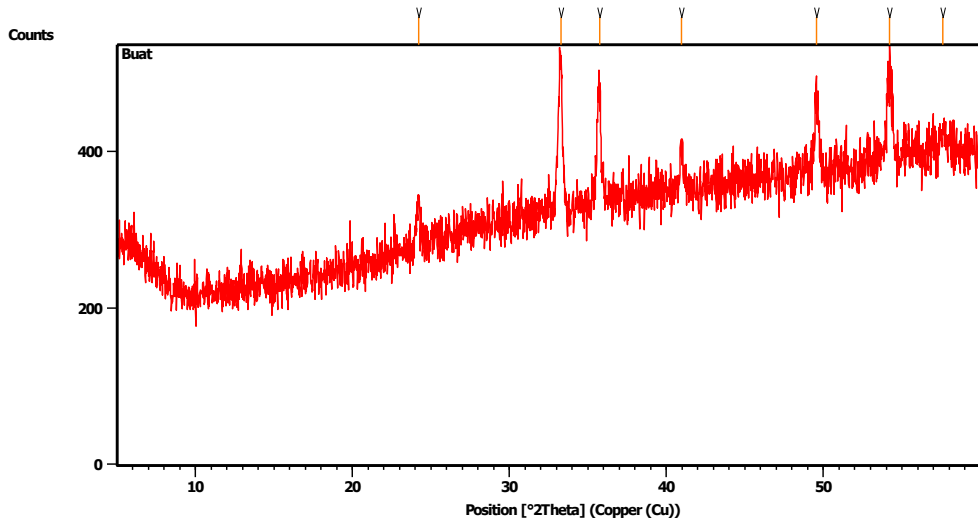


LAMPIRAN

1. Data hasil pengujian XRD

1.1 Data hasil pengujian Fe₂O₃

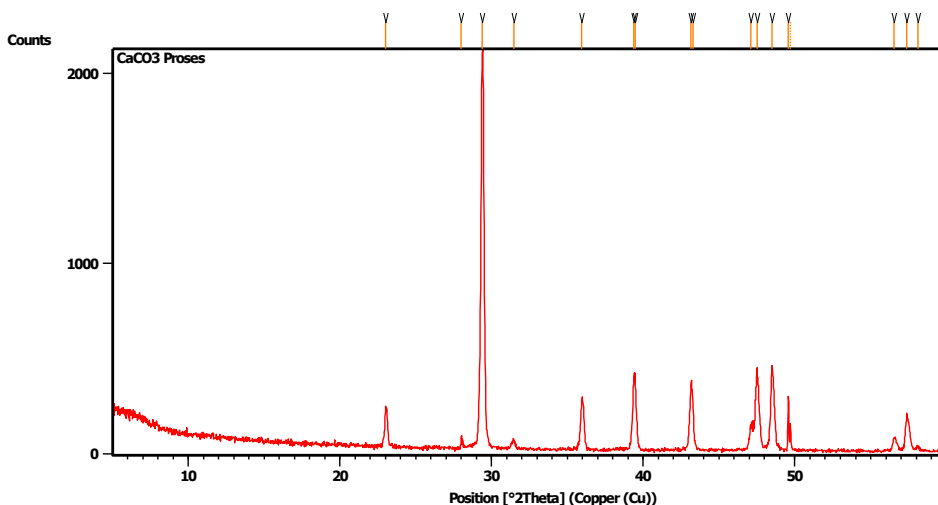


Gambar 1.1 Data hasil pengujian XRD Fe₂O₃

Tabel 1.1 Data hasil pengujian XRD Fe₂O₃

| Pos. [°2Th.] | Height [cts] | FWHM Left [°2Th.] | d-spacing [Å] | Rel. Int. [%] |
|--------------|--------------|-------------------|---------------|---------------|
| 24.2037 | 61.71 | 0.2676 | 3.67725 | 32.26 |
| 33.2645 | 191.28 | 0.2342 | 2.69344 | 100.00 |
| 35.7326 | 139.73 | 0.2342 | 2.51286 | 73.05 |
| 40.9494 | 59.83 | 0.2007 | 2.20398 | 31.28 |
| 49.5420 | 127.83 | 0.1004 | 1.83998 | 66.83 |
| 54.2050 | 98.22 | 0.3346 | 1.69220 | 51.35 |
| 57.5852 | 23.08 | 0.8029 | 1.60065 | 12.07 |

1.2 Data hasil pengujian CaCO₃

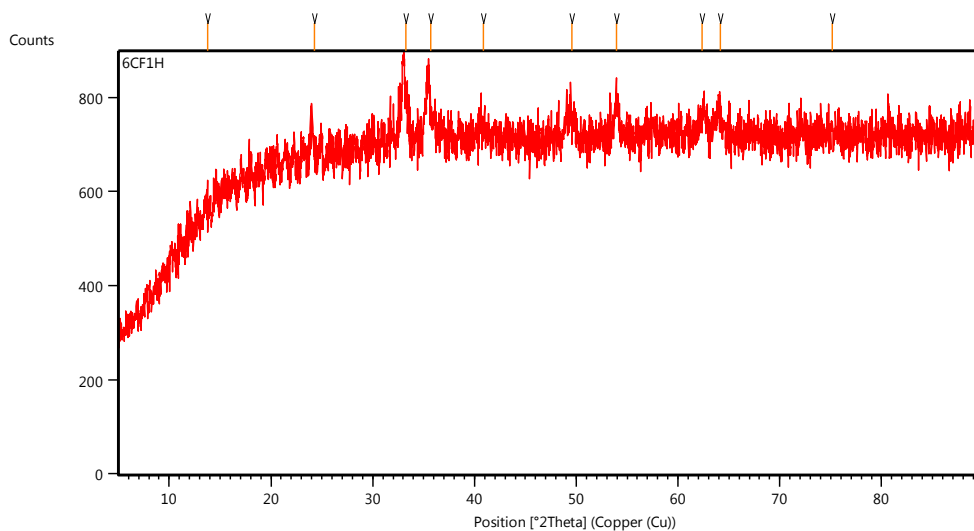


Gambar 1.2 Data hasil pengujian XRD CaO₃

Tabel 1.2 Data hasil pengujian XRD CaO₃

| Pos. [°2Th.] | Height [cts] | FWHM Left [°2Th.] | d-spacing [Å] | Rel. Int. [%] |
|--------------|--------------|-------------------|---------------|---------------|
| 23.0072 | 203.59 | 0.0836 | 3.86572 | 10.42 |
| 27.9979 | 66.50 | 0.0502 | 3.18695 | 3.40 |
| 29.3606 | 1954.06 | 0.1840 | 3.04207 | 100.00 |
| 31.4469 | 54.26 | 0.2342 | 2.84484 | 2.78 |
| 35.9182 | 228.07 | 0.1004 | 2.50030 | 11.67 |
| 39.3672 | 348.95 | 0.0816 | 2.28693 | 17.86 |
| 39.4675 | 365.84 | 0.0836 | 2.28324 | 18.72 |
| 43.1448 | 350.31 | 0.1020 | 2.09504 | 17.93 |
| 43.2828 | 235.19 | 0.1004 | 2.09041 | 12.04 |
| 47.0997 | 124.92 | 0.1673 | 1.92953 | 6.39 |
| 47.5016 | 400.32 | 0.0669 | 1.91414 | 20.49 |
| 48.4808 | 428.28 | 0.1171 | 1.87774 | 21.92 |
| 49.5707 | 286.20 | 0.0816 | 1.83746 | 14.65 |
| 49.7076 | 139.66 | 0.0612 | 1.83727 | 7.15 |
| 56.5575 | 66.54 | 0.3672 | 1.62592 | 3.41 |
| 57.3817 | 194.85 | 0.1224 | 1.60451 | 9.97 |
| 58.1100 | 20.48 | 0.3264 | 1.58612 | 1.05 |

