Lampiran 1. Perhitungan Data Hasil Penelitian

A. Arang Tempurung Kelapa

1. Perhitungan Kadar Air dilakukan 2 kali

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Keterangan:

W_1 = massa karbon yang hilang, gram

W_2 = massa karbon awal, gram

1.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 45,642 gram

Massa cawan + sampel setelah dioven = 45,640 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 45,642 gram - 45,640 gram = 0,042 gram

W2 = 1,044 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,042}{1,044}$ x 100 %

Kadar Air % = 4,02 %

1.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 39,904 gram

Massa cawan + sampel setelah dioven = 39,861 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 39, 904 gram – 39,861 gram = 0,043 gram

W2 = 1,005 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,043}{1,005}$ x 100 %

Kadar Air % = 4,27 %

Rata-rata kadar air tempurung kelapa $= \frac{4,02+4,27}{2} = 4,145\%$

2. Perhitungan Kadar Abu dilakukan 2 kali

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Keterangan :

W_1 = massa karbon yang menjadi abu, gram

W_2 = massa karbon awal, gram

2.1 Pengujian Pertama

Massa cawan kosong = 44,637 gram

Massa cawan + sampel setelah di *furnace* = 44,670 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 44,670 gram – 44,637 gram = 0,033 gram

W2 = 2,102 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,033}{2,102}$ x 100 %

Kadar Abu % = 1,569 %

2.2 Pengujian Kedua

Massa cawan kosong = 38,899 gram

Massa cawan + sampel setelah di *furnace* = 38,932 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 38.932 gram – 38,899 gram = 0,033 gram

W2 = 2,080 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,033}{2,080}$ x 100 %

Kadar Abu % = 1,585 %

Rata-rata kadar abu tempurung kelapa $= \frac{1,569+1,585}{2} = 1,577\%$

B. Karbon aktif Tempurung Kelapa

1. Perhitungan Kadar Air dilakukan 2 kali

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Keterangan :

W_1 = massa karbon yang hilang, gram

W_2 = massa karbon awal, gram

1.1 Kadar Air 0,5 M (80 mesh)

1.1.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,9157 gram

Massa cawan + sampel setelah dioven = 3,9143 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,9157 gram – 3,9371 gram = 0,0214 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0214}{1}$ x 100 %

Kadar Air % = 2,14 %

1.1.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8985 gram

Massa cawan + sampel setelah dioven = 3,8957 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8985 gram – 3,8857 gram = 0,0128 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0128}{1}$ x 100 %

Kadar Air % = 1,28 %

Rata-rata kadar air 0,5 M (80 mesh) = $\frac{2,14+1,28}{2}$ = 1,71%

1.2 Kadar Air 0,5 M (100 mesh)

1.2.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,8613 gram

Massa cawan + sampel setelah dioven = 3,8483 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8613 gram – 3,8483 gram = 0,013 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,013}{1}$ x 100 %

Kadar Air % = 1,3 %

1.2.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8409 gram

Massa cawan + sampel setelah dioven = 3,8213 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8409 gram – 3,8213 gram = 0,0196 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0196}{1}$ x 100 %

Kadar Air % = 1,96 %

Rata-rata kadar air 0,5 M (100 mesh) = $\frac{1,3+1,96}{2}$ = 1,63%

1.3 Kadar Air 0,5 M (120 mesh)

1.3.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,8985 gram

Massa cawan + sampel setelah dioven = 3,8820 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8985 gram – 3,820 gram = 0,0165 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0165}{1}$ x 100 %

Kadar Air % = 1,65 %

1.3.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8726 gram

Massa cawan + sampel setelah dioven = 3,8685 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8726 gram – 3,8685 gram = 0,01876 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,01876}{1}$ x 100 %

Kadar Air % = 1,876 %

Rata-rata kadar air 0,5 M (120 mesh) = $\frac{1,65+1,876}{2}$ = 1,763%

1.4 Kadar Air 1 M (80 mesh)

1.4.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,8876 gram

Massa cawan + sampel setelah dioven = 3,8765 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8876 gram – 3,8765 gram = 0,0105 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0105}{1}$ x 100 %

Kadar Air % = 1,05 %

1.4.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8606 gram

Massa cawan + sampel setelah dioven = 3,8476 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8606 gram – 3,8476 gram = 0,013 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,013}{1}$ x 100 %

Kadar Air % = 1,3 %

Rata-rata kadar air 1 M (80 mesh) = $\frac{1,05+1,3}{2}$ = 1,175%

1.5 Kadar Air 1 M (100 mesh)

1.5.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,9013 gram

Massa cawan + sampel setelah dioven = 3,8933 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,9013 gram – 3,8933 gram = 0,008 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,008}{1}$ x 100 %

Kadar Air % = 0,8 %

1.5.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8746 gram

Massa cawan + sampel setelah dioven = 3,8613 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8746 gram – 3,8613 gram = 0,0133 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0133}{1}$ x 100 %

Kadar Air % = 1,33 %

Rata-rata kadar air 1 M (100 mesh) = $\frac{0,8+1,33}{2}$ = 1,065%

1.6 Kadar Air 1 M (120 mesh)

1.6.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,8589 gram

Massa cawan + sampel setelah dioven = 3,8492 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8589 gram – 3,8492 gram = 0,0097 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0097}{1}$ x 100 %

Kadar Air % = 0,97 %

1.6.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8403 gram

Massa cawan + sampel setelah dioven = 3,8289 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8403 gram – 3,8289 gram = 0,0114 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0114}{1}$ x 100 %

Kadar Air % = 1,14 %

Rata-rata kadar air 1 M (120 mesh) = $\frac{0,97+1,14}{2}$ = 1,055%

1.7 Kadar Air 1,5 M (80 mesh)

1.7.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,8936 gram

Massa cawan + sampel setelah dioven = 3,8872 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8936 gram – 3,8872 gram = 0,0064 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0064}{1}$ x 100 %

Kadar Air % = 0,64 %

1.7.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8725 gram

Massa cawan + sampel setelah dioven = 3,8636 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8725 gram – 3,8636 gram = 0,0089 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0089}{1}$ x 100 %

Kadar Air % = 0,89 %

Rata-rata kadar air 1,5 M (80 mesh) $= \frac{0,64+0,89}{2} = 0,765\%$

1.8 Kadar Air 1,5 M (100 mesh)

1.8.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,8625 gram

Massa cawan + sampel setelah dioven = 3,8605 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8625 gram – 3,8605 gram = 0,002 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,002}{1}$ x 100 %

Kadar Air % = 0,2 %

1.8.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8394 gram

Massa cawan + sampel setelah dioven = 3,8374 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8394 gram – 3,8374 gram = 0,002 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,002}{1}$ x 100 %

Kadar Air % = 0,2 %

Rata-rata kadar air 1,5 M (100 mesh) $= \frac{0,2+0,2}{2} = 0,2\%$

1.9 Kadar Air 1,5 M (120 mesh)

1.9.1 Pengujian Pertama

Massa cawan + sampel sebelum dioven = 3,9156 gram

Massa cawan + sampel setelah dioven = 3,9114 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,9156 gram – 3,9114 gram = 0,0042 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,0042}{1}$ x 100 %

