# BAB VI

# KESIMPULAN DAN SARAN

## 6.1. Kesimpulan

Berdasarkan hasil penelitian yang telah dilaksanakan dapat diambil beberapa kesimpulan sebagai berikut :

1. Nilai kuat tekan rata-rata beton pada umur 7 hari, untuk beton normal adalah 24,56 MPa, sedangkan kuat tekan beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 18,78 MPa, 24,81 MPa, 18,01 MPa, 25,41 MPa, dan 21,61 Mpa. Kadar optimum seratnya sebesar 0,9 kg/$m^3$ beton, dengan peningkatan kuat tekan sebesar 3,4 %.

2. Nilai kuat tekan rata-rata beton pada umur 14 hari, untuk beton normal adalah 24,52 MPa, sedangkan kuat tekan beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 25,55 MPa, 28,63 MPa, 26,49 MPa, 27,39 MPa, dan 31,70 MPa. Kadar optimum seratnya sebesar 1,0 kg/$m^3$ beton, dengan peningkatan kuat tekan sebesar 29,26 %.

3. Nilai kuat tekan rata-rata beton pada umur 28 hari, untuk beton normal adalah 33,46 MPa, sedangkan kuat tekan beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 34,42 MPa, 31,81 MPa, 37,05 MPa, 37,63 MPa, dan 31,64 MPa.

Kadar optimum seratnya sebesar 0,9 kg/$m^3$ beton, dengan peningkatan kuat tekan sebesar 12, 45 %.

4. Nilai modulus elastisitas beton pada umur 7 hari, untuk beton normal adalah 17853 MPa, sedangkan nilai modulus elastisitas beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 14038 MPa, 15367 MPa, 22697 MPa, 15224 MPa, dan 18471 MPa. Kadar optimum seratnya sebesar 0,8 kg/$m^3$ beton, dengan peningkatan modulus elastisitas sebesar 27,13 %.

5. Nilai modulus elastisitas beton pada umur 14 hari, untuk beton normal adalah 18.718 MPa, sedangkan nilai modulus elastisitas beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 18729 MPa, 18070 MPa, 17589 MPa, 17433 MPa, dan 22072 MPa. Kadar optimum seratnya sebesar 1,0 kg/$m^3$ beton, dengan peningkatan modulus elastisitas sebesar 17, 92 %.

6. Nilai modulus elastisitas beton pada umur 28 hari, untuk beton normal adalah 23.935 MPa, sedangkan nilai modulus elastisitas beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 22361 MPa, 19882 MPa, 21678 MPa, 23737 MPa, dan 24093 MPa. Kadar optimum seratnya sebesar 1,0 kg/$m^3$ beton, dengan peningkatan modulus elastisitas sebesar 0,66 %.

7. Nilai kuat tarik belah rata-rata beton pada umur 7 hari, untuk beton normal adalah 1,37 MPa, sedangkan kuat tarik belah beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 1,36 MPa, 1,58 MPa, 1,34 MPa, 1,82 MPa, dan 1,20 MPa. Kadar optimum seratnya sebesar 0,9 kg/$m^3$ beton, dengan peningkatan kuat tarik sebesar 33,14 %.

8. Nilai kuat tarik belah rata-rata beton pada umur 14 hari, untuk beton normal adalah 1,23 MPa, sedangkan kuat tarik belah beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 1,64 MPa, 1,62 MPa, 1,69 MPa, 1,54 MPa, dan 1,50 MPa. Kadar optimum seratnya sebesar 0,8 kg/$m^3$ beton, dengan peningkatan kuat tarik sebesar 38,42 %.

9. Nilai kuat tarik belah rata-rata beton pada umur 28 hari, untuk beton normal adalah 1,35 MPa, sedangkan kuat tarik belah beton rata-rata untuk beton dengan campuran kadar serat 0,6 kg/$m^3$; 0,7 kg/$m^3$; 0,8 kg/$m^3$; 0,9 kg/$m^3$; dan 1,0 kg/$m^3$ beton, secara berturut-turut adalah 1,35 MPa, 1,58 MPa, 1,91 MPa, 1,92 MPa, dan 1,51 MPa. Kadar optimum seratnya sebesar 0,9 kg/$m^3$ beton, dengan peningkatan kuat tarik sebesar 43 %.

10. Berdasarkan hasil pengujian nilai kuat tekan, modulus elastisitas, dan kuat tarik belah beton pada umur 7 hari, 14 hari, dan 28 hari, sebagian besar hasil pengujiannya menunjukan bahwa kadar optimum penambahan serat adalah 0,9 kg/$m^3$ beton, sehingga dapat disimpulkan bahwa komposisi atau kadar

penggunaan serat *Polypropylene* pada beton yang disarankan sebagai kadar optimum adalah sebesar 0,9 kg/$m^3$ beton.

## 11. Saran

Dari hasil penelitian yang telah dilaksanakan, dapat diberikan saran yang diharapkan dapat bermanfaat, diantaranya adalah sebagai berikut :

1. Cara mencampurkan serat yang harus lebih merata dan jangan sampai menggumpal pada adukan.
2. Lebih memperhatikan persiapan bahan material seperti agregat halus dan kasar yang akan digunakan. Perlu terlebih dahulu dilakukan pengujian bahan di laboratorium yang lebih teliti, untuk mengetahui apakah agregat tersebut memenuhi persyaratan atau tidak.
3. Memperhatikan kesiapan alat sebelum digunakan sehingga proses penelitian dapat berjalan lancar.
4. Faktor pengali volume penambahan bahan pada *mix design* lebih diperhitungkan untuk faktor pengaman saat terjadi kesalahan dalam pembuatan.
5. Lebih memperhatikan hal-hal seperti kondisi agregat harus dalam keadaan kering permukaan atau SSD, urutan pencampuran bahan dalam adukan beton, pencampuran bahan harus dikondisikan seragam.
6. Serat *polypropylene* memiliki kekurangan yaitu mudah terbakar, sehingga perlu dilakukan penelitian terhadap kekuatan beton yang menggunakan serat *polypropylene* untuk kondisi pasca mengalami kebakaran.

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## A. PENGUJIAN BAHAN

### PEMERIKSAAN GRADASI BESAR BUTIRAN PASIR

Bahan : Pasir
Asal : Kali Progo
Diperiksa : 12 Mei 2015

### DAFTAR AYAKAN

| No. Saringan | Sisa Ayakan (gram) | | | Sisa Ayakan (%) | Jumlah Sisa Ayakan (%) | Jumlah yang Melalui Ayakan |
|---|---|---|---|---|---|---|
| | Berat Saringan (gram) | Berat Saringan + Tertahan (gram) | Jumlah Tertahan | | | |
| 3/8” | 545,93 | 545,96 | 0,03 | 0,003 | 10 | 0,003 |
| 4 | 532,99 | 550,65 | 17,66 | 1,766 | 23 | 1,769 |
| 8 | 327,72 | 347,7 | 19,98 | 1,998 | 51 | 3,767 |
| 30 | 425,9 | 484,9 | 59 | 5,9 | 386 | 9,667 |
| 50 | 293,68 | 352,95 | 59,27 | 5,927 | 752 | 15,594 |
| 100 | 374,7 | 987,23 | 612,53 | 61,253 | 986 | 76,847 |
| 200 | 285,19 | 437,98 | 152,79 | 15,279 | 998 | 92,126 |
| Pan | 277,79 | 298,16 | 20,37 | 2,037 | 1000 | 94,163 |
| **Total** | | | 1000 | | 293,933 | |

Modulus halus butir $= \frac{293{,}933}{100} = 2{,}94$

Kesimpulan: MHB pasir $2{,}3 \leq 2{,}94 \leq 3{,}8$ Syarat terpenuhi (OK)

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## PEMERIKSAAN BERAT JENIS DAN PENYERAPAN PASIR

Bahan : Pasir
Asal : Kali Progo
Diperiksa : 14 Mei 2015

| | Nomor Pemeriksaan | I |
|---|---|---|
| A | Berat Contoh Jenuh Kering Permukaan (SSD) (V) | 500 gram |
| B | Berat Contoh Kering (A) | 467,19 gram |
| C | Jumlah Air (W) | 307 Cc |
| E | Berat Jenis *Bulk* $= \frac{(A)}{(V-W)}$ | 2,421 |
| F | BJ Jenuh Kering Permukaan (SSD) $= \frac{(500)}{(V-W)}$ | 2,591 |
| G | Berat Jenis Semu (*Apparent*) $= \frac{(A)}{(V-W)-(500-A)}$ | 2,916 |
| H | Penyerapan (*Absorption*) $= \frac{(500-A)}{(A)} \text{ x } 100\ \%$ | 7,023% |

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# PEMERIKSAAN KANDUNGAN LUMPUR DALAM PASIR

I. Waktu Pemeriksaan: 14 Mei 2015

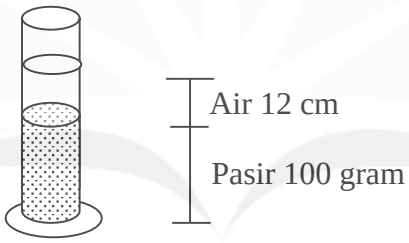
II. Bahan

a. Pasir kering tungku, Asal : Kali Progo, Berat: 100 gram
b. Air jernih asal : LSBB Prodi TS FT-UAJY

III. Alat

a. Gelas ukur, ukuran: 250 cc
b. Timbangan
c. Tungku (*oven*), suhu dibuat antara 105-110$^{o}$C
d. Air tetap jernih setelah 5 kali pengocokan
e. Pasir+piring masuk tungku tanggal 14 Mei jam 09.48 WIB

IV. Sketsa




V. Hasil

Setelah pasir keluar tungku tanggal 15 Mei jam 10.00 WIB

a. Berat piring+pasir = 223,2 gram
b. Berat piring kosong = 123,5 gram
c. Berat pasir = 99,7 gram

$$\text{Kandungan Lumpur} = \frac{100 - 99{,}7}{100} \times 100\%$$

$$= 0{,}3\ \%$$

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## PEMERIKSAAN KANDUNGAN ZAT ORGANIK DALAM PASIR

I. Waktu Pemeriksaan: 14 Mei 2015

II. Bahan

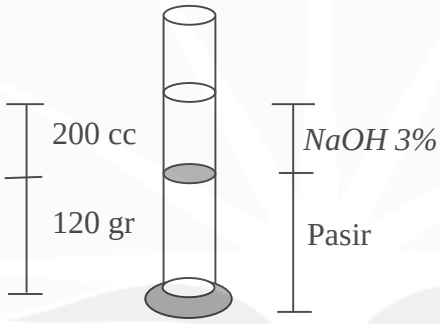
a. Pasir kering tungku, Asal: Kali Progo, Volume: 120 gram

b. Larutan NaOH 3%

III. Alat

Gelas ukur, ukuran: 250cc

IV. Sketsa




V. Hasil

Setelah didiamkan selama 24 jam, warna larutan di atas pasir sesuai dengan warna *Gardner Standard Color* No. 8.

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## PEMERIKSAAN GRADASI BESAR BUTIRAN *SPLIT*

Bahan : *Split*

Asal : Clereng

Diperiksa : 18 Mei 2014

### DAFTAR AYAKAN

| No. Saringan | Berat Saringan (gram) | Berat Saringan + Tertahan (gram) | Berat Tertahan (gram) | Σ Berat Tertahan (gram) | Persentase Berat Tertahan (%) | Persentase Lolos (%) |
|---|---|---|---|---|---|---|
| ¾” | 559 | 559 | 0 | 0 | 0 | 100 |
| ½” | 462 | 462 | 0 | 0 | 0 | 100 |
| 3/8” | 547 | 995 | 448 | 448 | 44.8 | 55.2 |
| 4 | 416 | 932 | 516 | 964 | 96.4 | 3.6 |
| 8 | 329 | 349 | 20 | 984 | 98.4 | 1.6 |
| 30 | 295 | 303 | 8 | 992 | 99.2 | 0.8 |
| 50 | 294 | 296 | 2 | 994 | 99.4 | 0.6 |
| 100 | 286 | 289 | 3 | 997 | 99.7 | 0.3 |
| 200 | 339 | 341 | 2 | 999 | 99.9 | 0.1 |
| Pan | 378 | 379 | 1 | 1000 | - | |
| **Total** | | | 1000 | | 637.8 | |

Modulus halus butir $= \frac{637.8}{100} = 6{,}378$

Kesimpulan: MHB *split* $6 \leq 6{,}378 \leq 7{,}1$ Syarat terpenuhi (OK)

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## PEMERIKSAAN BERAT JENIS DAN PENYERAPAN *SPLIT*

Bahan : Batu Pecah (*Split*)

Asal : Clereng

Diperiksa : 16 Mei 2015

| | **Nomor Pemeriksaan** | **I** |
|---|---|---|
| A | Berat Contoh Kering | 1000,58 gram |
| B | Berat Contoh Jenuh Kering Permukaan (SSD) | 1012,96 gram |
| C | Berat Contoh Dalam Air | 624 gram |
| D | Berat Jenis *Bulk* $= \frac{(A)}{(B)-(C)}$ | 2,561 |
| E | BJ Jenuh Kering Permukaan (SSD) $= \frac{(B)}{(B)-(C)}$ | 2,604 |
| F | Berat Jenis Semu (*Apparent*) $= \frac{(A)}{(A)-(C)}$ | 2,677 |
| G | Penyerapan (*Absorption*) $= \frac{(B)-(A)}{(A)} \times 100\ \%$ | 0,0169% |

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## PEMERIKSAAN *LOS ANGELES ABRASION TEST*

Bahan : Agregat kasar

Asal : Kali Progo

Diperiksa : 20 April 2015

| **Gradasi Saringan** | | **Nomor Contoh** |
|---|---|---|
| | | **I** |
| ***Lolos*** | ***Tertahan*** | ***Berat Masing-Masing Agregat*** |
| $^3/_4$" | $^1/_2$" | 2500 gram |
| $^1/_2$" | $^3/_8$" | 2500 gram |

| **Nomor Contoh** | | **I** |
|---|---|---|
| Berat sebelumnya | (A) | 5000 gram |
| Berat sesudah diayak saringan No. 12 | (B) | 35722 gram |
| Berat sesudah (A)-(B) | | 1428 gram |
| Keausan = $\frac{(A)-(B)}{(A)} X100\%$ | | 28,56% |
| Keausan Rata-rata | | 28,56% |

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## B. RENCANA ADUKAN BETON

| No. | Uraian | Nilai |
|---|---|---|
| 1. | Kuat tekan yang disyaratkan | 25 MPa |
| 2. | Deviasi standar | 7 MPa |
| 3. | Nilai tambah (margin) | = 1,64 x 7 MPa<br>= 11,48 MPa<br>= 12 MPa |
| 4. | Kekuatan rata-rata yang ditargetkan | = 25 + 12<br>= 37 MPa |
| 5. | Jenis semen | Tipe I merk Holcim |
| 6. | Jenis agregat:<br>-kasar<br>-halus | <br>-Batupecah (Buatan)<br>-Alami (golongan 2) |
| 7. | Faktor air semen bebas | 0,44 |
| 8. | Faktor air semen maksimum | 0,6 |
| 9. | Slump | 60-180 mm |
| 10. | Ukuran agregat kasar | 10 mm |
| 11. | Air yang digunakan | 233,25 kg/$m^3$ |
| 12. | Semen yang digunakan | 530,114 kg/$m^3$ |
| 13. | Persen agregat halus | 34% |
| 14. | Berat jenis campuran | 2,599 gr/$cm^3$ |
| 15. | Berat isi beton | 2310 kg/$m^3$ |
| 16. | Kadar agregat gabungan | 1546,636 kg/$m^3$ |
| 17. | Kadar agregat halus | 588 kg/$m^3$ |
| 18. | Kadar agregat kasar | 1091,8 kg/$m^3$ |
| 19. | Proporsi campuran (1$m^3$):<br>-Semen<br>-Air<br>-Agregat halus<br>-Agregat kasar | <br>530,114 kg<br>233,25 kg<br>525,856 kg<br>1020,78 kg |
| 20. | Proporsi campuran (1 silinder) x 1,3:<br>-Semen<br>-Air<br>-Agregat halus<br>-Agregat kasar | <br>3,653 kg<br>1,607 kg<br>3,623 kg<br>7,033 kg |
| 21. | Proporsi serat Polypropylene (1 silinder) x 1,3:<br>- 0.6 kg/$m^3$<br>- 0.7 kg/$m^3$<br>- 0.8 kg/$m^3$<br>- 0.9 kg/$m^3$<br>- 1.0 kg/$m^3$ | <br>0,00318 kg<br>0,00371 kg<br>0,00424 kg<br>0,00477 kg<br>0,0053 kg |

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# C. HASIL PENGUJIAN KUAT TEKAN BETON

**HASIL PENGUJIAN KUAT TEKAN UMUR 7 HARI**

| KODE | BERAT | DIAMETER (Cm) | TINGGI (Cm) | BEBAN (KN) | LUAS (Cm²) | KUAT TEKAN (MPa) | KUAT TEKAN RATA-RATA (MPa) |
|---|---|---|---|---|---|---|---|
| Normal | 12.58 | 15.1 | 30.11 | 435 | 179.0786352 | 24.29100487 | 24.55794943 |
| | 12.7 | 15.21 | 30.29 | 470 | 181.6972313 | 25.86720759 | |
| | 12.76 | 15.08 | 30.05 | 420 | 178.6045689 | 23.51563583 | |
| 0.6 kg/m³ | 12.48 | 14.99 | 30.53 | 330 | 176.4790459 | 18.69910382 | 18.78313155 |
| | 12.5 | 15.33 | 30.26 | 350 | 184.5755584 | 18.962424 | |
| | 12.48 | 15.22 | 30.18 | 340 | 181.9362279 | 18.68786684 | |
| 0.7 kg/m³ | 12.66 | 15.14 | 30.04 | 455 | 180.0286529 | 25.27375464 | 24.80482511 |
| | 12.56 | 14.96 | 30.08 | 446 | 175.7733656 | 25.37358254 | |
| | 12.66 | 15 | 30.19 | 420 | 176.7145868 | 23.76713817 | |
| 0.8 kg/m³ | 12.68 | 15.24 | 30.12 | 325 | 182.4146925 | 17.81654732 | 18.01139418 |
| | 12.72 | 14.97 | 30.27 | 405 | 176.0084353 | 23.0102608 * | |
| | 13.2 | 15.42 | 30.17 | 340 | 186.7491479 | 18.20624104 | |
| 0.9 kg/m³ | 12.36 | 15.45 | 30.18 | 480 | 187.4765051 | 25.60320824 | 25.41023914 |
| | 12.78 | 15.24 | 30.21 | 405 | 182.4146925 | 22.20215897 | |
| | 12.68 | 15.04 | 30.24 | 505 | 177.6583212 | 28.42535022 | |
| 1 kg/m³ | 12.72 | 15.11 | 30.55 | 370 | 179.315904 | 20.63397567 | 21.61145273 |
| | 12.8 | 15.43 | 30.54 | 420 | 186.9914432 | 22.46092082 | |
| | 12.78 | 15.21 | 30.21 | 395 | 181.6972313 | 21.7394617 | |

* Nilai Tidak Digunakan

**HASIL PENGUJIAN KUAT TEKAN UMUR 14 HARI**

| KODE | BERAT | DIAMETER (Cm) | TINGGI (Cm) | BEBAN (KN) | LUAS (Cm²) | KUAT TEKAN (MPa) | KUAT TEKAN RATA-RATA (MPa) |
|---|---|---|---|---|---|---|---|
| Normal | 12.4 | 14.92 | 30.02 | 395 | 174.8346577 | 22.59277452 | 24.52206407 |
| | 12.62 | 14.97 | 30.62 | 475 | 176.0084353 | 26.98734292 | |
| | 12.52 | 15.02 | 29.98 | 425 | 177.1861398 | 23.98607478 | |
| 0.6 kg/m³ | 12.72 | 15.12 | 30.21 | 455 | 179.5533299 | 25.34066064 | 25.55253909 |
| | 12.81 | 15.14 | 30.28 | 460 | 180.0286529 | 25.55148821 | |
| | 12.82 | 15.24 | 30.13 | 470 | 182.4146925 | 25.76546843 | |
| 0.7 kg/m³ | 12.6 | 15.05 | 30.41 | 500 | 177.8946475 | 28.10652299 | 28.62988585 |
| | 12.62 | 15.07 | 30.26 | 385 | 178.3677714 | 21.58461683 * | |
| | 12.68 | 15.07 | 30.26 | 520 | 178.3677714 | 29.15324871 | |
| 0.8 kg/m³ | 12.8 | 14.97 | 30.11 | 500 | 176.0084353 | 28.40772939 | 26.4905681 |
| | 12.72 | 14.9 | 30.57 | 445 | 174.3662463 | 25.52099443 | |
| | 12.96 | 15.06 | 30.21 | 455 | 178.1311309 | 25.54298048 | |
| 0.9 kg/m³ | 12.96 | 15.05 | 30.55 | 480 | 177.8946475 | 26.98226207 | 27.39030751 |
| | 12.98 | 14.17 | 30.42 | 480 | 157.6992333 | 30.43768761 | |
| | 12.8 | 15.13 | 29.98 | 445 | 179.7909128 | 24.75097284 | |
| 1 kg/m³ | 12.82 | 15.16 | 30.15 | 630 | 180.5046041 | 34.90215682 | 31.69760504 |
| | 12.82 | 15.05 | 30.24 | 540 | 177.8946475 | 30.35504483 | |
| | 12.86 | 15.11 | 30.18 | 535 | 179.315904 | 29.83561346 | |

* Nilai Tidak Digunakan

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**HASIL PENGUJIAN KUAT TEKAN UMUR 28 HARI**

| KODE | BERAT | DIAMETER (Cm) | TINGGI (Cm) | BEBAN (KN) | LUAS ($Cm^2$) | KUAT TEKAN (MPa) | KUAT TEKAN RATA-RATA (MPa) |
|---|---|---|---|---|---|---|---|
| Normal | 12.82 | 15 | 30.26 | 575 | 176.7145868 | 32.53834392 | 33.46236854 |
| | 12.76 | 15 | 30.14 | 600 | 176.7145868 | 33.95305453 | |
| | 12.86 | 14.95 | 30.02 | 595 | 175.538453 | 33.89570717 | |
| 0.6 $kg/m^3$ | 12.92 | 15.1 | 30.48 | 530 | 179.0786352 | 29.59593696 | 34.41564679 |
| | 12.7 | 15.12 | 30.26 | 675 | 179.5533299 | 37.59328777 | |
| | 12.86 | 15.15 | 31.02 | 650 | 180.26655 | 36.05771565 | |
| 0.7 $kg/m^3$ | 12.9 | 15.29 | 29.95 | 560 | 183.6136028 | 30.49882969 | 31.81024835 |
| | 12.74 | 15.06 | 29.95 | 590 | 178.1311309 | 33.121667 | |
| | 12.9 | 15.12 | 30.81 | 390 | 179.5533299 | 21.7205662 * | |
| 0.8 $kg/m^3$ | 12.96 | 14.99 | 29.98 | 650 | 176.4790459 | 36.83156812 | 37.04866516 |
| | 12.8 | 14.99 | 30.22 | 640 | 176.4790459 | 36.26492862 | |
| | 12.9 | 15.14 | 30.46 | 685 | 180.0286529 | 38.04949874 | |
| 0.9 $kg/m^3$ | 12.9 | 15.15 | 30.18 | 625 | 180.26655 | 34.67088043 | 37.62716038 |
| | 12.82 | 15.12 | 30.05 | 670 | 179.5533299 | 37.31481897 | |
| | 12.82 | 14.92 | 30.02 | 715 | 174.8346577 | 40.89578172 | |
| 1 $kg/m^3$ | 12.62 | 15.02 | 30.12 | 550 | 177.1861398 | 31.04080266 | 31.63988416 |
| | 12.88 | 15.09 | 30.57 | 470 | 178.8415235 | 26.28025029 | |
| | 12.68 | 14.95 | 30.59 | 660 | 175.538453 | 37.59859955 | |

* Nilai Tidak Digunakan

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Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

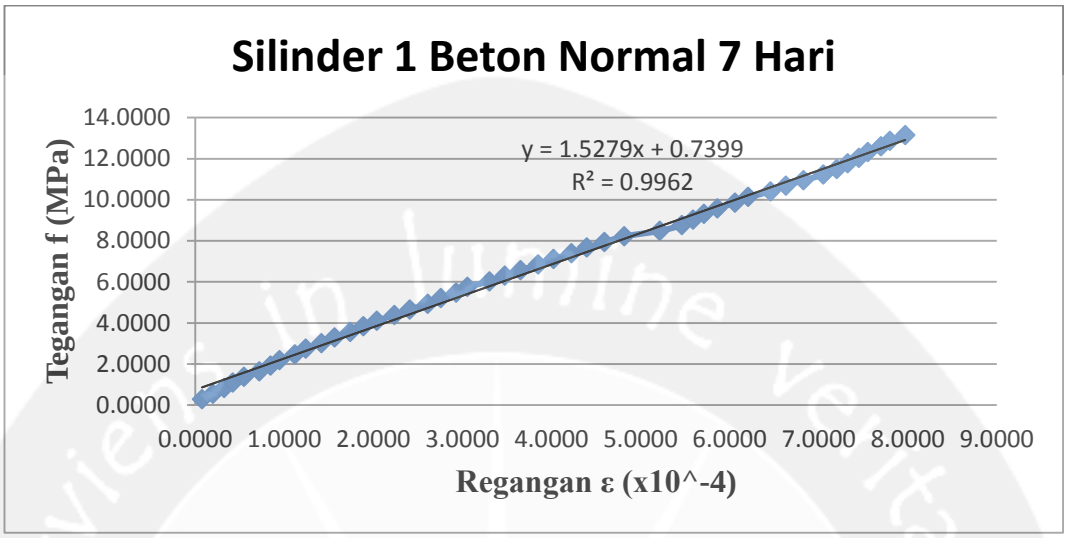
## D. HASIL MODULUS ELASTISITAS BETON

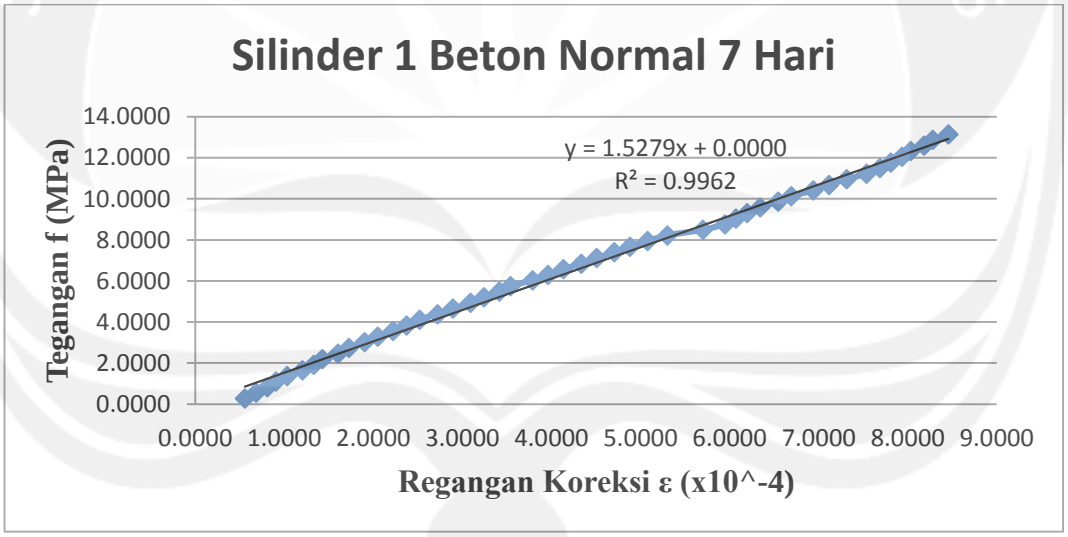
**Silinder 1 Beton Normal 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.3 | mm |
| Ao | = | 17907.86352 | $mm^2$ |
| Beban Maksimum | = | 435 | KN |
| Kuat Tekan Maksimum | = | 24.29 | Mpa |
| Modulus Elastisitas | = | 15279.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.3 | 0.15 | 0.2738 | 0.0745 | 0.5588 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5476 | 0.1987 | 0.6830 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8214 | 0.3229 | 0.8072 |
| 2000 | 19613.3 | 1.7 | 0.85 | 1.0952 | 0.4223 | 0.9065 |
| 2500 | 24516.6 | 2.2 | 1.1 | 1.3690 | 0.5464 | 1.0307 |
| 3000 | 29420 | 2.9 | 1.45 | 1.6429 | 0.7203 | 1.2046 |
| 3500 | 34323.3 | 3.4 | 1.7 | 1.9167 | 0.8445 | 1.3288 |
| 4000 | 39226.6 | 3.8 | 1.9 | 2.1905 | 0.9439 | 1.4281 |
| 4500 | 44129.9 | 4.5 | 2.25 | 2.4643 | 1.1177 | 1.6020 |
| 5000 | 49033.3 | 5 | 2.5 | 2.7381 | 1.2419 | 1.7262 |
| 5500 | 53936.6 | 5.7 | 2.85 | 3.0119 | 1.4158 | 1.9001 |
| 6000 | 58839.9 | 6.3 | 3.15 | 3.2857 | 1.5648 | 2.0491 |
| 6500 | 63743.2 | 7 | 3.5 | 3.5595 | 1.7387 | 2.2230 |
| 7000 | 68646.6 | 7.6 | 3.8 | 3.8333 | 1.8877 | 2.3720 |
| 7500 | 73549.9 | 8.2 | 4.1 | 4.1071 | 2.0368 | 2.5210 |
| 8000 | 78453.2 | 9 | 4.5 | 4.3809 | 2.2355 | 2.7197 |
| 8500 | 83356.5 | 9.7 | 4.85 | 4.6547 | 2.4093 | 2.8936 |
| 9000 | 88259.9 | 10.5 | 5.25 | 4.9286 | 2.6080 | 3.0923 |
| 9500 | 93163.2 | 11.1 | 5.55 | 5.2024 | 2.7571 | 3.2413 |
| 10000 | 98066.5 | 11.8 | 5.9 | 5.4762 | 2.9309 | 3.4152 |
| 10500 | 102970 | 12.3 | 6.15 | 5.7500 | 3.0551 | 3.5394 |
| 11000 | 107873 | 13.3 | 6.65 | 6.0238 | 3.3035 | 3.7878 |
| 11500 | 112776 | 14 | 7 | 6.2976 | 3.4774 | 3.9617 |
| 12000 | 117680 | 14.7 | 7.35 | 6.5714 | 3.6513 | 4.1355 |
| 12500 | 122583 | 15.5 | 7.75 | 6.8452 | 3.8500 | 4.3342 |
| 13000 | 127486 | 16.2 | 8.1 | 7.1190 | 4.0238 | 4.5081 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13500 | 132390 | 17 | 8.5 | 7.3928 | 4.2226 | 4.7068 |
| 14000 | 137293 | 17.7 | 8.85 | 7.6666 | 4.3964 | 4.8807 |
| 14500 | 142196 | 18.5 | 9.25 | 7.9404 | 4.5951 | 5.0794 |
| 15000 | 147100 | 19.4 | 9.7 | 8.2143 | 4.8187 | 5.3029 |
| 15500 | 152003 | 21 | 10.5 | 8.4881 | 5.2161 | 5.7004 |
| 16000 | 156906 | 22 | 11 | 8.7619 | 5.4645 | 5.9487 |
| 16500 | 161810 | 22.5 | 11.25 | 9.0357 | 5.5887 | 6.0729 |
| 17000 | 166713 | 23 | 11.5 | 9.3095 | 5.7129 | 6.1971 |
| 17500 | 171616 | 23.6 | 11.8 | 9.5833 | 5.8619 | 6.3462 |
| 18000 | 176520 | 24.4 | 12.2 | 9.8571 | 6.0606 | 6.5449 |
| 18500 | 181423 | 25 | 12.5 | 10.1309 | 6.2096 | 6.6939 |
| 19000 | 186326 | 26 | 13 | 10.4047 | 6.4580 | 6.9423 |
| 19500 | 191230 | 26.7 | 13.35 | 10.6785 | 6.6319 | 7.1162 |
| 20000 | 196133 | 27.5 | 13.75 | 10.9523 | 6.8306 | 7.3149 |
| 20500 | 201036 | 28.4 | 14.2 | 11.2261 | 7.0541 | 7.5384 |
| 21000 | 205940 | 29 | 14.5 | 11.5000 | 7.2032 | 7.6874 |
| 21500 | 210843 | 29.5 | 14.75 | 11.7738 | 7.3274 | 7.8116 |
| 22000 | 215746 | 30 | 15 | 12.0476 | 7.4516 | 7.9358 |
| 22500 | 220650 | 30.4 | 15.2 | 12.3214 | 7.5509 | 8.0352 |
| 23000 | 225553 | 31 | 15.5 | 12.5952 | 7.7000 | 8.1842 |
| 23500 | 230456 | 31.4 | 15.7 | 12.8690 | 7.7993 | 8.2836 |
| 24000 | 235360 | 32.1 | 16.05 | 13.1428 | 7.9732 | 8.4574 |


Silinder 1 Beton Normal 7 Hari
y = 1.5279x + 0.7399
R² = 0.9962
Tegangan f (MPa)
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 1 Beton Normal 7 Hari
y = 1.5279x + 0.0000
R² = 0.9962
Tegangan f (MPa)
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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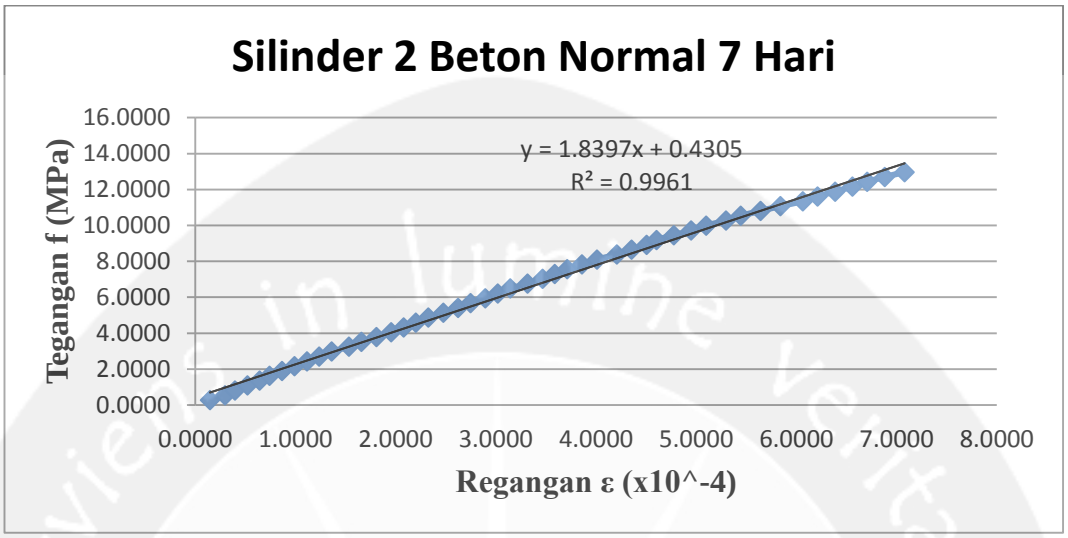
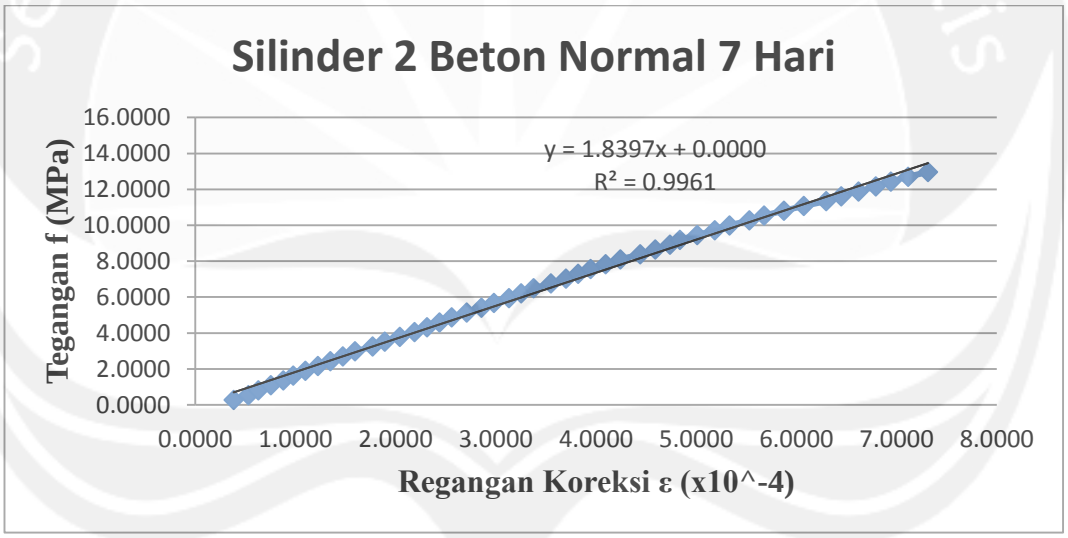
**Silinder 2 Beton Normal 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 202 | mm |
| Ao | = | 18160.51185 | $mm^2$ |
| Beban Maksimum | = | 470 | KN |
| Kuat Tekan Maksimum | = | 25.88 | Mpa |
| Modulus Elastisitas | = | 18397.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.6 | 0.3 | 0.2700 | 0.1485 | 0.3825 |
| 1000 | 9806.65 | 1.2 | 0.6 | 0.5400 | 0.2970 | 0.5310 |
| 1500 | 14710 | 1.6 | 0.8 | 0.8100 | 0.3960 | 0.6300 |
| 2000 | 19613.3 | 2.1 | 1.05 | 1.0800 | 0.5198 | 0.7538 |
| 2500 | 24516.6 | 2.6 | 1.3 | 1.3500 | 0.6436 | 0.8776 |
| 3000 | 29420 | 3 | 1.5 | 1.6200 | 0.7426 | 0.9766 |
| 3500 | 34323.3 | 3.5 | 1.75 | 1.8900 | 0.8663 | 1.1003 |
| 4000 | 39226.6 | 4 | 2 | 2.1600 | 0.9901 | 1.2241 |
| 4500 | 44129.9 | 4.5 | 2.25 | 2.4300 | 1.1139 | 1.3479 |
| 5000 | 49033.3 | 5 | 2.5 | 2.7000 | 1.2376 | 1.4716 |
| 5500 | 53936.6 | 5.5 | 2.75 | 2.9700 | 1.3614 | 1.5954 |
| 6000 | 58839.9 | 6.2 | 3.1 | 3.2400 | 1.5347 | 1.7687 |
| 6500 | 63743.2 | 6.7 | 3.35 | 3.5100 | 1.6584 | 1.8924 |
| 7000 | 68646.6 | 7.3 | 3.65 | 3.7800 | 1.8069 | 2.0409 |
| 7500 | 73549.9 | 7.9 | 3.95 | 4.0500 | 1.9554 | 2.1895 |
| 8000 | 78453.2 | 8.4 | 4.2 | 4.3200 | 2.0792 | 2.3132 |
| 8500 | 83356.5 | 8.9 | 4.45 | 4.5900 | 2.2030 | 2.4370 |
| 9000 | 88259.9 | 9.4 | 4.7 | 4.8600 | 2.3267 | 2.5607 |
| 9500 | 93163.2 | 10 | 5 | 5.1300 | 2.4752 | 2.7093 |
| 10000 | 98066.5 | 10.6 | 5.3 | 5.4000 | 2.6238 | 2.8578 |
| 10500 | 102970 | 11.1 | 5.55 | 5.6700 | 2.7475 | 2.9815 |
| 11000 | 107873 | 11.7 | 5.85 | 5.9400 | 2.8960 | 3.1300 |
| 11500 | 112776 | 12.2 | 6.1 | 6.2100 | 3.0198 | 3.2538 |
| 12000 | 117680 | 12.7 | 6.35 | 6.4800 | 3.1436 | 3.3776 |
| 12500 | 122583 | 13.4 | 6.7 | 6.7500 | 3.3168 | 3.5508 |
| 13000 | 127486 | 14 | 7 | 7.0200 | 3.4653 | 3.6994 |
| 13500 | 132390 | 14.5 | 7.25 | 7.2900 | 3.5891 | 3.8231 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15 | 7.5 | 7.5600 | 3.7129 | 3.9469 |
| 14500 | 142196 | 15.6 | 7.8 | 7.8300 | 3.8614 | 4.0954 |
| 15000 | 147100 | 16.2 | 8.1 | 8.1000 | 4.0099 | 4.2439 |
| 15500 | 152003 | 17 | 8.5 | 8.3700 | 4.2079 | 4.4419 |
| 16000 | 156906 | 17.6 | 8.8 | 8.6400 | 4.3564 | 4.5904 |
| 16500 | 161810 | 18.2 | 9.1 | 8.9100 | 4.5050 | 4.7390 |
| 17000 | 166713 | 18.6 | 9.3 | 9.1800 | 4.6040 | 4.8380 |
| 17500 | 171616 | 19.3 | 9.65 | 9.4500 | 4.7772 | 5.0112 |
| 18000 | 176520 | 20 | 10 | 9.7200 | 4.9505 | 5.1845 |
| 18500 | 181423 | 20.6 | 10.3 | 9.9900 | 5.0990 | 5.3330 |
| 19000 | 186326 | 21.4 | 10.7 | 10.2600 | 5.2970 | 5.5310 |
| 19500 | 191230 | 22 | 11 | 10.5300 | 5.4455 | 5.6796 |
| 20000 | 196133 | 22.8 | 11.4 | 10.8000 | 5.6436 | 5.8776 |
| 20500 | 201036 | 23.6 | 11.8 | 11.0700 | 5.8416 | 6.0756 |
| 21000 | 205940 | 24.5 | 12.25 | 11.3400 | 6.0644 | 6.2984 |
| 21500 | 210843 | 25.1 | 12.55 | 11.6100 | 6.2129 | 6.4469 |
| 22000 | 215746 | 25.8 | 12.9 | 11.8800 | 6.3861 | 6.6201 |
| 22500 | 220650 | 26.5 | 13.25 | 12.1500 | 6.5594 | 6.7934 |
| 23000 | 225553 | 27.1 | 13.55 | 12.4200 | 6.7079 | 6.9419 |
| 23500 | 230456 | 27.8 | 13.9 | 12.6900 | 6.8812 | 7.1152 |
| 24000 | 235360 | 28.6 | 14.3 | 12.9600 | 7.0792 | 7.3132 |


Silinder 2 Beton Normal 7 Hari
y = 1.8397x + 0.4305
R² = 0.9961
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 2 Beton Normal 7 Hari
y = 1.8397x + 0.0000
R² = 0.9961
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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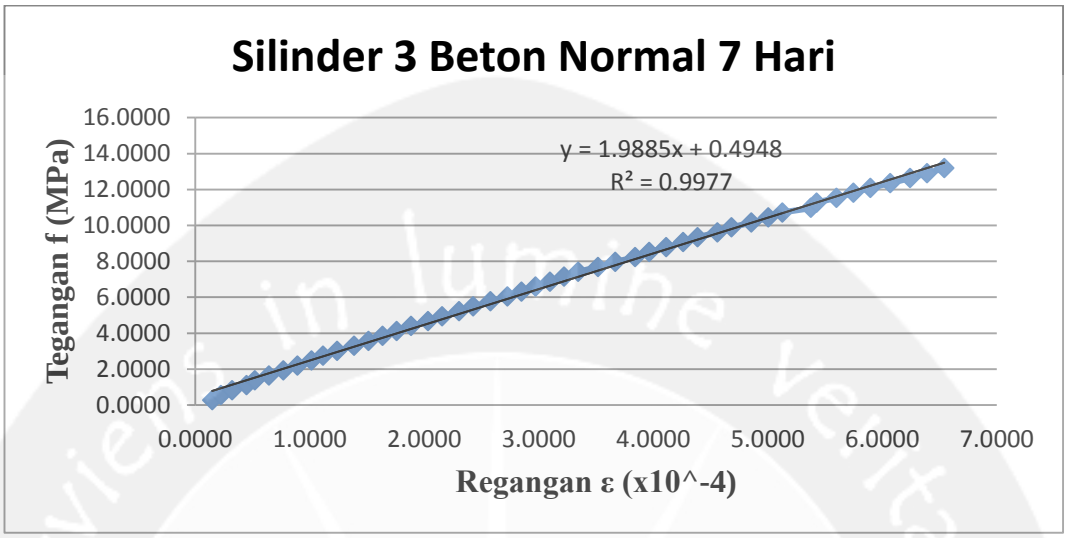
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

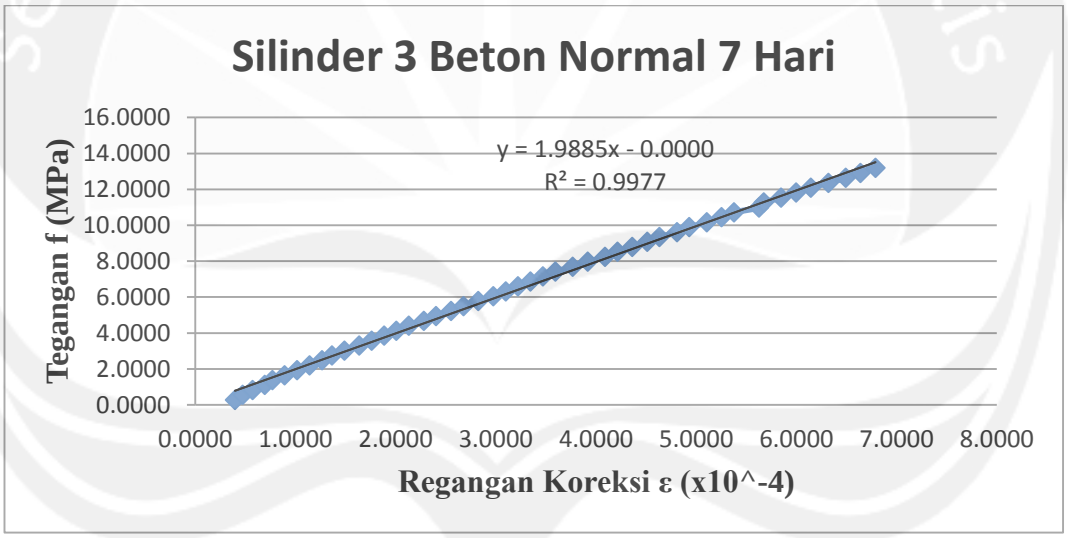
**Silinder 3 Beton Normal 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.8 | mm |
| Ao | = | 17851.4024 | $mm^2$ |
| Beban Maksimum | = | 420 | KN |
| Kuat Tekan Maksimum | = | 23.53 | Mpa |
| Modulus Elastisitas | = | 19885.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.6 | 0.3 | 0.2747 | 0.1487 | 0.3975 |
| 1000 | 9806.65 | 0.9 | 0.45 | 0.5493 | 0.2230 | 0.4718 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8240 | 0.3221 | 0.5709 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.0987 | 0.4460 | 0.6948 |
| 2500 | 24516.6 | 2.1 | 1.05 | 1.3734 | 0.5203 | 0.7691 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6480 | 0.6442 | 0.8930 |
| 3500 | 34323.3 | 3.1 | 1.55 | 1.9227 | 0.7681 | 1.0169 |
| 4000 | 39226.6 | 3.6 | 1.8 | 2.1974 | 0.8920 | 1.1408 |
| 4500 | 44129.9 | 4.1 | 2.05 | 2.4721 | 1.0159 | 1.2647 |
| 5000 | 49033.3 | 4.5 | 2.25 | 2.7467 | 1.1150 | 1.3638 |
| 5500 | 53936.6 | 5 | 2.5 | 3.0214 | 1.2389 | 1.4877 |
| 6000 | 58839.9 | 5.6 | 2.8 | 3.2961 | 1.3875 | 1.6363 |
| 6500 | 63743.2 | 6.1 | 3.05 | 3.5708 | 1.5114 | 1.7602 |
| 7000 | 68646.6 | 6.6 | 3.3 | 3.8454 | 1.6353 | 1.8841 |
| 7500 | 73549.9 | 7.1 | 3.55 | 4.1201 | 1.7592 | 2.0080 |
| 8000 | 78453.2 | 7.6 | 3.8 | 4.3948 | 1.8831 | 2.1319 |
| 8500 | 83356.5 | 8.2 | 4.1 | 4.6695 | 2.0317 | 2.2805 |
| 9000 | 88259.9 | 8.7 | 4.35 | 4.9441 | 2.1556 | 2.4044 |
| 9500 | 93163.2 | 9.3 | 4.65 | 5.2188 | 2.3043 | 2.5531 |
| 10000 | 98066.5 | 9.8 | 4.9 | 5.4935 | 2.4281 | 2.6770 |
| 10500 | 102970 | 10.4 | 5.2 | 5.7682 | 2.5768 | 2.8256 |
| 11000 | 107873 | 11 | 5.5 | 6.0428 | 2.7255 | 2.9743 |
| 11500 | 112776 | 11.5 | 5.75 | 6.3175 | 2.8494 | 3.0982 |
| 12000 | 117680 | 12 | 6 | 6.5922 | 2.9732 | 3.2221 |
| 12500 | 122583 | 12.5 | 6.25 | 6.8669 | 3.0971 | 3.3460 |
| 13000 | 127486 | 13 | 6.5 | 7.1415 | 3.2210 | 3.4698 |
| 13500 | 132390 | 13.5 | 6.75 | 7.4162 | 3.3449 | 3.5937 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.2 | 7.1 | 7.6909 | 3.5183 | 3.7672 |
| 14500 | 142196 | 14.8 | 7.4 | 7.9656 | 3.6670 | 3.9158 |
| 15000 | 147100 | 15.5 | 7.75 | 8.2402 | 3.8404 | 4.0893 |
| 15500 | 152003 | 16 | 8 | 8.5149 | 3.9643 | 4.2132 |
| 16000 | 156906 | 16.6 | 8.3 | 8.7896 | 4.1130 | 4.3618 |
| 16500 | 161810 | 17.2 | 8.6 | 9.0643 | 4.2616 | 4.5105 |
| 17000 | 166713 | 17.7 | 8.85 | 9.3389 | 4.3855 | 4.6344 |
| 17500 | 171616 | 18.4 | 9.2 | 9.6136 | 4.5590 | 4.8078 |
| 18000 | 176520 | 18.9 | 9.45 | 9.8883 | 4.6829 | 4.9317 |
| 18500 | 181423 | 19.6 | 9.8 | 10.1630 | 4.8563 | 5.1051 |
| 19000 | 186326 | 20.2 | 10.1 | 10.4376 | 5.0050 | 5.2538 |
| 19500 | 191230 | 20.7 | 10.35 | 10.7123 | 5.1288 | 5.3777 |
| 20000 | 196133 | 21.7 | 10.85 | 10.9870 | 5.3766 | 5.6254 |
| 20500 | 201036 | 21.9 | 10.95 | 11.2617 | 5.4262 | 5.6750 |
| 21000 | 205940 | 22.6 | 11.3 | 11.5363 | 5.5996 | 5.8484 |
| 21500 | 210843 | 23.2 | 11.6 | 11.8110 | 5.7483 | 5.9971 |
| 22000 | 215746 | 23.8 | 11.9 | 12.0857 | 5.8969 | 6.1458 |
| 22500 | 220650 | 24.5 | 12.25 | 12.3604 | 6.0704 | 6.3192 |
| 23000 | 225553 | 25.2 | 12.6 | 12.6350 | 6.2438 | 6.4926 |
| 23500 | 230456 | 25.8 | 12.9 | 12.9097 | 6.3925 | 6.6413 |
| 24000 | 235360 | 26.4 | 13.2 | 13.1844 | 6.5411 | 6.7900 |


Silinder 3 Beton Normal 7 Hari
y = 1.9885x + 0.4948
R² = 0.9977
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000
Regangan ε (x10^-4)


Silinder 3 Beton Normal 7 Hari
y = 1.9885x - 0.0000
R² = 0.9977
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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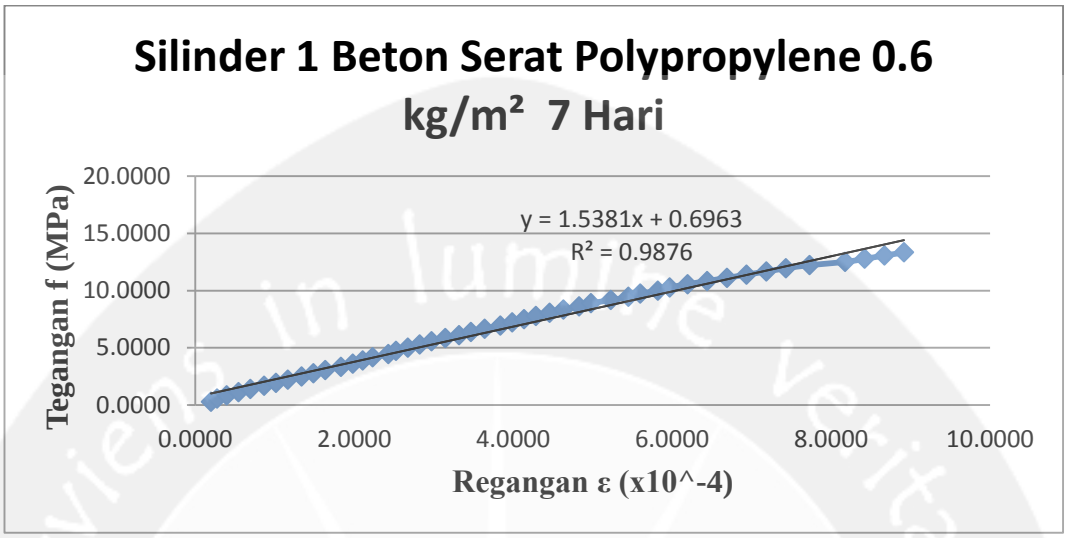
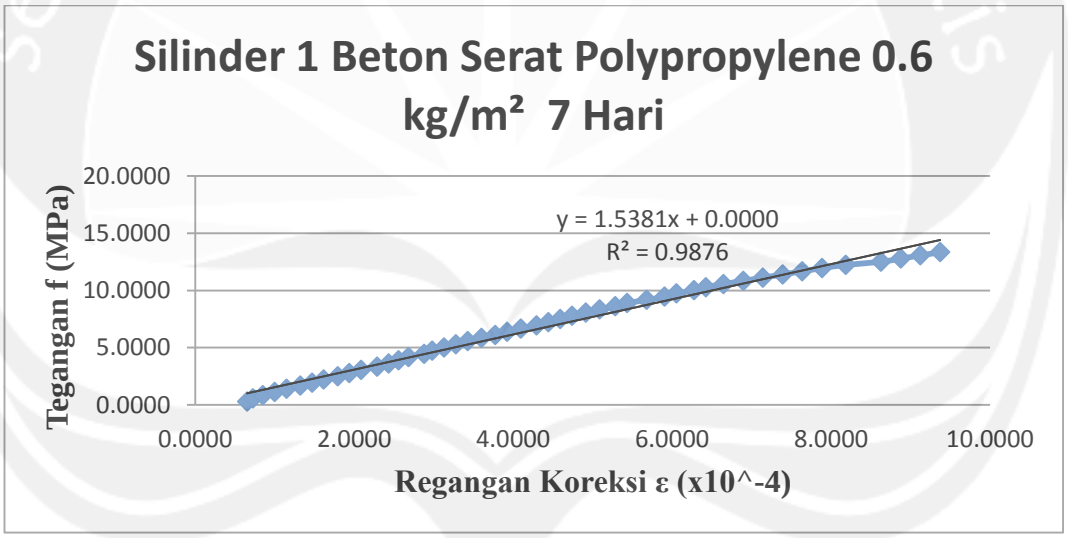
**Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.8 | mm |
| Ao | = | 17638.95785 | $mm^2$ |
| Beban Maksimum | = | 330 | KN |
| Kuat Tekan Maksimum | = | 18.71 | Mpa |
| Modulus Elastisitas | = | 15381.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.8 | 0.4 | 0.2780 | 0.1982 | 0.6509 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5560 | 0.2725 | 0.7252 |
| 1500 | 14710 | 1.6 | 0.8 | 0.8339 | 0.3964 | 0.8491 |
| 2000 | 19613.3 | 2.2 | 1.1 | 1.1119 | 0.5451 | 0.9978 |
| 2500 | 24516.6 | 2.8 | 1.4 | 1.3899 | 0.6938 | 1.1465 |
| 3000 | 29420 | 3.5 | 1.75 | 1.6679 | 0.8672 | 1.3199 |
| 3500 | 34323.3 | 4.1 | 2.05 | 1.9459 | 1.0159 | 1.4686 |
| 4000 | 39226.6 | 4.7 | 2.35 | 2.2239 | 1.1645 | 1.6172 |
| 4500 | 44129.9 | 5.4 | 2.7 | 2.5018 | 1.3380 | 1.7907 |
| 5000 | 49033.3 | 6 | 3 | 2.7798 | 1.4866 | 1.9393 |
| 5500 | 53936.6 | 6.6 | 3.3 | 3.0578 | 1.6353 | 2.0880 |
| 6000 | 58839.9 | 7.4 | 3.7 | 3.3358 | 1.8335 | 2.2862 |
| 6500 | 63743.2 | 8 | 4 | 3.6138 | 1.9822 | 2.4349 |
| 7000 | 68646.6 | 8.5 | 4.25 | 3.8918 | 2.1060 | 2.5587 |
| 7500 | 73549.9 | 9 | 4.5 | 4.1697 | 2.2299 | 2.6826 |
| 8000 | 78453.2 | 9.8 | 4.9 | 4.4477 | 2.4281 | 2.8808 |
| 8500 | 83356.5 | 10.2 | 5.1 | 4.7257 | 2.5273 | 2.9800 |
| 9000 | 88259.9 | 10.8 | 5.4 | 5.0037 | 2.6759 | 3.1286 |
| 9500 | 93163.2 | 11.4 | 5.7 | 5.2817 | 2.8246 | 3.2773 |
| 10000 | 98066.5 | 12 | 6 | 5.5597 | 2.9732 | 3.4259 |
| 10500 | 102970 | 12.7 | 6.35 | 5.8376 | 3.1467 | 3.5994 |
| 11000 | 107873 | 13.4 | 6.7 | 6.1156 | 3.3201 | 3.7728 |
| 11500 | 112776 | 14 | 7 | 6.3936 | 3.4688 | 3.9215 |
| 12000 | 117680 | 14.7 | 7.35 | 6.6716 | 3.6422 | 4.0949 |
| 12500 | 122583 | 15.5 | 7.75 | 6.9496 | 3.8404 | 4.2931 |
| 13000 | 127486 | 16.1 | 8.05 | 7.2276 | 3.9891 | 4.4418 |
| 13500 | 132390 | 16.7 | 8.35 | 7.5055 | 4.1378 | 4.5905 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 17.3 | 8.65 | 7.7835 | 4.2864 | 4.7391 |
| 14500 | 142196 | 18 | 9 | 8.0615 | 4.4599 | 4.9126 |
| 15000 | 147100 | 18.7 | 9.35 | 8.3395 | 4.6333 | 5.0860 |
| 15500 | 152003 | 19.5 | 9.75 | 8.6175 | 4.8315 | 5.2842 |
| 16000 | 156906 | 20.1 | 10.05 | 8.8954 | 4.9802 | 5.4329 |
| 16500 | 161810 | 21.1 | 10.55 | 9.1734 | 5.2279 | 5.6806 |
| 17000 | 166713 | 22 | 11 | 9.4514 | 5.4509 | 5.9036 |
| 17500 | 171616 | 22.6 | 11.3 | 9.7294 | 5.5996 | 6.0523 |
| 18000 | 176520 | 23.5 | 11.75 | 10.0074 | 5.8226 | 6.2753 |
| 18500 | 181423 | 24.1 | 12.05 | 10.2854 | 5.9713 | 6.4240 |
| 19000 | 186326 | 25 | 12.5 | 10.5633 | 6.1943 | 6.6470 |
| 19500 | 191230 | 26 | 13 | 10.8413 | 6.4420 | 6.8947 |
| 20000 | 196133 | 27 | 13.5 | 11.1193 | 6.6898 | 7.1425 |
| 20500 | 201036 | 28 | 14 | 11.3973 | 6.9376 | 7.3903 |
| 21000 | 205940 | 29 | 14.5 | 11.6753 | 7.1853 | 7.6380 |
| 21500 | 210843 | 30 | 15 | 11.9533 | 7.4331 | 7.8858 |
| 22000 | 215746 | 31.2 | 15.6 | 12.2312 | 7.7304 | 8.1831 |
| 22500 | 220650 | 33 | 16.5 | 12.5092 | 8.1764 | 8.6291 |
| 23000 | 225553 | 34 | 17 | 12.7872 | 8.4242 | 8.8769 |
| 23500 | 230456 | 35 | 17.5 | 13.0652 | 8.6720 | 9.1247 |
| 24000 | 235360 | 36 | 18 | 13.3432 | 8.9197 | 9.3724 |


Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 7 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.5381x + 0.6963
R² = 0.9876
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 7 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.5381x + 0.0000
R² = 0.9876
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan Koreksi ε (x10^-4)

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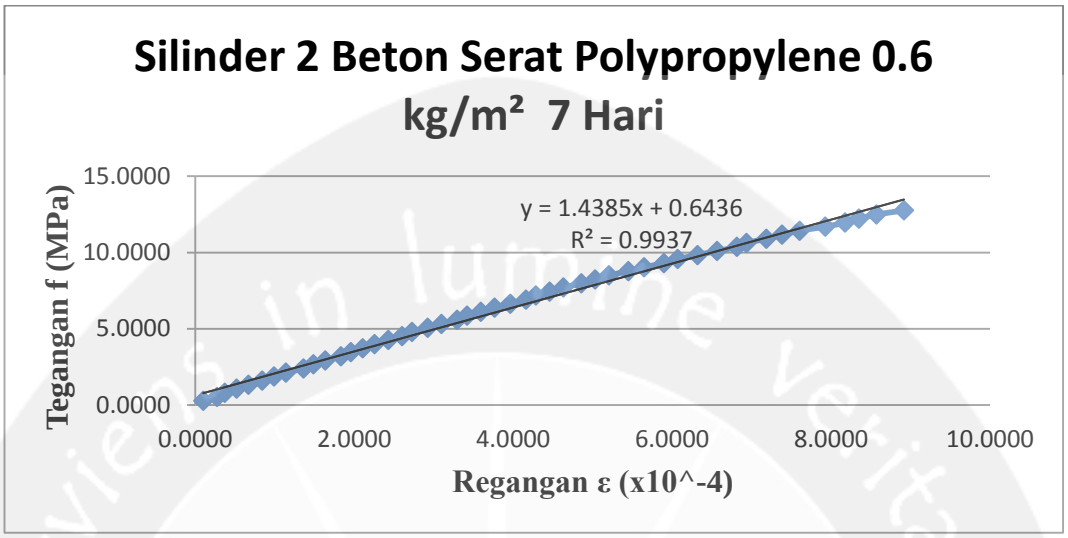
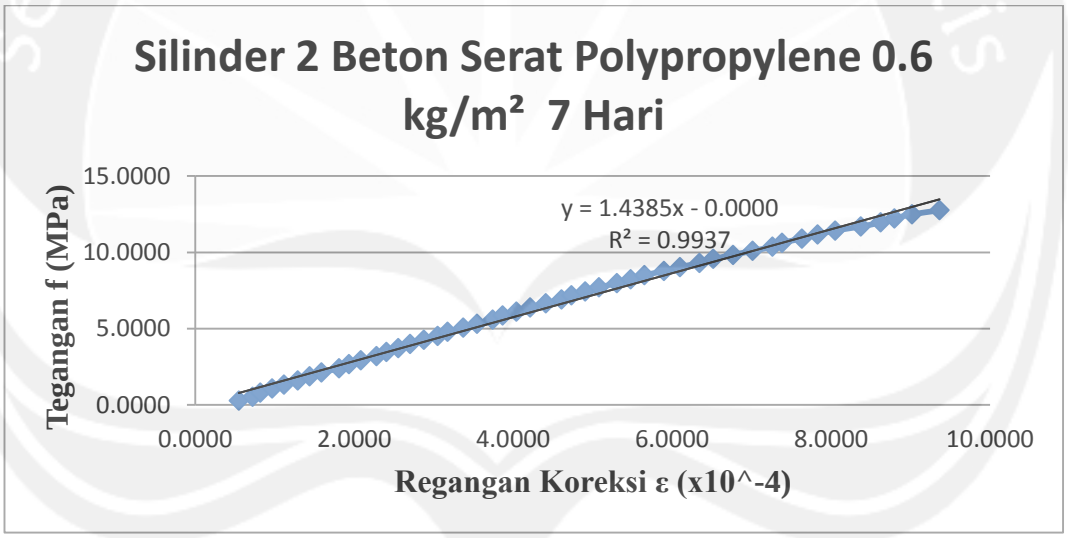
**Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.8 | mm |
| Ao | = | 18448.19865 | $mm^2$ |
| Beban Maksimum | = | 350 | KN |
| Kuat Tekan Maksimum | = | 18.97 | Mpa |
| Modulus Elastisitas | = | 14385.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2658 | 0.0991 | 0.5465 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5316 | 0.2725 | 0.7200 |
| 1500 | 14710 | 1.5 | 0.75 | 0.7974 | 0.3717 | 0.8191 |
| 2000 | 19613.3 | 2.1 | 1.05 | 1.0632 | 0.5203 | 0.9677 |
| 2500 | 24516.6 | 2.7 | 1.35 | 1.3289 | 0.6690 | 1.1164 |
| 3000 | 29420 | 3.4 | 1.7 | 1.5947 | 0.8424 | 1.2898 |
| 3500 | 34323.3 | 4 | 2 | 1.8605 | 0.9911 | 1.4385 |
| 4000 | 39226.6 | 4.6 | 2.3 | 2.1263 | 1.1397 | 1.5872 |
| 4500 | 44129.9 | 5.5 | 2.75 | 2.3921 | 1.3627 | 1.8101 |
| 5000 | 49033.3 | 6 | 3 | 2.6579 | 1.4866 | 1.9340 |
| 5500 | 53936.6 | 6.6 | 3.3 | 2.9237 | 1.6353 | 2.0827 |
| 6000 | 58839.9 | 7.4 | 3.7 | 3.1895 | 1.8335 | 2.2809 |
| 6500 | 63743.2 | 7.9 | 3.95 | 3.4553 | 1.9574 | 2.4048 |
| 7000 | 68646.6 | 8.5 | 4.25 | 3.7210 | 2.1060 | 2.5535 |
| 7500 | 73549.9 | 9.1 | 4.55 | 3.9868 | 2.2547 | 2.7021 |
| 8000 | 78453.2 | 9.8 | 4.9 | 4.2526 | 2.4281 | 2.8756 |
| 8500 | 83356.5 | 10.5 | 5.25 | 4.5184 | 2.6016 | 3.0490 |
| 9000 | 88259.9 | 11 | 5.5 | 4.7842 | 2.7255 | 3.1729 |
| 9500 | 93163.2 | 11.8 | 5.9 | 5.0500 | 2.9237 | 3.3711 |
| 10000 | 98066.5 | 12.5 | 6.25 | 5.3158 | 3.0971 | 3.5445 |
| 10500 | 102970 | 13.3 | 6.65 | 5.5816 | 3.2953 | 3.7428 |
| 11000 | 107873 | 13.8 | 6.9 | 5.8474 | 3.4192 | 3.8666 |
| 11500 | 112776 | 14.5 | 7.25 | 6.1131 | 3.5927 | 4.0401 |
| 12000 | 117680 | 15.2 | 7.6 | 6.3789 | 3.7661 | 4.2135 |
| 12500 | 122583 | 16 | 8 | 6.6447 | 3.9643 | 4.4117 |
| 13000 | 127486 | 16.8 | 8.4 | 6.9105 | 4.1625 | 4.6099 |
| 13500 | 132390 | 17.3 | 8.65 | 7.1763 | 4.2864 | 4.7338 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 18 | 9 | 7.4421 | 4.4599 | 4.9073 |
| 14500 | 142196 | 18.7 | 9.35 | 7.7079 | 4.6333 | 5.0807 |
| 15000 | 147100 | 19.6 | 9.8 | 7.9737 | 4.8563 | 5.3037 |
| 15500 | 152003 | 20.3 | 10.15 | 8.2395 | 5.0297 | 5.4771 |
| 16000 | 156906 | 21 | 10.5 | 8.5052 | 5.2032 | 5.6506 |
| 16500 | 161810 | 22 | 11 | 8.7710 | 5.4509 | 5.8984 |
| 17000 | 166713 | 22.8 | 11.4 | 9.0368 | 5.6492 | 6.0966 |
| 17500 | 171616 | 23.8 | 11.9 | 9.3026 | 5.8969 | 6.3443 |
| 18000 | 176520 | 24.5 | 12.25 | 9.5684 | 6.0704 | 6.5178 |
| 18500 | 181423 | 25.5 | 12.75 | 9.8342 | 6.3181 | 6.7655 |
| 19000 | 186326 | 26.5 | 13.25 | 10.1000 | 6.5659 | 7.0133 |
| 19500 | 191230 | 27.5 | 13.75 | 10.3658 | 6.8137 | 7.2611 |
| 20000 | 196133 | 28 | 14 | 10.6316 | 6.9376 | 7.3850 |
| 20500 | 201036 | 29 | 14.5 | 10.8973 | 7.1853 | 7.6327 |
| 21000 | 205940 | 29.8 | 14.9 | 11.1631 | 7.3835 | 7.8310 |
| 21500 | 210843 | 30.7 | 15.35 | 11.4289 | 7.6065 | 8.0540 |
| 22000 | 215746 | 32 | 16 | 11.6947 | 7.9286 | 8.3761 |
| 22500 | 220650 | 33 | 16.5 | 11.9605 | 8.1764 | 8.6238 |
| 23000 | 225553 | 33.7 | 16.85 | 12.2263 | 8.3499 | 8.7973 |
| 23500 | 230456 | 34.6 | 17.3 | 12.4921 | 8.5728 | 9.0203 |
| 24000 | 235360 | 36 | 18 | 12.7579 | 8.9197 | 9.3671 |


Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 7 Hari
y = 1.4385x + 0.6436
R² = 0.9937
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 7 Hari
y = 1.4385x - 0.0000
R² = 0.9937
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan Koreksi ε (x10^-4)

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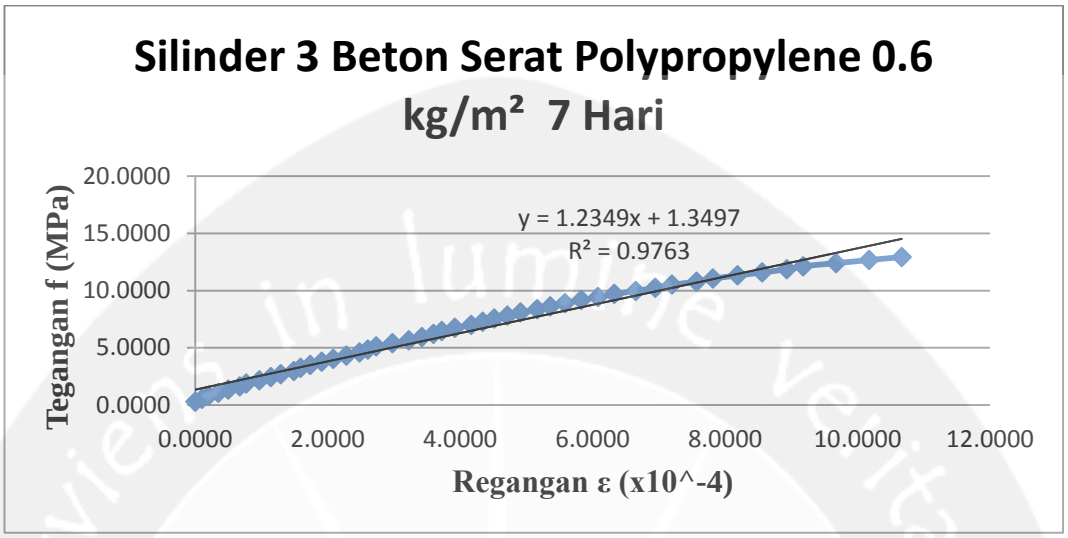
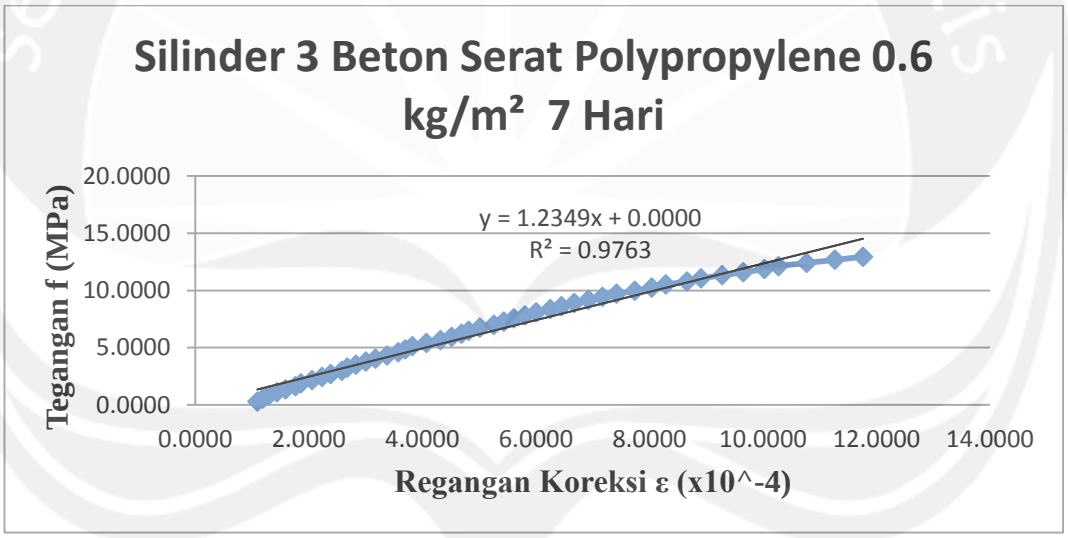
**Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.5 | mm |
| Ao | = | 18184.3994 | $mm^2$ |
| Beban Maksimum | = | 340 | KN |
| Kuat Tekan Maksimum | = | 18.70 | Mpa |
| Modulus Elastisitas | = | 12349.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2696 | 0.0000 | 1.0930 |
| 1000 | 9806.65 | 0.4 | 0.2 | 0.5393 | 0.0993 | 1.1922 |
| 1500 | 14710 | 0.8 | 0.4 | 0.8089 | 0.1985 | 1.2915 |
| 2000 | 19613.3 | 1.4 | 0.7 | 1.0786 | 0.3474 | 1.4404 |
| 2500 | 24516.6 | 2 | 1 | 1.3482 | 0.4963 | 1.5892 |
| 3000 | 29420 | 2.7 | 1.35 | 1.6179 | 0.6700 | 1.7629 |
| 3500 | 34323.3 | 3.1 | 1.55 | 1.8875 | 0.7692 | 1.8622 |
| 4000 | 39226.6 | 3.9 | 1.95 | 2.1572 | 0.9677 | 2.0607 |
| 4500 | 44129.9 | 4.6 | 2.3 | 2.4268 | 1.1414 | 2.2344 |
| 5000 | 49033.3 | 5.2 | 2.6 | 2.6964 | 1.2903 | 2.3833 |
| 5500 | 53936.6 | 6 | 3 | 2.9661 | 1.4888 | 2.5818 |
| 6000 | 58839.9 | 6.4 | 3.2 | 3.2357 | 1.5881 | 2.6811 |
| 6500 | 63743.2 | 7 | 3.5 | 3.5054 | 1.7370 | 2.8299 |
| 7000 | 68646.6 | 7.7 | 3.85 | 3.7750 | 1.9107 | 3.0036 |
| 7500 | 73549.9 | 8.4 | 4.2 | 4.0447 | 2.0844 | 3.1773 |
| 8000 | 78453.2 | 9.2 | 4.6 | 4.3143 | 2.2829 | 3.3758 |
| 8500 | 83356.5 | 10 | 5 | 4.5840 | 2.4814 | 3.5744 |
| 9000 | 88259.9 | 10.5 | 5.25 | 4.8536 | 2.6055 | 3.6984 |
| 9500 | 93163.2 | 11 | 5.5 | 5.1232 | 2.7295 | 3.8225 |
| 10000 | 98066.5 | 12 | 6 | 5.3929 | 2.9777 | 4.0706 |
| 10500 | 102970 | 13 | 6.5 | 5.6625 | 3.2258 | 4.3188 |
| 11000 | 107873 | 13.8 | 6.9 | 5.9322 | 3.4243 | 4.5173 |
| 11500 | 112776 | 14.5 | 7.25 | 6.2018 | 3.5980 | 4.6910 |
| 12000 | 117680 | 15 | 7.5 | 6.4715 | 3.7221 | 4.8150 |
| 12500 | 122583 | 15.8 | 7.9 | 6.7411 | 3.9206 | 5.0136 |
| 13000 | 127486 | 16.8 | 8.4 | 7.0108 | 4.1687 | 5.2617 |
| 13500 | 132390 | 17.5 | 8.75 | 7.2804 | 4.3424 | 5.4354 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 18.2 | 9.1 | 7.5500 | 4.5161 | 5.6091 |
| 14500 | 142196 | 19 | 9.5 | 7.8197 | 4.7146 | 5.8076 |
| 15000 | 147100 | 19.8 | 9.9 | 8.0893 | 4.9132 | 6.0061 |
| 15500 | 152003 | 20.8 | 10.4 | 8.3590 | 5.1613 | 6.2543 |
| 16000 | 156906 | 21.6 | 10.8 | 8.6286 | 5.3598 | 6.4528 |
| 16500 | 161810 | 22.5 | 11.25 | 8.8983 | 5.5831 | 6.6761 |
| 17000 | 166713 | 23.5 | 11.75 | 9.1679 | 5.8313 | 6.9242 |
| 17500 | 171616 | 24.5 | 12.25 | 9.4376 | 6.0794 | 7.1724 |
| 18000 | 176520 | 25.5 | 12.75 | 9.7072 | 6.3275 | 7.4205 |
| 18500 | 181423 | 26.8 | 13.4 | 9.9768 | 6.6501 | 7.7431 |
| 19000 | 186326 | 28 | 14 | 10.2465 | 6.9479 | 8.0409 |
| 19500 | 191230 | 29 | 14.5 | 10.5161 | 7.1960 | 8.2890 |
| 20000 | 196133 | 30.5 | 15.25 | 10.7858 | 7.5682 | 8.6612 |
| 20500 | 201036 | 31.5 | 15.75 | 11.0554 | 7.8164 | 8.9093 |
| 21000 | 205940 | 33 | 16.5 | 11.3251 | 8.1886 | 9.2815 |
| 21500 | 210843 | 34.5 | 17.25 | 11.5947 | 8.5608 | 9.6538 |
| 22000 | 215746 | 36 | 18 | 11.8644 | 8.9330 | 10.0260 |
| 22500 | 220650 | 37 | 18.5 | 12.1340 | 9.1811 | 10.2741 |
| 23000 | 225553 | 39 | 19.5 | 12.4037 | 9.6774 | 10.7704 |
| 23500 | 230456 | 41 | 20.5 | 12.6733 | 10.1737 | 11.2667 |
| 24000 | 235360 | 43 | 21.5 | 12.9429 | 10.6700 | 11.7629 |


Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 7 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.2349x + 1.3497
R² = 0.9763
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 7 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.2349x + 0.0000
R² = 0.9763
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
14.0000
Regangan Koreksi ε (x10^-4)

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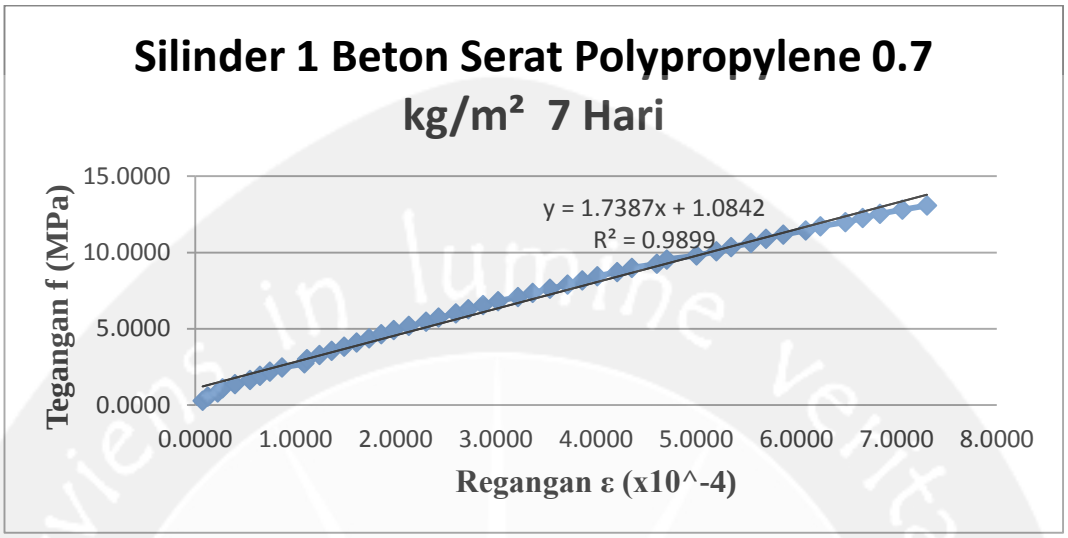
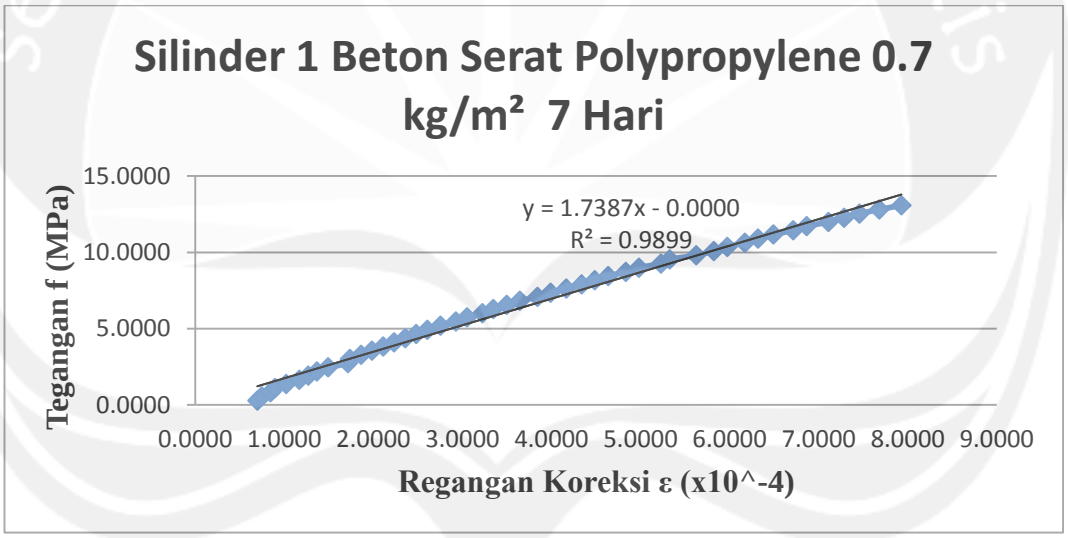
**Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.9 | mm |
| Ao | = | 17993.7386 | $mm^2$ |
| Beban Maksimum | = | 455 | KN |
| Kuat Tekan Maksimum | = | 25.29 | Mpa |
| Modulus Elastisitas | = | 17387.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.3 | 0.15 | 0.2725 | 0.0743 | 0.6979 |
| 1000 | 9806.65 | 0.5 | 0.25 | 0.5450 | 0.1238 | 0.7474 |
| 1500 | 14710 | 0.9 | 0.45 | 0.8175 | 0.2229 | 0.8465 |
| 2000 | 19613.3 | 1.1 | 0.55 | 1.0900 | 0.2724 | 0.8960 |
| 2500 | 24516.6 | 1.6 | 0.8 | 1.3625 | 0.3962 | 1.0198 |
| 3000 | 29420 | 2.2 | 1.1 | 1.6350 | 0.5448 | 1.1684 |
| 3500 | 34323.3 | 2.6 | 1.3 | 1.9075 | 0.6439 | 1.2675 |
| 4000 | 39226.6 | 3 | 1.5 | 2.1800 | 0.7429 | 1.3665 |
| 4500 | 44129.9 | 3.5 | 1.75 | 2.4525 | 0.8668 | 1.4903 |
| 5000 | 49033.3 | 4.4 | 2.2 | 2.7250 | 1.0896 | 1.7132 |
| 5500 | 53936.6 | 4.5 | 2.25 | 2.9975 | 1.1144 | 1.7380 |
| 6000 | 58839.9 | 5 | 2.5 | 3.2700 | 1.2382 | 1.8618 |
| 6500 | 63743.2 | 5.5 | 2.75 | 3.5425 | 1.3621 | 1.9856 |
| 7000 | 68646.6 | 6 | 3 | 3.8150 | 1.4859 | 2.1095 |
| 7500 | 73549.9 | 6.5 | 3.25 | 4.0875 | 1.6097 | 2.2333 |
| 8000 | 78453.2 | 7 | 3.5 | 4.3600 | 1.7335 | 2.3571 |
| 8500 | 83356.5 | 7.5 | 3.75 | 4.6325 | 1.8574 | 2.4809 |
| 9000 | 88259.9 | 8 | 4 | 4.9050 | 1.9812 | 2.6047 |
| 9500 | 93163.2 | 8.6 | 4.3 | 5.1775 | 2.1298 | 2.7533 |
| 10000 | 98066.5 | 9.3 | 4.65 | 5.4500 | 2.3031 | 2.9267 |
| 10500 | 102970 | 9.8 | 4.9 | 5.7225 | 2.4269 | 3.0505 |
| 11000 | 107873 | 10.5 | 5.25 | 5.9950 | 2.6003 | 3.2239 |
| 11500 | 112776 | 11 | 5.5 | 6.2675 | 2.7241 | 3.3477 |
| 12000 | 117680 | 11.6 | 5.8 | 6.5400 | 2.8727 | 3.4963 |
| 12500 | 122583 | 12.2 | 6.1 | 6.8125 | 3.0213 | 3.6449 |
| 13000 | 127486 | 13 | 6.5 | 7.0850 | 3.2194 | 3.8430 |
| 13500 | 132390 | 13.6 | 6.8 | 7.3575 | 3.3680 | 3.9916 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.3 | 7.15 | 7.6300 | 3.5414 | 4.1649 |
| 14500 | 142196 | 15 | 7.5 | 7.9026 | 3.7147 | 4.3383 |
| 15000 | 147100 | 15.6 | 7.8 | 8.1751 | 3.8633 | 4.4869 |
| 15500 | 152003 | 16.2 | 8.1 | 8.4476 | 4.0119 | 4.6355 |
| 16000 | 156906 | 17 | 8.5 | 8.7201 | 4.2100 | 4.8336 |
| 16500 | 161810 | 17.6 | 8.8 | 8.9926 | 4.3586 | 4.9822 |
| 17000 | 166713 | 18.6 | 9.3 | 9.2651 | 4.6062 | 5.2298 |
| 17500 | 171616 | 19 | 9.5 | 9.5376 | 4.7053 | 5.3289 |
| 18000 | 176520 | 20.2 | 10.1 | 9.8101 | 5.0025 | 5.6260 |
| 18500 | 181423 | 21 | 10.5 | 10.0826 | 5.2006 | 5.8242 |
| 19000 | 186326 | 21.6 | 10.8 | 10.3551 | 5.3492 | 5.9728 |
| 19500 | 191230 | 22.4 | 11.2 | 10.6276 | 5.5473 | 6.1709 |
| 20000 | 196133 | 23 | 11.5 | 10.9001 | 5.6959 | 6.3195 |
| 20500 | 201036 | 23.7 | 11.85 | 11.1726 | 5.8692 | 6.4928 |
| 21000 | 205940 | 24.6 | 12.3 | 11.4451 | 6.0921 | 6.7157 |
| 21500 | 210843 | 25.2 | 12.6 | 11.7176 | 6.2407 | 6.8643 |
| 22000 | 215746 | 26.2 | 13.1 | 11.9901 | 6.4884 | 7.1119 |
| 22500 | 220650 | 26.9 | 13.45 | 12.2626 | 6.6617 | 7.2853 |
| 23000 | 225553 | 27.6 | 13.8 | 12.5351 | 6.8351 | 7.4586 |
| 23500 | 230456 | 28.5 | 14.25 | 12.8076 | 7.0579 | 7.6815 |
| 24000 | 235360 | 29.5 | 14.75 | 13.0801 | 7.3056 | 7.9292 |


Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 7 Hari
y = 1.7387x + 1.0842
R² = 0.9899
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 7 Hari
y = 1.7387x - 0.0000
R² = 0.9899
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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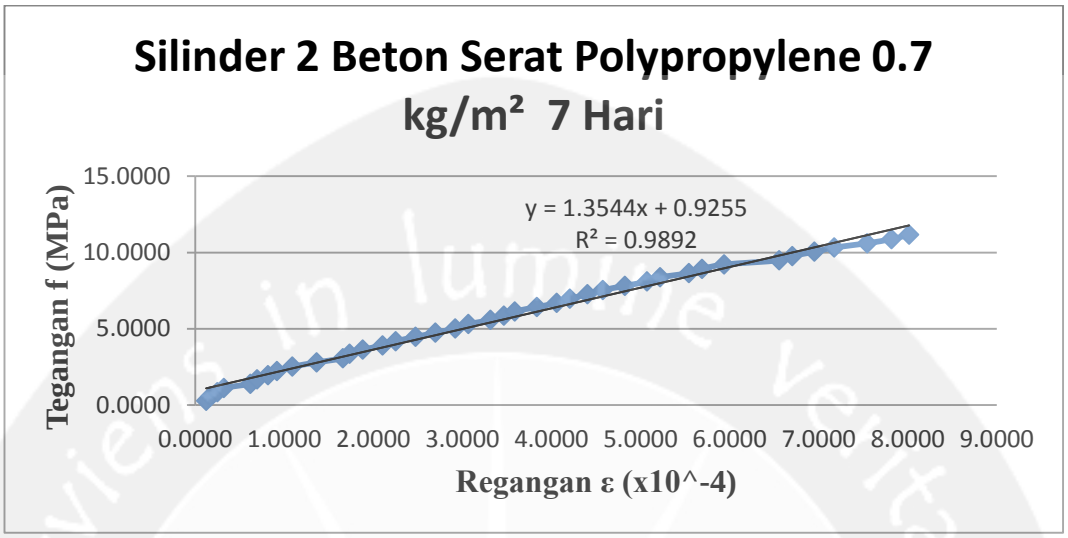
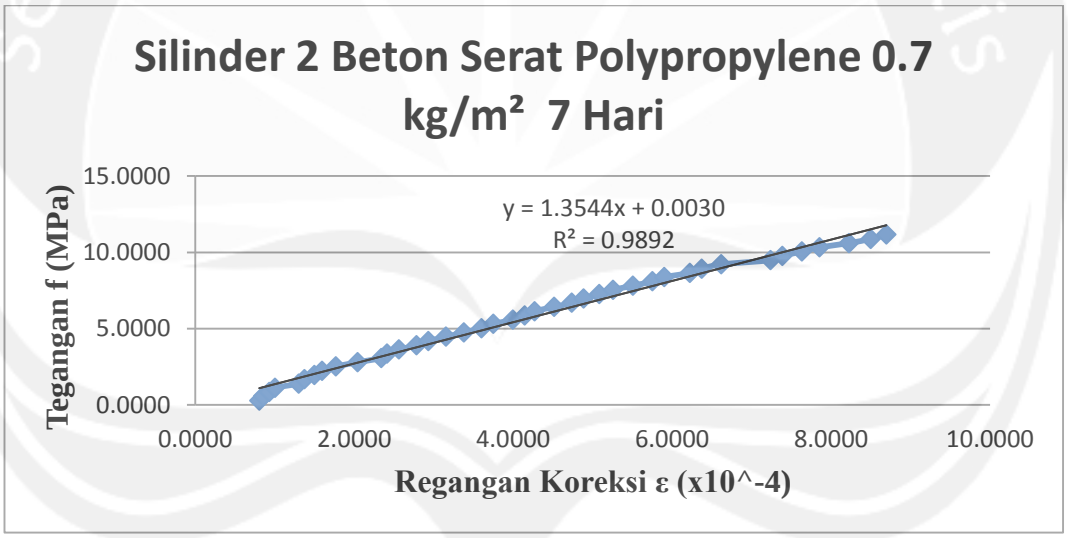
**Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 202.1 | mm |
| Ao | = | 17568.4256 | $mm^2$ |
| Beban Maksimum | = | 446 | KN |
| Kuat Tekan Maksimum | = | 25.39 | Mpa |
| Modulus Elastisitas | = | 13544.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2791 | 0.1237 | 0.8048 |
| 1000 | 9806.65 | 0.7 | 0.35 | 0.5582 | 0.1732 | 0.8543 |
| 1500 | 14710 | 1 | 0.5 | 0.8373 | 0.2474 | 0.9285 |
| 2000 | 19613.3 | 1.3 | 0.65 | 1.1164 | 0.3216 | 1.0027 |
| 2500 | 24516.6 | 2.5 | 1.25 | 1.3955 | 0.6185 | 1.2996 |
| 3000 | 29420 | 2.8 | 1.4 | 1.6746 | 0.6927 | 1.3738 |
| 3500 | 34323.3 | 3.3 | 1.65 | 1.9537 | 0.8164 | 1.4975 |
| 4000 | 39226.6 | 3.7 | 1.85 | 2.2328 | 0.9154 | 1.5965 |
| 4500 | 44129.9 | 4.4 | 2.2 | 2.5119 | 1.0886 | 1.7697 |
| 5000 | 49033.3 | 5.5 | 2.75 | 2.7910 | 1.3607 | 2.0418 |
| 5500 | 53936.6 | 6.7 | 3.35 | 3.0701 | 1.6576 | 2.3387 |
| 6000 | 58839.9 | 7 | 3.5 | 3.3492 | 1.7318 | 2.4129 |
| 6500 | 63743.2 | 7.6 | 3.8 | 3.6283 | 1.8803 | 2.5614 |
| 7000 | 68646.6 | 8.5 | 4.25 | 3.9074 | 2.1029 | 2.7840 |
| 7500 | 73549.9 | 9.1 | 4.55 | 4.1865 | 2.2514 | 2.9325 |
| 8000 | 78453.2 | 10 | 5 | 4.4656 | 2.4740 | 3.1551 |
| 8500 | 83356.5 | 10.9 | 5.45 | 4.7447 | 2.6967 | 3.3778 |
| 9000 | 88259.9 | 11.8 | 5.9 | 5.0238 | 2.9193 | 3.6005 |
| 9500 | 93163.2 | 12.4 | 6.2 | 5.3029 | 3.0678 | 3.7489 |
| 10000 | 98066.5 | 13.4 | 6.7 | 5.5820 | 3.3152 | 3.9963 |
| 10500 | 102970 | 14 | 7 | 5.8611 | 3.4636 | 4.1447 |
| 11000 | 107873 | 14.5 | 7.25 | 6.1402 | 3.5873 | 4.2684 |
| 11500 | 112776 | 15.5 | 7.75 | 6.4193 | 3.8347 | 4.5158 |
| 12000 | 117680 | 16.4 | 8.2 | 6.6984 | 4.0574 | 4.7385 |
| 12500 | 122583 | 17 | 8.5 | 6.9775 | 4.2058 | 4.8870 |
| 13000 | 127486 | 17.8 | 8.9 | 7.2566 | 4.4038 | 5.0849 |
| 13500 | 132390 | 18.5 | 9.25 | 7.5357 | 4.5769 | 5.2581 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 19.5 | 9.75 | 7.8148 | 4.8243 | 5.5055 |
| 14500 | 142196 | 20.5 | 10.25 | 8.0939 | 5.0717 | 5.7529 |
| 15000 | 147100 | 21.1 | 10.55 | 8.3730 | 5.2202 | 5.9013 |
| 15500 | 152003 | 22.4 | 11.2 | 8.6521 | 5.5418 | 6.2229 |
| 16000 | 156906 | 23 | 11.5 | 8.9312 | 5.6903 | 6.3714 |
| 16500 | 161810 | 24 | 12 | 9.2103 | 5.9377 | 6.6188 |
| 17000 | 166713 | 26.5 | 13.25 | 9.4894 | 6.5562 | 7.2373 |
| 17500 | 171616 | 27.1 | 13.55 | 9.7685 | 6.7046 | 7.3857 |
| 18000 | 176520 | 28.1 | 14.05 | 10.0476 | 6.9520 | 7.6331 |
| 18500 | 181423 | 29 | 14.5 | 10.3267 | 7.1747 | 7.8558 |
| 19000 | 186326 | 30.5 | 15.25 | 10.6058 | 7.5458 | 8.2269 |
| 19500 | 191230 | 31.6 | 15.8 | 10.8848 | 7.8179 | 8.4990 |
| 20000 | 196133 | 32.4 | 16.2 | 11.1639 | 8.0158 | 8.6969 |


Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 7 Hari
y = 1.3544x + 0.9255
R² = 0.9892
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 7 Hari
y = 1.3544x + 0.0030
R² = 0.9892
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 2.0000 4.0000 6.0000 8.0000 10.0000
Regangan Koreksi ε (x10^-4)

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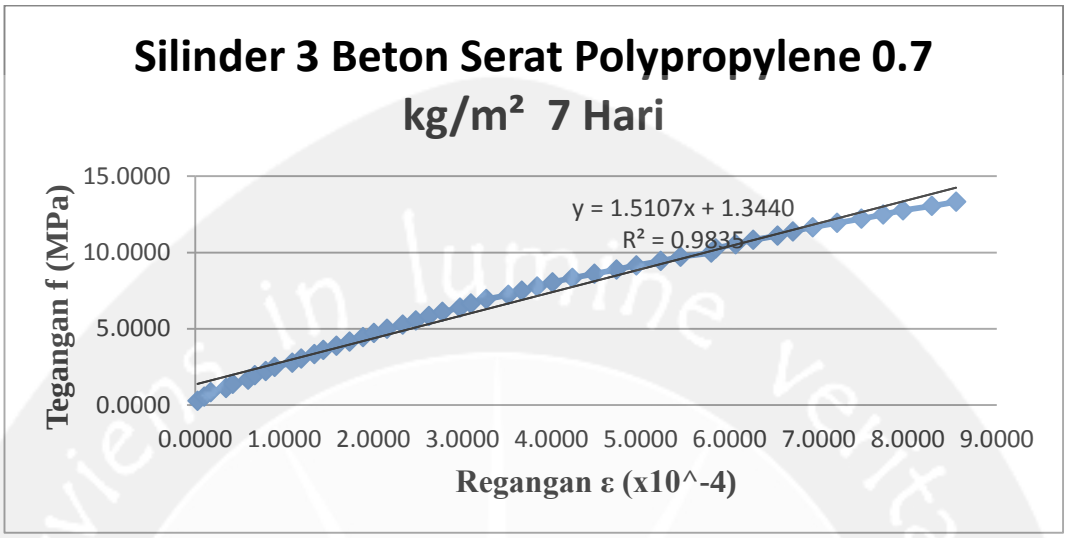
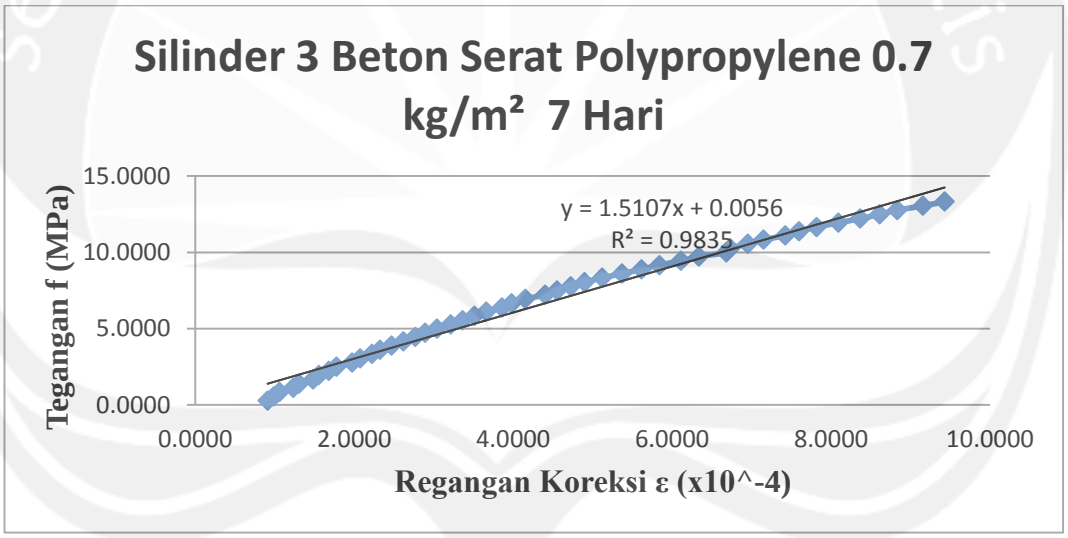
**Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.9 | mm |
| Ao | = | 17662.5 | $mm^2$ |
| Beban Maksimum | = | 420 | KN |
| Kuat Tekan Maksimum | = | 23.78 | Mpa |
| Modulus Elastisitas | = | 15170.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2776 | 0.0248 | 0.9107 |
| 1000 | 9806.65 | 0.4 | 0.2 | 0.5552 | 0.0991 | 0.9850 |
| 1500 | 14710 | 0.7 | 0.35 | 0.8328 | 0.1734 | 1.0593 |
| 2000 | 19613.3 | 1.4 | 0.7 | 1.1104 | 0.3467 | 1.2327 |
| 2500 | 24516.6 | 1.7 | 0.85 | 1.3881 | 0.4210 | 1.3070 |
| 3000 | 29420 | 2.4 | 1.2 | 1.6657 | 0.5944 | 1.4803 |
| 3500 | 34323.3 | 2.7 | 1.35 | 1.9433 | 0.6686 | 1.5546 |
| 4000 | 39226.6 | 3.2 | 1.6 | 2.2209 | 0.7925 | 1.6784 |
| 4500 | 44129.9 | 3.6 | 1.8 | 2.4985 | 0.8915 | 1.7775 |
| 5000 | 49033.3 | 4.4 | 2.2 | 2.7761 | 1.0896 | 1.9756 |
| 5500 | 53936.6 | 4.8 | 2.4 | 3.0537 | 1.1887 | 2.0747 |
| 6000 | 58839.9 | 5.4 | 2.7 | 3.3313 | 1.3373 | 2.2233 |
| 6500 | 63743.2 | 5.8 | 2.9 | 3.6090 | 1.4364 | 2.3223 |
| 7000 | 68646.6 | 6.4 | 3.2 | 3.8866 | 1.5849 | 2.4709 |
| 7500 | 73549.9 | 7 | 3.5 | 4.1642 | 1.7335 | 2.6195 |
| 8000 | 78453.2 | 7.6 | 3.8 | 4.4418 | 1.8821 | 2.7681 |
| 8500 | 83356.5 | 8.1 | 4.05 | 4.7194 | 2.0059 | 2.8919 |
| 9000 | 88259.9 | 8.7 | 4.35 | 4.9970 | 2.1545 | 3.0405 |
| 9500 | 93163.2 | 9.4 | 4.7 | 5.2746 | 2.3279 | 3.2138 |
| 10000 | 98066.5 | 10 | 5 | 5.5522 | 2.4765 | 3.3624 |
| 10500 | 102970 | 10.6 | 5.3 | 5.8299 | 2.6251 | 3.5110 |
| 11000 | 107873 | 11.2 | 5.6 | 6.1075 | 2.7737 | 3.6596 |
| 11500 | 112776 | 12 | 6 | 6.3851 | 2.9718 | 3.8577 |
| 12000 | 117680 | 12.5 | 6.25 | 6.6627 | 3.0956 | 3.9816 |
| 12500 | 122583 | 13.2 | 6.6 | 6.9403 | 3.2689 | 4.1549 |
| 13000 | 127486 | 14.2 | 7.1 | 7.2179 | 3.5166 | 4.4026 |
| 13500 | 132390 | 14.8 | 7.4 | 7.4955 | 3.6652 | 4.5511 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15.5 | 7.75 | 7.7731 | 3.8385 | 4.7245 |
| 14500 | 142196 | 16.2 | 8.1 | 8.0508 | 4.0119 | 4.8978 |
| 15000 | 147100 | 17.1 | 8.55 | 8.3284 | 4.2348 | 5.1207 |
| 15500 | 152003 | 18.1 | 9.05 | 8.6060 | 4.4824 | 5.3684 |
| 16000 | 156906 | 19.1 | 9.55 | 8.8836 | 4.7301 | 5.6160 |
| 16500 | 161810 | 20 | 10 | 9.1612 | 4.9529 | 5.8389 |
| 17000 | 166713 | 21.1 | 10.55 | 9.4388 | 5.2254 | 6.1113 |
| 17500 | 171616 | 22 | 11 | 9.7164 | 5.4482 | 6.3342 |
| 18000 | 176520 | 23.4 | 11.7 | 9.9940 | 5.7949 | 6.6809 |
| 18500 | 181423 | 23.6 | 11.8 | 10.2717 | 5.8445 | 6.7304 |
| 19000 | 186326 | 24.5 | 12.25 | 10.5493 | 6.0674 | 6.9533 |
| 19500 | 191230 | 25.3 | 12.65 | 10.8269 | 6.2655 | 7.1514 |
| 20000 | 196133 | 26.4 | 13.2 | 11.1045 | 6.5379 | 7.4238 |
| 20500 | 201036 | 27.1 | 13.55 | 11.3821 | 6.7112 | 7.5972 |
| 21000 | 205940 | 28 | 14 | 11.6597 | 6.9341 | 7.8201 |
| 21500 | 210843 | 29.1 | 14.55 | 11.9373 | 7.2065 | 8.0925 |
| 22000 | 215746 | 30.2 | 15.1 | 12.2149 | 7.4789 | 8.3649 |
| 22500 | 220650 | 31.2 | 15.6 | 12.4925 | 7.7266 | 8.6126 |
| 23000 | 225553 | 32.1 | 16.05 | 12.7702 | 7.9495 | 8.8354 |
| 23500 | 230456 | 33.4 | 16.7 | 13.0478 | 8.2714 | 9.1574 |
| 24000 | 235360 | 34.5 | 17.25 | 13.3254 | 8.5438 | 9.4298 |


Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 1.5107x + 1.3440
R² = 0.9835
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 1.5107x + 0.0056
R² = 0.9835
0.0000 2.0000 4.0000 6.0000 8.0000 10.0000
Regangan Koreksi ε (x10^-4)

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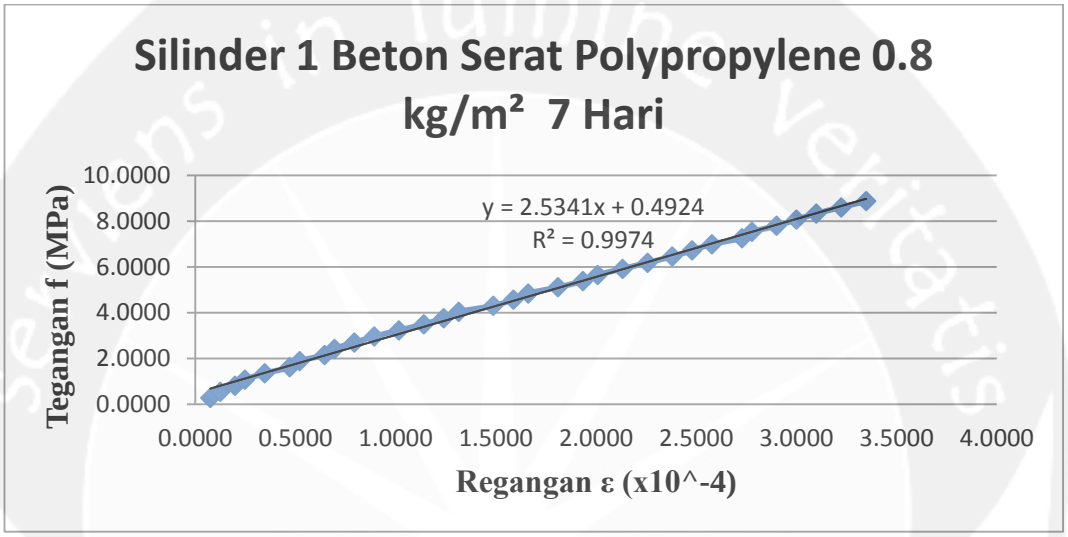
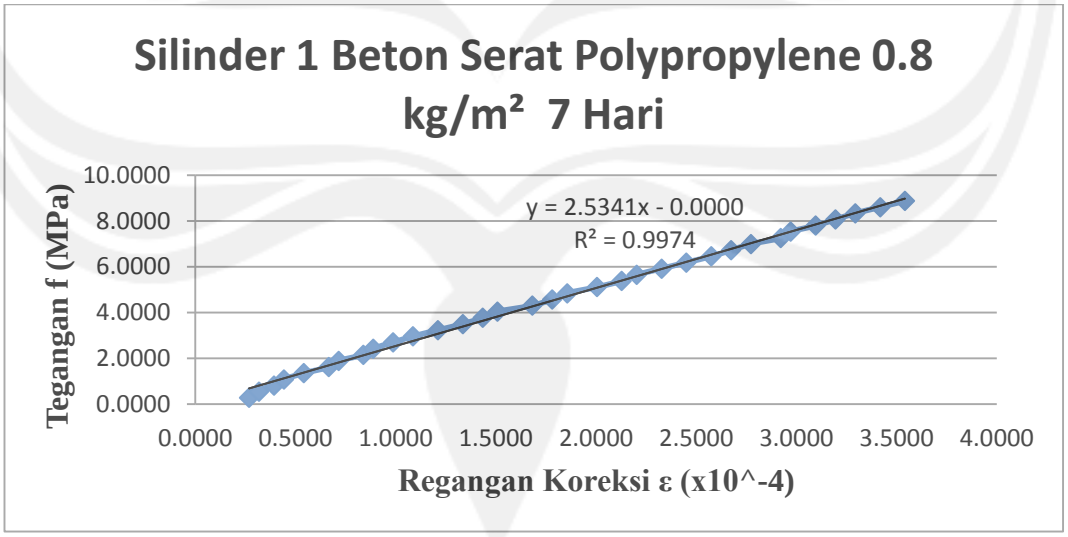
**Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.6 | mm |
| Ao | = | 18232.2216 | $mm^2$ |
| Beban Maksimum | = | 325 | KN |
| Kuat Tekan Maksimum | = | 17.83 | Mpa |
| Modulus Elastisitas | = | 25341.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.3 | 0.15 | 0.2689 | 0.0744 | 0.2687 |
| 1000 | 9806.65 | 0.5 | 0.25 | 0.5379 | 0.1240 | 0.3183 |
| 1500 | 14710 | 0.8 | 0.4 | 0.8068 | 0.1984 | 0.3927 |
| 2000 | 19613.3 | 1 | 0.5 | 1.0757 | 0.2480 | 0.4423 |
| 2500 | 24516.6 | 1.4 | 0.7 | 1.3447 | 0.3472 | 0.5415 |
| 3000 | 29420 | 1.9 | 0.95 | 1.6136 | 0.4712 | 0.6655 |
| 3500 | 34323.3 | 2.1 | 1.05 | 1.8826 | 0.5208 | 0.7151 |
| 4000 | 39226.6 | 2.6 | 1.3 | 2.1515 | 0.6448 | 0.8392 |
| 4500 | 44129.9 | 2.8 | 1.4 | 2.4204 | 0.6944 | 0.8888 |
| 5000 | 49033.3 | 3.2 | 1.6 | 2.6894 | 0.7937 | 0.9880 |
| 5500 | 53936.6 | 3.6 | 1.8 | 2.9583 | 0.8929 | 1.0872 |
| 6000 | 58839.9 | 4.1 | 2.05 | 3.2272 | 1.0169 | 1.2112 |
| 6500 | 63743.2 | 4.6 | 2.3 | 3.4962 | 1.1409 | 1.3352 |
| 7000 | 68646.6 | 5 | 2.5 | 3.7651 | 1.2401 | 1.4344 |
| 7500 | 73549.9 | 5.3 | 2.65 | 4.0341 | 1.3145 | 1.5088 |
| 8000 | 78453.2 | 6 | 3 | 4.3030 | 1.4881 | 1.6824 |
| 8500 | 83356.5 | 6.4 | 3.2 | 4.5719 | 1.5873 | 1.7816 |
| 9000 | 88259.9 | 6.7 | 3.35 | 4.8409 | 1.6617 | 1.8560 |
| 9500 | 93163.2 | 7.3 | 3.65 | 5.1098 | 1.8105 | 2.0048 |
| 10000 | 98066.5 | 7.8 | 3.9 | 5.3787 | 1.9345 | 2.1288 |
| 10500 | 102970 | 8.1 | 4.05 | 5.6477 | 2.0089 | 2.2032 |
| 11000 | 107873 | 8.6 | 4.3 | 5.9166 | 2.1329 | 2.3272 |
| 11500 | 112776 | 9.1 | 4.55 | 6.1856 | 2.2569 | 2.4513 |
| 12000 | 117680 | 9.6 | 4.8 | 6.4545 | 2.3810 | 2.5753 |
| 12500 | 122583 | 10 | 5 | 6.7234 | 2.4802 | 2.6745 |
| 13000 | 127486 | 10.4 | 5.2 | 6.9924 | 2.5794 | 2.7737 |
| 13500 | 132390 | 11 | 5.5 | 7.2613 | 2.7282 | 2.9225 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.2 | 5.6 | 7.5302 | 2.7778 | 2.9721 |
| 14500 | 142196 | 11.7 | 5.85 | 7.7992 | 2.9018 | 3.0961 |
| 15000 | 147100 | 12.1 | 6.05 | 8.0681 | 3.0010 | 3.1953 |
| 15500 | 152003 | 12.5 | 6.25 | 8.3371 | 3.1002 | 3.2945 |
| 16000 | 156906 | 13 | 6.5 | 8.6060 | 3.2242 | 3.4185 |
| 16500 | 161810 | 13.5 | 6.75 | 8.8749 | 3.3482 | 3.5425 |



**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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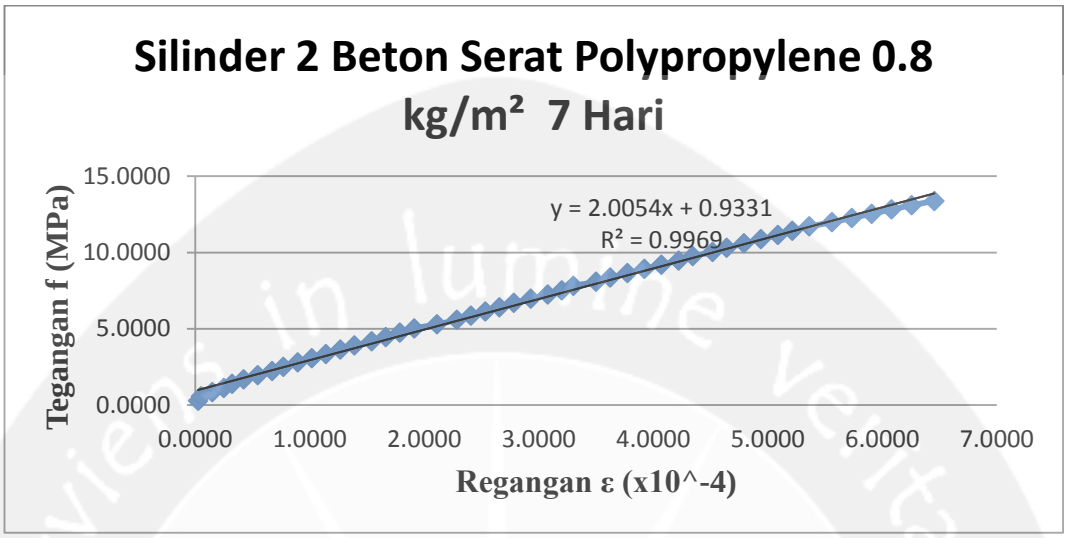
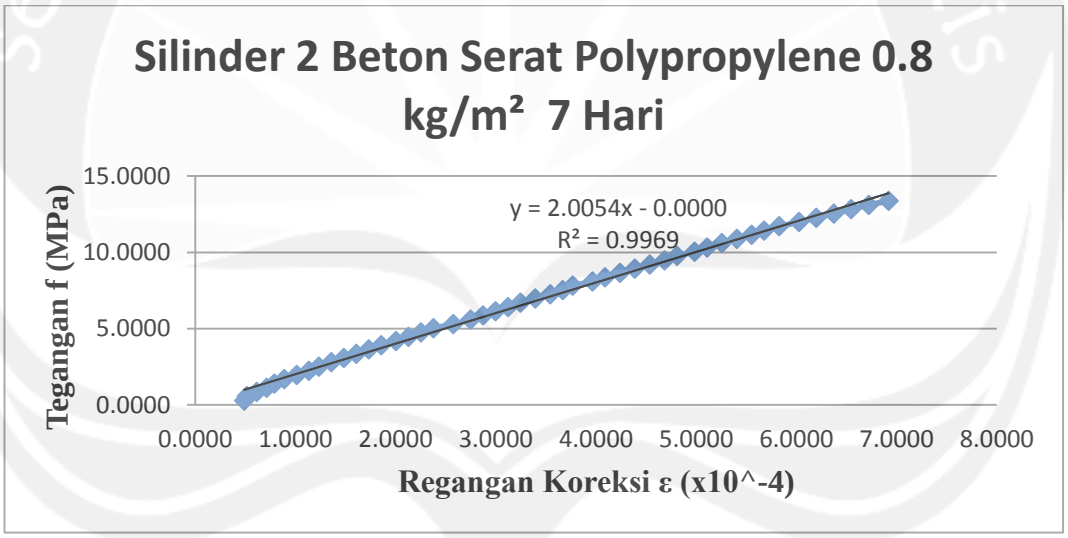
**Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.4 | mm |
| Ao | = | 17591.92065 | $mm^2$ |
| Beban Maksimum | = | 405 | KN |
| Kuat Tekan Maksimum | = | 23.02 | Mpa |
| Modulus Elastisitas | = | 20054.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2787 | 0.0248 | 0.4901 |
| 1000 | 9806.65 | 0.2 | 0.1 | 0.5575 | 0.0497 | 0.5149 |
| 1500 | 14710 | 0.6 | 0.3 | 0.8362 | 0.1490 | 0.6143 |
| 2000 | 19613.3 | 1 | 0.5 | 1.1149 | 0.2483 | 0.7136 |
| 2500 | 24516.6 | 1.3 | 0.65 | 1.3936 | 0.3227 | 0.7880 |
| 3000 | 29420 | 1.7 | 0.85 | 1.6724 | 0.4220 | 0.8873 |
| 3500 | 34323.3 | 2.2 | 1.1 | 1.9511 | 0.5462 | 1.0115 |
| 4000 | 39226.6 | 2.7 | 1.35 | 2.2298 | 0.6703 | 1.1356 |
| 4500 | 44129.9 | 3.1 | 1.55 | 2.5085 | 0.7696 | 1.2349 |
| 5000 | 49033.3 | 3.6 | 1.8 | 2.7873 | 0.8937 | 1.3590 |
| 5500 | 53936.6 | 4.1 | 2.05 | 3.0660 | 1.0179 | 1.4832 |
| 6000 | 58839.9 | 4.6 | 2.3 | 3.3447 | 1.1420 | 1.6073 |
| 6500 | 63743.2 | 5.1 | 2.55 | 3.6234 | 1.2661 | 1.7314 |
| 7000 | 68646.6 | 5.6 | 2.8 | 3.9022 | 1.3903 | 1.8556 |
| 7500 | 73549.9 | 6.2 | 3.1 | 4.1809 | 1.5392 | 2.0045 |
| 8000 | 78453.2 | 6.7 | 3.35 | 4.4596 | 1.6634 | 2.1287 |
| 8500 | 83356.5 | 7.2 | 3.6 | 4.7383 | 1.7875 | 2.2528 |
| 9000 | 88259.9 | 7.7 | 3.85 | 5.0171 | 1.9116 | 2.3769 |
| 9500 | 93163.2 | 8.5 | 4.25 | 5.2958 | 2.1102 | 2.5755 |
| 10000 | 98066.5 | 9.2 | 4.6 | 5.5745 | 2.2840 | 2.7493 |
| 10500 | 102970 | 9.7 | 4.85 | 5.8532 | 2.4081 | 2.8734 |
| 11000 | 107873 | 10.2 | 5.1 | 6.1320 | 2.5323 | 2.9976 |
| 11500 | 112776 | 10.7 | 5.35 | 6.4107 | 2.6564 | 3.1217 |
| 12000 | 117680 | 11.2 | 5.6 | 6.6894 | 2.7805 | 3.2458 |
| 12500 | 122583 | 11.8 | 5.9 | 6.9681 | 2.9295 | 3.3948 |
| 13000 | 127486 | 12.4 | 6.2 | 7.2469 | 3.0785 | 3.5437 |
| 13500 | 132390 | 12.9 | 6.45 | 7.5256 | 3.2026 | 3.6679 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13.3 | 6.65 | 7.8043 | 3.3019 | 3.7672 |
| 14500 | 142196 | 14.1 | 7.05 | 8.0831 | 3.5005 | 3.9658 |
| 15000 | 147100 | 14.6 | 7.3 | 8.3618 | 3.6246 | 4.0899 |
| 15500 | 152003 | 15.2 | 7.6 | 8.6405 | 3.7736 | 4.2389 |
| 16000 | 156906 | 15.8 | 7.9 | 8.9192 | 3.9225 | 4.3878 |
| 16500 | 161810 | 16.4 | 8.2 | 9.1980 | 4.0715 | 4.5368 |
| 17000 | 166713 | 17 | 8.5 | 9.4767 | 4.2205 | 4.6858 |
| 17500 | 171616 | 17.5 | 8.75 | 9.7554 | 4.3446 | 4.8099 |
| 18000 | 176520 | 18.2 | 9.1 | 10.0341 | 4.5184 | 4.9837 |
| 18500 | 181423 | 18.7 | 9.35 | 10.3129 | 4.6425 | 5.1078 |
| 19000 | 186326 | 19.3 | 9.65 | 10.5916 | 4.7915 | 5.2568 |
| 19500 | 191230 | 19.9 | 9.95 | 10.8703 | 4.9404 | 5.4057 |
| 20000 | 196133 | 20.5 | 10.25 | 11.1490 | 5.0894 | 5.5547 |
| 20500 | 201036 | 21 | 10.5 | 11.4278 | 5.2135 | 5.6788 |
| 21000 | 205940 | 21.6 | 10.8 | 11.7065 | 5.3625 | 5.8278 |
| 21500 | 210843 | 22.4 | 11.2 | 11.9852 | 5.5611 | 6.0264 |
| 22000 | 215746 | 23.1 | 11.55 | 12.2639 | 5.7349 | 6.2001 |
| 22500 | 220650 | 23.8 | 11.9 | 12.5427 | 5.9086 | 6.3739 |
| 23000 | 225553 | 24.5 | 12.25 | 12.8214 | 6.0824 | 6.5477 |
| 23500 | 230456 | 25.2 | 12.6 | 13.1001 | 6.2562 | 6.7215 |
| 24000 | 235360 | 26 | 13 | 13.3788 | 6.4548 | 6.9201 |


Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 2.0054x + 0.9331
R² = 0.9969
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 2.0054x - 0.0000
R² = 0.9969
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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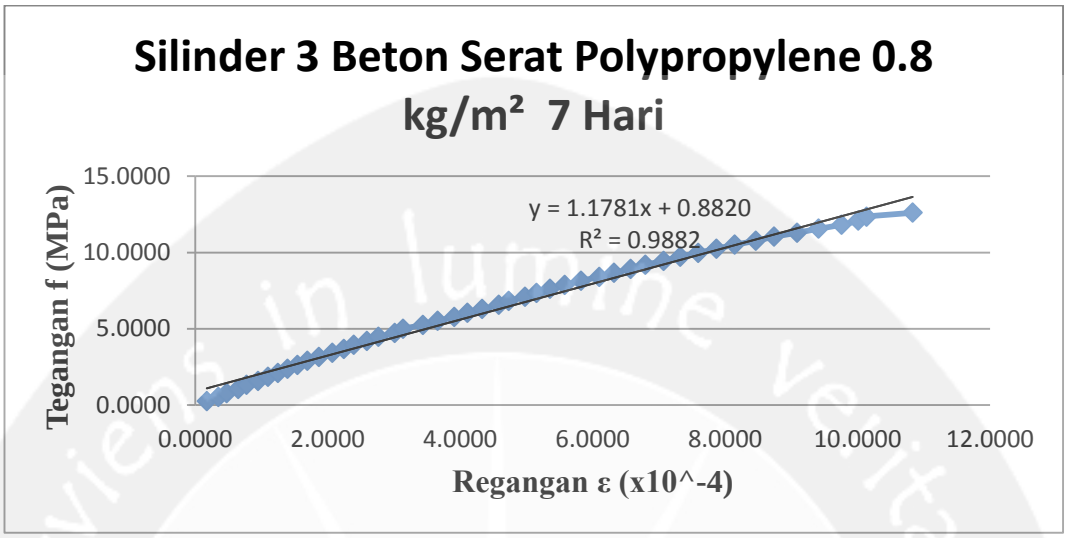
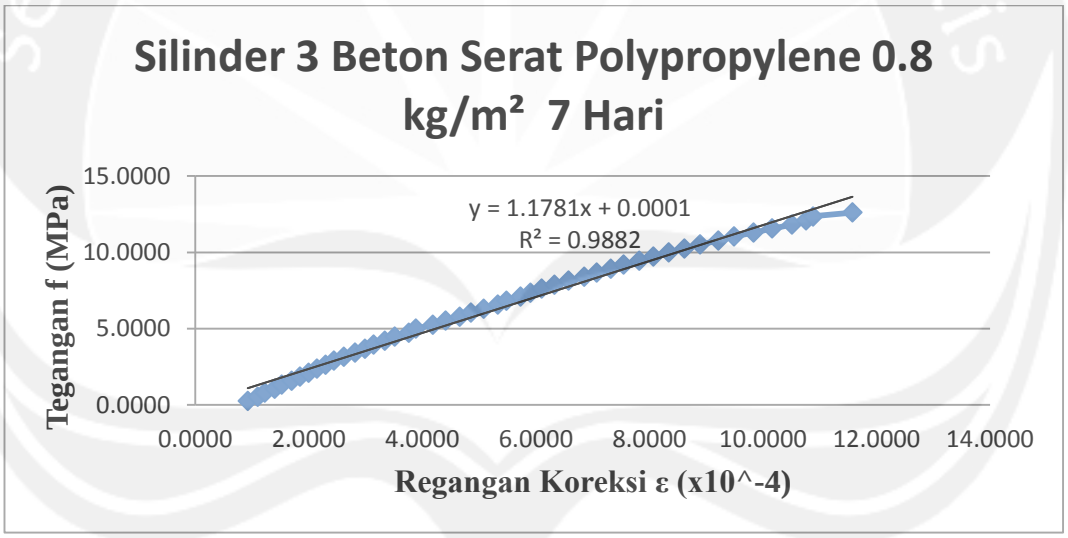
**Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 200.8 | mm |
| Ao | = | 18665.4474 | $mm^2$ |
| Beban Maksimum | = | 340 | KN |
| Kuat Tekan Maksimum | = | 18.22 | Mpa |
| Modulus Elastisitas | = | 11781.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.7 | 0.35 | 0.2627 | 0.1743 | 0.9230 |
| 1000 | 9806.65 | 1.4 | 0.7 | 0.5254 | 0.3486 | 1.0973 |
| 1500 | 14710 | 1.9 | 0.95 | 0.7881 | 0.4731 | 1.2218 |
| 2000 | 19613.3 | 2.6 | 1.3 | 1.0508 | 0.6474 | 1.3961 |
| 2500 | 24516.6 | 3.1 | 1.55 | 1.3135 | 0.7719 | 1.5206 |
| 3000 | 29420 | 3.8 | 1.9 | 1.5762 | 0.9462 | 1.6949 |
| 3500 | 34323.3 | 4.4 | 2.2 | 1.8389 | 1.0956 | 1.8443 |
| 4000 | 39226.6 | 5 | 2.5 | 2.1016 | 1.2450 | 1.9937 |
| 4500 | 44129.9 | 5.6 | 2.8 | 2.3643 | 1.3944 | 2.1431 |
| 5000 | 49033.3 | 6.2 | 3.1 | 2.6270 | 1.5438 | 2.2925 |
| 5500 | 53936.6 | 6.8 | 3.4 | 2.8896 | 1.6932 | 2.4419 |
| 6000 | 58839.9 | 7.5 | 3.75 | 3.1523 | 1.8675 | 2.6162 |
| 6500 | 63743.2 | 8.3 | 4.15 | 3.4150 | 2.0667 | 2.8154 |
| 7000 | 68646.6 | 9 | 4.5 | 3.6777 | 2.2410 | 2.9897 |
| 7500 | 73549.9 | 9.6 | 4.8 | 3.9404 | 2.3904 | 3.1391 |
| 8000 | 78453.2 | 10.4 | 5.2 | 4.2031 | 2.5896 | 3.3383 |
| 8500 | 83356.5 | 11.1 | 5.55 | 4.4658 | 2.7639 | 3.5126 |
| 9000 | 88259.9 | 12.1 | 6.05 | 4.7285 | 3.0129 | 3.7616 |
| 9500 | 93163.2 | 12.6 | 6.3 | 4.9912 | 3.1375 | 3.8861 |
| 10000 | 98066.5 | 13.8 | 6.9 | 5.2539 | 3.4363 | 4.1849 |
| 10500 | 102970 | 14.7 | 7.35 | 5.5166 | 3.6604 | 4.4090 |
| 11000 | 107873 | 15.7 | 7.85 | 5.7793 | 3.9094 | 4.6580 |
| 11500 | 112776 | 16.5 | 8.25 | 6.0420 | 4.1086 | 4.8572 |
| 12000 | 117680 | 17.4 | 8.7 | 6.3047 | 4.3327 | 5.0813 |
| 12500 | 122583 | 18.4 | 9.2 | 6.5674 | 4.5817 | 5.3303 |
| 13000 | 127486 | 19 | 9.5 | 6.8301 | 4.7311 | 5.4797 |
| 13500 | 132390 | 20 | 10 | 7.0928 | 4.9801 | 5.7287 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 20.7 | 10.35 | 7.3555 | 5.1544 | 5.9030 |
| 14500 | 142196 | 21.5 | 10.75 | 7.6182 | 5.3536 | 6.1022 |
| 15000 | 147100 | 22.4 | 11.2 | 7.8809 | 5.5777 | 6.3264 |
| 15500 | 152003 | 23.4 | 11.7 | 8.1436 | 5.8267 | 6.5754 |
| 16000 | 156906 | 24.5 | 12.25 | 8.4062 | 6.1006 | 6.8493 |
| 16500 | 161810 | 25.4 | 12.7 | 8.6689 | 6.3247 | 7.0734 |
| 17000 | 166713 | 26.4 | 13.2 | 8.9316 | 6.5737 | 7.3224 |
| 17500 | 171616 | 27.3 | 13.65 | 9.1943 | 6.7978 | 7.5465 |
| 18000 | 176520 | 28.4 | 14.2 | 9.4570 | 7.0717 | 7.8204 |
| 18500 | 181423 | 29.4 | 14.7 | 9.7197 | 7.3207 | 8.0694 |
| 19000 | 186326 | 30.5 | 15.25 | 9.9824 | 7.5946 | 8.3433 |
| 19500 | 191230 | 31.6 | 15.8 | 10.2451 | 7.8685 | 8.6172 |
| 20000 | 196133 | 32.7 | 16.35 | 10.5078 | 8.1424 | 8.8911 |
| 20500 | 201036 | 34 | 17 | 10.7705 | 8.4661 | 9.2148 |
| 21000 | 205940 | 35.1 | 17.55 | 11.0332 | 8.7400 | 9.4887 |
| 21500 | 210843 | 36.5 | 18.25 | 11.2959 | 9.0886 | 9.8373 |
| 22000 | 215746 | 37.8 | 18.9 | 11.5586 | 9.4124 | 10.1610 |
| 22500 | 220650 | 39.2 | 19.6 | 11.8213 | 9.7610 | 10.5096 |
| 23000 | 225553 | 40.2 | 20.1 | 12.0840 | 10.0100 | 10.7586 |
| 23500 | 230456 | 40.7 | 20.35 | 12.3467 | 10.1345 | 10.8831 |
| 24000 | 235360 | 43.5 | 21.75 | 12.6094 | 10.8317 | 11.5803 |


Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 1.1781x + 0.8820
R² = 0.9882
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 1.1781x + 0.0001
R² = 0.9882
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
14.0000
Regangan Koreksi ε (x10^-4)

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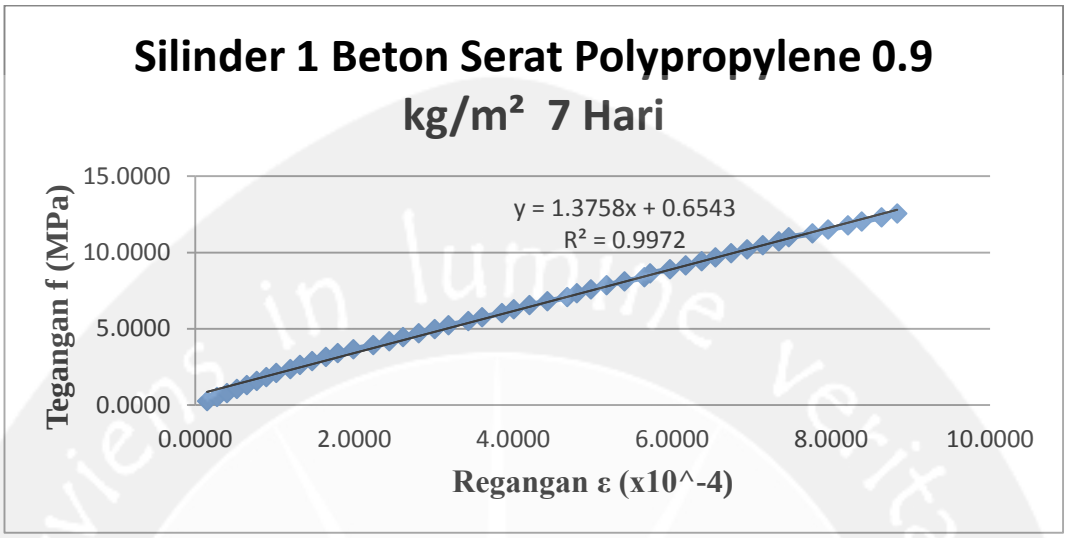
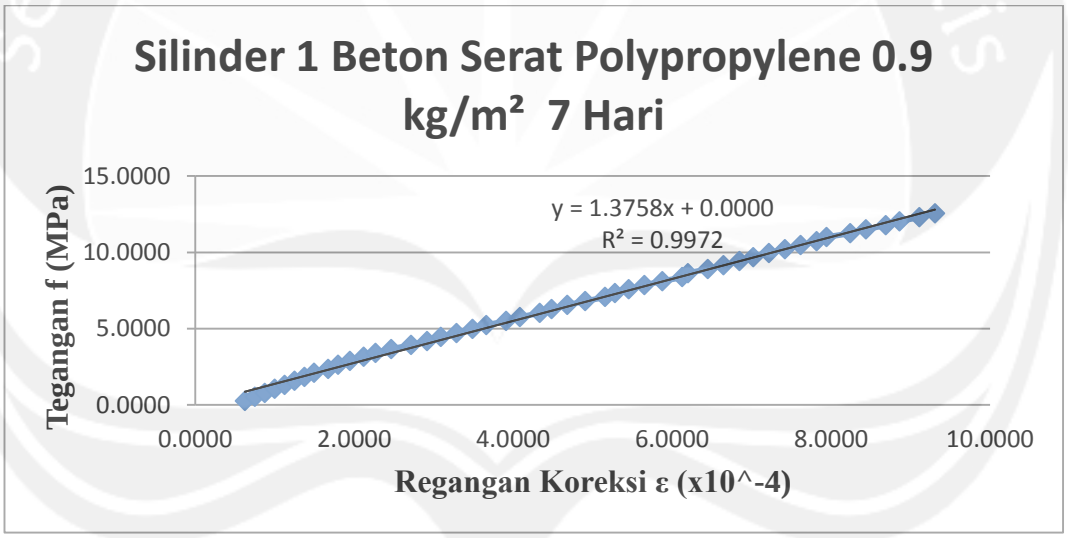
**Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 200.9 | mm |
| Ao | = | 18738.14625 | $mm^2$ |
| Beban Maksimum | = | 480 | KN |
| Kuat Tekan Maksimum | = | 25.62 | Mpa |
| Modulus Elastisitas | = | 13758.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.6 | 0.3 | 0.2617 | 0.1493 | 0.6249 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5234 | 0.2738 | 0.7493 |
| 1500 | 14710 | 1.6 | 0.8 | 0.7850 | 0.3982 | 0.8738 |
| 2000 | 19613.3 | 2.1 | 1.05 | 1.0467 | 0.5226 | 0.9982 |
| 2500 | 24516.6 | 2.6 | 1.3 | 1.3084 | 0.6471 | 1.1227 |
| 3000 | 29420 | 3.1 | 1.55 | 1.5701 | 0.7715 | 1.2471 |
| 3500 | 34323.3 | 3.6 | 1.8 | 1.8317 | 0.8960 | 1.3715 |
| 4000 | 39226.6 | 4.1 | 2.05 | 2.0934 | 1.0204 | 1.4960 |
| 4500 | 44129.9 | 4.8 | 2.4 | 2.3551 | 1.1946 | 1.6702 |
| 5000 | 49033.3 | 5.3 | 2.65 | 2.6168 | 1.3191 | 1.7946 |
| 5500 | 53936.6 | 5.9 | 2.95 | 2.8784 | 1.4684 | 1.9440 |
| 6000 | 58839.9 | 6.6 | 3.3 | 3.1401 | 1.6426 | 2.1182 |
| 6500 | 63743.2 | 7.2 | 3.6 | 3.4018 | 1.7919 | 2.2675 |
| 7000 | 68646.6 | 8 | 4 | 3.6635 | 1.9910 | 2.4666 |
| 7500 | 73549.9 | 9 | 4.5 | 3.9251 | 2.2399 | 2.7155 |
| 8000 | 78453.2 | 9.8 | 4.9 | 4.1868 | 2.4390 | 2.9146 |
| 8500 | 83356.5 | 10.5 | 5.25 | 4.4485 | 2.6132 | 3.0888 |
| 9000 | 88259.9 | 11.3 | 5.65 | 4.7102 | 2.8123 | 3.2879 |
| 9500 | 93163.2 | 12.1 | 6.05 | 4.9718 | 3.0114 | 3.4870 |
| 10000 | 98066.5 | 12.8 | 6.4 | 5.2335 | 3.1857 | 3.6612 |
| 10500 | 102970 | 13.8 | 6.9 | 5.4952 | 3.4345 | 3.9101 |
| 11000 | 107873 | 14.5 | 7.25 | 5.7569 | 3.6088 | 4.0843 |
| 11500 | 112776 | 15.5 | 7.75 | 6.0186 | 3.8576 | 4.3332 |
| 12000 | 117680 | 16.1 | 8.05 | 6.2802 | 4.0070 | 4.4825 |
| 12500 | 122583 | 16.9 | 8.45 | 6.5419 | 4.2061 | 4.6817 |
| 13000 | 127486 | 17.8 | 8.9 | 6.8036 | 4.4301 | 4.9056 |
| 13500 | 132390 | 18.8 | 9.4 | 7.0653 | 4.6789 | 5.1545 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 19.3 | 9.65 | 7.3269 | 4.8034 | 5.2790 |
| 14500 | 142196 | 20 | 10 | 7.5886 | 4.9776 | 5.4532 |
| 15000 | 147100 | 20.8 | 10.4 | 7.8503 | 5.1767 | 5.6523 |
| 15500 | 152003 | 21.7 | 10.85 | 8.1120 | 5.4007 | 5.8763 |
| 16000 | 156906 | 22.7 | 11.35 | 8.3736 | 5.6496 | 6.1252 |
| 16500 | 161810 | 23 | 11.5 | 8.6353 | 5.7242 | 6.1998 |
| 17000 | 166713 | 24 | 12 | 8.8970 | 5.9731 | 6.4487 |
| 17500 | 171616 | 24.8 | 12.4 | 9.1587 | 6.1722 | 6.6478 |
| 18000 | 176520 | 25.6 | 12.8 | 9.4203 | 6.3713 | 6.8469 |
| 18500 | 181423 | 26.3 | 13.15 | 9.6820 | 6.5455 | 7.0211 |
| 19000 | 186326 | 27.1 | 13.55 | 9.9437 | 6.7446 | 7.2202 |
| 19500 | 191230 | 27.9 | 13.95 | 10.2054 | 6.9438 | 7.4193 |
| 20000 | 196133 | 28.7 | 14.35 | 10.4670 | 7.1429 | 7.6184 |
| 20500 | 201036 | 29.5 | 14.75 | 10.7287 | 7.3420 | 7.8175 |
| 21000 | 205940 | 30 | 15 | 10.9904 | 7.4664 | 7.9420 |
| 21500 | 210843 | 31.2 | 15.6 | 11.2521 | 7.7651 | 8.2406 |
| 22000 | 215746 | 32 | 16 | 11.5137 | 7.9642 | 8.4397 |
| 22500 | 220650 | 33 | 16.5 | 11.7754 | 8.2130 | 8.6886 |
| 23000 | 225553 | 33.7 | 16.85 | 12.0371 | 8.3873 | 8.8628 |
| 23500 | 230456 | 34.7 | 17.35 | 12.2988 | 8.6361 | 9.1117 |
| 24000 | 235360 | 35.5 | 17.75 | 12.5605 | 8.8352 | 9.3108 |


Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 7 Hari
y = 1.3758x + 0.6543
R² = 0.9972
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 7 Hari
y = 1.3758x + 0.0000
R² = 0.9972
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan Koreksi ε (x10^-4)

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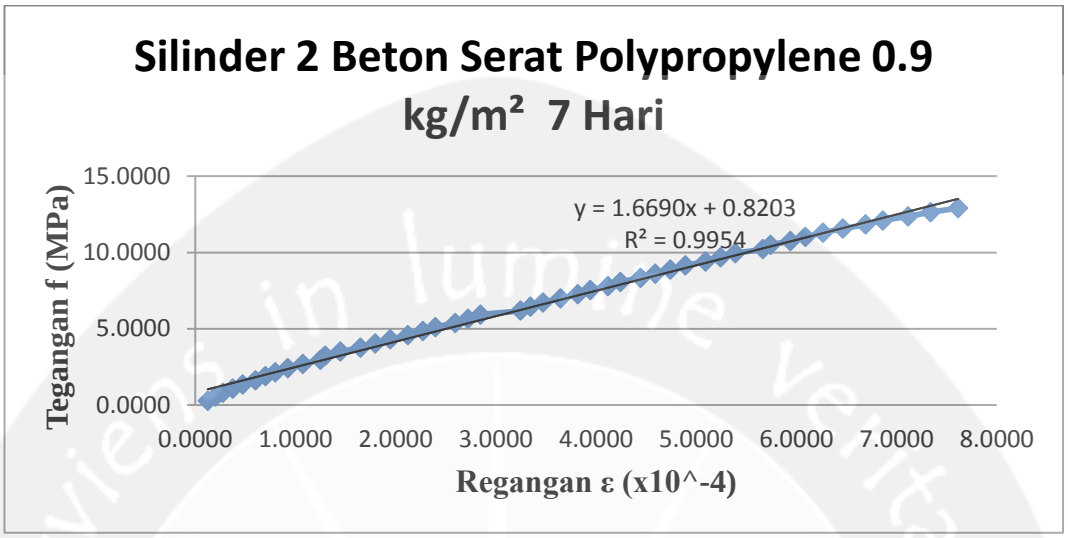
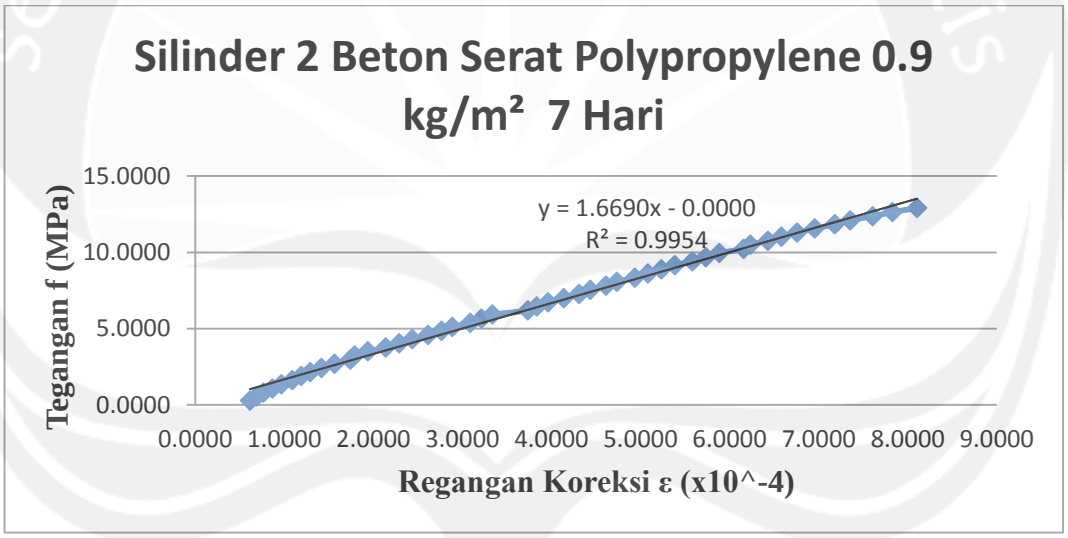
**Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 200.3 | mm |
| Ao | = | 18232.2216 | $mm^2$ |
| Beban Maksimum | = | 405 | KN |
| Kuat Tekan Maksimum | = | 22.21 | Mpa |
| Modulus Elastisitas | = | 16690.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2689 | 0.1248 | 0.6163 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5379 | 0.1997 | 0.6912 |
| 1500 | 14710 | 1.1 | 0.55 | 0.8068 | 0.2746 | 0.7661 |
| 2000 | 19613.3 | 1.5 | 0.75 | 1.0757 | 0.3744 | 0.8659 |
| 2500 | 24516.6 | 1.9 | 0.95 | 1.3447 | 0.4743 | 0.9658 |
| 3000 | 29420 | 2.4 | 1.2 | 1.6136 | 0.5991 | 1.0906 |
| 3500 | 34323.3 | 2.8 | 1.4 | 1.8826 | 0.6990 | 1.1904 |
| 4000 | 39226.6 | 3.2 | 1.6 | 2.1515 | 0.7988 | 1.2903 |
| 4500 | 44129.9 | 3.7 | 1.85 | 2.4204 | 0.9236 | 1.4151 |
| 5000 | 49033.3 | 4.3 | 2.15 | 2.6894 | 1.0734 | 1.5649 |
| 5500 | 53936.6 | 5 | 2.5 | 2.9583 | 1.2481 | 1.7396 |
| 6000 | 58839.9 | 5.2 | 2.6 | 3.2272 | 1.2981 | 1.7895 |
| 6500 | 63743.2 | 5.8 | 2.9 | 3.4962 | 1.4478 | 1.9393 |
| 7000 | 68646.6 | 6.6 | 3.3 | 3.7651 | 1.6475 | 2.1390 |
| 7500 | 73549.9 | 7.2 | 3.6 | 4.0341 | 1.7973 | 2.2888 |
| 8000 | 78453.2 | 7.8 | 3.9 | 4.3030 | 1.9471 | 2.4386 |
| 8500 | 83356.5 | 8.5 | 4.25 | 4.5719 | 2.1218 | 2.6133 |
| 9000 | 88259.9 | 9.1 | 4.55 | 4.8409 | 2.2716 | 2.7631 |
| 9500 | 93163.2 | 9.6 | 4.8 | 5.1098 | 2.3964 | 2.8879 |
| 10000 | 98066.5 | 10.4 | 5.2 | 5.3787 | 2.5961 | 3.0876 |
| 10500 | 102970 | 10.9 | 5.45 | 5.6477 | 2.7209 | 3.2124 |
| 11000 | 107873 | 11.4 | 5.7 | 5.9166 | 2.8457 | 3.3372 |
| 11500 | 112776 | 13 | 6.5 | 6.1856 | 3.2451 | 3.7366 |
| 12000 | 117680 | 13.4 | 6.7 | 6.4545 | 3.3450 | 3.8365 |
| 12500 | 122583 | 13.9 | 6.95 | 6.7234 | 3.4698 | 3.9613 |
| 13000 | 127486 | 14.6 | 7.3 | 6.9924 | 3.6445 | 4.1360 |
| 13500 | 132390 | 15.3 | 7.65 | 7.2613 | 3.8193 | 4.3108 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15.8 | 7.9 | 7.5302 | 3.9441 | 4.4356 |
| 14500 | 142196 | 16.5 | 8.25 | 7.7992 | 4.1188 | 4.6103 |
| 15000 | 147100 | 17 | 8.5 | 8.0681 | 4.2436 | 4.7351 |
| 15500 | 152003 | 17.8 | 8.9 | 8.3371 | 4.4433 | 4.9348 |
| 16000 | 156906 | 18.4 | 9.2 | 8.6060 | 4.5931 | 5.0846 |
| 16500 | 161810 | 19 | 9.5 | 8.8749 | 4.7429 | 5.2344 |
| 17000 | 166713 | 19.6 | 9.8 | 9.1439 | 4.8927 | 5.3842 |
| 17500 | 171616 | 20.4 | 10.2 | 9.4128 | 5.0924 | 5.5839 |
| 18000 | 176520 | 21 | 10.5 | 9.6817 | 5.2421 | 5.7336 |
| 18500 | 181423 | 21.6 | 10.8 | 9.9507 | 5.3919 | 5.8834 |
| 19000 | 186326 | 22.7 | 11.35 | 10.2196 | 5.6665 | 6.1580 |
| 19500 | 191230 | 23 | 11.5 | 10.4886 | 5.7414 | 6.2329 |
| 20000 | 196133 | 23.8 | 11.9 | 10.7575 | 5.9411 | 6.4326 |
| 20500 | 201036 | 24.4 | 12.2 | 11.0264 | 6.0909 | 6.5824 |
| 21000 | 205940 | 25.1 | 12.55 | 11.2954 | 6.2656 | 6.7571 |
| 21500 | 210843 | 25.9 | 12.95 | 11.5643 | 6.4653 | 6.9568 |
| 22000 | 215746 | 26.8 | 13.4 | 11.8332 | 6.6900 | 7.1815 |
| 22500 | 220650 | 27.5 | 13.75 | 12.1022 | 6.8647 | 7.3562 |
| 23000 | 225553 | 28.5 | 14.25 | 12.3711 | 7.1143 | 7.6058 |
| 23500 | 230456 | 29.4 | 14.7 | 12.6401 | 7.3390 | 7.8305 |
| 24000 | 235360 | 30.5 | 15.25 | 12.9090 | 7.6136 | 8.1051 |


Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 1.6690x + 0.8203
R² = 0.9954
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 7 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 1.6690x - 0.0000
R² = 0.9954
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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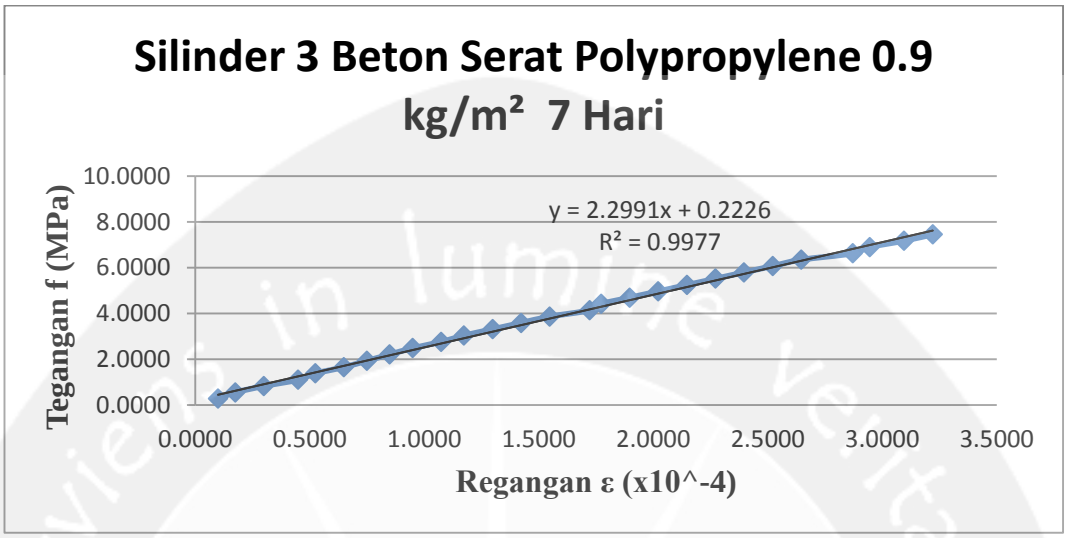
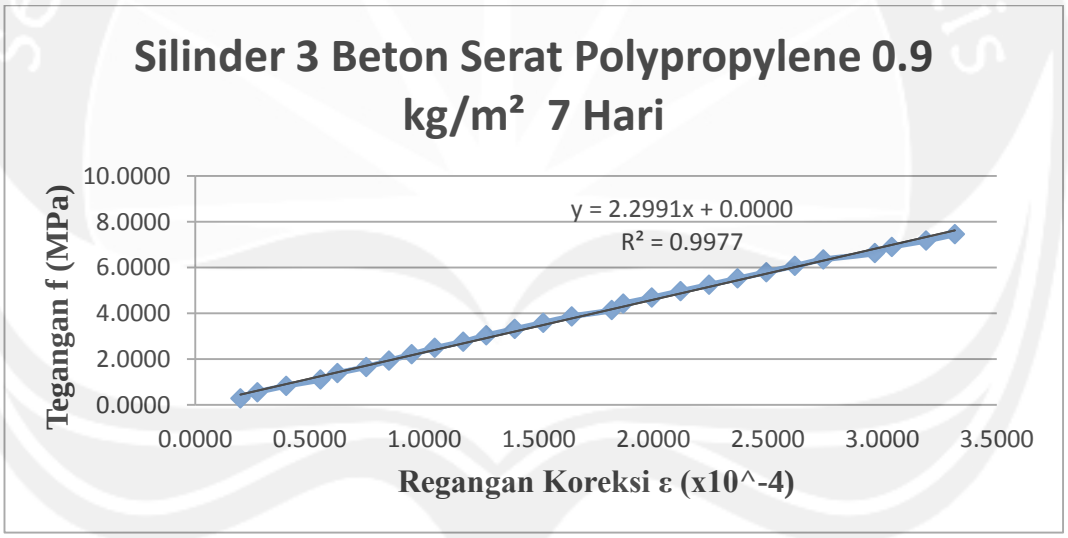
**Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 200.3 | mm |
| Ao | = | 17756.8256 | $mm^2$ |
| Beban Maksimum | = | 505 | KN |
| Kuat Tekan Maksimum | = | 28.44 | Mpa |
| Modulus Elastisitas | = | 22991.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2761 | 0.0999 | 0.1967 |
| 1000 | 9806.65 | 0.7 | 0.35 | 0.5523 | 0.1747 | 0.2716 |
| 1500 | 14710 | 1.2 | 0.6 | 0.8284 | 0.2996 | 0.3964 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.1045 | 0.4493 | 0.5461 |
| 2500 | 24516.6 | 2.1 | 1.05 | 1.3807 | 0.5242 | 0.6210 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6568 | 0.6490 | 0.7458 |
| 3500 | 34323.3 | 3 | 1.5 | 1.9330 | 0.7489 | 0.8457 |
| 4000 | 39226.6 | 3.4 | 1.7 | 2.2091 | 0.8487 | 0.9455 |
| 4500 | 44129.9 | 3.8 | 1.9 | 2.4852 | 0.9486 | 1.0454 |
| 5000 | 49033.3 | 4.3 | 2.15 | 2.7614 | 1.0734 | 1.1702 |
| 5500 | 53936.6 | 4.7 | 2.35 | 3.0375 | 1.1732 | 1.2701 |
| 6000 | 58839.9 | 5.2 | 2.6 | 3.3136 | 1.2981 | 1.3949 |
| 6500 | 63743.2 | 5.7 | 2.85 | 3.5898 | 1.4229 | 1.5197 |
| 7000 | 68646.6 | 6.2 | 3.1 | 3.8659 | 1.5477 | 1.6445 |
| 7500 | 73549.9 | 6.9 | 3.45 | 4.1421 | 1.7224 | 1.8192 |
| 8000 | 78453.2 | 7.1 | 3.55 | 4.4182 | 1.7723 | 1.8692 |
| 8500 | 83356.5 | 7.6 | 3.8 | 4.6943 | 1.8972 | 1.9940 |
| 9000 | 88259.9 | 8.1 | 4.05 | 4.9705 | 2.0220 | 2.1188 |
| 9500 | 93163.2 | 8.6 | 4.3 | 5.2466 | 2.1468 | 2.2436 |
| 10000 | 98066.5 | 9.1 | 4.55 | 5.5227 | 2.2716 | 2.3684 |
| 10500 | 102970 | 9.6 | 4.8 | 5.7989 | 2.3964 | 2.4932 |
| 11000 | 107873 | 10.1 | 5.05 | 6.0750 | 2.5212 | 2.6180 |
| 11500 | 112776 | 10.6 | 5.3 | 6.3512 | 2.6460 | 2.7429 |
| 12000 | 117680 | 11.5 | 5.75 | 6.6273 | 2.8707 | 2.9675 |
| 12500 | 122583 | 11.8 | 5.9 | 6.9034 | 2.9456 | 3.0424 |
| 13000 | 127486 | 12.4 | 6.2 | 7.1796 | 3.0954 | 3.1922 |
| 13500 | 132390 | 12.9 | 6.45 | 7.4557 | 3.2202 | 3.3170 |


Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 7 Hari
Tegangan f (MPa)
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
y = 2.2991x + 0.2226
R² = 0.9977
0.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 7 Hari
Tegangan f (MPa)
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
y = 2.2991x + 0.0000
R² = 0.9977
0.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
Regangan Koreksi ε (x10^-4)

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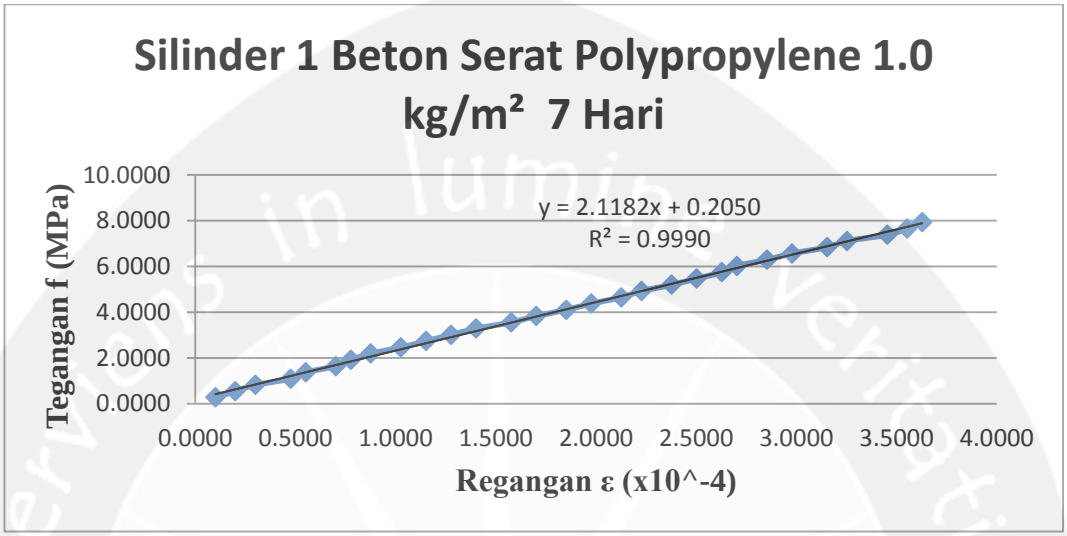
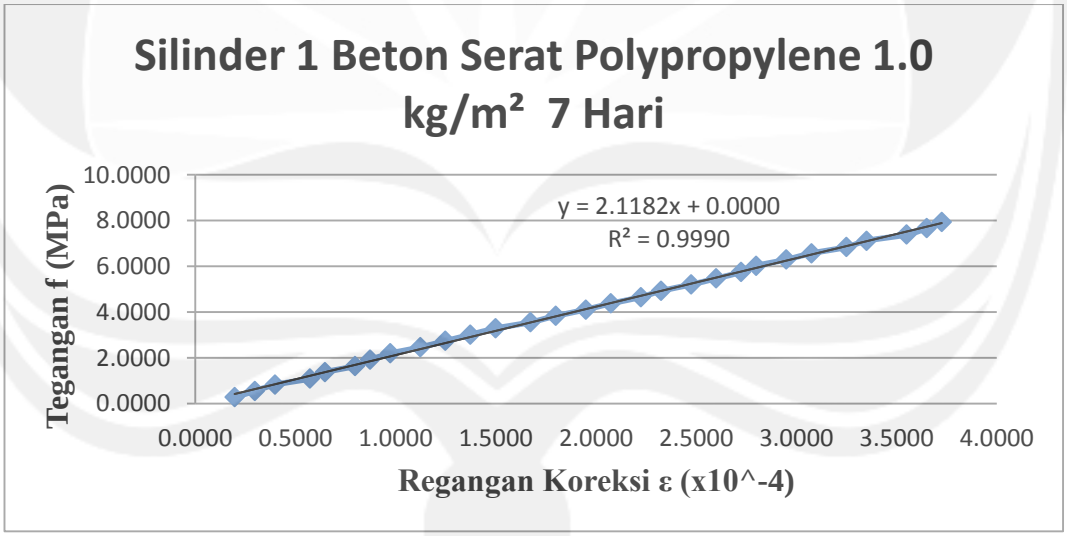
**Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 199.8 | mm |
| Ao | = | 17922.49985 | $mm^2$ |
| Beban Maksimum | = | 370 | KN |
| Kuat Tekan Maksimum | = | 20.64 | Mpa |
| Modulus Elastisitas | = | 21182.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2736 | 0.1001 | 0.1969 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5472 | 0.2002 | 0.2970 |
| 1500 | 14710 | 1.2 | 0.6 | 0.8208 | 0.3003 | 0.3971 |
| 2000 | 19613.3 | 1.9 | 0.95 | 1.0943 | 0.4755 | 0.5723 |
| 2500 | 24516.6 | 2.2 | 1.1 | 1.3679 | 0.5506 | 0.6473 |
| 3000 | 29420 | 2.8 | 1.4 | 1.6415 | 0.7007 | 0.7975 |
| 3500 | 34323.3 | 3.1 | 1.55 | 1.9151 | 0.7758 | 0.8726 |
| 4000 | 39226.6 | 3.5 | 1.75 | 2.1887 | 0.8759 | 0.9727 |
| 4500 | 44129.9 | 4.1 | 2.05 | 2.4623 | 1.0260 | 1.1228 |
| 5000 | 49033.3 | 4.6 | 2.3 | 2.7358 | 1.1512 | 1.2479 |
| 5500 | 53936.6 | 5.1 | 2.55 | 3.0094 | 1.2763 | 1.3731 |
| 6000 | 58839.9 | 5.6 | 2.8 | 3.2830 | 1.4014 | 1.4982 |
| 6500 | 63743.2 | 6.3 | 3.15 | 3.5566 | 1.5766 | 1.6734 |
| 7000 | 68646.6 | 6.8 | 3.4 | 3.8302 | 1.7017 | 1.7985 |
| 7500 | 73549.9 | 7.4 | 3.7 | 4.1038 | 1.8519 | 1.9486 |
| 8000 | 78453.2 | 7.9 | 3.95 | 4.3774 | 1.9770 | 2.0738 |
| 8500 | 83356.5 | 8.5 | 4.25 | 4.6509 | 2.1271 | 2.2239 |
| 9000 | 88259.9 | 8.9 | 4.45 | 4.9245 | 2.2272 | 2.3240 |
| 9500 | 93163.2 | 9.5 | 4.75 | 5.1981 | 2.3774 | 2.4742 |
| 10000 | 98066.5 | 10 | 5 | 5.4717 | 2.5025 | 2.5993 |
| 10500 | 102970 | 10.5 | 5.25 | 5.7453 | 2.6276 | 2.7244 |
| 11000 | 107873 | 10.8 | 5.4 | 6.0189 | 2.7027 | 2.7995 |
| 11500 | 112776 | 11.4 | 5.7 | 6.2925 | 2.8529 | 2.9496 |
| 12000 | 117680 | 11.9 | 5.95 | 6.5660 | 2.9780 | 3.0748 |
| 12500 | 122583 | 12.6 | 6.3 | 6.8396 | 3.1532 | 3.2499 |
| 13000 | 127486 | 13 | 6.5 | 7.1132 | 3.2533 | 3.3500 |
| 13500 | 132390 | 13.8 | 6.9 | 7.3868 | 3.4535 | 3.5502 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.2 | 7.1 | 7.6604 | 3.5536 | 3.6503 |
| 14500 | 142196 | 14.5 | 7.25 | 7.9340 | 3.6286 | 3.7254 |



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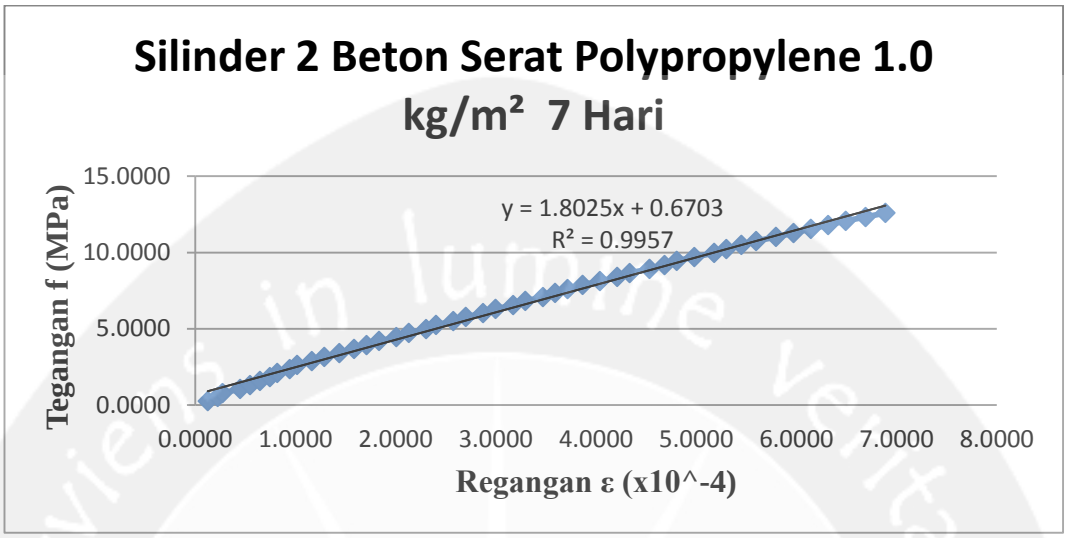
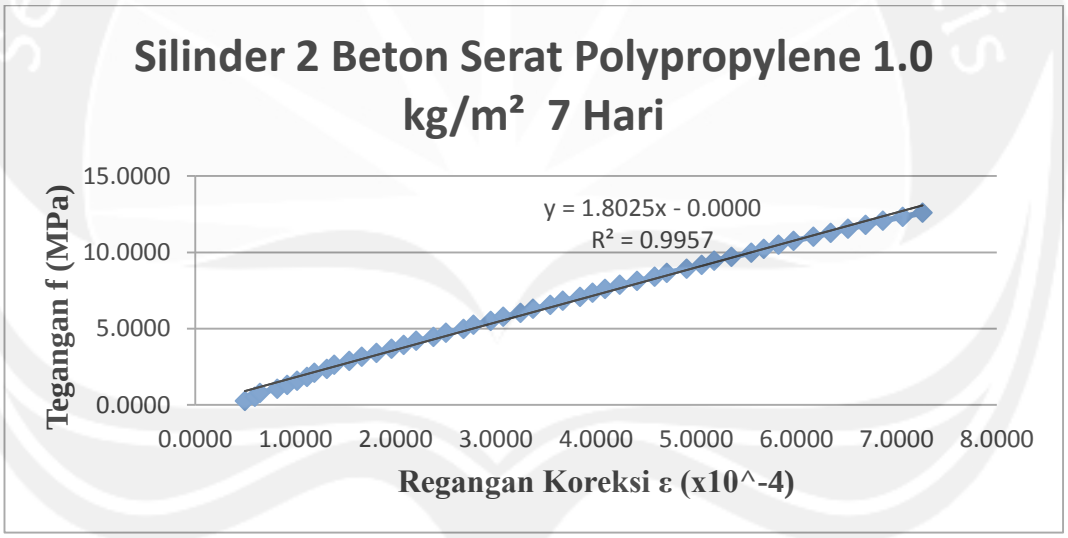
**Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 6 Juni 2015 | |
| Po | = | 201.8 | mm |
| Ao | = | 18689.66465 | $mm^2$ |
| Beban Maksimum | = | 420 | KN |
| Kuat Tekan Maksimum | = | 22.47 | Mpa |
| Modulus Elastisitas | = | 18025.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2624 | 0.1239 | 0.4958 |
| 1000 | 9806.65 | 0.9 | 0.45 | 0.5247 | 0.2230 | 0.5949 |
| 1500 | 14710 | 1.1 | 0.55 | 0.7871 | 0.2725 | 0.6444 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.0494 | 0.4460 | 0.8179 |
| 2500 | 24516.6 | 2.2 | 1.1 | 1.3118 | 0.5451 | 0.9170 |
| 3000 | 29420 | 2.6 | 1.3 | 1.5741 | 0.6442 | 1.0161 |
| 3500 | 34323.3 | 3 | 1.5 | 1.8365 | 0.7433 | 1.1152 |
| 4000 | 39226.6 | 3.3 | 1.65 | 2.0988 | 0.8176 | 1.1895 |
| 4500 | 44129.9 | 3.8 | 1.9 | 2.3612 | 0.9415 | 1.3134 |
| 5000 | 49033.3 | 4.1 | 2.05 | 2.6235 | 1.0159 | 1.3877 |
| 5500 | 53936.6 | 4.7 | 2.35 | 2.8859 | 1.1645 | 1.5364 |
| 6000 | 58839.9 | 5.2 | 2.6 | 3.1483 | 1.2884 | 1.6603 |
| 6500 | 63743.2 | 5.8 | 2.9 | 3.4106 | 1.4371 | 1.8089 |
| 7000 | 68646.6 | 6.4 | 3.2 | 3.6730 | 1.5857 | 1.9576 |
| 7500 | 73549.9 | 6.9 | 3.45 | 3.9353 | 1.7096 | 2.0815 |
| 8000 | 78453.2 | 7.4 | 3.7 | 4.1977 | 1.8335 | 2.2054 |
| 8500 | 83356.5 | 8.1 | 4.05 | 4.4600 | 2.0069 | 2.3788 |
| 9000 | 88259.9 | 8.6 | 4.3 | 4.7224 | 2.1308 | 2.5027 |
| 9500 | 93163.2 | 9.3 | 4.65 | 4.9847 | 2.3043 | 2.6761 |
| 10000 | 98066.5 | 9.7 | 4.85 | 5.2471 | 2.4034 | 2.7752 |
| 10500 | 102970 | 10.4 | 5.2 | 5.5095 | 2.5768 | 2.9487 |
| 11000 | 107873 | 10.9 | 5.45 | 5.7718 | 2.7007 | 3.0726 |
| 11500 | 112776 | 11.6 | 5.8 | 6.0342 | 2.8741 | 3.2460 |
| 12000 | 117680 | 12.1 | 6.05 | 6.2965 | 2.9980 | 3.3699 |
| 12500 | 122583 | 12.8 | 6.4 | 6.5589 | 3.1715 | 3.5433 |
| 13000 | 127486 | 13.3 | 6.65 | 6.8212 | 3.2953 | 3.6672 |
| 13500 | 132390 | 14 | 7 | 7.0836 | 3.4688 | 3.8407 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.5 | 7.25 | 7.3459 | 3.5927 | 3.9645 |
| 14500 | 142196 | 15 | 7.5 | 7.6083 | 3.7166 | 4.0884 |
| 15000 | 147100 | 15.6 | 7.8 | 7.8706 | 3.8652 | 4.2371 |
| 15500 | 152003 | 16.3 | 8.15 | 8.1330 | 4.0387 | 4.4105 |
| 16000 | 156906 | 17 | 8.5 | 8.3954 | 4.2121 | 4.5840 |
| 16500 | 161810 | 17.5 | 8.75 | 8.6577 | 4.3360 | 4.7078 |
| 17000 | 166713 | 18.3 | 9.15 | 8.9201 | 4.5342 | 4.9061 |
| 17500 | 171616 | 18.9 | 9.45 | 9.1824 | 4.6829 | 5.0547 |
| 18000 | 176520 | 19.4 | 9.7 | 9.4448 | 4.8067 | 5.1786 |
| 18500 | 181423 | 20.1 | 10.05 | 9.7071 | 4.9802 | 5.3521 |
| 19000 | 186326 | 20.9 | 10.45 | 9.9695 | 5.1784 | 5.5503 |
| 19500 | 191230 | 21.4 | 10.7 | 10.2318 | 5.3023 | 5.6742 |
| 20000 | 196133 | 22 | 11 | 10.4942 | 5.4509 | 5.8228 |
| 20500 | 201036 | 22.6 | 11.3 | 10.7566 | 5.5996 | 5.9715 |
| 21000 | 205940 | 23.4 | 11.7 | 11.0189 | 5.7978 | 6.1697 |
| 21500 | 210843 | 24.1 | 12.05 | 11.2813 | 5.9713 | 6.3431 |
| 22000 | 215746 | 24.8 | 12.4 | 11.5436 | 6.1447 | 6.5166 |
| 22500 | 220650 | 25.5 | 12.75 | 11.8060 | 6.3181 | 6.6900 |
| 23000 | 225553 | 26.2 | 13.1 | 12.0683 | 6.4916 | 6.8634 |
| 23500 | 230456 | 27 | 13.5 | 12.3307 | 6.6898 | 7.0617 |
| 24000 | 235360 | 27.8 | 13.9 | 12.5930 | 6.8880 | 7.2599 |


Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 7 Hari
y = 1.8025x + 0.6703
R² = 0.9957
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 7 Hari
y = 1.8025x - 0.0000
R² = 0.9957
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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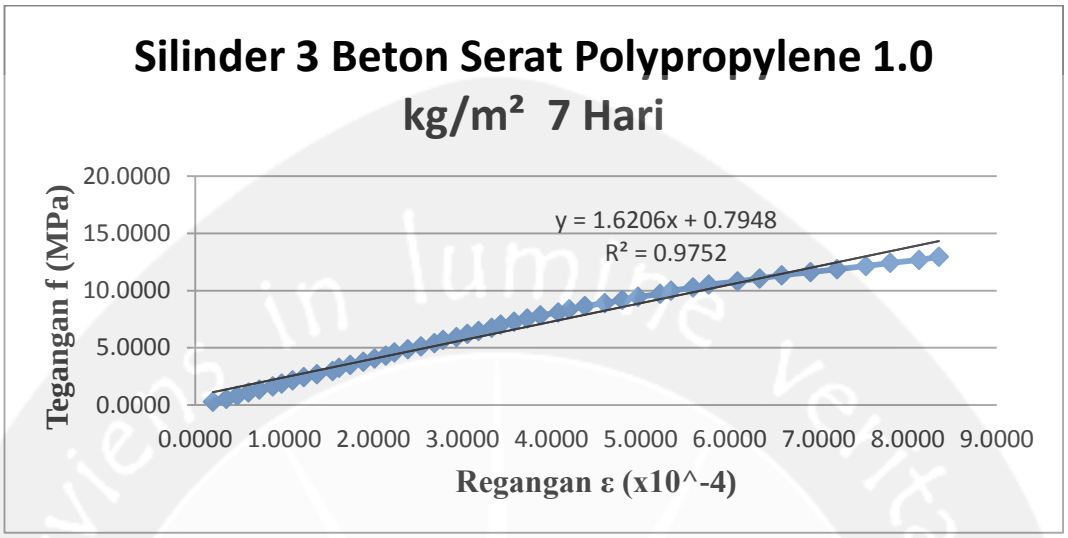
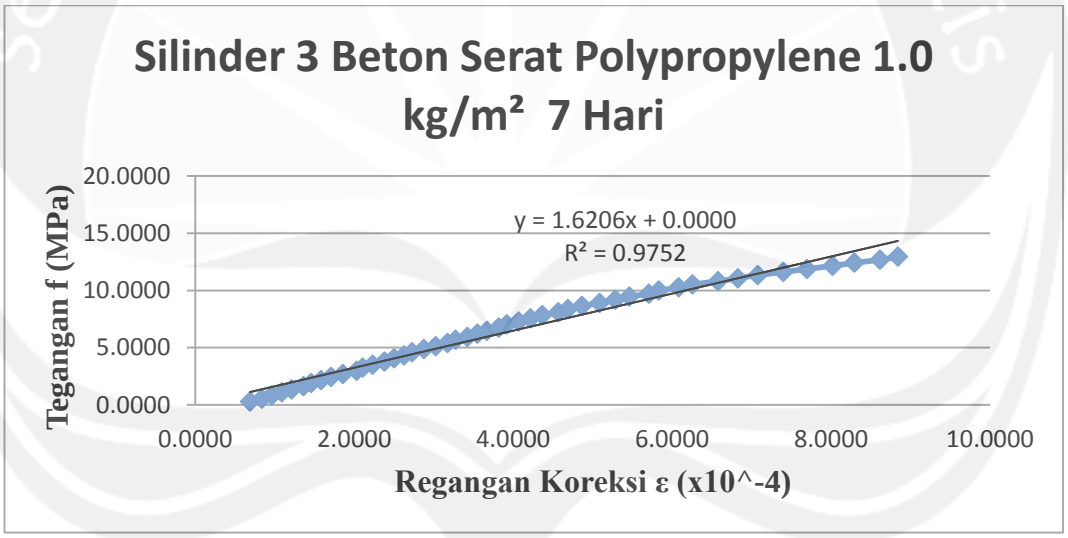
**Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 7 Hari**

| | | | |
|---|---|---|---|
| | = | 6 Juni 2015 | |
| Po | = | 201.2 | mm |
| Ao | = | 18160.51185 | $mm^2$ |
| Beban Maksimum | = | 395 | KN |
| Kuat Tekan Maksimum | = | 21.75 | Mpa |
| Modulus Elastisitas | = | 16206.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.8 | 0.4 | 0.2700 | 0.1988 | 0.6892 |
| 1000 | 9806.65 | 1.4 | 0.7 | 0.5400 | 0.3479 | 0.8383 |
| 1500 | 14710 | 1.9 | 0.95 | 0.8100 | 0.4722 | 0.9626 |
| 2000 | 19613.3 | 2.4 | 1.2 | 1.0800 | 0.5964 | 1.0869 |
| 2500 | 24516.6 | 2.9 | 1.45 | 1.3500 | 0.7207 | 1.2111 |
| 3000 | 29420 | 3.5 | 1.75 | 1.6200 | 0.8698 | 1.3602 |
| 3500 | 34323.3 | 3.9 | 1.95 | 1.8900 | 0.9692 | 1.4596 |
| 4000 | 39226.6 | 4.4 | 2.2 | 2.1600 | 1.0934 | 1.5839 |
| 4500 | 44129.9 | 4.9 | 2.45 | 2.4300 | 1.2177 | 1.7081 |
| 5000 | 49033.3 | 5.5 | 2.75 | 2.7000 | 1.3668 | 1.8572 |
| 5500 | 53936.6 | 6.2 | 3.1 | 2.9700 | 1.5408 | 2.0312 |
| 6000 | 58839.9 | 6.5 | 3.25 | 3.2400 | 1.6153 | 2.1057 |
| 6500 | 63743.2 | 7 | 3.5 | 3.5100 | 1.7396 | 2.2300 |
| 7000 | 68646.6 | 7.6 | 3.8 | 3.7800 | 1.8887 | 2.3791 |
| 7500 | 73549.9 | 8.1 | 4.05 | 4.0500 | 2.0129 | 2.5034 |
| 8000 | 78453.2 | 8.6 | 4.3 | 4.3200 | 2.1372 | 2.6276 |
| 8500 | 83356.5 | 9 | 4.5 | 4.5900 | 2.2366 | 2.7270 |
| 9000 | 88259.9 | 9.6 | 4.8 | 4.8600 | 2.3857 | 2.8761 |
| 9500 | 93163.2 | 10.2 | 5.1 | 5.1300 | 2.5348 | 3.0252 |
| 10000 | 98066.5 | 10.8 | 5.4 | 5.4000 | 2.6839 | 3.1743 |
| 10500 | 102970 | 11.2 | 5.6 | 5.6700 | 2.7833 | 3.2737 |
| 11000 | 107873 | 11.8 | 5.9 | 5.9400 | 2.9324 | 3.4228 |
| 11500 | 112776 | 12.3 | 6.15 | 6.2100 | 3.0567 | 3.5471 |
| 12000 | 117680 | 12.8 | 6.4 | 6.4800 | 3.1809 | 3.6714 |
| 12500 | 122583 | 13.4 | 6.7 | 6.7500 | 3.3300 | 3.8205 |
| 13000 | 127486 | 13.8 | 6.9 | 7.0200 | 3.4294 | 3.9199 |
| 13500 | 132390 | 14.4 | 7.2 | 7.2900 | 3.5785 | 4.0690 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15 | 7.5 | 7.5600 | 3.7276 | 4.2181 |
| 14500 | 142196 | 15.6 | 7.8 | 7.8300 | 3.8767 | 4.3672 |
| 15000 | 147100 | 16.4 | 8.2 | 8.1000 | 4.0755 | 4.5660 |
| 15500 | 152003 | 16.9 | 8.45 | 8.3700 | 4.1998 | 4.6902 |
| 16000 | 156906 | 17.6 | 8.8 | 8.6400 | 4.3738 | 4.8642 |
| 16500 | 161810 | 18.5 | 9.25 | 8.9100 | 4.5974 | 5.0879 |
| 17000 | 166713 | 19.3 | 9.65 | 9.1800 | 4.7962 | 5.2867 |
| 17500 | 171616 | 20 | 10 | 9.4500 | 4.9702 | 5.4606 |
| 18000 | 176520 | 21 | 10.5 | 9.7200 | 5.2187 | 5.7091 |
| 18500 | 181423 | 21.5 | 10.75 | 9.9900 | 5.3429 | 5.8334 |
| 19000 | 186326 | 22.5 | 11.25 | 10.2600 | 5.5915 | 6.0819 |
| 19500 | 191230 | 23.2 | 11.6 | 10.5300 | 5.7654 | 6.2558 |
| 20000 | 196133 | 24.5 | 12.25 | 10.8000 | 6.0885 | 6.5789 |
| 20500 | 201036 | 25.5 | 12.75 | 11.0700 | 6.3370 | 6.8274 |
| 21000 | 205940 | 26.5 | 13.25 | 11.3400 | 6.5855 | 7.0759 |
| 21500 | 210843 | 27.8 | 13.9 | 11.6100 | 6.9085 | 7.3990 |
| 22000 | 215746 | 29 | 14.5 | 11.8800 | 7.2068 | 7.6972 |
| 22500 | 220650 | 30.3 | 15.15 | 12.1500 | 7.5298 | 8.0203 |
| 23000 | 225553 | 31.4 | 15.7 | 12.4200 | 7.8032 | 8.2936 |
| 23500 | 230456 | 32.7 | 16.35 | 12.6900 | 8.1262 | 8.6167 |
| 24000 | 235360 | 33.6 | 16.8 | 12.9600 | 8.3499 | 8.8403 |


Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 7 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.6206x + 0.7948
R² = 0.9752
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 7 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.6206x + 0.0000
R² = 0.9752
0.0000 2.0000 4.0000 6.0000 8.0000 10.0000
Regangan Koreksi ε (x10^-4)

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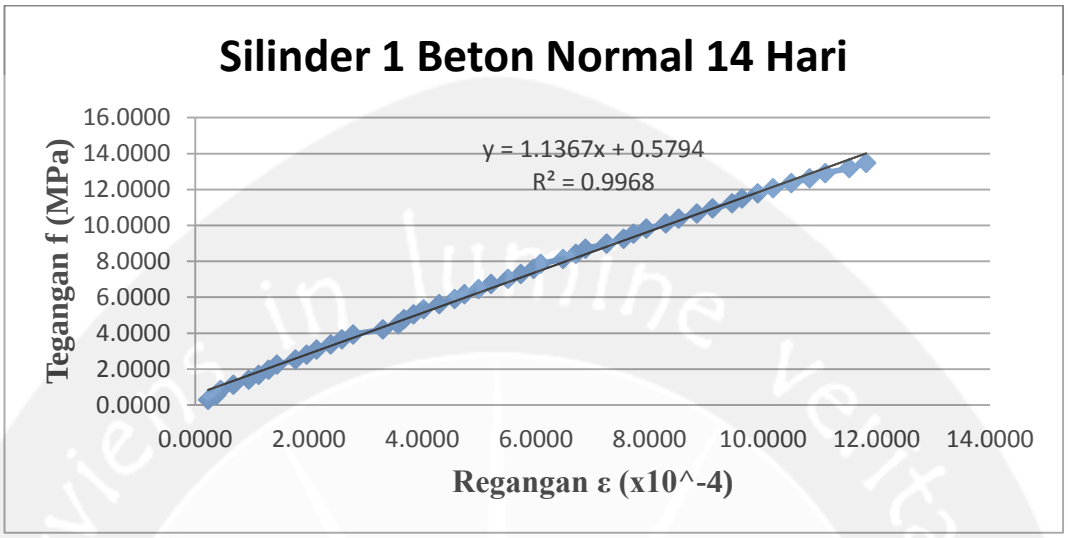
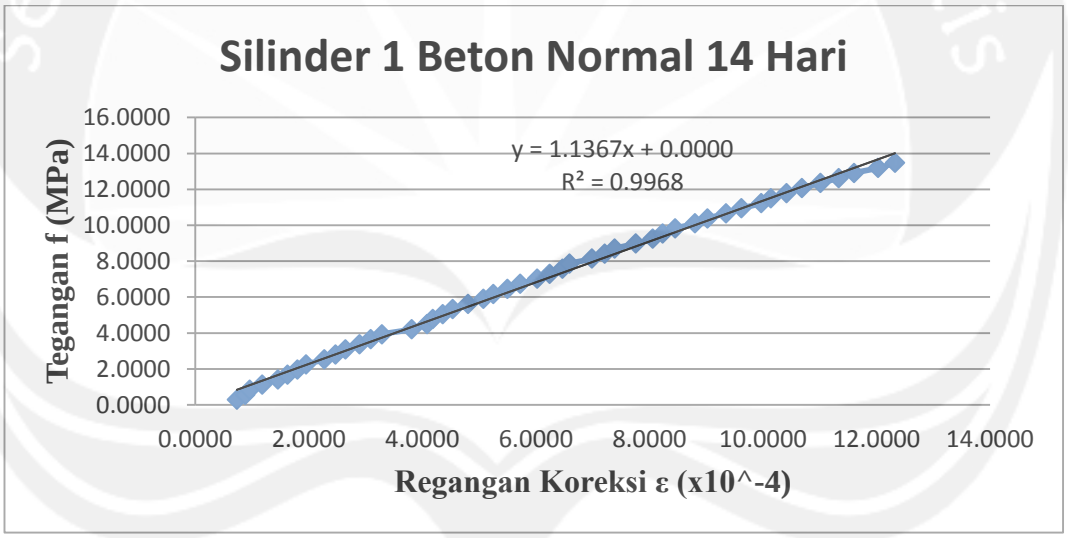
**Silinder 1 Beton Normal 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.4 | mm |
| Ao | = | 17474.6024 | $mm^2$ |
| Beban Maksimum | = | 395 | KN |
| Kuat Tekan Maksimum | = | 22.60 | Mpa |
| Modulus Elastisitas | = | 11367.0000 | MPa |

| Beban | | $\Delta p \times 10^{-2}$ (mm) | $0{,}5\ \Delta p \times 10^{-2}$ (mm) | f (MPa) | $\varepsilon \times 10^{-4}$ | $\varepsilon$ koreksi $\times 10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.9 | 0.45 | 0.2806 | 0.2234 | 0.7332 |
| 1000 | 9806.65 | 1.5 | 0.75 | 0.5612 | 0.3724 | 0.8821 |
| 1500 | 14710 | 1.8 | 0.9 | 0.8418 | 0.4469 | 0.9566 |
| 2000 | 19613.3 | 2.7 | 1.35 | 1.1224 | 0.6703 | 1.1800 |
| 2500 | 24516.6 | 3.8 | 1.9 | 1.4030 | 0.9434 | 1.4531 |
| 3000 | 29420 | 4.5 | 2.25 | 1.6836 | 1.1172 | 1.6269 |
| 3500 | 34323.3 | 5.2 | 2.6 | 1.9642 | 1.2910 | 1.8007 |
| 4000 | 39226.6 | 5.8 | 2.9 | 2.2448 | 1.4399 | 1.9496 |
| 4500 | 44129.9 | 7.1 | 3.55 | 2.5254 | 1.7627 | 2.2724 |
| 5000 | 49033.3 | 7.9 | 3.95 | 2.8060 | 1.9613 | 2.4710 |
| 5500 | 53936.6 | 8.6 | 4.3 | 3.0866 | 2.1351 | 2.6448 |
| 6000 | 58839.9 | 9.6 | 4.8 | 3.3672 | 2.3833 | 2.8930 |
| 6500 | 63743.2 | 10.4 | 5.2 | 3.6478 | 2.5819 | 3.0916 |
| 7000 | 68646.6 | 11.2 | 5.6 | 3.9284 | 2.7805 | 3.2903 |
| 7500 | 73549.9 | 13.3 | 6.65 | 4.2090 | 3.3019 | 3.8116 |
| 8000 | 78453.2 | 14.4 | 7.2 | 4.4896 | 3.5750 | 4.0847 |
| 8500 | 83356.5 | 14.8 | 7.4 | 4.7702 | 3.6743 | 4.1840 |
| 9000 | 88259.9 | 15.5 | 7.75 | 5.0508 | 3.8481 | 4.3578 |
| 9500 | 93163.2 | 16.2 | 8.1 | 5.3313 | 4.0218 | 4.5316 |
| 10000 | 98066.5 | 17.3 | 8.65 | 5.6119 | 4.2949 | 4.8047 |
| 10500 | 102970 | 18.4 | 9.2 | 5.8925 | 4.5680 | 5.0777 |
| 11000 | 107873 | 19.1 | 9.55 | 6.1731 | 4.7418 | 5.2515 |
| 11500 | 112776 | 20.1 | 10.05 | 6.4537 | 4.9901 | 5.4998 |
| 12000 | 117680 | 21 | 10.5 | 6.7343 | 5.2135 | 5.7232 |
| 12500 | 122583 | 22.2 | 11.1 | 7.0149 | 5.5114 | 6.0211 |
| 13000 | 127486 | 23.1 | 11.55 | 7.2955 | 5.7349 | 6.2446 |
| 13500 | 132390 | 24 | 12 | 7.5761 | 5.9583 | 6.4680 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 24.5 | 12.25 | 7.8567 | 6.0824 | 6.5921 |
| 14500 | 142196 | 26.1 | 13.05 | 8.1373 | 6.4796 | 6.9894 |
| 15000 | 147100 | 27 | 13.5 | 8.4179 | 6.7031 | 7.2128 |
| 15500 | 152003 | 27.7 | 13.85 | 8.6985 | 6.8769 | 7.3866 |
| 16000 | 156906 | 29.2 | 14.6 | 8.9791 | 7.2493 | 7.7590 |
| 16500 | 161810 | 30.4 | 15.2 | 9.2597 | 7.5472 | 8.0569 |
| 17000 | 166713 | 31.1 | 15.55 | 9.5403 | 7.7210 | 8.2307 |
| 17500 | 171616 | 32 | 16 | 9.8209 | 7.9444 | 8.4541 |
| 18000 | 176520 | 33.4 | 16.7 | 10.1015 | 8.2920 | 8.8017 |
| 18500 | 181423 | 34.3 | 17.15 | 10.3821 | 8.5154 | 9.0251 |
| 19000 | 186326 | 35.6 | 17.8 | 10.6627 | 8.8381 | 9.3479 |
| 19500 | 191230 | 36.7 | 18.35 | 10.9433 | 9.1112 | 9.6209 |
| 20000 | 196133 | 38.1 | 19.05 | 11.2239 | 9.4588 | 9.9685 |
| 20500 | 201036 | 38.8 | 19.4 | 11.5045 | 9.6326 | 10.1423 |
| 21000 | 205940 | 39.9 | 19.95 | 11.7851 | 9.9057 | 10.4154 |
| 21500 | 210843 | 41 | 20.5 | 12.0657 | 10.1787 | 10.6885 |
| 22000 | 215746 | 42.3 | 21.15 | 12.3463 | 10.5015 | 11.0112 |
| 22500 | 220650 | 43.6 | 21.8 | 12.6269 | 10.8242 | 11.3340 |
| 23000 | 225553 | 44.7 | 22.35 | 12.9075 | 11.0973 | 11.6070 |
| 23500 | 230456 | 46.4 | 23.2 | 13.1881 | 11.5194 | 12.0291 |
| 24000 | 235360 | 47.6 | 23.8 | 13.4687 | 11.8173 | 12.3270 |


Silinder 1 Beton Normal 14 Hari
y = 1.1367x + 0.5794
R² = 0.9968
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
14.0000
Regangan ε (x10^-4)


Silinder 1 Beton Normal 14 Hari
y = 1.1367x + 0.0000
R² = 0.9968
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
14.0000
Regangan Koreksi ε (x10^-4)

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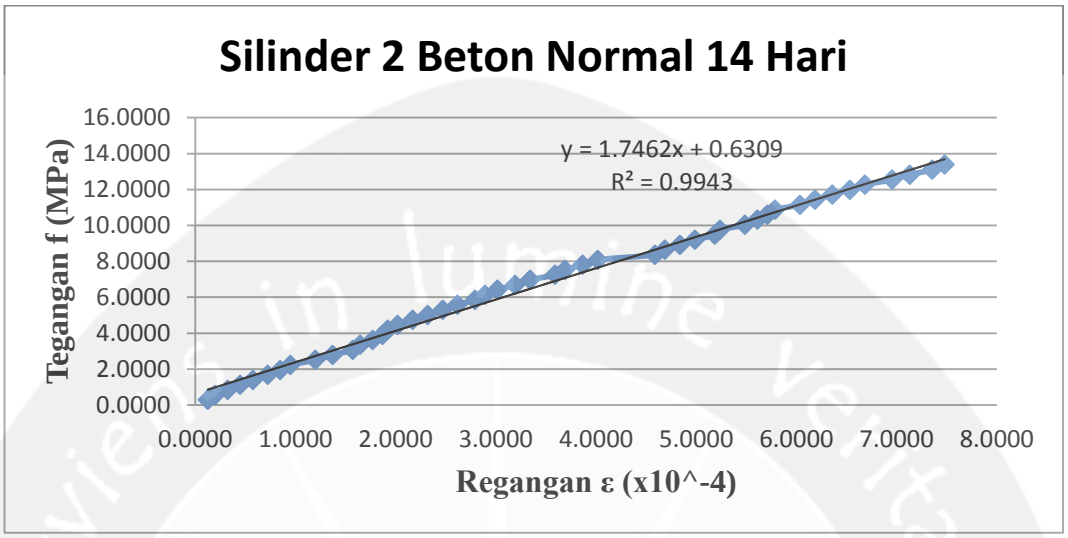
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

