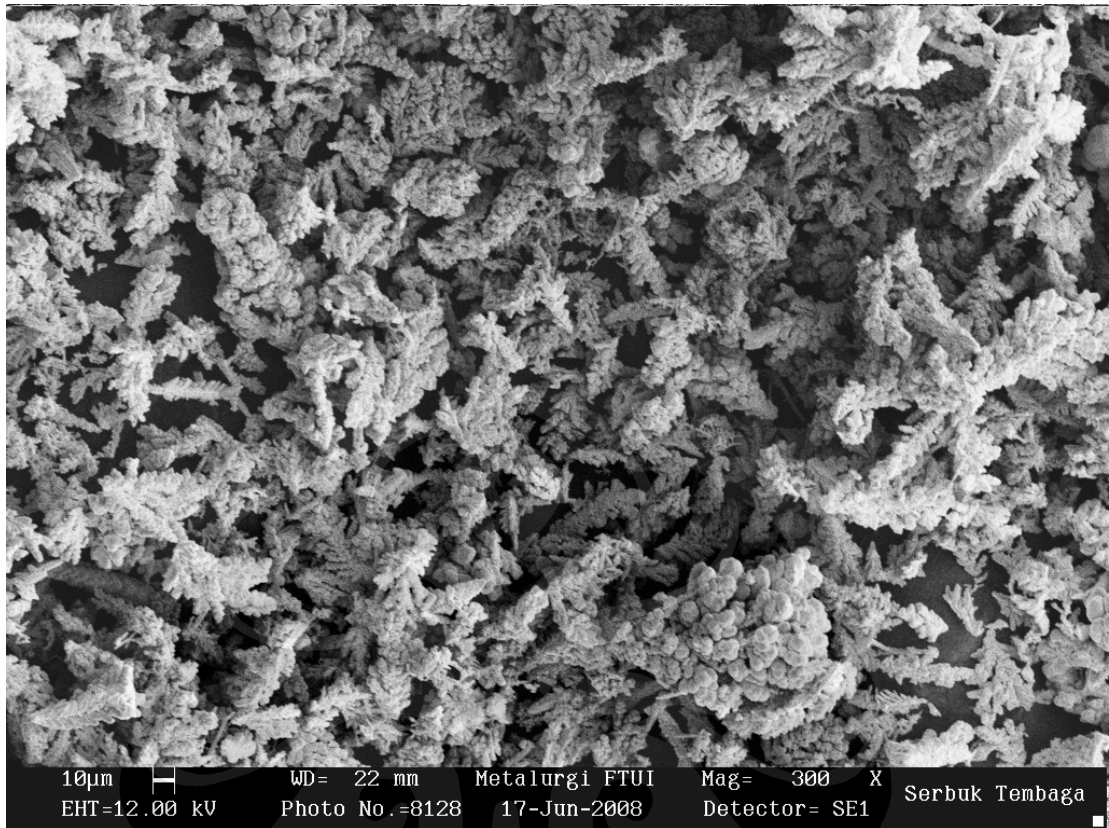
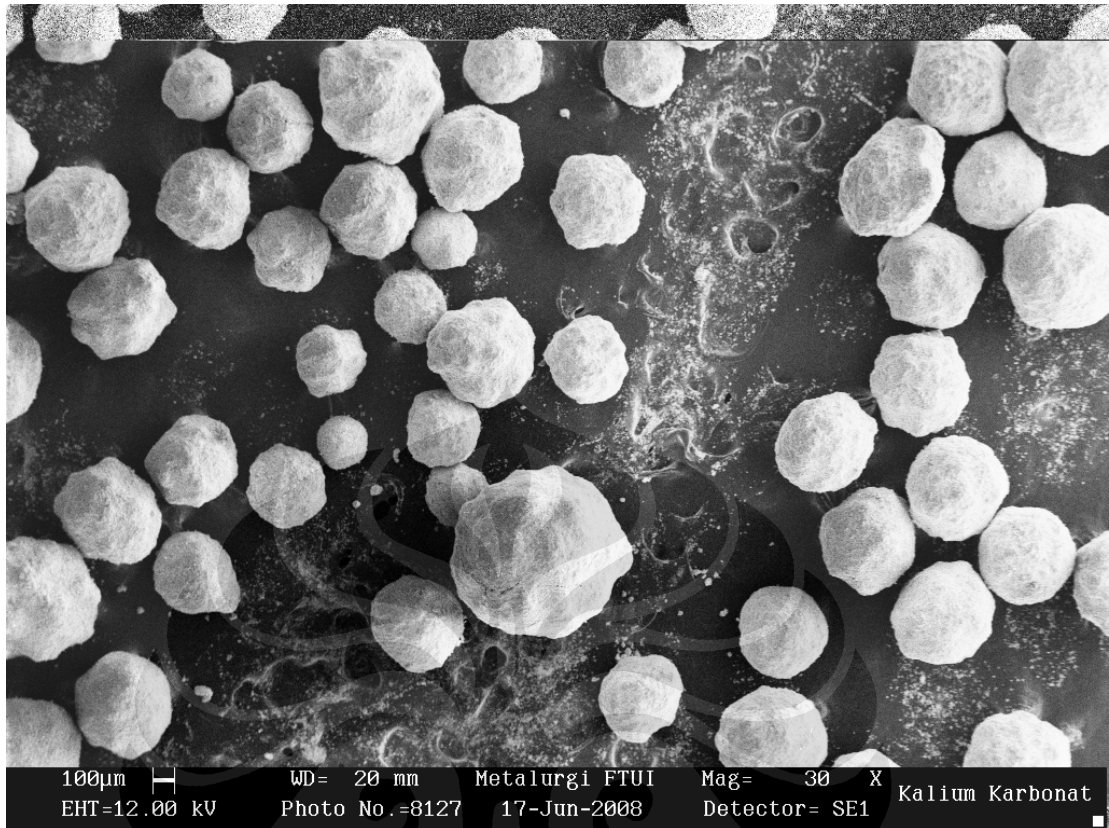