Kadar Air % = 0,42 %

1.9.2 Pengujian Kedua

Massa cawan + sampel sebelum dioven = 3,8945 gram

Massa cawan + sampel setelah dioven = 3,8915 gram

W1 = (Massa cawan + sampel sebelum dioven) – (Massa cawan + sampel setelah dioven) = 3,8945 gram – 3,8915 gram = 0,003 gram

W2 = 1 gram

Kadar Air % = $\frac{W1}{W2}$ x 100 %

Kadar Air % = $\frac{0,003}{1}$ x 100 %

Kadar Air % = 0,3 %

Rata-rata kadar air 1,5 M (120 mesh) = $\frac{0,42+0,3}{2}$ = 0,36%

2. Perhitungan Kadar Abu dilakukan 2 kali

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Keterangan :

W_1 = massa karbon yang menjadi abu, gram

W_2 = massa karbon awal, gram

2.1 Kadar Abu 0,5 M (80 mesh)

2.1.1 Pengujian Pertama

Massa cawan kosong = 18,442 gram

Massa cawan + sampel setelah di *furnace* = 18,480 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 18,480 gram – 18,442 gram = 0,037 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,037}{2}$ x 100 %

Kadar Abu % = 1,885 %

2.1.2 Pengujian Kedua

Massa cawan kosong = 18,770 gram

Massa cawan + sampel setelah di *furnace* = 18,791 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 18,791 gram – 18,770 gram = 0,021 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,021}{2}$ x 100 %

Kadar Abu % = 1,05 %

Rata-rata kadar abu 0,5 M (80 mesh) = $\frac{1,885+1,05}{2}$ = 1,467%

2.2 Kadar Abu 0,5 M (100 mesh)

2.2.1 Pengujian Pertama

Massa cawan kosong = 18,147 gram

Massa cawan + sampel setelah di *furnace* = 18,199 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 18,199 gram – 18,147 gram = 0,052 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,052}{2}$ x 100 %

Kadar Abu % = 2,56 %

2.2.2 Pengujian Kedua

Massa cawan kosong = 15,686 gram

Massa cawan + sampel setelah di *furnace* = 15,721 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 15,686 gram – 15,721 gram = 0,035 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,035}{2}$ x 100 %

Kadar Abu % = 1,74 %

Rata-rata kadar abu 0,5 M (100 mesh) = $\frac{2,56+1,74}{2}$ = 2,15%

2.3 Kadar Abu 0,5 M (120 mesh)

2.3.1 Pengujian Pertama

Massa cawan kosong = 39,916 gram

Massa cawan + sampel setelah di *furnace* = 39,966 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 39,966 gram – 39,916 gram = 0,050 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,050}{2}$ x 100 %

Kadar Abu % = 2,5 %

2.3.2 Pengujian Kedua

Massa cawan kosong = 32,485 gram

Massa cawan + sampel setelah di *furnace* = 32,535 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 32,535 gram – 32,385 gram = 0,050 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,050}{2}$ x 100 %

Kadar Abu % = 2,5 %

Rata-rata kadar abu 0,5 M (120 mesh) = $\frac{2,5+2,5}{2}$ = 2,5%

2.4 Kadar Abu 1 M (80 mesh)

2.4.1 Pengujian Pertama

Massa cawan kosong = 15,668 gram

Massa cawan + sampel setelah di *furnace* = 15,720 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 15,720 gram – 15,668 gram = 0,052 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,052}{2}$ x 100 %

Kadar Abu % = 2,6 %

2.4.2 Pengujian Kedua

Massa cawan kosong = 18,466 gram

Massa cawan + sampel setelah di *furnace* = 18,489 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 18,489 gram – 18,466 gram = 0,023 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,023}{2}$ x 100 %

Kadar Abu % = 1,15 %

Rata-rata kadar abu 1 M (80 mesh) = $\frac{2,6+1,15}{2}$ = 1,875%

2.5 Kadar Abu 1 M (100 mesh)

2.5.1 Pengujian Pertama

Massa cawan kosong = 40,001 gram

Massa cawan + sampel setelah di *furnace* = 40,055 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 40,055 gram – 40,001 gram = 0,054 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,054}{2}$ x 100 %

Kadar Abu % = 2,7 %

2.5.2 Pengujian Kedua

Massa cawan kosong = 22,791 gram

Massa cawan + sampel setelah di *furnace* = 22,821 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 22,821 gram – 22,791 gram = 0,030 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,030}{2}$ x 100 %

Kadar Abu % = 1,5 %

Rata-rata kadar abu 1 M (100 mesh) = $\frac{2,7+1,5}{2}$ = 2,1 %

2.6 Kadar Abu 1 M (120 mesh)

2.6.1 Pengujian Pertama

Massa cawan kosong = 40,390 gram

Massa cawan + sampel setelah di *furnace* = 40,437 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 40,437 gram – 40,390 gram = 0,047 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,047}{2}$ x 100 %

Kadar Abu % = 2,35 %

2.6.2 Pengujian Kedua

Massa cawan kosong = 32,284 gram

Massa cawan + sampel setelah di *furnace* = 32,347 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 32,347 gram – 32,284 gram = 0,063 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,023}{2}$ x 100 %

Kadar Abu % = 3,15 %

Rata-rata kadar abu 1 M (120 mesh) $= \frac{2,35+3,15}{2} = 2,75\%$

2.7 Kadar Abu 1,5 M (80 mesh)

2.7.1 Pengujian Pertama

Massa cawan kosong = 18,752 gram

Massa cawan + sampel setelah di *furnace* = 18,816 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 18,816 gram – 18,752 gram = 0,064 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,064}{2}$ x 100 %

Kadar Abu % = 3,2 %

2.7.2 Pengujian Kedua

Massa cawan kosong = 18,168 gram

Massa cawan + sampel setelah di *furnace* = 18,219 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 18,219 gram – 18,168 gram = 0,051 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,051}{2}$ x 100 %

Kadar Abu % = 2,55 %

Rata-rata kadar abu 1,5 M (80 mesh) $= \frac{3,2+2,55}{2} = 2,875\%$

2.8 Kadar Abu 1,5 M (100 mesh)

2.8.1 Pengujian Pertama

Massa cawan kosong = 22,760 gram

Massa cawan + sampel setelah di *furnace* = 22,787 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 22,787 gram – 22,760 gram = 0,027 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,027}{2}$ x 100 %

Kadar Abu % = 1,35 %

2.8.2 Pengujian Kedua

Massa cawan kosong = 40,038 gram

Massa cawan + sampel setelah di *furnace* = 40,053 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 40,053 gram – 40,038 gram = 0,015 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,015}{2}$ x 100 %

Kadar Abu % = 0,75 %

Rata-rata kadar abu 1,5 M (100 mesh) = $\frac{1,35+0,75}{2}$ = 1,05%

2.9 Kadar Abu 1,5 M (120 mesh)

2.9.1 Pengujian Pertama

Massa cawan kosong = 39,924 gram

Massa cawan + sampel setelah di *furnace* = 39,960 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 39,960 gram – 39,924 gram = 0,036 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,036}{2}$ x 100 %

