

## LAMPIRAN 1

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Arang Tempurung Kelapa (3/1) pada Tempertur 700 °C

#### SURFACE AREA METER SORPTOMATIC 1800 CARLO ERBA BET SURFACE AREA ANALYSIS

|                                      |                           |
|--------------------------------------|---------------------------|
| Report Date : 19 Juni 2010           | Temperature : 25,2 °C     |
| Sample ID : KOH / ATK (3/1) pd 700 C | Adsorbate : Nitrogen      |
| User : -                             | Sample Weight : 0,3703 gr |
| Operator : Mujinem                   | Po : 685 mmHg             |
| P Operation : 760 mmHg               | Pe : 846 mmHg             |

#### EXPERIMENTAL DATA

| No  | Pa       | Vi       | Vg      | Va      | Va/g    | P / Po (x) |
|-----|----------|----------|---------|---------|---------|------------|
| 1.  | 9,4247   | 17,4335  | 4,1265  | 13,307  | 35,9261 | 0,0138     |
| 2.  | 40,6755  | 34,8671  | 14,036  | 20,8311 | 56,2394 | 0,0594     |
| 3.  | 85,2931  | 52,3006  | 28,184  | 24,1166 | 65,1097 | 0,1245     |
| 4.  | 134,3291 | 69,7342  | 43,7331 | 26,0011 | 70,1973 | 0,1961     |
| 5.  | 181,6389 | 87,1677  | 58,7348 | 28,4329 | 76,7627 | 0,2652     |
| 6.  | 259,7975 | 104,6012 | 83,5185 | 21,0828 | 56,9189 | 0,3793     |
| 7.  |          |          |         |         |         |            |
| 8.  |          |          |         |         |         |            |
| 9.  |          |          |         |         |         |            |
| 10. |          |          |         |         |         |            |
| 11. |          |          |         |         |         |            |
| 12. |          |          |         |         |         |            |

| No | Pa       | Va/g    | Po - Pa  | $Y = P / \{Va (Po - P).g\}$ | P / Po (x) |
|----|----------|---------|----------|-----------------------------|------------|
| 1. | 40,6755  | 56,2394 | 644,3245 | 0,0011                      | 0,0594     |
| 2. | 85,2931  | 65,1097 | 599,7069 | 0,0022                      | 0,1245     |
| 3. | 134,3291 | 70,1973 | 550,6709 | 0,0035                      | 0,1961     |
| 4. | 181,6389 | 76,7627 | 503,3611 | 0,0047                      | 0,2652     |
| 5. |          |         |          |                             |            |
| 6. |          |         |          |                             |            |

Slope ( m ) : 0,0175  
 Intersept ( b ) : 0,000054  
 Vm : 56,7947 cm<sup>3</sup> / gr  
 Correlation Coefficient : 0,998  
 BET Surface Area : 91,5524 m<sup>2</sup>  
 BET Spesific Surface Area ( SS ) : 247,2385 m<sup>2</sup> / gr

## LAMPIRAN 2

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Arang Tempurung Kelapa (3/1) pada Tempertur 800 °C

#### SURFACE AREA METER SORPTOMATIC 1800 CARLO ERBA BET SURFACE AREA ANALYSIS

|             |                            |               |             |
|-------------|----------------------------|---------------|-------------|
| Report Date | : 19 Juni 2010             | Temperature   | : 25,2 °C   |
| Sample ID   | : KOH / ATK (3/1) pd 800 C | Adsorbate     | : Nitrogen  |
| User        | : -                        | Sample Weight | : 0,5143 gr |
| Operator    | : Mujinem                  | Po            | : 697 mmHg  |
| P Operation | : 760 mmHg                 | Pe            | : 846 mmHg  |