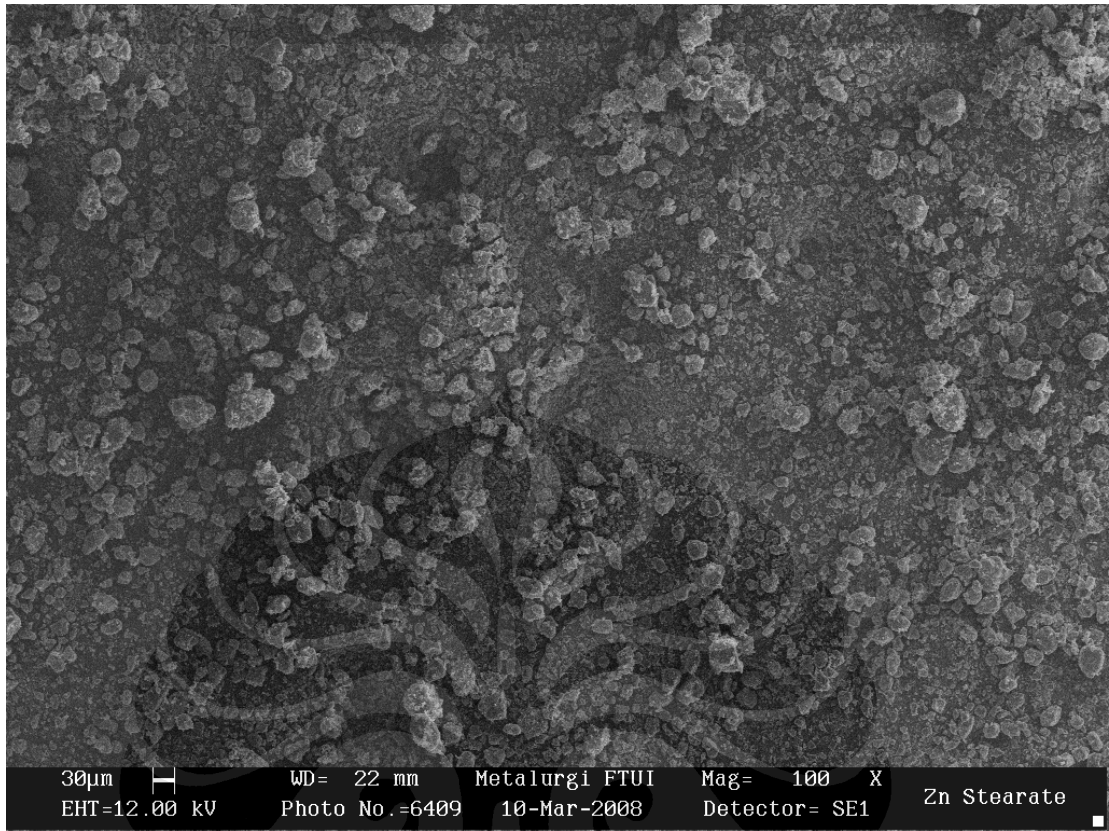
Lampiran 1 Gambar SEM serbuk tembaga



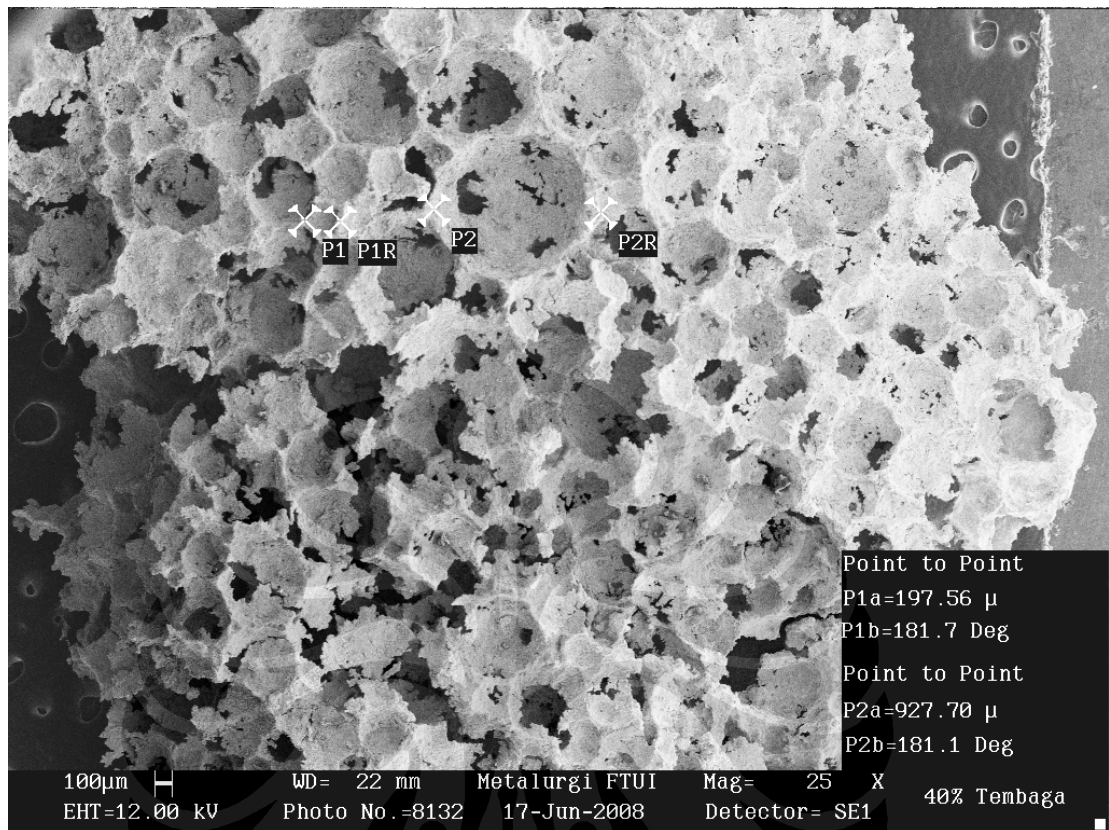
Lampiran 2 Gambar SEM serbuk kalium karbonat



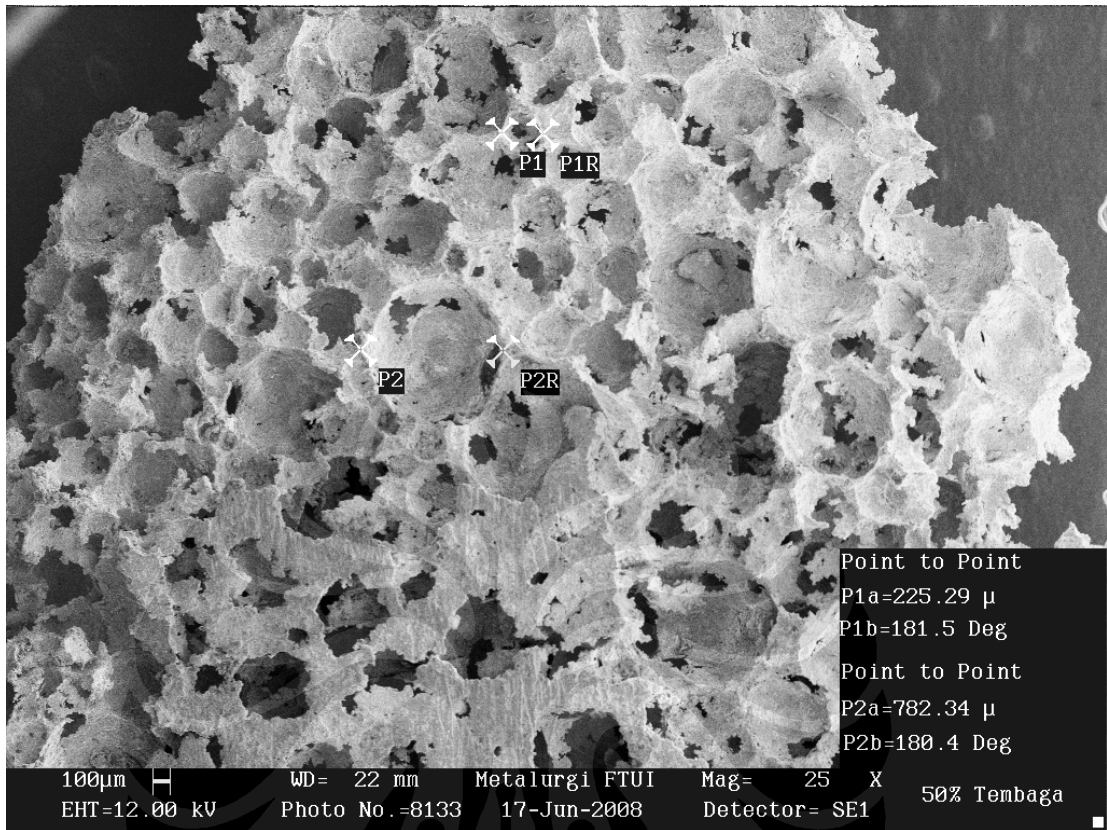
Lampiran 3 Gambar SEM serbuk *zinc stearate*



