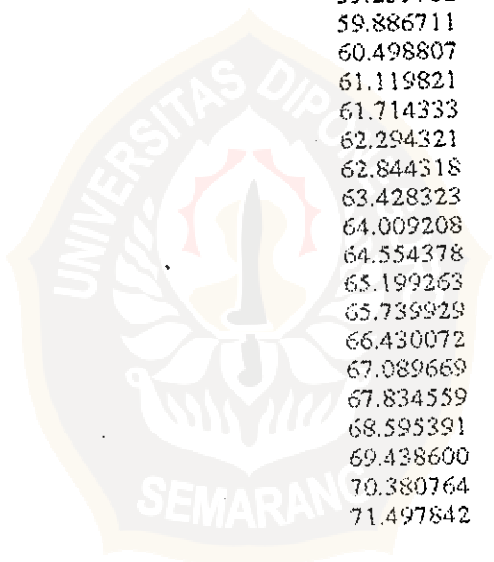
DVR (Adsorption)



= Iron	User Setup	= 5
ID = Al	Sample Cell Number	= 2
Weight = 0.2285 g	Sample Volume	= 0.2285 cc
Density = 1.0000 g/cc		
= User	Po	= 750.32 mm Hg
= N2	Bath Temperature	= 77.40 deg K
ion Tolerance = 0.1000 mm Hg	Desorption Tolerance	= 0.0000 mm Hg
ion Equil Time = 60 sec	Desorption Equil Time	= 0 sec
ion Dwell Time = 180 sec	Desorption Dwell Time	= 0 sec
Start Time = Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

ISOTHERM (Adsorption)

P/Po	Volume (cc/g)
0.050783	49.244136
0.092185	53.981825
0.142960	55.523516
0.199549	56.858989
0.245576	57.822827
0.284960	58.554230
0.322596	59.239762
0.359558	59.886711
0.397195	60.498807
0.434702	61.119821
0.472347	61.714333
0.508305	62.294321
0.543866	62.844318
0.580836	63.428323
0.617590	64.009208
0.651481	64.554378
0.693512	65.199263
0.730258	65.739929
0.769737	66.430072
0.806361	67.089669
0.844136	67.834559
0.881340	68.595391
0.916382	69.438600
0.952799	70.380764
0.988238	71.497842



= Imron	User Setup	= 5
= A1	Sample Cell Number	= 2
= 0.2285 g	Sample Volume	= 0.2285 cc
= 1.0000 g/cc		
= User	Po	= 750.32 mm Hg
= N2	Bath Temperature	= 77.40 deg K
	Desorption Tolerance	= 0.0000 mm Hg
Desorption Tolerance	Desorption Equil Time	= 0 sec
Desorption Equil Time	Desorption Dwell Time	= 0 sec
Desorption Dwell Time		
Start Time = Tue Dec 23 00:08:34 2003	Analysis End Time	= Tue Dec 23 01:57:17 2003

ISOTHERM (Adsorption)