Kadar Abu % = 1,8 %

2.9.2 Pengujian Kedua

Massa cawan kosong = 34,359 gram

Massa cawan + sampel setelah di *furnace* = 34,370 gram

W1 = (Massa cawan + sampel setelah di *furnace*) – massa cawan kosong = 34,370 gram – 34,359 gram = 0,011 gram

W2 = 2 gram

Kadar Abu % = $\frac{W1}{W2}$ x 100 %

Kadar Abu % = $\frac{0,011}{2}$ x 100 %

Kadar Abu % = 0,55 %

Rata-rata kadar abu 1 M (80 mesh) = $\frac{1,8+0,55}{2}$ = 1,175%

3. Perhitungan Daya Serap Iodin dilakukan 2 kali

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

Keterangan :

V = Larutan natrium tiosulfat yang diperlukan, mL

N = Normalitas larutan natrium tiosulfat

12,69 = Jumlah iod sesuai dengan 1 mL larutan natrium tiosulfat 0,1 N

W = Contoh, g

3.1 Daya Serap Iod 0,5 M (80 mesh)

3.1.1 Pengujian Pertama

V = 0,6 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

= $\frac{10-\frac{0,6\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1192,86 mg/g

3.1.2 Pengujian Kedua

V = 0,4 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

$$= \frac{10 - \frac{0{,}4\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1218,24 mg/g

Rata-rata kadar abu 0,5 M (80 mesh) $= \frac{1192{,}86+1218{,}24}{2}$ **= 1205,55 mg/g**

3.2 Daya Serap Iod 0,5 M (100 mesh)

3.2.1 Pengujian Pertama

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g $= \frac{10 - \frac{V\ x\ N}{0{,}1}}{\text{W}}$ x 12,69 x 5

$$= \frac{10 - \frac{0{,}5\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1205,55 mg/g

3.2.2 Pengujian Kedua

V = 0,4 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g $= \frac{10 - \frac{V\ x\ N}{0{,}1}}{\text{W}}$ x 12,69 x 5

$$= \frac{10 - \frac{0{,}4\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1218,24 mg/g

Rata-rata kadar abu 0,5 M (100 mesh) $= \frac{1205{,}55+1218{,}24}{2}$ **= 1211,895 mg/g**

3.3 Daya Serap Iod 0,5 M (120 mesh)

3.3.1 Pengujian Pertama

V = 0,8 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g $= \frac{10 - \frac{V\ x\ N}{0{,}1}}{\text{W}}$ x 12,69 x 5

$$= \frac{10 - \frac{0{,}8\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1167,48 mg/g

3.3.2 Pengujian Kedua

V = 1 mL

N = 0,1 N

W = 0,5 gram

$$\text{Iodin yang diadsorpsi, mg/g} = \frac{10 - \frac{V\ x\ N}{0{,}1}}{\text{W}} \text{ x } 12{,}69 \text{ x } 5$$

$$= \frac{10 - \frac{1\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1142,1 mg/g

Rata-rata kadar abu 0,5 M (120 mesh) $= \frac{1167{,}48+1142{,}1}{2}$ **= 1154,79 mg/g**

3.4 Daya Serap Iod 1 M (80 mesh)

3.4.1 Pengujian Pertama

V = 0,4 mL

N = 0,1 N

W = 0,5 gram

$$\text{Iodin yang diadsorpsi, mg/g} = \frac{10 - \frac{V\ x\ N}{0{,}1}}{\text{W}} \text{ x } 12{,}69 \text{ x } 5$$

$$= \frac{10 - \frac{0{,}4\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1218,24 mg/g

3.4.2 Pengujian Kedua

V = 0,6 mL

N = 0,1 N

W = 0,5 gram

$$\text{Iodin yang diadsorpsi, mg/g} = \frac{10 - \frac{V\ x\ N}{0{,}1}}{\text{W}} \text{ x } 12{,}69 \text{ x } 5$$

$$= \frac{10 - \frac{0{,}6\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}} \text{ x } 12{,}69 \text{ x } 5$$

= 1192,86 mg/g

Rata-rata kadar abu 1 M (80 mesh) $= \frac{1218{,}24+1192{,}86}{2}$ **= 1205,55 mg/g**

3.5 Daya Serap Iod 1 M (100 mesh)

3.5.1 Pengujian Pertama

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0{,}1}}{\text{W}}$ x 12,69 x 5

= $\frac{10-\frac{0{,}5\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}}$ x 12,69 x 5

= 1205,55 mg/g

3.5.2 Pengujian Kedua

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0{,}1}}{\text{W}}$ x 12,69 x 5

= $\frac{10-\frac{0{,}5\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}}$ x 12,69 x 5

= 1205,55 mg/g

Rata-rata kadar abu 1 M (100 mesh) $= \frac{1205{,}55+1205{,}55}{2}$ **= 1205,55 mg/g**

3.6 Daya Serap Iod 1 M (120 mesh)

3.6.1 Pengujian Pertama

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0{,}1}}{\text{W}}$ x 12,69 x 5

= $\frac{10-\frac{0{,}5\ mL\ x\ 0{,}1\ N}{0{,}1}}{0{,}5\ \text{gram}}$ x 12,69 x 5

= 1205,55 mg/g

3.6.2 Pengujian Kedua

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

$= \frac{10-\frac{0,5\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1205,55 mg/g

Rata-rata kadar abu 1 M (120 mesh) = $\frac{1205,55+1205,55}{2}$ = 1205,55 mg/g

3.7 Daya Serap Iod 1,5 M (80 mesh)

3.7.1 Pengujian Pertama

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

$= \frac{10-\frac{0,5\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1205,55 mg/g

3.7.2 Pengujian Kedua

V = 0,6 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

$= \frac{10-\frac{0,6\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1192,86 mg/g

Rata-rata kadar abu 1,5 M (80 mesh) = $\frac{1205,55+1192,86}{2}$ = 1199,205 mg/g

3.8 Daya Serap Iod 1,5 M (100 mesh)

3.8.1 Pengujian Pertama

V = 0,4 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

= $\frac{10-\frac{0,4\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1218,18,24 mg/g

3.8.2 Pengujian Kedua

V = 0,4 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

= $\frac{10-\frac{0,4\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1218,24 mg/g

Rata-rata kadar abu 1,5 M (100 mesh) = $\frac{1218,24+1218,24}{2}$ **= 1218,24 mg/g**

3.9 Daya Serap Iod 0,5 M (120 mesh)

3.9.1 Pengujian Pertama

V = 0,4 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

= $\frac{10-\frac{0,4\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1218,24 mg/g

3.9.2 Pengujian Kedua

V = 0,5 mL

N = 0,1 N

W = 0,5 gram

Iodin yang diadsorpsi, mg/g = $\frac{10-\frac{V\ x\ N}{0,1}}{W}$ x 12,69 x 5

= $\frac{10-\frac{0,5\ mL\ x\ 0,1\ N}{0,1}}{0,5\ gram}$ x 12,69 x 5

= 1205,55 mg/g

Rata-rata kadar abu 1,5 M (120 mesh) = $\frac{1218,24+1205,55}{2}$ = 1211,895 mg/g