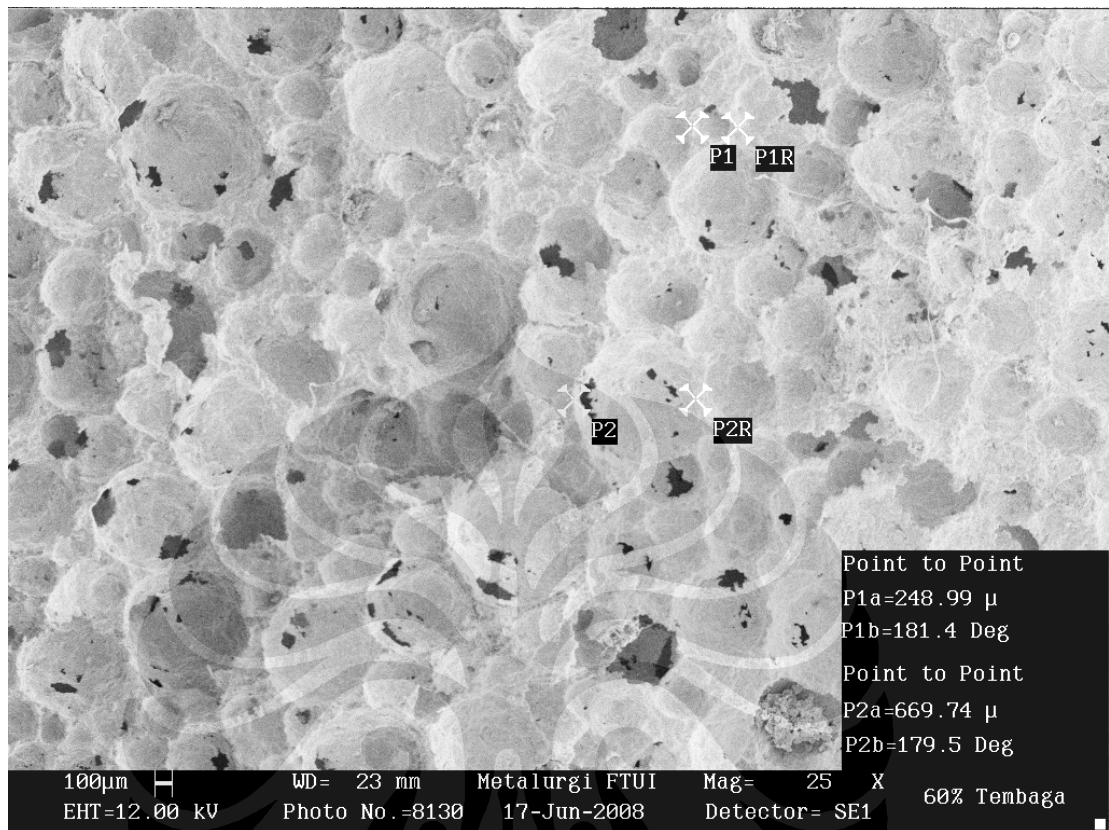
Lampiran 4 Gambar SEM tembaga busa persentase berat 60 % kalium karbonat



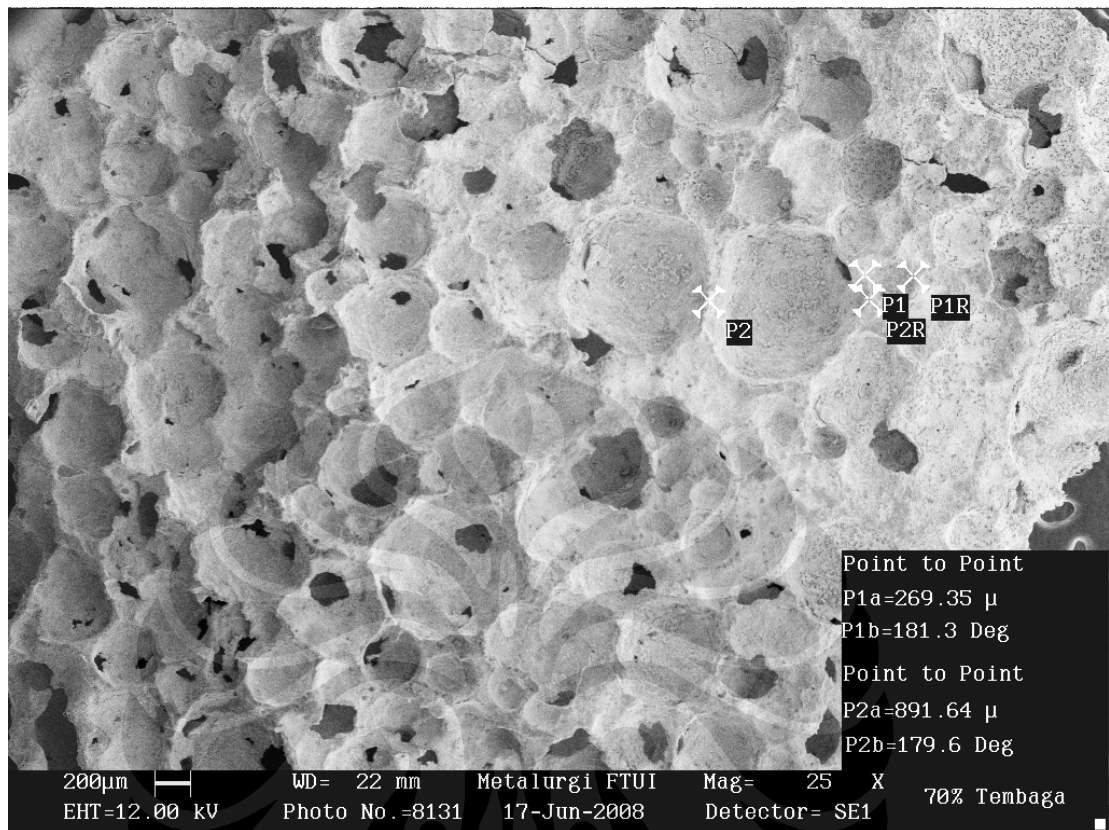
Lampiran 5 Gambar SEM tembaga busa persentase berat 50 % kalium karbonat



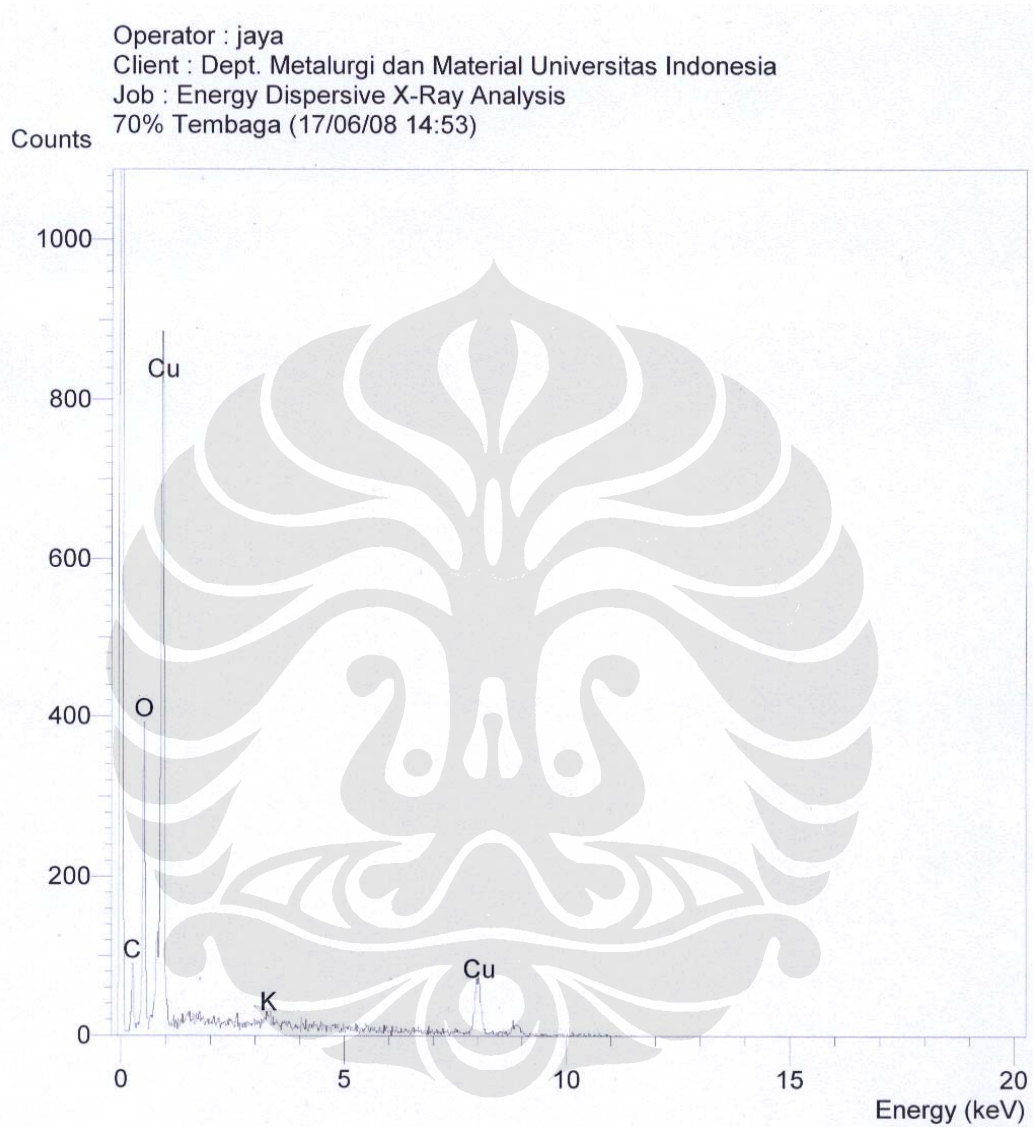
Lampiran 6 Gambar SEM tembaga busa persentase berat 40 % kalium karbonat