#### EXPERIMENTAL DATA

| No  | Pa       | Vi       | Vg       | Va      | Va/g    | P / Po (x) |
|-----|----------|----------|----------|---------|---------|------------|
| 1.  | 34,9234  | 17,4335  | 11,7851  | 5,6484  | 10,9828 | 0,5143     |
| 2.  | 94,4040  | 34,8671  | 26,7888  | 8,0783  | 15,7073 | 0,1354     |
| 3.  | 155,2872 | 52,3006  | 42,1462  | 10,1544 | 19,7442 | 0,2228     |
| 4.  | 247,8960 | 69,7342  | 65,5063  | 4,2279  | 8,2206  | 0,3557     |
| 5.  | 301,5316 | 87,1677  | 79,0357  | 8,1320  | 15,8118 | 0,4326     |
| 6.  | 345,0511 | 104,6012 | 90,0132  | 14,5881 | 28,3649 | 0,4951     |
| 7.  | 402,5706 | 122,0348 | 104,5222 | 17,5126 | 34,0513 | 0,5776     |
| 8.  |          |          |          |         |         |            |
| 9.  |          |          |          |         |         |            |
| 10. |          |          |          |         |         |            |
| 11. |          |          |          |         |         |            |
| 12. |          |          |          |         |         |            |

| No | Pa       | Va/g    | Po - Pa  | $Y = P / \{ Va ( Po - P ) . g \}$ | P / Po (x) |
|----|----------|---------|----------|-----------------------------------|------------|
| 1. | 34,9234  | 10,9828 | 662,0766 | 0,0048                            | 0,0501     |
| 2. | 94,404   | 15,7073 | 602,5960 | 0,0100                            | 0,1354     |
| 3. | 155,2872 | 19,7442 | 541,7128 | 0,0145                            | 0,2228     |
| 4. |          |         |          |                                   |            |
| 5. |          |         |          |                                   |            |
| 6. |          |         |          |                                   |            |

Slope ( m ) : 0,0561  
 Intersept ( b ) : 0,0021  
 Vm : 17,1607 cm<sup>3</sup> / gr  
 Correlation Coefficient : 0,9990  
 BET Surface Area : 38,4203 m<sup>2</sup>  
 BET Spesific Surface Area ( SS ) : 74,7041 m<sup>2</sup> / gr

### LAMPIRAN 3

## Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Arang Tempurung Kelapa (3/1) pada Tempertur 900 °C

#### SURFACE AREA METER SORPTOMATIC 1800 CARLO ERBA BET SURFACE AREA ANALYSIS

|             |                            |               |             |
|-------------|----------------------------|---------------|-------------|
| Report Date | : 19 Juni 2010             | Temperature   | : 25,2 °C   |
| Sample ID   | : KOH / ATK (3/1) pd 900 C | Adsorbate     | : Nitrogen  |
| User        | : -                        | Sample Weight | : 0,2983 gr |
| Operator    | : Mujinem                  | Po            | : 697 mmHg  |
| P Operation | : 760 mmHg                 | Pe            | : 850 mmHg  |

#### EXPERIMENTAL DATA

| No  | Pa       | Vi      | Vg      | Va      | Va/g     | P / Po (x) |
|-----|----------|---------|---------|---------|----------|------------|
| 1.  | 24,4690  | 17,5160 | 9,1913  | 8,3247  | 27,9070  | 0,0351     |
| 2.  | 107,8937 | 35,0319 | 30,3343 | 4,6976  | 15,7480  | 0,1548     |
| 3.  | 180,5308 | 52,5479 | 48,7432 | 3,8047  | 12,7546  | 0,2590     |
| 4.  | 285,2763 | 70,0639 | 75,2897 | -5,2258 | -17,5187 | 0,4093     |
| 5.  | 343,3347 | 87,5798 | 90,0038 | -2,4239 | -8,1259  | 0,4926     |
| 6.  |          |         |         |         |          |            |
| 7.  |          |         |         |         |          |            |
| 8.  |          |         |         |         |          |            |
| 9.  |          |         |         |         |          |            |
| 10. |          |         |         |         |          |            |
| 11. |          |         |         |         |          |            |
| 12. |          |         |         |         |          |            |

| No | Pa       | Va/g    | Po - Pa  | $Y = P / \{Va (Po - P) . g \}$ | P / Po (x) |
|----|----------|---------|----------|--------------------------------|------------|
| 1. | 107,8937 | 15,7480 | 589,1063 | 0,0166                         | 0,1548     |
| 2. | 180,5308 | 12,7546 | 516,4692 | 0,0274                         | 0,2590     |
| 3. |          |         |          |                                |            |
| 4. |          |         |          |                                |            |
| 5. |          |         |          |                                |            |
| 6. |          |         |          |                                |            |