4. Daya Serap Metilen Biru

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

Keterangan :

C1= Konsentrasi larutan metilen biru awal, ppm

C2 = Konsentrasi larutan metilen biru akhir, ppm

V = Volume larutan metilen biru yang digunakan

B = Berat sampel, gram

4.1 Daya Serap Metilen Biru 0,5 M (80 mesh)

C1= 500 ppm

C2 = 3,883 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

= $\frac{500\ ppm - 3,883\ ppm}{1000}$ x 25 mL x $\frac{1}{0,1\ gram}$

= 124,029 mg/g

4.2 Daya Serap Metilen Biru 0,5 (100 mesh)

C1= 500 ppm

C2 = 3,766 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

$$= \frac{500 \text{ ppm} - 3{,}766 \text{ ppm}}{1000} \text{ x } 25 \text{ mL x } \frac{1}{0{,}1 \text{ gram}}$$

$$= 124{,}058 \text{ mg/g}$$

4.3 Daya Serap Metilen Biru 0,5 M (120 mesh)

C1= 500 ppm

C2 = 8,943 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

$$= \frac{500 \text{ ppm} - 8{,}943 \text{ ppm}}{1000} \text{ x } 25 \text{ mL x } \frac{1}{0{,}1 \text{ gram}}$$

$$= 122{,}764 \text{ mg/g}$$

4.4 Daya Serap Metilen Biru 1 M (80 mesh)

C1= 500 ppm

C2 = 5,452 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

$$= \frac{500 \text{ ppm} - 5{,}452 \text{ ppm}}{1000} \text{ x } 25 \text{ mL x } \frac{1}{0{,}1 \text{ gram}}$$

$$= 123{,}637 \text{ mg/g}$$

4.5 Daya Serap Metilen Biru 1 M (100 mesh)

C1= 500 ppm

C2 = 5,029 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

$$= \frac{500 \text{ ppm} - 5{,}029 \text{ ppm}}{1000} \text{ x } 25 \text{ mL x } \frac{1}{0{,}1 \text{ gram}}$$

$$= 123{,}742 \text{ mg/g}$$

4.6 Daya Serap Metilen Biru 1 M (120 mesh)

C1= 500 ppm

C2 = 5,83 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

= $\frac{500\ ppm - 5,83\ ppm}{1000}$ x 25 mL x $\frac{1}{0,1\ gram}$

= 123,542 mg/g

4.7 Daya Serap Metilen Biru 1,5 M (80 mesh)

C1= 500 ppm

C2 = 5,936 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

= $\frac{500\ ppm - 5,936\ ppm}{1000}$ x 25 mL x $\frac{1}{0,1\ gram}$

= 123,516 mg/g

4.8 Daya Serap Metilen Biru 1,5 M (100 mesh)

C1= 500 ppm

C2 = 3,124 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

= $\frac{500\ ppm - 3,124\ ppm}{1000}$ x 25 mL x $\frac{1}{0,1\ gram}$

= 124,219 mg/g

4.9 Daya Serap Metilen Biru 1,5 M (120 mesh)

C1= 500 ppm

C2 = 6,715 ppm

V = 25 mL

B = 0,1 gram

Daya serap metilen biru, mg/g = $\frac{C1-C2}{1000}$ x V x $\frac{1}{B}$

$= \frac{500 \text{ ppm} - 6{,}715 \text{ ppm}}{1000}$ x 25 mL x $\frac{1}{0{,}1 \text{ gram}}$

= 123,321 mg/g

C. Minyak Bekas Pakai

1. Bilangan Asam

Bilangan asam (mgKOH/g) = $\frac{25{,}6 \text{ x V x N}}{W}$

Keterangan :

V = volume larutan KOH atau NaOH yang diperlukan. mL

N = Normalitas larutan KOH atau NaOH

W = Bobot contoh uji, gram

1.1 Bilangan Asam Minyak Sebelum Adsorpsi

V = 6,2 mL

N = 0,1 N

W = 10 gram

Bilangan asam (mgKOH/g) = $\frac{25{,}6 \text{ x V x N}}{W}$

$= \frac{25{,}6 \text{ x } 6{,}2 \text{ mL x } 0{,}1 \text{ N}}{W}$

= 3,478 mgKOH/g

1.2 Bilangan Asam Minyak Setelah Adsorpsi (Karbon Aktif Komersial)

V = 5,5 mL

N = 0,1 N

W = 10 gram

Bilangan asam (mgKOH/g) = $\frac{25{,}6 \text{ x V x N}}{W}$

$= \frac{25{,}6 \text{ x } 5{,}5 \text{ mL x } 0{,}1 \text{ N}}{W}$

= 3,085 mgKOH/g

1.3 Bilangan Asam Minyak Setelah Adsorpsi (Karbon Aktif Teraktivasi $Ca(OH)_2$)

V = 4,7 mL

N = 0,1 N

W = 10 gram

Bilangan asam (mgKOH/g) = $\frac{25,6 \text{ x V x N}}{\text{W}}$

$= \frac{25,6 \text{ x } 4,7 \text{ mL x } 0,1 \text{ N}}{\text{W}}$

= 2,636 mgKOH/g

2. Bilangan Peroksida

Bilangan peroksida (mek O_2/kg) = $\frac{1000 \text{ x N x } (V_0 - V_1)}{\text{W}}$

Keterangan :

N = Normalitas larutan natrium tiosulfat

V_0 = Volume larutan natrium tiosulfat yang diperlukan pada contoh uji, mL

V_1 = Volume larutan natrium tiosulfat yang diperlukan pada blanko, mL

W = bobot contoh, gram

2.1 Bilangan Peroksida Sebelum Adsorpsi

N = 0,1 N

V_0 = 2 mL

V_1 = 0,3 mL

W = 10 gram

Bilangan peroksida (mek O_2/kg) = $\frac{1000 \text{ x N x } (V_0 - V_1)}{\text{W}}$

$= \frac{1000 \text{ x } 0,1 \text{ N x } (2 \text{ mL} - 0,3\ mL)}{10}$

= 17 mekO_2/kg

2.2 Bilangan Peroksida Sebelum Adsorpsi

N = 0,1 N

V_0 = 1,5 mL

V_1 = 0,3 mL

W = 10 gram

Bilangan peroksida (mek O_2/kg) = $\frac{1000 \text{ x N x } (V_0 - V_1)}{\text{W}}$

$= \frac{1000 \text{ x } 0,1 \text{ N x } (1,5 \text{ mL} - 0,3\ mL)}{10}$

= 12 mekO_2/kg

2.3 Bilangan Peroksida Sebelum Adsorpsi

N = 0,1 N

V_0 = 1,2 mL

V_1 = 0,3 mL

W = 10 gram

Bilangan peroksida (mek O_2/kg) = $\frac{1000 \text{ x N x } (V_0 - V_1)}{\text{W}}$