1.3 Data hasil pengujian XRD sampel 6CF1H

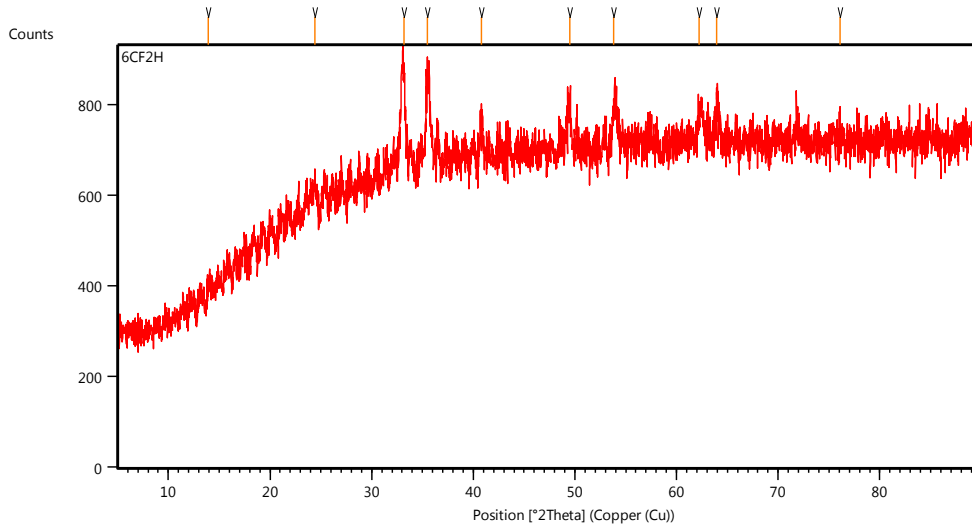


Gambar 1.3 Data hasil pengujian XRD sampel 6CF1H

Tabel 1.3 Data hasil pengujian XRD sampel 6CF1H

| Pos. [$^{\circ}2\text{Th.}$] | Height [cts] | FWHM Left [$^{\circ}2\text{Th.}$] | d-spacing [\AA] | Rel. Int. [%] |
|--------------------------------|--------------|-------------------------------------|----------------------------|---------------|
| 13.5613 | 24.28 | 0.3264 | 6.52416 | 16.36 |
| 24.9293 | 35.82 | 0.4080 | 3.56889 | 24.13 |
| 32.9285 | 148.41 | 0.1224 | 2.71790 | 100.00 |
| 35.4143 | 93.74 | 0.2448 | 2.53261 | 63.16 |
| 40.9821 | 66.99 | 0.1020 | 2.20047 | 45.14 |
| 49.6910 | 45.01 | 0.1224 | 1.83329 | 30.33 |
| 53.8932 | 79.79 | 0.2040 | 1.69984 | 53.76 |
| 62.8398 | 18.62 | 0.1224 | 1.47763 | 12.54 |
| 64.0023 | 58.40 | 0.1224 | 1.45357 | 39.35 |
| 75.4761 | 42.84 | 0.1224 | 1.25855 | 28.87 |

1.4 Data hasil pengujian XRD sampel 6CF2H

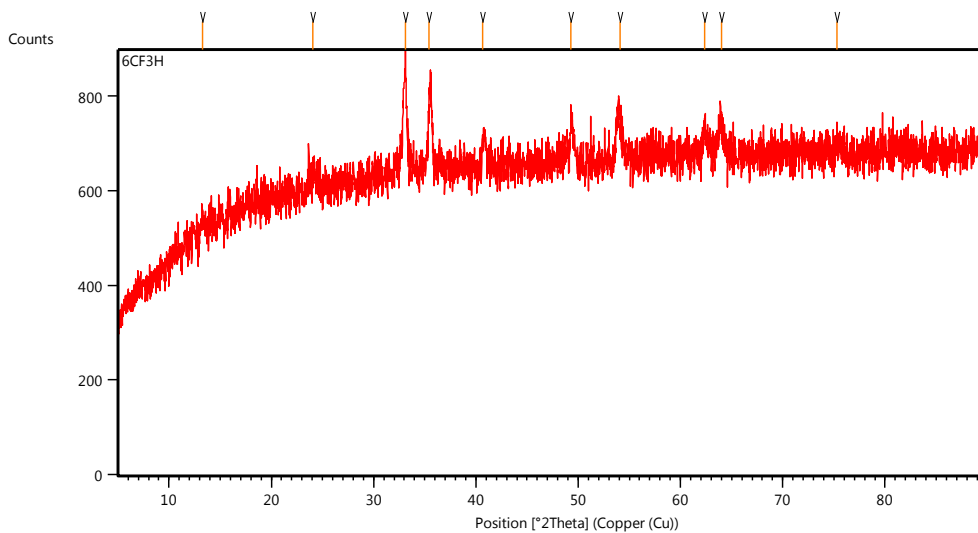


Gambar 1.4 Data hasil pengujian XRD sampel 6CF2H

Tabel 1.4 Data hasil pengujian XRD sampel 6CF2H

| Pos. [$^{\circ}2\text{Th.}$] | Height [cts] | FWHM Left [$^{\circ}2\text{Th.}$] | d-spacing [\AA] | Rel. Int. [%] |
|--------------------------------|--------------|-------------------------------------|----------------------------|---------------|
| 13.9428 | 8.37 | 0.4080 | 6.34652 | 5.74 |
| 24.4218 | 28.36 | 0.4896 | 3.64190 | 19.44 |
| 33.1458 | 145.90 | 0.4896 | 2.70057 | 100.00 |
| 35.4980 | 122.12 | 0.4080 | 2.52683 | 83.70 |
| 40.7886 | 37.55 | 0.4080 | 2.21046 | 25.73 |
| 49.4580 | 65.79 | 0.4896 | 1.84138 | 45.10 |
| 53.8237 | 69.38 | 0.3264 | 1.70187 | 47.55 |
| 62.3122 | 54.18 | 0.4896 | 1.48887 | 37.13 |
| 63.9556 | 57.36 | 0.4896 | 1.45452 | 39.32 |
| 76.0936 | 92.00 | 0.0612 | 1.24987 | 63.05 |