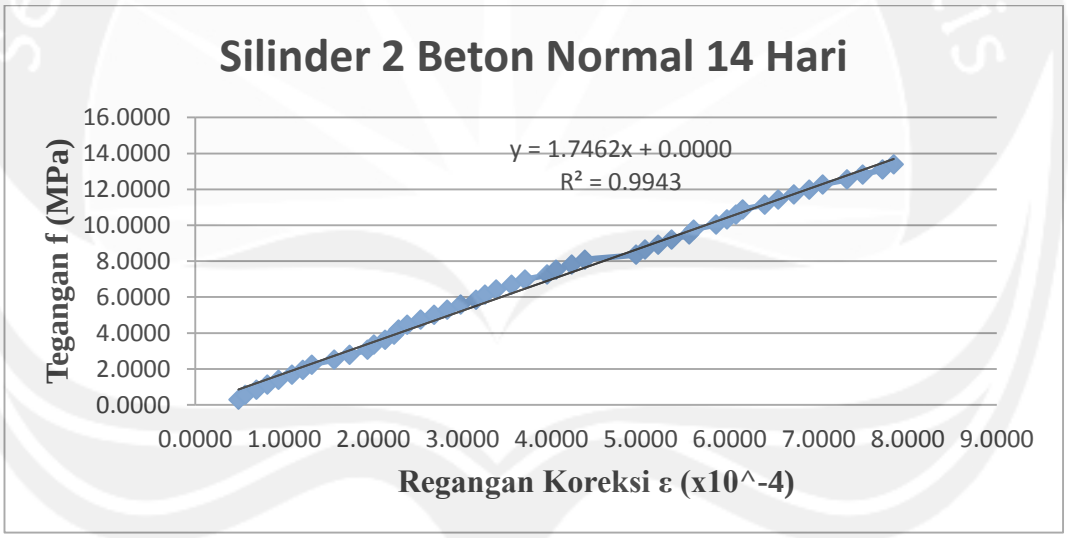
**Silinder 2 Beton Normal 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 200.5 | mm |
| Ao | = | 17591.92065 | $mm^2$ |
| Beban Maksimum | = | 475 | KN |
| Kuat Tekan Maksimum | = | 27.00 | Mpa |
| Modulus Elastisitas | = | 17462.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2787 | 0.1247 | 0.4860 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5575 | 0.1995 | 0.5608 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8362 | 0.3242 | 0.6855 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.1149 | 0.4489 | 0.8102 |
| 2500 | 24516.6 | 2.3 | 1.15 | 1.3936 | 0.5736 | 0.9349 |
| 3000 | 29420 | 2.9 | 1.45 | 1.6724 | 0.7232 | 1.0845 |
| 3500 | 34323.3 | 3.4 | 1.7 | 1.9511 | 0.8479 | 1.2092 |
| 4000 | 39226.6 | 3.8 | 1.9 | 2.2298 | 0.9476 | 1.3089 |
| 4500 | 44129.9 | 4.8 | 2.4 | 2.5085 | 1.1970 | 1.5583 |
| 5000 | 49033.3 | 5.5 | 2.75 | 2.7873 | 1.3716 | 1.7329 |
| 5500 | 53936.6 | 6.3 | 3.15 | 3.0660 | 1.5711 | 1.9324 |
| 6000 | 58839.9 | 6.6 | 3.3 | 3.3447 | 1.6459 | 2.0072 |
| 6500 | 63743.2 | 7.1 | 3.55 | 3.6234 | 1.7706 | 2.1319 |
| 7000 | 68646.6 | 7.5 | 3.75 | 3.9022 | 1.8703 | 2.2316 |
| 7500 | 73549.9 | 7.7 | 3.85 | 4.1809 | 1.9202 | 2.2815 |
| 8000 | 78453.2 | 8.1 | 4.05 | 4.4596 | 2.0200 | 2.3812 |
| 8500 | 83356.5 | 8.7 | 4.35 | 4.7383 | 2.1696 | 2.5309 |
| 9000 | 88259.9 | 9.3 | 4.65 | 5.0171 | 2.3192 | 2.6805 |
| 9500 | 93163.2 | 9.9 | 4.95 | 5.2958 | 2.4688 | 2.8301 |
| 10000 | 98066.5 | 10.5 | 5.25 | 5.5745 | 2.6185 | 2.9798 |
| 10500 | 102970 | 11.2 | 5.6 | 5.8532 | 2.7930 | 3.1543 |
| 11000 | 107873 | 11.6 | 5.8 | 6.1320 | 2.8928 | 3.2541 |
| 11500 | 112776 | 12.1 | 6.05 | 6.4107 | 3.0175 | 3.3788 |
| 12000 | 117680 | 12.8 | 6.4 | 6.6894 | 3.1920 | 3.5533 |
| 12500 | 122583 | 13.4 | 6.7 | 6.9681 | 3.3416 | 3.7029 |
| 13000 | 127486 | 14.4 | 7.2 | 7.2469 | 3.5910 | 3.9523 |
| 13500 | 132390 | 14.8 | 7.4 | 7.5256 | 3.6908 | 4.0521 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15.5 | 7.75 | 7.8043 | 3.8653 | 4.2266 |
| 14500 | 142196 | 16.1 | 8.05 | 8.0831 | 4.0150 | 4.3763 |
| 15000 | 147100 | 18.4 | 9.2 | 8.3618 | 4.5885 | 4.9498 |
| 15500 | 152003 | 18.8 | 9.4 | 8.6405 | 4.6883 | 5.0496 |
| 16000 | 156906 | 19.4 | 9.7 | 8.9192 | 4.8379 | 5.1992 |
| 16500 | 161810 | 20 | 10 | 9.1980 | 4.9875 | 5.3488 |
| 17000 | 166713 | 20.8 | 10.4 | 9.4767 | 5.1870 | 5.5483 |
| 17500 | 171616 | 21 | 10.5 | 9.7554 | 5.2369 | 5.5982 |
| 18000 | 176520 | 22 | 11 | 10.0341 | 5.4863 | 5.8476 |
| 18500 | 181423 | 22.5 | 11.25 | 10.3129 | 5.6110 | 5.9723 |
| 19000 | 186326 | 22.9 | 11.45 | 10.5916 | 5.7107 | 6.0720 |
| 19500 | 191230 | 23.2 | 11.6 | 10.8703 | 5.7855 | 6.1468 |
| 20000 | 196133 | 24.2 | 12.1 | 11.1490 | 6.0349 | 6.3962 |
| 20500 | 201036 | 24.8 | 12.4 | 11.4278 | 6.1845 | 6.5458 |
| 21000 | 205940 | 25.5 | 12.75 | 11.7065 | 6.3591 | 6.7204 |
| 21500 | 210843 | 26.2 | 13.1 | 11.9852 | 6.5337 | 6.8950 |
| 22000 | 215746 | 26.8 | 13.4 | 12.2639 | 6.6833 | 7.0446 |
| 22500 | 220650 | 27.9 | 13.95 | 12.5427 | 6.9576 | 7.3189 |
| 23000 | 225553 | 28.6 | 14.3 | 12.8214 | 7.1322 | 7.4935 |
| 23500 | 230456 | 29.5 | 14.75 | 13.1001 | 7.3566 | 7.7179 |
| 24000 | 235360 | 30 | 15 | 13.3788 | 7.4813 | 7.8426 |


Silinder 2 Beton Normal 14 Hari
y = 1.7462x + 0.6309
R² = 0.9943
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 2 Beton Normal 14 Hari
y = 1.7462x + 0.0000
R² = 0.9943
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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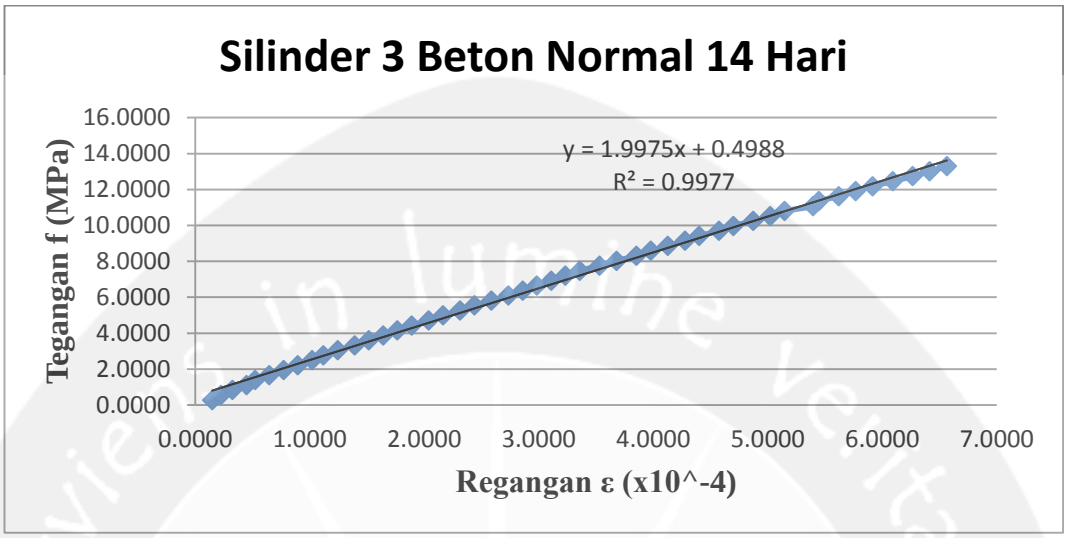
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

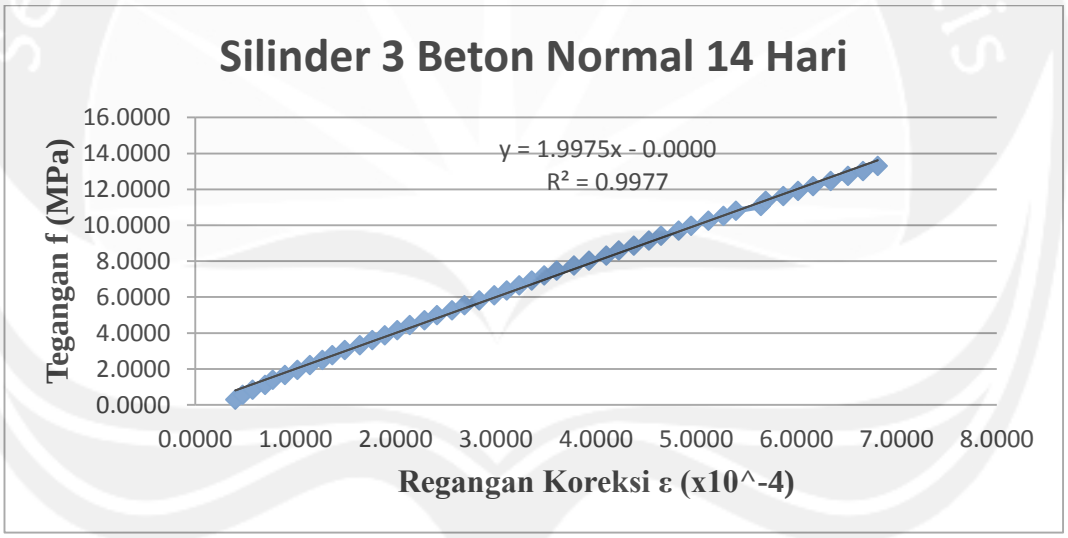
**Silinder 3 Beton Normal 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.1 | mm |
| Ao | = | 17709.6314 | $mm^2$ |
| Beban Maksimum | = | 425 | KN |
| Kuat Tekan Maksimum | = | 24.00 | Mpa |
| Modulus Elastisitas | = | 19975.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.6 | 0.3 | 0.2769 | 0.1492 | 0.3989 |
| 1000 | 9806.65 | 0.9 | 0.45 | 0.5537 | 0.2238 | 0.4735 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8306 | 0.3232 | 0.5729 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.1075 | 0.4475 | 0.6973 |
| 2500 | 24516.6 | 2.1 | 1.05 | 1.3844 | 0.5221 | 0.7718 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6612 | 0.6464 | 0.8962 |
| 3500 | 34323.3 | 3.1 | 1.55 | 1.9381 | 0.7708 | 1.0205 |
| 4000 | 39226.6 | 3.6 | 1.8 | 2.2150 | 0.8951 | 1.1448 |
| 4500 | 44129.9 | 4.1 | 2.05 | 2.4919 | 1.0194 | 1.2691 |
| 5000 | 49033.3 | 4.5 | 2.25 | 2.7687 | 1.1188 | 1.3686 |
| 5500 | 53936.6 | 5 | 2.5 | 3.0456 | 1.2432 | 1.4929 |
| 6000 | 58839.9 | 5.6 | 2.8 | 3.3225 | 1.3923 | 1.6421 |
| 6500 | 63743.2 | 6.1 | 3.05 | 3.5994 | 1.5167 | 1.7664 |
| 7000 | 68646.6 | 6.6 | 3.3 | 3.8762 | 1.6410 | 1.8907 |
| 7500 | 73549.9 | 7.1 | 3.55 | 4.1531 | 1.7653 | 2.0150 |
| 8000 | 78453.2 | 7.6 | 3.8 | 4.4300 | 1.8896 | 2.1393 |
| 8500 | 83356.5 | 8.2 | 4.1 | 4.7068 | 2.0388 | 2.2885 |
| 9000 | 88259.9 | 8.7 | 4.35 | 4.9837 | 2.1631 | 2.4128 |
| 9500 | 93163.2 | 9.3 | 4.65 | 5.2606 | 2.3123 | 2.5620 |
| 10000 | 98066.5 | 9.8 | 4.9 | 5.5375 | 2.4366 | 2.6863 |
| 10500 | 102970 | 10.4 | 5.2 | 5.8143 | 2.5858 | 2.8355 |
| 11000 | 107873 | 11 | 5.5 | 6.0912 | 2.7350 | 2.9847 |
| 11500 | 112776 | 11.5 | 5.75 | 6.3681 | 2.8593 | 3.1090 |
| 12000 | 117680 | 12 | 6 | 6.6450 | 2.9836 | 3.2333 |
| 12500 | 122583 | 12.5 | 6.25 | 6.9218 | 3.1079 | 3.3576 |
| 13000 | 127486 | 13 | 6.5 | 7.1987 | 3.2322 | 3.4819 |
| 13500 | 132390 | 13.5 | 6.75 | 7.4756 | 3.3565 | 3.6063 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.2 | 7.1 | 7.7525 | 3.5306 | 3.7803 |
| 14500 | 142196 | 14.8 | 7.4 | 8.0293 | 3.6798 | 3.9295 |
| 15000 | 147100 | 15.5 | 7.75 | 8.3062 | 3.8538 | 4.1035 |
| 15500 | 152003 | 16 | 8 | 8.5831 | 3.9781 | 4.2278 |
| 16000 | 156906 | 16.6 | 8.3 | 8.8599 | 4.1273 | 4.3770 |
| 16500 | 161810 | 17.2 | 8.6 | 9.1368 | 4.2765 | 4.5262 |
| 17000 | 166713 | 17.7 | 8.85 | 9.4137 | 4.4008 | 4.6505 |
| 17500 | 171616 | 18.4 | 9.2 | 9.6906 | 4.5748 | 4.8246 |
| 18000 | 176520 | 18.9 | 9.45 | 9.9674 | 4.6992 | 4.9489 |
| 18500 | 181423 | 19.6 | 9.8 | 10.2443 | 4.8732 | 5.1229 |
| 19000 | 186326 | 20.2 | 10.1 | 10.5212 | 5.0224 | 5.2721 |
| 19500 | 191230 | 20.7 | 10.35 | 10.7981 | 5.1467 | 5.3964 |
| 20000 | 196133 | 21.7 | 10.85 | 11.0749 | 5.3953 | 5.6450 |
| 20500 | 201036 | 21.9 | 10.95 | 11.3518 | 5.4451 | 5.6948 |
| 21000 | 205940 | 22.6 | 11.3 | 11.6287 | 5.6191 | 5.8688 |
| 21500 | 210843 | 23.2 | 11.6 | 11.9056 | 5.7683 | 6.0180 |
| 22000 | 215746 | 23.8 | 11.9 | 12.1824 | 5.9175 | 6.1672 |
| 22500 | 220650 | 24.5 | 12.25 | 12.4593 | 6.0915 | 6.3412 |
| 23000 | 225553 | 25.2 | 12.6 | 12.7362 | 6.2655 | 6.5153 |
| 23500 | 230456 | 25.8 | 12.9 | 13.0130 | 6.4147 | 6.6644 |
| 24000 | 235360 | 26.4 | 13.2 | 13.2899 | 6.5639 | 6.8136 |


Silinder 3 Beton Normal 14 Hari
y = 1.9975x + 0.4988
R² = 0.9977
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000
Regangan ε (x10^-4)


Silinder 3 Beton Normal 14 Hari
y = 1.9975x - 0.0000
R² = 0.9977
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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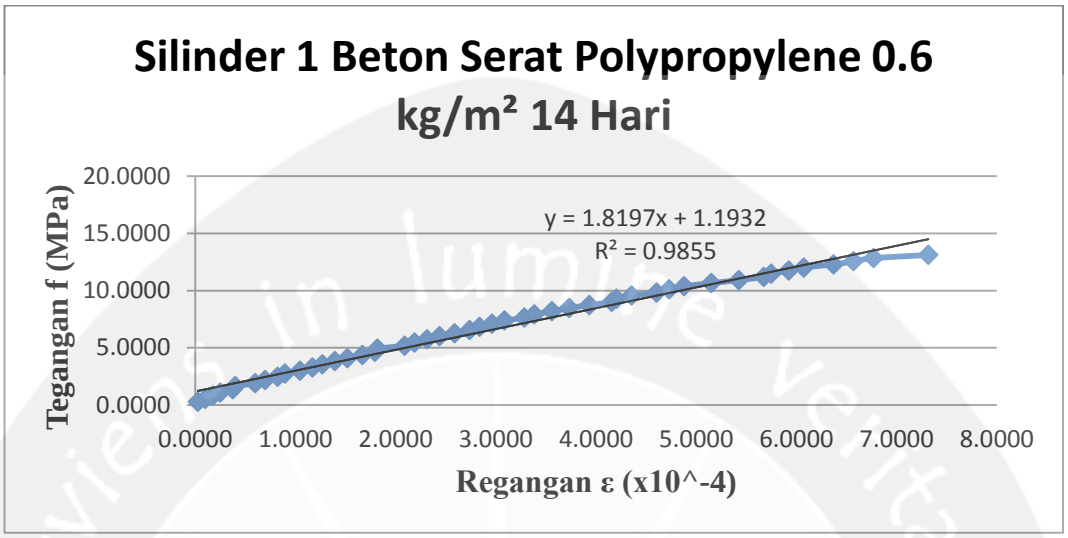
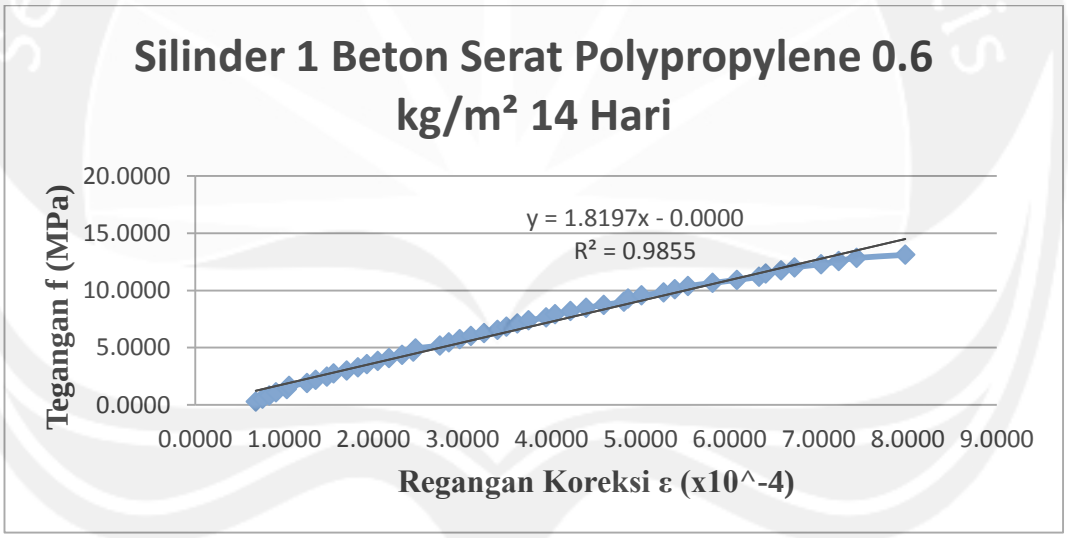
**Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 200.9 | mm |
| Ao | = | 17946.2304 | $mm^2$ |
| Beban Maksimum | = | 455 | KN |
| Kuat Tekan Maksimum | = | 25.35 | Mpa |
| Modulus Elastisitas | = | 18197.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2732 | 0.0249 | 0.6806 |
| 1000 | 9806.65 | 0.4 | 0.2 | 0.5464 | 0.0996 | 0.7553 |
| 1500 | 14710 | 0.7 | 0.35 | 0.8197 | 0.1742 | 0.8299 |
| 2000 | 19613.3 | 1 | 0.5 | 1.0929 | 0.2489 | 0.9046 |
| 2500 | 24516.6 | 1.5 | 0.75 | 1.3661 | 0.3733 | 1.0290 |
| 3000 | 29420 | 1.6 | 0.8 | 1.6393 | 0.3982 | 1.0539 |
| 3500 | 34323.3 | 2.4 | 1.2 | 1.9126 | 0.5973 | 1.2530 |
| 4000 | 39226.6 | 2.8 | 1.4 | 2.1858 | 0.6969 | 1.3526 |
| 4500 | 44129.9 | 3.3 | 1.65 | 2.4590 | 0.8213 | 1.4770 |
| 5000 | 49033.3 | 3.6 | 1.8 | 2.7322 | 0.8960 | 1.5517 |
| 5500 | 53936.6 | 4.2 | 2.1 | 3.0055 | 1.0453 | 1.7010 |
| 6000 | 58839.9 | 4.7 | 2.35 | 3.2787 | 1.1697 | 1.8254 |
| 6500 | 63743.2 | 5.1 | 2.55 | 3.5519 | 1.2693 | 1.9250 |
| 7000 | 68646.6 | 5.6 | 2.8 | 3.8251 | 1.3937 | 2.0494 |
| 7500 | 73549.9 | 6.1 | 3.05 | 4.0983 | 1.5182 | 2.1739 |
| 8000 | 78453.2 | 6.7 | 3.35 | 4.3716 | 1.6675 | 2.3232 |
| 8500 | 83356.5 | 7.2 | 3.6 | 4.6448 | 1.7919 | 2.4476 |
| 9000 | 88259.9 | 7.3 | 3.65 | 4.9180 | 1.8168 | 2.4725 |
| 9500 | 93163.2 | 8.4 | 4.2 | 5.1912 | 2.0906 | 2.7463 |
| 10000 | 98066.5 | 8.8 | 4.4 | 5.4645 | 2.1901 | 2.8459 |
| 10500 | 102970 | 9.3 | 4.65 | 5.7377 | 2.3146 | 2.9703 |
| 11000 | 107873 | 9.8 | 4.9 | 6.0109 | 2.4390 | 3.0947 |
| 11500 | 112776 | 10.4 | 5.2 | 6.2841 | 2.5884 | 3.2441 |
| 12000 | 117680 | 11 | 5.5 | 6.5574 | 2.7377 | 3.3934 |
| 12500 | 122583 | 11.4 | 5.7 | 6.8306 | 2.8372 | 3.4929 |
| 13000 | 127486 | 11.9 | 5.95 | 7.1038 | 2.9617 | 3.6174 |
| 13500 | 132390 | 12.4 | 6.2 | 7.3770 | 3.0861 | 3.7418 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13.2 | 6.6 | 7.6502 | 3.2852 | 3.9409 |
| 14500 | 142196 | 13.6 | 6.8 | 7.9235 | 3.3848 | 4.0405 |
| 15000 | 147100 | 14.3 | 7.15 | 8.1967 | 3.5590 | 4.2147 |
| 15500 | 152003 | 15 | 7.5 | 8.4699 | 3.7332 | 4.3889 |
| 16000 | 156906 | 15.8 | 7.9 | 8.7431 | 3.9323 | 4.5880 |
| 16500 | 161810 | 16.7 | 8.35 | 9.0164 | 4.1563 | 4.8120 |
| 17000 | 166713 | 16.9 | 8.45 | 9.2896 | 4.2061 | 4.8618 |
| 17500 | 171616 | 17.5 | 8.75 | 9.5628 | 4.3554 | 5.0111 |
| 18000 | 176520 | 18.5 | 9.25 | 9.8360 | 4.6043 | 5.2600 |
| 18500 | 181423 | 19 | 9.5 | 10.1093 | 4.7287 | 5.3844 |
| 19000 | 186326 | 19.6 | 9.8 | 10.3825 | 4.8780 | 5.5338 |
| 19500 | 191230 | 20.7 | 10.35 | 10.6557 | 5.1518 | 5.8075 |
| 20000 | 196133 | 21.8 | 10.9 | 10.9289 | 5.4256 | 6.0813 |
| 20500 | 201036 | 22.8 | 11.4 | 11.2021 | 5.6745 | 6.3302 |
| 21000 | 205940 | 23.1 | 11.55 | 11.4754 | 5.7491 | 6.4048 |
| 21500 | 210843 | 23.8 | 11.9 | 11.7486 | 5.9233 | 6.5791 |
| 22000 | 215746 | 24.4 | 12.2 | 12.0218 | 6.0727 | 6.7284 |
| 22500 | 220650 | 25.6 | 12.8 | 12.2950 | 6.3713 | 7.0270 |
| 23000 | 225553 | 26.4 | 13.2 | 12.5683 | 6.5704 | 7.2261 |
| 23500 | 230456 | 27.2 | 13.6 | 12.8415 | 6.7695 | 7.4252 |
| 24000 | 235360 | 29.4 | 14.7 | 13.1147 | 7.3171 | 7.9728 |


Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.8197x + 1.1932
R² = 0.9855
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.8197x - 0.0000
R² = 0.9855
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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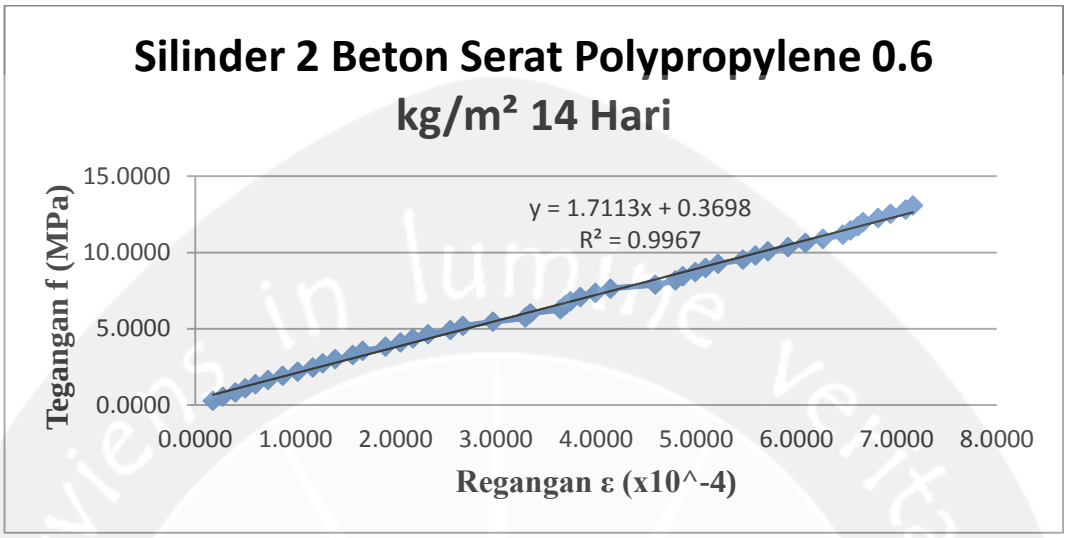
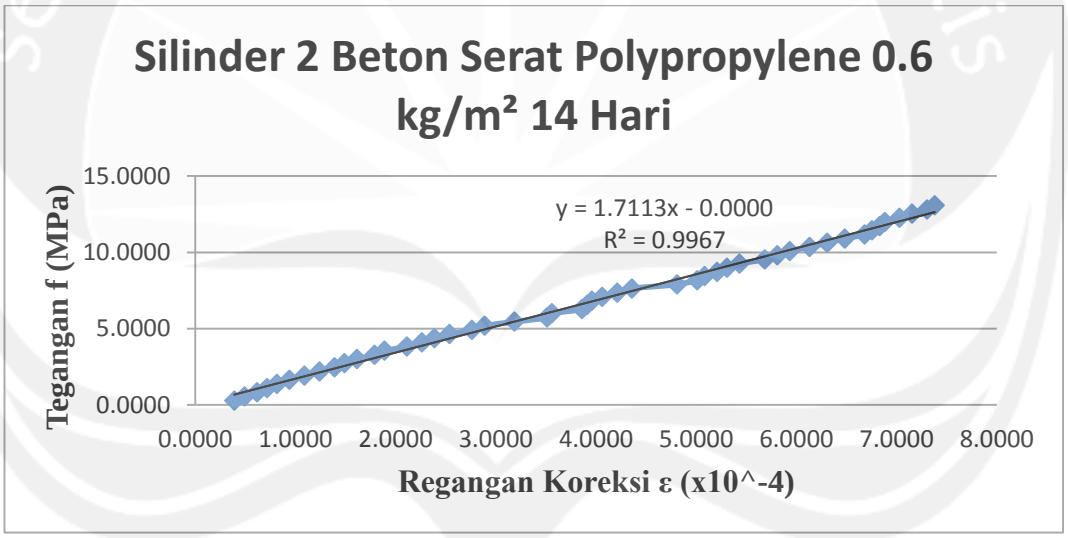
**Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 200.3 | mm |
| Ao | = | 17993.7386 | $mm^2$ |
| Beban Maksimum | = | 460 | KN |
| Kuat Tekan Maksimum | = | 25.56 | Mpa |
| Modulus Elastisitas | = | 17113.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.7 | 0.35 | 0.2725 | 0.1747 | 0.3908 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5450 | 0.2746 | 0.4907 |
| 1500 | 14710 | 1.6 | 0.8 | 0.8175 | 0.3994 | 0.6155 |
| 2000 | 19613.3 | 2 | 1 | 1.0900 | 0.4993 | 0.7153 |
| 2500 | 24516.6 | 2.4 | 1.2 | 1.3625 | 0.5991 | 0.8152 |
| 3000 | 29420 | 2.9 | 1.45 | 1.6350 | 0.7239 | 0.9400 |
| 3500 | 34323.3 | 3.5 | 1.75 | 1.9075 | 0.8737 | 1.0898 |
| 4000 | 39226.6 | 4.1 | 2.05 | 2.1800 | 1.0235 | 1.2396 |
| 4500 | 44129.9 | 4.7 | 2.35 | 2.4525 | 1.1732 | 1.3893 |
| 5000 | 49033.3 | 5.1 | 2.55 | 2.7250 | 1.2731 | 1.4892 |
| 5500 | 53936.6 | 5.6 | 2.8 | 2.9975 | 1.3979 | 1.6140 |
| 6000 | 58839.9 | 6.3 | 3.15 | 3.2700 | 1.5726 | 1.7887 |
| 6500 | 63743.2 | 6.7 | 3.35 | 3.5425 | 1.6725 | 1.8886 |
| 7000 | 68646.6 | 7.6 | 3.8 | 3.8150 | 1.8972 | 2.1132 |
| 7500 | 73549.9 | 8.2 | 4.1 | 4.0875 | 2.0469 | 2.2630 |
| 8000 | 78453.2 | 8.7 | 4.35 | 4.3600 | 2.1717 | 2.3878 |
| 8500 | 83356.5 | 9.3 | 4.65 | 4.6325 | 2.3215 | 2.5376 |
| 9000 | 88259.9 | 10.2 | 5.1 | 4.9050 | 2.5462 | 2.7623 |
| 9500 | 93163.2 | 10.7 | 5.35 | 5.1775 | 2.6710 | 2.8871 |
| 10000 | 98066.5 | 11.9 | 5.95 | 5.4500 | 2.9705 | 3.1866 |
| 10500 | 102970 | 13.2 | 6.6 | 5.7225 | 3.2951 | 3.5112 |
| 11000 | 107873 | 13.4 | 6.7 | 5.9950 | 3.3450 | 3.5611 |
| 11500 | 112776 | 14.6 | 7.3 | 6.2675 | 3.6445 | 3.8606 |
| 12000 | 117680 | 14.8 | 7.4 | 6.5400 | 3.6945 | 3.9106 |
| 12500 | 122583 | 15 | 7.5 | 6.8125 | 3.7444 | 3.9605 |
| 13000 | 127486 | 15.4 | 7.7 | 7.0850 | 3.8442 | 4.0603 |
| 13500 | 132390 | 16 | 8 | 7.3575 | 3.9940 | 4.2101 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 16.6 | 8.3 | 7.6300 | 4.1438 | 4.3599 |
| 14500 | 142196 | 18.4 | 9.2 | 7.9026 | 4.5931 | 4.8092 |
| 15000 | 147100 | 19.2 | 9.6 | 8.1751 | 4.7928 | 5.0089 |
| 15500 | 152003 | 19.5 | 9.75 | 8.4476 | 4.8677 | 5.0838 |
| 16000 | 156906 | 20 | 10 | 8.7201 | 4.9925 | 5.2086 |
| 16500 | 161810 | 20.4 | 10.2 | 8.9926 | 5.0924 | 5.3085 |
| 17000 | 166713 | 20.9 | 10.45 | 9.2651 | 5.2172 | 5.4333 |
| 17500 | 171616 | 21.9 | 10.95 | 9.5376 | 5.4668 | 5.6829 |
| 18000 | 176520 | 22.4 | 11.2 | 9.8101 | 5.5916 | 5.8077 |
| 18500 | 181423 | 22.9 | 11.45 | 10.0826 | 5.7164 | 5.9325 |
| 19000 | 186326 | 23.7 | 11.85 | 10.3551 | 5.9161 | 6.1322 |
| 19500 | 191230 | 24.4 | 12.2 | 10.6276 | 6.0909 | 6.3070 |
| 20000 | 196133 | 25.1 | 12.55 | 10.9001 | 6.2656 | 6.4817 |
| 20500 | 201036 | 25.9 | 12.95 | 11.1726 | 6.4653 | 6.6814 |
| 21000 | 205940 | 26.2 | 13.1 | 11.4451 | 6.5402 | 6.7563 |
| 21500 | 210843 | 26.5 | 13.25 | 11.7176 | 6.6151 | 6.8312 |
| 22000 | 215746 | 26.7 | 13.35 | 11.9901 | 6.6650 | 6.8811 |
| 22500 | 220650 | 27.3 | 13.65 | 12.2626 | 6.8148 | 7.0309 |
| 23000 | 225553 | 27.8 | 13.9 | 12.5351 | 6.9396 | 7.1557 |
| 23500 | 230456 | 28.4 | 14.2 | 12.8076 | 7.0894 | 7.3055 |
| 24000 | 235360 | 28.7 | 14.35 | 13.0801 | 7.1643 | 7.3803 |


Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 14 Hari
y = 1.7113x + 0.3698
R² = 0.9967
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 14 Hari
y = 1.7113x - 0.0000
R² = 0.9967
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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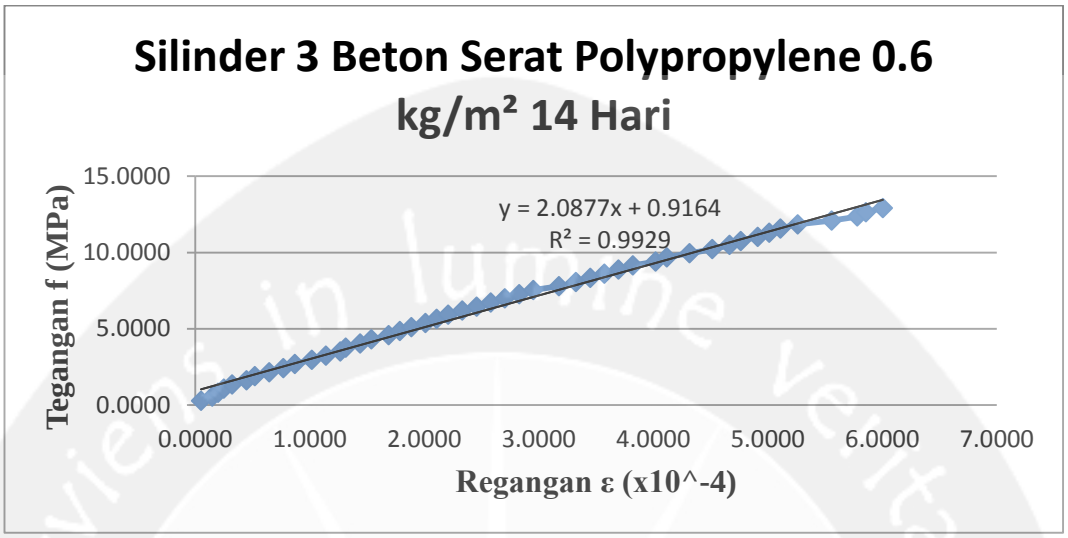
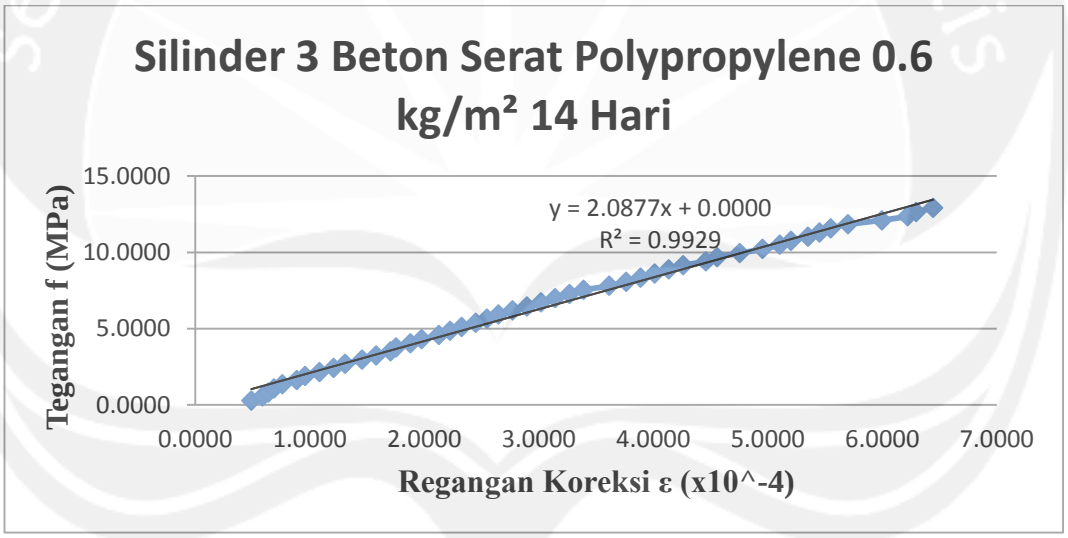
**Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.5 | mm |
| Ao | = | 18232.2216 | $mm^2$ |
| Beban Maksimum | = | 470 | KN |
| Kuat Tekan Maksimum | = | 25.78 | Mpa |
| Modulus Elastisitas | = | 20877.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.2 | 0.1 | 0.2689 | 0.0496 | 0.4886 |
| 1000 | 9806.65 | 0.6 | 0.3 | 0.5379 | 0.1489 | 0.5878 |
| 1500 | 14710 | 0.8 | 0.4 | 0.8068 | 0.1985 | 0.6375 |
| 2000 | 19613.3 | 1 | 0.5 | 1.0757 | 0.2481 | 0.6871 |
| 2500 | 24516.6 | 1.3 | 0.65 | 1.3447 | 0.3226 | 0.7615 |
| 3000 | 29420 | 1.8 | 0.9 | 1.6136 | 0.4467 | 0.8856 |
| 3500 | 34323.3 | 2.1 | 1.05 | 1.8826 | 0.5211 | 0.9600 |
| 4000 | 39226.6 | 2.6 | 1.3 | 2.1515 | 0.6452 | 1.0841 |
| 4500 | 44129.9 | 3.1 | 1.55 | 2.4204 | 0.7692 | 1.2082 |
| 5000 | 49033.3 | 3.5 | 1.75 | 2.6894 | 0.8685 | 1.3074 |
| 5500 | 53936.6 | 4.1 | 2.05 | 2.9583 | 1.0174 | 1.4563 |
| 6000 | 58839.9 | 4.6 | 2.3 | 3.2272 | 1.1414 | 1.5804 |
| 6500 | 63743.2 | 5.1 | 2.55 | 3.4962 | 1.2655 | 1.7045 |
| 7000 | 68646.6 | 5.3 | 2.65 | 3.7651 | 1.3151 | 1.7541 |
| 7500 | 73549.9 | 5.8 | 2.9 | 4.0341 | 1.4392 | 1.8782 |
| 8000 | 78453.2 | 6.2 | 3.1 | 4.3030 | 1.5385 | 1.9774 |
| 8500 | 83356.5 | 6.8 | 3.4 | 4.5719 | 1.6873 | 2.1263 |
| 9000 | 88259.9 | 7.2 | 3.6 | 4.8409 | 1.7866 | 2.2256 |
| 9500 | 93163.2 | 7.6 | 3.8 | 5.1098 | 1.8859 | 2.3248 |
| 10000 | 98066.5 | 8.1 | 4.05 | 5.3787 | 2.0099 | 2.4489 |
| 10500 | 102970 | 8.5 | 4.25 | 5.6477 | 2.1092 | 2.5481 |
| 11000 | 107873 | 8.9 | 4.45 | 5.9166 | 2.2084 | 2.6474 |
| 11500 | 112776 | 9.4 | 4.7 | 6.1856 | 2.3325 | 2.7715 |
| 12000 | 117680 | 9.9 | 4.95 | 6.4545 | 2.4566 | 2.8955 |
| 12500 | 122583 | 10.4 | 5.2 | 6.7234 | 2.5806 | 3.0196 |
| 13000 | 127486 | 10.9 | 5.45 | 6.9924 | 2.7047 | 3.1437 |
| 13500 | 132390 | 11.4 | 5.7 | 7.2613 | 2.8288 | 3.2677 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.9 | 5.95 | 7.5302 | 2.9529 | 3.3918 |
| 14500 | 142196 | 12.8 | 6.4 | 7.7992 | 3.1762 | 3.6151 |
| 15000 | 147100 | 13.4 | 6.7 | 8.0681 | 3.3251 | 3.7640 |
| 15500 | 152003 | 13.9 | 6.95 | 8.3371 | 3.4491 | 3.8881 |
| 16000 | 156906 | 14.4 | 7.2 | 8.6060 | 3.5732 | 4.0122 |
| 16500 | 161810 | 14.9 | 7.45 | 8.8749 | 3.6973 | 4.1362 |
| 17000 | 166713 | 15.4 | 7.7 | 9.1439 | 3.8213 | 4.2603 |
| 17500 | 171616 | 16.2 | 8.1 | 9.4128 | 4.0199 | 4.4588 |
| 18000 | 176520 | 16.6 | 8.3 | 9.6817 | 4.1191 | 4.5581 |
| 18500 | 181423 | 17.4 | 8.7 | 9.9507 | 4.3176 | 4.7566 |
| 19000 | 186326 | 18.2 | 9.1 | 10.2196 | 4.5161 | 4.9551 |
| 19500 | 191230 | 18.8 | 9.4 | 10.4886 | 4.6650 | 5.1040 |
| 20000 | 196133 | 19.2 | 9.6 | 10.7575 | 4.7643 | 5.2032 |
| 20500 | 201036 | 19.8 | 9.9 | 11.0264 | 4.9132 | 5.3521 |
| 21000 | 205940 | 20.2 | 10.1 | 11.2954 | 5.0124 | 5.4514 |
| 21500 | 210843 | 20.6 | 10.3 | 11.5643 | 5.1117 | 5.5506 |
| 22000 | 215746 | 21.2 | 10.6 | 11.8332 | 5.2605 | 5.6995 |
| 22500 | 220650 | 22.4 | 11.2 | 12.1022 | 5.5583 | 5.9973 |
| 23000 | 225553 | 23.3 | 11.65 | 12.3711 | 5.7816 | 6.2206 |
| 23500 | 230456 | 23.6 | 11.8 | 12.6401 | 5.8561 | 6.2950 |
| 24000 | 235360 | 24.2 | 12.1 | 12.9090 | 6.0050 | 6.4439 |


Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 14 Hari
y = 2.0877x + 0.9164
R² = 0.9929
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 14 Hari
y = 2.0877x + 0.0000
R² = 0.9929
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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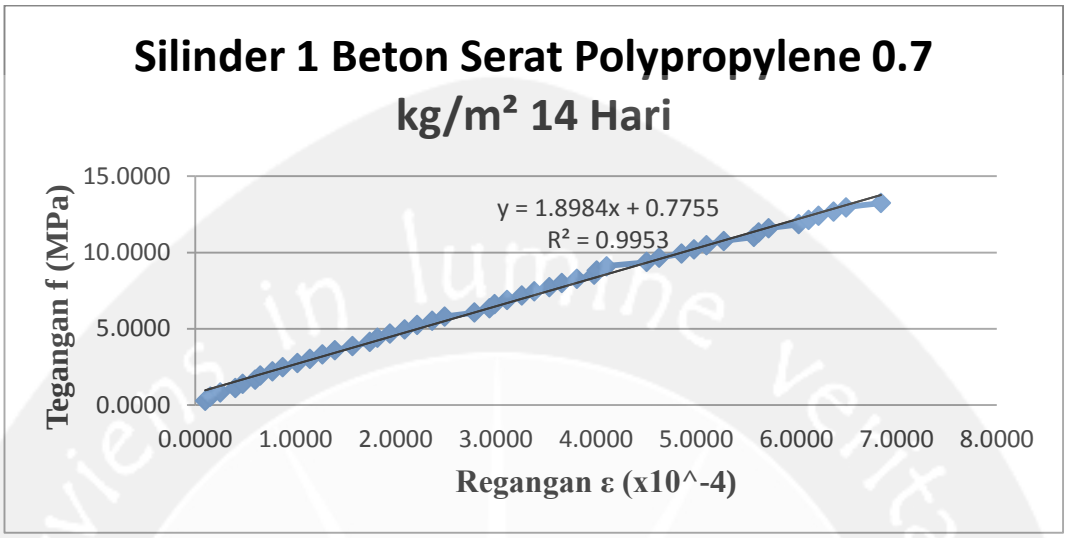
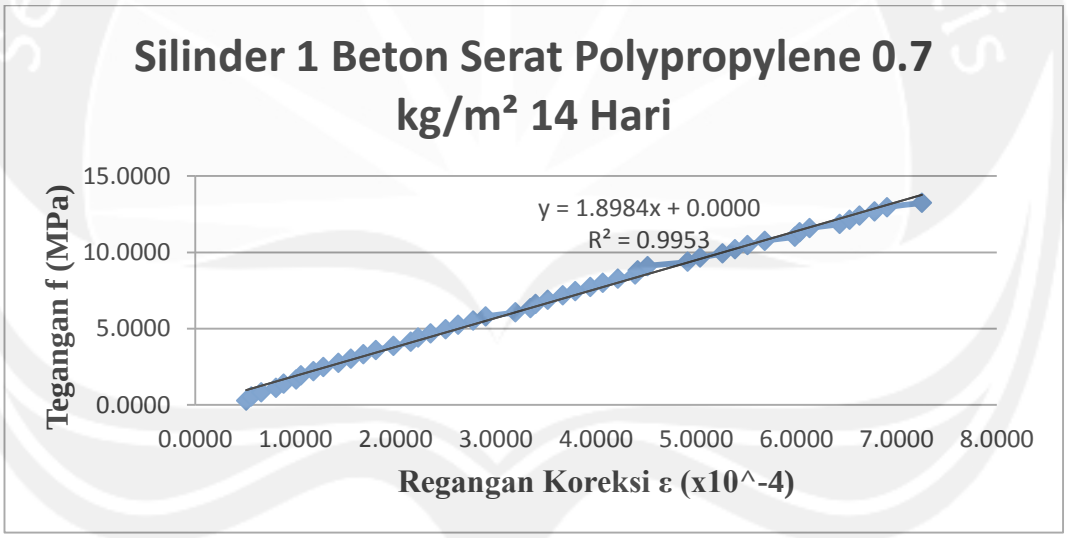
**Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 200.9 | mm |
| Ao | = | 17780.44625 | $mm^2$ |
| Beban Maksimum | = | 500 | KN |
| Kuat Tekan Maksimum | = | 28.12 | Mpa |
| Modulus Elastisitas | = | 18984.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2758 | 0.0996 | 0.5081 |
| 1000 | 9806.65 | 0.6 | 0.3 | 0.5515 | 0.1493 | 0.5578 |
| 1500 | 14710 | 1 | 0.5 | 0.8273 | 0.2489 | 0.6574 |
| 2000 | 19613.3 | 1.6 | 0.8 | 1.1031 | 0.3982 | 0.8067 |
| 2500 | 24516.6 | 1.9 | 0.95 | 1.3789 | 0.4729 | 0.8814 |
| 3000 | 29420 | 2.4 | 1.2 | 1.6546 | 0.5973 | 1.0058 |
| 3500 | 34323.3 | 2.6 | 1.3 | 1.9304 | 0.6471 | 1.0556 |
| 4000 | 39226.6 | 3.1 | 1.55 | 2.2062 | 0.7715 | 1.1800 |
| 4500 | 44129.9 | 3.5 | 1.75 | 2.4819 | 0.8711 | 1.2796 |
| 5000 | 49033.3 | 4.1 | 2.05 | 2.7577 | 1.0204 | 1.4289 |
| 5500 | 53936.6 | 4.6 | 2.3 | 3.0335 | 1.1448 | 1.5534 |
| 6000 | 58839.9 | 5.1 | 2.55 | 3.3092 | 1.2693 | 1.6778 |
| 6500 | 63743.2 | 5.6 | 2.8 | 3.5850 | 1.3937 | 1.8022 |
| 7000 | 68646.6 | 6.3 | 3.15 | 3.8608 | 1.5679 | 1.9764 |
| 7500 | 73549.9 | 7 | 3.5 | 4.1366 | 1.7422 | 2.1507 |
| 8000 | 78453.2 | 7.3 | 3.65 | 4.4123 | 1.8168 | 2.2253 |
| 8500 | 83356.5 | 7.8 | 3.9 | 4.6881 | 1.9413 | 2.3498 |
| 9000 | 88259.9 | 8.4 | 4.2 | 4.9639 | 2.0906 | 2.4991 |
| 9500 | 93163.2 | 8.9 | 4.45 | 5.2396 | 2.2150 | 2.6235 |
| 10000 | 98066.5 | 9.5 | 4.75 | 5.5154 | 2.3644 | 2.7729 |
| 10500 | 102970 | 10 | 5 | 5.7912 | 2.4888 | 2.8973 |
| 11000 | 107873 | 11.2 | 5.6 | 6.0670 | 2.7875 | 3.1960 |
| 11500 | 112776 | 11.8 | 5.9 | 6.3427 | 2.9368 | 3.3453 |
| 12000 | 117680 | 12 | 6 | 6.6185 | 2.9866 | 3.3951 |
| 12500 | 122583 | 12.5 | 6.25 | 6.8943 | 3.1110 | 3.5195 |
| 13000 | 127486 | 13.1 | 6.55 | 7.1700 | 3.2603 | 3.6688 |
| 13500 | 132390 | 13.6 | 6.8 | 7.4458 | 3.3848 | 3.7933 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.2 | 7.1 | 7.7216 | 3.5341 | 3.9426 |
| 14500 | 142196 | 14.7 | 7.35 | 7.9973 | 3.6585 | 4.0670 |
| 15000 | 147100 | 15.3 | 7.65 | 8.2731 | 3.8079 | 4.2164 |
| 15500 | 152003 | 16 | 8 | 8.5489 | 3.9821 | 4.3906 |
| 16000 | 156906 | 16.1 | 8.05 | 8.8247 | 4.0070 | 4.4155 |
| 16500 | 161810 | 16.5 | 8.25 | 9.1004 | 4.1065 | 4.5150 |
| 17000 | 166713 | 18.1 | 9.05 | 9.3762 | 4.5047 | 4.9132 |
| 17500 | 171616 | 18.6 | 9.3 | 9.6520 | 4.6292 | 5.0377 |
| 18000 | 176520 | 19.5 | 9.75 | 9.9277 | 4.8532 | 5.2617 |
| 18500 | 181423 | 20 | 10 | 10.2035 | 4.9776 | 5.3861 |
| 19000 | 186326 | 20.5 | 10.25 | 10.4793 | 5.1020 | 5.5105 |
| 19500 | 191230 | 21.2 | 10.6 | 10.7551 | 5.2763 | 5.6848 |
| 20000 | 196133 | 22.4 | 11.2 | 11.0308 | 5.5749 | 5.9834 |
| 20500 | 201036 | 22.6 | 11.3 | 11.3066 | 5.6247 | 6.0332 |
| 21000 | 205940 | 23 | 11.5 | 11.5824 | 5.7242 | 6.1327 |
| 21500 | 210843 | 24.2 | 12.1 | 11.8581 | 6.0229 | 6.4314 |
| 22000 | 215746 | 24.6 | 12.3 | 12.1339 | 6.1224 | 6.5310 |
| 22500 | 220650 | 25 | 12.5 | 12.4097 | 6.2220 | 6.6305 |
| 23000 | 225553 | 25.6 | 12.8 | 12.6854 | 6.3713 | 6.7798 |
| 23500 | 230456 | 26.1 | 13.05 | 12.9612 | 6.4958 | 6.9043 |
| 24000 | 235360 | 27.5 | 13.75 | 13.2370 | 6.8442 | 7.2527 |


Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 14 Hari
y = 1.8984x + 0.7755
R² = 0.9953
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 14 Hari
y = 1.8984x + 0.0000
R² = 0.9953
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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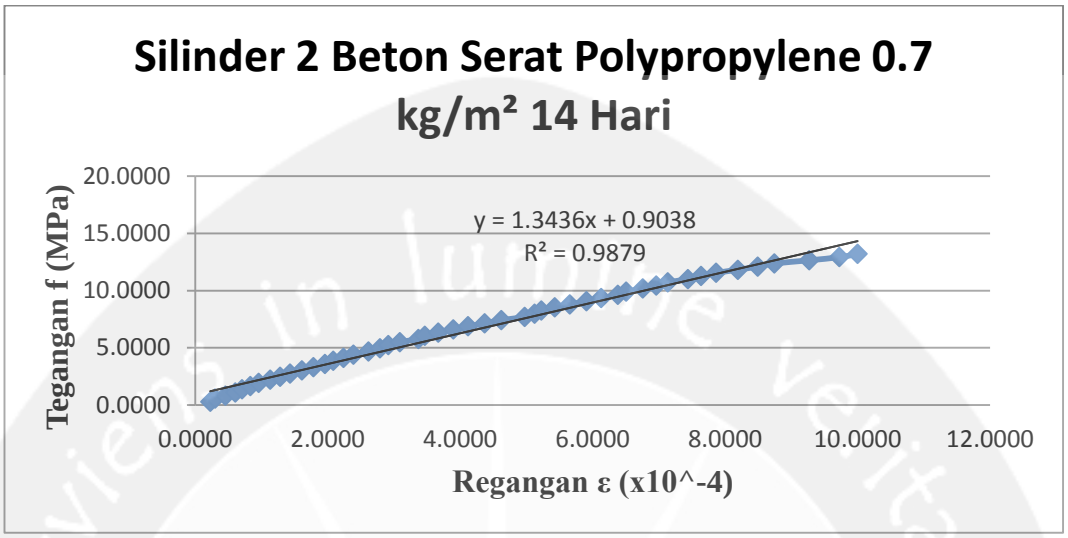
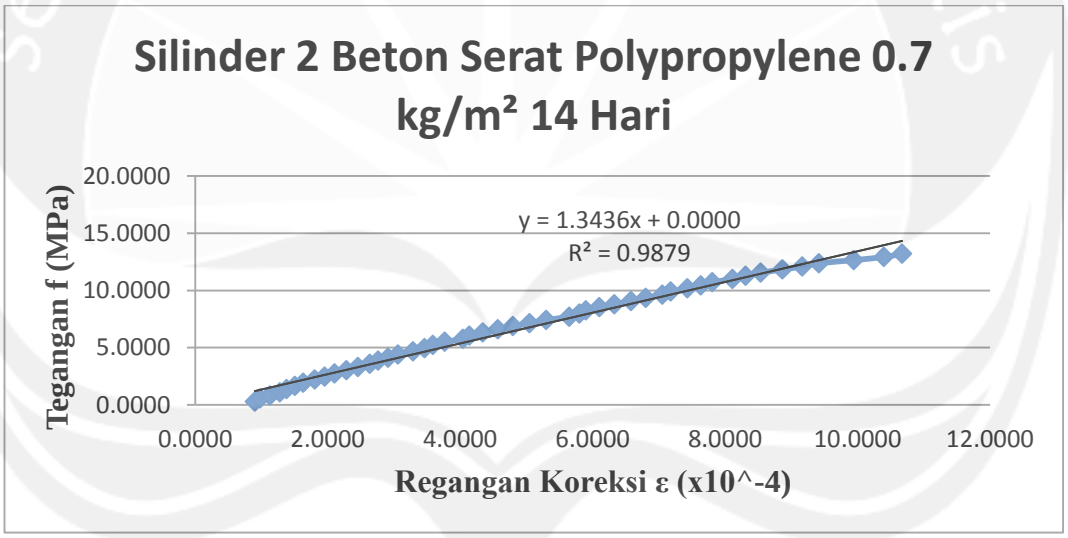
**Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 199 | mm |
| Ao | = | 17827.73465 | $mm^2$ |
| Beban Maksimum | = | 385 | KN |
| Kuat Tekan Maksimum | = | 21.60 | Mpa |
| Modulus Elastisitas | = | 13436.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.9 | 0.45 | 0.2750 | 0.2261 | 0.8988 |
| 1000 | 9806.65 | 1.2 | 0.6 | 0.5501 | 0.3015 | 0.9742 |
| 1500 | 14710 | 1.8 | 0.9 | 0.8251 | 0.4523 | 1.1249 |
| 2000 | 19613.3 | 2.4 | 1.2 | 1.1002 | 0.6030 | 1.2757 |
| 2500 | 24516.6 | 2.8 | 1.4 | 1.3752 | 0.7035 | 1.3762 |
| 3000 | 29420 | 3.3 | 1.65 | 1.6502 | 0.8291 | 1.5018 |
| 3500 | 34323.3 | 3.8 | 1.9 | 1.9253 | 0.9548 | 1.6274 |
| 4000 | 39226.6 | 4.5 | 2.25 | 2.2003 | 1.1307 | 1.8033 |
| 4500 | 44129.9 | 5.1 | 2.55 | 2.4754 | 1.2814 | 1.9541 |
| 5000 | 49033.3 | 5.7 | 2.85 | 2.7504 | 1.4322 | 2.1048 |
| 5500 | 53936.6 | 6.4 | 3.2 | 3.0254 | 1.6080 | 2.2807 |
| 6000 | 58839.9 | 7.1 | 3.55 | 3.3005 | 1.7839 | 2.4566 |
| 6500 | 63743.2 | 7.8 | 3.9 | 3.5755 | 1.9598 | 2.6325 |
| 7000 | 68646.6 | 8.3 | 4.15 | 3.8505 | 2.0854 | 2.7581 |
| 7500 | 73549.9 | 8.9 | 4.45 | 4.1256 | 2.2362 | 2.9089 |
| 8000 | 78453.2 | 9.5 | 4.75 | 4.4006 | 2.3869 | 3.0596 |
| 8500 | 83356.5 | 10.4 | 5.2 | 4.6757 | 2.6131 | 3.2857 |
| 9000 | 88259.9 | 11.1 | 5.55 | 4.9507 | 2.7889 | 3.4616 |
| 9500 | 93163.2 | 11.6 | 5.8 | 5.2257 | 2.9146 | 3.5872 |
| 10000 | 98066.5 | 12.3 | 6.15 | 5.5008 | 3.0905 | 3.7631 |
| 10500 | 102970 | 13.4 | 6.7 | 5.7758 | 3.3668 | 4.0395 |
| 11000 | 107873 | 13.8 | 6.9 | 6.0509 | 3.4673 | 4.1400 |
| 11500 | 112776 | 14.6 | 7.3 | 6.3259 | 3.6683 | 4.3410 |
| 12000 | 117680 | 15.5 | 7.75 | 6.6009 | 3.8945 | 4.5671 |
| 12500 | 122583 | 16.4 | 8.2 | 6.8760 | 4.1206 | 4.7933 |
| 13000 | 127486 | 17.4 | 8.7 | 7.1510 | 4.3719 | 5.0445 |
| 13500 | 132390 | 18.4 | 9.2 | 7.4261 | 4.6231 | 5.2958 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 19.8 | 9.9 | 7.7011 | 4.9749 | 5.6475 |
| 14500 | 142196 | 20.4 | 10.2 | 7.9761 | 5.1256 | 5.7983 |
| 15000 | 147100 | 20.8 | 10.4 | 8.2512 | 5.2261 | 5.8988 |
| 15500 | 152003 | 21.6 | 10.8 | 8.5262 | 5.4271 | 6.0998 |
| 16000 | 156906 | 22.5 | 11.25 | 8.8013 | 5.6533 | 6.3259 |
| 16500 | 161810 | 23.5 | 11.75 | 9.0763 | 5.9045 | 6.5772 |
| 17000 | 166713 | 24.4 | 12.2 | 9.3513 | 6.1307 | 6.8033 |
| 17500 | 171616 | 25.4 | 12.7 | 9.6264 | 6.3819 | 7.0546 |
| 18000 | 176520 | 25.9 | 12.95 | 9.9014 | 6.5075 | 7.1802 |
| 18500 | 181423 | 26.9 | 13.45 | 10.1764 | 6.7588 | 7.4315 |
| 19000 | 186326 | 27.7 | 13.85 | 10.4515 | 6.9598 | 7.6325 |
| 19500 | 191230 | 28.4 | 14.2 | 10.7265 | 7.1357 | 7.8083 |
| 20000 | 196133 | 29.6 | 14.8 | 11.0016 | 7.4372 | 8.1099 |
| 20500 | 201036 | 30.4 | 15.2 | 11.2766 | 7.6382 | 8.3109 |
| 21000 | 205940 | 31.3 | 15.65 | 11.5516 | 7.8643 | 8.5370 |
| 21500 | 210843 | 32.6 | 16.3 | 11.8267 | 8.1910 | 8.8636 |
| 22000 | 215746 | 33.8 | 16.9 | 12.1017 | 8.4925 | 9.1651 |
| 22500 | 220650 | 34.8 | 17.4 | 12.3768 | 8.7437 | 9.4164 |
| 23000 | 225553 | 36.9 | 18.45 | 12.6518 | 9.2714 | 9.9440 |
| 23500 | 230456 | 38.7 | 19.35 | 12.9268 | 9.7236 | 10.3963 |
| 24000 | 235360 | 39.8 | 19.9 | 13.2019 | 10.0000 | 10.6727 |


Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.3436x + 0.9038
R² = 0.9879
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.3436x + 0.0000
R² = 0.9879
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
12.0000
Regangan Koreksi ε (x10^-4)

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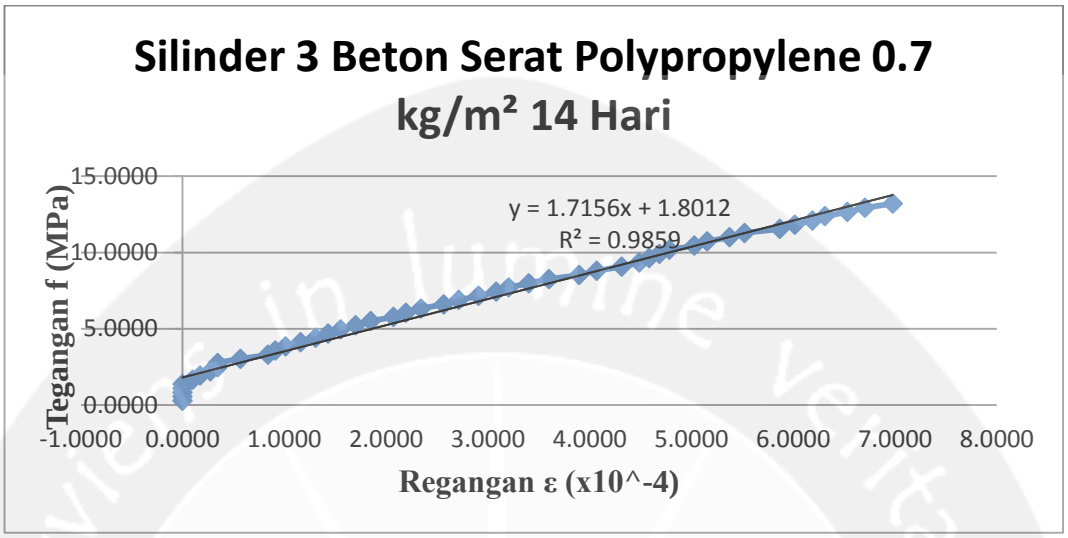
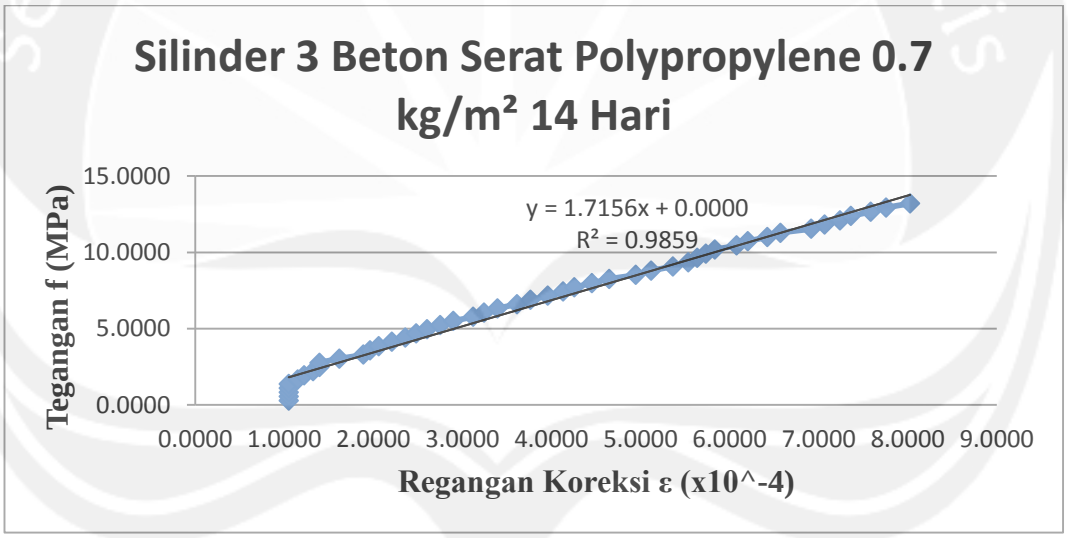
**Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 202.8 | mm |
| Ao | = | 17827.73465 | $mm^2$ |
| Beban Maksimum | = | 520 | KN |
| Kuat Tekan Maksimum | = | 29.17 | Mpa |
| Modulus Elastisitas | = | 17156.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2750 | 0.0000 | 1.0499 |
| 1000 | 9806.65 | 0 | 0 | 0.5501 | 0.0000 | 1.0499 |
| 1500 | 14710 | 0 | 0 | 0.8251 | 0.0000 | 1.0499 |
| 2000 | 19613.3 | 0 | 0 | 1.1002 | 0.0000 | 1.0499 |
| 2500 | 24516.6 | 0 | 0 | 1.3752 | 0.0000 | 1.0499 |
| 3000 | 29420 | 0.4 | 0.2 | 1.6502 | 0.0986 | 1.1485 |
| 3500 | 34323.3 | 0.7 | 0.35 | 1.9253 | 0.1726 | 1.2225 |
| 4000 | 39226.6 | 1.1 | 0.55 | 2.2003 | 0.2712 | 1.3211 |
| 4500 | 44129.9 | 1.4 | 0.7 | 2.4754 | 0.3452 | 1.3951 |
| 5000 | 49033.3 | 1.4 | 0.7 | 2.7504 | 0.3452 | 1.3951 |
| 5500 | 53936.6 | 2.3 | 1.15 | 3.0254 | 0.5671 | 1.6170 |
| 6000 | 58839.9 | 3.4 | 1.7 | 3.3005 | 0.8383 | 1.8882 |
| 6500 | 63743.2 | 3.7 | 1.85 | 3.5755 | 0.9122 | 1.9621 |
| 7000 | 68646.6 | 4.1 | 2.05 | 3.8505 | 1.0108 | 2.0607 |
| 7500 | 73549.9 | 4.7 | 2.35 | 4.1256 | 1.1588 | 2.2087 |
| 8000 | 78453.2 | 5.3 | 2.65 | 4.4006 | 1.3067 | 2.3566 |
| 8500 | 83356.5 | 5.8 | 2.9 | 4.6757 | 1.4300 | 2.4799 |
| 9000 | 88259.9 | 6.3 | 3.15 | 4.9507 | 1.5533 | 2.6031 |
| 9500 | 93163.2 | 6.9 | 3.45 | 5.2257 | 1.7012 | 2.7511 |
| 10000 | 98066.5 | 7.5 | 3.75 | 5.5008 | 1.8491 | 2.8990 |
| 10500 | 102970 | 8.4 | 4.2 | 5.7758 | 2.0710 | 3.1209 |
| 11000 | 107873 | 8.9 | 4.45 | 6.0509 | 2.1943 | 3.2442 |
| 11500 | 112776 | 9.5 | 4.75 | 6.3259 | 2.3422 | 3.3921 |
| 12000 | 117680 | 10.4 | 5.2 | 6.6009 | 2.5641 | 3.6140 |
| 12500 | 122583 | 11 | 5.5 | 6.8760 | 2.7120 | 3.7619 |
| 13000 | 127486 | 11.8 | 5.9 | 7.1510 | 2.9093 | 3.9592 |
| 13500 | 132390 | 12.5 | 6.25 | 7.4261 | 3.0819 | 4.1317 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13 | 6.5 | 7.7011 | 3.2051 | 4.2550 |
| 14500 | 142196 | 13.8 | 6.9 | 7.9761 | 3.4024 | 4.4523 |
| 15000 | 147100 | 14.6 | 7.3 | 8.2512 | 3.5996 | 4.6495 |
| 15500 | 152003 | 15.8 | 7.9 | 8.5262 | 3.8955 | 4.9454 |
| 16000 | 156906 | 16.5 | 8.25 | 8.8013 | 4.0680 | 5.1179 |
| 16500 | 161810 | 17.5 | 8.75 | 9.0763 | 4.3146 | 5.3645 |
| 17000 | 166713 | 18.2 | 9.1 | 9.3513 | 4.4872 | 5.5371 |
| 17500 | 171616 | 18.6 | 9.3 | 9.6264 | 4.5858 | 5.6357 |
| 18000 | 176520 | 19 | 9.5 | 9.9014 | 4.6844 | 5.7343 |
| 18500 | 181423 | 19.4 | 9.7 | 10.1764 | 4.7830 | 5.8329 |
| 19000 | 186326 | 20.4 | 10.2 | 10.4515 | 5.0296 | 6.0795 |
| 19500 | 191230 | 20.9 | 10.45 | 10.7265 | 5.1529 | 6.2028 |
| 20000 | 196133 | 21.8 | 10.9 | 11.0016 | 5.3748 | 6.4246 |
| 20500 | 201036 | 22.4 | 11.2 | 11.2766 | 5.5227 | 6.5726 |
| 21000 | 205940 | 23.8 | 11.9 | 11.5516 | 5.8679 | 6.9177 |
| 21500 | 210843 | 24.4 | 12.2 | 11.8267 | 6.0158 | 7.0657 |
| 22000 | 215746 | 25.1 | 12.55 | 12.1017 | 6.1884 | 7.2383 |
| 22500 | 220650 | 25.6 | 12.8 | 12.3768 | 6.3116 | 7.3615 |
| 23000 | 225553 | 26.5 | 13.25 | 12.6518 | 6.5335 | 7.5834 |
| 23500 | 230456 | 27.2 | 13.6 | 12.9268 | 6.7061 | 7.7560 |
| 24000 | 235360 | 28.3 | 14.15 | 13.2019 | 6.9773 | 8.0272 |


Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 14 Hari
y = 1.7156x + 1.8012
R² = 0.9859
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
-1.0000 0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 14 Hari
y = 1.7156x + 0.0000
R² = 0.9859
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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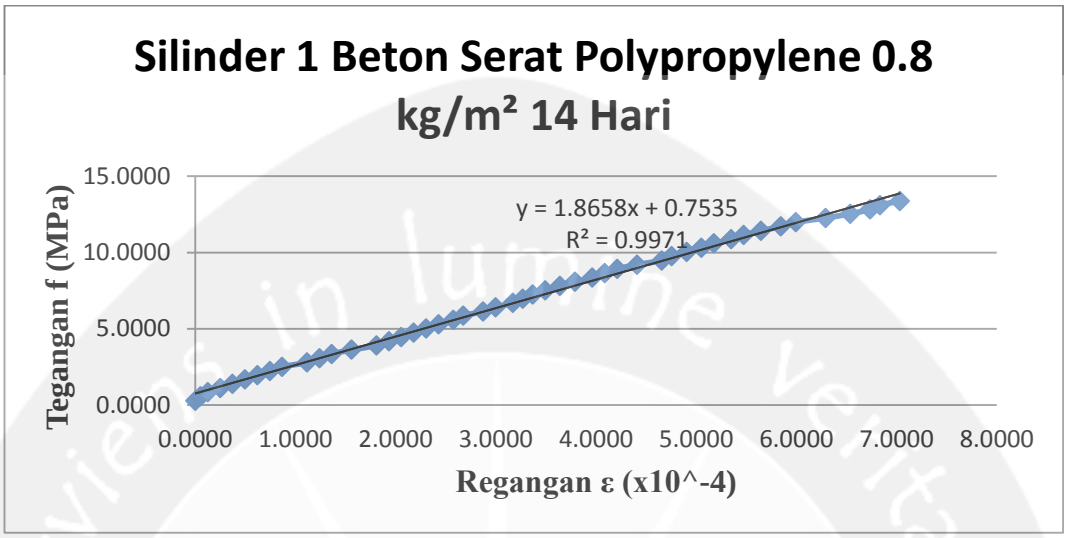
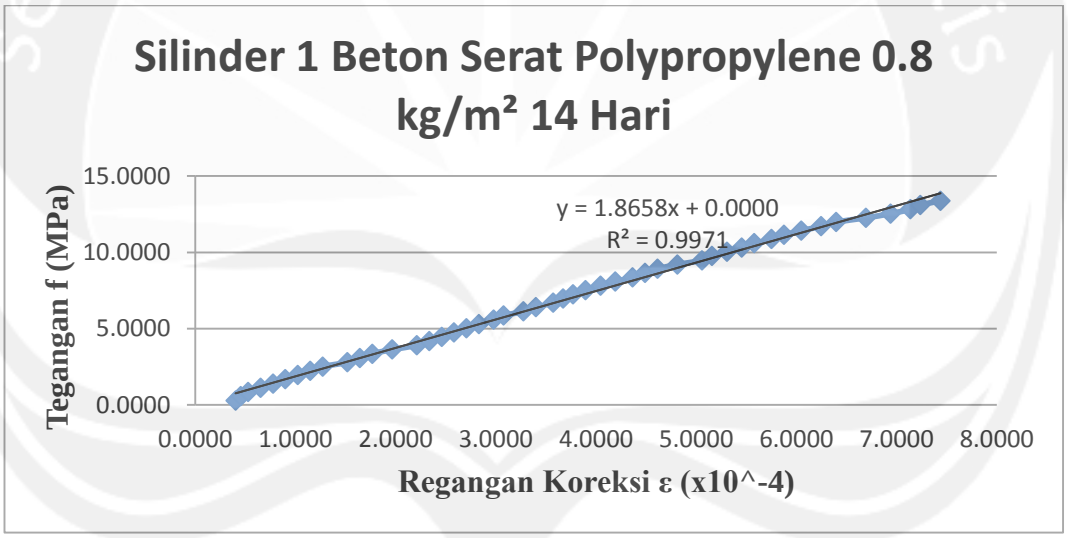
**Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.9 | mm |
| Ao | = | 17591.92065 | $mm^2$ |
| Beban Maksimum | = | 500 | KN |
| Kuat Tekan Maksimum | = | 28.42 | Mpa |
| Modulus Elastisitas | = | 18658.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2787 | 0.0000 | 0.4038 |
| 1000 | 9806.65 | 0.2 | 0.1 | 0.5575 | 0.0495 | 0.4534 |
| 1500 | 14710 | 0.5 | 0.25 | 0.8362 | 0.1238 | 0.5277 |
| 2000 | 19613.3 | 1 | 0.5 | 1.1149 | 0.2476 | 0.6515 |
| 2500 | 24516.6 | 1.5 | 0.75 | 1.3936 | 0.3715 | 0.7753 |
| 3000 | 29420 | 2 | 1 | 1.6724 | 0.4953 | 0.8991 |
| 3500 | 34323.3 | 2.5 | 1.25 | 1.9511 | 0.6191 | 1.0230 |
| 4000 | 39226.6 | 3 | 1.5 | 2.2298 | 0.7429 | 1.1468 |
| 4500 | 44129.9 | 3.5 | 1.75 | 2.5085 | 0.8668 | 1.2706 |
| 5000 | 49033.3 | 4.5 | 2.25 | 2.7873 | 1.1144 | 1.5183 |
| 5500 | 53936.6 | 5 | 2.5 | 3.0660 | 1.2382 | 1.6421 |
| 6000 | 58839.9 | 5.5 | 2.75 | 3.3447 | 1.3621 | 1.7659 |
| 6500 | 63743.2 | 6.3 | 3.15 | 3.6234 | 1.5602 | 1.9640 |
| 7000 | 68646.6 | 7.3 | 3.65 | 3.9022 | 1.8078 | 2.2117 |
| 7500 | 73549.9 | 7.8 | 3.9 | 4.1809 | 1.9316 | 2.3355 |
| 8000 | 78453.2 | 8.3 | 4.15 | 4.4596 | 2.0555 | 2.4593 |
| 8500 | 83356.5 | 8.8 | 4.4 | 4.7383 | 2.1793 | 2.5831 |
| 9000 | 88259.9 | 9.3 | 4.65 | 5.0171 | 2.3031 | 2.7070 |
| 9500 | 93163.2 | 9.8 | 4.9 | 5.2958 | 2.4269 | 2.8308 |
| 10000 | 98066.5 | 10.4 | 5.2 | 5.5745 | 2.5755 | 2.9794 |
| 10500 | 102970 | 10.8 | 5.4 | 5.8532 | 2.6746 | 3.0784 |
| 11000 | 107873 | 11.6 | 5.8 | 6.1320 | 2.8727 | 3.2766 |
| 11500 | 112776 | 12.1 | 6.05 | 6.4107 | 2.9965 | 3.4004 |
| 12000 | 117680 | 12.8 | 6.4 | 6.6894 | 3.1699 | 3.5737 |
| 12500 | 122583 | 13.2 | 6.6 | 6.9681 | 3.2689 | 3.6728 |
| 13000 | 127486 | 13.6 | 6.8 | 7.2469 | 3.3680 | 3.7719 |
| 13500 | 132390 | 14.1 | 7.05 | 7.5256 | 3.4918 | 3.8957 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.7 | 7.35 | 7.8043 | 3.6404 | 4.0443 |
| 14500 | 142196 | 15.3 | 7.65 | 8.0831 | 3.7890 | 4.1929 |
| 15000 | 147100 | 16 | 8 | 8.3618 | 3.9624 | 4.3662 |
| 15500 | 152003 | 16.5 | 8.25 | 8.6405 | 4.0862 | 4.4900 |
| 16000 | 156906 | 17 | 8.5 | 8.9192 | 4.2100 | 4.6139 |
| 16500 | 161810 | 17.8 | 8.9 | 9.1980 | 4.4081 | 4.8120 |
| 17000 | 166713 | 18.8 | 9.4 | 9.4767 | 4.6558 | 5.0596 |
| 17500 | 171616 | 19.2 | 9.6 | 9.7554 | 4.7548 | 5.1587 |
| 18000 | 176520 | 19.8 | 9.9 | 10.0341 | 4.9034 | 5.3073 |
| 18500 | 181423 | 20.4 | 10.2 | 10.3129 | 5.0520 | 5.4559 |
| 19000 | 186326 | 20.9 | 10.45 | 10.5916 | 5.1758 | 5.5797 |
| 19500 | 191230 | 21.6 | 10.8 | 10.8703 | 5.3492 | 5.7530 |
| 20000 | 196133 | 22.1 | 11.05 | 11.1490 | 5.4730 | 5.8769 |
| 20500 | 201036 | 22.8 | 11.4 | 11.4278 | 5.6464 | 6.0502 |
| 21000 | 205940 | 23.6 | 11.8 | 11.7065 | 5.8445 | 6.2483 |
| 21500 | 210843 | 24.2 | 12.1 | 11.9852 | 5.9931 | 6.3969 |
| 22000 | 215746 | 25.4 | 12.7 | 12.2639 | 6.2902 | 6.6941 |
| 22500 | 220650 | 26.4 | 13.2 | 12.5427 | 6.5379 | 6.9417 |
| 23000 | 225553 | 27.2 | 13.6 | 12.8214 | 6.7360 | 7.1399 |
| 23500 | 230456 | 27.6 | 13.8 | 13.1001 | 6.8351 | 7.2389 |
| 24000 | 235360 | 28.4 | 14.2 | 13.3788 | 7.0332 | 7.4370 |


Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 14 Hari
y = 1.8658x + 0.7535
R² = 0.9971
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 14 Hari
y = 1.8658x + 0.0000
R² = 0.9971
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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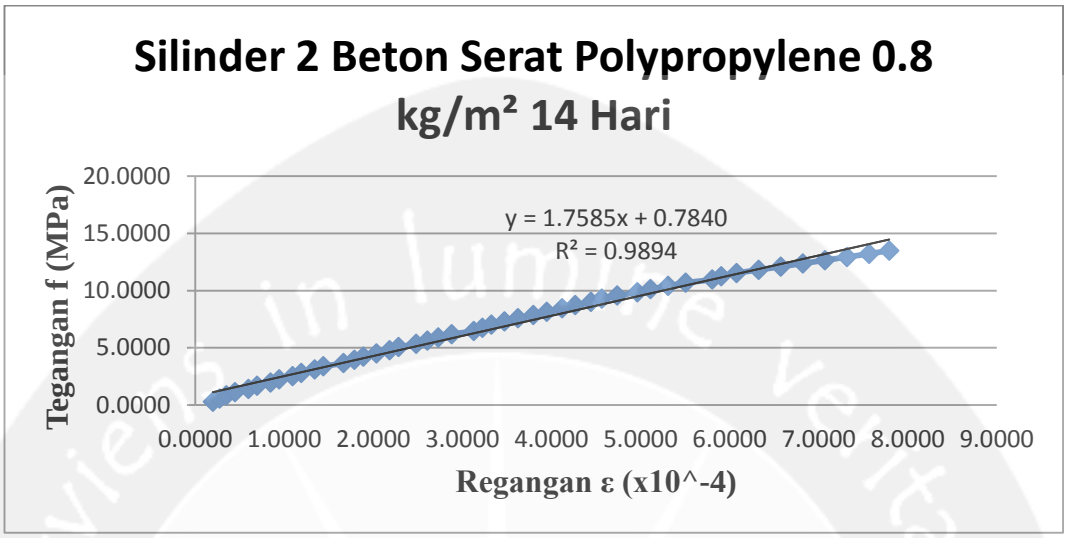
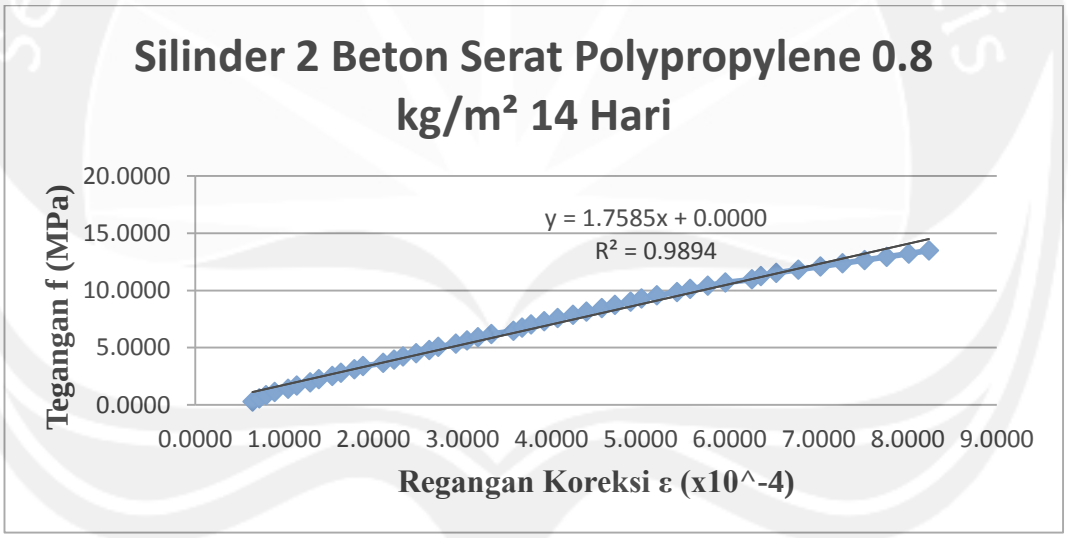
**Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.5 | mm |
| Ao | = | 17427.785 | $mm^2$ |
| Beban Maksimum | = | 445 | KN |
| Kuat Tekan Maksimum | = | 25.53 | Mpa |
| Modulus Elastisitas | = | 17585.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.8 | 0.4 | 0.2814 | 0.1985 | 0.6443 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5627 | 0.2730 | 0.7188 |
| 1500 | 14710 | 1.4 | 0.7 | 0.8441 | 0.3474 | 0.7932 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.1254 | 0.4467 | 0.8925 |
| 2500 | 24516.6 | 2.4 | 1.2 | 1.4068 | 0.5955 | 1.0414 |
| 3000 | 29420 | 2.8 | 1.4 | 1.6881 | 0.6948 | 1.1406 |
| 3500 | 34323.3 | 3.4 | 1.7 | 1.9695 | 0.8437 | 1.2895 |
| 4000 | 39226.6 | 3.8 | 1.9 | 2.2508 | 0.9429 | 1.3888 |
| 4500 | 44129.9 | 4.4 | 2.2 | 2.5322 | 1.0918 | 1.5376 |
| 5000 | 49033.3 | 4.8 | 2.4 | 2.8135 | 1.1911 | 1.6369 |
| 5500 | 53936.6 | 5.4 | 2.7 | 3.0949 | 1.3400 | 1.7858 |
| 6000 | 58839.9 | 5.8 | 2.9 | 3.3762 | 1.4392 | 1.8850 |
| 6500 | 63743.2 | 6.7 | 3.35 | 3.6576 | 1.6625 | 2.1084 |
| 7000 | 68646.6 | 7.2 | 3.6 | 3.9389 | 1.7866 | 2.2324 |
| 7500 | 73549.9 | 7.6 | 3.8 | 4.2203 | 1.8859 | 2.3317 |
| 8000 | 78453.2 | 8.2 | 4.1 | 4.5016 | 2.0347 | 2.4806 |
| 8500 | 83356.5 | 8.8 | 4.4 | 4.7830 | 2.1836 | 2.6295 |
| 9000 | 88259.9 | 9.2 | 4.6 | 5.0643 | 2.2829 | 2.7287 |
| 9500 | 93163.2 | 10 | 5 | 5.3457 | 2.4814 | 2.9272 |
| 10000 | 98066.5 | 10.5 | 5.25 | 5.6270 | 2.6055 | 3.0513 |
| 10500 | 102970 | 11 | 5.5 | 5.9084 | 2.7295 | 3.1754 |
| 11000 | 107873 | 11.6 | 5.8 | 6.1897 | 2.8784 | 3.3242 |
| 11500 | 112776 | 12.6 | 6.3 | 6.4711 | 3.1266 | 3.5724 |
| 12000 | 117680 | 13 | 6.5 | 6.7524 | 3.2258 | 3.6716 |
| 12500 | 122583 | 13.4 | 6.7 | 7.0338 | 3.3251 | 3.7709 |
| 13000 | 127486 | 14 | 7 | 7.3151 | 3.4739 | 3.9198 |
| 13500 | 132390 | 14.6 | 7.3 | 7.5965 | 3.6228 | 4.0687 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15.3 | 7.65 | 7.8778 | 3.7965 | 4.2424 |
| 14500 | 142196 | 15.9 | 7.95 | 8.1592 | 3.9454 | 4.3912 |
| 15000 | 147100 | 16.6 | 8.3 | 8.4405 | 4.1191 | 4.5649 |
| 15500 | 152003 | 17.2 | 8.6 | 8.7219 | 4.2680 | 4.7138 |
| 16000 | 156906 | 17.9 | 8.95 | 9.0032 | 4.4417 | 4.8875 |
| 16500 | 161810 | 18.4 | 9.2 | 9.2846 | 4.5658 | 5.0116 |
| 17000 | 166713 | 19.1 | 9.55 | 9.5659 | 4.7395 | 5.1853 |
| 17500 | 171616 | 20 | 10 | 9.8473 | 4.9628 | 5.4086 |
| 18000 | 176520 | 20.6 | 10.3 | 10.1286 | 5.1117 | 5.5575 |
| 18500 | 181423 | 21.4 | 10.7 | 10.4100 | 5.3102 | 5.7560 |
| 19000 | 186326 | 22.2 | 11.1 | 10.6913 | 5.5087 | 5.9545 |
| 19500 | 191230 | 23.4 | 11.7 | 10.9727 | 5.8065 | 6.2523 |
| 20000 | 196133 | 23.8 | 11.9 | 11.2540 | 5.9057 | 6.3515 |
| 20500 | 201036 | 24.5 | 12.25 | 11.5354 | 6.0794 | 6.5252 |
| 21000 | 205940 | 25.5 | 12.75 | 11.8167 | 6.3275 | 6.7734 |
| 21500 | 210843 | 26.5 | 13.25 | 12.0981 | 6.5757 | 7.0215 |
| 22000 | 215746 | 27.5 | 13.75 | 12.3794 | 6.8238 | 7.2697 |
| 22500 | 220650 | 28.5 | 14.25 | 12.6608 | 7.0720 | 7.5178 |
| 23000 | 225553 | 29.5 | 14.75 | 12.9421 | 7.3201 | 7.7659 |
| 23500 | 230456 | 30.5 | 15.25 | 13.2235 | 7.5682 | 8.0141 |
| 24000 | 235360 | 31.4 | 15.7 | 13.5048 | 7.7916 | 8.2374 |


Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.7585x + 0.7840
R² = 0.9894
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.7585x + 0.0000
R² = 0.9894
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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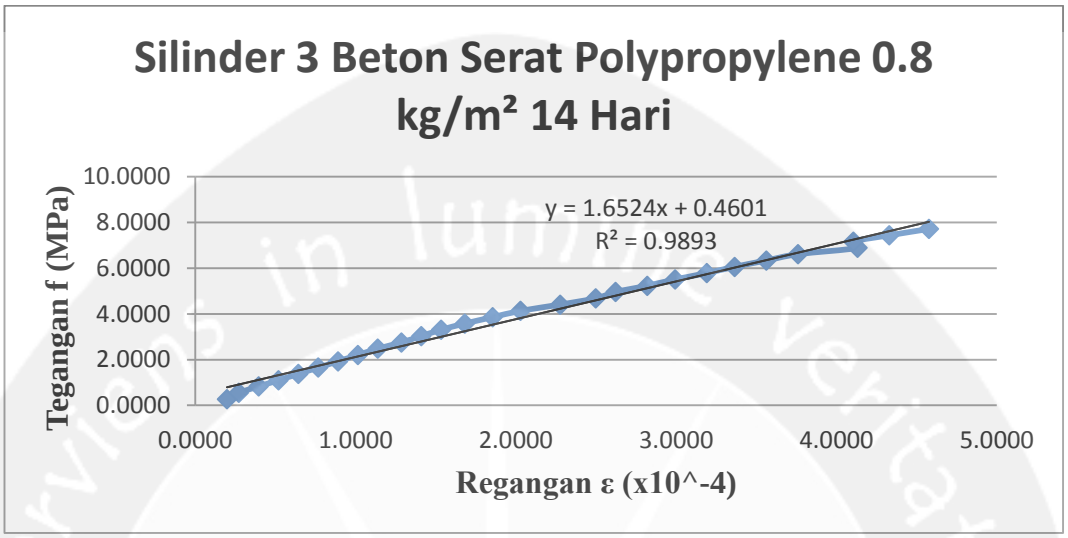
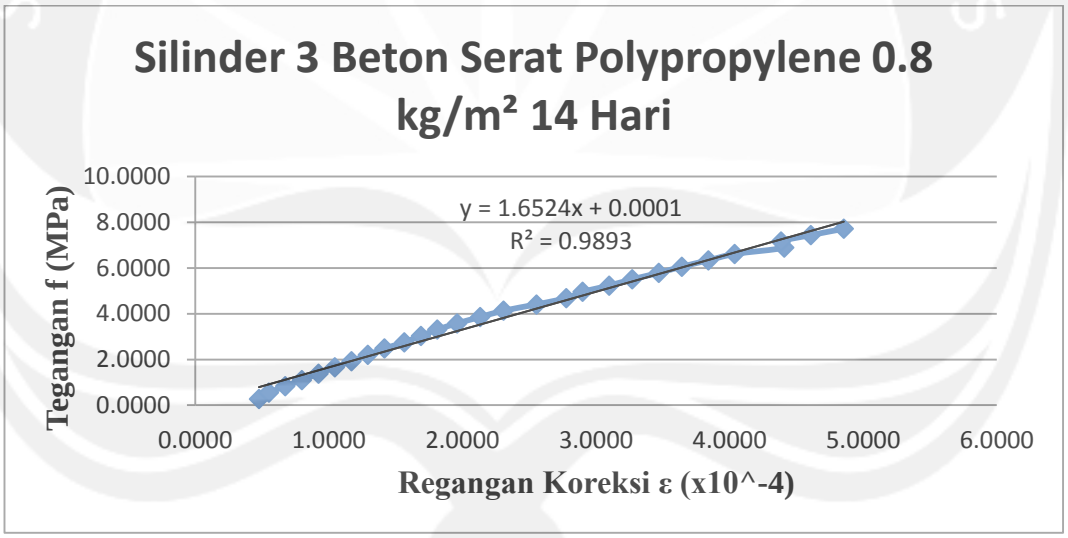
**Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 202.1 | mm |
| Ao | = | 17804.0826 | $mm^2$ |
| Beban Maksimum | = | 455 | KN |
| Kuat Tekan Maksimum | = | 25.56 | Mpa |
| Modulus Elastisitas | = | 16524.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.8 | 0.4 | 0.2754 | 0.1979 | 0.4764 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5508 | 0.2721 | 0.5506 |
| 1500 | 14710 | 1.6 | 0.8 | 0.8262 | 0.3958 | 0.6743 |
| 2000 | 19613.3 | 2.1 | 1.05 | 1.1016 | 0.5195 | 0.7980 |
| 2500 | 24516.6 | 2.6 | 1.3 | 1.3770 | 0.6432 | 0.9217 |
| 3000 | 29420 | 3.1 | 1.55 | 1.6524 | 0.7669 | 1.0454 |
| 3500 | 34323.3 | 3.6 | 1.8 | 1.9278 | 0.8906 | 1.1691 |
| 4000 | 39226.6 | 4.1 | 2.05 | 2.2032 | 1.0143 | 1.2928 |
| 4500 | 44129.9 | 4.6 | 2.3 | 2.4786 | 1.1381 | 1.4165 |
| 5000 | 49033.3 | 5.2 | 2.6 | 2.7540 | 1.2865 | 1.5649 |
| 5500 | 53936.6 | 5.7 | 2.85 | 3.0294 | 1.4102 | 1.6886 |
| 6000 | 58839.9 | 6.2 | 3.1 | 3.3049 | 1.5339 | 1.8123 |
| 6500 | 63743.2 | 6.8 | 3.4 | 3.5803 | 1.6823 | 1.9608 |
| 7000 | 68646.6 | 7.5 | 3.75 | 3.8557 | 1.8555 | 2.1340 |
| 7500 | 73549.9 | 8.2 | 4.1 | 4.1311 | 2.0287 | 2.3071 |
| 8000 | 78453.2 | 9.2 | 4.6 | 4.4065 | 2.2761 | 2.5545 |
| 8500 | 83356.5 | 10.1 | 5.05 | 4.6819 | 2.4988 | 2.7772 |
| 9000 | 88259.9 | 10.6 | 5.3 | 4.9573 | 2.6225 | 2.9009 |
| 9500 | 93163.2 | 11.4 | 5.7 | 5.2327 | 2.8204 | 3.0988 |
| 10000 | 98066.5 | 12.1 | 6.05 | 5.5081 | 2.9936 | 3.2720 |
| 10500 | 102970 | 12.9 | 6.45 | 5.7835 | 3.1915 | 3.4699 |
| 11000 | 107873 | 13.6 | 6.8 | 6.0589 | 3.3647 | 3.6431 |
| 11500 | 112776 | 14.4 | 7.2 | 6.3343 | 3.5626 | 3.8410 |
| 12000 | 117680 | 15.2 | 7.6 | 6.6097 | 3.7605 | 4.0390 |
| 12500 | 122583 | 16.7 | 8.35 | 6.8851 | 4.1316 | 4.4101 |
| 13000 | 127486 | 16.6 | 8.3 | 7.1605 | 4.1069 | 4.3853 |
| 13500 | 132390 | 17.5 | 8.75 | 7.4359 | 4.3295 | 4.6080 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 18.5 | 9.25 | 7.7113 | 4.5769 | 4.8554 |



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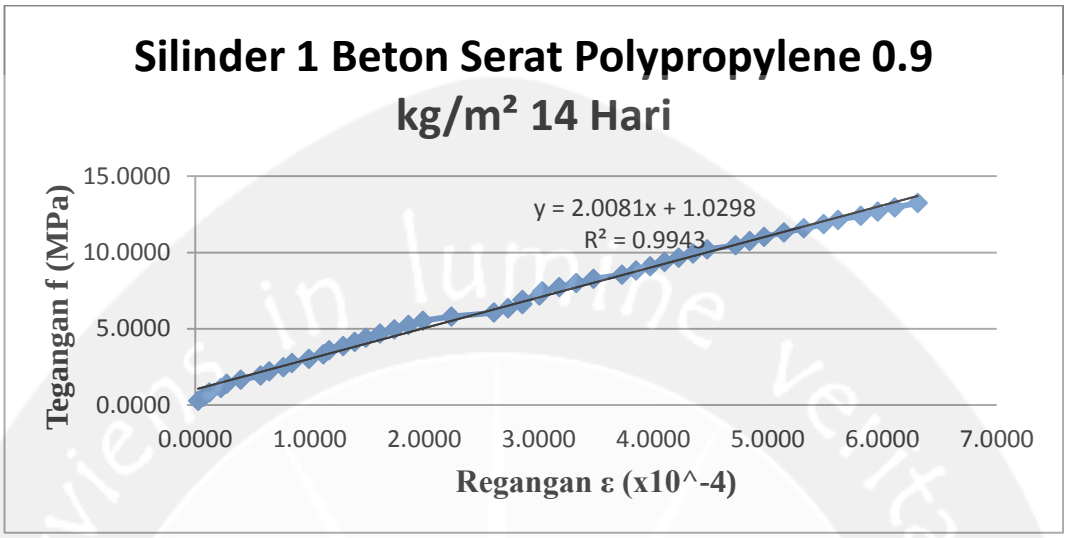
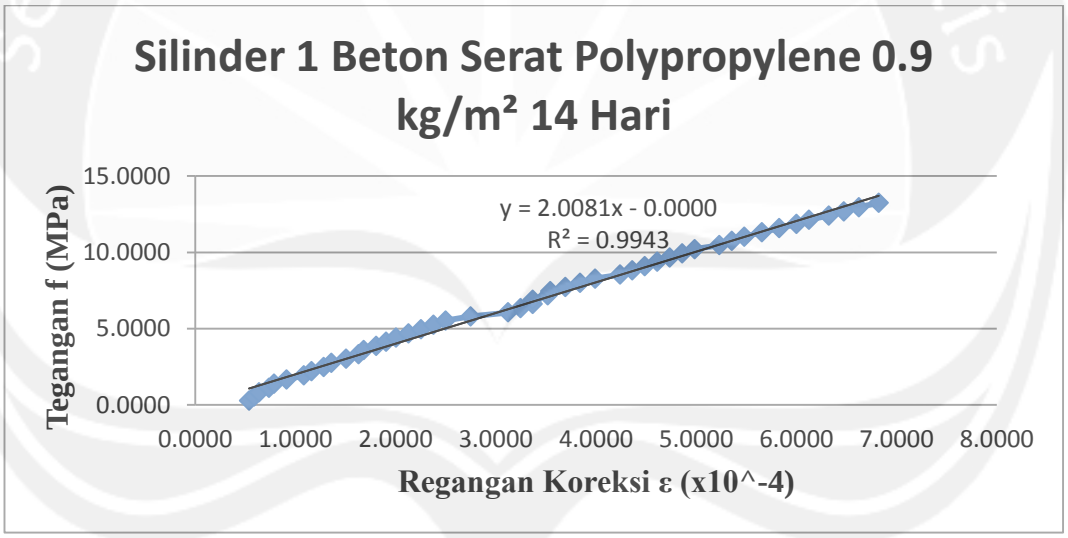
**Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.3 | mm |
| Ao | = | 17780.44625 | $mm^2$ |
| Beban Maksimum | = | 480 | KN |
| Kuat Tekan Maksimum | = | 27.00 | Mpa |
| Modulus Elastisitas | = | 20081.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2758 | 0.0248 | 0.5377 |
| 1000 | 9806.65 | 0.3 | 0.15 | 0.5515 | 0.0745 | 0.5873 |
| 1500 | 14710 | 0.5 | 0.25 | 0.8273 | 0.1242 | 0.6370 |
| 2000 | 19613.3 | 0.9 | 0.45 | 1.1031 | 0.2235 | 0.7364 |
| 2500 | 24516.6 | 1.1 | 0.55 | 1.3789 | 0.2732 | 0.7860 |
| 3000 | 29420 | 1.6 | 0.8 | 1.6546 | 0.3974 | 0.9102 |
| 3500 | 34323.3 | 2.3 | 1.15 | 1.9304 | 0.5713 | 1.0841 |
| 4000 | 39226.6 | 2.6 | 1.3 | 2.2062 | 0.6458 | 1.1586 |
| 4500 | 44129.9 | 3.1 | 1.55 | 2.4819 | 0.7700 | 1.2828 |
| 5000 | 49033.3 | 3.4 | 1.7 | 2.7577 | 0.8445 | 1.3573 |
| 5500 | 53936.6 | 4 | 2 | 3.0335 | 0.9935 | 1.5064 |
| 6000 | 58839.9 | 4.5 | 2.25 | 3.3092 | 1.1177 | 1.6306 |
| 6500 | 63743.2 | 4.7 | 2.35 | 3.5850 | 1.1674 | 1.6802 |
| 7000 | 68646.6 | 5.2 | 2.6 | 3.8608 | 1.2916 | 1.8044 |
| 7500 | 73549.9 | 5.6 | 2.8 | 4.1366 | 1.3910 | 1.9038 |
| 8000 | 78453.2 | 6 | 3 | 4.4123 | 1.4903 | 2.0031 |
| 8500 | 83356.5 | 6.5 | 3.25 | 4.6881 | 1.6145 | 2.1273 |
| 9000 | 88259.9 | 7 | 3.5 | 4.9639 | 1.7387 | 2.2515 |
| 9500 | 93163.2 | 7.5 | 3.75 | 5.2396 | 1.8629 | 2.3757 |
| 10000 | 98066.5 | 8 | 4 | 5.5154 | 1.9871 | 2.4999 |
| 10500 | 102970 | 9 | 4.5 | 5.7912 | 2.2355 | 2.7483 |
| 11000 | 107873 | 10.5 | 5.25 | 6.0670 | 2.6080 | 3.1209 |
| 11500 | 112776 | 11 | 5.5 | 6.3427 | 2.7322 | 3.2451 |
| 12000 | 117680 | 11.5 | 5.75 | 6.6185 | 2.8564 | 3.3693 |
| 12500 | 122583 | 11.5 | 5.75 | 6.8943 | 2.8564 | 3.3693 |
| 13000 | 127486 | 12.1 | 6.05 | 7.1700 | 3.0055 | 3.5183 |
| 13500 | 132390 | 12.2 | 6.1 | 7.4458 | 3.0303 | 3.5431 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.8 | 6.4 | 7.7216 | 3.1793 | 3.6922 |
| 14500 | 142196 | 13.4 | 6.7 | 7.9973 | 3.3284 | 3.8412 |
| 15000 | 147100 | 14 | 7 | 8.2731 | 3.4774 | 3.9902 |
| 15500 | 152003 | 15 | 7.5 | 8.5489 | 3.7258 | 4.2386 |
| 16000 | 156906 | 15.5 | 7.75 | 8.8247 | 3.8500 | 4.3628 |
| 16500 | 161810 | 16 | 8 | 9.1004 | 3.9742 | 4.4870 |
| 17000 | 166713 | 16.5 | 8.25 | 9.3762 | 4.0984 | 4.6112 |
| 17500 | 171616 | 17 | 8.5 | 9.6520 | 4.2226 | 4.7354 |
| 18000 | 176520 | 17.5 | 8.75 | 9.9277 | 4.3467 | 4.8596 |
| 18500 | 181423 | 18 | 9 | 10.2035 | 4.4709 | 4.9838 |
| 19000 | 186326 | 19 | 9.5 | 10.4793 | 4.7193 | 5.2321 |
| 19500 | 191230 | 19.5 | 9.75 | 10.7551 | 4.8435 | 5.3563 |
| 20000 | 196133 | 20 | 10 | 11.0308 | 4.9677 | 5.4805 |
| 20500 | 201036 | 20.7 | 10.35 | 11.3066 | 5.1416 | 5.6544 |
| 21000 | 205940 | 21.4 | 10.7 | 11.5824 | 5.3154 | 5.8283 |
| 21500 | 210843 | 22.1 | 11.05 | 11.8581 | 5.4893 | 6.0021 |
| 22000 | 215746 | 22.6 | 11.3 | 12.1339 | 5.6135 | 6.1263 |
| 22500 | 220650 | 23.4 | 11.7 | 12.4097 | 5.8122 | 6.3250 |
| 23000 | 225553 | 24 | 12 | 12.6854 | 5.9613 | 6.4741 |
| 23500 | 230456 | 24.6 | 12.3 | 12.9612 | 6.1103 | 6.6231 |
| 24000 | 235360 | 25.4 | 12.7 | 13.2370 | 6.3090 | 6.8218 |


Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 14 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 2.0081x + 1.0298
R² = 0.9943
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 14 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 2.0081x - 0.0000
R² = 0.9943
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
8.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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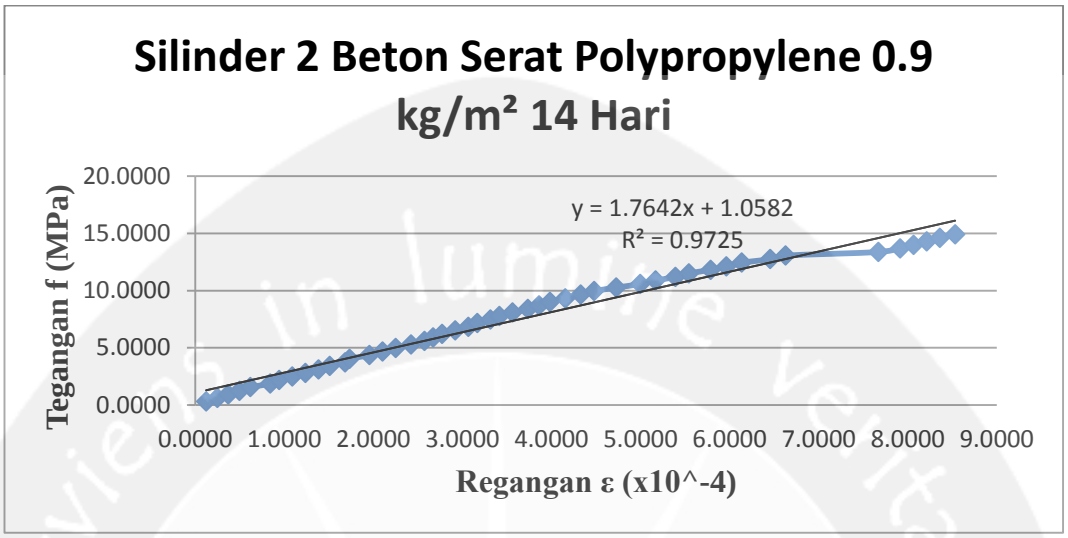
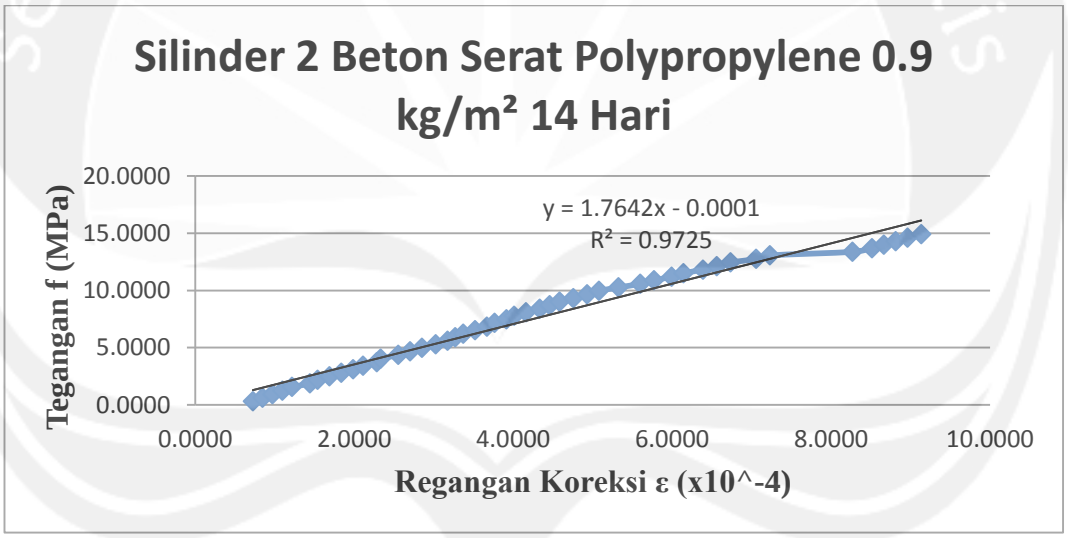
**Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 202.1 | mm |
| Ao | = | 15761.92865 | $mm^2$ |
| Beban Maksimum | = | 480 | KN |
| Kuat Tekan Maksimum | = | 30.45 | Mpa |
| Modulus Elastisitas | = | 17642.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.3111 | 0.1237 | 0.7235 |
| 1000 | 9806.65 | 1 | 0.5 | 0.6222 | 0.2474 | 0.8472 |
| 1500 | 14710 | 1.5 | 0.75 | 0.9333 | 0.3711 | 0.9709 |
| 2000 | 19613.3 | 2 | 1 | 1.2443 | 0.4948 | 1.0946 |
| 2500 | 24516.6 | 2.5 | 1.25 | 1.5554 | 0.6185 | 1.2183 |
| 3000 | 29420 | 3.4 | 1.7 | 1.8665 | 0.8412 | 1.4410 |
| 3500 | 34323.3 | 3.8 | 1.9 | 2.1776 | 0.9401 | 1.5399 |
| 4000 | 39226.6 | 4.4 | 2.2 | 2.4887 | 1.0886 | 1.6884 |
| 4500 | 44129.9 | 5 | 2.5 | 2.7998 | 1.2370 | 1.8368 |
| 5000 | 49033.3 | 5.6 | 2.8 | 3.1109 | 1.3855 | 1.9853 |
| 5500 | 53936.6 | 6.1 | 3.05 | 3.4220 | 1.5092 | 2.1090 |
| 6000 | 58839.9 | 6.8 | 3.4 | 3.7330 | 1.6823 | 2.2822 |
| 6500 | 63743.2 | 7 | 3.5 | 4.0441 | 1.7318 | 2.3316 |
| 7000 | 68646.6 | 7.9 | 3.95 | 4.3552 | 1.9545 | 2.5543 |
| 7500 | 73549.9 | 8.5 | 4.25 | 4.6663 | 2.1029 | 2.7027 |
| 8000 | 78453.2 | 9.1 | 4.55 | 4.9774 | 2.2514 | 2.8512 |
| 8500 | 83356.5 | 9.8 | 4.9 | 5.2885 | 2.4245 | 3.0244 |
| 9000 | 88259.9 | 10.4 | 5.2 | 5.5996 | 2.5730 | 3.1728 |
| 9500 | 93163.2 | 10.8 | 5.4 | 5.9106 | 2.6719 | 3.2718 |
| 10000 | 98066.5 | 11.2 | 5.6 | 6.2217 | 2.7709 | 3.3707 |
| 10500 | 102970 | 11.8 | 5.9 | 6.5328 | 2.9193 | 3.5192 |
| 11000 | 107873 | 12.4 | 6.2 | 6.8439 | 3.0678 | 3.6676 |
| 11500 | 112776 | 12.8 | 6.4 | 7.1550 | 3.1667 | 3.7666 |
| 12000 | 117680 | 13.4 | 6.7 | 7.4661 | 3.3152 | 3.9150 |
| 12500 | 122583 | 13.8 | 6.9 | 7.7772 | 3.4142 | 4.0140 |
| 13000 | 127486 | 14.4 | 7.2 | 8.0883 | 3.5626 | 4.1624 |
| 13500 | 132390 | 15.1 | 7.55 | 8.3993 | 3.7358 | 4.3356 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 15.6 | 7.8 | 8.7104 | 3.8595 | 4.4593 |
| 14500 | 142196 | 16.1 | 8.05 | 9.0215 | 3.9832 | 4.5830 |
| 15000 | 147100 | 16.8 | 8.4 | 9.3326 | 4.1564 | 4.7562 |
| 15500 | 152003 | 17.5 | 8.75 | 9.6437 | 4.3295 | 4.9294 |
| 16000 | 156906 | 18.1 | 9.05 | 9.9548 | 4.4780 | 5.0778 |
| 16500 | 161810 | 19.1 | 9.55 | 10.2659 | 4.7254 | 5.3252 |
| 17000 | 166713 | 20.2 | 10.1 | 10.5769 | 4.9975 | 5.5973 |
| 17500 | 171616 | 20.9 | 10.45 | 10.8880 | 5.1707 | 5.7705 |
| 18000 | 176520 | 21.8 | 10.9 | 11.1991 | 5.3934 | 5.9932 |
| 18500 | 181423 | 22.4 | 11.2 | 11.5102 | 5.5418 | 6.1416 |
| 19000 | 186326 | 23.4 | 11.7 | 11.8213 | 5.7892 | 6.3890 |
| 19500 | 191230 | 24.1 | 12.05 | 12.1324 | 5.9624 | 6.5622 |
| 20000 | 196133 | 24.8 | 12.4 | 12.4435 | 6.1356 | 6.7354 |
| 20500 | 201036 | 26.1 | 13.05 | 12.7546 | 6.4572 | 7.0570 |
| 21000 | 205940 | 26.8 | 13.4 | 13.0656 | 6.6304 | 7.2302 |
| 21500 | 210843 | 31 | 15.5 | 13.3767 | 7.6695 | 8.2693 |
| 22000 | 215746 | 32 | 16 | 13.6878 | 7.9169 | 8.5167 |
| 22500 | 220650 | 32.6 | 16.3 | 13.9989 | 8.0653 | 8.6651 |
| 23000 | 225553 | 33.2 | 16.6 | 14.3100 | 8.2138 | 8.8136 |
| 23500 | 230456 | 33.8 | 16.9 | 14.6211 | 8.3622 | 8.9620 |
| 24000 | 235360 | 34.5 | 17.25 | 14.9322 | 8.5354 | 9.1352 |


Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.7642x + 1.0582
R² = 0.9725
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 14 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.7642x - 0.0001
R² = 0.9725
0.0000 2.0000 4.0000 6.0000 8.0000 10.0000
Regangan Koreksi ε (x10^-4)

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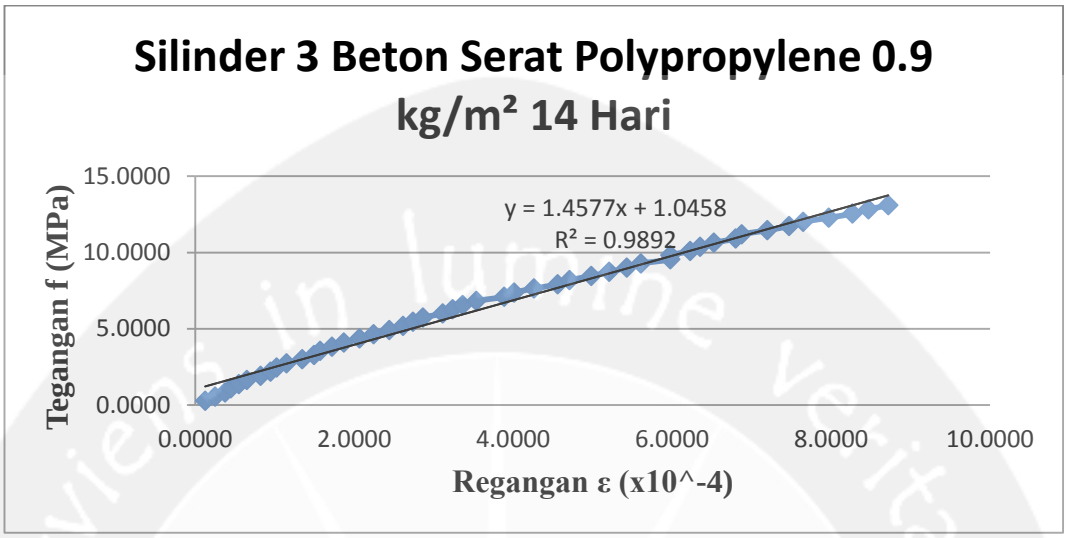
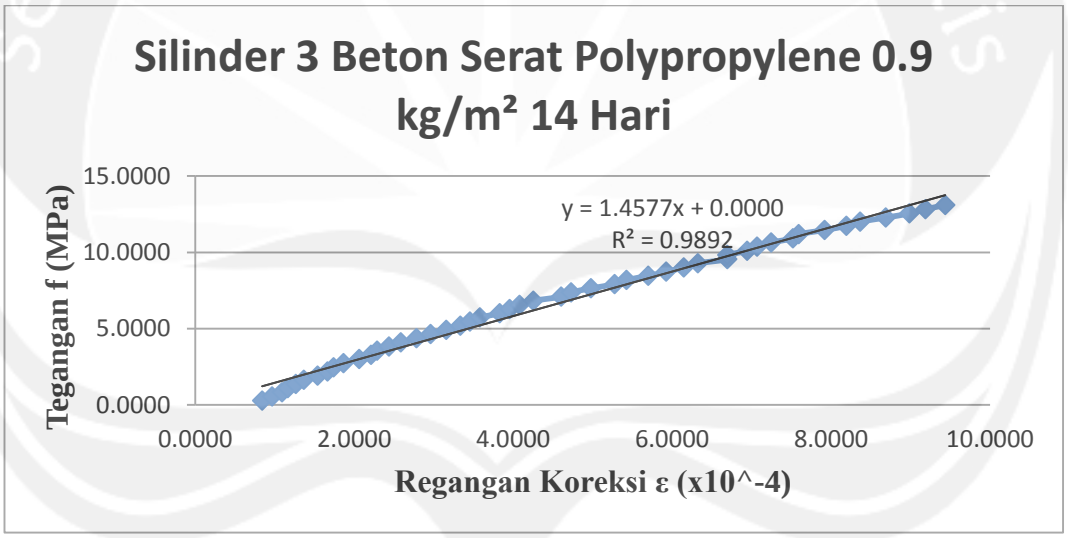
**Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 200.7 | mm |
| Ao | = | 17969.97665 | $mm^2$ |
| Beban Maksimum | = | 445 | KN |
| Kuat Tekan Maksimum | = | 24.76 | Mpa |
| Modulus Elastisitas | = | 14577.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2729 | 0.1246 | 0.8420 |
| 1000 | 9806.65 | 1 | 0.5 | 0.5457 | 0.2491 | 0.9666 |
| 1500 | 14710 | 1.5 | 0.75 | 0.8186 | 0.3737 | 1.0911 |
| 2000 | 19613.3 | 1.8 | 0.9 | 1.0914 | 0.4484 | 1.1659 |
| 2500 | 24516.6 | 2.2 | 1.1 | 1.3643 | 0.5481 | 1.2655 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6372 | 0.6477 | 1.3652 |
| 3500 | 34323.3 | 3.3 | 1.65 | 1.9100 | 0.8221 | 1.5396 |
| 4000 | 39226.6 | 3.8 | 1.9 | 2.1829 | 0.9467 | 1.6641 |
| 4500 | 44129.9 | 4.1 | 2.05 | 2.4558 | 1.0214 | 1.7389 |
| 5000 | 49033.3 | 4.6 | 2.3 | 2.7286 | 1.1460 | 1.8634 |
| 5500 | 53936.6 | 5.4 | 2.7 | 3.0015 | 1.3453 | 2.0627 |
| 6000 | 58839.9 | 6 | 3 | 3.2743 | 1.4948 | 2.2122 |
| 6500 | 63743.2 | 6.3 | 3.15 | 3.5472 | 1.5695 | 2.2869 |
| 7000 | 68646.6 | 6.9 | 3.45 | 3.8201 | 1.7190 | 2.4364 |
| 7500 | 73549.9 | 7.5 | 3.75 | 4.0929 | 1.8685 | 2.5859 |
| 8000 | 78453.2 | 8.3 | 4.15 | 4.3658 | 2.0678 | 2.7852 |
| 8500 | 83356.5 | 9 | 4.5 | 4.6387 | 2.2422 | 2.9596 |
| 9000 | 88259.9 | 9.8 | 4.9 | 4.9115 | 2.4415 | 3.1589 |
| 9500 | 93163.2 | 10.5 | 5.25 | 5.1844 | 2.6158 | 3.3333 |
| 10000 | 98066.5 | 11 | 5.5 | 5.4572 | 2.7404 | 3.4578 |
| 10500 | 102970 | 11.5 | 5.75 | 5.7301 | 2.8650 | 3.5824 |
| 11000 | 107873 | 12.5 | 6.25 | 6.0030 | 3.1141 | 3.8315 |
| 11500 | 112776 | 13 | 6.5 | 6.2758 | 3.2387 | 3.9561 |
| 12000 | 117680 | 13.5 | 6.75 | 6.5487 | 3.3632 | 4.0807 |
| 12500 | 122583 | 14.2 | 7.1 | 6.8216 | 3.5376 | 4.2550 |
| 13000 | 127486 | 15.6 | 7.8 | 7.0944 | 3.8864 | 4.6038 |
| 13500 | 132390 | 16.1 | 8.05 | 7.3673 | 4.0110 | 4.7284 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 17.1 | 8.55 | 7.6401 | 4.2601 | 4.9775 |
| 14500 | 142196 | 18.3 | 9.15 | 7.9130 | 4.5590 | 5.2765 |
| 15000 | 147100 | 18.9 | 9.45 | 8.1859 | 4.7085 | 5.4260 |
| 15500 | 152003 | 20 | 10 | 8.4587 | 4.9826 | 5.7000 |
| 16000 | 156906 | 20.9 | 10.45 | 8.7316 | 5.2068 | 5.9242 |
| 16500 | 161810 | 21.8 | 10.9 | 9.0044 | 5.4310 | 6.1484 |
| 17000 | 166713 | 22.5 | 11.25 | 9.2773 | 5.6054 | 6.3228 |
| 17500 | 171616 | 24 | 12 | 9.5502 | 5.9791 | 6.6965 |
| 18000 | 176520 | 24 | 12 | 9.8230 | 5.9791 | 6.6965 |
| 18500 | 181423 | 25 | 12.5 | 10.0959 | 6.2282 | 6.9456 |
| 19000 | 186326 | 25.5 | 12.75 | 10.3688 | 6.3528 | 7.0702 |
| 19500 | 191230 | 26.2 | 13.1 | 10.6416 | 6.5272 | 7.2446 |
| 20000 | 196133 | 27.3 | 13.65 | 10.9145 | 6.8012 | 7.5186 |
| 20500 | 201036 | 27.6 | 13.8 | 11.1873 | 6.8759 | 7.5934 |
| 21000 | 205940 | 28.9 | 14.45 | 11.4602 | 7.1998 | 7.9172 |
| 21500 | 210843 | 30 | 15 | 11.7331 | 7.4738 | 8.1913 |
| 22000 | 215746 | 30.7 | 15.35 | 12.0059 | 7.6482 | 8.3657 |
| 22500 | 220650 | 32 | 16 | 12.2788 | 7.9721 | 8.6895 |
| 23000 | 225553 | 33.2 | 16.6 | 12.5517 | 8.2711 | 8.9885 |
| 23500 | 230456 | 34 | 17 | 12.8245 | 8.4704 | 9.1878 |
| 24000 | 235360 | 35 | 17.5 | 13.0974 | 8.7195 | 9.4369 |


Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 14 Hari
y = 1.4577x + 1.0458
R² = 0.9892
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 14 Hari
y = 1.4577x + 0.0000
R² = 0.9892
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan Koreksi ε (x10^-4)

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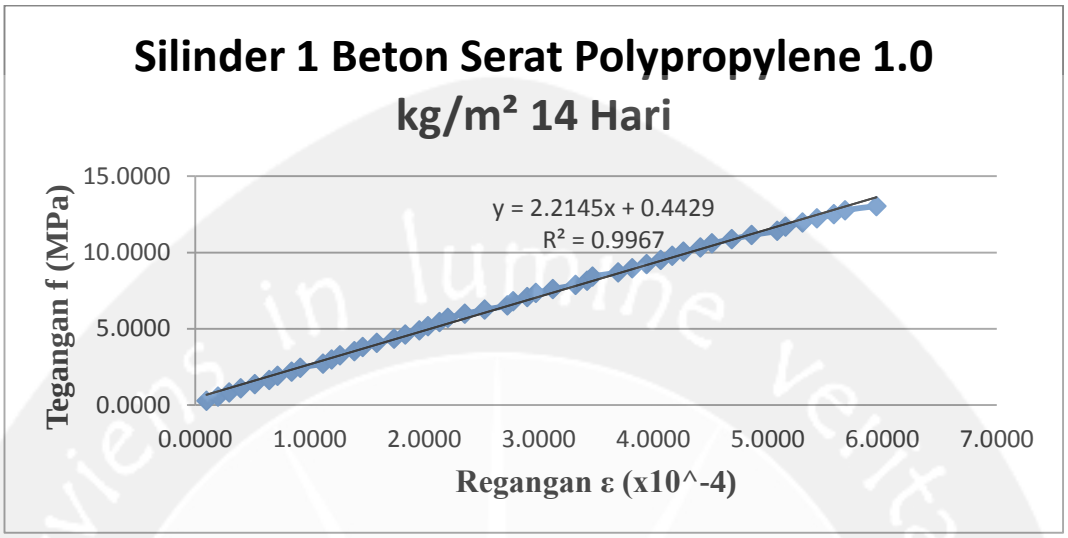
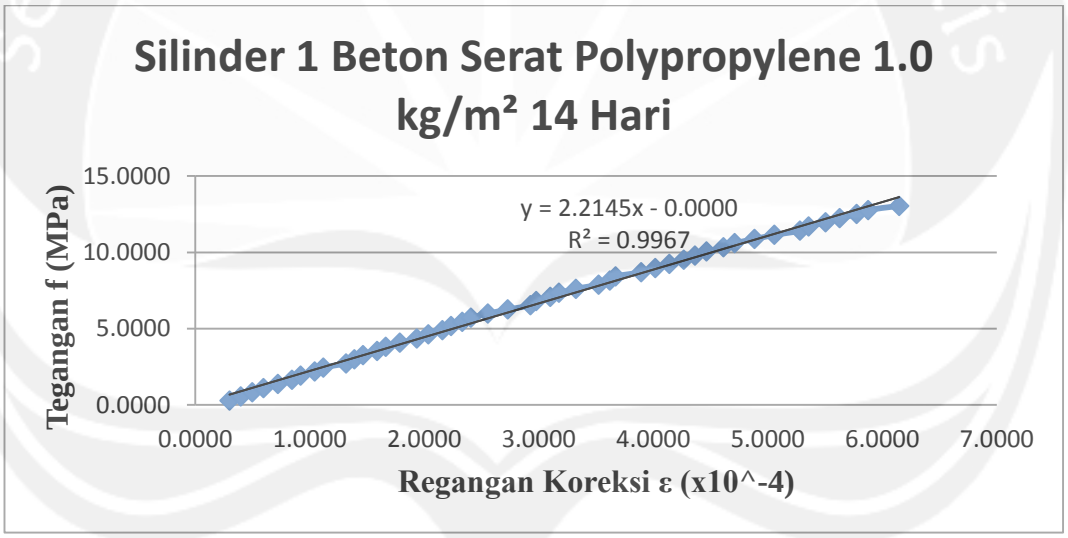
**Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201.7 | mm |
| Ao | = | 18041.3096 | $mm^2$ |
| Beban Maksimum | = | 630 | KN |
| Kuat Tekan Maksimum | = | 34.92 | Mpa |
| Modulus Elastisitas | = | 22145.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2718 | 0.0992 | 0.2992 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5436 | 0.1983 | 0.3983 |
| 1500 | 14710 | 1.2 | 0.6 | 0.8153 | 0.2975 | 0.4975 |
| 2000 | 19613.3 | 1.6 | 0.8 | 1.0871 | 0.3966 | 0.5966 |
| 2500 | 24516.6 | 2.1 | 1.05 | 1.3589 | 0.5206 | 0.7206 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6307 | 0.6445 | 0.8445 |
| 3500 | 34323.3 | 2.9 | 1.45 | 1.9025 | 0.7189 | 0.9189 |
| 4000 | 39226.6 | 3.4 | 1.7 | 2.1743 | 0.8428 | 1.0428 |
| 4500 | 44129.9 | 3.7 | 1.85 | 2.4460 | 0.9172 | 1.1172 |
| 5000 | 49033.3 | 4.5 | 2.25 | 2.7178 | 1.1155 | 1.3155 |
| 5500 | 53936.6 | 4.8 | 2.4 | 2.9896 | 1.1899 | 1.3899 |
| 6000 | 58839.9 | 5.1 | 2.55 | 3.2614 | 1.2643 | 1.4643 |
| 6500 | 63743.2 | 5.6 | 2.8 | 3.5332 | 1.3882 | 1.5882 |
| 7000 | 68646.6 | 5.9 | 2.95 | 3.8050 | 1.4626 | 1.6626 |
| 7500 | 73549.9 | 6.4 | 3.2 | 4.0767 | 1.5865 | 1.7865 |
| 8000 | 78453.2 | 7 | 3.5 | 4.3485 | 1.7353 | 1.9353 |
| 8500 | 83356.5 | 7.4 | 3.7 | 4.6203 | 1.8344 | 2.0344 |
| 9000 | 88259.9 | 7.9 | 3.95 | 4.8921 | 1.9584 | 2.1584 |
| 9500 | 93163.2 | 8.2 | 4.1 | 5.1639 | 2.0327 | 2.2327 |
| 10000 | 98066.5 | 8.6 | 4.3 | 5.4357 | 2.1319 | 2.3319 |
| 10500 | 102970 | 8.9 | 4.45 | 5.7074 | 2.2062 | 2.4062 |
| 11000 | 107873 | 9.5 | 4.75 | 5.9792 | 2.3550 | 2.5550 |
| 11500 | 112776 | 10.2 | 5.1 | 6.2510 | 2.5285 | 2.7285 |
| 12000 | 117680 | 11 | 5.5 | 6.5228 | 2.7268 | 2.9268 |
| 12500 | 122583 | 11.2 | 5.6 | 6.7946 | 2.7764 | 2.9764 |
| 13000 | 127486 | 11.7 | 5.85 | 7.0664 | 2.9003 | 3.1003 |
| 13500 | 132390 | 12 | 6 | 7.3381 | 2.9747 | 3.1747 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.6 | 6.3 | 7.6099 | 3.1235 | 3.3235 |
| 14500 | 142196 | 13.4 | 6.7 | 7.8817 | 3.3218 | 3.5218 |
| 15000 | 147100 | 13.8 | 6.9 | 8.1535 | 3.4209 | 3.6209 |
| 15500 | 152003 | 14 | 7 | 8.4253 | 3.4705 | 3.6705 |
| 16000 | 156906 | 14.9 | 7.45 | 8.6971 | 3.6936 | 3.8936 |
| 16500 | 161810 | 15.4 | 7.7 | 8.9688 | 3.8176 | 4.0176 |
| 17000 | 166713 | 15.9 | 7.95 | 9.2406 | 3.9415 | 4.1415 |
| 17500 | 171616 | 16.4 | 8.2 | 9.5124 | 4.0654 | 4.2654 |
| 18000 | 176520 | 16.8 | 8.4 | 9.7842 | 4.1646 | 4.3646 |
| 18500 | 181423 | 17.2 | 8.6 | 10.0560 | 4.2638 | 4.4638 |
| 19000 | 186326 | 17.8 | 8.9 | 10.3278 | 4.4125 | 4.6125 |
| 19500 | 191230 | 18.2 | 9.1 | 10.5995 | 4.5117 | 4.7117 |
| 20000 | 196133 | 18.9 | 9.45 | 10.8713 | 4.6852 | 4.8852 |
| 20500 | 201036 | 19.6 | 9.8 | 11.1431 | 4.8587 | 5.0587 |
| 21000 | 205940 | 20.5 | 10.25 | 11.4149 | 5.0818 | 5.2818 |
| 21500 | 210843 | 20.8 | 10.4 | 11.6867 | 5.1562 | 5.3562 |
| 22000 | 215746 | 21.4 | 10.7 | 11.9585 | 5.3049 | 5.5049 |
| 22500 | 220650 | 21.9 | 10.95 | 12.2302 | 5.4289 | 5.6289 |
| 23000 | 225553 | 22.5 | 11.25 | 12.5020 | 5.5776 | 5.7776 |
| 23500 | 230456 | 22.9 | 11.45 | 12.7738 | 5.6767 | 5.8767 |
| 24000 | 235360 | 24 | 12 | 13.0456 | 5.9494 | 6.1494 |


Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 14 Hari
y = 2.2145x + 0.4429
R² = 0.9967
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 14 Hari
y = 2.2145x - 0.0000
R² = 0.9967
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
**Fakultas Teknik Program Studi Teknik Sipil**
**Laboratorium Struktur dan Bahan Bangunan**
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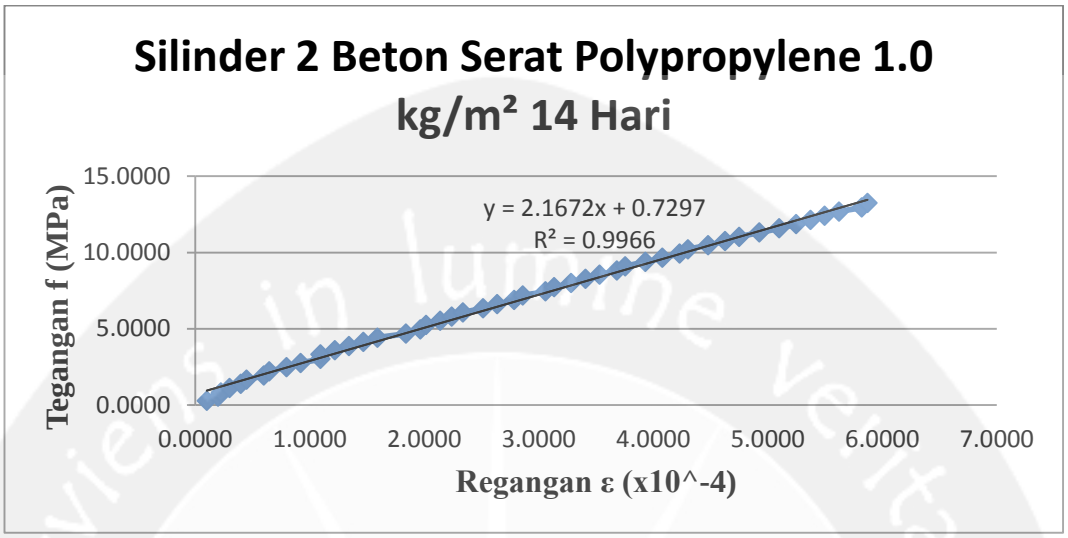
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

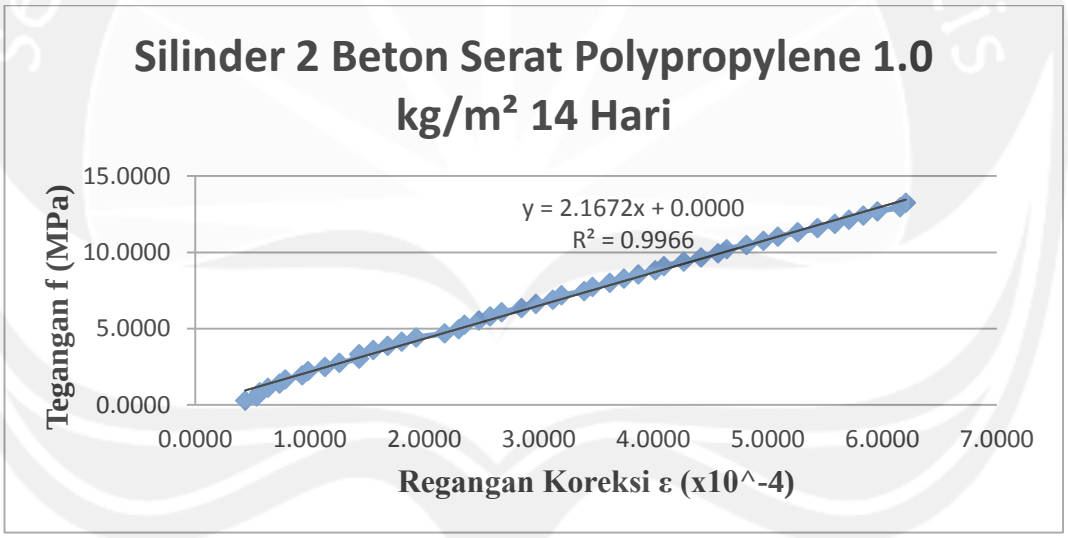
**Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 8 Juni 2015 | |
| Po | = | 201 | mm |
| Ao | = | 17780.44625 | $mm^2$ |
| Beban Maksimum | = | 540 | KN |
| Kuat Tekan Maksimum | = | 30.37 | Mpa |
| Modulus Elastisitas | = | 21672.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2758 | 0.0995 | 0.4362 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5515 | 0.1990 | 0.5357 |
| 1500 | 14710 | 0.9 | 0.45 | 0.8273 | 0.2239 | 0.5606 |
| 2000 | 19613.3 | 1.2 | 0.6 | 1.1031 | 0.2985 | 0.6352 |
| 2500 | 24516.6 | 1.6 | 0.8 | 1.3789 | 0.3980 | 0.7347 |
| 3000 | 29420 | 1.8 | 0.9 | 1.6546 | 0.4478 | 0.7845 |
| 3500 | 34323.3 | 2.4 | 1.2 | 1.9304 | 0.5970 | 0.9337 |
| 4000 | 39226.6 | 2.6 | 1.3 | 2.2062 | 0.6468 | 0.9835 |
| 4500 | 44129.9 | 3.2 | 1.6 | 2.4819 | 0.7960 | 1.1327 |
| 5000 | 49033.3 | 3.7 | 1.85 | 2.7577 | 0.9204 | 1.2571 |
| 5500 | 53936.6 | 4.4 | 2.2 | 3.0335 | 1.0945 | 1.4312 |
| 6000 | 58839.9 | 4.4 | 2.2 | 3.3092 | 1.0945 | 1.4312 |
| 6500 | 63743.2 | 4.9 | 2.45 | 3.5850 | 1.2189 | 1.5556 |
| 7000 | 68646.6 | 5.4 | 2.7 | 3.8608 | 1.3433 | 1.6800 |
| 7500 | 73549.9 | 5.9 | 2.95 | 4.1366 | 1.4677 | 1.8044 |
| 8000 | 78453.2 | 6.4 | 3.2 | 4.4123 | 1.5920 | 1.9287 |
| 8500 | 83356.5 | 7.4 | 3.7 | 4.6881 | 1.8408 | 2.1775 |
| 9000 | 88259.9 | 7.9 | 3.95 | 4.9639 | 1.9652 | 2.3019 |
| 9500 | 93163.2 | 8.1 | 4.05 | 5.2396 | 2.0149 | 2.3516 |
| 10000 | 98066.5 | 8.6 | 4.3 | 5.5154 | 2.1393 | 2.4760 |
| 10500 | 102970 | 9 | 4.5 | 5.7912 | 2.2388 | 2.5755 |
| 11000 | 107873 | 9.4 | 4.7 | 6.0670 | 2.3383 | 2.6750 |
| 11500 | 112776 | 10.1 | 5.05 | 6.3427 | 2.5124 | 2.8491 |
| 12000 | 117680 | 10.6 | 5.3 | 6.6185 | 2.6368 | 2.9735 |
| 12500 | 122583 | 11.2 | 5.6 | 6.8943 | 2.7861 | 3.1228 |
| 13000 | 127486 | 11.5 | 5.75 | 7.1700 | 2.8607 | 3.1974 |
| 13500 | 132390 | 12.3 | 6.15 | 7.4458 | 3.0597 | 3.3964 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.6 | 6.3 | 7.7216 | 3.1343 | 3.4710 |
| 14500 | 142196 | 13.2 | 6.6 | 7.9973 | 3.2836 | 3.6203 |
| 15000 | 147100 | 13.7 | 6.85 | 8.2731 | 3.4080 | 3.7447 |
| 15500 | 152003 | 14.2 | 7.1 | 8.5489 | 3.5323 | 3.8690 |
| 16000 | 156906 | 14.8 | 7.4 | 8.8247 | 3.6816 | 4.0183 |
| 16500 | 161810 | 15.1 | 7.55 | 9.1004 | 3.7562 | 4.0929 |
| 17000 | 166713 | 15.8 | 7.9 | 9.3762 | 3.9303 | 4.2670 |
| 17500 | 171616 | 16.4 | 8.2 | 9.6520 | 4.0796 | 4.4163 |
| 18000 | 176520 | 17 | 8.5 | 9.9277 | 4.2289 | 4.5656 |
| 18500 | 181423 | 17.3 | 8.65 | 10.2035 | 4.3035 | 4.6402 |
| 19000 | 186326 | 18 | 9 | 10.4793 | 4.4776 | 4.8143 |
| 19500 | 191230 | 18.6 | 9.3 | 10.7551 | 4.6269 | 4.9636 |
| 20000 | 196133 | 19.1 | 9.55 | 11.0308 | 4.7512 | 5.0879 |
| 20500 | 201036 | 19.8 | 9.9 | 11.3066 | 4.9254 | 5.2621 |
| 21000 | 205940 | 20.5 | 10.25 | 11.5824 | 5.0995 | 5.4362 |
| 21500 | 210843 | 21.1 | 10.55 | 11.8581 | 5.2488 | 5.5855 |
| 22000 | 215746 | 21.6 | 10.8 | 12.1339 | 5.3731 | 5.7098 |
| 22500 | 220650 | 22.1 | 11.05 | 12.4097 | 5.4975 | 5.8342 |
| 23000 | 225553 | 22.6 | 11.3 | 12.6854 | 5.6219 | 5.9586 |
| 23500 | 230456 | 23.4 | 11.7 | 12.9612 | 5.8209 | 6.1576 |
| 24000 | 235360 | 23.6 | 11.8 | 13.2370 | 5.8706 | 6.2073 |


Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 14 Hari
y = 2.1672x + 0.7297
R² = 0.9966
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 14 Hari
y = 2.1672x + 0.0000
R² = 0.9966
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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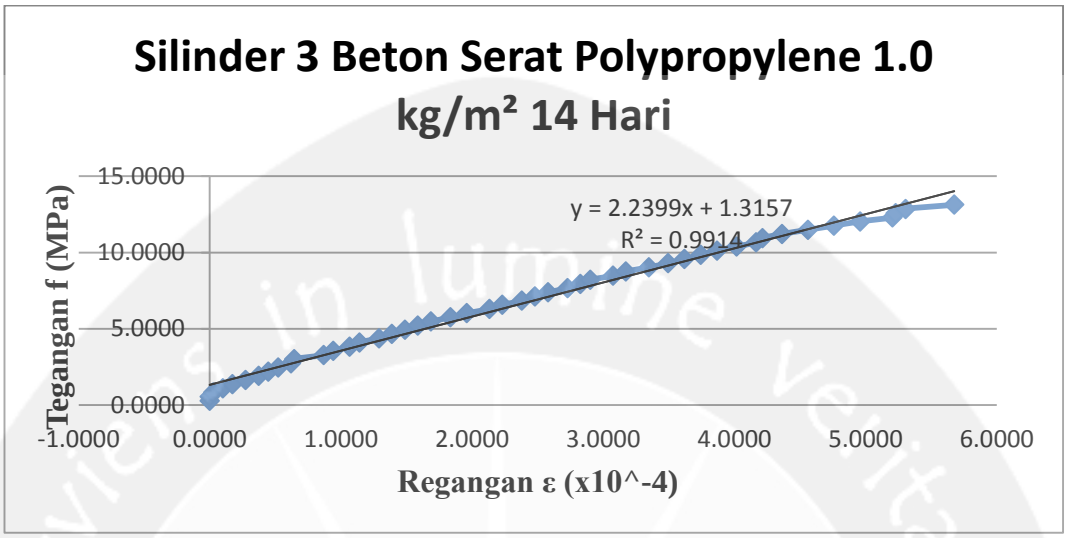
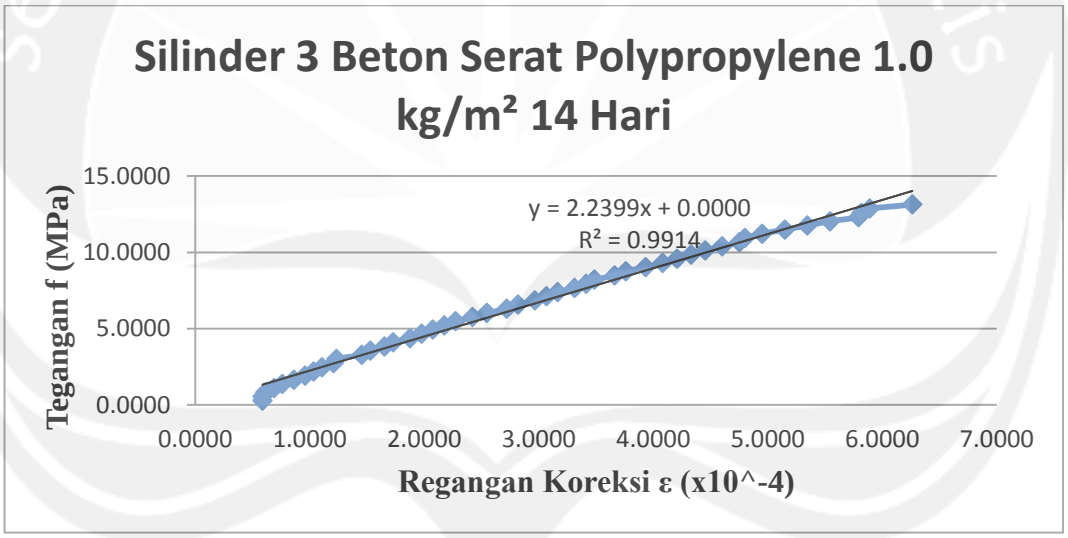
**Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 14 Hari**

| | | | |
|---|---|---|---|
| | = | 8 Juni 2015 | |
| Po | = | 201.7 | mm |
| Ao | = | 17922.49985 | $mm^2$ |
| Beban Maksimum | = | 535 | KN |
| Kuat Tekan Maksimum | = | 29.85 | Mpa |
| Modulus Elastisitas | = | 22399.0000 | MPa |

| Beban | | $\Delta p \times 10^{-2}$ (mm) | $0{,}5\ \Delta p \times 10^{-2}$ (mm) | f (MPa) | $\varepsilon \times 10^{-4}$ | $\varepsilon$ koreksi $\times 10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2736 | 0.0000 | 0.5874 |
| 1000 | 9806.65 | 0 | 0 | 0.5472 | 0.0000 | 0.5874 |
| 1500 | 14710 | 0.1 | 0.05 | 0.8208 | 0.0248 | 0.6122 |
| 2000 | 19613.3 | 0.4 | 0.2 | 1.0943 | 0.0992 | 0.6865 |
| 2500 | 24516.6 | 0.7 | 0.35 | 1.3679 | 0.1735 | 0.7609 |
| 3000 | 29420 | 1.1 | 0.55 | 1.6415 | 0.2727 | 0.8601 |
| 3500 | 34323.3 | 1.5 | 0.75 | 1.9151 | 0.3718 | 0.9592 |
| 4000 | 39226.6 | 1.8 | 0.9 | 2.1887 | 0.4462 | 1.0336 |
| 4500 | 44129.9 | 2.1 | 1.05 | 2.4623 | 0.5206 | 1.1080 |
| 5000 | 49033.3 | 2.5 | 1.25 | 2.7358 | 0.6197 | 1.2071 |
| 5500 | 53936.6 | 2.6 | 1.3 | 3.0094 | 0.6445 | 1.2319 |
| 6000 | 58839.9 | 3.5 | 1.75 | 3.2830 | 0.8676 | 1.4550 |
| 6500 | 63743.2 | 3.8 | 1.9 | 3.5566 | 0.9420 | 1.5294 |
| 7000 | 68646.6 | 4.3 | 2.15 | 3.8302 | 1.0659 | 1.6533 |
| 7500 | 73549.9 | 4.6 | 2.3 | 4.1038 | 1.1403 | 1.7277 |
| 8000 | 78453.2 | 5.2 | 2.6 | 4.3774 | 1.2890 | 1.8764 |
| 8500 | 83356.5 | 5.6 | 2.8 | 4.6509 | 1.3882 | 1.9756 |
| 9000 | 88259.9 | 6 | 3 | 4.9245 | 1.4874 | 2.0747 |
| 9500 | 93163.2 | 6.4 | 3.2 | 5.1981 | 1.5865 | 2.1739 |
| 10000 | 98066.5 | 6.8 | 3.4 | 5.4717 | 1.6857 | 2.2731 |
| 10500 | 102970 | 7.4 | 3.7 | 5.7453 | 1.8344 | 2.4218 |
| 11000 | 107873 | 7.9 | 3.95 | 6.0189 | 1.9584 | 2.5457 |
| 11500 | 112776 | 8.6 | 4.3 | 6.2925 | 2.1319 | 2.7193 |
| 12000 | 117680 | 9 | 4.5 | 6.5660 | 2.2310 | 2.8184 |
| 12500 | 122583 | 9.6 | 4.8 | 6.8396 | 2.3798 | 2.9672 |
| 13000 | 127486 | 10 | 5 | 7.1132 | 2.4789 | 3.0663 |
| 13500 | 132390 | 10.4 | 5.2 | 7.3868 | 2.5781 | 3.1655 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11 | 5.5 | 7.6604 | 2.7268 | 3.3142 |
| 14500 | 142196 | 11.4 | 5.7 | 7.9340 | 2.8260 | 3.4134 |
| 15000 | 147100 | 11.7 | 5.85 | 8.2075 | 2.9003 | 3.4877 |
| 15500 | 152003 | 12.4 | 6.2 | 8.4811 | 3.0739 | 3.6613 |
| 16000 | 156906 | 12.8 | 6.4 | 8.7547 | 3.1730 | 3.7604 |
| 16500 | 161810 | 13.5 | 6.75 | 9.0283 | 3.3466 | 3.9339 |
| 17000 | 166713 | 14.1 | 7.05 | 9.3019 | 3.4953 | 4.0827 |
| 17500 | 171616 | 14.6 | 7.3 | 9.5755 | 3.6192 | 4.2066 |
| 18000 | 176520 | 15.1 | 7.55 | 9.8491 | 3.7432 | 4.3306 |
| 18500 | 181423 | 15.6 | 7.8 | 10.1226 | 3.8671 | 4.4545 |
| 19000 | 186326 | 16.2 | 8.1 | 10.3962 | 4.0159 | 4.6033 |
| 19500 | 191230 | 16.8 | 8.4 | 10.6698 | 4.1646 | 4.7520 |
| 20000 | 196133 | 17 | 8.5 | 10.9434 | 4.2142 | 4.8016 |
| 20500 | 201036 | 17.6 | 8.8 | 11.2170 | 4.3629 | 4.9503 |
| 21000 | 205940 | 18.4 | 9.2 | 11.4906 | 4.5612 | 5.1486 |
| 21500 | 210843 | 19.2 | 9.6 | 11.7641 | 4.7595 | 5.3469 |
| 22000 | 215746 | 20 | 10 | 12.0377 | 4.9579 | 5.5453 |
| 22500 | 220650 | 21 | 10.5 | 12.3113 | 5.2058 | 5.7931 |
| 23000 | 225553 | 21.1 | 10.55 | 12.5849 | 5.2305 | 5.8179 |
| 23500 | 230456 | 21.4 | 10.7 | 12.8585 | 5.3049 | 5.8923 |
| 24000 | 235360 | 22.9 | 11.45 | 13.1321 | 5.6767 | 6.2641 |


Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 14 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 2.2399x + 1.3157
R² = 0.9914
-1.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 14 Hari
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
y = 2.2399x + 0.0000
R² = 0.9914
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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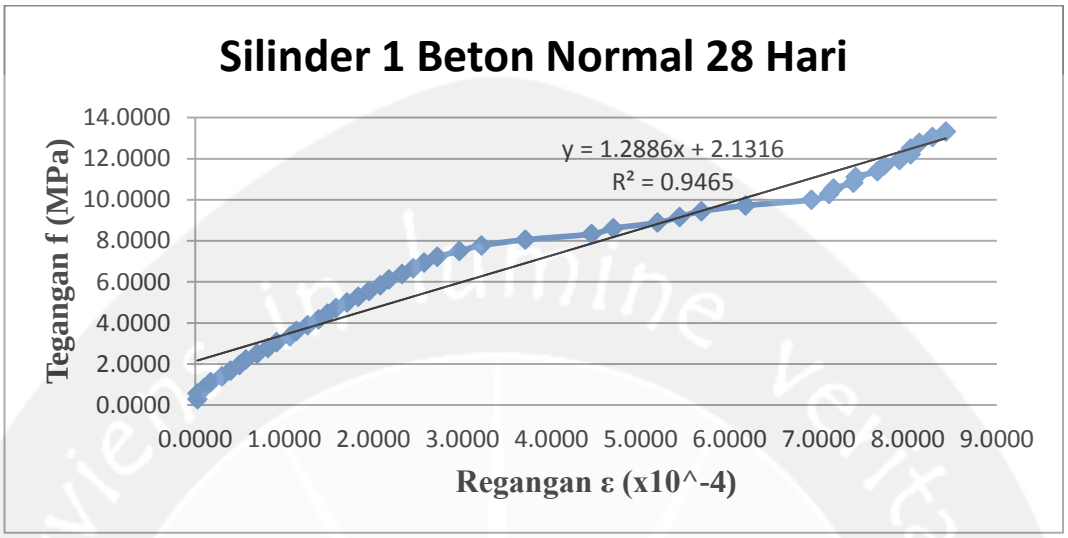
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

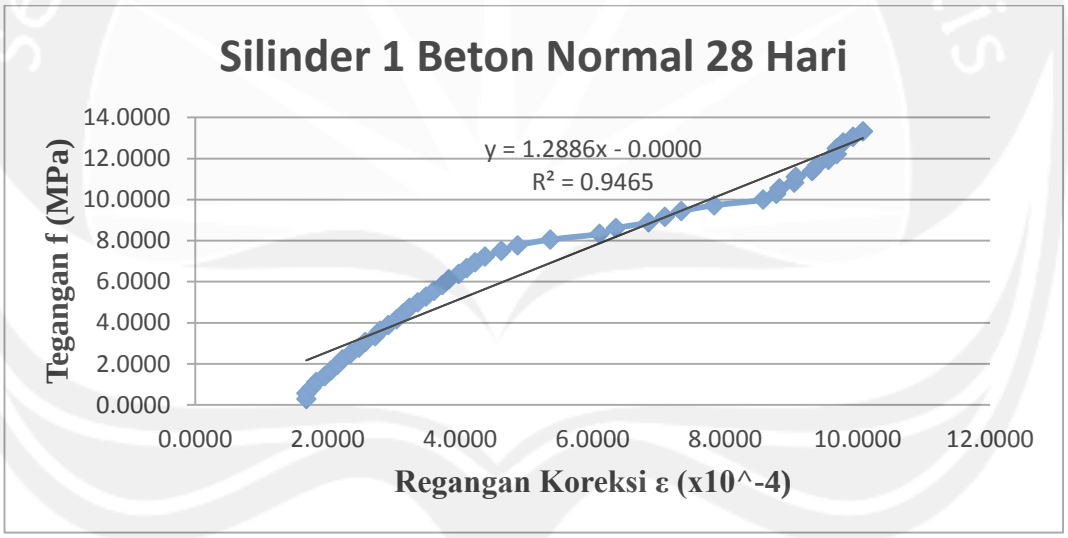
**Silinder 1 Beton Normal 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.3 | mm |
| Ao | = | 17662.5 | $mm^2$ |
| Beban Maksimum | = | 575 | KN |
| Kuat Tekan Maksimum | = | 32.55 | Mpa |
| Modulus Elastisitas | = | 12886.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2776 | 0.0247 | 1.6789 |
| 1000 | 9806.65 | 0.1 | 0.05 | 0.5552 | 0.0247 | 1.6789 |
| 1500 | 14710 | 0.4 | 0.2 | 0.8328 | 0.0989 | 1.7531 |
| 2000 | 19613.3 | 0.7 | 0.35 | 1.1104 | 0.1730 | 1.8272 |
| 2500 | 24516.6 | 1.2 | 0.6 | 1.3881 | 0.2966 | 1.9508 |
| 3000 | 29420 | 1.6 | 0.8 | 1.6657 | 0.3955 | 2.0497 |
| 3500 | 34323.3 | 2 | 1 | 1.9433 | 0.4943 | 2.1485 |
| 4000 | 39226.6 | 2.3 | 1.15 | 2.2209 | 0.5685 | 2.2227 |
| 4500 | 44129.9 | 2.8 | 1.4 | 2.4985 | 0.6920 | 2.3462 |
| 5000 | 49033.3 | 3.3 | 1.65 | 2.7761 | 0.8156 | 2.4698 |
| 5500 | 53936.6 | 3.7 | 1.85 | 3.0537 | 0.9145 | 2.5687 |
| 6000 | 58839.9 | 4.3 | 2.15 | 3.3313 | 1.0628 | 2.7170 |
| 6500 | 63743.2 | 4.6 | 2.3 | 3.6090 | 1.1369 | 2.7911 |
| 7000 | 68646.6 | 5.1 | 2.55 | 3.8866 | 1.2605 | 2.9147 |
| 7500 | 73549.9 | 5.6 | 2.8 | 4.1642 | 1.3841 | 3.0383 |
| 8000 | 78453.2 | 6 | 3 | 4.4418 | 1.4829 | 3.1371 |
| 8500 | 83356.5 | 6.4 | 3.2 | 4.7194 | 1.5818 | 3.2360 |
| 9000 | 88259.9 | 6.9 | 3.45 | 4.9970 | 1.7054 | 3.3596 |
| 9500 | 93163.2 | 7.4 | 3.7 | 5.2746 | 1.8290 | 3.4832 |
| 10000 | 98066.5 | 7.9 | 3.95 | 5.5522 | 1.9525 | 3.6067 |
| 10500 | 102970 | 8.4 | 4.2 | 5.8299 | 2.0761 | 3.7303 |
| 11000 | 107873 | 8.8 | 4.4 | 6.1075 | 2.1750 | 3.8292 |
| 11500 | 112776 | 9.4 | 4.7 | 6.3851 | 2.3233 | 3.9775 |
| 12000 | 117680 | 9.9 | 4.95 | 6.6627 | 2.4469 | 4.1011 |
| 12500 | 122583 | 10.4 | 5.2 | 6.9403 | 2.5704 | 4.2246 |
| 13000 | 127486 | 11 | 5.5 | 7.2179 | 2.7187 | 4.3729 |
| 13500 | 132390 | 12 | 6 | 7.4955 | 2.9659 | 4.6201 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13 | 6.5 | 7.7731 | 3.2130 | 4.8672 |
| 14500 | 142196 | 15 | 7.5 | 8.0508 | 3.7074 | 5.3616 |
| 15000 | 147100 | 18 | 9 | 8.3284 | 4.4488 | 6.1030 |
| 15500 | 152003 | 19 | 9.5 | 8.6060 | 4.6960 | 6.3502 |
| 16000 | 156906 | 21 | 10.5 | 8.8836 | 5.1903 | 6.8445 |
| 16500 | 161810 | 22 | 11 | 9.1612 | 5.4375 | 7.0917 |
| 17000 | 166713 | 23 | 11.5 | 9.4388 | 5.6846 | 7.3388 |
| 17500 | 171616 | 25 | 12.5 | 9.7164 | 6.1789 | 7.8331 |
| 18000 | 176520 | 28 | 14 | 9.9940 | 6.9204 | 8.5746 |
| 18500 | 181423 | 28.8 | 14.4 | 10.2717 | 7.1181 | 8.7723 |
| 19000 | 186326 | 29 | 14.5 | 10.5493 | 7.1676 | 8.8218 |
| 19500 | 191230 | 29.9 | 14.95 | 10.8269 | 7.3900 | 9.0442 |
| 20000 | 196133 | 30 | 15 | 11.1045 | 7.4147 | 9.0689 |
| 20500 | 201036 | 31 | 15.5 | 11.3821 | 7.6619 | 9.3161 |
| 21000 | 205940 | 31.3 | 15.65 | 11.6597 | 7.7360 | 9.3902 |
| 21500 | 210843 | 32 | 16 | 11.9373 | 7.9090 | 9.5632 |
| 22000 | 215746 | 32.5 | 16.25 | 12.2149 | 8.0326 | 9.6868 |
| 22500 | 220650 | 32.5 | 16.25 | 12.4925 | 8.0326 | 9.6868 |
| 23000 | 225553 | 32.9 | 16.45 | 12.7702 | 8.1315 | 9.7857 |
| 23500 | 230456 | 33.5 | 16.75 | 13.0478 | 8.2798 | 9.9340 |
| 24000 | 235360 | 34.1 | 17.05 | 13.3254 | 8.4281 | 10.0823 |


Silinder 1 Beton Normal 28 Hari
y = 1.2886x + 2.1316
R² = 0.9465
Tegangan f (MPa)
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan ε (x10^-4)


Silinder 1 Beton Normal 28 Hari
y = 1.2886x - 0.0000
R² = 0.9465
Tegangan f (MPa)
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 2.0000 4.0000 6.0000 8.0000 10.0000 12.0000
Regangan Koreksi ε (x10^-4)

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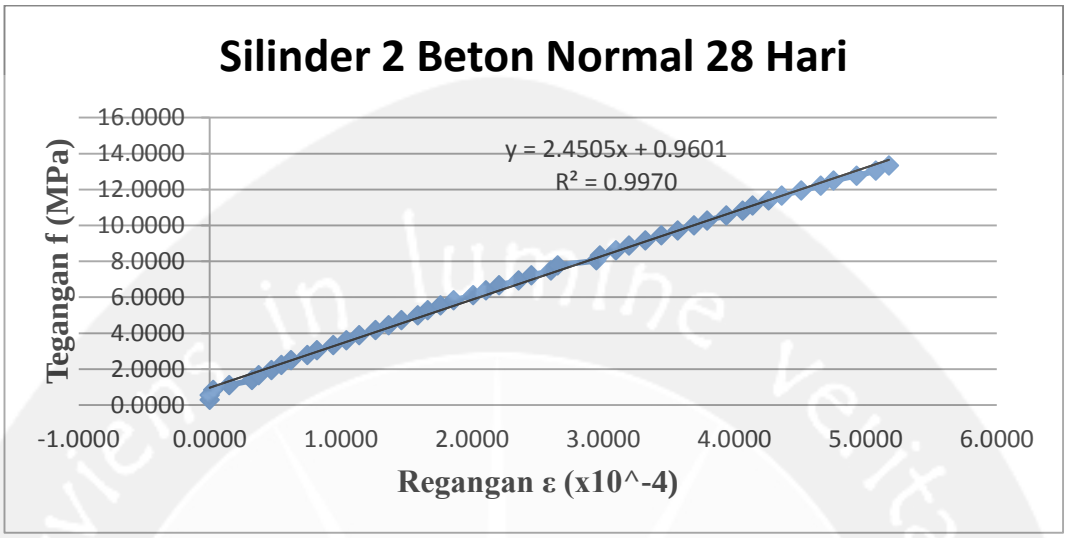
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

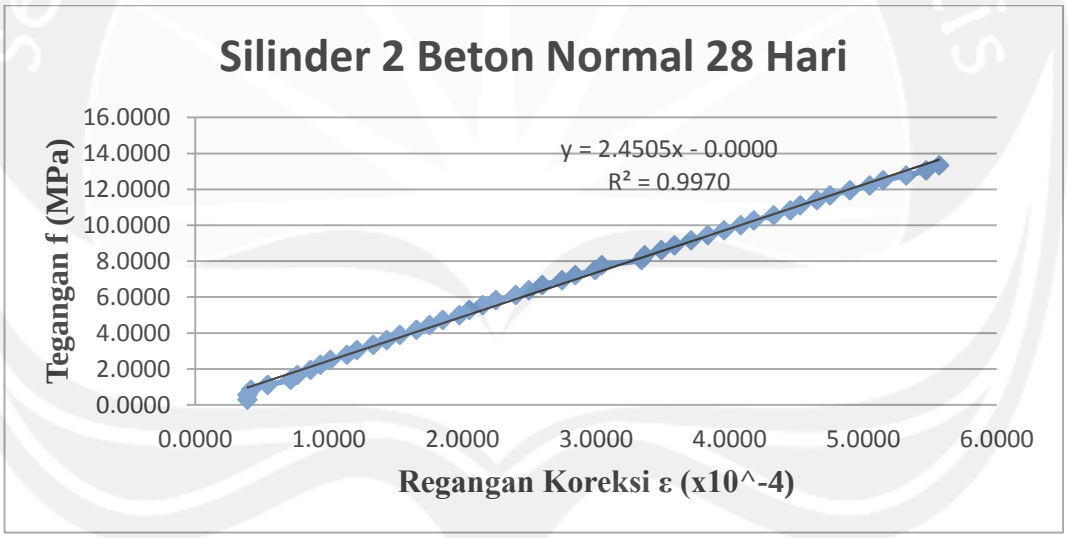
**Silinder 2 Beton Normal 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 201.8 | mm |
| Ao | = | 17662.5 | $mm^2$ |
| Beban Maksimum | = | 600 | KN |
| Kuat Tekan Maksimum | = | 33.97 | Mpa |
| Modulus Elastisitas | = | 24505.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2776 | 0.0000 | 0.3918 |
| 1000 | 9806.65 | 0 | 0 | 0.5552 | 0.0000 | 0.3918 |
| 1500 | 14710 | 0.1 | 0.05 | 0.8328 | 0.0248 | 0.4166 |
| 2000 | 19613.3 | 0.6 | 0.3 | 1.1104 | 0.1487 | 0.5405 |
| 2500 | 24516.6 | 1.3 | 0.65 | 1.3881 | 0.3221 | 0.7139 |
| 3000 | 29420 | 1.5 | 0.75 | 1.6657 | 0.3717 | 0.7635 |
| 3500 | 34323.3 | 1.9 | 0.95 | 1.9433 | 0.4708 | 0.8626 |
| 4000 | 39226.6 | 2.2 | 1.1 | 2.2209 | 0.5451 | 0.9369 |
| 4500 | 44129.9 | 2.5 | 1.25 | 2.4985 | 0.6194 | 1.0112 |
| 5000 | 49033.3 | 3 | 1.5 | 2.7761 | 0.7433 | 1.1351 |
| 5500 | 53936.6 | 3.3 | 1.65 | 3.0537 | 0.8176 | 1.2094 |
| 6000 | 58839.9 | 3.8 | 1.9 | 3.3313 | 0.9415 | 1.3333 |
| 6500 | 63743.2 | 4.2 | 2.1 | 3.6090 | 1.0406 | 1.4324 |
| 7000 | 68646.6 | 4.6 | 2.3 | 3.8866 | 1.1397 | 1.5315 |
| 7500 | 73549.9 | 5.1 | 2.55 | 4.1642 | 1.2636 | 1.6554 |
| 8000 | 78453.2 | 5.5 | 2.75 | 4.4418 | 1.3627 | 1.7545 |
| 8500 | 83356.5 | 5.9 | 2.95 | 4.7194 | 1.4618 | 1.8536 |
| 9000 | 88259.9 | 6.4 | 3.2 | 4.9970 | 1.5857 | 1.9775 |
| 9500 | 93163.2 | 6.7 | 3.35 | 5.2746 | 1.6601 | 2.0519 |
| 10000 | 98066.5 | 7.1 | 3.55 | 5.5522 | 1.7592 | 2.1510 |
| 10500 | 102970 | 7.5 | 3.75 | 5.8299 | 1.8583 | 2.2501 |
| 11000 | 107873 | 8.1 | 4.05 | 6.1075 | 2.0069 | 2.3987 |
| 11500 | 112776 | 8.5 | 4.25 | 6.3851 | 2.1060 | 2.4978 |
| 12000 | 117680 | 8.9 | 4.45 | 6.6627 | 2.2052 | 2.5970 |
| 12500 | 122583 | 9.5 | 4.75 | 6.9403 | 2.3538 | 2.7456 |
| 13000 | 127486 | 9.9 | 4.95 | 7.2179 | 2.4529 | 2.8447 |
| 13500 | 132390 | 10.5 | 5.25 | 7.4955 | 2.6016 | 2.9934 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 10.7 | 5.35 | 7.7731 | 2.6511 | 3.0429 |
| 14500 | 142196 | 11.9 | 5.95 | 8.0508 | 2.9485 | 3.3403 |
| 15000 | 147100 | 12 | 6 | 8.3284 | 2.9732 | 3.3650 |
| 15500 | 152003 | 12.5 | 6.25 | 8.6060 | 3.0971 | 3.4889 |
| 16000 | 156906 | 12.9 | 6.45 | 8.8836 | 3.1962 | 3.5880 |
| 16500 | 161810 | 13.4 | 6.7 | 9.1612 | 3.3201 | 3.7119 |
| 17000 | 166713 | 13.9 | 6.95 | 9.4388 | 3.4440 | 3.8358 |
| 17500 | 171616 | 14.4 | 7.2 | 9.7164 | 3.5679 | 3.9597 |
| 18000 | 176520 | 14.9 | 7.45 | 9.9940 | 3.6918 | 4.0836 |
| 18500 | 181423 | 15.3 | 7.65 | 10.2717 | 3.7909 | 4.1827 |
| 19000 | 186326 | 15.9 | 7.95 | 10.5493 | 3.9395 | 4.3313 |
| 19500 | 191230 | 16.4 | 8.2 | 10.8269 | 4.0634 | 4.4552 |
| 20000 | 196133 | 16.7 | 8.35 | 11.1045 | 4.1378 | 4.5296 |
| 20500 | 201036 | 17.2 | 8.6 | 11.3821 | 4.2616 | 4.6534 |
| 21000 | 205940 | 17.6 | 8.8 | 11.6597 | 4.3608 | 4.7526 |
| 21500 | 210843 | 18.2 | 9.1 | 11.9373 | 4.5094 | 4.9012 |
| 22000 | 215746 | 18.8 | 9.4 | 12.2149 | 4.6581 | 5.0499 |
| 22500 | 220650 | 19.2 | 9.6 | 12.4925 | 4.7572 | 5.1490 |
| 23000 | 225553 | 19.9 | 9.95 | 12.7702 | 4.9306 | 5.3224 |
| 23500 | 230456 | 20.5 | 10.25 | 13.0478 | 5.0793 | 5.4711 |
| 24000 | 235360 | 20.9 | 10.45 | 13.3254 | 5.1784 | 5.5702 |


Silinder 2 Beton Normal 28 Hari
y = 2.4505x + 0.9601
R² = 0.9970
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
-1.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 2 Beton Normal 28 Hari
y = 2.4505x - 0.0000
R² = 0.9970
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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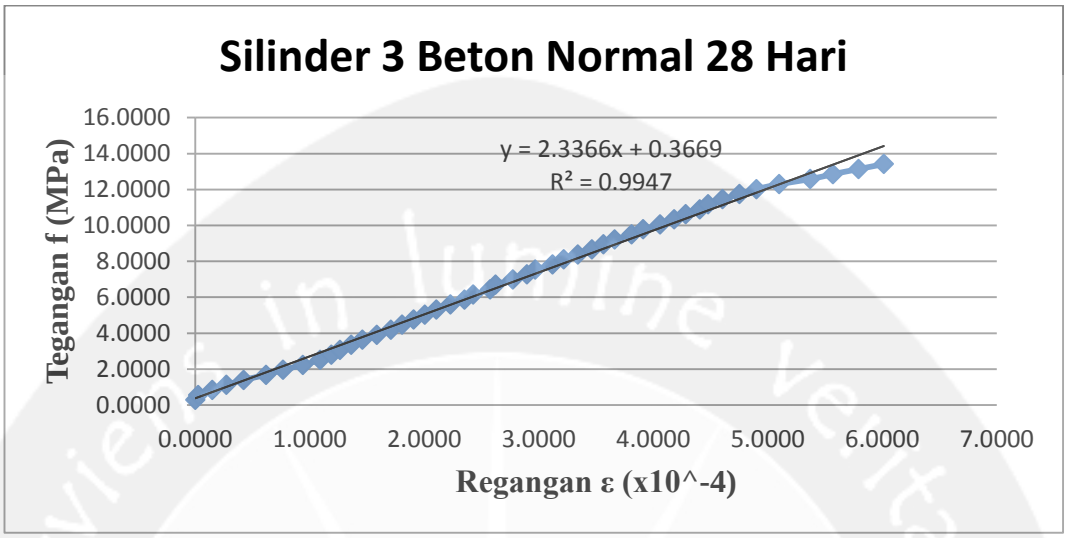
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

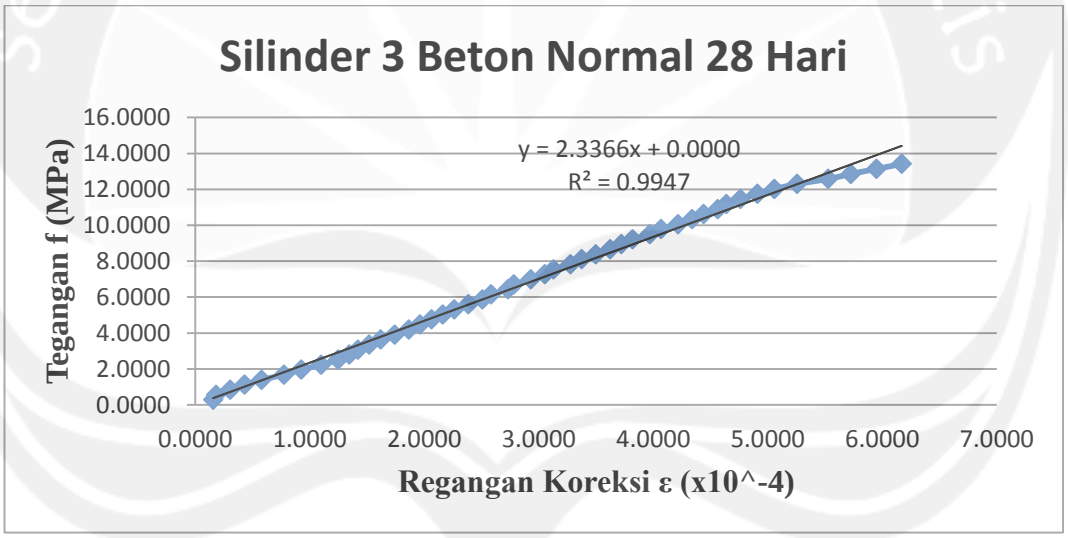
**Silinder 3 Beton Normal 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202 | mm |
| Ao | = | 17544.94625 | $mm^2$ |
| Beban Maksimum | = | 595 | KN |
| Kuat Tekan Maksimum | = | 33.91 | Mpa |
| Modulus Elastisitas | = | 23366.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2795 | 0.0000 | 0.1570 |
| 1000 | 9806.65 | 0.1 | 0.05 | 0.5589 | 0.0248 | 0.1818 |
| 1500 | 14710 | 0.6 | 0.3 | 0.8384 | 0.1485 | 0.3055 |
| 2000 | 19613.3 | 1.1 | 0.55 | 1.1179 | 0.2723 | 0.4293 |
| 2500 | 24516.6 | 1.7 | 0.85 | 1.3974 | 0.4208 | 0.5778 |
| 3000 | 29420 | 2.5 | 1.25 | 1.6768 | 0.6188 | 0.7758 |
| 3500 | 34323.3 | 3.1 | 1.55 | 1.9563 | 0.7673 | 0.9243 |
| 4000 | 39226.6 | 3.8 | 1.9 | 2.2358 | 0.9406 | 1.0976 |
| 4500 | 44129.9 | 4.4 | 2.2 | 2.5152 | 1.0891 | 1.2461 |
| 5000 | 49033.3 | 4.8 | 2.4 | 2.7947 | 1.1881 | 1.3451 |
| 5500 | 53936.6 | 5.1 | 2.55 | 3.0742 | 1.2624 | 1.4194 |
| 6000 | 58839.9 | 5.5 | 2.75 | 3.3537 | 1.3614 | 1.5184 |
| 6500 | 63743.2 | 5.9 | 2.95 | 3.6331 | 1.4604 | 1.6174 |
| 7000 | 68646.6 | 6.4 | 3.2 | 3.9126 | 1.5842 | 1.7412 |
| 7500 | 73549.9 | 6.9 | 3.45 | 4.1921 | 1.7079 | 1.8649 |
| 8000 | 78453.2 | 7.3 | 3.65 | 4.4716 | 1.8069 | 1.9640 |
| 8500 | 83356.5 | 7.7 | 3.85 | 4.7510 | 1.9059 | 2.0630 |
| 9000 | 88259.9 | 8.1 | 4.05 | 5.0305 | 2.0050 | 2.1620 |
| 9500 | 93163.2 | 8.5 | 4.25 | 5.3100 | 2.1040 | 2.2610 |
| 10000 | 98066.5 | 9 | 4.5 | 5.5894 | 2.2277 | 2.3847 |
| 10500 | 102970 | 9.5 | 4.75 | 5.8689 | 2.3515 | 2.5085 |
| 11000 | 107873 | 9.8 | 4.9 | 6.1484 | 2.4257 | 2.5828 |
| 11500 | 112776 | 10.4 | 5.2 | 6.4279 | 2.5743 | 2.7313 |
| 12000 | 117680 | 10.6 | 5.3 | 6.7073 | 2.6238 | 2.7808 |
| 12500 | 122583 | 11.2 | 5.6 | 6.9868 | 2.7723 | 2.9293 |
| 13000 | 127486 | 11.7 | 5.85 | 7.2663 | 2.8960 | 3.0531 |
| 13500 | 132390 | 12 | 6 | 7.5457 | 2.9703 | 3.1273 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.6 | 6.3 | 7.8252 | 3.1188 | 3.2758 |
| 14500 | 142196 | 13 | 6.5 | 8.1047 | 3.2178 | 3.3748 |
| 15000 | 147100 | 13.5 | 6.75 | 8.3842 | 3.3416 | 3.4986 |
| 15500 | 152003 | 14 | 7 | 8.6636 | 3.4653 | 3.6224 |
| 16000 | 156906 | 14.4 | 7.2 | 8.9431 | 3.5644 | 3.7214 |
| 16500 | 161810 | 14.8 | 7.4 | 9.2226 | 3.6634 | 3.8204 |
| 17000 | 166713 | 15.4 | 7.7 | 9.5021 | 3.8119 | 3.9689 |
| 17500 | 171616 | 15.8 | 7.9 | 9.7815 | 3.9109 | 4.0679 |
| 18000 | 176520 | 16.4 | 8.2 | 10.0610 | 4.0594 | 4.2164 |
| 18500 | 181423 | 16.9 | 8.45 | 10.3405 | 4.1832 | 4.3402 |
| 19000 | 186326 | 17.3 | 8.65 | 10.6199 | 4.2822 | 4.4392 |
| 19500 | 191230 | 17.8 | 8.9 | 10.8994 | 4.4059 | 4.5630 |
| 20000 | 196133 | 18.1 | 9.05 | 11.1789 | 4.4802 | 4.6372 |
| 20500 | 201036 | 18.6 | 9.3 | 11.4584 | 4.6040 | 4.7610 |
| 21000 | 205940 | 19.2 | 9.6 | 11.7378 | 4.7525 | 4.9095 |
| 21500 | 210843 | 19.8 | 9.9 | 12.0173 | 4.9010 | 5.0580 |
| 22000 | 215746 | 20.6 | 10.3 | 12.2968 | 5.0990 | 5.2560 |
| 22500 | 220650 | 21.7 | 10.85 | 12.5762 | 5.3713 | 5.5283 |
| 23000 | 225553 | 22.5 | 11.25 | 12.8557 | 5.5693 | 5.7263 |
| 23500 | 230456 | 23.4 | 11.7 | 13.1352 | 5.7921 | 5.9491 |
| 24000 | 235360 | 24.3 | 12.15 | 13.4147 | 6.0149 | 6.1719 |


Silinder 3 Beton Normal 28 Hari
y = 2.3366x + 0.3669
R² = 0.9947
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 3 Beton Normal 28 Hari
y = 2.3366x + 0.0000
R² = 0.9947
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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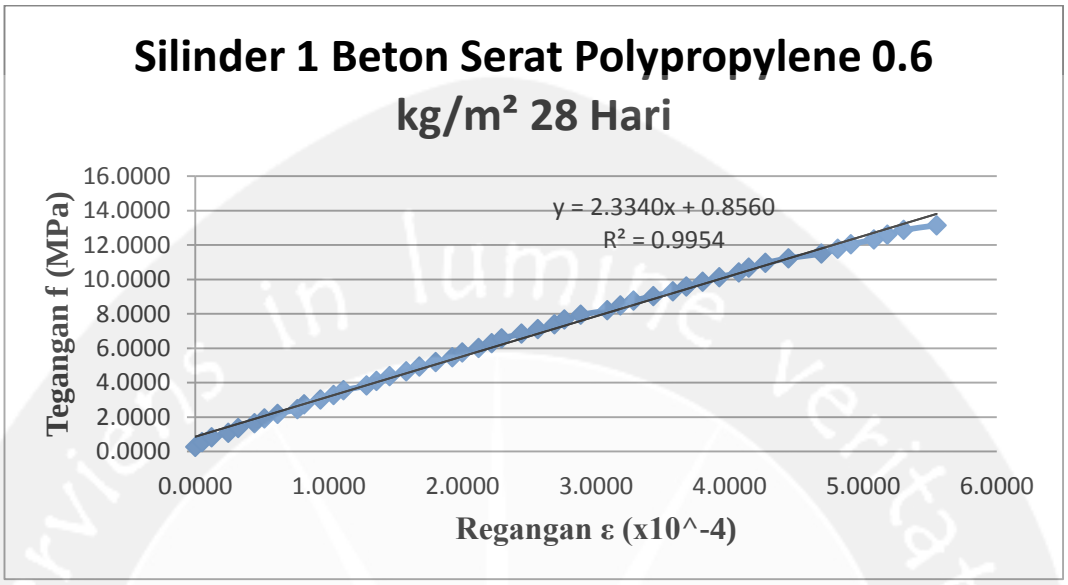
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

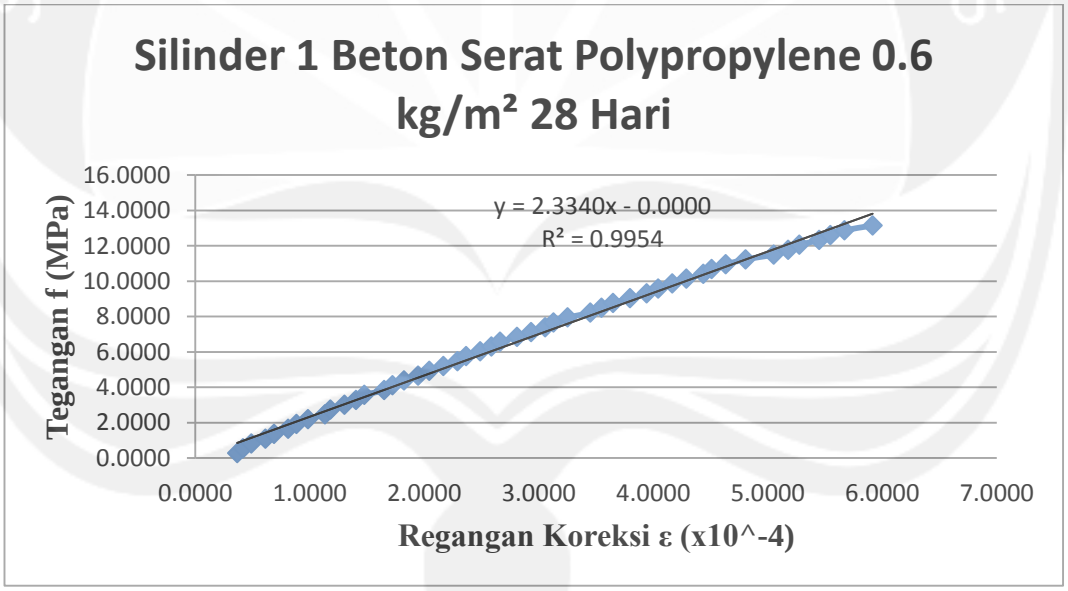
**Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.7 | mm |
| Ao | = | 17898.785 | $mm^2$ |
| Beban Maksimum | = | 530 | KN |
| Kuat Tekan Maksimum | = | 29.61 | Mpa |
| Modulus Elastisitas | = | 23340.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2739 | 0.0000 | 0.3668 |
| 1000 | 9806.65 | 0.2 | 0.1 | 0.5479 | 0.0493 | 0.4161 |
| 1500 | 14710 | 0.5 | 0.25 | 0.8218 | 0.1233 | 0.4901 |
| 2000 | 19613.3 | 1 | 0.5 | 1.0958 | 0.2467 | 0.6134 |
| 2500 | 24516.6 | 1.3 | 0.65 | 1.3697 | 0.3207 | 0.6874 |
| 3000 | 29420 | 1.8 | 0.9 | 1.6437 | 0.4440 | 0.8108 |
| 3500 | 34323.3 | 2.1 | 1.05 | 1.9176 | 0.5180 | 0.8848 |
| 4000 | 39226.6 | 2.5 | 1.25 | 2.1916 | 0.6167 | 0.9834 |
| 4500 | 44129.9 | 3.1 | 1.55 | 2.4655 | 0.7647 | 1.1314 |
| 5000 | 49033.3 | 3.3 | 1.65 | 2.7395 | 0.8140 | 1.1808 |
| 5500 | 53936.6 | 3.8 | 1.9 | 3.0134 | 0.9373 | 1.3041 |
| 6000 | 58839.9 | 4.2 | 2.1 | 3.2874 | 1.0360 | 1.4028 |
| 6500 | 63743.2 | 4.5 | 2.25 | 3.5613 | 1.1100 | 1.4768 |
| 7000 | 68646.6 | 5.2 | 2.6 | 3.8353 | 1.2827 | 1.6494 |
| 7500 | 73549.9 | 5.5 | 2.75 | 4.1092 | 1.3567 | 1.7234 |
| 8000 | 78453.2 | 5.9 | 2.95 | 4.3832 | 1.4554 | 1.8221 |
| 8500 | 83356.5 | 6.4 | 3.2 | 4.6571 | 1.5787 | 1.9454 |
| 9000 | 88259.9 | 6.8 | 3.4 | 4.9311 | 1.6774 | 2.0441 |
| 9500 | 93163.2 | 7.3 | 3.65 | 5.2050 | 1.8007 | 2.1674 |
| 10000 | 98066.5 | 7.8 | 3.9 | 5.4789 | 1.9240 | 2.2908 |
| 10500 | 102970 | 8.1 | 4.05 | 5.7529 | 1.9980 | 2.3648 |
| 11000 | 107873 | 8.6 | 4.3 | 6.0268 | 2.1214 | 2.4881 |
| 11500 | 112776 | 9 | 4.5 | 6.3008 | 2.2200 | 2.5868 |
| 12000 | 117680 | 9.3 | 4.65 | 6.5747 | 2.2940 | 2.6608 |
| 12500 | 122583 | 9.9 | 4.95 | 6.8487 | 2.4420 | 2.8088 |
| 13000 | 127486 | 10.4 | 5.2 | 7.1226 | 2.5654 | 2.9321 |
| 13500 | 132390 | 10.9 | 5.45 | 7.3966 | 2.6887 | 3.0555 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.2 | 5.6 | 7.6705 | 2.7627 | 3.1295 |
| 14500 | 142196 | 11.7 | 5.85 | 7.9445 | 2.8860 | 3.2528 |
| 15000 | 147100 | 12.5 | 6.25 | 8.2184 | 3.0834 | 3.4501 |
| 15500 | 152003 | 12.9 | 6.45 | 8.4924 | 3.1820 | 3.5488 |
| 16000 | 156906 | 13.3 | 6.65 | 8.7663 | 3.2807 | 3.6475 |
| 16500 | 161810 | 13.9 | 6.95 | 9.0403 | 3.4287 | 3.7955 |
| 17000 | 166713 | 14.5 | 7.25 | 9.3142 | 3.5767 | 3.9435 |
| 17500 | 171616 | 14.9 | 7.45 | 9.5882 | 3.6754 | 4.0421 |
| 18000 | 176520 | 15.4 | 7.7 | 9.8621 | 3.7987 | 4.1655 |
| 18500 | 181423 | 15.9 | 7.95 | 10.1361 | 3.9221 | 4.2888 |
| 19000 | 186326 | 16.5 | 8.25 | 10.4100 | 4.0701 | 4.4368 |
| 19500 | 191230 | 16.8 | 8.4 | 10.6839 | 4.1441 | 4.5108 |
| 20000 | 196133 | 17.3 | 8.65 | 10.9579 | 4.2674 | 4.6341 |
| 20500 | 201036 | 18 | 9 | 11.2318 | 4.4401 | 4.8068 |
| 21000 | 205940 | 19 | 9.5 | 11.5058 | 4.6867 | 5.0535 |
| 21500 | 210843 | 19.5 | 9.75 | 11.7797 | 4.8101 | 5.1768 |
| 22000 | 215746 | 19.9 | 9.95 | 12.0537 | 4.9087 | 5.2755 |
| 22500 | 220650 | 20.6 | 10.3 | 12.3276 | 5.0814 | 5.4482 |
| 23000 | 225553 | 21 | 10.5 | 12.6016 | 5.1801 | 5.5468 |
| 23500 | 230456 | 21.5 | 10.75 | 12.8755 | 5.3034 | 5.6702 |
| 24000 | 235360 | 22.5 | 11.25 | 13.1495 | 5.5501 | 5.9168 |


Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 28 Hari
y = 2.3340x + 0.8560
R² = 0.9954
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.6 kg/m² 28 Hari
y = 2.3340x - 0.0000
R² = 0.9954
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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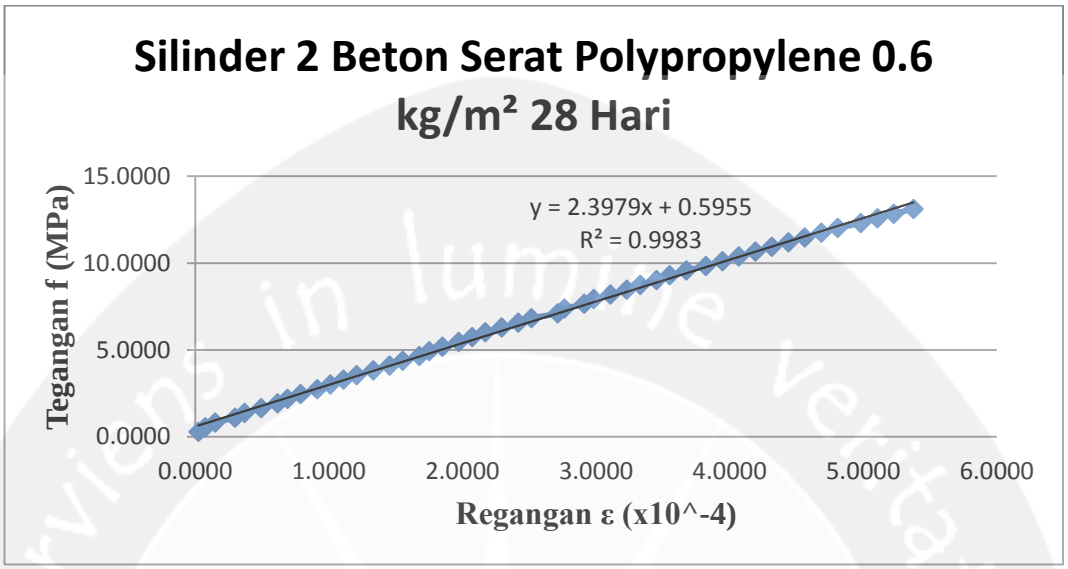
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

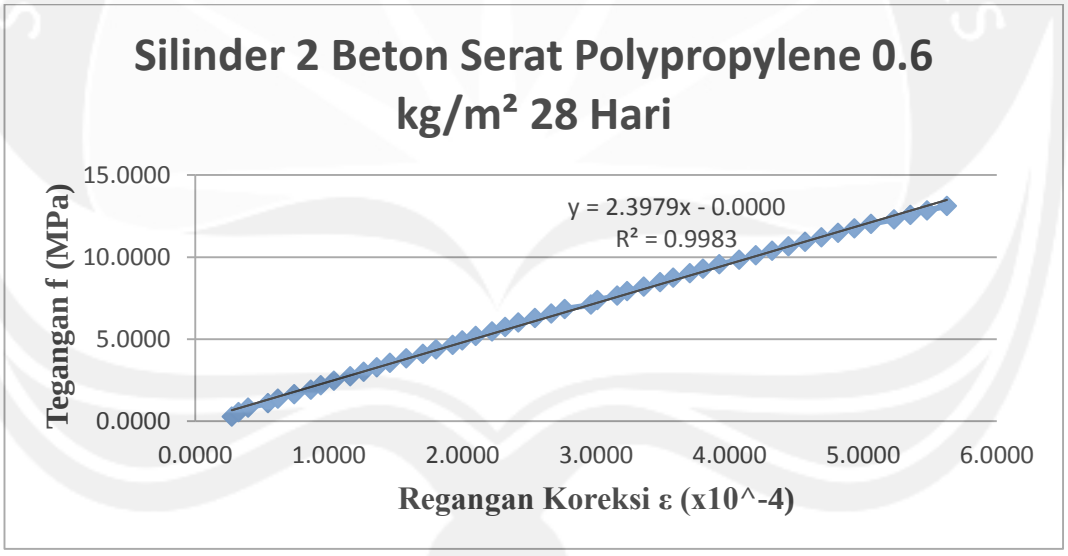
**Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.7 | mm |
| Ao | = | 17946.2304 | $mm^2$ |
| Beban Maksimum | = | 675 | KN |
| Kuat Tekan Maksimum | = | 37.61 | Mpa |
| Modulus Elastisitas | = | 23979.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2732 | 0.0247 | 0.2730 |
| 1000 | 9806.65 | 0.3 | 0.15 | 0.5464 | 0.0740 | 0.3223 |
| 1500 | 14710 | 0.6 | 0.3 | 0.8197 | 0.1480 | 0.3963 |
| 2000 | 19613.3 | 1.2 | 0.6 | 1.0929 | 0.2960 | 0.5443 |
| 2500 | 24516.6 | 1.5 | 0.75 | 1.3661 | 0.3700 | 0.6183 |
| 3000 | 29420 | 2 | 1 | 1.6393 | 0.4933 | 0.7417 |
| 3500 | 34323.3 | 2.5 | 1.25 | 1.9126 | 0.6167 | 0.8650 |
| 4000 | 39226.6 | 2.8 | 1.4 | 2.1858 | 0.6907 | 0.9390 |
| 4500 | 44129.9 | 3.2 | 1.6 | 2.4590 | 0.7893 | 1.0377 |
| 5000 | 49033.3 | 3.7 | 1.85 | 2.7322 | 0.9127 | 1.1610 |
| 5500 | 53936.6 | 4.1 | 2.05 | 3.0055 | 1.0113 | 1.2597 |
| 6000 | 58839.9 | 4.5 | 2.25 | 3.2787 | 1.1100 | 1.3584 |
| 6500 | 63743.2 | 4.9 | 2.45 | 3.5519 | 1.2087 | 1.4570 |
| 7000 | 68646.6 | 5.4 | 2.7 | 3.8251 | 1.3320 | 1.5804 |
| 7500 | 73549.9 | 5.9 | 2.95 | 4.0983 | 1.4554 | 1.7037 |
| 8000 | 78453.2 | 6.3 | 3.15 | 4.3716 | 1.5540 | 1.8024 |
| 8500 | 83356.5 | 6.8 | 3.4 | 4.6448 | 1.6774 | 1.9257 |
| 9000 | 88259.9 | 7.1 | 3.55 | 4.9180 | 1.7514 | 1.9997 |
| 9500 | 93163.2 | 7.5 | 3.75 | 5.1912 | 1.8500 | 2.0984 |
| 10000 | 98066.5 | 8 | 4 | 5.4645 | 1.9734 | 2.2217 |
| 10500 | 102970 | 8.4 | 4.2 | 5.7377 | 2.0720 | 2.3204 |
| 11000 | 107873 | 8.8 | 4.4 | 6.0109 | 2.1707 | 2.4190 |
| 11500 | 112776 | 9.3 | 4.65 | 6.2841 | 2.2940 | 2.5424 |
| 12000 | 117680 | 9.8 | 4.9 | 6.5574 | 2.4174 | 2.6657 |
| 12500 | 122583 | 10.2 | 5.1 | 6.8306 | 2.5160 | 2.7644 |
| 13000 | 127486 | 11 | 5.5 | 7.1038 | 2.7134 | 2.9617 |
| 13500 | 132390 | 11.2 | 5.6 | 7.3770 | 2.7627 | 3.0110 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.8 | 5.9 | 7.6502 | 2.9107 | 3.1590 |
| 14500 | 142196 | 12.1 | 6.05 | 7.9235 | 2.9847 | 3.2330 |
| 15000 | 147100 | 12.6 | 6.3 | 8.1967 | 3.1080 | 3.3564 |
| 15500 | 152003 | 13.1 | 6.55 | 8.4699 | 3.2314 | 3.4797 |
| 16000 | 156906 | 13.5 | 6.75 | 8.7431 | 3.3300 | 3.5784 |
| 16500 | 161810 | 14 | 7 | 9.0164 | 3.4534 | 3.7017 |
| 17000 | 166713 | 14.4 | 7.2 | 9.2896 | 3.5520 | 3.8004 |
| 17500 | 171616 | 14.9 | 7.45 | 9.5628 | 3.6754 | 3.9237 |
| 18000 | 176520 | 15.5 | 7.75 | 9.8360 | 3.8234 | 4.0717 |
| 18500 | 181423 | 16 | 8 | 10.1093 | 3.9467 | 4.1951 |
| 19000 | 186326 | 16.5 | 8.25 | 10.3825 | 4.0701 | 4.3184 |
| 19500 | 191230 | 17 | 8.5 | 10.6557 | 4.1934 | 4.4417 |
| 20000 | 196133 | 17.5 | 8.75 | 10.9289 | 4.3167 | 4.5651 |
| 20500 | 201036 | 18 | 9 | 11.2021 | 4.4401 | 4.6884 |
| 21000 | 205940 | 18.5 | 9.25 | 11.4754 | 4.5634 | 4.8117 |
| 21500 | 210843 | 19 | 9.5 | 11.7486 | 4.6867 | 4.9351 |
| 22000 | 215746 | 19.5 | 9.75 | 12.0218 | 4.8101 | 5.0584 |
| 22500 | 220650 | 20.2 | 10.1 | 12.2950 | 4.9827 | 5.2311 |
| 23000 | 225553 | 20.7 | 10.35 | 12.5683 | 5.1061 | 5.3544 |
| 23500 | 230456 | 21.2 | 10.6 | 12.8415 | 5.2294 | 5.4777 |
| 24000 | 235360 | 21.8 | 10.9 | 13.1147 | 5.3774 | 5.6257 |


Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 28 Hari
y = 2.3979x + 0.5955
R² = 0.9983
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.6 kg/m² 28 Hari
y = 2.3979x - 0.0000
R² = 0.9983
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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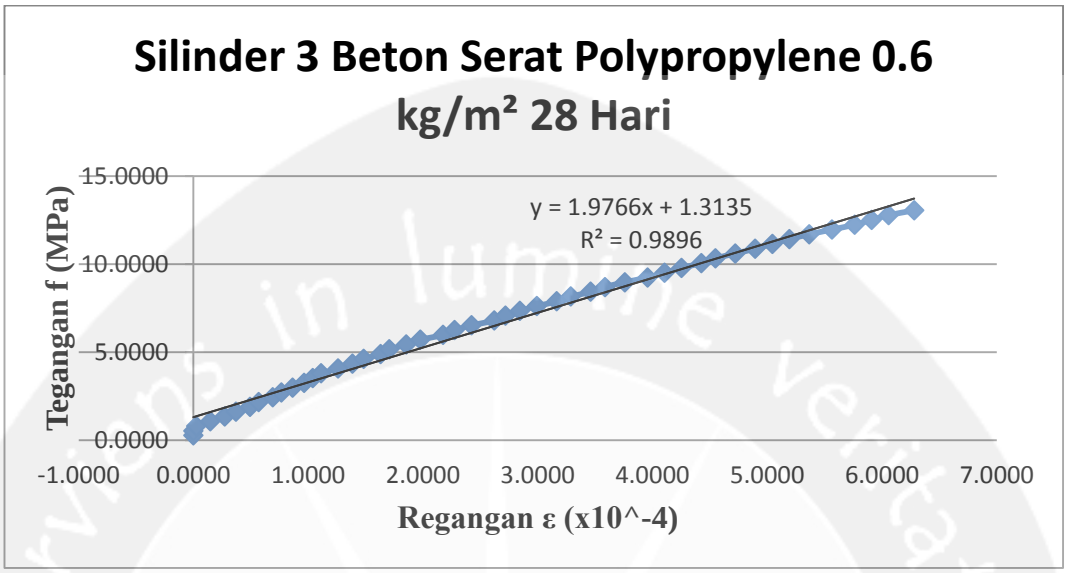
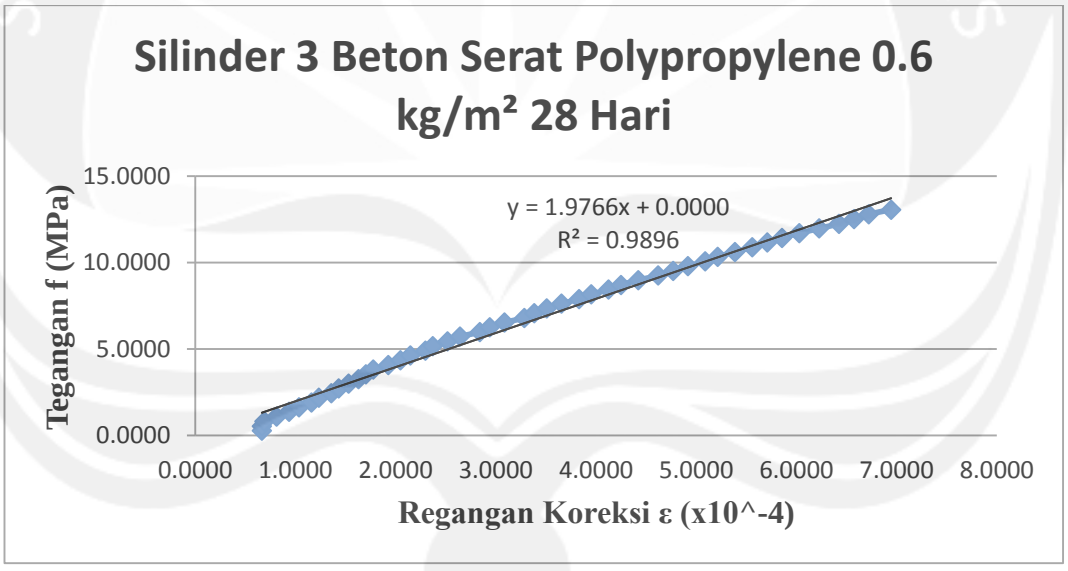
**Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.2 | mm |
| Ao | = | 18017.51625 | $mm^2$ |
| Beban Maksimum | = | 650 | KN |
| Kuat Tekan Maksimum | = | 36.08 | Mpa |
| Modulus Elastisitas | = | 19766.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2721 | 0.0000 | 0.6645 |
| 1000 | 9806.65 | 0 | 0 | 0.5443 | 0.0000 | 0.6645 |
| 1500 | 14710 | 0.1 | 0.05 | 0.8164 | 0.0247 | 0.6893 |
| 2000 | 19613.3 | 0.6 | 0.3 | 1.0886 | 0.1484 | 0.8129 |
| 2500 | 24516.6 | 1.1 | 0.55 | 1.3607 | 0.2720 | 0.9365 |
| 3000 | 29420 | 1.5 | 0.75 | 1.6329 | 0.3709 | 1.0354 |
| 3500 | 34323.3 | 2 | 1 | 1.9050 | 0.4946 | 1.1591 |
| 4000 | 39226.6 | 2.3 | 1.15 | 2.1771 | 0.5687 | 1.2333 |
| 4500 | 44129.9 | 2.8 | 1.4 | 2.4493 | 0.6924 | 1.3569 |
| 5000 | 49033.3 | 3.1 | 1.55 | 2.7214 | 0.7666 | 1.4311 |
| 5500 | 53936.6 | 3.5 | 1.75 | 2.9936 | 0.8655 | 1.5300 |
| 6000 | 58839.9 | 3.9 | 1.95 | 3.2657 | 0.9644 | 1.6289 |
| 6500 | 63743.2 | 4.2 | 2.1 | 3.5378 | 1.0386 | 1.7031 |
| 7000 | 68646.6 | 4.5 | 2.25 | 3.8100 | 1.1128 | 1.7773 |
| 7500 | 73549.9 | 5.1 | 2.55 | 4.0821 | 1.2611 | 1.9257 |
| 8000 | 78453.2 | 5.6 | 2.8 | 4.3543 | 1.3848 | 2.0493 |
| 8500 | 83356.5 | 6 | 3 | 4.6264 | 1.4837 | 2.1482 |
| 9000 | 88259.9 | 6.6 | 3.3 | 4.8986 | 1.6320 | 2.2966 |
| 9500 | 93163.2 | 6.9 | 3.45 | 5.1707 | 1.7062 | 2.3708 |
| 10000 | 98066.5 | 7.5 | 3.75 | 5.4428 | 1.8546 | 2.5191 |
| 10500 | 102970 | 8 | 4 | 5.7150 | 1.9782 | 2.6428 |
| 11000 | 107873 | 8.8 | 4.4 | 5.9871 | 2.1761 | 2.8406 |
| 11500 | 112776 | 9.2 | 4.6 | 6.2593 | 2.2750 | 2.9395 |
| 12000 | 117680 | 9.8 | 4.9 | 6.5314 | 2.4233 | 3.0879 |
| 12500 | 122583 | 10.6 | 5.3 | 6.8036 | 2.6212 | 3.2857 |
| 13000 | 127486 | 11 | 5.5 | 7.0757 | 2.7201 | 3.3846 |
| 13500 | 132390 | 11.5 | 5.75 | 7.3478 | 2.8437 | 3.5082 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.1 | 6.05 | 7.6200 | 2.9921 | 3.6566 |
| 14500 | 142196 | 12.8 | 6.4 | 7.8921 | 3.1652 | 3.8297 |
| 15000 | 147100 | 13.3 | 6.65 | 8.1643 | 3.2888 | 3.9533 |
| 15500 | 152003 | 14 | 7 | 8.4364 | 3.4619 | 4.1264 |
| 16000 | 156906 | 14.5 | 7.25 | 8.7085 | 3.5856 | 4.2501 |
| 16500 | 161810 | 15.2 | 7.6 | 8.9807 | 3.7587 | 4.4232 |
| 17000 | 166713 | 16 | 8 | 9.2528 | 3.9565 | 4.6210 |
| 17500 | 171616 | 16.6 | 8.3 | 9.5250 | 4.1048 | 4.7694 |
| 18000 | 176520 | 17.2 | 8.6 | 9.7971 | 4.2532 | 4.9177 |
| 18500 | 181423 | 17.9 | 8.95 | 10.0693 | 4.4263 | 5.0908 |
| 19000 | 186326 | 18.4 | 9.2 | 10.3414 | 4.5500 | 5.2145 |
| 19500 | 191230 | 19.1 | 9.55 | 10.6135 | 4.7230 | 5.3876 |
| 20000 | 196133 | 19.8 | 9.9 | 10.8857 | 4.8961 | 5.5607 |
| 20500 | 201036 | 20.4 | 10.2 | 11.1578 | 5.0445 | 5.7090 |
| 21000 | 205940 | 21 | 10.5 | 11.4300 | 5.1929 | 5.8574 |
| 21500 | 210843 | 21.7 | 10.85 | 11.7021 | 5.3660 | 6.0305 |
| 22000 | 215746 | 22.5 | 11.25 | 11.9743 | 5.5638 | 6.2283 |
| 22500 | 220650 | 23.3 | 11.65 | 12.2464 | 5.7616 | 6.4261 |
| 23000 | 225553 | 23.9 | 11.95 | 12.5185 | 5.9100 | 6.5745 |
| 23500 | 230456 | 24.5 | 12.25 | 12.7907 | 6.0584 | 6.7229 |
| 24000 | 235360 | 25.4 | 12.7 | 13.0628 | 6.2809 | 6.9454 |


Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 28 Hari
y = 1.9766x + 1.3135
R² = 0.9896
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
-1.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.6 kg/m² 28 Hari
y = 1.9766x + 0.0000
R² = 0.9896
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
8.0000
Regangan Koreksi ε (x10^-4)

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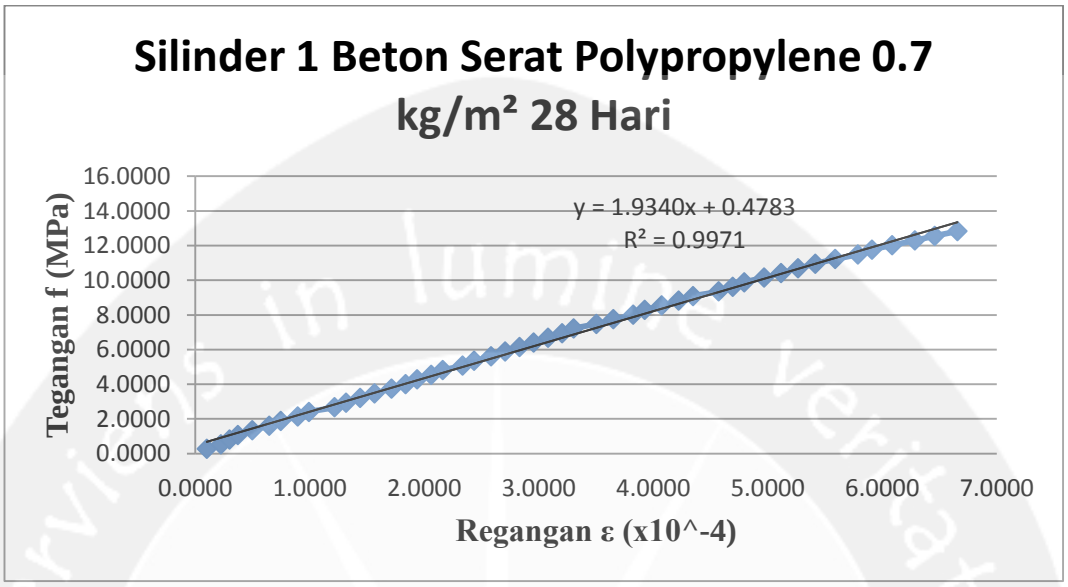
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

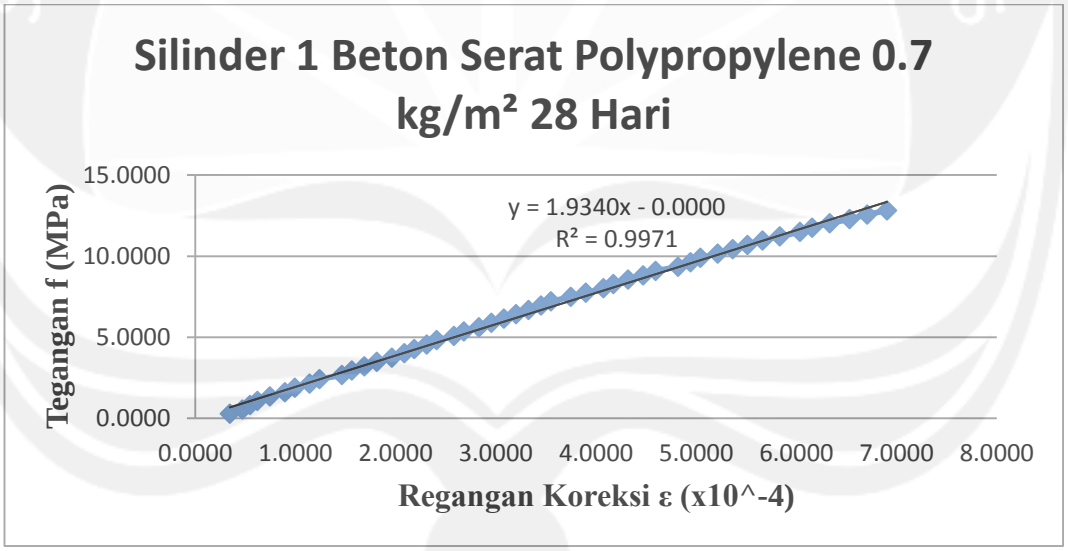
**Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 201.3 | mm |
| Ao | = | 18352.05185 | $mm^2$ |
| Beban Maksimum | = | 560 | KN |
| Kuat Tekan Maksimum | = | 30.51 | Mpa |
| Modulus Elastisitas | = | 19340.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2672 | 0.0994 | 0.3467 |
| 1000 | 9806.65 | 0.9 | 0.45 | 0.5344 | 0.2235 | 0.4709 |
| 1500 | 14710 | 1.2 | 0.6 | 0.8015 | 0.2981 | 0.5454 |
| 2000 | 19613.3 | 1.5 | 0.75 | 1.0687 | 0.3726 | 0.6199 |
| 2500 | 24516.6 | 2 | 1 | 1.3359 | 0.4968 | 0.7441 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6031 | 0.6458 | 0.8931 |
| 3500 | 34323.3 | 3 | 1.5 | 1.8703 | 0.7452 | 0.9925 |
| 4000 | 39226.6 | 3.6 | 1.8 | 2.1375 | 0.8942 | 1.1415 |
| 4500 | 44129.9 | 4 | 2 | 2.4046 | 0.9935 | 1.2409 |
| 5000 | 49033.3 | 4.9 | 2.45 | 2.6718 | 1.2171 | 1.4644 |
| 5500 | 53936.6 | 5.3 | 2.65 | 2.9390 | 1.3164 | 1.5638 |
| 6000 | 58839.9 | 5.8 | 2.9 | 3.2062 | 1.4406 | 1.6879 |
| 6500 | 63743.2 | 6.3 | 3.15 | 3.4734 | 1.5648 | 1.8121 |
| 7000 | 68646.6 | 6.9 | 3.45 | 3.7405 | 1.7139 | 1.9612 |
| 7500 | 73549.9 | 7.4 | 3.7 | 4.0077 | 1.8381 | 2.0854 |
| 8000 | 78453.2 | 7.8 | 3.9 | 4.2749 | 1.9374 | 2.1847 |
| 8500 | 83356.5 | 8.3 | 4.15 | 4.5421 | 2.0616 | 2.3089 |
| 9000 | 88259.9 | 8.7 | 4.35 | 4.8093 | 2.1610 | 2.4083 |
| 9500 | 93163.2 | 9.4 | 4.7 | 5.0764 | 2.3348 | 2.5821 |
| 10000 | 98066.5 | 9.8 | 4.9 | 5.3436 | 2.4342 | 2.6815 |
| 10500 | 102970 | 10.4 | 5.2 | 5.6108 | 2.5832 | 2.8305 |
| 11000 | 107873 | 10.9 | 5.45 | 5.8780 | 2.7074 | 2.9547 |
| 11500 | 112776 | 11.4 | 5.7 | 6.1452 | 2.8316 | 3.0789 |
| 12000 | 117680 | 11.9 | 5.95 | 6.4124 | 2.9558 | 3.2031 |
| 12500 | 122583 | 12.4 | 6.2 | 6.6795 | 3.0800 | 3.3273 |
| 13000 | 127486 | 12.9 | 6.45 | 6.9467 | 3.2042 | 3.4515 |
| 13500 | 132390 | 13.3 | 6.65 | 7.2139 | 3.3035 | 3.5508 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 14.1 | 7.05 | 7.4811 | 3.5022 | 3.7495 |
| 14500 | 142196 | 14.7 | 7.35 | 7.7483 | 3.6513 | 3.8986 |
| 15000 | 147100 | 15.4 | 7.7 | 8.0154 | 3.8251 | 4.0724 |
| 15500 | 152003 | 15.8 | 7.9 | 8.2826 | 3.9245 | 4.1718 |
| 16000 | 156906 | 16.4 | 8.2 | 8.5498 | 4.0735 | 4.3208 |
| 16500 | 161810 | 17 | 8.5 | 8.8170 | 4.2226 | 4.4699 |
| 17000 | 166713 | 17.5 | 8.75 | 9.0842 | 4.3467 | 4.5941 |
| 17500 | 171616 | 18.4 | 9.2 | 9.3513 | 4.5703 | 4.8176 |
| 18000 | 176520 | 18.9 | 9.45 | 9.6185 | 4.6945 | 4.9418 |
| 18500 | 181423 | 19.3 | 9.65 | 9.8857 | 4.7938 | 5.0412 |
| 19000 | 186326 | 20 | 10 | 10.1529 | 4.9677 | 5.2150 |
| 19500 | 191230 | 20.6 | 10.3 | 10.4201 | 5.1167 | 5.3641 |
| 20000 | 196133 | 21.2 | 10.6 | 10.6873 | 5.2658 | 5.5131 |
| 20500 | 201036 | 21.8 | 10.9 | 10.9544 | 5.4148 | 5.6621 |
| 21000 | 205940 | 22.5 | 11.25 | 11.2216 | 5.5887 | 5.8360 |
| 21500 | 210843 | 23.3 | 11.65 | 11.4888 | 5.7874 | 6.0347 |
| 22000 | 215746 | 23.8 | 11.9 | 11.7560 | 5.9116 | 6.1589 |
| 22500 | 220650 | 24.5 | 12.25 | 12.0232 | 6.0854 | 6.3328 |
| 23000 | 225553 | 25.3 | 12.65 | 12.2903 | 6.2842 | 6.5315 |
| 23500 | 230456 | 26 | 13 | 12.5575 | 6.4580 | 6.7053 |
| 24000 | 235360 | 26.8 | 13.4 | 12.8247 | 6.6567 | 6.9040 |


Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 28 Hari
y = 1.9340x + 0.4783
R² = 0.9971
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.7 kg/m² 28 Hari
y = 1.9340x - 0.0000
R² = 0.9971
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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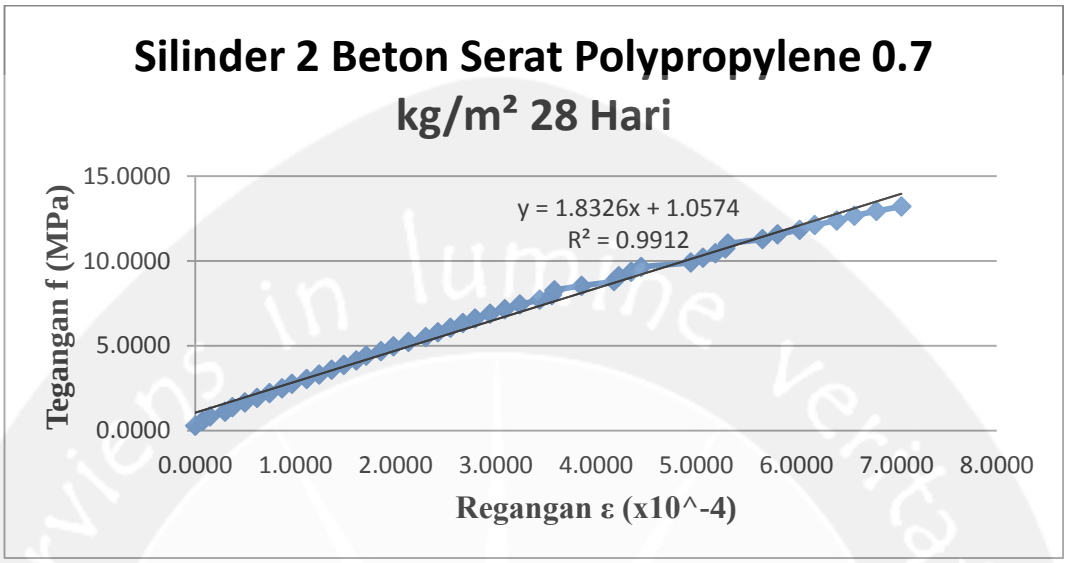
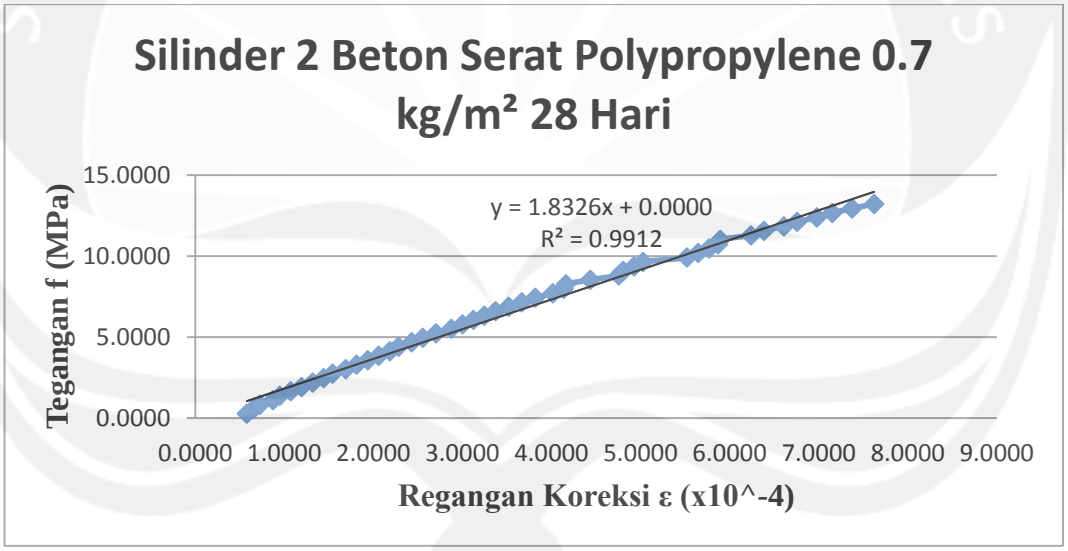
**Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.2 | mm |
| Ao | = | 17804.0826 | $mm^2$ |
| Beban Maksimum | = | 590 | KN |
| Kuat Tekan Maksimum | = | 33.14 | Mpa |
| Modulus Elastisitas | = | 18326.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0 | 0 | 0.2754 | 0.0000 | 0.5770 |
| 1000 | 9806.65 | 0.3 | 0.15 | 0.5508 | 0.0742 | 0.6512 |
| 1500 | 14710 | 0.6 | 0.3 | 0.8262 | 0.1484 | 0.7254 |
| 2000 | 19613.3 | 1.2 | 0.6 | 1.1016 | 0.2967 | 0.8737 |
| 2500 | 24516.6 | 1.5 | 0.75 | 1.3770 | 0.3709 | 0.9479 |
| 3000 | 29420 | 2 | 1 | 1.6524 | 0.4946 | 1.0716 |
| 3500 | 34323.3 | 2.5 | 1.25 | 1.9278 | 0.6182 | 1.1952 |
| 4000 | 39226.6 | 3 | 1.5 | 2.2032 | 0.7418 | 1.3188 |
| 4500 | 44129.9 | 3.5 | 1.75 | 2.4786 | 0.8655 | 1.4425 |
| 5000 | 49033.3 | 3.9 | 1.95 | 2.7540 | 0.9644 | 1.5414 |
| 5500 | 53936.6 | 4.5 | 2.25 | 3.0294 | 1.1128 | 1.6898 |
| 6000 | 58839.9 | 5 | 2.5 | 3.3049 | 1.2364 | 1.8134 |
| 6500 | 63743.2 | 5.5 | 2.75 | 3.5803 | 1.3600 | 1.9370 |
| 7000 | 68646.6 | 6 | 3 | 3.8557 | 1.4837 | 2.0607 |
| 7500 | 73549.9 | 6.5 | 3.25 | 4.1311 | 1.6073 | 2.1843 |
| 8000 | 78453.2 | 6.9 | 3.45 | 4.4065 | 1.7062 | 2.2832 |
| 8500 | 83356.5 | 7.5 | 3.75 | 4.6819 | 1.8546 | 2.4316 |
| 9000 | 88259.9 | 8 | 4 | 4.9573 | 1.9782 | 2.5552 |
| 9500 | 93163.2 | 8.6 | 4.3 | 5.2327 | 2.1266 | 2.7036 |
| 10000 | 98066.5 | 9.3 | 4.65 | 5.5081 | 2.2997 | 2.8767 |
| 10500 | 102970 | 9.8 | 4.9 | 5.7835 | 2.4233 | 3.0003 |
| 11000 | 107873 | 10.3 | 5.15 | 6.0589 | 2.5470 | 3.1240 |
| 11500 | 112776 | 10.8 | 5.4 | 6.3343 | 2.6706 | 3.2476 |
| 12000 | 117680 | 11.3 | 5.65 | 6.6097 | 2.7943 | 3.3713 |
| 12500 | 122583 | 11.9 | 5.95 | 6.8851 | 2.9426 | 3.5196 |
| 13000 | 127486 | 12.5 | 6.25 | 7.1605 | 3.0910 | 3.6680 |
| 13500 | 132390 | 13.1 | 6.55 | 7.4359 | 3.2394 | 3.8164 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13.9 | 6.95 | 7.7113 | 3.4372 | 4.0142 |
| 14500 | 142196 | 14.4 | 7.2 | 7.9867 | 3.5608 | 4.1378 |
| 15000 | 147100 | 14.5 | 7.25 | 8.2621 | 3.5856 | 4.1626 |
| 15500 | 152003 | 15.6 | 7.8 | 8.5375 | 3.8576 | 4.4346 |
| 16000 | 156906 | 16.9 | 8.45 | 8.8129 | 4.1790 | 4.7560 |
| 16500 | 161810 | 17.1 | 8.55 | 9.0883 | 4.2285 | 4.8055 |
| 17000 | 166713 | 17.6 | 8.8 | 9.3638 | 4.3521 | 4.9291 |
| 17500 | 171616 | 18 | 9 | 9.6392 | 4.4510 | 5.0280 |
| 18000 | 176520 | 20 | 10 | 9.9146 | 4.9456 | 5.5226 |
| 18500 | 181423 | 20.5 | 10.25 | 10.1900 | 5.0692 | 5.6462 |
| 19000 | 186326 | 21 | 10.5 | 10.4654 | 5.1929 | 5.7699 |
| 19500 | 191230 | 21.4 | 10.7 | 10.7408 | 5.2918 | 5.8688 |
| 20000 | 196133 | 21.5 | 10.75 | 11.0162 | 5.3165 | 5.8935 |
| 20500 | 201036 | 22.9 | 11.45 | 11.2916 | 5.6627 | 6.2397 |
| 21000 | 205940 | 23.5 | 11.75 | 11.5670 | 5.8111 | 6.3881 |
| 21500 | 210843 | 24.4 | 12.2 | 11.8424 | 6.0336 | 6.6106 |
| 22000 | 215746 | 25 | 12.5 | 12.1178 | 6.1820 | 6.7590 |
| 22500 | 220650 | 25.9 | 12.95 | 12.3932 | 6.4045 | 6.9815 |
| 23000 | 225553 | 26.6 | 13.3 | 12.6686 | 6.5776 | 7.1546 |
| 23500 | 230456 | 27.5 | 13.75 | 12.9440 | 6.8002 | 7.3772 |
| 24000 | 235360 | 28.5 | 14.25 | 13.2194 | 7.0475 | 7.6245 |


Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 28 Hari
y = 1.8326x + 1.0574
R² = 0.9912
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.7 kg/m² 28 Hari
y = 1.8326x + 0.0000
R² = 0.9912
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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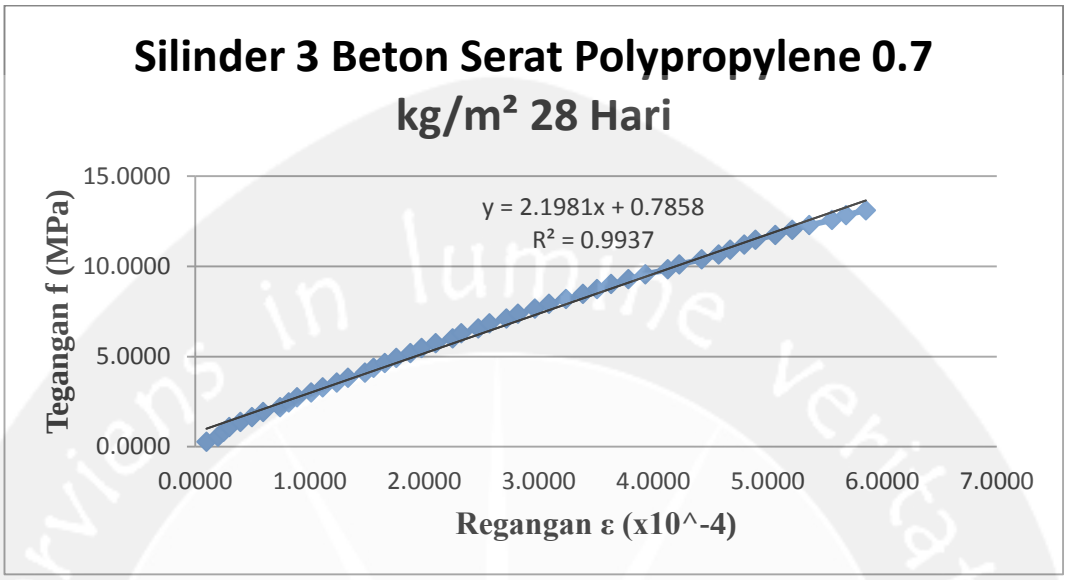
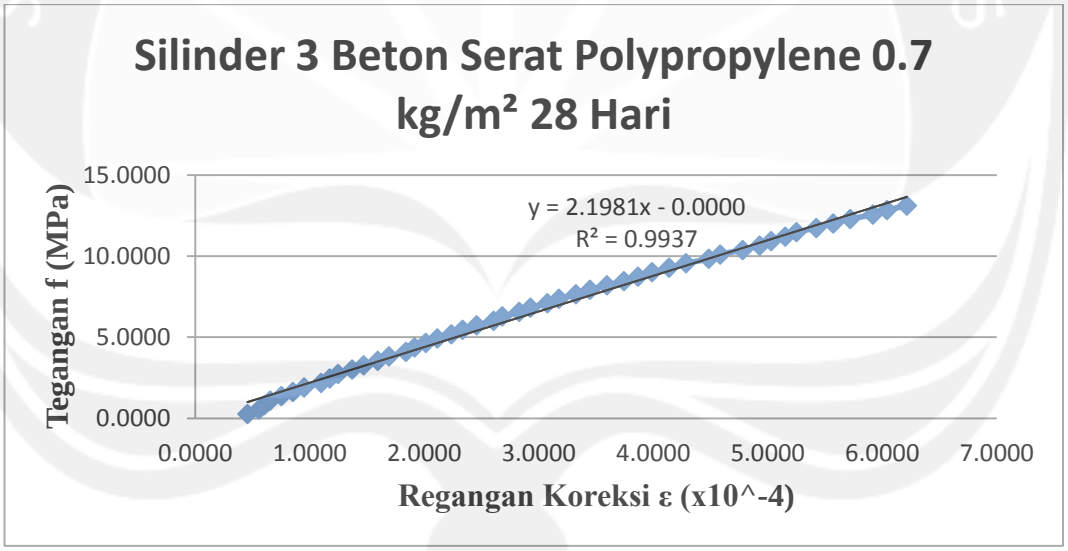
**Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.3 | mm |
| Ao | = | 17946.2304 | $mm^2$ |
| Beban Maksimum | = | 390 | KN |
| Kuat Tekan Maksimum | = | 21.73 | Mpa |
| Modulus Elastisitas | = | 21981.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2732 | 0.0989 | 0.4564 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5464 | 0.1977 | 0.5552 |
| 1500 | 14710 | 1 | 0.5 | 0.8197 | 0.2472 | 0.6046 |
| 2000 | 19613.3 | 1.2 | 0.6 | 1.0929 | 0.2966 | 0.6541 |
| 2500 | 24516.6 | 1.6 | 0.8 | 1.3661 | 0.3955 | 0.7529 |
| 3000 | 29420 | 2 | 1 | 1.6393 | 0.4943 | 0.8518 |
| 3500 | 34323.3 | 2.4 | 1.2 | 1.9126 | 0.5932 | 0.9507 |
| 4000 | 39226.6 | 3 | 1.5 | 2.1858 | 0.7415 | 1.0990 |
| 4500 | 44129.9 | 3.3 | 1.65 | 2.4590 | 0.8156 | 1.1731 |
| 5000 | 49033.3 | 3.6 | 1.8 | 2.7322 | 0.8898 | 1.2473 |
| 5500 | 53936.6 | 4.1 | 2.05 | 3.0055 | 1.0133 | 1.3708 |
| 6000 | 58839.9 | 4.5 | 2.25 | 3.2787 | 1.1122 | 1.4697 |
| 6500 | 63743.2 | 5 | 2.5 | 3.5519 | 1.2358 | 1.5933 |
| 7000 | 68646.6 | 5.4 | 2.7 | 3.8251 | 1.3347 | 1.6921 |
| 7500 | 73549.9 | 6 | 3 | 4.0983 | 1.4829 | 1.8404 |
| 8000 | 78453.2 | 6.3 | 3.15 | 4.3716 | 1.5571 | 1.9146 |
| 8500 | 83356.5 | 6.7 | 3.35 | 4.6448 | 1.6560 | 2.0134 |
| 9000 | 88259.9 | 7.1 | 3.55 | 4.9180 | 1.7548 | 2.1123 |
| 9500 | 93163.2 | 7.6 | 3.8 | 5.1912 | 1.8784 | 2.2359 |
| 10000 | 98066.5 | 8 | 4 | 5.4645 | 1.9773 | 2.3348 |
| 10500 | 102970 | 8.5 | 4.25 | 5.7377 | 2.1008 | 2.4583 |
| 11000 | 107873 | 9.1 | 4.55 | 6.0109 | 2.2491 | 2.6066 |
| 11500 | 112776 | 9.4 | 4.7 | 6.2841 | 2.3233 | 2.6808 |
| 12000 | 117680 | 10 | 5 | 6.5574 | 2.4716 | 2.8291 |
| 12500 | 122583 | 10.4 | 5.2 | 6.8306 | 2.5704 | 2.9279 |
| 13000 | 127486 | 11 | 5.5 | 7.1038 | 2.7187 | 3.0762 |
| 13500 | 132390 | 11.4 | 5.7 | 7.3770 | 2.8176 | 3.1751 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12 | 6 | 7.6502 | 2.9659 | 3.3234 |
| 14500 | 142196 | 12.5 | 6.25 | 7.9235 | 3.0895 | 3.4470 |
| 15000 | 147100 | 13.1 | 6.55 | 8.1967 | 3.2378 | 3.5953 |
| 15500 | 152003 | 13.7 | 6.85 | 8.4699 | 3.3861 | 3.7436 |
| 16000 | 156906 | 14.2 | 7.1 | 8.7431 | 3.5096 | 3.8671 |
| 16500 | 161810 | 14.7 | 7.35 | 9.0164 | 3.6332 | 3.9907 |
| 17000 | 166713 | 15.3 | 7.65 | 9.2896 | 3.7815 | 4.1390 |
| 17500 | 171616 | 15.9 | 7.95 | 9.5628 | 3.9298 | 4.2873 |
| 18000 | 176520 | 16.7 | 8.35 | 9.8360 | 4.1275 | 4.4850 |
| 18500 | 181423 | 17.1 | 8.55 | 10.1093 | 4.2264 | 4.5839 |
| 19000 | 186326 | 17.9 | 8.95 | 10.3825 | 4.4241 | 4.7816 |
| 19500 | 191230 | 18.5 | 9.25 | 10.6557 | 4.5724 | 4.9299 |
| 20000 | 196133 | 18.9 | 9.45 | 10.9289 | 4.6713 | 5.0288 |
| 20500 | 201036 | 19.4 | 9.7 | 11.2021 | 4.7949 | 5.1523 |
| 21000 | 205940 | 19.8 | 9.9 | 11.4754 | 4.8937 | 5.2512 |
| 21500 | 210843 | 20.5 | 10.25 | 11.7486 | 5.0667 | 5.4242 |
| 22000 | 215746 | 21.1 | 10.55 | 12.0218 | 5.2150 | 5.5725 |
| 22500 | 220650 | 21.7 | 10.85 | 12.2950 | 5.3633 | 5.7208 |
| 23000 | 225553 | 22.5 | 11.25 | 12.5683 | 5.5610 | 5.9185 |
| 23500 | 230456 | 23 | 11.5 | 12.8415 | 5.6846 | 6.0421 |
| 24000 | 235360 | 23.7 | 11.85 | 13.1147 | 5.8576 | 6.2151 |


Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 28 Hari
y = 2.1981x + 0.7858
R² = 0.9937
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.7 kg/m² 28 Hari
y = 2.1981x - 0.0000
R² = 0.9937
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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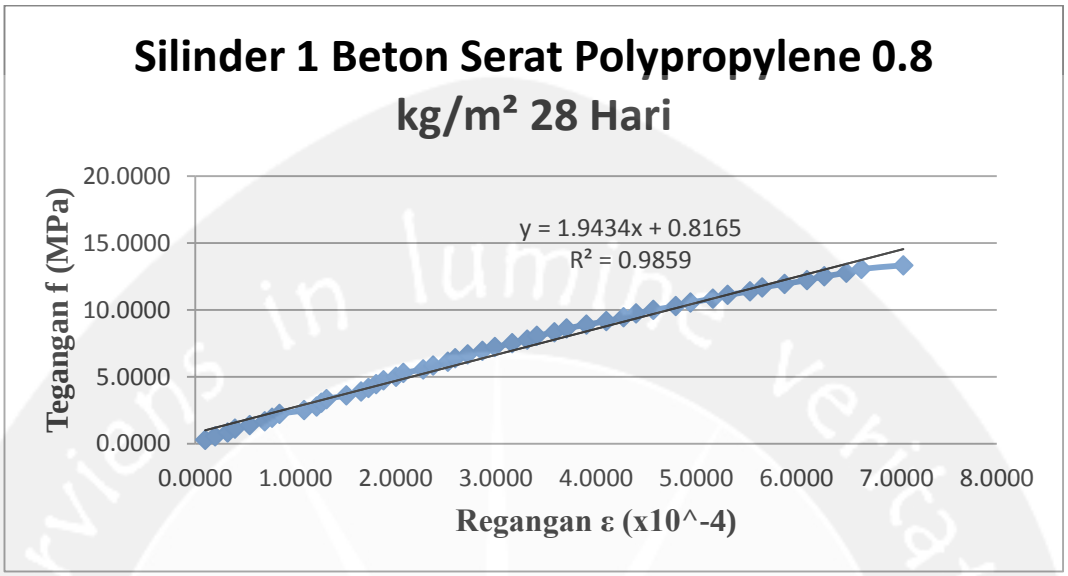
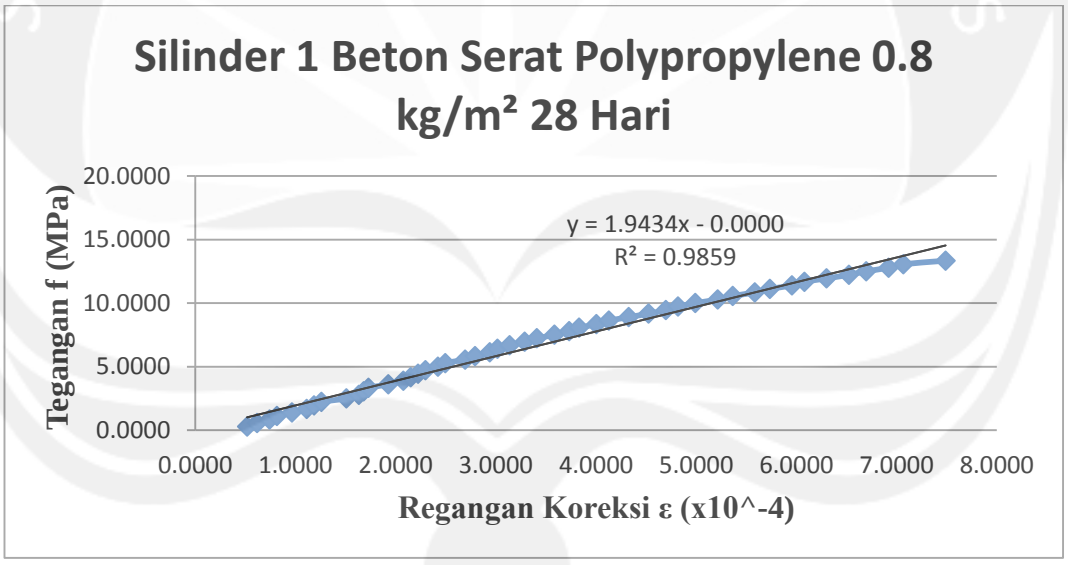
**Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.3 | mm |
| Ao | = | 17638.95785 | $mm^2$ |
| Beban Maksimum | = | 650 | KN |
| Kuat Tekan Maksimum | = | 36.85 | Mpa |
| Modulus Elastisitas | = | 19434.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2780 | 0.0989 | 0.5190 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5560 | 0.1977 | 0.6179 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8339 | 0.3213 | 0.7414 |
| 2000 | 19613.3 | 1.6 | 0.8 | 1.1119 | 0.3955 | 0.8156 |
| 2500 | 24516.6 | 2.2 | 1.1 | 1.3899 | 0.5437 | 0.9639 |
| 3000 | 29420 | 2.8 | 1.4 | 1.6679 | 0.6920 | 1.1122 |
| 3500 | 34323.3 | 3.1 | 1.55 | 1.9459 | 0.7662 | 1.1863 |
| 4000 | 39226.6 | 3.4 | 1.7 | 2.2239 | 0.8403 | 1.2605 |
| 4500 | 44129.9 | 4.4 | 2.2 | 2.5018 | 1.0875 | 1.5076 |
| 5000 | 49033.3 | 4.9 | 2.45 | 2.7798 | 1.2111 | 1.6312 |
| 5500 | 53936.6 | 5.1 | 2.55 | 3.0578 | 1.2605 | 1.6806 |
| 6000 | 58839.9 | 5.3 | 2.65 | 3.3358 | 1.3099 | 1.7301 |
| 6500 | 63743.2 | 6.1 | 3.05 | 3.6138 | 1.5077 | 1.9278 |
| 7000 | 68646.6 | 6.7 | 3.35 | 3.8918 | 1.6560 | 2.0761 |
| 7500 | 73549.9 | 7 | 3.5 | 4.1697 | 1.7301 | 2.1502 |
| 8000 | 78453.2 | 7.3 | 3.65 | 4.4477 | 1.8043 | 2.2244 |
| 8500 | 83356.5 | 7.6 | 3.8 | 4.7257 | 1.8784 | 2.2985 |
| 9000 | 88259.9 | 8.1 | 4.05 | 5.0037 | 2.0020 | 2.4221 |
| 9500 | 93163.2 | 8.4 | 4.2 | 5.2817 | 2.0761 | 2.4963 |
| 10000 | 98066.5 | 9.2 | 4.6 | 5.5597 | 2.2739 | 2.6940 |
| 10500 | 102970 | 9.6 | 4.8 | 5.8376 | 2.3727 | 2.7929 |
| 11000 | 107873 | 10.2 | 5.1 | 6.1156 | 2.5210 | 2.9411 |
| 11500 | 112776 | 10.5 | 5.25 | 6.3936 | 2.5952 | 3.0153 |
| 12000 | 117680 | 11 | 5.5 | 6.6716 | 2.7187 | 3.1389 |
| 12500 | 122583 | 11.6 | 5.8 | 6.9496 | 2.8670 | 3.2872 |
| 13000 | 127486 | 12.1 | 6.05 | 7.2276 | 2.9906 | 3.4107 |
| 13500 | 132390 | 12.8 | 6.4 | 7.5055 | 3.1636 | 3.5838 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13.4 | 6.7 | 7.7835 | 3.3119 | 3.7321 |
| 14500 | 142196 | 13.8 | 6.9 | 8.0615 | 3.4108 | 3.8309 |
| 15000 | 147100 | 14.5 | 7.25 | 8.3395 | 3.5838 | 4.0039 |
| 15500 | 152003 | 15 | 7.5 | 8.6175 | 3.7074 | 4.1275 |
| 16000 | 156906 | 15.8 | 7.9 | 8.8954 | 3.9051 | 4.3252 |
| 16500 | 161810 | 16.6 | 8.3 | 9.1734 | 4.1028 | 4.5230 |
| 17000 | 166713 | 17.3 | 8.65 | 9.4514 | 4.2758 | 4.6960 |
| 17500 | 171616 | 17.8 | 8.9 | 9.7294 | 4.3994 | 4.8195 |
| 18000 | 176520 | 18.5 | 9.25 | 10.0074 | 4.5724 | 4.9926 |
| 18500 | 181423 | 19.4 | 9.7 | 10.2854 | 4.7949 | 5.2150 |
| 19000 | 186326 | 20 | 10 | 10.5633 | 4.9432 | 5.3633 |
| 19500 | 191230 | 20.9 | 10.45 | 10.8413 | 5.1656 | 5.5857 |
| 20000 | 196133 | 21.5 | 10.75 | 11.1193 | 5.3139 | 5.7340 |
| 20500 | 201036 | 22.4 | 11.2 | 11.3973 | 5.5363 | 5.9565 |
| 21000 | 205940 | 22.9 | 11.45 | 11.6753 | 5.6599 | 6.0801 |
| 21500 | 210843 | 23.8 | 11.9 | 11.9533 | 5.8824 | 6.3025 |
| 22000 | 215746 | 24.7 | 12.35 | 12.2312 | 6.1048 | 6.5249 |
| 22500 | 220650 | 25.4 | 12.7 | 12.5092 | 6.2778 | 6.6979 |
| 23000 | 225553 | 26.3 | 13.15 | 12.7872 | 6.5002 | 6.9204 |
| 23500 | 230456 | 26.9 | 13.45 | 13.0652 | 6.6485 | 7.0687 |
| 24000 | 235360 | 28.6 | 14.3 | 13.3432 | 7.0687 | 7.4888 |


Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 28 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.9434x + 0.8165
R² = 0.9859
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.8 kg/m² 28 Hari
Tegangan f (MPa)
20.0000
15.0000
10.0000
5.0000
0.0000
y = 1.9434x - 0.0000
R² = 0.9859
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan Koreksi ε (x10^-4)

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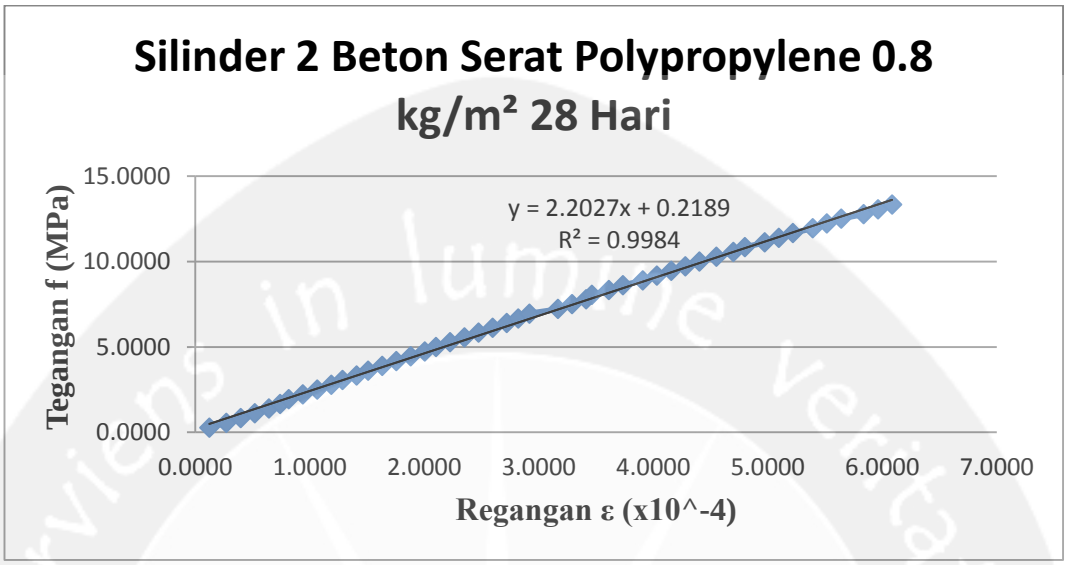
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

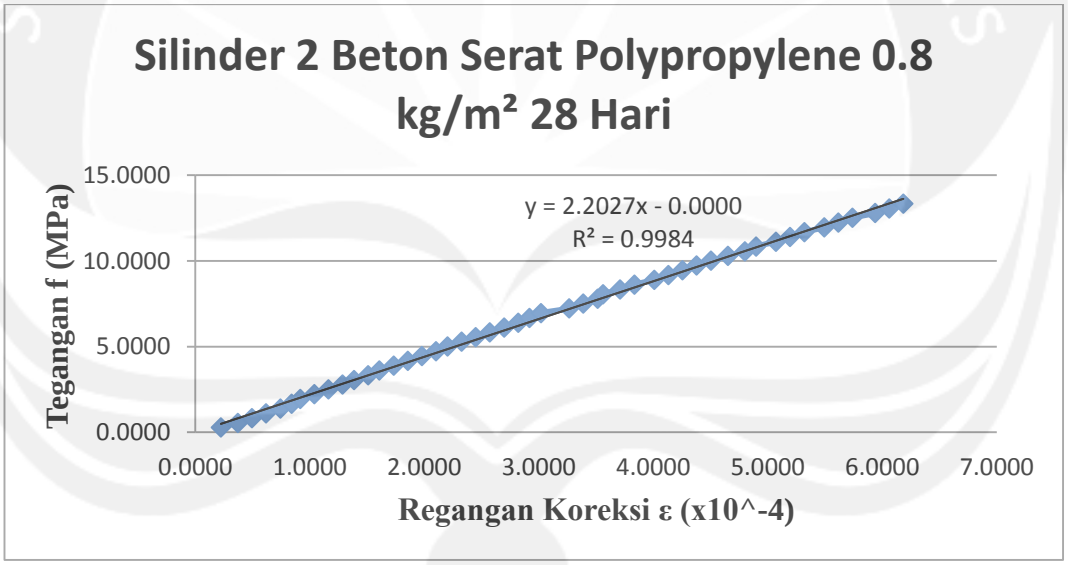
**Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.1 | mm |
| Ao | = | 17638.95785 | $mm^2$ |
| Beban Maksimum | = | 640 | KN |
| Kuat Tekan Maksimum | = | 36.28 | Mpa |
| Modulus Elastisitas | = | 22027.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2780 | 0.1237 | 0.2231 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5560 | 0.2721 | 0.3715 |
| 1500 | 14710 | 1.6 | 0.8 | 0.8339 | 0.3958 | 0.4952 |
| 2000 | 19613.3 | 2.1 | 1.05 | 1.1119 | 0.5195 | 0.6189 |
| 2500 | 24516.6 | 2.6 | 1.3 | 1.3899 | 0.6432 | 0.7426 |
| 3000 | 29420 | 3 | 1.5 | 1.6679 | 0.7422 | 0.8416 |
| 3500 | 34323.3 | 3.3 | 1.65 | 1.9459 | 0.8164 | 0.9158 |
| 4000 | 39226.6 | 3.8 | 1.9 | 2.2239 | 0.9401 | 1.0395 |
| 4500 | 44129.9 | 4.3 | 2.15 | 2.5018 | 1.0638 | 1.1632 |
| 5000 | 49033.3 | 4.8 | 2.4 | 2.7798 | 1.1875 | 1.2869 |
| 5500 | 53936.6 | 5.2 | 2.6 | 3.0578 | 1.2865 | 1.3859 |
| 6000 | 58839.9 | 5.7 | 2.85 | 3.3358 | 1.4102 | 1.5096 |
| 6500 | 63743.2 | 6.1 | 3.05 | 3.6138 | 1.5092 | 1.6085 |
| 7000 | 68646.6 | 6.6 | 3.3 | 3.8918 | 1.6329 | 1.7322 |
| 7500 | 73549.9 | 7.1 | 3.55 | 4.1697 | 1.7566 | 1.8559 |
| 8000 | 78453.2 | 7.6 | 3.8 | 4.4477 | 1.8803 | 1.9796 |
| 8500 | 83356.5 | 8.1 | 4.05 | 4.7257 | 2.0040 | 2.1033 |
| 9000 | 88259.9 | 8.5 | 4.25 | 5.0037 | 2.1029 | 2.2023 |
| 9500 | 93163.2 | 9 | 4.5 | 5.2817 | 2.2266 | 2.3260 |
| 10000 | 98066.5 | 9.5 | 4.75 | 5.5597 | 2.3503 | 2.4497 |
| 10500 | 102970 | 10 | 5 | 5.8376 | 2.4740 | 2.5734 |
| 11000 | 107873 | 10.5 | 5.25 | 6.1156 | 2.5977 | 2.6971 |
| 11500 | 112776 | 11 | 5.5 | 6.3936 | 2.7214 | 2.8208 |
| 12000 | 117680 | 11.4 | 5.7 | 6.6716 | 2.8204 | 2.9198 |
| 12500 | 122583 | 11.8 | 5.9 | 6.9496 | 2.9193 | 3.0187 |
| 13000 | 127486 | 12.8 | 6.4 | 7.2276 | 3.1667 | 3.2661 |
| 13500 | 132390 | 13.3 | 6.65 | 7.5055 | 3.2905 | 3.3898 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 13.8 | 6.9 | 7.7835 | 3.4142 | 3.5135 |
| 14500 | 142196 | 14 | 7 | 8.0615 | 3.4636 | 3.5630 |
| 15000 | 147100 | 14.6 | 7.3 | 8.3395 | 3.6121 | 3.7115 |
| 15500 | 152003 | 15.1 | 7.55 | 8.6175 | 3.7358 | 3.8352 |
| 16000 | 156906 | 15.8 | 7.9 | 8.8954 | 3.9090 | 4.0083 |
| 16500 | 161810 | 16.3 | 8.15 | 9.1734 | 4.0327 | 4.1320 |
| 17000 | 166713 | 16.8 | 8.4 | 9.4514 | 4.1564 | 4.2557 |
| 17500 | 171616 | 17.3 | 8.65 | 9.7294 | 4.2801 | 4.3794 |
| 18000 | 176520 | 17.8 | 8.9 | 10.0074 | 4.4038 | 4.5031 |
| 18500 | 181423 | 18.4 | 9.2 | 10.2854 | 4.5522 | 4.6516 |
| 19000 | 186326 | 19 | 9.5 | 10.5633 | 4.7006 | 4.8000 |
| 19500 | 191230 | 19.4 | 9.7 | 10.8413 | 4.7996 | 4.8990 |
| 20000 | 196133 | 20.1 | 10.05 | 11.1193 | 4.9728 | 5.0722 |
| 20500 | 201036 | 20.6 | 10.3 | 11.3973 | 5.0965 | 5.1959 |
| 21000 | 205940 | 21.1 | 10.55 | 11.6753 | 5.2202 | 5.3196 |
| 21500 | 210843 | 21.8 | 10.9 | 11.9533 | 5.3934 | 5.4927 |
| 22000 | 215746 | 22.3 | 11.15 | 12.2312 | 5.5171 | 5.6164 |
| 22500 | 220650 | 22.8 | 11.4 | 12.5092 | 5.6408 | 5.7401 |
| 23000 | 225553 | 23.6 | 11.8 | 12.7872 | 5.8387 | 5.9381 |
| 23500 | 230456 | 24.1 | 12.05 | 13.0652 | 5.9624 | 6.0618 |
| 24000 | 235360 | 24.6 | 12.3 | 13.3432 | 6.0861 | 6.1855 |


Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 28 Hari
y = 2.2027x + 0.2189
R² = 0.9984
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 0.8 kg/m² 28 Hari
y = 2.2027x - 0.0000
R² = 0.9984
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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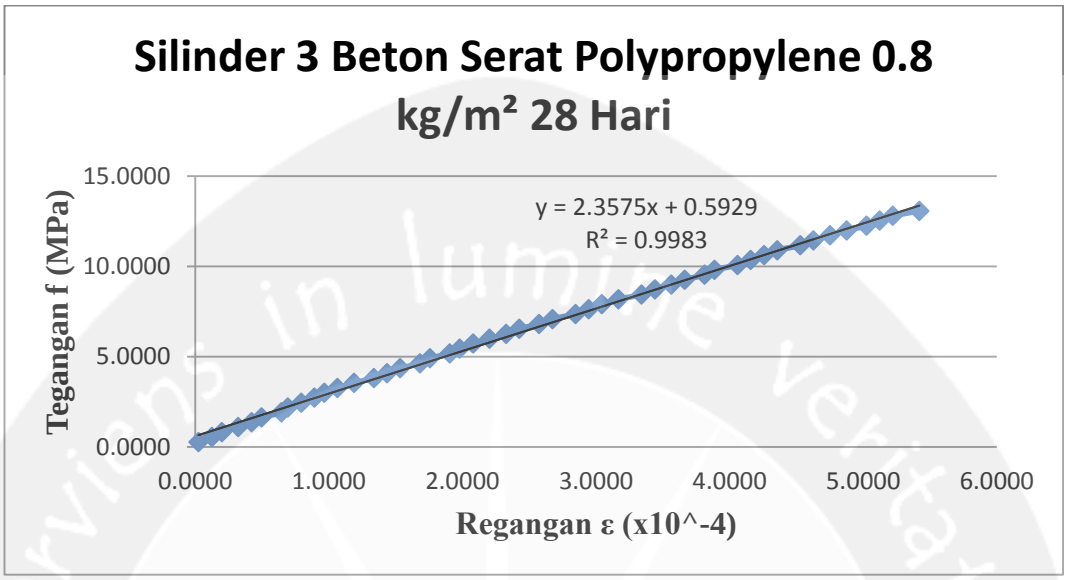
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

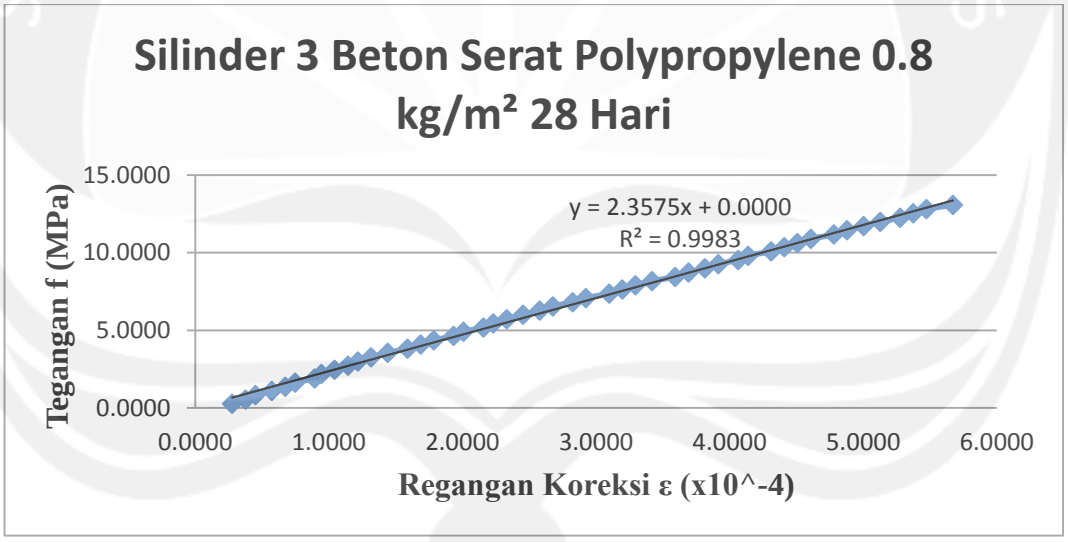
**Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202 | mm |
| Ao | = | 17993.7386 | $mm^2$ |
| Beban Maksimum | = | 685 | KN |
| Kuat Tekan Maksimum | = | 38.07 | Mpa |
| Modulus Elastisitas | = | 23575.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2725 | 0.0248 | 0.2762 |
| 1000 | 9806.65 | 0.5 | 0.25 | 0.5450 | 0.1238 | 0.3753 |
| 1500 | 14710 | 0.8 | 0.4 | 0.8175 | 0.1980 | 0.4495 |
| 2000 | 19613.3 | 1.3 | 0.65 | 1.0900 | 0.3218 | 0.5733 |
| 2500 | 24516.6 | 1.7 | 0.85 | 1.3625 | 0.4208 | 0.6723 |
| 3000 | 29420 | 2 | 1 | 1.6350 | 0.4950 | 0.7465 |
| 3500 | 34323.3 | 2.6 | 1.3 | 1.9075 | 0.6436 | 0.8951 |
| 4000 | 39226.6 | 2.8 | 1.4 | 2.1800 | 0.6931 | 0.9446 |
| 4500 | 44129.9 | 3.2 | 1.6 | 2.4525 | 0.7921 | 1.0436 |
| 5000 | 49033.3 | 3.6 | 1.8 | 2.7250 | 0.8911 | 1.1426 |
| 5500 | 53936.6 | 3.9 | 1.95 | 2.9975 | 0.9653 | 1.2168 |
| 6000 | 58839.9 | 4.3 | 2.15 | 3.2700 | 1.0644 | 1.3159 |
| 6500 | 63743.2 | 4.8 | 2.4 | 3.5425 | 1.1881 | 1.4396 |
| 7000 | 68646.6 | 5.4 | 2.7 | 3.8150 | 1.3366 | 1.5881 |
| 7500 | 73549.9 | 5.8 | 2.9 | 4.0875 | 1.4356 | 1.6871 |
| 8000 | 78453.2 | 6.2 | 3.1 | 4.3600 | 1.5347 | 1.7861 |
| 8500 | 83356.5 | 6.8 | 3.4 | 4.6325 | 1.6832 | 1.9347 |
| 9000 | 88259.9 | 7.1 | 3.55 | 4.9050 | 1.7574 | 2.0089 |
| 9500 | 93163.2 | 7.7 | 3.85 | 5.1775 | 1.9059 | 2.1574 |
| 10000 | 98066.5 | 8 | 4 | 5.4500 | 1.9802 | 2.2317 |
| 10500 | 102970 | 8.4 | 4.2 | 5.7225 | 2.0792 | 2.3307 |
| 11000 | 107873 | 8.9 | 4.45 | 5.9950 | 2.2030 | 2.4545 |
| 11500 | 112776 | 9.4 | 4.7 | 6.2675 | 2.3267 | 2.5782 |
| 12000 | 117680 | 9.8 | 4.9 | 6.5400 | 2.4257 | 2.6772 |
| 12500 | 122583 | 10.4 | 5.2 | 6.8125 | 2.5743 | 2.8258 |
| 13000 | 127486 | 10.8 | 5.4 | 7.0850 | 2.6733 | 2.9248 |
| 13500 | 132390 | 11.5 | 5.75 | 7.3575 | 2.8465 | 3.0980 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.9 | 5.95 | 7.6300 | 2.9455 | 3.1970 |
| 14500 | 142196 | 12.3 | 6.15 | 7.9026 | 3.0446 | 3.2960 |
| 15000 | 147100 | 12.8 | 6.4 | 8.1751 | 3.1683 | 3.4198 |
| 15500 | 152003 | 13.5 | 6.75 | 8.4476 | 3.3416 | 3.5931 |
| 16000 | 156906 | 13.9 | 6.95 | 8.7201 | 3.4406 | 3.6921 |
| 16500 | 161810 | 14.4 | 7.2 | 8.9926 | 3.5644 | 3.8159 |
| 17000 | 166713 | 14.8 | 7.4 | 9.2651 | 3.6634 | 3.9149 |
| 17500 | 171616 | 15.4 | 7.7 | 9.5376 | 3.8119 | 4.0634 |
| 18000 | 176520 | 15.7 | 7.85 | 9.8101 | 3.8861 | 4.1376 |
| 18500 | 181423 | 16.4 | 8.2 | 10.0826 | 4.0594 | 4.3109 |
| 19000 | 186326 | 16.8 | 8.4 | 10.3551 | 4.1584 | 4.4099 |
| 19500 | 191230 | 17.2 | 8.6 | 10.6276 | 4.2574 | 4.5089 |
| 20000 | 196133 | 17.6 | 8.8 | 10.9001 | 4.3564 | 4.6079 |
| 20500 | 201036 | 18.3 | 9.15 | 11.1726 | 4.5297 | 4.7812 |
| 21000 | 205940 | 18.7 | 9.35 | 11.4451 | 4.6287 | 4.8802 |
| 21500 | 210843 | 19.2 | 9.6 | 11.7176 | 4.7525 | 5.0040 |
| 22000 | 215746 | 19.7 | 9.85 | 11.9901 | 4.8762 | 5.1277 |
| 22500 | 220650 | 20.3 | 10.15 | 12.2626 | 5.0248 | 5.2762 |
| 23000 | 225553 | 20.7 | 10.35 | 12.5351 | 5.1238 | 5.3753 |
| 23500 | 230456 | 21.1 | 10.55 | 12.8076 | 5.2228 | 5.4743 |
| 24000 | 235360 | 21.9 | 10.95 | 13.0801 | 5.4208 | 5.6723 |


Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 28 Hari
y = 2.3575x + 0.5929
R² = 0.9983
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.8 kg/m² 28 Hari
y = 2.3575x + 0.0000
R² = 0.9983
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
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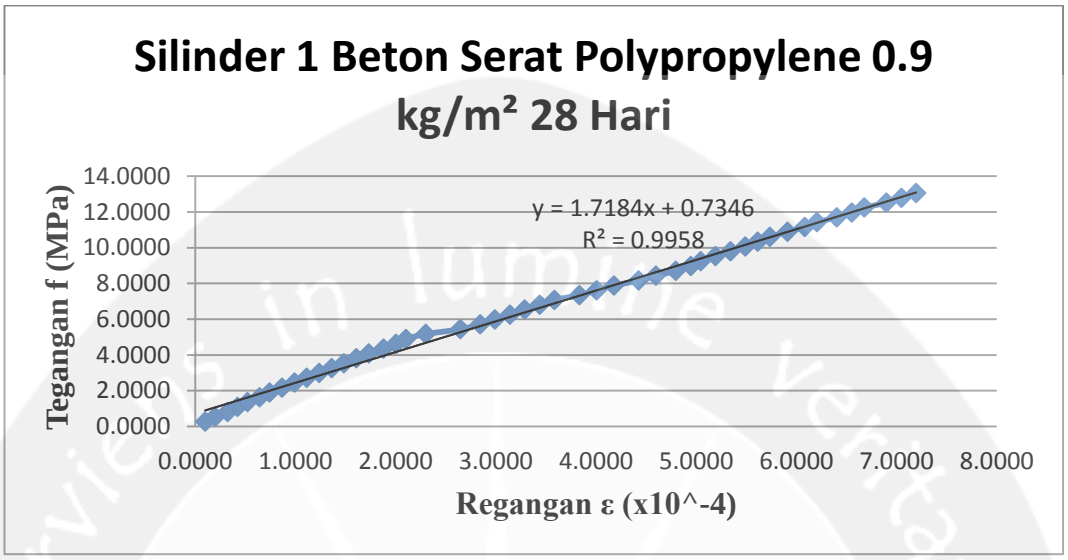
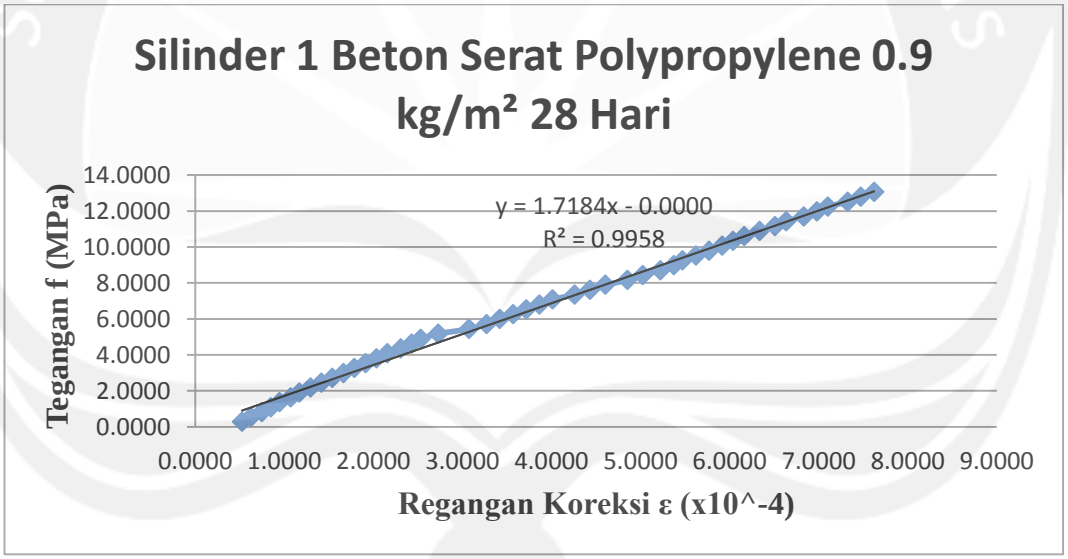
**Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202.2 | mm |
| Ao | = | 18017.51625 | $mm^2$ |
| Beban Maksimum | = | 625 | KN |
| Kuat Tekan Maksimum | = | 34.69 | Mpa |
| Modulus Elastisitas | = | 17184.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.4 | 0.2 | 0.2721 | 0.0989 | 0.5264 |
| 1000 | 9806.65 | 0.8 | 0.4 | 0.5443 | 0.1978 | 0.6253 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8164 | 0.3215 | 0.7490 |
| 2000 | 19613.3 | 1.7 | 0.85 | 1.0886 | 0.4204 | 0.8479 |
| 2500 | 24516.6 | 2.1 | 1.05 | 1.3607 | 0.5193 | 0.9468 |
| 3000 | 29420 | 2.6 | 1.3 | 1.6329 | 0.6429 | 1.0704 |
| 3500 | 34323.3 | 3 | 1.5 | 1.9050 | 0.7418 | 1.1693 |
| 4000 | 39226.6 | 3.5 | 1.75 | 2.1771 | 0.8655 | 1.2930 |
| 4500 | 44129.9 | 4 | 2 | 2.4493 | 0.9891 | 1.4166 |
| 5000 | 49033.3 | 4.5 | 2.25 | 2.7214 | 1.1128 | 1.5403 |
| 5500 | 53936.6 | 5 | 2.5 | 2.9936 | 1.2364 | 1.6639 |
| 6000 | 58839.9 | 5.5 | 2.75 | 3.2657 | 1.3600 | 1.7875 |
| 6500 | 63743.2 | 6 | 3 | 3.5378 | 1.4837 | 1.9112 |
| 7000 | 68646.6 | 6.5 | 3.25 | 3.8100 | 1.6073 | 2.0348 |
| 7500 | 73549.9 | 7 | 3.5 | 4.0821 | 1.7310 | 2.1585 |
| 8000 | 78453.2 | 7.6 | 3.8 | 4.3543 | 1.8793 | 2.3068 |
| 8500 | 83356.5 | 8.1 | 4.05 | 4.6264 | 2.0030 | 2.4305 |
| 9000 | 88259.9 | 8.5 | 4.25 | 4.8986 | 2.1019 | 2.5294 |
| 9500 | 93163.2 | 9.3 | 4.65 | 5.1707 | 2.2997 | 2.7272 |
| 10000 | 98066.5 | 10.7 | 5.35 | 5.4428 | 2.6459 | 3.0734 |
| 10500 | 102970 | 11.5 | 5.75 | 5.7150 | 2.8437 | 3.2712 |
| 11000 | 107873 | 12.1 | 6.05 | 5.9871 | 2.9921 | 3.4196 |
| 11500 | 112776 | 12.7 | 6.35 | 6.2593 | 3.1405 | 3.5679 |
| 12000 | 117680 | 13.3 | 6.65 | 6.5314 | 3.2888 | 3.7163 |
| 12500 | 122583 | 13.9 | 6.95 | 6.8036 | 3.4372 | 3.8647 |
| 13000 | 127486 | 14.5 | 7.25 | 7.0757 | 3.5856 | 4.0130 |
| 13500 | 132390 | 15.5 | 7.75 | 7.3478 | 3.8328 | 4.2603 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 16.2 | 8.1 | 7.6200 | 4.0059 | 4.4334 |
| 14500 | 142196 | 16.9 | 8.45 | 7.8921 | 4.1790 | 4.6065 |
| 15000 | 147100 | 17.9 | 8.95 | 8.1643 | 4.4263 | 4.8538 |
| 15500 | 152003 | 18.6 | 9.3 | 8.4364 | 4.5994 | 5.0269 |
| 16000 | 156906 | 19.4 | 9.7 | 8.7085 | 4.7972 | 5.2247 |
| 16500 | 161810 | 20 | 10 | 8.9807 | 4.9456 | 5.3731 |
| 17000 | 166713 | 20.4 | 10.2 | 9.2528 | 5.0445 | 5.4720 |
| 17500 | 171616 | 21 | 10.5 | 9.5250 | 5.1929 | 5.6204 |
| 18000 | 176520 | 21.6 | 10.8 | 9.7971 | 5.3412 | 5.7687 |
| 18500 | 181423 | 22.2 | 11.1 | 10.0693 | 5.4896 | 5.9171 |
| 19000 | 186326 | 22.7 | 11.35 | 10.3414 | 5.6133 | 6.0407 |
| 19500 | 191230 | 23.2 | 11.6 | 10.6135 | 5.7369 | 6.1644 |
| 20000 | 196133 | 23.9 | 11.95 | 10.8857 | 5.9100 | 6.3375 |
| 20500 | 201036 | 24.6 | 12.3 | 11.1578 | 6.0831 | 6.5106 |
| 21000 | 205940 | 25.1 | 12.55 | 11.4300 | 6.2067 | 6.6342 |
| 21500 | 210843 | 25.9 | 12.95 | 11.7021 | 6.4045 | 6.8320 |
| 22000 | 215746 | 26.5 | 13.25 | 11.9743 | 6.5529 | 6.9804 |
| 22500 | 220650 | 27 | 13.5 | 12.2464 | 6.6766 | 7.1040 |
| 23000 | 225553 | 27.9 | 13.95 | 12.5185 | 6.8991 | 7.3266 |
| 23500 | 230456 | 28.5 | 14.25 | 12.7907 | 7.0475 | 7.4750 |
| 24000 | 235360 | 29.1 | 14.55 | 13.0628 | 7.1958 | 7.6233 |


Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 28 Hari
y = 1.7184x + 0.7346
R² = 0.9958
Tegangan f (MPa)
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 0.9 kg/m² 28 Hari
y = 1.7184x - 0.0000
R² = 0.9958
Tegangan f (MPa)
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000 1.0000 2.0000 3.0000 4.0000 5.0000 6.0000 7.0000 8.0000 9.0000
Regangan Koreksi ε (x10^-4)

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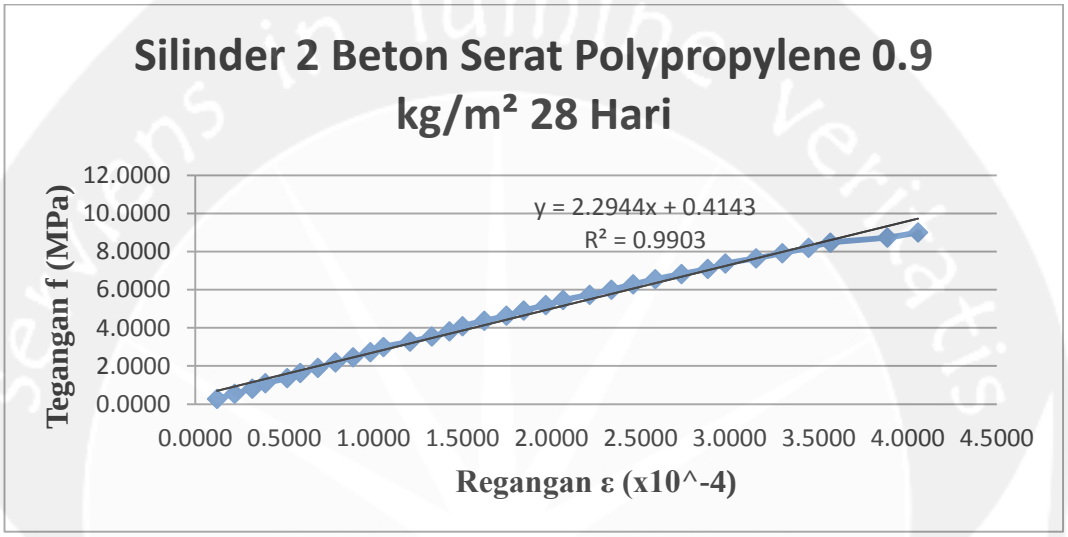
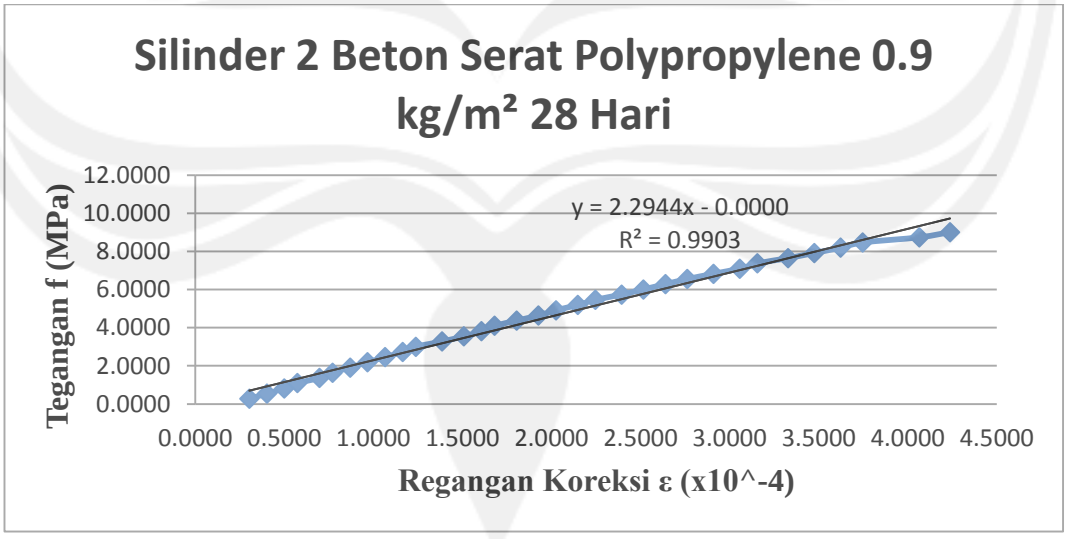
**Silinder 2 Beton Serat Polypropylene 0.9 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 203.3 | mm |
| Ao | = | 17946.2304 | $mm^2$ |
| Beban Maksimum | = | 670 | KN |
| Kuat Tekan Maksimum | = | 37.33 | Mpa |
| Modulus Elastisitas | = | 22944.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.5 | 0.25 | 0.2732 | 0.1230 | 0.3035 |
| 1000 | 9806.65 | 0.9 | 0.45 | 0.5464 | 0.2213 | 0.4019 |
| 1500 | 14710 | 1.3 | 0.65 | 0.8197 | 0.3197 | 0.5003 |
| 2000 | 19613.3 | 1.6 | 0.8 | 1.0929 | 0.3935 | 0.5741 |
| 2500 | 24516.6 | 2.1 | 1.05 | 1.3661 | 0.5165 | 0.6970 |
| 3000 | 29420 | 2.4 | 1.2 | 1.6393 | 0.5903 | 0.7708 |
| 3500 | 34323.3 | 2.8 | 1.4 | 1.9126 | 0.6886 | 0.8692 |
| 4000 | 39226.6 | 3.2 | 1.6 | 2.1858 | 0.7870 | 0.9676 |
| 4500 | 44129.9 | 3.6 | 1.8 | 2.4590 | 0.8854 | 1.0660 |
| 5000 | 49033.3 | 4 | 2 | 2.7322 | 0.9838 | 1.1643 |
| 5500 | 53936.6 | 4.3 | 2.15 | 3.0055 | 1.0576 | 1.2381 |
| 6000 | 58839.9 | 4.9 | 2.45 | 3.2787 | 1.2051 | 1.3857 |
| 6500 | 63743.2 | 5.4 | 2.7 | 3.5519 | 1.3281 | 1.5087 |
| 7000 | 68646.6 | 5.8 | 2.9 | 3.8251 | 1.4265 | 1.6070 |
| 7500 | 73549.9 | 6.1 | 3.05 | 4.0983 | 1.5002 | 1.6808 |
| 8000 | 78453.2 | 6.6 | 3.3 | 4.3716 | 1.6232 | 1.8038 |
| 8500 | 83356.5 | 7.1 | 3.55 | 4.6448 | 1.7462 | 1.9268 |
| 9000 | 88259.9 | 7.5 | 3.75 | 4.9180 | 1.8446 | 2.0251 |
| 9500 | 93163.2 | 8 | 4 | 5.1912 | 1.9675 | 2.1481 |
| 10000 | 98066.5 | 8.4 | 4.2 | 5.4645 | 2.0659 | 2.2465 |
| 10500 | 102970 | 9 | 4.5 | 5.7377 | 2.2135 | 2.3940 |
| 11000 | 107873 | 9.5 | 4.75 | 6.0109 | 2.3364 | 2.5170 |
| 11500 | 112776 | 10 | 5 | 6.2841 | 2.4594 | 2.6400 |
| 12000 | 117680 | 10.5 | 5.25 | 6.5574 | 2.5824 | 2.7630 |
| 12500 | 122583 | 11.1 | 5.55 | 6.8306 | 2.7300 | 2.9105 |
| 13000 | 127486 | 11.7 | 5.85 | 7.1038 | 2.8775 | 3.0581 |
| 13500 | 132390 | 12.1 | 6.05 | 7.3770 | 2.9759 | 3.1565 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.8 | 6.4 | 7.6502 | 3.1481 | 3.3286 |
| 14500 | 142196 | 13.4 | 6.7 | 7.9235 | 3.2956 | 3.4762 |
| 15000 | 147100 | 14 | 7 | 8.1967 | 3.4432 | 3.6238 |
| 15500 | 152003 | 14.5 | 7.25 | 8.4699 | 3.5662 | 3.7467 |
| 16000 | 156906 | 15.8 | 7.9 | 8.7431 | 3.8859 | 4.0665 |
| 16500 | 161810 | 16.5 | 8.25 | 9.0164 | 4.0580 | 4.2386 |



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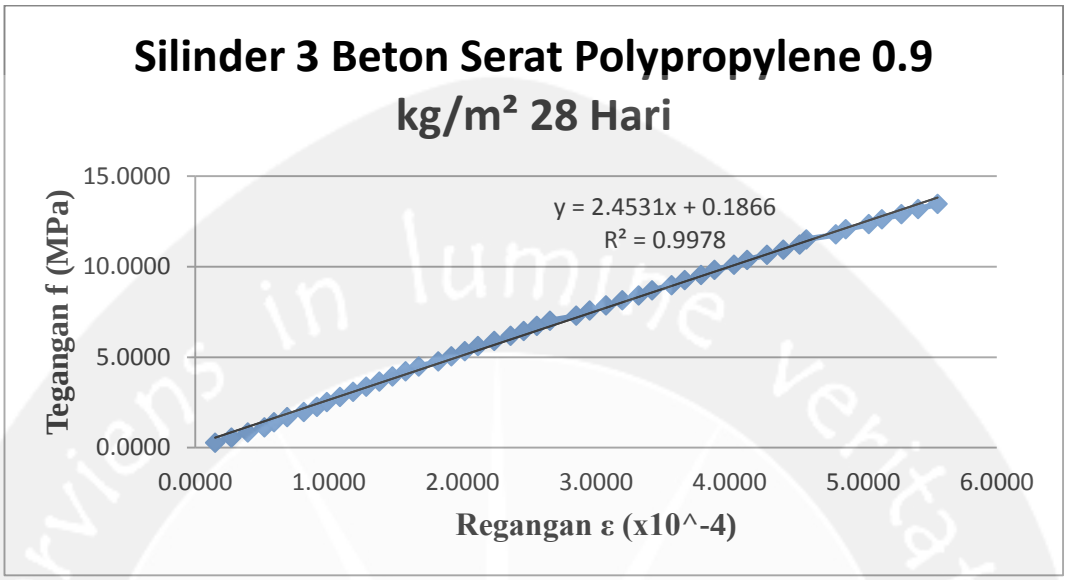
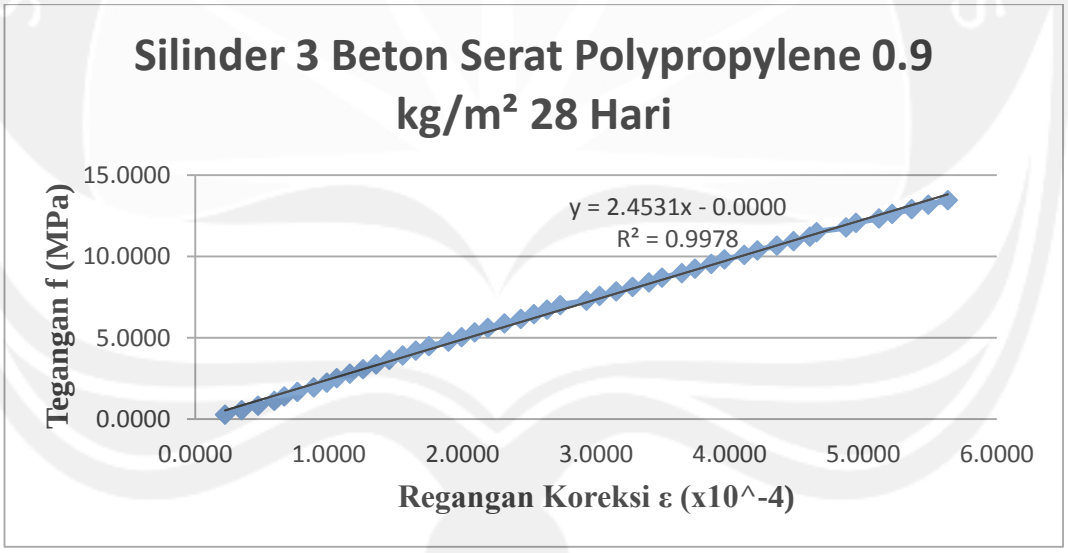
**Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 203.3 | mm |
| Ao | = | 17474.6024 | $mm^2$ |
| Beban Maksimum | = | 715 | KN |
| Kuat Tekan Maksimum | = | 40.92 | Mpa |
| Modulus Elastisitas | = | 24531.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.6 | 0.3 | 0.2806 | 0.1476 | 0.2236 |
| 1000 | 9806.65 | 1.1 | 0.55 | 0.5612 | 0.2705 | 0.3466 |
| 1500 | 14710 | 1.6 | 0.8 | 0.8418 | 0.3935 | 0.4696 |
| 2000 | 19613.3 | 2.1 | 1.05 | 1.1224 | 0.5165 | 0.5925 |
| 2500 | 24516.6 | 2.4 | 1.2 | 1.4030 | 0.5903 | 0.6663 |
| 3000 | 29420 | 2.8 | 1.4 | 1.6836 | 0.6886 | 0.7647 |
| 3500 | 34323.3 | 3.3 | 1.65 | 1.9642 | 0.8116 | 0.8877 |
| 4000 | 39226.6 | 3.7 | 1.85 | 2.2448 | 0.9100 | 0.9861 |
| 4500 | 44129.9 | 4 | 2 | 2.5254 | 0.9838 | 1.0598 |
| 5000 | 49033.3 | 4.4 | 2.2 | 2.8060 | 1.0821 | 1.1582 |
| 5500 | 53936.6 | 4.8 | 2.4 | 3.0866 | 1.1805 | 1.2566 |
| 6000 | 58839.9 | 5.2 | 2.6 | 3.3672 | 1.2789 | 1.3550 |
| 6500 | 63743.2 | 5.6 | 2.8 | 3.6478 | 1.3773 | 1.4533 |
| 7000 | 68646.6 | 6 | 3 | 3.9284 | 1.4757 | 1.5517 |
| 7500 | 73549.9 | 6.4 | 3.2 | 4.2090 | 1.5740 | 1.6501 |
| 8000 | 78453.2 | 6.8 | 3.4 | 4.4896 | 1.6724 | 1.7485 |
| 8500 | 83356.5 | 7.4 | 3.7 | 4.7702 | 1.8200 | 1.8960 |
| 9000 | 88259.9 | 7.8 | 3.9 | 5.0508 | 1.9183 | 1.9944 |
| 9500 | 93163.2 | 8.2 | 4.1 | 5.3313 | 2.0167 | 2.0928 |
| 10000 | 98066.5 | 8.6 | 4.3 | 5.6119 | 2.1151 | 2.1912 |
| 10500 | 102970 | 9.1 | 4.55 | 5.8925 | 2.2381 | 2.3141 |
| 11000 | 107873 | 9.6 | 4.8 | 6.1731 | 2.3610 | 2.4371 |
| 11500 | 112776 | 10 | 5 | 6.4537 | 2.4594 | 2.5355 |
| 12000 | 117680 | 10.4 | 5.2 | 6.7343 | 2.5578 | 2.6339 |
| 12500 | 122583 | 10.8 | 5.4 | 7.0149 | 2.6562 | 2.7322 |
| 13000 | 127486 | 11.6 | 5.8 | 7.2955 | 2.8529 | 2.9290 |
| 13500 | 132390 | 12 | 6 | 7.5761 | 2.9513 | 3.0274 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 12.5 | 6.25 | 7.8567 | 3.0743 | 3.1503 |
| 14500 | 142196 | 13 | 6.5 | 8.1373 | 3.1972 | 3.2733 |
| 15000 | 147100 | 13.5 | 6.75 | 8.4179 | 3.3202 | 3.3963 |
| 15500 | 152003 | 13.9 | 6.95 | 8.6985 | 3.4186 | 3.4947 |
| 16000 | 156906 | 14.5 | 7.25 | 8.9791 | 3.5662 | 3.6422 |
| 16500 | 161810 | 14.9 | 7.45 | 9.2597 | 3.6645 | 3.7406 |
| 17000 | 166713 | 15.4 | 7.7 | 9.5403 | 3.7875 | 3.8636 |
| 17500 | 171616 | 15.8 | 7.9 | 9.8209 | 3.8859 | 3.9619 |
| 18000 | 176520 | 16.4 | 8.2 | 10.1015 | 4.0334 | 4.1095 |
| 18500 | 181423 | 16.8 | 8.4 | 10.3821 | 4.1318 | 4.2079 |
| 19000 | 186326 | 17.4 | 8.7 | 10.6627 | 4.2794 | 4.3555 |
| 19500 | 191230 | 17.9 | 8.95 | 10.9433 | 4.4024 | 4.4784 |
| 20000 | 196133 | 18.4 | 9.2 | 11.2239 | 4.5253 | 4.6014 |
| 20500 | 201036 | 18.6 | 9.3 | 11.5045 | 4.5745 | 4.6506 |
| 21000 | 205940 | 19.5 | 9.75 | 11.7851 | 4.7959 | 4.8719 |
| 21500 | 210843 | 19.8 | 9.9 | 12.0657 | 4.8697 | 4.9457 |
| 22000 | 215746 | 20.5 | 10.25 | 12.3463 | 5.0418 | 5.1179 |
| 22500 | 220650 | 20.9 | 10.45 | 12.6269 | 5.1402 | 5.2163 |
| 23000 | 225553 | 21.5 | 10.75 | 12.9075 | 5.2878 | 5.3638 |
| 23500 | 230456 | 22 | 11 | 13.1881 | 5.4107 | 5.4868 |
| 24000 | 235360 | 22.6 | 11.3 | 13.4687 | 5.5583 | 5.6344 |


Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 28 Hari
y = 2.4531x + 0.1866
R² = 0.9978
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 0.9 kg/m² 28 Hari
y = 2.4531x - 0.0000
R² = 0.9978
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan Koreksi ε (x10^-4)

**UNIVERSITAS ATMA JAYA YOGYAKARTA**
**Fakultas Teknik Program Studi Teknik Sipil**
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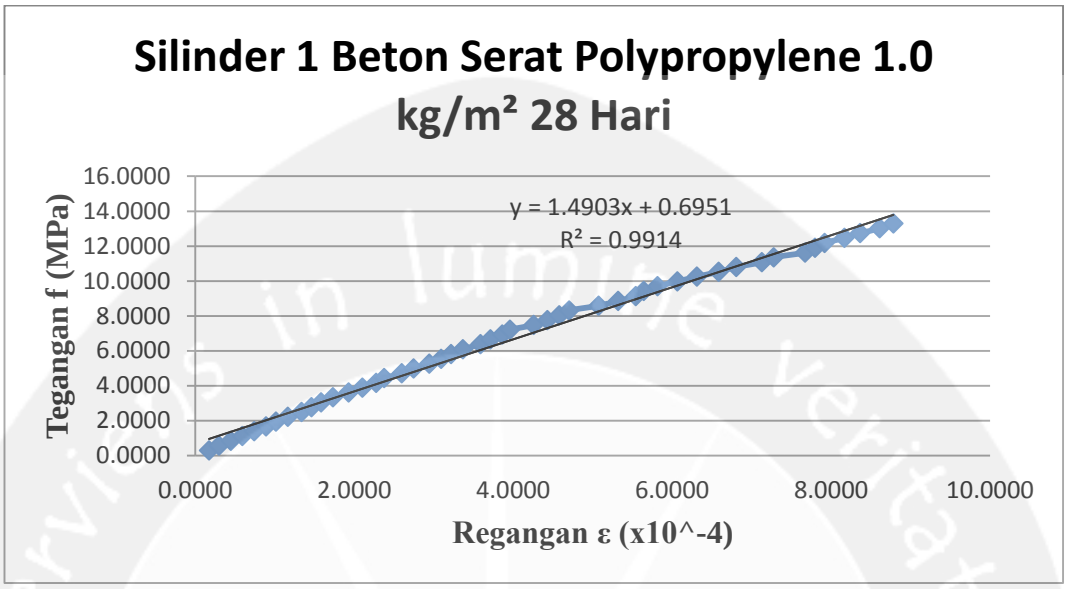
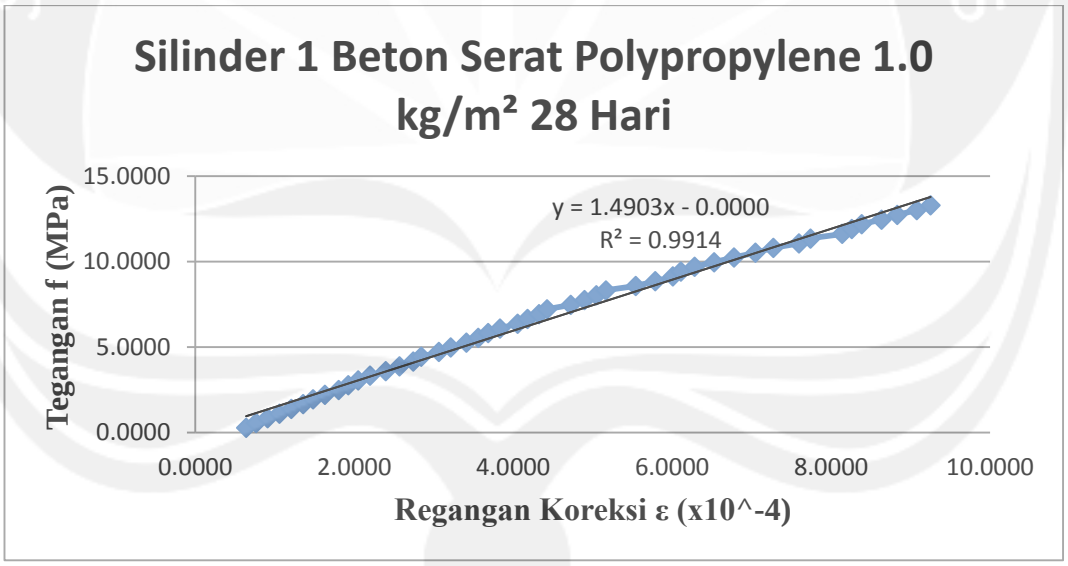
**Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 202 | mm |
| Ao | = | 17709.6314 | $mm^2$ |
| Beban Maksimum | = | 550 | KN |
| Kuat Tekan Maksimum | = | 31.06 | Mpa |
| Modulus Elastisitas | = | 14903.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.7 | 0.35 | 0.2769 | 0.1733 | 0.6397 |
| 1000 | 9806.65 | 1.2 | 0.6 | 0.5537 | 0.2970 | 0.7634 |
| 1500 | 14710 | 1.8 | 0.9 | 0.8306 | 0.4455 | 0.9120 |
| 2000 | 19613.3 | 2.4 | 1.2 | 1.1075 | 0.5941 | 1.0605 |
| 2500 | 24516.6 | 3 | 1.5 | 1.3844 | 0.7426 | 1.2090 |
| 3000 | 29420 | 3.6 | 1.8 | 1.6612 | 0.8911 | 1.3575 |
| 3500 | 34323.3 | 4.1 | 2.05 | 1.9381 | 1.0149 | 1.4813 |
| 4000 | 39226.6 | 4.7 | 2.35 | 2.2150 | 1.1634 | 1.6298 |
| 4500 | 44129.9 | 5.4 | 2.7 | 2.4919 | 1.3366 | 1.8030 |
| 5000 | 49033.3 | 5.9 | 2.95 | 2.7687 | 1.4604 | 1.9268 |
| 5500 | 53936.6 | 6.4 | 3.2 | 3.0456 | 1.5842 | 2.0506 |
| 6000 | 58839.9 | 7 | 3.5 | 3.3225 | 1.7327 | 2.1991 |
| 6500 | 63743.2 | 7.8 | 3.9 | 3.5994 | 1.9307 | 2.3971 |
| 7000 | 68646.6 | 8.5 | 4.25 | 3.8762 | 2.1040 | 2.5704 |
| 7500 | 73549.9 | 9.2 | 4.6 | 4.1531 | 2.2772 | 2.7436 |
| 8000 | 78453.2 | 9.6 | 4.8 | 4.4300 | 2.3762 | 2.8427 |
| 8500 | 83356.5 | 10.5 | 5.25 | 4.7068 | 2.5990 | 3.0654 |
| 9000 | 88259.9 | 11.1 | 5.55 | 4.9837 | 2.7475 | 3.2139 |
| 9500 | 93163.2 | 11.9 | 5.95 | 5.2606 | 2.9455 | 3.4120 |
| 10000 | 98066.5 | 12.5 | 6.25 | 5.5375 | 3.0941 | 3.5605 |
| 10500 | 102970 | 13 | 6.5 | 5.8143 | 3.2178 | 3.6842 |
| 11000 | 107873 | 13.6 | 6.8 | 6.0912 | 3.3663 | 3.8328 |
| 11500 | 112776 | 14.5 | 7.25 | 6.3681 | 3.5891 | 4.0555 |
| 12000 | 117680 | 15 | 7.5 | 6.6450 | 3.7129 | 4.1793 |
| 12500 | 122583 | 15.6 | 7.8 | 6.9218 | 3.8614 | 4.3278 |
| 13000 | 127486 | 16 | 8 | 7.1987 | 3.9604 | 4.4268 |
| 13500 | 132390 | 17.2 | 8.6 | 7.4756 | 4.2574 | 4.7238 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 17.9 | 8.95 | 7.7525 | 4.4307 | 4.8971 |
| 14500 | 142196 | 18.5 | 9.25 | 8.0293 | 4.5792 | 5.0456 |
| 15000 | 147100 | 19 | 9.5 | 8.3062 | 4.7030 | 5.1694 |
| 15500 | 152003 | 20.5 | 10.25 | 8.5831 | 5.0743 | 5.5407 |
| 16000 | 156906 | 21.5 | 10.75 | 8.8599 | 5.3218 | 5.7882 |
| 16500 | 161810 | 22.4 | 11.2 | 9.1368 | 5.5446 | 6.0110 |
| 17000 | 166713 | 22.8 | 11.4 | 9.4137 | 5.6436 | 6.1100 |
| 17500 | 171616 | 23.5 | 11.75 | 9.6906 | 5.8168 | 6.2832 |
| 18000 | 176520 | 24.5 | 12.25 | 9.9674 | 6.0644 | 6.5308 |
| 18500 | 181423 | 25.5 | 12.75 | 10.2443 | 6.3119 | 6.7783 |
| 19000 | 186326 | 26.6 | 13.3 | 10.5212 | 6.5842 | 7.0506 |
| 19500 | 191230 | 27.5 | 13.75 | 10.7981 | 6.8069 | 7.2733 |
| 20000 | 196133 | 28.8 | 14.4 | 11.0749 | 7.1287 | 7.5951 |
| 20500 | 201036 | 29.4 | 14.7 | 11.3518 | 7.2772 | 7.7436 |
| 21000 | 205940 | 31 | 15.5 | 11.6287 | 7.6733 | 8.1397 |
| 21500 | 210843 | 31.5 | 15.75 | 11.9056 | 7.7970 | 8.2634 |
| 22000 | 215746 | 32 | 16 | 12.1824 | 7.9208 | 8.3872 |
| 22500 | 220650 | 33 | 16.5 | 12.4593 | 8.1683 | 8.6347 |
| 23000 | 225553 | 33.8 | 16.9 | 12.7362 | 8.3663 | 8.8328 |
| 23500 | 230456 | 34.8 | 17.4 | 13.0130 | 8.6139 | 9.0803 |
| 24000 | 235360 | 35.5 | 17.75 | 13.2899 | 8.7871 | 9.2535 |


Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 28 Hari
y = 1.4903x + 0.6951
R² = 0.9914
Tegangan f (MPa)
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan ε (x10^-4)


Silinder 1 Beton Serat Polypropylene 1.0 kg/m² 28 Hari
y = 1.4903x - 0.0000
R² = 0.9914
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
2.0000
4.0000
6.0000
8.0000
10.0000
Regangan Koreksi ε (x10^-4)

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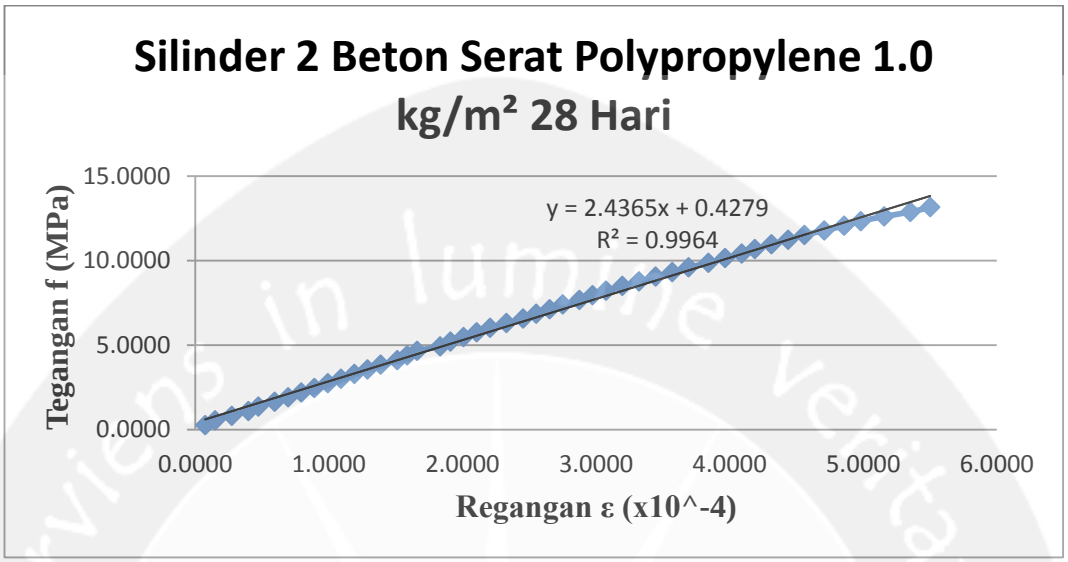
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

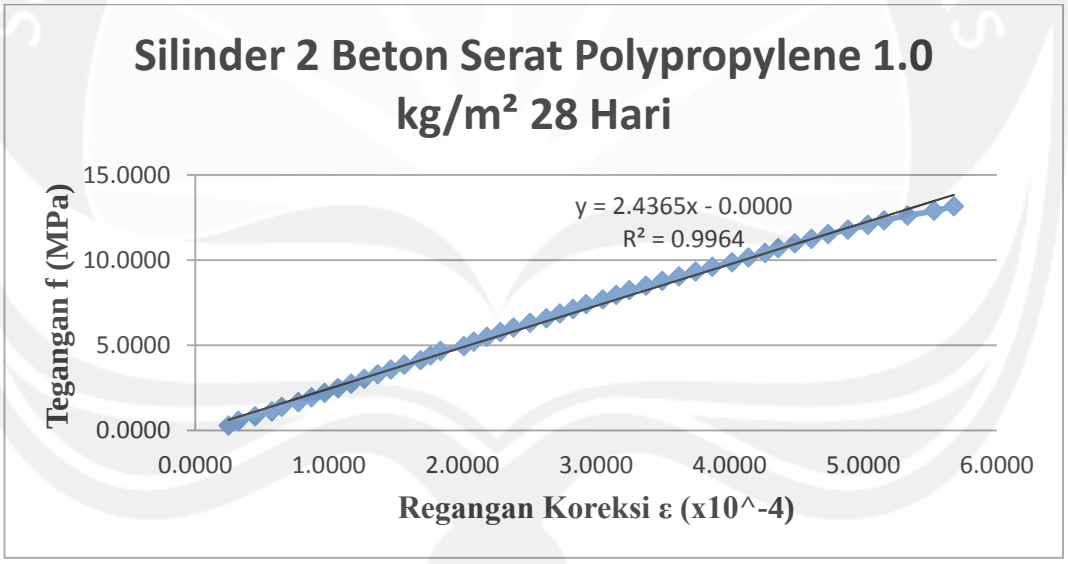
**Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 201.7 | mm |
| Ao | = | 17875.08585 | $mm^2$ |
| Beban Maksimum | = | 470 | KN |
| Kuat Tekan Maksimum | = | 26.29 | Mpa |
| Modulus Elastisitas | = | 24365.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.3 | 0.15 | 0.2743 | 0.0744 | 0.2500 |
| 1000 | 9806.65 | 0.6 | 0.3 | 0.5486 | 0.1487 | 0.3244 |
| 1500 | 14710 | 1.1 | 0.55 | 0.8229 | 0.2727 | 0.4483 |
| 2000 | 19613.3 | 1.6 | 0.8 | 1.0972 | 0.3966 | 0.5722 |
| 2500 | 24516.6 | 1.9 | 0.95 | 1.3716 | 0.4710 | 0.6466 |
| 3000 | 29420 | 2.4 | 1.2 | 1.6459 | 0.5949 | 0.7706 |
| 3500 | 34323.3 | 2.8 | 1.4 | 1.9202 | 0.6941 | 0.8697 |
| 4000 | 39226.6 | 3.2 | 1.6 | 2.1945 | 0.7933 | 0.9689 |
| 4500 | 44129.9 | 3.6 | 1.8 | 2.4688 | 0.8924 | 1.0680 |
| 5000 | 49033.3 | 4 | 2 | 2.7431 | 0.9916 | 1.1672 |
| 5500 | 53936.6 | 4.4 | 2.2 | 3.0174 | 1.0907 | 1.2663 |
| 6000 | 58839.9 | 4.8 | 2.4 | 3.2917 | 1.1899 | 1.3655 |
| 6500 | 63743.2 | 5.2 | 2.6 | 3.5660 | 1.2890 | 1.4647 |
| 7000 | 68646.6 | 5.6 | 2.8 | 3.8403 | 1.3882 | 1.5638 |
| 7500 | 73549.9 | 6.1 | 3.05 | 4.1147 | 1.5121 | 1.6878 |
| 8000 | 78453.2 | 6.4 | 3.2 | 4.3890 | 1.5865 | 1.7621 |
| 8500 | 83356.5 | 6.7 | 3.35 | 4.6633 | 1.6609 | 1.8365 |
| 9000 | 88259.9 | 7.4 | 3.7 | 4.9376 | 1.8344 | 2.0100 |
| 9500 | 93163.2 | 7.7 | 3.85 | 5.2119 | 1.9088 | 2.0844 |
| 10000 | 98066.5 | 8.1 | 4.05 | 5.4862 | 2.0079 | 2.1836 |
| 10500 | 102970 | 8.5 | 4.25 | 5.7605 | 2.1071 | 2.2827 |
| 11000 | 107873 | 8.9 | 4.45 | 6.0348 | 2.2062 | 2.3819 |
| 11500 | 112776 | 9.4 | 4.7 | 6.3091 | 2.3302 | 2.5058 |
| 12000 | 117680 | 9.9 | 4.95 | 6.5835 | 2.4541 | 2.6298 |
| 12500 | 122583 | 10.3 | 5.15 | 6.8578 | 2.5533 | 2.7289 |
| 13000 | 127486 | 10.7 | 5.35 | 7.1321 | 2.6525 | 2.8281 |
| 13500 | 132390 | 11.1 | 5.55 | 7.4064 | 2.7516 | 2.9272 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.6 | 5.8 | 7.6807 | 2.8756 | 3.0512 |
| 14500 | 142196 | 12 | 6 | 7.9550 | 2.9747 | 3.1503 |
| 15000 | 147100 | 12.4 | 6.2 | 8.2293 | 3.0739 | 3.2495 |
| 15500 | 152003 | 12.9 | 6.45 | 8.5036 | 3.1978 | 3.3734 |
| 16000 | 156906 | 13.4 | 6.7 | 8.7779 | 3.3218 | 3.4974 |
| 16500 | 161810 | 13.9 | 6.95 | 9.0522 | 3.4457 | 3.6213 |
| 17000 | 166713 | 14.4 | 7.2 | 9.3266 | 3.5697 | 3.7453 |
| 17500 | 171616 | 14.9 | 7.45 | 9.6009 | 3.6936 | 3.8692 |
| 18000 | 176520 | 15.5 | 7.75 | 9.8752 | 3.8423 | 4.0180 |
| 18500 | 181423 | 16 | 8 | 10.1495 | 3.9663 | 4.1419 |
| 19000 | 186326 | 16.5 | 8.25 | 10.4238 | 4.0902 | 4.2659 |
| 19500 | 191230 | 16.9 | 8.45 | 10.6981 | 4.1894 | 4.3650 |
| 20000 | 196133 | 17.4 | 8.7 | 10.9724 | 4.3133 | 4.4890 |
| 20500 | 201036 | 17.9 | 8.95 | 11.2467 | 4.4373 | 4.6129 |
| 21000 | 205940 | 18.4 | 9.2 | 11.5210 | 4.5612 | 4.7369 |
| 21500 | 210843 | 19 | 9.5 | 11.7954 | 4.7100 | 4.8856 |
| 22000 | 215746 | 19.6 | 9.8 | 12.0697 | 4.8587 | 5.0343 |
| 22500 | 220650 | 20.1 | 10.05 | 12.3440 | 4.9826 | 5.1583 |
| 23000 | 225553 | 20.8 | 10.4 | 12.6183 | 5.1562 | 5.3318 |
| 23500 | 230456 | 21.6 | 10.8 | 12.8926 | 5.3545 | 5.5301 |
| 24000 | 235360 | 22.2 | 11.1 | 13.1669 | 5.5032 | 5.6788 |


Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 28 Hari
y = 2.4365x + 0.4279
R² = 0.9964
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 2 Beton Serat Polypropylene 1.0 kg/m² 28 Hari
y = 2.4365x - 0.0000
R² = 0.9964
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan Koreksi ε (x10^-4)

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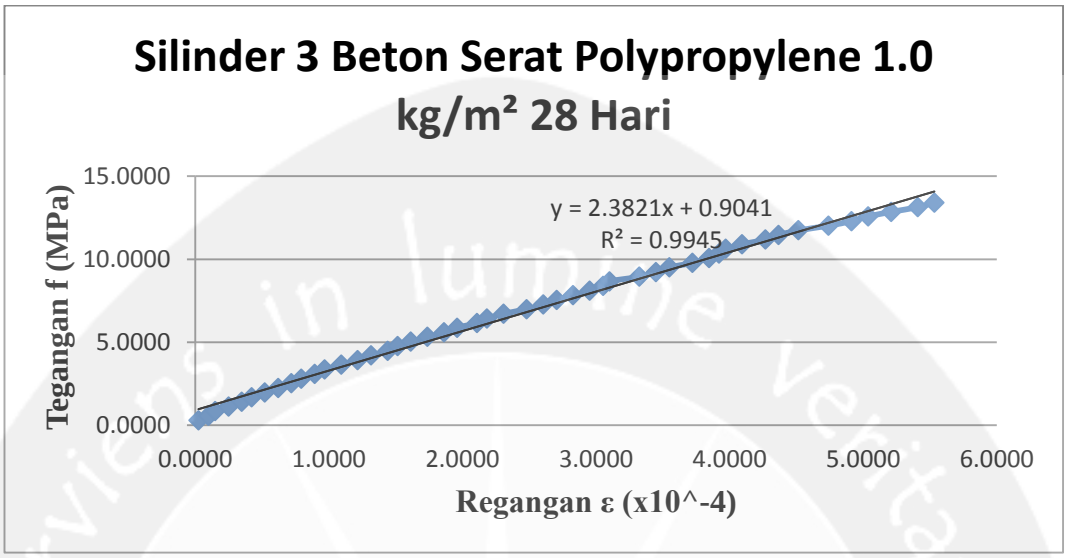
Website: www.ujy.ac.id Email: fteknik@mail.uajy.ac.id

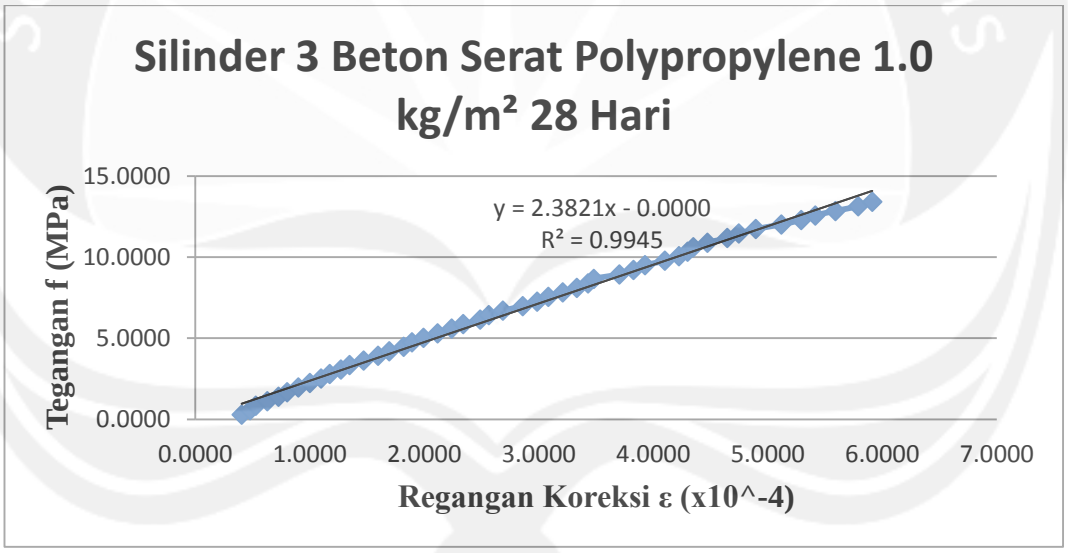
**Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 28 Hari**

| | | | |
|---|---|---|---|
| Tanggal Pengujian | = | 11 Juni 2015 | |
| Po | = | 201.5 | mm |
| Ao | = | 17544.94625 | $mm^2$ |
| Beban Maksimum | = | 660 | KN |
| Kuat Tekan Maksimum | = | 37.62 | Mpa |
| Modulus Elastisitas | = | 23821.0000 | MPa |

| Beban | | Δp x $10^{-2}$ (mm) | 0,5 Δp x $10^{-2}$ (mm) | f (MPa) | ε x $10^{-4}$ | ε koreksi x $10^{-4}$ |
|---|---|---|---|---|---|---|
| kgf | N | | | | | |
| 500 | 4903.33 | 0.1 | 0.05 | 0.2795 | 0.0248 | 0.4044 |
| 1000 | 9806.65 | 0.4 | 0.2 | 0.5589 | 0.0993 | 0.4788 |
| 1500 | 14710 | 0.6 | 0.3 | 0.8384 | 0.1489 | 0.5284 |
| 2000 | 19613.3 | 1 | 0.5 | 1.1179 | 0.2481 | 0.6277 |
| 2500 | 24516.6 | 1.4 | 0.7 | 1.3974 | 0.3474 | 0.7269 |
| 3000 | 29420 | 1.7 | 0.85 | 1.6768 | 0.4218 | 0.8014 |
| 3500 | 34323.3 | 2.1 | 1.05 | 1.9563 | 0.5211 | 0.9006 |
| 4000 | 39226.6 | 2.5 | 1.25 | 2.2358 | 0.6203 | 0.9999 |
| 4500 | 44129.9 | 2.9 | 1.45 | 2.5152 | 0.7196 | 1.0991 |
| 5000 | 49033.3 | 3.2 | 1.6 | 2.7947 | 0.7940 | 1.1736 |
| 5500 | 53936.6 | 3.6 | 1.8 | 3.0742 | 0.8933 | 1.2728 |
| 6000 | 58839.9 | 3.9 | 1.95 | 3.3537 | 0.9677 | 1.3473 |
| 6500 | 63743.2 | 4.4 | 2.2 | 3.6331 | 1.0918 | 1.4714 |
| 7000 | 68646.6 | 4.9 | 2.45 | 3.9126 | 1.2159 | 1.5954 |
| 7500 | 73549.9 | 5.3 | 2.65 | 4.1921 | 1.3151 | 1.6947 |
| 8000 | 78453.2 | 5.8 | 2.9 | 4.4716 | 1.4392 | 1.8187 |
| 8500 | 83356.5 | 6.1 | 3.05 | 4.7510 | 1.5136 | 1.8932 |
| 9000 | 88259.9 | 6.5 | 3.25 | 5.0305 | 1.6129 | 1.9924 |
| 9500 | 93163.2 | 7 | 3.5 | 5.3100 | 1.7370 | 2.1165 |
| 10000 | 98066.5 | 7.5 | 3.75 | 5.5894 | 1.8610 | 2.2406 |
| 10500 | 102970 | 7.9 | 3.95 | 5.8689 | 1.9603 | 2.3398 |
| 11000 | 107873 | 8.5 | 4.25 | 6.1484 | 2.1092 | 2.4887 |
| 11500 | 112776 | 8.8 | 4.4 | 6.4279 | 2.1836 | 2.5632 |
| 12000 | 117680 | 9.3 | 4.65 | 6.7073 | 2.3077 | 2.6872 |
| 12500 | 122583 | 10 | 5 | 6.9868 | 2.4814 | 2.8609 |
| 13000 | 127486 | 10.5 | 5.25 | 7.2663 | 2.6055 | 2.9850 |
| 13500 | 132390 | 10.9 | 5.45 | 7.5457 | 2.7047 | 3.0843 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14000 | 137293 | 11.4 | 5.7 | 7.8252 | 2.8288 | 3.2083 |
| 14500 | 142196 | 11.9 | 5.95 | 8.1047 | 2.9529 | 3.3324 |
| 15000 | 147100 | 12.3 | 6.15 | 8.3842 | 3.0521 | 3.4316 |
| 15500 | 152003 | 12.5 | 6.25 | 8.6636 | 3.1017 | 3.4813 |
| 16000 | 156906 | 13.4 | 6.7 | 8.9431 | 3.3251 | 3.7046 |
| 16500 | 161810 | 13.9 | 6.95 | 9.2226 | 3.4491 | 3.8287 |
| 17000 | 166713 | 14.3 | 7.15 | 9.5021 | 3.5484 | 3.9279 |
| 17500 | 171616 | 15 | 7.5 | 9.7815 | 3.7221 | 4.1016 |
| 18000 | 176520 | 15.5 | 7.75 | 10.0610 | 3.8462 | 4.2257 |
| 18500 | 181423 | 15.8 | 7.9 | 10.3405 | 3.9206 | 4.3001 |
| 19000 | 186326 | 16 | 8 | 10.6199 | 3.9702 | 4.3498 |
| 19500 | 191230 | 16.5 | 8.25 | 10.8994 | 4.0943 | 4.4738 |
| 20000 | 196133 | 17.2 | 8.6 | 11.1789 | 4.2680 | 4.6475 |
| 20500 | 201036 | 17.6 | 8.8 | 11.4584 | 4.3672 | 4.7468 |
| 21000 | 205940 | 18.2 | 9.1 | 11.7378 | 4.5161 | 4.8957 |
| 21500 | 210843 | 19.1 | 9.55 | 12.0173 | 4.7395 | 5.1190 |
| 22000 | 215746 | 19.8 | 9.9 | 12.2968 | 4.9132 | 5.2927 |
| 22500 | 220650 | 20.3 | 10.15 | 12.5762 | 5.0372 | 5.4168 |
| 23000 | 225553 | 21 | 10.5 | 12.8557 | 5.2109 | 5.5905 |
| 23500 | 230456 | 21.8 | 10.9 | 13.1352 | 5.4094 | 5.7890 |
| 24000 | 235360 | 22.3 | 11.15 | 13.4147 | 5.5335 | 5.9130 |


Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 28 Hari
y = 2.3821x + 0.9041
R² = 0.9945
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
Regangan ε (x10^-4)


Silinder 3 Beton Serat Polypropylene 1.0 kg/m² 28 Hari
y = 2.3821x - 0.0000
R² = 0.9945
Tegangan f (MPa)
15.0000
10.0000
5.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
Regangan Koreksi ε (x10^-4)

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# E. HASIL PENGUJIAN KUAT TARIK BETON

**HASIL PENGUJIAN KUAT TARIK UMUR 7 HARI**

| KODE | BERAT | DIAMETER (Cm) | TINGGI (Cm) | BEBAN (KN) | LUAS ($Cm^2$) | KUAT TARIK (MPa) | KUAT TARIK RATA-RATA (MPa) |
|---|---|---|---|---|---|---|---|
| Normal | 12.8 | 14.98 | 30.12 | 200 | 1417.479065 | 1.410955582 | 1.370301945 |
| | 12.68 | 15.14 | 30.68 | 190 | 1459.254708 | 1.302034518 | |
| | 12.62 | 15.02 | 30.32 | 200 | 1430.701401 | 1.397915735 | |
| 0.6 $kg/m^3$ | 12.6 | 15.21 | 31.02 | 195 | 1482.248025 | 1.315569303 | 1.354935391 |
| | 12.5 | 15.43 | 30.88 | 200 | 1496.901041 | 1.336093666 | |
| | 12.02 | 15.11 | 30.56 | 205 | 1450.66685 | 1.413143203 | |
| 0.7 $kg/m^3$ | 12.76 | 15.12 | 30.6 | 230 | 1453.526956 | 1.582357995 | 1.579683835 |
| | 12.62 | 14.95 | 30.7 | 245 | 1441.881072 | 1.699169264 | |
| | 12.64 | 14.54 | 30.04 | 200 | 1372.189866 | 1.457524246 | |
| 0.8 $kg/m^3$ | 12.6 | 15.3 | 30.12 | 180 | 1447.758992 | 1.24330086 | 1.338678029 |
| | 12.62 | 14.97 | 30.64 | 195 | 1440.988232 | 1.353237977 | |
| | 12.66 | 14.88 | 30.14 | 200 | 1408.951526 | 1.419495251 | |
| 0.9 $kg/m^3$ | 12.62 | 15.02 | 29.98 | 270 | 1414.657915 | 1.908588621 | 1.824355849 |
| | 12.82 | 15.22 | 30.44 | 270 | 1455.489823 | 1.855045605 | |
| | 12.3 | 15.08 | 30.87 | 250 | 1462.472955 | 1.70943332 | |
| 1 $kg/m^3$ | 12.62 | 14.98 | 30.68 | 160 | 1443.833258 | 1.108161203 | 1.202381282 |
| | 12.5 | 15.22 | 30.77 | 195 | 1471.268787 | 1.325386644 | |
| | 12.82 | 14.98 | 30.78 | 170 | 1448.539364 | 1.173595998 | |

* Nilai Tidak Digunakan

**HASIL PENGUJIAN KUAT TARIK UMUR 14 HARI**

| KODE | BERAT | DIAMETER (Cm) | TINGGI (Cm) | BEBAN (KN) | LUAS ($Cm^2$) | KUAT TARIK (MPa) | KUAT TARIK RATA-RATA (MPa) |
|---|---|---|---|---|---|---|---|
| Normal | 12.36 | 15 | 30.31 | 290 | 1428.3251 | 2.030350093 * | 1.225693909 |
| | 12.82 | 15.15 | 31.24 | 180 | 1486.871821 | 1.210595275 | |
| | 13.26 | 15.26 | 30.26 | 180 | 1450.6857 | 1.240792544 | |
| 0.6 $kg/m^3$ | 12.56 | 15.96 | 30.62 | 215 | 1535.28125 | 1.400394879 | 1.637715081 |
| | 12.64 | 15.08 | 30.7 | 275 | 1454.419169 | 1.890789161 | |
| | 12.6 | 15 | 31.4 | 240 | 1479.69014 | 1.621961203 | |
| 0.7 $kg/m^3$ | 12.8 | 15.1 | 30.08 | 285 | 1426.936516 | 1.997285771 | 1.617380765 |
| | 12.8 | 15 | 30.44 | 230 | 1434.451206 | 1.603400653 | |
| | 12.02 | 15.15 | 30.22 | 180 | 1438.324789 | 1.25145587 | |
| 0.8 $kg/m^3$ | 12.06 | 14.9 | 30.07 | 240 | 1407.568597 | 1.705067877 | 1.696539532 |
| | 12.8 | 15.7 | 30.66 | 250 | 1512.243323 | 1.653173112 | |
| | 12.04 | 14.9 | 30.23 | 245 | 1415.058154 | 1.731377606 | |
| 0.9 $kg/m^3$ | 12.64 | 14.97 | 30.09 | 240 | 1415.121929 | 1.695966935 | 1.543472749 |
| | 12.68 | 15.2 | 30.12 | 220 | 1438.296515 | 1.529587242 | |
| | 12.8 | 15.08 | 30.05 | 200 | 1423.625277 | 1.404864069 | |
| 1 $kg/m^3$ | 12.22 | 15 | 29.94 | 200 | 1410.889261 | 1.417545697 | 1.502700342 |
| | 12.82 | 15 | 30.05 | 205 | 1416.072889 | 1.447665594 | |
| | 12.6 | 15 | 31 | 240 | 1460.840584 | 1.642889735 | |

* Nilai Tidak Digunakan

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**HASIL PENGUJIAN KUAT TARIK UMUR 28 HARI**

| KODE | BERAT | DIAMETER (Cm) | TINGGI (Cm) | BEBAN (KN) | LUAS ($Cm^2$) | KUAT TARIK (MPa) | KUAT TARIK RATA-RATA (MPa) |
|---|---|---|---|---|---|---|---|
| Normal | 12.92 | 15.2 | 30.21 | 195 | 1442.594214 | 1.351731472 | 1.345665262 |
| | 12.82 | 15.1 | 30.11 | 270 | 1428.359657 | 1.890280214 * | |
| | 12.48 | 14.9 | 30.3 | 190 | 1418.334835 | 1.339599051 | |
| 0.6 $kg/m^3$ | 12.78 | 15.18 | 30.08 | 245 | 1434.496445 | 1.707916398 | 1.345768642 |
| | 12.8 | 15.18 | 33.2 | 220 | 1583.287299 | 1.389514083 | |
| | 12.98 | 15.11 | 32.5 | 145 | 1542.757612 | 0.939875447 | |
| 0.7 $kg/m^3$ | 12.84 | 15.1 | 31.6 | 220 | 1499.042351 | 1.467603633 | 1.574920481 |
| | 12.94 | 15.16 | 31 | 270 | 1476.422883 | 1.828744346 | |
| | 12.78 | 14.89 | 30.68 | 205 | 1435.158692 | 1.428413465 | |
| 0.8 $kg/m^3$ | 13.08 | 15.16 | 30.66 | 245 | 1460.229858 | 1.677818041 | 1.918913128 |
| | 12.82 | 15.27 | 29.92 | 290 | 1435.325825 | 2.020447169 | |
| | 12.92 | 15.08 | 30.25 | 295 | 1433.100321 | 2.058474175 | |
| 0.9 $kg/m^3$ | 12.94 | 15.19 | 30.06 | 290 | 1434.48702 | 2.02162861 | 1.924302157 |
| | 12.9 | 15.11 | 30.06 | 250 | 1426.932118 | 1.752010463 | |
| | 12.84 | 15.06 | 30.13 | 285 | 1425.522171 | 1.999267397 | |
| 1 $kg/m^3$ | 12.82 | 15.19 | 30.06 | 200 | 1434.48702 | 1.394226628 | 1.512678624 |
| | 12.7 | 15.15 | 30.21 | 240 | 1437.848838 | 1.669160162 | |
| | 12.8 | 14.98 | 30.26 | 210 | 1424.067614 | 1.474649083 | |

* Nilai Tidak Digunakan

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## F. GAMBAR PELAKSANAAN PENELITIAN

Timbang serat *Polypropylene*

Komposisi serat yang siap dicampur

Mencampur serat dalam adukan beton

Penyebaran serat dalam adukan beton

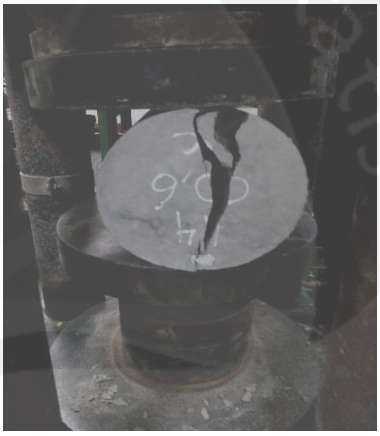
*Pengujian Slumb*

Silinder Beton

Pengujian kuat tekan beton

Pengujian kuat tekan beton

Pengujian modulus elastisitas



Pengujian tarik belah beton

Pengujian tarik belah beton

Beton dengan kuat tarik tertinggi