Slope ( m ) : 0,1516  
 Intersept ( b ) : - 0,0119  
 Vm : 7,1552 cm<sup>3</sup> / gr  
 Correlation Coefficient : 0,9999  
 BET Surface Area : 9,2914 m<sup>2</sup>  
 BET Spesific Surface Area ( SS ) : 31,1479 m<sup>2</sup> / gr

## LAMPIRAN 4

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Arang Tempurung Kelapa (4/1) pada Tempertur 700 °C

Gemini 2360 V4.01

Instrument ID:

Setup Group: 5 - 5

Sample ID: 030-005-01

Date: 16/11/09 Time: 15:42

Sample Weight: 0.1294 g

Saturation Pressure: 762.55 mmHg

Measured Free Space: 0.534 cc STP

Evacuation Time: 1.0 min

Analysis Mode: Equilibration

Equilibration Time: 1 sec

#### BET Multipoint Surface Area Report

Surface Area: 684.3586 sq. m/g

Slope: 0.006569

Y-Intercept: -0.000208

C: -30.591818

Vm: 157.208221

Correlation Coefficient: 9.9748e-001

#### Langmuir Surface Area Report

Surface Area: 1055.7866 sq. m/g

Slope: 0.004123

Y-Intercept: 0.000027

b: 0.006598

Vm: 242.531219

Correlation Coefficient: 9.9999e-001

#### Analysis Log

| Relative Pressure | Pressure (mmHg) | Vol. Adsorbed (cc/g STP) | Surface Area Point |
|-------------------|-----------------|--------------------------|--------------------|
| 0.0999            | 76.14           | 228.183                  | *                  |
| 0.1500            | 114.39          | 232.142                  | *                  |
| 0.1999            | 152.43          | 234.380                  | *                  |
| 0.2499            | 190.55          | 236.090                  | *                  |

## LAMPIRAN 5

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Arang Tempurung Kelapa (4/1) pada Tempertur 800 °C

Gemini 2360 V4.01

Instrument ID:

Setup Group: 5 - 5

Sample ID: 030-006-1

Date: 17/11/09 Time: 09:46

Sample Weight: 0.1601 g

Saturation Pressure: 762.55 mmHg

Measured Free Space: 0.448 cc STP

Evacuation Time: 1.0 min

Analysis Mode: Equilibration

Equilibration Time: 1 sec

#### BET Multipoint Surface Area Report

Surface Area: 492.1876 sq. m/g

Slope: 0.009052

Y-Intercept: -0.000207

C: -42.627975

Vm: 113.063423

Correlation Coefficient: 9.9880e-001

#### Langmuir Surface Area Report

Surface Area: 717.8841 sq. m/g

Slope: 0.006064

Y-Intercept: 0.000046

b: 0.007619

Vm: 164.909546

Correlation Coefficient: 9.9998e-001

#### Analysis Log

| Relative Pressure | Pressure (mmHg) | Vol. Adsorbed (cc/g STP) | Surface Area Point |
|-------------------|-----------------|--------------------------|--------------------|
| 0.1000            | 76.49           | 153.775                  | *                  |
| 0.1499            | 114.33          | 156.602                  | *                  |
| 0.1999            | 152.46          | 158.555                  | *                  |
| 0.2500            | 190.97          | 160.272                  | *                  |
| 0.3001            | 228.82          | 161.671                  | *                  |

## LAMPIRAN 6

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Arang Tempurung Kelapa (4/1) pada Tempertur 900 °C

Gemini 2360 V4.01

Instrument ID:

Setup Group: 5 - 5

Sample ID: 030-007-1      Date: 17/11/09      Time: 10:36  
Sample Weight: 0.1387 g      Saturation Pressure: 762.55 mmHg  
Measured Free Space: 0.380 cc STP      Evacuation Time: 1.0 min  
Analysis Mode: Equilibration      Equilibration Time: 1 sec