1.5 Data hasil pengujian XRD sampel 6CF3H

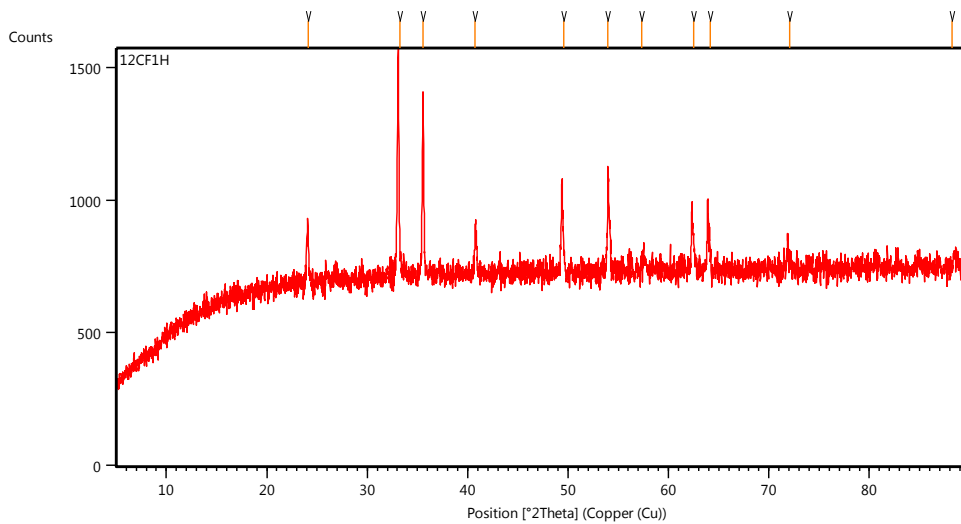


Gambar 1.5 Data hasil pengujian XRD sampel 6CF3H

Tabel 1.5 Data hasil pengujian XRD sampel 6CF3H

| Pos. [$^{\circ}2\text{Th.}$] | Height [cts] | FWHM Left [$^{\circ}2\text{Th.}$] | d-spacing [\AA] | Rel. Int. [%] |
|--------------------------------|--------------|-------------------------------------|----------------------------|---------------|
| 13.2859 | 233.70 | 0.0900 | 6.65877 | 40.04 |
| 24.0411 | 341.70 | 0.0900 | 3.69869 | 58.54 |
| 33.1064 | 583.70 | 0.0900 | 2.70370 | 100.00 |
| 35.4385 | 466.70 | 0.0900 | 2.53094 | 79.96 |
| 40.6291 | 410.70 | 0.0900 | 2.21877 | 70.36 |
| 49.3082 | 468.70 | 0.0900 | 1.84662 | 80.30 |
| 54.1112 | 501.70 | 0.0900 | 1.69350 | 85.95 |
| 62.3366 | 456.70 | 0.0900 | 1.48835 | 78.24 |
| 64.0121 | 452.70 | 0.0900 | 1.45337 | 77.56 |
| 75.2839 | 404.70 | 0.0900 | 1.26129 | 69.33 |

1.6 Data hasil pengujian XRD sampel 12CF1H

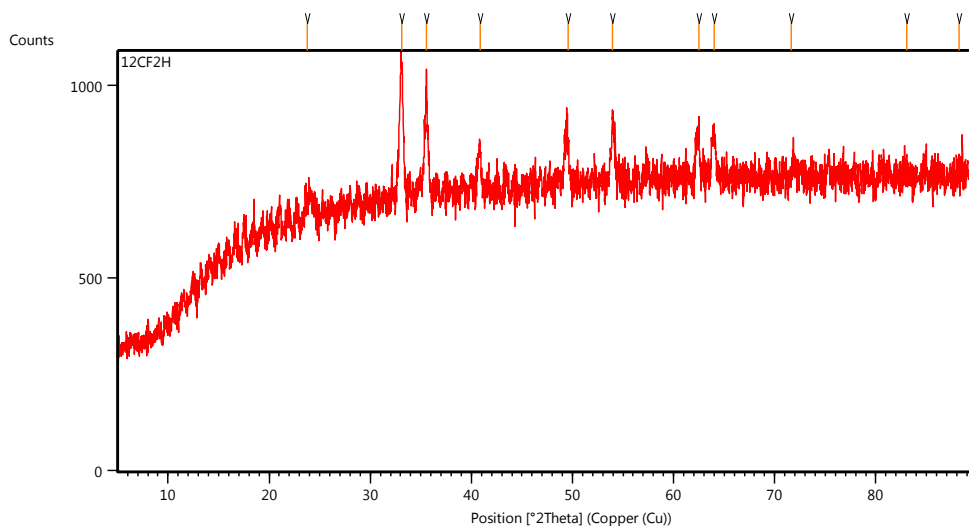


Gambar 1.6 Data hasil pengujian XRD sampel 12CF1H

Tabel 1.6 Data hasil pengujian XRD sampel 12CF1H

| Pos. [$^{\circ}$ 2Th.] | Height [cts] | FWHM Left [$^{\circ}$ 2Th.] | d-spacing [\AA] | Rel. Int. [%] |
|-------------------------|--------------|------------------------------|----------------------------|---------------|
| 24.0203 | 124.29 | 0.1632 | 3.70185 | 19.38 |
| 33.0562 | 641.44 | 0.1428 | 2.70769 | 100.00 |
| 35.5495 | 558.56 | 0.1224 | 2.52329 | 87.08 |
| 40.7837 | 181.80 | 0.1632 | 2.21072 | 28.34 |
| 49.3600 | 289.29 | 0.1632 | 1.84481 | 45.10 |
| 53.9944 | 322.14 | 0.2040 | 1.69689 | 50.22 |
| 56.3316 | 30.89 | 0.1632 | 1.63190 | 4.82 |
| 62.3347 | 238.36 | 0.1632 | 1.48839 | 37.16 |
| 63.9239 | 240.10 | 0.1632 | 1.45516 | 37.43 |
| 71.8630 | 118.90 | 0.1632 | 1.31267 | 18.54 |
| 88.4783 | 48.60 | 0.2448 | 1.10413 | 7.58 |

1.7 Data hasil pengujian XRD sampel 12CF2H

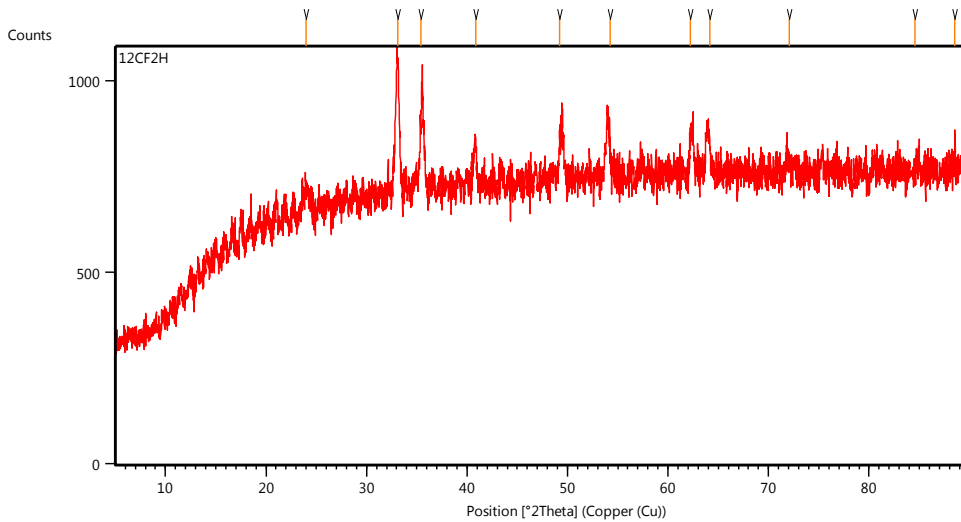


Gambar 1.7 Data hasil pengujian XRD sampel 12CF2H

Tabel 1.7 Data hasil pengujian XRD sampel 12CF2H

| Pos. [$^{\circ}2\text{Th.}$] | Height [cts] | FWHM Left [$^{\circ}2\text{Th.}$] | d-spacing [\AA] | Rel. Int. [%] |
|--------------------------------|--------------|-------------------------------------|----------------------------|---------------|
| 23.8304 | 39.50 | 1.1424 | 3.73091 | 15.39 |
| 33.0340 | 256.62 | 0.4896 | 2.70946 | 100.00 |
| 35.4847 | 177.16 | 0.4080 | 2.52775 | 69.03 |
| 40.7691 | 82.38 | 0.4080 | 2.21147 | 32.10 |
| 49.4734 | 120.75 | 0.5712 | 1.84084 | 47.06 |
| 53.9636 | 140.59 | 0.1632 | 1.69779 | 54.78 |
| 62.3211 | 100.53 | 0.3264 | 1.48868 | 39.18 |
| 63.8512 | 103.65 | 0.4080 | 1.45664 | 40.39 |
| 71.8397 | 42.17 | 0.6528 | 1.31304 | 16.43 |
| 84.8226 | 19.58 | 0.4896 | 1.14212 | 7.63 |
| 88.5602 | 24.02 | 0.1224 | 1.10332 | 9.36 |