Lampiran 7 Gambar SEM tembaga busa persentase berat 30 % kalium karbonat



Lampiran 8 Gambar grafik EDAX untuk permukaan tembaga busa persentase berat 30 % kalium karbonat



Lampiran 9 Data EDAX untuk permukaan tembaga busa persentase berat 30 % kalium karbonat

SEMQuant results. Listed at 14:55:23 on 17/06/08
Operator: jaya
Client: Dept. Metalurgi dan Material Universitas Indonesia
Job: Energy Dispersive X-Ray Analysis
Spectrum label: 70% Tembaga

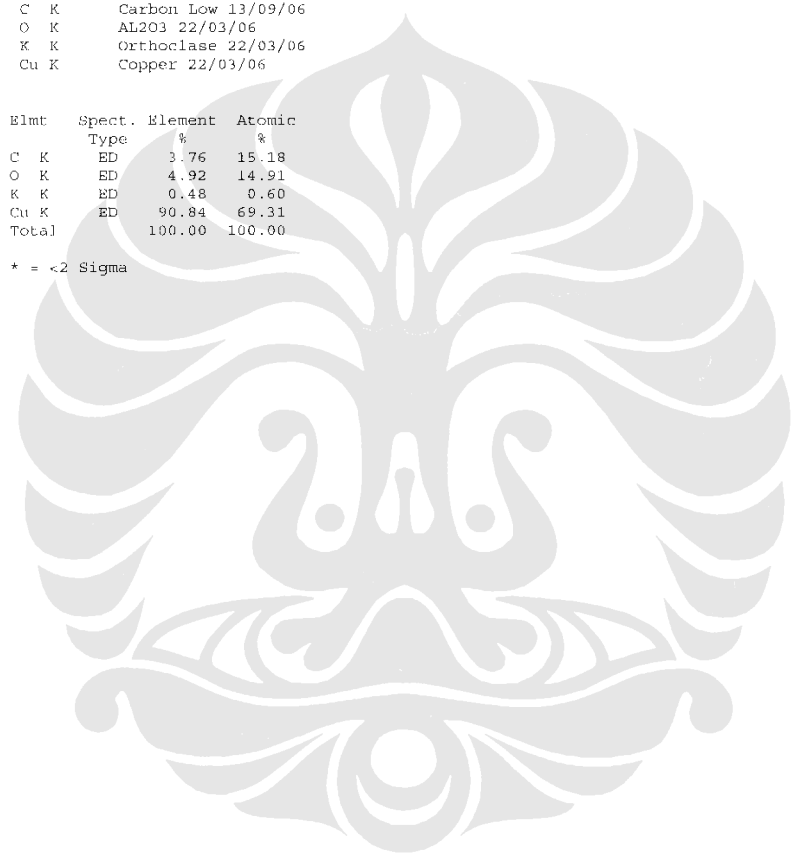
System resolution = 60 eV

Quantitative method: ZAF (3 iterations).
Analysed all elements and normalised results.

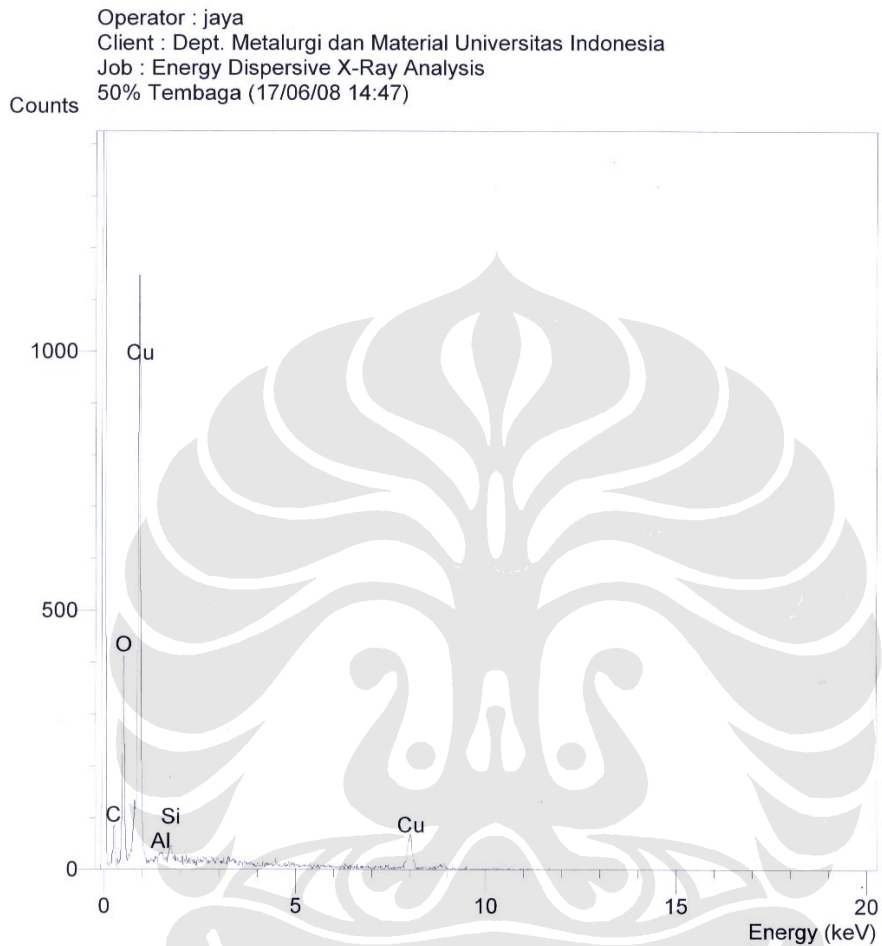
Standards :
C K Carbon Low 13/09/06
O K AL2O3 22/03/06
K K Orthoclase 22/03/06
Cu K Copper 22/03/06

| Elmt | Spect. | Element | Atomic |
|-------|--------|---------|--------|
| | Type | % | % |
| C K | ED | 3.76 | 15.18 |
| O K | ED | 4.92 | 14.91 |
| K K | ED | 0.48 | 0.60 |
| Cu K | ED | 90.84 | 69.31 |
| Total | | 100.00 | 100.00 |

* = <2 Sigma



**Lampiran 10 Gambar grafik EDAX untuk permukaan tembaga busa
persentase berat 50 % kalium karbonat**



**Lampiran 11 Data EDAX untuk permukaan tembaga busa persentase berat
50 % kalium karbonat**

SEMQuant results. Listed at 14:51:43 on 17/06/08
Operator: jaya
Client: Dept. Metalurgi dan Material Universitas Indonesia
Job: Energy Dispersive X-Ray Analysis
Spectrum label: 50* Tembaga

System resolution = 60 eV

Quantitative method: ZAF (3 iterations).
Analysed all elements and normalised results.