#### BET Multipoint Surface Area Report

Surface Area: 457.6505 sq. m/g  
Slope: 0.009715  
Y-Intercept: -0.000203  
C: -46.923435  
Vm: 105.129707  
Correlation Coefficient: 9.9882e-001

#### Langmuir Surface Area Report

Surface Area: 670.5977 sq. m/g  
Slope: 0.006492  
Y-Intercept: 0.000069  
b: 0.010601  
Vm: 154.047089  
Correlation Coefficient: 9.9997e-001

#### Analysis Log

| Relative Pressure | Pressure (mmHg) | Vol. Adsorbed (cc/g STP) | Surface Area Point |
|-------------------|-----------------|--------------------------|--------------------|
| 0.1000            | 76.22           | 139.845                  | *                  |
| 0.1505            | 114.74          | 143.484                  | *                  |
| 0.2000            | 152.50          | 146.018                  | *                  |
| 0.2505            | 191.03          | 148.033                  | *                  |
| 0.3001            | 228.82          | 149.896                  | *                  |

## LAMPIRAN 7

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Batu Bara (3/1) pada Tempertur 700 °C

#### SURFACE AREA METER SORPTOMATIC 1800 CARLO ERBA BET SURFACE AREA ANALYSIS

|             |                           |               |             |
|-------------|---------------------------|---------------|-------------|
| Report Date | : 19 Juni 2010            | Temperature   | : 25,2 °C   |
| Sample ID   | : KOH / BB (3/1) pd 700 C | Adsorbate     | : Nitrogen  |
| User        | : -                       | Sample Weight | : 0,4451 gr |
| Operator    | : Mujinem                 | Po            | : 697 mmHg  |
| P Operation | : 760 mmHg                | Pe            | : 846 mmHg  |

#### EXPERIMENTAL DATA

| No  | Pa       | Vi       | Vg       | Va      | Va/g    | P / Po (x) |
|-----|----------|----------|----------|---------|---------|------------|
| 1.  | 20,5988  | 17,4335  | 8,1718   | 9,2617  | 20,8082 | 0,0296     |
| 2.  | 71,1329  | 34,8671  | 20,9187  | 13,9484 | 31,3376 | 0,1021     |
| 3.  | 134,9246 | 52,3006  | 37,0099  | 15,2907 | 34,3535 | 0,1936     |
| 4.  | 228,9557 | 69,7342  | 60,7287  | 9,0055  | 20,2325 | 0,3285     |
| 5.  | 295,9868 | 87,1677  | 77,637   | 9,5307  | 21,4125 | 0,4247     |
| 6.  | 344,0639 | 104,6012 | 89,7642  | 14,8371 | 33,3342 | 0,4936     |
| 7.  | 409,4258 | 122,0348 | 106,2514 | 15,7834 | 35,4603 | 0,5874     |
| 8.  |          |          |          |         |         |            |
| 9.  |          |          |          |         |         |            |
| 10. |          |          |          |         |         |            |
| 11. |          |          |          |         |         |            |
| 12. |          |          |          |         |         |            |

| No | Pa       | Va/g    | Po - Pa  | $Y = P / \{Va (Po - P).g\}$ | P / Po (x) |
|----|----------|---------|----------|-----------------------------|------------|
| 1. | 71,1329  | 31,3376 | 625,8671 | 0,0036                      | 0,1021     |
| 2. | 134,9246 | 34,3535 | 562,0754 | 0,0070                      | 0,1936     |
| 3. |          |         |          |                             |            |
| 4. |          |         |          |                             |            |
| 5. |          |         |          |                             |            |
| 6. |          |         |          |                             |            |

Slope ( m ) : 0,0372  
 Intersept ( b ) : -0,0002  
 Vm : 27,0529 cm<sup>3</sup> / gr  
 Correlation Coefficient : 0,9999  
 BET Surface Area : 52,4180 m<sup>2</sup>  
 BET Spesific Surface Area ( SS ) : 117,7667 m<sup>2</sup> / gr