1.8 Data hasil pengujian XRD sampel 12CF3H



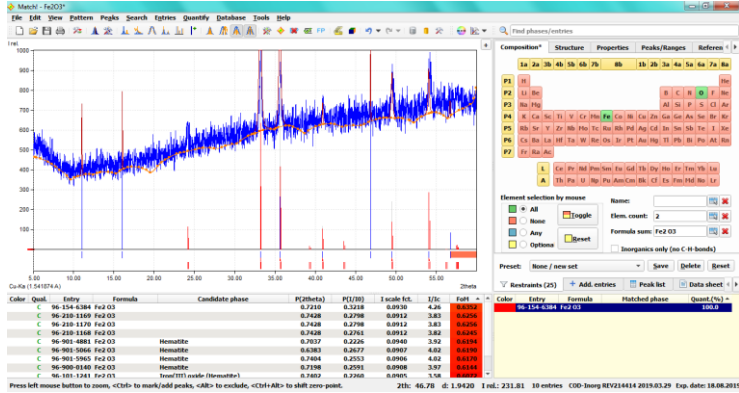
Gambar 1.8 Data hasil pengujian XRD sampel 12CF3H

Tabel 1.8 Data hasil pengujian XRD sampel 12CF3H

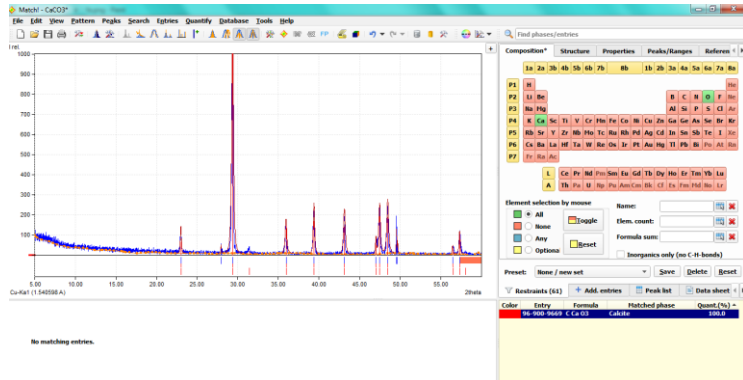
| Pos. [°2Th.] | Height [cts] | FWHM Left [°2Th.] | d-spacing [Å] | Rel. Int. [%] |
|--------------|--------------|-------------------|---------------|---------------|
| 24.0066 | 154.08 | 0.2040 | 3.70393 | 33.38 |
| 32.9733 | 461.54 | 0.1224 | 2.71431 | 100.00 |
| 35.4507 | 430.50 | 0.1224 | 2.53009 | 93.28 |
| 40.7331 | 99.17 | 0.2448 | 2.21334 | 21.49 |
| 49.2998 | 240.84 | 0.1632 | 1.84692 | 52.18 |
| 53.8883 | 243.02 | 0.1224 | 1.69998 | 52.65 |
| 62.2960 | 141.93 | 0.1632 | 1.48922 | 30.75 |
| 63.8406 | 186.94 | 0.2040 | 1.45686 | 40.50 |
| 71.7759 | 48.22 | 0.3264 | 1.31405 | 10.45 |
| 84.6757 | 24.22 | 0.4080 | 1.14372 | 5.25 |
| 88.4803 | 38.76 | 0.2856 | 1.10411 | 8.40 |