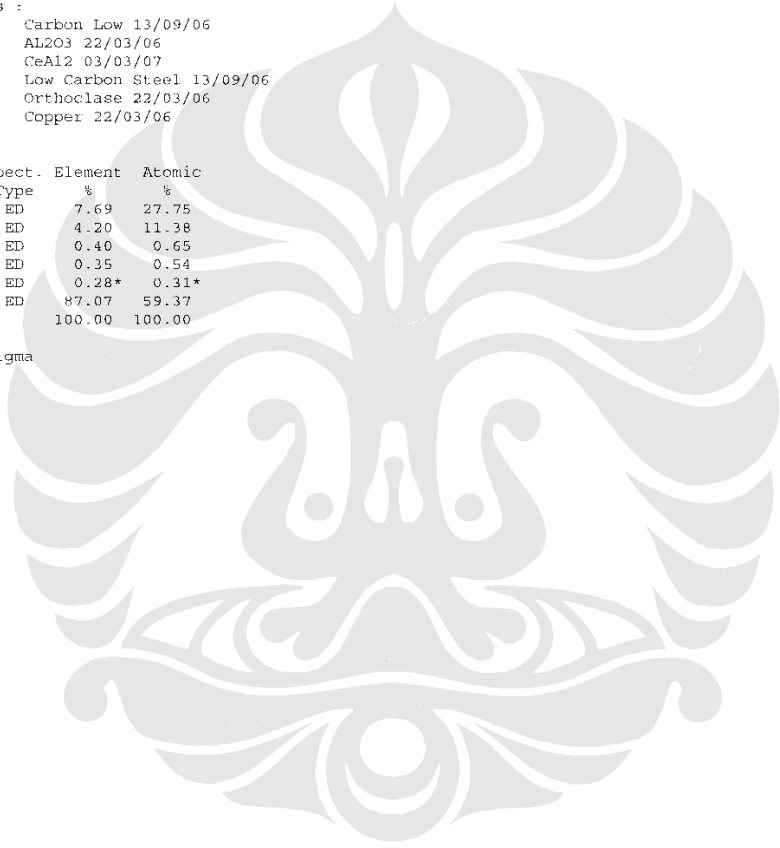
1 peak possibly omitted: 7.44 keV

Standards :

C K Carbon Low 13/09/06
O K AL2O3 22/03/06
Al K CeAl2 03/03/07
Si K Low Carbon Steel 13/09/06
K K Orthoclase 22/03/06
Cu K Copper 22/03/06

| Elmt | Spect. Type | Element % | Atomic % |
|-------|----------------|--------------|-------------|
| C K | ED | 7.69 | 27.75 |
| O K | ED | 4.20 | 11.38 |
| Al K | ED | 0.40 | 0.65 |
| Si K | ED | 0.35 | 0.54 |
| K K | ED | 0.28* | 0.31* |
| Cu K | ED | 87.07 | 59.37 |
| Total | | 100.00 | 100.00 |

* = <2 Sigma



Lampiran 12 Data densitas setelah proses kompaksi

| Variabel | Berat awal sebelum kompaksi (gr) | Berat setelah kompaksi (gr) | tebal (cm) | diameter (cm) | volum (cm ³) | densitas (gr/cm ³) | ave densitas (gr/cm ³) |
|----------|----------------------------------|-----------------------------|------------|---------------|--------------------------|--------------------------------|------------------------------------|
| 60% | 8 | 8 | 0.9 | 2.1 | 3.1185 | 2.565335899 | 2.554646999 |
| | 8 | 7.9 | 0.9 | 2.1 | 3.1185 | 2.5332692 | |
| | 8 | 8 | 0.9 | 2.1 | 3.1185 | 2.565335899 | |
| 50% | 8 | 7.93 | 0.88 | 2.1 | 3.0492 | 2.600682146 | 2.599710428 |
| | 8 | 8.05 | 0.9 | 2.1 | 3.1185 | 2.581369248 | |
| | 8 | 7.98 | 0.88 | 2.1 | 3.0492 | 2.61707989 | |
| 40% | 8 | 7.93 | 0.7 | 2.1 | 2.4255 | 3.269428984 | 3.288669003 |
| | 8 | 8 | 0.7 | 2.1 | 2.4255 | 3.298289013 | |
| | 8 | 8 | 0.7 | 2.1 | 2.4255 | 3.298289013 | |
| 30% | 8 | 7.93 | 0.6 | 2.1 | 2.079 | 3.814333814 | 3.719120386 |
| | 8 | 7.98 | 0.65 | 2.1 | 2.25225 | 3.543123543 | |
| | 8 | 7.9 | 0.6 | 2.1 | 2.079 | 3.7999038 | |
| 0% | 8 | 7.98 | 0.4 | 2.1 | 1.386 | 5.757575758 | 5.716690717 |
| | 8 | 7.89 | 0.4 | 2.1 | 1.386 | 5.692640693 | |
| | 8 | 7.9 | 0.4 | 2.1 | 1.386 | 5.6998557 | |

Lampiran 13 Data porositas dan densitas

| Variabel | Berat dalam air (gr) | Volum (cm ³) | berat kering (gr) | Densitas Tembaga busa (gr/cm ³) | porositas (%) | Ave Porositas (%) | ave densitas (gr/cm ³) |
|----------|----------------------|--------------------------|-------------------|---|---------------|-------------------|------------------------------------|
| 60% | 2.42 | 2.47 | 3.06 | 1.238768926 | 86.17445396 | 85.69074589 | 1.282109169 |
| | 1.53 | 1.56 | 2.07 | 1.325449412 | 85.20703782 | | |
| 50% | 1.36 | 1.38 | 2.51 | 1.808085882 | 79.82047006 | 77.78200685 | 1.990732186 |
| | 1.55 | 1.58 | 3.48 | 2.199539613 | 75.45156682 | | |
| | 1.88 | 1.91 | 3.77 | 1.964571064 | 78.07398366 | | |
| 40% | 1.78 | 1.81 | 3.78 | 2.080444045 | 76.78075843 | 75.18597518 | 2.223336624 |
| | 1.91 | 1.94 | 4.24 | 2.174787016 | 75.72782349 | | |
| | 1.85 | 1.88 | 4.56 | 2.414778811 | 73.04934363 | | |
| 30% | 1.88 | 1.918993957 | 5.62 | 2.928617872 | 67.31453267 | 69.29216069 | 2.751422402 |
| | 1.8 | 1.83733464 | 5.78 | 3.145861333 | 64.88994048 | | |
| | 1.2 | 1.22488976 | 2.67 | 2.179788 | 75.67200893 | | |
| 0% | 1.1 | 1.122815613 | 7.63 | 6.795416727 | 24.15829545 | 27.35957477 | 6.508582101 |
| | 1.18 | 1.204474931 | 7.23 | 6.002615593 | 33.0065224 | | |
| | 1.13 | 1.153437857 | 7.76 | 6.727713982 | 24.91390645 | | |