## LAMPIRAN 8

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Batu Bara (3/1) pada Tempertur 800 °C

#### SURFACE AREA METER SORPTOMATIC 1800 CARLO ERBA BET SURFACE AREA ANALYSIS

|                                     |                           |
|-------------------------------------|---------------------------|
| Report Date : 19 Juni 2010          | Temperature : 25,2 °C     |
| Sample ID : KOH / BB (3/1) pd 800 C | Adsorbate : Nitrogen      |
| User : -                            | Sample Weight : 0,2294 gr |
| Operator : Mujinem                  | Po : 685 mmHg             |
| P Operation : 760 mmHg              | Pe : 846 mmHg             |

#### EXPERIMENTAL DATA

| No  | Pa       | Vi       | Vg      | Va      | Va/g     | P / Po (x) |
|-----|----------|----------|---------|---------|----------|------------|
| 1.  | 6,7817   | 17,4335  | 3,2884  | 14,1451 | 61,6615  | 0,0099     |
| 2.  | 16,5100  | 34,8671  | 6,3732  | 28,4939 | 124,2105 | 0,0241     |
| 3.  | 46,9667  | 52,3006  | 16,0309 | 36,2697 | 158,1069 | 0,0686     |
| 4.  | 86,6267  | 69,7342  | 28,6069 | 41,1273 | 179,2819 | 0,1265     |
| 5.  | 134,7500 | 87,1677  | 43,8666 | 43,3011 | 188,7581 | 0,1967     |
| 6.  | 205,7617 | 104,6012 | 66,3840 | 38,2173 | 166,5966 | 0,3004     |
| 7.  | 267,5083 | 122,0348 | 85,9635 | 36,0713 | 157,2419 | 0,3905     |
| 8.  |          |          |         |         |          |            |
| 9.  |          |          |         |         |          |            |
| 10. |          |          |         |         |          |            |
| 11. |          |          |         |         |          |            |
| 12. |          |          |         |         |          |            |

| No | Pa       | Va/g     | Po - Pa  | $Y = P / \{Va (Po - P).g \}$ | P / Po (x) |
|----|----------|----------|----------|------------------------------|------------|
| 1. | 46,9667  | 158,1069 | 638,0333 | 0,0005                       | 0,0686     |
| 2. | 86,6267  | 179,2819 | 598,3733 | 0,0008                       | 0,1265     |
| 3. | 134,7500 | 188,7581 | 550,2500 | 0,0013                       | 0,1967     |
| 4. | 205,7617 | 166,5966 | 479,2383 | 0,0026                       | 0,3004     |
| 5. |          |          |          |                              |            |
| 6. |          |          |          |                              |            |

Slope ( m ) : 0,0091  
 Intersept ( b ) : -0,0003  
 Vm : 113,0565 cm<sup>3</sup> / gr  
 Correlation Coefficient : 0,9845  
 BET Surface Area : 112,9009 m<sup>2</sup>  
 BET Spesific Surface Area ( SS ) : 492,1574 m<sup>2</sup> / gr

## LAMPIRAN 9

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Batu Bara (3/1) pada Tempertur 900 °C

#### SURFACE AREA METER SORPTOMATIC 1800 CARLO ERBA BET SURFACE AREA ANALYSIS

|                                     |                           |
|-------------------------------------|---------------------------|
| Report Date : 19 Juni 2010          | Temperature : 25,2 °C     |
| Sample ID : KOH / BB (3/1) pd 900 C | Adsorbate : Nitrogen      |
| User : -                            | Sample Weight : 0,2712 gr |
| Operator : Mujinem                  | Po : 685 mmHg             |
| P Operation : 760 mmHg              | Pe : 846 mmHg             |