2. Hasil Search Match

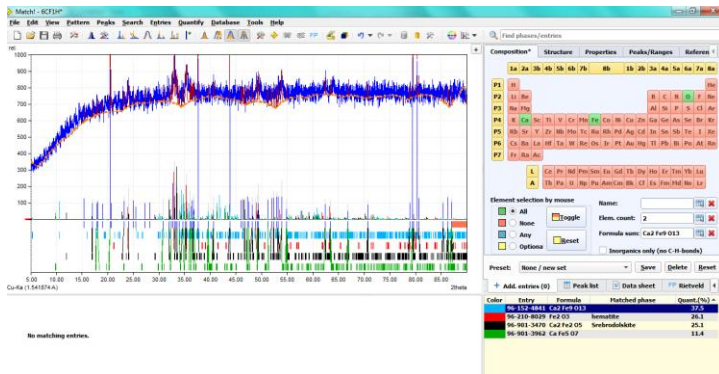
2.1 Search Match Fe₂O₃



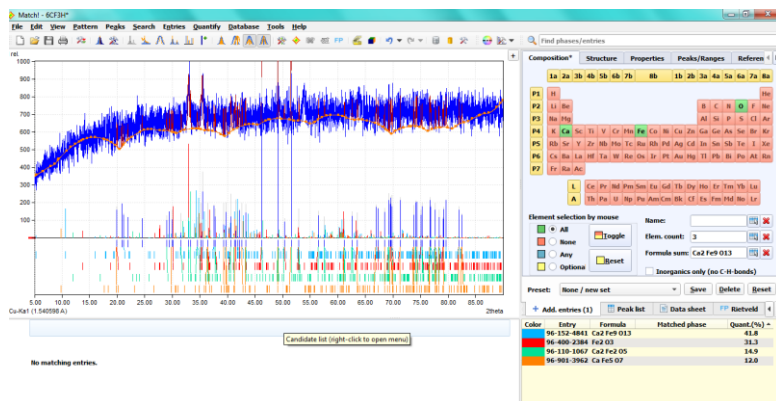
2.2 Search Match CaCO₃



2.3 Search Match 6CF1H



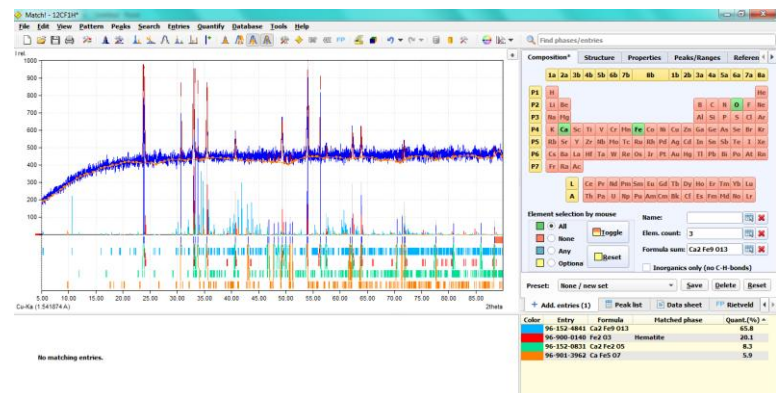
2.4 Search Match 6CF2H



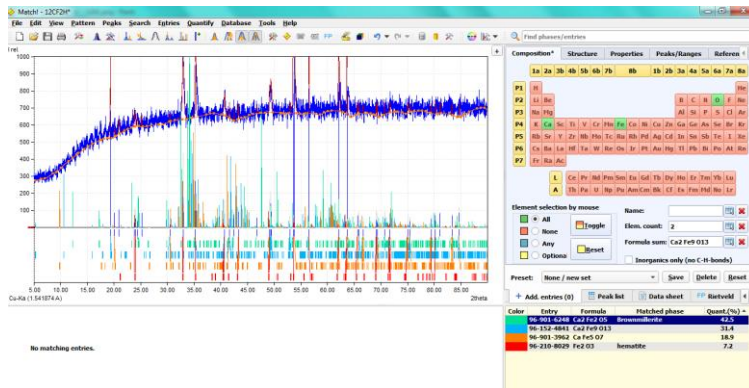
2.5 Search Match 6CF3H



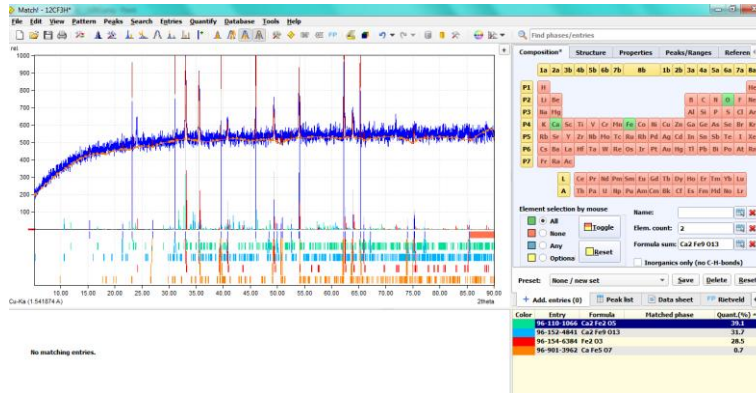
2.6 Search Match 12CF1H



2.7 Search Match 12CF2H



2.8 Search Match 12CF3H



3. Perhitungan Persentase Fase

3.1 Perhitungan Fase 6CF1H

Tabel 3.1 Perhitungan Fase 6CF1H dengan Software HSP

| Pattern List | | Scan List | | Peak List | | Anchor Scan Data | | Quantification | | Object Inspector | |
|--------------|--------------|---------------|---------------|-----------------|---------------|------------------|------------------|----------------|-----------|------------------|--|
| No. | Pos. [°2Th.] | d-spacing ... | Height [c...] | Rel. Int. [...] | FWHM Left ... | Area calc. | Area [cts*°2T... | Backgr.[cts] | Derivati. | | |
| 1 | 13.5613 | 6.52416 | 24.28 | 16.36 | 0.3264 | 0.00 | 10.57 | 8.71 | Pure KA1 | | |
| 2 | 24.9293 | 3.56889 | 35.82 | 24.13 | 0.4080 | 0.00 | 19.48 | 3.47 | Pure KA1 | | |
| 3 | 32.9285 | 2.71790 | 148.41 | 100.00 | 0.1224 | 0.00 | 24.22 | 2.03 | Pure KA1 | | |
| 4 | 35.4143 | 2.53261 | 93.74 | 63.16 | 0.2448 | 0.00 | 30.60 | 2.20 | Pure KA1 | | |
| 5 | 40.9821 | 2.20047 | 66.99 | 45.14 | 0.1020 | 0.00 | 9.11 | 2.58 | Pure KA1 | | |
| 6 | 49.6910 | 1.83329 | 45.01 | 30.33 | 0.1224 | 0.00 | 7.35 | 3.17 | Pure KA1 | | |
| 7 | 53.8932 | 1.69984 | 79.79 | 53.76 | 0.2040 | 0.00 | 21.70 | 3.75 | Pure KA1 | | |
| 8 | 62.8398 | 1.47763 | 18.62 | 12.54 | 0.1224 | 0.00 | 3.04 | 5.74 | Pure KA1 | | |
| 9 | 64.0023 | 1.45357 | 58.40 | 39.35 | 0.1224 | 0.00 | 9.53 | 5.44 | Pure KA1 | | |
| 10 | 75.4761 | 1.25855 | 42.84 | 28.87 | 0.1224 | 0.00 | 6.99 | 3.95 | Pure KA1 | | |

| 6CF1H | 2theta | Luas Area | Fase |
|------------|--------|--------------------------------|-------------------------------------------------|
| | 13.56 | 10.57 | Ca ₂ Fe ₂ O ₅ |
| | 24.92 | 19.48 | Ca ₂ Fe ₂ O ₅ |
| | 32.92 | 24.22 | Ca ₂ Fe ₂ O ₅ |
| | 35.41 | 30.60 | Ca ₂ Fe ₉ O ₁₃ |
| | 40.98 | 9.11 | Ca ₂ Fe ₉ O ₁₃ |
| | 49.69 | 7.35 | Ca ₂ Fe ₂ O ₅ |
| | 53.89 | 21.70 | Ca ₂ Fe ₉ O ₁₃ |
| | 62.83 | 3.04 | CaFe ₅ O ₇ |
| | 64.00 | 9.53 | Fe ₂ O ₃ |
| 75.47 | 6.99 | Fe ₂ O ₃ | |
| Total Area | | 142.59 | |

$$\text{Perhitungan Persentase} = \frac{\sum \text{Luas Area Fase}}{\sum \text{Luas Area}} \times 100\%$$

- Persentase Ca₂Fe₂O₅ = $\frac{\sum \text{Ca}_2\text{Fe}_2\text{O}_5}{142.59} \times 100\% = \frac{61.62}{142.59} \times 100\% = 43.21\%$
- Persentase Ca₂Fe₉O₁₃ = $\frac{\sum \text{Ca}_2\text{Fe}_9\text{O}_{13}}{142.59} \times 100\% = \frac{61.41}{142.59} \times 100\% = 43.07\%$
- Persentase CaFe₅O₇ = $\frac{\sum \text{CaFe}_5\text{O}_7}{142.59} \times 100\% = \frac{3.04}{142.59} \times 100\% = 2.13\%$
- Persentase Fe₂O₃ = $\frac{\sum \text{Fe}_2\text{O}_3}{142.59} \times 100\% = \frac{16.52}{142.59} \times 100\% = 11.59\%$