$= \frac{1000 \text{ x } 0{,}1 \text{ N x } (1{,}2 \text{ mL} - 0{,}3\ mL)}{10}$

= 9 mekO_2/kg

D. Efektivitas Penurunan

Efektivitas penurunan (%) = $\frac{\text{A} - B}{\text{A}}$ x 100%

Keterangan :

A = Nilai parameter minyak bekas pakai sebelum adsorpsi

B = Nilai parameter minyak bekas pakai setelah adsorpsi

1. Penurunan Bilangan Asam dengan Karbon Aktif Komersial

A = 3,478 mgKOH/g

B = 3,085 mgKOH/g

Efektivitas penurunan (%) = $\frac{\text{A} - B}{\text{A}}$ x 100%

$= \frac{3{,}478 - 3{,}085}{3{,}478}$ x 100%

= 11,3%

2. Penurunan Bilangan Asam dengan Karbon Aktif Teraktivasi $Ca(OH)_2$

A = 3,478 mgKOH/g

B = 2,636 mgKOH/g

Efektivitas penurunan (%) = $\frac{\text{A} - B}{\text{A}}$ x 100%

$= \frac{3{,}478 - 2{,}636}{3{,}478}$ x 100%

= 24,21%

3. Penurunan Bilangan Peroksida dengan Karbon Aktif Komersial

A = 17 mgKOH/g

B = 12 mgKOH/g

Efektivitas penurunan (%) = $\frac{\text{A} - B}{\text{A}}$ x 100%

$$= \frac{17-12}{17} \text{ x } 100\%$$

$$= 29{,}41\%$$

4. Penurunan Bilangan Peroksida dengan Karbon Aktif Teraktivasi $Ca(OH)_2$

A = 17 mgKOH/g

B = 9 mgKOH/g

Efektivitas penurunan (%) = $\frac{A-B}{A}$ x 100%

$$= \frac{17-9}{17} \text{ x } 100\%$$

$$= 47{,}05\%$$

Lampiran 2. Dokumentasi Penelitian

Penghilangan sabut dari tempurung kelapa

Pengeringan tempurung kelapa

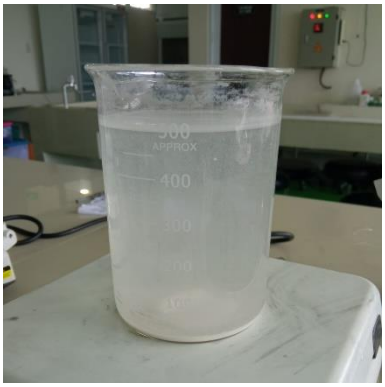
Pencacahan tempurung kelapa

Karbonisasi tempurung kelapa

Penimbnagan arang tempurung kelapa

Proses pengayakan

Arang halus tempurung kelapa



Pembuatan larutan $Ca(OH)_2$

Proses aktivasi

Proses penetralan

Karbon setelah aktivasi fisika

Pengujian kadar air

Hasil uji kadar abu

Proses pengujian iod

Proses pegujian metilen biru

Proses pengujian bilangan asam

Proses pengujian bilangan peroksida

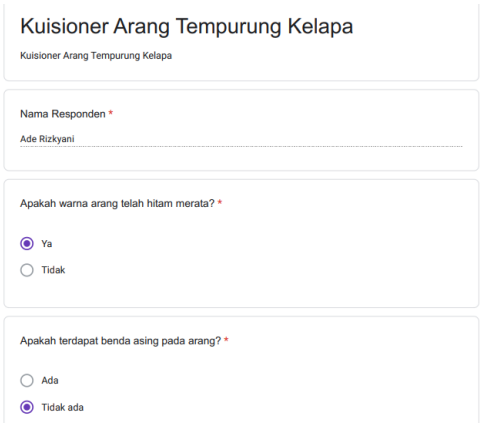
Pengujian menggunakan FTIR

Minyak setelah adsorpsi menggunakan karbon aktif komersial

Minyak setelah adsorpsi menggunakan karbon aktif teraktivasi $Ca(OH)_2$

Penentuan bau minyak bekas pakai

Lampiran 3. Kuisioner Warna dan Benda Asing Aran Tempurung Kelapa



Kuisioner Arang Tempurung Kelapa

Kuisioner Arang Tempurung Kelapa

Nama Responden *

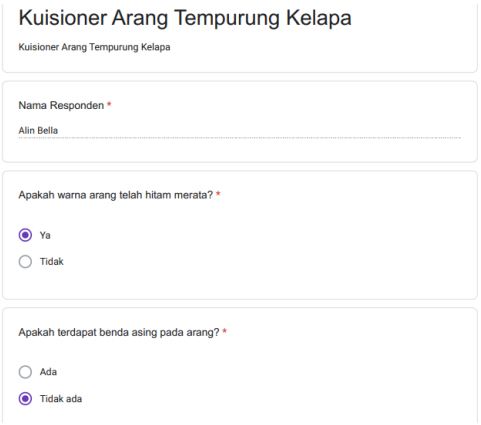
Ade Rizkyani

Apakah warna arang telah hitam merata? *

- (●) Ya
- ( ) Tidak

Apakah terdapat benda asing pada arang? *

- ( ) Ada
- (●) Tidak ada



Kuisioner Arang Tempurung Kelapa

Kuisioner Arang Tempurung Kelapa

Nama Responden *

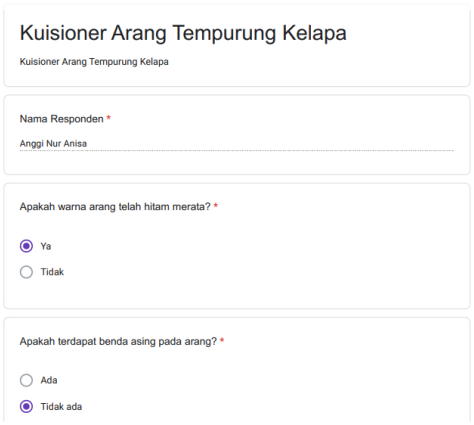
Alin Bella

Apakah warna arang telah hitam merata? *

- (●) Ya
- ( ) Tidak

Apakah terdapat benda asing pada arang? *

- ( ) Ada
- (●) Tidak ada