#### EXPERIMENTAL DATA

| No  | Pa       | Vi       | Vg      | Va      | Va/g     | P / Po (x) |
|-----|----------|----------|---------|---------|----------|------------|
| 1.  | 4,1974   | 17,4335  | 2,4690  | 14,9645 | 55,1790  | 0,0061     |
| 2.  | 5,0556   | 34,8671  | 2,7411  | 32,1260 | 118,4586 | 0,0074     |
| 3.  | 17,0987  | 52,3006  | 6,5599  | 45,7407 | 168,6605 | 0,0250     |
| 4.  | 61,854   | 69,7342  | 20,7516 | 48,9826 | 180,6142 | 0,0903     |
| 5.  | 112,6993 | 87,1677  | 36,8744 | 50,2933 | 185,4473 | 0,1645     |
| 6.  | 166,0799 | 104,6012 | 53,8011 | 50,8002 | 187,3162 | 0,2425     |
| 7.  | 246,8618 | 122,0348 | 79,4166 | 42,6182 | 157,1467 | 0,3604     |
| 8.  | 296,5055 | 139,4683 | 95,1584 | 44,3099 | 163,3847 | 0,4329     |
| 9.  |          |          |         |         |          |            |
| 10. |          |          |         |         |          |            |
| 11. |          |          |         |         |          |            |
| 12. |          |          |         |         |          |            |

| No | Pa       | Va/g     | Po - Pa  | $Y = P / \{Va (Po - P).g\}$ | P / Po (x) |
|----|----------|----------|----------|-----------------------------|------------|
| 1. | 61,8540  | 180,6142 | 623,1460 | 0,0005                      | 0,0903     |
| 2. | 112,6993 | 185,4473 | 572,3007 | 0,0011                      | 0,1645     |
| 3. | 166,0799 | 187,3162 | 518,9201 | 0,0017                      | 0,2425     |
| 4. |          |          |          |                             |            |
| 5. |          |          |          |                             |            |
| 6. |          |          |          |                             |            |

Slope ( m ) : 0,0079  
 Intersept ( b ) : -0,000207  
 Vm : 130,2757 cm<sup>3</sup> / gr  
 Correlation Coefficient : 0,9986  
 BET Surface Area : 153,8019 m<sup>2</sup>  
 BET Spesific Surface Area ( SS ) : 567,1160 m<sup>2</sup> / gr

## LAMPIRAN 10

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Batu Bara (4/1) pada Tempertur 700 °C

Gemini 2360 V4.01

Instrument ID:

Setup Group: 5 - 5

Sample ID: 030-002-1                      Date: 17/11/09    Time: 15:22  
Sample Weight:    0.1889 g                      Saturation Pressure: 762.55 mmHg  
Measured Free Space:    0.456 cc STP                      Evacuation Time:    1.0 min  
Analysis Mode: Equilibration                      Equilibration Time:    1 sec

#### BET Multipoint Surface Area Report

Surface Area:                      631.7073    sq. m/g  
Slope:                                      0.007050  
Y-Intercept:                              -0.000159  
C:    -43.285156  
Vm:    145.113373  
Correlation Coefficient: 9.9838e-001

#### Langmuir Surface Area Report

Surface Area:                      996.7950    sq. m/g  
Slope:                                      0.004367  
Y-Intercept:                              0.000092  
b:    0.021074  
Vm:    228.979904  
Correlation Coefficient: 9.9975e-001

#### Analysis Log

| Relative Pressure | Pressure (mmHg) | Vol. Adsorbed (cc/g STP) | Surface Area Point |
|-------------------|-----------------|--------------------------|--------------------|
| 0.1000            | 76.25           | 192.300                  | *                  |
| 0.1499            | 114.32          | 199.375                  | *                  |
| 0.2002            | 152.63          | 205.471                  | *                  |
| 0.2500            | 190.65          | 210.559                  | *                  |
| 0.2998            | 228.65          | 215.158                  | *                  |

## LAMPIRAN 11

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Batu Bara (4/1) pada Tempertur 800 °C

Gemini 2360 V4.01

Instrument ID:

Setup Group: 5 - 5

Sample ID: 030-003-1 Date: 16/11/09 Time: 14:49  
Sample Weight: 0.1930 g Saturation Pressure: 762.55 mmHg  
Measured Free Space: 3.100 cc STP Evacuation Time: 1.0 min  
Analysis Mode: Equilibration Equilibration Time: 1 sec