3.2 Perhitungan Fase 6CF2H

Tabel 3.2 Perhitungan Fase 6CF2H dengan Software HSP

| Pattern List | Scan List | Peak List | Anchor Scan Data | Quantification | Object Inspector | | | | | |
|--------------|--------------|---------------|------------------|----------------|------------------|------------|------------------|--------------|----------|--|
| No. | Pos. [°2Th.] | d-spacing ... | Height [c... | Rel. Int. [... | FWHM Left ... | Area calc. | Area [cts**2T... | Backgr.[cts] | Derivati | |
| 1 | 13.9428 | 6.34652 | 8.37 | 5.74 | 0.4080 | 0.00 | 4.56 | 4.25 | Pure KA | |
| 2 | 24.4218 | 3.64190 | 28.36 | 19.44 | 0.4896 | 0.00 | 18.51 | 6.20 | Pure KA | |
| 3 | 33.1458 | 2.70057 | 145.90 | 100.00 | 0.4896 | 0.00 | 95.24 | 2.98 | Pure KA | |
| 4 | 35.4980 | 2.52683 | 122.12 | 83.70 | 0.4080 | 0.00 | 66.43 | 2.66 | Pure KA | |
| 5 | 40.7886 | 2.21046 | 37.55 | 25.73 | 0.4080 | 0.00 | 20.43 | 3.70 | Pure KA | |
| 6 | 49.4580 | 1.84138 | 65.79 | 45.10 | 0.4896 | 0.00 | 42.95 | 8.69 | Pure KA | |
| 7 | 53.8237 | 1.70187 | 69.38 | 47.55 | 0.3264 | 0.00 | 30.19 | 7.20 | Pure KA | |
| 8 | 62.3122 | 1.48887 | 54.18 | 37.13 | 0.4896 | 0.00 | 35.37 | 4.13 | Pure KA | |
| 9 | 63.9556 | 1.45452 | 57.36 | 39.32 | 0.4896 | 0.00 | 37.45 | 3.68 | Pure KA | |
| 10 | 76.0936 | 1.24987 | 92.00 | 63.05 | 0.0612 | 0.00 | 7.51 | 6.43 | Pure KA | |

| | 2theta | Luas Area | Fase |
|------------|--------|-----------|-------------------------------------------------|
| 6CF2H | 13.94 | 4.56 | Ca ₂ Fe ₂ O ₅ |
| | 24.42 | 18.51 | Ca ₂ Fe ₂ O ₅ |
| | 33.14 | 92.24 | Ca ₂ Fe ₂ O ₅ |
| | 35.49 | 66.43 | Ca ₂ Fe ₉ O ₁₃ |
| | 40.78 | 20.43 | Ca ₂ Fe ₉ O ₁₃ |
| | 49.45 | 42.95 | Ca ₂ Fe ₂ O ₅ |
| | 53.82 | 30.19 | Ca ₂ Fe ₉ O ₁₃ |
| | 62.31 | 35.37 | CaFe ₅ O ₇ |
| | 63.95 | 37.45 | Fe ₂ O ₃ |
| | 76.09 | 7.51 | Fe ₂ O ₃ |
| Total Area | | 355.64 | |

$$\text{Perhitungan Persentase} = \frac{\sum \text{Luas Area Fase}}{\sum \text{Luas Area}} \times 100\%$$

- Persentase Ca₂Fe₂O₅ = $\frac{\sum \text{Ca}_2\text{Fe}_2\text{O}_5}{355.64} \times 100\% = \frac{158.26}{355.64} \times 100\% = 44.50\%$
- Persentase Ca₂Fe₉O₁₃ = $\frac{\sum \text{Ca}_2\text{Fe}_9\text{O}_{13}}{355.64} \times 100\% = \frac{117.05}{355.64} \times 100\% = 39.21\%$
- Persentase CaFe₅O₇ = $\frac{\sum \text{CaFe}_5\text{O}_7}{355.64} \times 100\% = \frac{35.37}{355.64} \times 100\% = 9.95\%$
- Persentase Fe₂O₃ = $\frac{\sum \text{Fe}_2\text{O}_3}{355.64} \times 100\% = \frac{44.96}{355.64} \times 100\% = 12.64\%$

3.3 Perhitungan Fase 6CF3H

Tabel 3.3 Perhitungan Fase 6CF3H dengan Software HSP

| Pattern List | Scan List | Peak List | Anchor Scan Data | Quantification | Object Inspector | | | | |
|--------------|--------------|---------------|------------------|-----------------|------------------|------------|------------------|--------------|----------|
| No. | Pos. [°2Th.] | d-spacing ... | Height [c...] | Rel. Int. [...] | FWHM Left ... | Area calc. | Area [cts**2T... | Backgr.[cts] | Derivati |
| 1 | 13.2827 | 6.66039 | 19.87 | 13.95 | 0.4896 | 0.00 | 12.97 | 4.81 | Pure KA: |
| 2 | 24.0422 | 3.69852 | 20.80 | 14.60 | 0.6528 | 0.00 | 18.10 | 3.67 | Pure KA: |
| 3 | 33.0181 | 2.71073 | 142.39 | 100.00 | 0.4080 | 0.00 | 77.46 | 3.15 | Pure KA: |
| 4 | 35.4254 | 2.53184 | 112.50 | 79.01 | 0.2448 | 0.00 | 36.72 | 3.04 | Pure KA: |
| 5 | 40.1644 | 2.24336 | 10.36 | 7.28 | 0.0816 | 0.00 | 1.13 | 2.82 | Pure KA: |
| 6 | 49.2483 | 1.84873 | 77.34 | 54.31 | 0.2040 | 0.00 | 21.04 | 2.40 | Pure KA: |
| 7 | 53.8891 | 1.69996 | 74.82 | 52.54 | 0.3264 | 0.00 | 32.56 | 2.18 | Pure KA: |
| 8 | 62.3040 | 1.48905 | 58.09 | 40.80 | 0.2448 | 0.00 | 18.96 | 1.79 | Pure KA: |
| 9 | 63.9420 | 1.45479 | 78.92 | 55.42 | 0.2448 | 0.00 | 25.76 | 1.72 | Pure KA: |
| 10 | 75.4342 | 1.25915 | 41.43 | 29.10 | 0.0612 | 0.00 | 3.38 | 1.18 | Pure KA: |

| 6CF3H | 2theta | Luas Area | Fase |
|------------|--------|--------------------------------|-------------------------------------------------|
| | 13.28 | 12.97 | Ca ₂ Fe ₂ O ₅ |
| | 24.28 | 18.10 | Ca ₂ Fe ₂ O ₅ |
| | 33.11 | 77.46 | Ca ₂ Fe ₂ O ₅ |
| | 35.44 | 36.72 | Ca ₂ Fe ₉ O ₁₃ |
| | 40.74 | 1.13 | Ca ₂ Fe ₉ O ₁₃ |
| | 49.32 | 21.04 | Ca ₂ Fe ₂ O ₅ |
| | 53.91 | 32.56 | Ca ₂ Fe ₉ O ₁₃ |
| | 62.31 | 18.96 | CaFe ₅ O ₇ |
| | 63.94 | 25.76 | Fe ₂ O ₃ |
| 75.40 | 3.38 | Fe ₂ O ₃ | |
| Total Area | | 248.08 | |

$$\text{Perhitungan Persentase} = \frac{\sum \text{Luas Area Fase}}{\sum \text{Luas Area}} \times 100\%$$

- Persentase Ca₂Fe₂O₅ = $\frac{\sum \text{Ca}_2\text{Fe}_2\text{O}_5}{248.08} \times 100\% = \frac{129.57}{248.08} \times 100\% = 52.23\%$
- Persentase Ca₂Fe₉O₁₃ = $\frac{\sum \text{Ca}_2\text{Fe}_9\text{O}_{13}}{248.08} \times 100\% = \frac{70.41}{248.08} \times 100\% = 28.38\%$
- Persentase CaFe₅O₇ = $\frac{\sum \text{CaFe}_5\text{O}_7}{248.08} \times 100\% = \frac{18.96}{248.08} \times 100\% = 7.64\%$
- Persentase Fe₂O₃ = $\frac{\sum \text{Fe}_2\text{O}_3}{248.08} \times 100\% = \frac{29.14}{248.08} \times 100\% = 11.75\%$