Kuisioner Arang Tempurung Kelapa

Kuisioner Arang Tempurung Kelapa

Nama Responden *

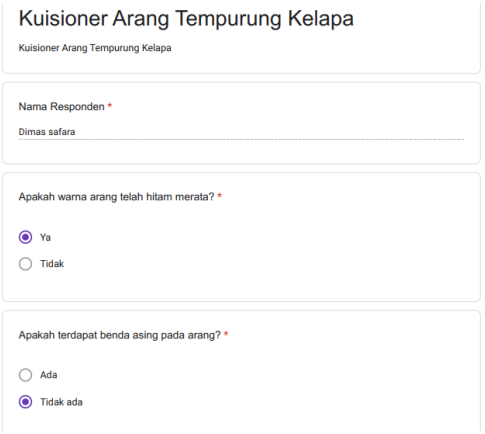
Anggi Nur Anisa

Apakah warna arang telah hitam merata? *

- (●) Ya
- ( ) Tidak

Apakah terdapat benda asing pada arang? *

- ( ) Ada
- (●) Tidak ada



Kuisioner Arang Tempurung Kelapa

Kuisioner Arang Tempurung Kelapa

Nama Responden *

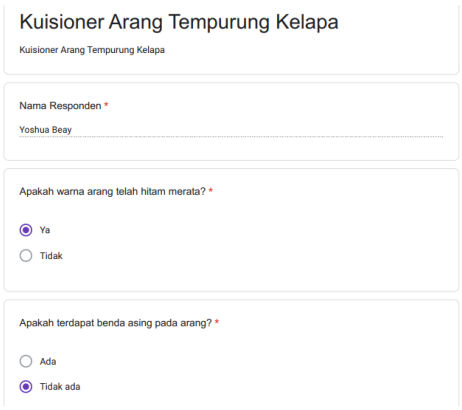
Dimas safara

Apakah warna arang telah hitam merata? *

- (●) Ya
- ( ) Tidak

Apakah terdapat benda asing pada arang? *

- ( ) Ada
- (●) Tidak ada



Kuisioner Arang Tempurung Kelapa

Kuisioner Arang Tempurung Kelapa

Nama Responden *

Yoshua Beay

Apakah warna arang telah hitam merata? *

- (●) Ya
- ( ) Tidak

Apakah terdapat benda asing pada arang? *

- ( ) Ada
- (●) Tidak ada

Lampiran 4. Kuisioner Bau Minyak Bekas Pakai


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Anggi Nur Anisa

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Choirunnisa Firdaus Ivana

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Mustafidatul Khasanah

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik

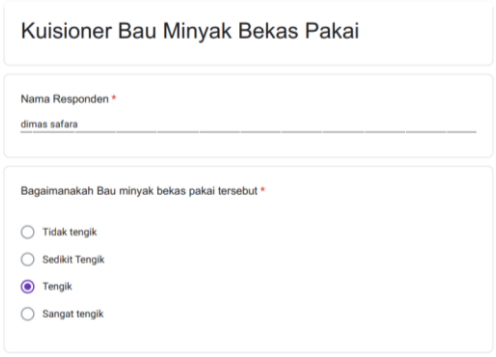

Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

leling dikya akriz

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik

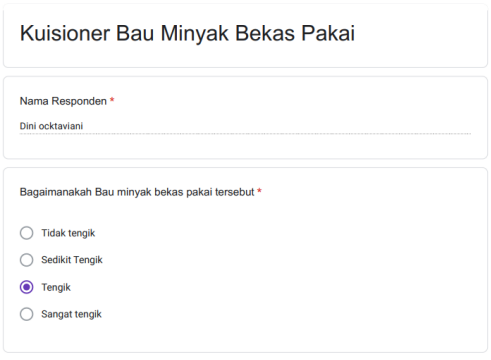

Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

dimas safara

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Dini ocktaviani

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik

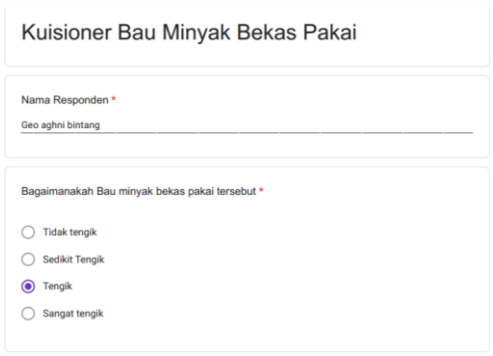

Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Fia Kharisma

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Geo aghni bintang

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Ghina Fadhilah

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Ica Friskia

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik

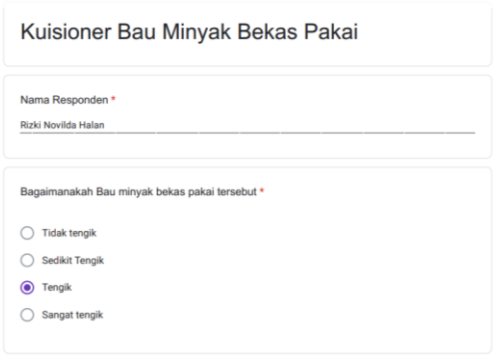

Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Ika Pratiwi

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik

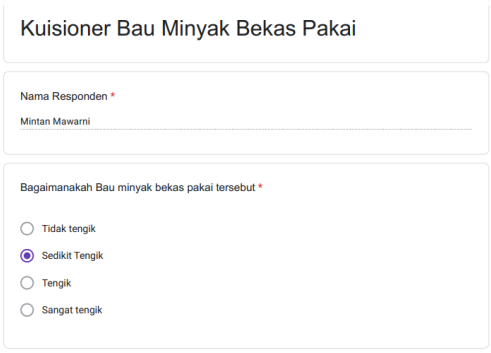

Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Rizki Novilda Halan

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik


Kuisioner Bau Minyak Bekas Pakai

Nama Responden *

Mintan Mawarni

Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik

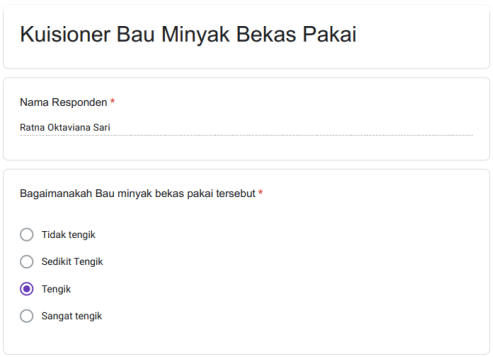

Kuisioner Bau Minyak Bekas Pakai

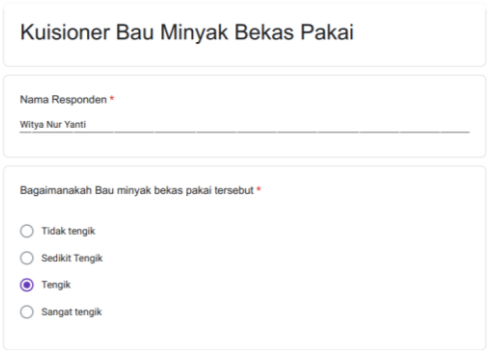
Nama Responden *

Nanda Mustikarini

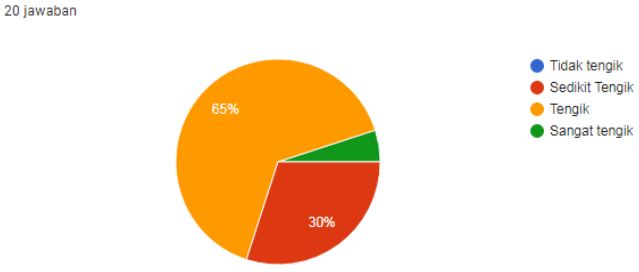
Bagaimanakah Bau minyak bekas pakai tersebut *