#### BET Multipoint Surface Area Report

Surface Area: 850.7216 sq. m/g  
Slope: 0.005231  
Y-Intercept: -0.000114  
C: -44.984520  
Vm: 195.424484  
Correlation Coefficient: 9.9870e-001

#### Langmuir Surface Area Report

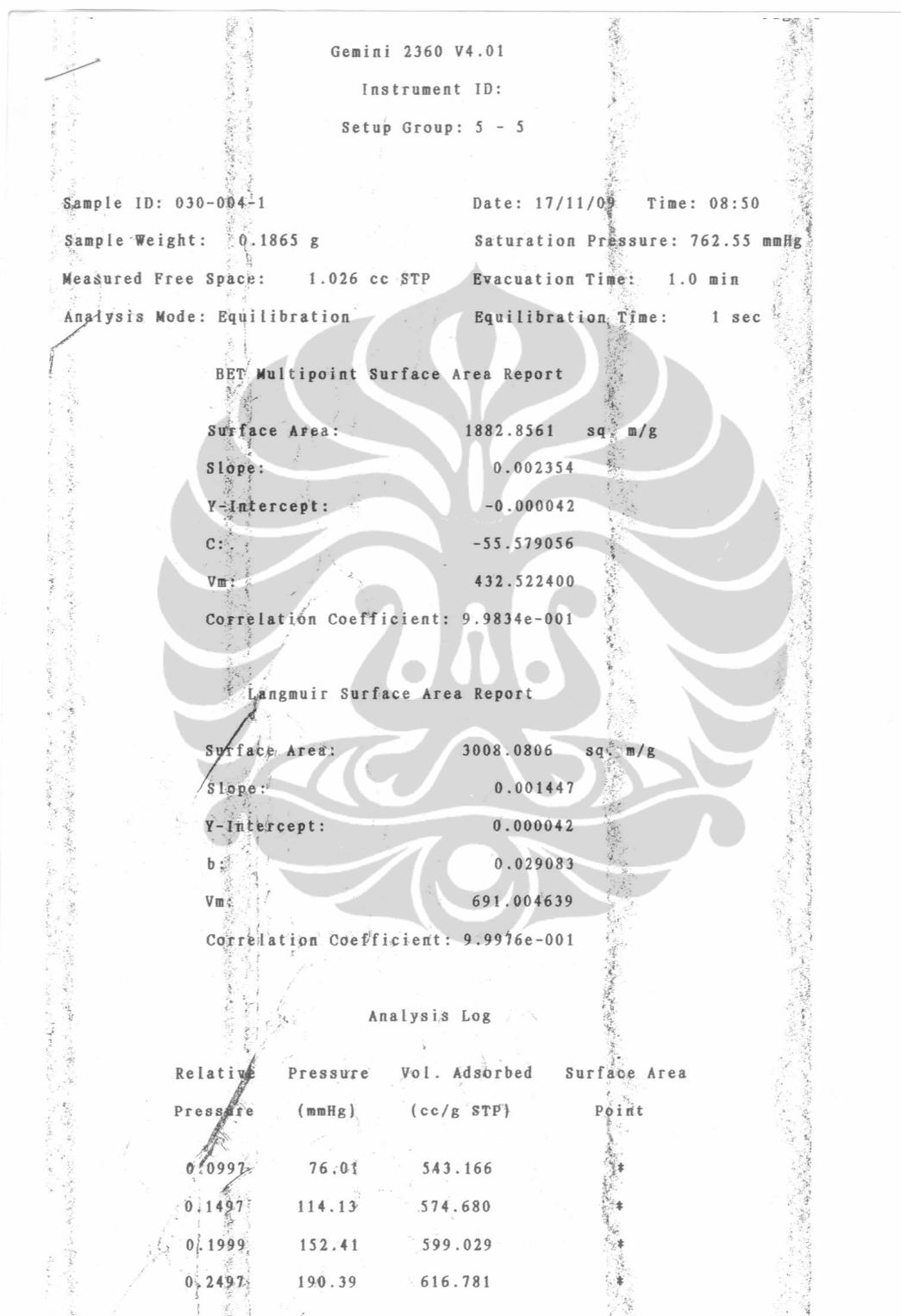
Surface Area: 1242.1141 sq. m/g  
Slope: 0.003505  
Y-Intercept: 0.000032  
b: 0.009036  
Vm: 285.333649  
Correlation Coefficient: 9.9999e-001