3.4 Perhitungan Fase 12CF1H

Tabel 3.4 Perhitungan Fase 12CF1H dengan Software HSP

| Pattern List | | Scan List | Peak List | Anchor Scan Data | | Quantification | Object Inspector | | |
|--------------|--------------|---------------|---------------|------------------|---------------|----------------|------------------|--------------|--|
| No. | Pos. [°2Th.] | d-spacing ... | Height [c...] | Rel. Int. [...] | FWHM Left ... | Area calc. | Area [cts**2T... | Backgr.[cts] | |
| 1 | 24.0203 | 3.70185 | 124.29 | 19.38 | 0.1632 | 0.00 | 27.05 | 10.60 | |
| 2 | 33.0562 | 2.70769 | 641.44 | 100.00 | 0.1428 | 0.00 | 122.13 | 2.36 | |
| 3 | 35.5495 | 2.52329 | 558.56 | 87.08 | 0.1224 | 0.00 | 91.16 | 2.16 | |
| 4 | 40.7837 | 2.21072 | 181.80 | 28.34 | 0.1632 | 0.00 | 39.56 | 8.41 | |
| 5 | 49.3600 | 1.84481 | 289.29 | 45.10 | 0.1632 | 0.00 | 62.95 | 8.32 | |
| 6 | 53.9944 | 1.69689 | 322.14 | 50.22 | 0.2040 | 0.00 | 87.62 | 6.45 | |
| 7 | 56.3316 | 1.63190 | 30.89 | 4.82 | 0.1632 | 0.00 | 6.72 | 9.47 | |
| 8 | 62.3347 | 1.48839 | 238.36 | 37.16 | 0.1632 | 0.00 | 51.87 | 6.23 | |
| 9 | 63.9239 | 1.45516 | 240.10 | 37.43 | 0.1632 | 0.00 | 52.25 | 6.51 | |
| 10 | 71.8630 | 1.31267 | 118.90 | 18.54 | 0.1632 | 0.00 | 25.87 | 11.87 | |
| 11 | 88.4783 | 1.10413 | 48.60 | 7.58 | 0.2448 | 0.00 | 15.86 | 1.65 | |

| 12CF1H | 2theta | Luas Area | Fase |
|------------|---------|----------------------------------|-------------------------------------------------|
| | 24.0203 | 27.05 | Ca ₂ Fe ₂ O ₅ |
| | 33.0562 | 122.13 | Ca ₂ Fe ₂ O ₅ |
| | 35.5495 | 91.16 | Ca ₂ Fe ₉ O ₁₃ |
| | 40.7837 | 39.56 | Ca ₂ Fe ₂ O ₅ |
| | 49.3600 | 62.95 | Ca ₂ Fe ₉ O ₁₃ |
| | 53.9944 | 87.62 | Ca ₂ Fe ₂ O ₅ |
| | 56.3316 | 6.72 | CaFe ₅ O ₇ |
| | 62.3347 | 51.87 | Fe ₂ O ₃ |
| | 63.9239 | 52.25 | Fe ₂ O ₃ |
| | 71.8630 | 25.87 | CaFe ₅ O ₇ |
| 88.4783 | 15.86 | CaFe ₅ O ₇ | |
| Total Area | | 583.04 | |

$$\text{Perhitungan Persentase} = \frac{\sum \text{Luas Area Fase}}{\sum \text{Luas Area}} \times 100\%$$

- Persentase Ca₂Fe₂O₅ = $\frac{\sum \text{Ca}_2\text{Fe}_2\text{O}_5}{583.04} \times 100\% = \frac{276.36}{583.04} \times 100\% = 47.40\%$
- Persentase Ca₂Fe₉O₁₃ = $\frac{\sum \text{Ca}_2\text{Fe}_9\text{O}_{13}}{583.04} \times 100\% = \frac{154.11}{583.04} \times 100\% = 26.43\%$
- Persentase CaFe₅O₇ = $\frac{\sum \text{CaFe}_5\text{O}_7}{583.04} \times 100\% = \frac{48.45}{583.04} \times 100\% = 8.31\%$
- Persentase Fe₂O₃ = $\frac{\sum \text{Fe}_2\text{O}_3}{583.04} \times 100\% = \frac{104.12}{583.04} \times 100\% = 17.86\%$

3.5 Perhitungan Fase 12CF2H

Tabel 3.5 Perhitungan Fase 12CF2H dengan Software HSP

| No. | Pos. [°2Th.] | d-spacing ... | Height [c... | Rel. Int. [... | FWHM Left ... | Area calc. | Area [cts**2T... | Backgr.[cts] | Derivati... |
|-----|--------------|---------------|--------------|----------------|---------------|------------|------------------|--------------|-------------|
| 1 | 23.8304 | 3.73091 | 39.50 | 15.39 | 1.1424 | 0.00 | 60.17 | 2.35 | Pure KA1 |
| 2 | 33.0340 | 2.70946 | 256.62 | 100.00 | 0.4896 | 0.00 | 167.52 | 4.08 | Pure KA1 |
| 3 | 35.4847 | 2.52775 | 177.16 | 69.03 | 0.4080 | 0.00 | 96.37 | 5.01 | Pure KA1 |
| 4 | 40.7691 | 2.21147 | 82.38 | 32.10 | 0.4080 | 0.00 | 44.82 | 5.23 | Pure KA1 |
| 5 | 49.4734 | 1.84084 | 120.75 | 47.06 | 0.5712 | 0.00 | 91.97 | 4.01 | Pure KA1 |
| 6 | 53.9636 | 1.69779 | 140.59 | 54.78 | 0.1632 | 0.00 | 30.59 | 3.44 | Pure KA1 |
| 7 | 62.3211 | 1.48868 | 100.53 | 39.18 | 0.3264 | 0.00 | 43.75 | 2.44 | Pure KA1 |
| 8 | 63.8512 | 1.45664 | 103.65 | 40.39 | 0.4080 | 0.00 | 56.39 | 2.40 | Pure KA1 |
| 9 | 71.8397 | 1.31304 | 42.17 | 16.43 | 0.6528 | 0.00 | 36.70 | 2.31 | Pure KA1 |
| 10 | 84.8226 | 1.14212 | 19.58 | 7.63 | 0.4896 | 0.00 | 12.78 | 2.31 | Pure KA1 |
| 11 | 88.5602 | 1.10332 | 24.02 | 9.36 | 0.1224 | 0.00 | 3.92 | 2.31 | Pure KA1 |

| 12CF2H | 2theta | Luas Area | Fase |
|------------|---------|----------------------------------|-------------------------------------------------|
| | 23.8304 | 60.17 | Ca ₂ Fe ₂ O ₅ |
| | 33.0340 | 167.52 | Ca ₂ Fe ₂ O ₅ |
| | 35.4847 | 96.37 | Ca ₂ Fe ₉ O ₁₃ |
| | 40.7691 | 44.82 | Ca ₂ Fe ₂ O ₅ |
| | 49.4734 | 91.97 | Ca ₂ Fe ₉ O ₁₃ |
| | 53.9636 | 30.59 | Ca ₂ Fe ₂ O ₅ |
| | 62.3211 | 43.75 | CaFe ₅ O ₇ |
| | 63.8512 | 56.39 | Fe ₂ O ₃ |
| | 71.8397 | 36.70 | Fe ₂ O ₃ |
| | 84.8226 | 12.78 | CaFe ₅ O ₇ |
| 88.5602 | 3.92 | CaFe ₅ O ₇ | |
| Total Area | | 644.98 | |

$$\text{Perhitungan Persentase} = \frac{\sum \text{Luas Area Fase}}{\sum \text{Luas Area}} \times 100\%$$