- Tidak tengik
- Sedikit Tengik
- Tengik
- Sangat tengik



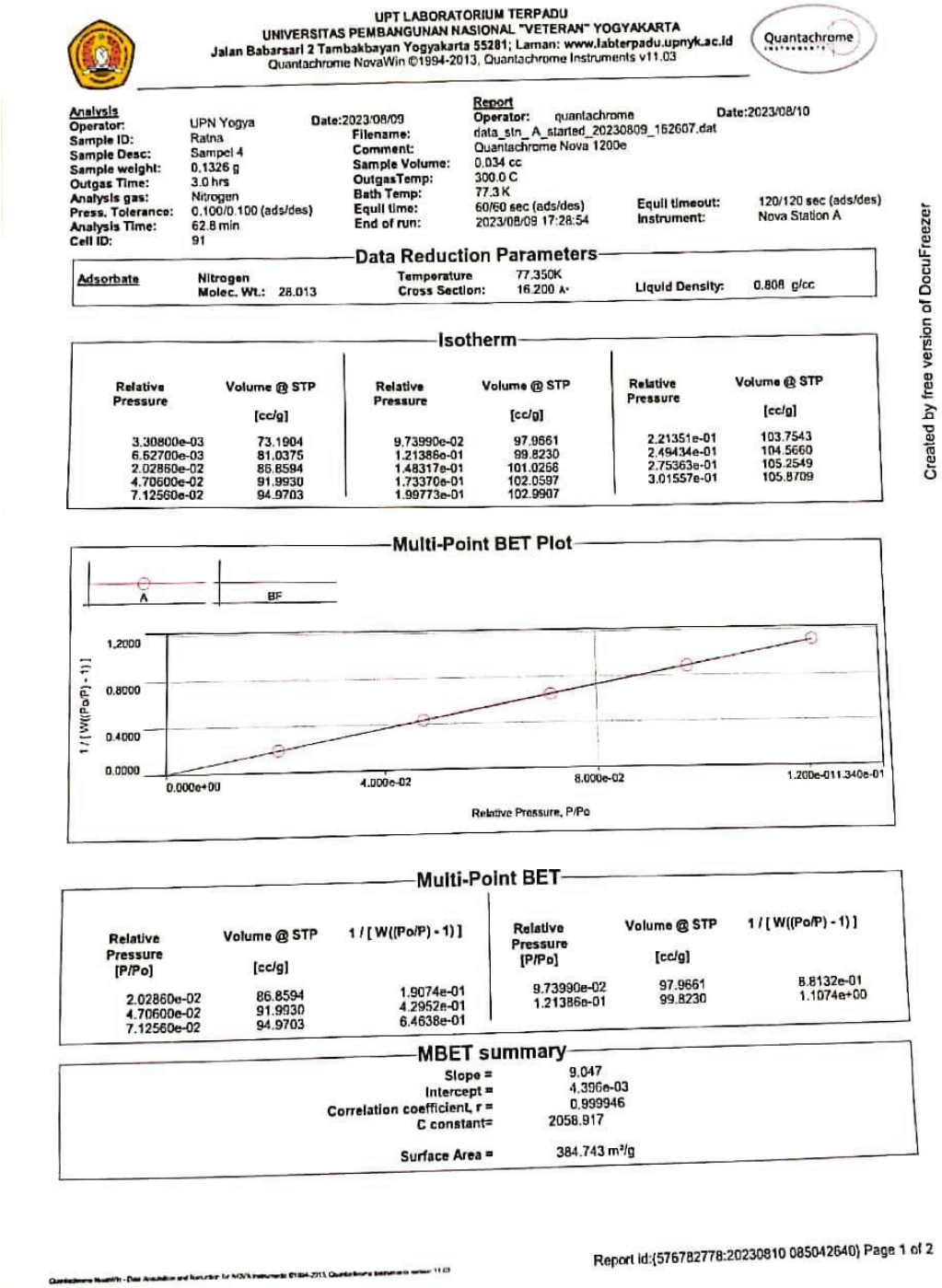


Presentase hasil jawaban bau minyak bekas pakai



Lampiran 5. Hasil Uji BET

A. Karbon Aktif Teraktivasi $Ca(OH)_2$ Optimum



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Quantachrome NovaWin ©1994-2013, Quantachrome Instruments v11.03

Quantachrome

Analysis

Operator:	UPN Yogya	Date:	2023/08/09
Sample ID:	Ratna	Filename:	data_stn_A_started_20230809_152607.dat
Sample Desc:	Sampel 4	Comment:	Quantachrome Nova 1200e
Sample weight:	0.1326 g	Sample Volume:	0.034 cc
Outgas Time:	3.0 hrs	OutgasTemp:	300.0 C
Analysis gas:	Nitrogen	Bath Temp:	77.3 K
Press. Tolerance:	0.100/0.100 (ads/des)	Equil time:	60/60 sec (ads/des)
Analysis Time:	62.8 min	End of run:	2023/08/09 17:28:54
Cell ID:	91		

Report

Operator:	quantachrome	Date:	2023/08/10
Equil timeout:	120/120 sec (ads/des)		
Instrument:	Nova Station A		

Data Reduction Parameters

Adsorbate	Nitrogen	Temperature	77.350K		
	Molec. Wt.: 28.013	Cross Section:	16.200 A²	Liquid Density:	0.808 g/cc

Isotherm

Relative Pressure	Volume @ STP [cc/g]	Relative Pressure	Volume @ STP [cc/g]	Relative Pressure	Volume @ STP [cc/g]
3.30800e-03	73.1904	9.73990e-02	97.9661	2.21351e-01	103.7543
6.62700e-03	81.0375	1.21386e-01	99.8230	2.49434e-01	104.5660
2.02860e-02	86.8594	1.48317e-01	101.0268	2.75363e-01	105.2549
4.70600e-02	91.9930	1.73370e-01	102.0597	3.01557e-01	105.8709
7.12560e-02	94.9703	1.99773e-01	102.9907		

Multi-Point BET Plot

Multi-Point BET

Relative Pressure [P/Po]	Volume @ STP [cc/g]	1 / [W((Po/P) - 1)]	Relative Pressure [P/Po]	Volume @ STP [cc/g]	1 / [W((Po/P) - 1)]
2.02860e-02	86.8594	1.9074e-01	9.73990e-02	97.9661	8.8132e-01
4.70600e-02	91.9930	4.2952e-01	1.21386e-01	99.8230	1.1074e+00
7.12560e-02	94.9703	6.4638e-01			

MBET summary

Slope =	9.047
Intercept =	4.396e-03
Correlation coefficient, r =	0.999946
C constant=	2058.917
Surface Area =	384.743 m²/g