#### Analysis Log

| Relative Pressure | Pressure (mmHg) | Vol. Adsorbed (cc/g STP) | Surface Area Point |
|-------------------|-----------------|--------------------------|--------------------|
| 0.0997            | 76.05           | 262.168                  | *                  |
| 0.1501            | 114.49          | 268.758                  | *                  |
| 0.2002            | 152.70          | 272.721                  | *                  |
| 0.2498            | 190.49          | 275.614                  | *                  |
| 0.3000            | 228.76          | 278.032                  | *                  |

## LAMPIRAN 12

### Hasil Pengujian Luas Permukaan Karbon Aktif dari Variasi KOH/Batu Bara (4/1) pada Tempertur 900 °C



## LAMPIRAN 13

### Hasil Pengujian Diameter Pori-Pori Pada Karbon Aktif

Date: 04/30/2010

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Quantachrome Corporation  
Quantachrome Autosorb Automated Gas Sorption System Report  
Autosorb for Windows® for AS-3 and AS-6 Version 1.23

|                |                               |             |          |               |                  |
|----------------|-------------------------------|-------------|----------|---------------|------------------|
| Sample ID      | 2                             |             |          |               |                  |
| Description    | 800oC                         |             |          |               |                  |
| Comments       |                               |             |          |               |                  |
| Sample Weight  | 0.3299 g                      |             |          |               |                  |
| Adsorbate      | NITROGEN                      | Outgas Temp | 200.0 °C | Operator      | jajat            |
| Cross-Sec Area | 16.2 Å <sup>2</sup> /molecule | Outgas Time | 24.0 hrs | Analysis Time | 109.3 min        |
| NonIdeality    | 6.580E-05                     | P/Po Toler  | 3        | End of Run    | 11/12/2009 12:31 |
| Molecular Wt   | 28.0134 g/mol                 | Equil Time  | 2        | File Name     | AS961006.RAW     |
| Station #      | 6                             | Bath Temp.  | 77.40    | PC SW Version | 1.23             |

#### AREA-VOLUME-PORE SIZE SUMMARY

#### SURFACE AREA DATA

|                                       |           |                   |
|---------------------------------------|-----------|-------------------|
| Multipoint BET.....                   | 5.984E+02 | m <sup>2</sup> /g |
| Lanmuir Surface Area.....             | 8.868E+02 | m <sup>2</sup> /g |
| t-Method External Surface Area.....   | 2.551E+02 | m <sup>2</sup> /g |
| t-Method Micro Pore Surface Area..... | 3.433E+02 | m <sup>2</sup> /g |
| DR Method Micro Pore Area.....        | 8.523E+02 | m <sup>2</sup> /g |

#### PORE VOLUME DATA

|                                       |           |      |
|---------------------------------------|-----------|------|
| t-Method Micro Pore Volume.....       | 1.786E-01 | cc/g |
| DR Method Micro Pore Volume.....      | 3.029E-01 | cc/g |
| HK Method Cumulative Pore Volume..... | 2.839E-01 | cc/g |
| SF Method Cumulative Pore Volume..... | 2.863E-01 | cc/g |

#### PORE SIZE DATA

|                                     |           |   |
|-------------------------------------|-----------|---|
| DR Method Micro Pore Width .....    | 6.684E+01 | Å |
| DA Method Pore Diameter (Mode)..... | 1.680E+01 | Å |
| HK Method Pore Width (Mode).....    | 1.362E+01 | Å |
| SF Method Pore Diameter (Mode)..... | 2.565E+01 | Å |

#### DATA REDUCTION PARAMETERS

Thermal Transpiration : OFF  
Last Po Acquired 765.78 mm Hg  
Additional Initialization Information Not Recorded.

BJH/DH Moving Average Size : 1

Interaction Constant (K) 2.9600 nm<sup>3</sup> x kJ/mol