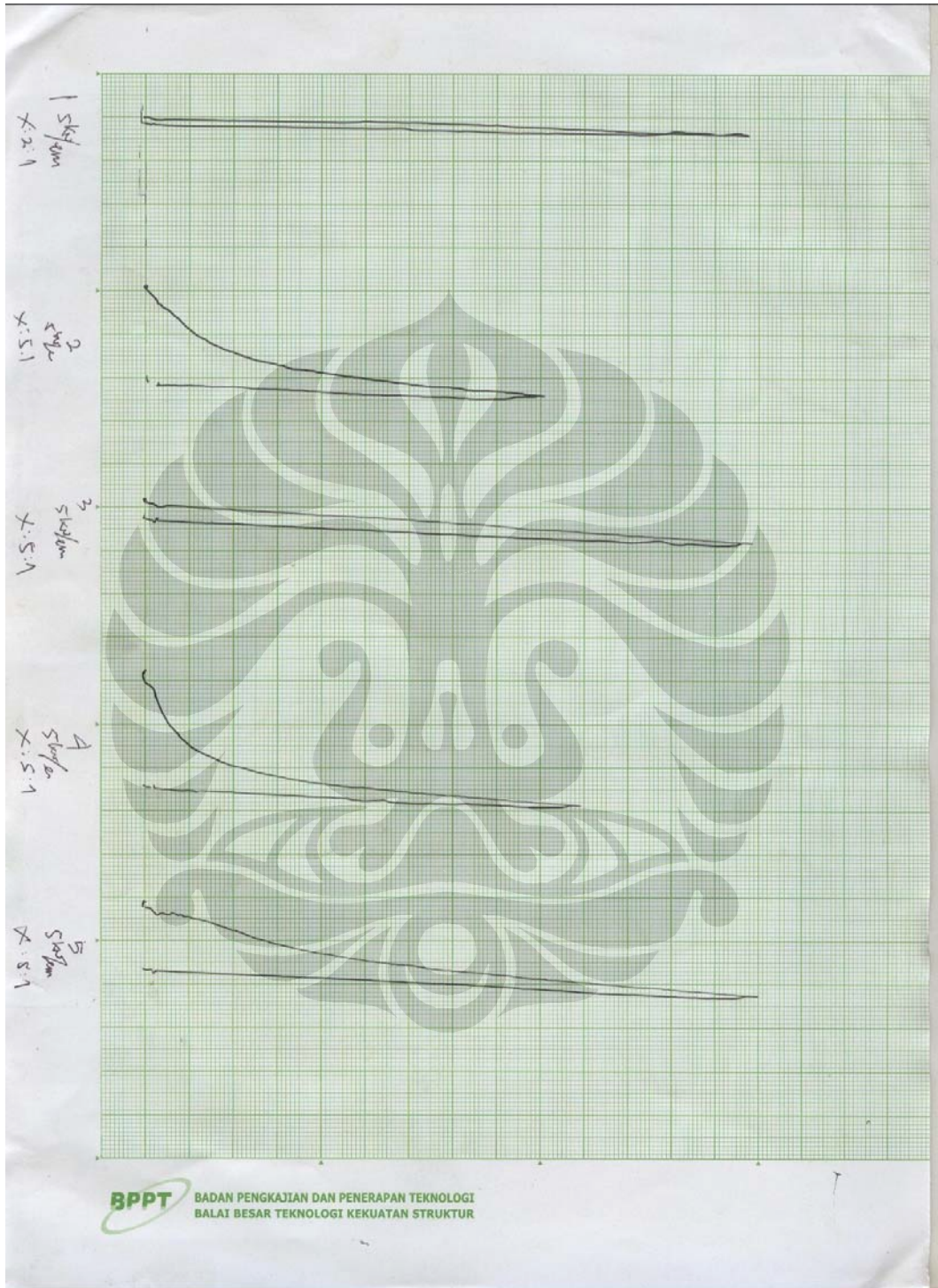
Berat jenis air = 0.97968 gr/cm³

Berat jenis tembaga = 8.96 gr/cm³

Lampiran 14 Grafik uji tekan I dari mesin Schrenk Trebel



Lampiran 15 Grafik uji tekan II dari mesin Schrenk Trebel



Lampiran 16 Data grafik hasil uji tekan persentase berat 60% kalium karbonat

X=5:1

Y=1kN/cm

| Persentase kalium karbonat | X | Y | X1 (mm) | y1(N) | D0 (mm) | A0 | σ (N/m ²) | σ (MPa) | T0 (mm) | ϵ |
|----------------------------|----|------|---------|-------|---------|--------|------------------------------|----------------|---------|------------|
| 60% | 0 | 0 | 0 | 0 | 19.53 | 0.0003 | 0 | 0 | 7.28 | 0 |
| | 1 | 4 | 0.2 | 400 | 19.53 | 0.0003 | 1334722 | 1.334722 | 7.28 | 0.027473 |
| | 2 | 5 | 0.4 | 500 | 19.53 | 0.0003 | 1668403 | 1.668403 | 7.28 | 0.054945 |
| | 3 | 6 | 0.6 | 600 | 19.53 | 0.0003 | 2002083 | 2.002083 | 7.28 | 0.082418 |
| | 4 | 6.8 | 0.8 | 680 | 19.53 | 0.0003 | 2269028 | 2.269028 | 7.28 | 0.10989 |
| | 5 | 7.8 | 1 | 780 | 19.53 | 0.0003 | 2602708 | 2.602708 | 7.28 | 0.137363 |
| | 6 | 8.4 | 1.2 | 840 | 19.53 | 0.0003 | 2802916 | 2.802916 | 7.28 | 0.164835 |
| | 7 | 9.9 | 1.4 | 990 | 19.53 | 0.0003 | 3303437 | 3.303437 | 7.28 | 0.192308 |
| | 8 | 11 | 1.6 | 1100 | 19.53 | 0.0003 | 3670486 | 3.670486 | 7.28 | 0.21978 |
| | 9 | 12.2 | 1.8 | 1220 | 19.53 | 0.0003 | 4070902 | 4.070902 | 7.28 | 0.247253 |
| | 10 | 13 | 2 | 1300 | 19.53 | 0.0003 | 4337847 | 4.337847 | 7.28 | 0.274725 |
| | 11 | 15 | 2.2 | 1500 | 19.53 | 0.0003 | 5005208 | 5.005208 | 7.28 | 0.302198 |
| | 12 | 17 | 2.4 | 1700 | 19.53 | 0.0003 | 5672569 | 5.672569 | 7.28 | 0.32967 |
| | 13 | 20 | 2.6 | 2000 | 19.53 | 0.0003 | 6673611 | 6.673611 | 7.28 | 0.357143 |
| | 14 | 22 | 2.8 | 2200 | 19.53 | 0.0003 | 7340972 | 7.340972 | 7.28 | 0.384615 |
| | 15 | 25.5 | 3 | 2550 | 19.53 | 0.0003 | 8508853 | 8.508853 | 7.28 | 0.412088 |
| | 16 | 30 | 3.2 | 3000 | 19.53 | 0.0003 | 10010416 | 10.01042 | 7.28 | 0.43956 |
| | 17 | 35 | 3.4 | 3500 | 19.53 | 0.0003 | 11678818 | 11.67882 | 7.28 | 0.467033 |
| | 18 | 42 | 3.6 | 4200 | 19.53 | 0.0003 | 14014582 | 14.01458 | 7.28 | 0.494505 |
| | 19 | 50 | 3.8 | 5000 | 19.53 | 0.0003 | 16684026 | 16.68403 | 7.28 | 0.521978 |
| | 20 | 64 | 4 | 6400 | 19.53 | 0.0003 | 21355554 | 21.35555 | 7.28 | 0.549451 |
| | 21 | 80 | 4.2 | 8000 | 19.53 | 0.0003 | 26694442 | 26.69444 | 7.28 | 0.576923 |
| | 22 | 100 | 4.4 | 10000 | 19.53 | 0.0003 | 33368053 | 33.36805 | 7.28 | 0.604396 |
| | 23 | 140 | 4.6 | 14000 | 19.53 | 0.0003 | 46715274 | 46.71527 | 7.28 | 0.631868 |