- Persentase Ca₂Fe₂O₅ = $\frac{\sum \text{Ca}_2\text{Fe}_2\text{O}_5}{644.98} \times 100\% = \frac{303.1}{644.98} \times 100\% = 47.00\%$
- Persentase Ca₂Fe₉O₁₃ = $\frac{\sum \text{Ca}_2\text{Fe}_9\text{O}_{13}}{644.98} \times 100\% = \frac{188.34}{644.98} \times 100\% = 29.20\%$
- Persentase CaFe₅O₇ = $\frac{\sum \text{CaFe}_5\text{O}_7}{644.98} \times 100\% = \frac{60.45}{644.98} \times 100\% = 9.37\%$
- Persentase Fe₂O₃ = $\frac{\sum \text{Fe}_2\text{O}_3}{644.98} \times 100\% = \frac{93.09}{644.98} \times 100\% = 14.43\%$

3.6 Perhitungan Fase 12CF3H

Tabel 3.6 Perhitungan Fase 12CF3H dengan Software HSP

| Pattern List | | Scan List | | Peak List | | Anchor Scan Data | | Quantification | | Object Inspector | |
|--------------|--------------|---------------|---------------|-----------------|---------------|------------------|------------------|----------------|-----------|------------------|--|
| No. | Pos. [°2Th.] | d-spacing ... | Height [c...] | Rel. Int. [...] | FWHM Left ... | Area calc. | Area [cts*°2T... | Backgr.[cts] | Derivati. | | |
| 1 | 24.0066 | 3.70393 | 154.08 | 33.38 | 0.2040 | 0.00 | 41.91 | 8.43 | Pure KA1 | | |
| 2 | 32.9733 | 2.71431 | 461.54 | 100.00 | 0.1224 | 0.00 | 75.32 | 9.48 | Pure KA1 | | |
| 3 | 35.4507 | 2.53009 | 430.50 | 93.28 | 0.1224 | 0.00 | 70.26 | 8.38 | Pure KA1 | | |
| 4 | 40.7331 | 2.21334 | 99.17 | 21.49 | 0.2448 | 0.00 | 32.37 | 6.86 | Pure KA1 | | |
| 5 | 49.2998 | 1.84692 | 240.84 | 52.18 | 0.1632 | 0.00 | 52.41 | 5.05 | Pure KA1 | | |
| 6 | 53.8883 | 1.69998 | 243.02 | 52.65 | 0.1224 | 0.00 | 39.66 | 3.72 | Pure KA1 | | |
| 7 | 62.2960 | 1.48922 | 141.93 | 30.75 | 0.1632 | 0.00 | 30.88 | 4.72 | Pure KA1 | | |
| 8 | 63.8406 | 1.45686 | 186.94 | 40.50 | 0.2040 | 0.00 | 50.85 | 6.07 | Pure KA1 | | |
| 9 | 71.7759 | 1.31405 | 48.22 | 10.45 | 0.3264 | 0.00 | 20.98 | 2.58 | Pure KA1 | | |
| 10 | 84.6757 | 1.14372 | 24.22 | 5.25 | 0.4080 | 0.00 | 13.17 | 6.62 | Pure KA1 | | |
| 11 | 88.4803 | 1.10411 | 38.76 | 8.40 | 0.2856 | 0.00 | 14.76 | 6.56 | Pure KA1 | | |

| 12CF3H | 2theta | Luas Area | Fase |
|------------|---------|----------------------------------|-------------------------------------------------|
| | 24.0066 | 41.91 | Ca ₂ Fe ₂ O ₅ |
| | 32.9733 | 75.32 | Ca ₂ Fe ₂ O ₅ |
| | 35.4507 | 70.26 | Ca ₂ Fe ₉ O ₁₃ |
| | 40.7331 | 32.37 | Ca ₂ Fe ₂ O ₅ |
| | 49.2998 | 52.41 | Ca ₂ Fe ₉ O ₁₃ |
| | 53.8883 | 39.66 | Ca ₂ Fe ₂ O ₅ |
| | 62.2960 | 30.88 | CaFe ₅ O ₇ |
| | 63.8406 | 50.85 | Fe ₂ O ₃ |
| | 71.7759 | 20.98 | Fe ₂ O ₃ |
| | 84.6757 | 13.17 | CaFe ₅ O ₇ |
| 88.4803 | 14.76 | CaFe ₅ O ₇ | |
| Total Area | | 442.57 | |

$$\text{Perhitungan Persentase} = \frac{\sum \text{Luas Area Fase}}{\sum \text{Luas Area}} \times 100\%$$

- Persentase Ca₂Fe₂O₅ = $\frac{\sum \text{Ca}_2\text{Fe}_2\text{O}_5}{442.57} \times 100\% = \frac{189.26}{442.57} \times 100\% = 42.76\%$
- Persentase Ca₂Fe₉O₁₃ = $\frac{\sum \text{Ca}_2\text{Fe}_9\text{O}_{13}}{442.57} \times 100\% = \frac{122.67}{442.57} \times 100\% = 27.71\%$
- Persentase CaFe₅O₇ = $\frac{\sum \text{CaFe}_5\text{O}_7}{442.57} \times 100\% = \frac{58.81}{442.57} \times 100\% = 13.30\%$
- Persentase Fe₂O₃ = $\frac{\sum \text{Fe}_2\text{O}_3}{442.57} \times 100\% = \frac{71.83}{442.57} \times 100\% = 16.23\%$

4. Dokumentasi

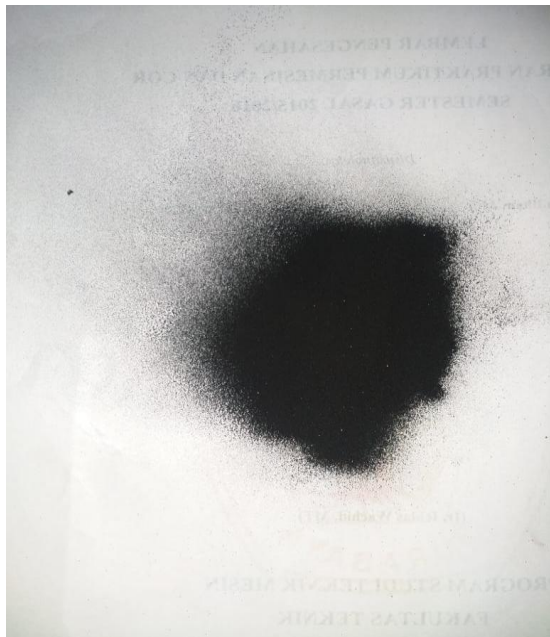
4.1 Proses Mengayak



4.2 Proses Sintesis Fe_2O_3









4.3 Proses Sintesis CaCO_3





4.4 Proses Sintesis Kalsium Ferit





4.5 Proses Pengujian XRD



HALAMAN INI SENGAJA DIKOSONGKAN