Report id:(576782778:20230810 085042640) Page 1 of 2

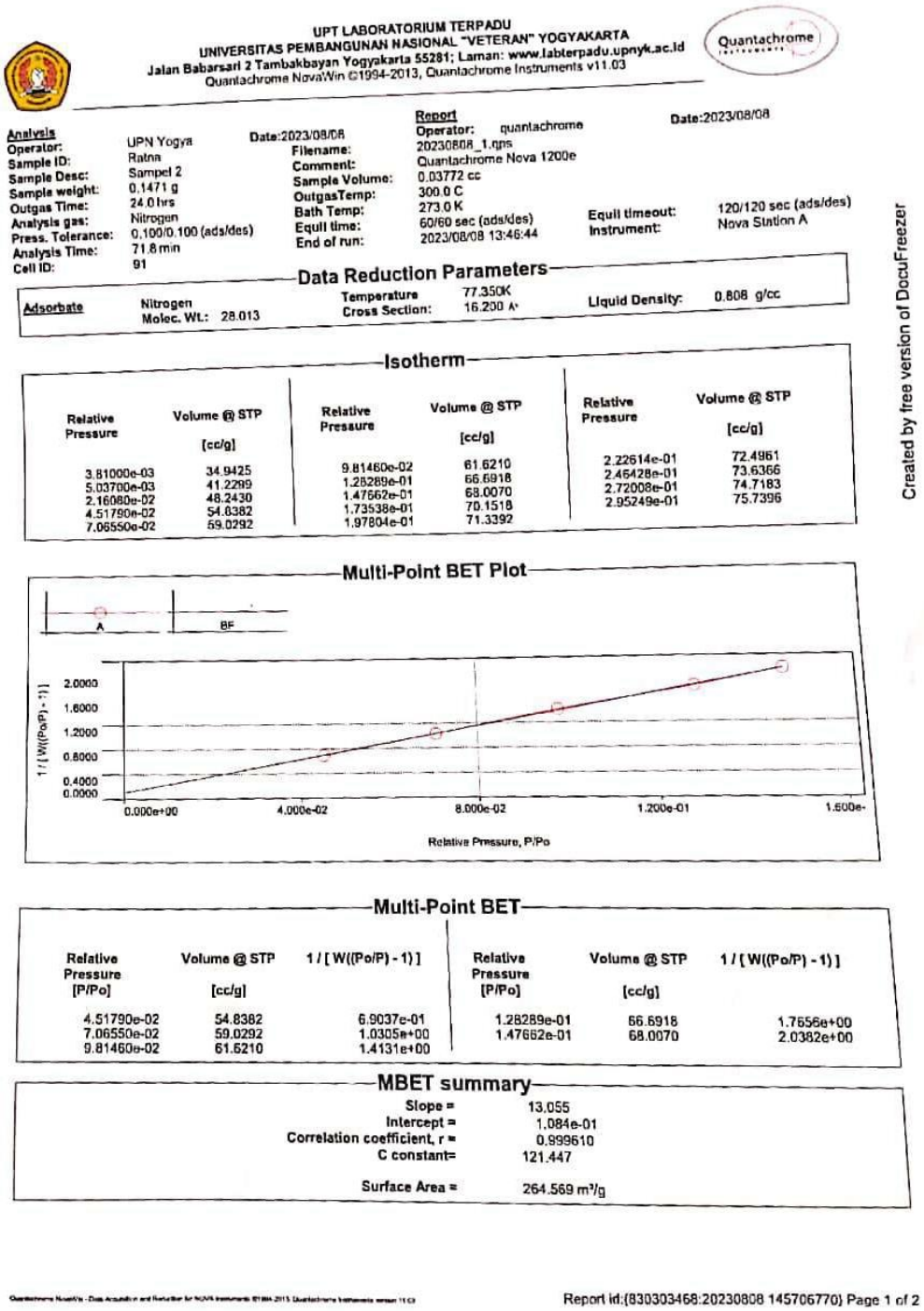
Analysis
Operator: UPN Yogya **Date:**2023/08/09
Sample ID: Ratna **Filename:**

Report
Operator: quantachrome **Date:**2023/08/10
data_stn_A_started_20230809_162607.dat

Single Point Surface Area

Relative Pressure [P/Po]	Volume @ STP [cc/g]	1 / [W((P/Po) - 1)]	Slope	Surf. Area [m²/g]
1.21385e-01	99.8230	1.1074e+00	9.1227	381.7434

B. Karbon Aktif Komersial



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Jalan Babarsari 2 Tambakbayan Yogyakarta 55281; Laman: www.labterpadu.upnyk.ac.id
Quantachrome NovaWin ©1994-2013, Quantachrome Instruments v11.03

Quantachrome

Analysis
Operator: UPN Yogya
Sample ID: Ratna
Sample Desc: Sampel 2
Sample weight: 0.1471 g
Outgas Time: 24.0 hrs
Analysis gas: Nitrogen
Press. Tolerance: 0.100/0.100 (ads/des)
Analysis Time: 71.8 min
Cell ID: 91

Date:2023/08/08
Filename:
Comment:
Sample Volume: 0.03772 cc
OutgasTemp: 300.0 C
Bath Temp: 273.0 K
Equil time: 60/60 sec (ads/des)
End of run: 2023/08/08 13:46:44

Report
Operator: quantachrome
20230808_1.qps
Quantachrome Nova 1200e

Date:2023/08/08

Equil timeout: 120/120 sec (ads/des)
Instrument: Nova Station A

Data Reduction Parameters

Adsorbate: Nitrogen
Molec. Wt.: 28.013
Temperature: 77.350K
Cross Section: 16.200 A²
Liquid Density: 0.808 g/cc

Isotherm

Relative Pressure	Volume @ STP [cc/g]	Relative Pressure	Volume @ STP [cc/g]	Relative Pressure	Volume @ STP [cc/g]
3.81000e-03	34.9425	9.81460e-02	61.6210	2.22614e-01	72.4961
5.03700e-03	41.2299	1.28289e-01	66.6918	2.46428e-01	73.6366
2.16080e-02	48.2430	1.47662e-01	68.0070	2.72008e-01	74.7183
4.51790e-02	54.8382	1.73538e-01	70.1518	2.95249e-01	75.7396
7.06550e-02	59.0292	1.97804e-01	71.3392		

Multi-Point BET Plot

Multi-Point BET

Relative Pressure [P/Po]	Volume @ STP [cc/g]	1 / [W((Po/P) - 1)]	Relative Pressure [P/Po]	Volume @ STP [cc/g]	1 / [W((Po/P) - 1)]
4.51790e-02	54.8382	6.9037e-01	1.28289e-01	66.6918	1.7656e+00
7.06550e-02	59.0292	1.0305e+00	1.47662e-01	68.0070	2.0382e+00
9.81460e-02	61.5210	1.4131e+00			

MBET summary

Slope = 13.055
Intercept = 1.084e-01
Correlation coefficient, r = 0.999610
C constant= 121.447

Surface Area = 264.569 m²/g

Analysis
Operator: UPN Yogya
Sample ID: Ratna
Date:2023/08/08
Filename:

Report
Operator: quantachrome
Date:2023/08/08
20230808_1.qps

Single Point Surface Area

Relative Pressure [P/Po]	Volume @ STP [cc/g]	1 / [W((P/Po) - 1)]	Slope	Surf. Area [m²/g]
1.47662e-01	58.0070	2.0382e+00	13.8034	252.2948