Lampiran 17 Data grafik hasil uji tekan persentase berat 50% kalium karbonat

X=5:1

Y=5kN/cm

| Persentase kalium karbonat | X | Y | X1 (mm) | y1(N) | D0 (mm) | A0 | σ (N/m ²) | σ (MPa) | T0 (mm) | ϵ |
|----------------------------|----|------|---------|-------|---------|----------|------------------------------|----------------|---------|------------|
| 50% | 0 | 0 | 0 | 0 | 16.55 | 0.000215 | 0 | 0 | 6.52 | 0 |
| | 1 | 1 | 0.2 | 500 | 16.55 | 0.000215 | 2323322 | 2.323322 | 6.52 | 0.030675 |
| | 2 | 2 | 0.4 | 1000 | 16.55 | 0.000215 | 4646644 | 4.646644 | 6.52 | 0.06135 |
| | 3 | 2.1 | 0.6 | 1050 | 16.55 | 0.000215 | 4878976 | 4.878976 | 6.52 | 0.092025 |
| | 4 | 2.5 | 0.8 | 1250 | 16.55 | 0.000215 | 5808304 | 5.808304 | 6.52 | 0.122699 |
| | 5 | 3 | 1 | 1500 | 16.55 | 0.000215 | 6969965 | 6.969965 | 6.52 | 0.153374 |
| | 6 | 3.1 | 1.2 | 1550 | 16.55 | 0.000215 | 7202297 | 7.202297 | 6.52 | 0.184049 |
| | 7 | 3.9 | 1.4 | 1950 | 16.55 | 0.000215 | 9060955 | 9.060955 | 6.52 | 0.214724 |
| | 8 | 4.1 | 1.6 | 2050 | 16.55 | 0.000215 | 9525619 | 9.525619 | 6.52 | 0.245399 |
| | 9 | 5 | 1.8 | 2500 | 16.55 | 0.000215 | 11616609 | 11.61661 | 6.52 | 0.276074 |
| | 10 | 5.5 | 2 | 2750 | 16.55 | 0.000215 | 12778270 | 12.77827 | 6.52 | 0.306748 |
| | 11 | 6.3 | 2.2 | 3150 | 16.55 | 0.000215 | 14636927 | 14.63693 | 6.52 | 0.337423 |
| | 12 | 7.5 | 2.4 | 3750 | 16.55 | 0.000215 | 17424913 | 17.42491 | 6.52 | 0.368098 |
| | 13 | 8 | 2.6 | 4000 | 16.55 | 0.000215 | 18586574 | 18.58657 | 6.52 | 0.398773 |
| | 14 | 9 | 2.8 | 4500 | 16.55 | 0.000215 | 20909896 | 20.9099 | 6.52 | 0.429448 |
| | 15 | 10 | 3 | 5000 | 16.55 | 0.000215 | 23233218 | 23.23322 | 6.52 | 0.460123 |
| | 16 | 11.7 | 3.2 | 5850 | 16.55 | 0.000215 | 27182865 | 27.18286 | 6.52 | 0.490798 |
| | 17 | 14 | 3.4 | 7000 | 16.55 | 0.000215 | 32526505 | 32.5265 | 6.52 | 0.521472 |
| | 18 | 16 | 3.6 | 8000 | 16.55 | 0.000215 | 37173148 | 37.17315 | 6.52 | 0.552147 |
| | 19 | 18.2 | 3.8 | 9100 | 16.55 | 0.000215 | 42284456 | 42.28446 | 6.52 | 0.582822 |
| | 20 | 22 | 4 | 11000 | 16.55 | 0.000215 | 51113079 | 51.11308 | 6.52 | 0.613497 |
| | 21 | 25 | 4.2 | 12500 | 16.55 | 0.000215 | 58083044 | 58.08304 | 6.52 | 0.644172 |
| | 22 | 30 | 4.4 | 15000 | 16.55 | 0.000215 | 69699653 | 69.69965 | 6.52 | 0.674847 |
| | 23 | 35 | 4.6 | 17500 | 16.55 | 0.000215 | 81316261 | 81.31626 | 6.52 | 0.705521 |
| | 24 | 42 | 4.8 | 21000 | 16.55 | 0.000215 | 97579514 | 97.57951 | 6.52 | 0.736196 |
| | 25 | 55 | 5 | 27500 | 16.55 | 0.000215 | 1.28E+08 | 127.7827 | 6.52 | 0.766871 |
| | 26 | 65 | 5.2 | 32500 | 16.55 | 0.000215 | 1.51E+08 | 151.0159 | 6.52 | 0.797546 |
| | 27 | 75 | 5.4 | 37500 | 16.55 | 0.000215 | 1.74E+08 | 174.2491 | 6.52 | 0.828221 |
| | 28 | 90 | 5.6 | 45000 | 16.55 | 0.000215 | 2.09E+08 | 209.099 | 6.52 | 0.858896 |
| | 29 | 99 | 5.8 | 49500 | 16.55 | 0.000215 | 2.3E+08 | 230.0089 | 6.52 | 0.889571 |

Lampiran 18 Data grafik hasil uji tekan persentase berat 40% kalium karbonat

X=5:1

Y=5kN/cm

| Persentase kalium karbonat | X | Y | X1 (mm) | y1(N) | D0 (mm) | A0 | σ (N/m ²) | σ (MPa) | T0 (mm) | ϵ |
|----------------------------|----|------|---------|-------|----------|----------|------------------------------|----------------|----------|------------|
| 640% | 0 | 0 | 0 | 0 | 19.57 | 0.000301 | 0 | 0 | 5.35 | 0 |
| | 1 | 0.5 | 0.2 | 250 | 19.57 | 0.000301 | 830794.7 | 0.830795 | 5.35 | 0.037383 |
| | 2 | 1.4 | 0.4 | 700 | 19.57 | 0.000301 | 2326225 | 2.326225 | 5.35 | 0.074766 |
| | 3 | 2.4 | 0.6 | 1200 | 19.57 | 0.000301 | 3987814 | 3.987814 | 5.35 | 0.11215 |
| | 4 | 2.9 | 0.8 | 1450 | 19.57 | 0.000301 | 4818609 | 4.818609 | 5.35 | 0.149533 |
| | 5 | 4 | 1 | 2000 | 19.57 | 0.000301 | 6646357 | 6.646357 | 5.35 | 0.186916 |
| | 6 | 5.9 | 1.2 | 2950 | 19.57 | 0.000301 | 9803377 | 9.803377 | 5.35 | 0.224299 |
| | 7 | 6.8 | 1.4 | 3400 | 19.57 | 0.000301 | 11298808 | 11.29881 | 5.35 | 0.261682 |
| | 8 | 8 | 1.6 | 4000 | 19.57 | 0.000301 | 13292715 | 13.29271 | 5.35 | 0.299065 |
| | 9 | 9 | 1.8 | 4500 | 19.57 | 0.000301 | 14954304 | 14.9543 | 5.35 | 0.336449 |
| | 10 | 10 | 2 | 5000 | 19.57 | 0.000301 | 16615894 | 16.61589 | 5.35 | 0.373832 |
| | 11 | 11.2 | 2.2 | 5600 | 19.57 | 0.000301 | 18609801 | 18.6098 | 5.35 | 0.411215 |
| | 12 | 13 | 2.4 | 6500 | 19.57 | 0.000301 | 21600662 | 21.60066 | 5.35 | 0.448598 |
| | 13 | 15 | 2.6 | 7500 | 19.57 | 0.000301 | 24923840 | 24.92384 | 5.35 | 0.485981 |
| | 14 | 17.3 | 2.8 | 8650 | 19.57 | 0.000301 | 28745496 | 28.7455 | 5.35 | 0.523364 |
| | 15 | 20 | 3 | 10000 | 19.57 | 0.000301 | 33231787 | 33.23179 | 5.35 | 0.560748 |
| | 16 | 22 | 3.2 | 11000 | 19.57 | 0.000301 | 36554966 | 36.55497 | 5.35 | 0.598131 |
| | 17 | 25 | 3.4 | 12500 | 19.57 | 0.000301 | 41539734 | 41.53973 | 5.35 | 0.635514 |
| | 18 | 30 | 3.6 | 15000 | 19.57 | 0.000301 | 49847681 | 49.84768 | 5.35 | 0.672897 |
| | 19 | 35 | 3.8 | 17500 | 19.57 | 0.000301 | 58155628 | 58.15563 | 5.35 | 0.71028 |
| | 20 | 41 | 4 | 20500 | 19.57 | 0.000301 | 68125164 | 68.12516 | 5.35 | 0.747664 |
| | 21 | 50 | 4.2 | 25000 | 19.57 | 0.000301 | 83079468 | 83.07947 | 5.35 | 0.785047 |
| | 22 | 57 | 4.4 | 28500 | 19.57 | 0.000301 | 94710594 | 94.71059 | 5.35 | 0.82243 |
| | 23 | 65 | 4.6 | 32500 | 19.57 | 0.000301 | 1.08E+08 | 108.0033 | 5.35 | 0.859813 |
| | 24 | 75 | 4.8 | 37500 | 19.57 | 0.000301 | 1.25E+08 | 124.6192 | 5.35 | 0.897196 |
| 25 | 91 | 5 | 45500 | 19.57 | 0.000301 | 1.51E+08 | 151.2046 | 5.35 | 0.934579 | |

Lampiran 19 Data grafik hasil uji tekan persentase berat 30% kalium karbonat

X=5:1

Y=5kN/cm

| Persentase kalium karbonat | X | Y | X1 (mm) | y1(N) | D0 (mm) | A0 | σ (N/m ²) | σ (MPa) | T0 (mm) | ϵ |
|----------------------------|----|-----|---------|-------|---------|----------|------------------------------|----------------|---------|------------|
| 30% | 0 | 0 | 0 | 0 | 19.71 | 0.000305 | 0 | 0 | 4.86 | 0 |
| | 1 | 1.5 | 0.2 | 750 | 19.71 | 0.000305 | 2457103 | 2.457103 | 4.86 | 0.041152 |
| | 2 | 2.5 | 0.4 | 1250 | 19.71 | 0.000305 | 4095172 | 4.095172 | 4.86 | 0.082305 |
| | 3 | 11 | 0.6 | 5500 | 19.71 | 0.000305 | 18018755 | 18.01876 | 4.86 | 0.123457 |
| | 4 | 15 | 0.8 | 7500 | 19.71 | 0.000305 | 24571030 | 24.57103 | 4.86 | 0.164609 |
| | 5 | 18 | 1 | 9000 | 19.71 | 0.000305 | 29485236 | 29.48524 | 4.86 | 0.205761 |
| | 6 | 21 | 1.2 | 10500 | 19.71 | 0.000305 | 34399442 | 34.39944 | 4.86 | 0.246914 |
| | 7 | 24 | 1.4 | 12000 | 19.71 | 0.000305 | 39313648 | 39.31365 | 4.86 | 0.288066 |
| | 8 | 27 | 1.6 | 13500 | 19.71 | 0.000305 | 44227854 | 44.22785 | 4.86 | 0.329218 |
| | 9 | 30 | 1.8 | 15000 | 19.71 | 0.000305 | 49142060 | 49.14206 | 4.86 | 0.37037 |
| | 10 | 35 | 2 | 17500 | 19.71 | 0.000305 | 57332404 | 57.3324 | 4.86 | 0.411523 |
| | 11 | 40 | 2.2 | 20000 | 19.71 | 0.000305 | 65522747 | 65.52275 | 4.86 | 0.452675 |
| | 12 | 45 | 2.4 | 22500 | 19.71 | 0.000305 | 73713091 | 73.71309 | 4.86 | 0.493827 |
| | 13 | 50 | 2.6 | 25000 | 19.71 | 0.000305 | 81903434 | 81.90343 | 4.86 | 0.534979 |
| | 14 | 60 | 2.8 | 30000 | 19.71 | 0.000305 | 98284121 | 98.28412 | 4.86 | 0.576132 |
| | 15 | 70 | 3 | 35000 | 19.71 | 0.000305 | 1.15E+08 | 114.6648 | 4.86 | 0.617284 |
| | 16 | 80 | 3.2 | 40000 | 19.71 | 0.000305 | 1.31E+08 | 131.0455 | 4.86 | 0.658436 |
| | 17 | 90 | 3.4 | 45000 | 19.71 | 0.000305 | 1.47E+08 | 147.4262 | 4.86 | 0.699588 |
| | 18 | 103 | 3.6 | 51500 | 19.71 | 0.000305 | 1.69E+08 | 168.7211 | 4.86 | 0.740741 |
| | 19 | 115 | 3.8 | 57500 | 19.71 | 0.000305 | 1.88E+08 | 188.3779 | 4.86 | 0.781893 |
| | 20 | 127 | 4 | 63500 | 19.71 | 0.000305 | 2.08E+08 | 208.0347 | 4.86 | 0.823045 |
| | 21 | 140 | 4.2 | 70000 | 19.71 | 0.000305 | 2.29E+08 | 229.3296 | 4.86 | 0.864198 |

Lampiran 20 Data grafik hasil uji tekan persentase berat 0% kalium karbonat

X=5:1

Y=1kN/cm

| Persentase kalium karbonat | X | Y | X1 (mm) | y1(N) | D0 (mm) | A0 | σ (N/m ²) | σ (MPa) | T0 (mm) | ϵ |
|----------------------------|---|-----|---------|-------|---------|---------|------------------------------|----------------|---------|------------|
| 0% | 0 | 0 | 0 | 0 | 19.86 | 0.00031 | 0 | 0 | 3.41 | 0 |
| | 1 | 3 | 0.2 | 1500 | 19.86 | 0.00031 | 4840254 | 4.840254 | 3.41 | 0.058651 |
| | 2 | 30 | 0.4 | 15000 | 19.86 | 0.00031 | 48402537 | 48.40254 | 3.41 | 0.117302 |
| | 3 | 45 | 0.6 | 22500 | 19.86 | 0.00031 | 72603805 | 72.6038 | 3.41 | 0.175953 |
| | 4 | 60 | 0.8 | 30000 | 19.86 | 0.00031 | 96805073 | 96.80507 | 3.41 | 0.234604 |
| | 5 | 75 | 1 | 37500 | 19.86 | 0.00031 | 1.21E+08 | 121.0063 | 3.41 | 0.293255 |
| | 6 | 90 | 1.2 | 45000 | 19.86 | 0.00031 | 1.45E+08 | 145.2076 | 3.41 | 0.351906 |
| | 7 | 105 | 1.4 | 52500 | 19.86 | 0.00031 | 1.69E+08 | 169.4089 | 3.41 | 0.410557 |
| | 8 | 120 | 1.6 | 60000 | 19.86 | 0.00031 | 1.94E+08 | 193.6101 | 3.41 | 0.469208 |
| | 9 | 139 | 1.8 | 69500 | 19.86 | 0.00031 | 2.24E+08 | 224.2651 | 3.41 | 0.527859 |

Lampiran 21 Data hasil perhitungan serbuk

a. 60% kalium karbonat

- Serbuk tembaga = $40\% \times 8 \text{ gr} = 3.2 \text{ gr}$
- Serbuk karbonat = $60\% \times 8 \text{ gr} = 4.8 \text{ gr}$
- Serbuk *zinc stearate* = $2\% \times 8 \text{ gr} = 0.16 \text{ gr}$
- Ethanol = $1\% \times 8 \text{ gr} = 0.08 \text{ gr}$

b. 50% kalium karbonat

- Serbuk tembaga = $50\% \times 8 \text{ gr} = 4 \text{ gr}$
- Serbuk karbonat = $50\% \times 8 \text{ gr} = 4 \text{ gr}$
- Serbuk *zinc stearate* = $2\% \times 8 \text{ gr} = 0.16 \text{ gr}$
- Ethanol = $1\% \times 8 \text{ gr} = 0.08 \text{ gr}$

c. 40% kalium karbonat

- Serbuk tembaga = $60\% \times 8 \text{ gr} = 4.8 \text{ gr}$
- Serbuk karbonat = $40\% \times 8 \text{ gr} = 3.2 \text{ gr}$
- Serbuk *zinc stearate* = $2\% \times 8 \text{ gr} = 0.16 \text{ gr}$
- Ethanol = $1\% \times 8 \text{ gr} = 0.08 \text{ gr}$

d. 30% kalium karbonat

- Serbuk tembaga = $70\% \times 8 \text{ gr} = 5.6 \text{ gr}$
- Serbuk karbonat = $30\% \times 8 \text{ gr} = 2.4 \text{ gr}$
- Serbuk *zinc stearate* = $2\% \times 8 \text{ gr} = 0.16 \text{ gr}$
- Ethanol = $1\% \times 8 \text{ gr} = 0.08 \text{ gr}$

e. 0 % kalium karbonat

- Serbuk tembaga = $100\% \times 8 \text{ g} = 8 \text{ gr}$
- Serbuk *zinc stearate* = $2\% \times 8 \text{ g} = 0.16 \text{ gr}$
- Ethanol = $1\% \times 8 \text{ g} = 0.08 \text{ gr}$