DAFTAR PUSTAKA

Alderton D,. & Elias, S. 2020 . "*Encyclopedia of Geology"*. Academic Press. Pages.520-531

Ali Hemmati,.2019. "*The effect of mineralogy and textural characteristics on the strength of crystalline igneous rocks using image-based textural quantification"*. Engineering Geology. 266 (2020) 105467.

Askin. A. 2019. "*Gamma and neutron shielding characterizations of the Ag_2O-V_2O_5-M_0O_3-TeO_2 quaternary tellurite glass system with the Geant4 simulation toolkit and phy-X software'*. Ceramics International, Volume 11. page. 062.

Bronto, Sutikno. 2006. "Fasies Gunung api dan Aplikasinya". Indonesian Journal on Geoscience Geological Ageny Ministry of Energy and Mineral Resource, Vol 1 No 2.

Ceyda, B. dan Safak, B. (2019). Application of Fourier Transform Infrared (FTIR) Spectroscopy to Analysis of Clays. Nevşehir Bilim ve Teknoloji Dergisi, Nevşehir Bilim ve Teknoloji Dergisi, (8)1, 37-46.

Gordon, R. O, and Romano, O, A. 2018. "*Igneous rocks formed by hypervelocity impact"*. Journal of Volcanology and Geothermal Research. Volume 353, 15 March 2018, Pages 25-54

Heryanto, Abdullah, Bualkar, Tahir, Dahlang. 2018. "*Determination of Binding EnergyFor Cu and Cu2o Based X-Ray Diffraction Spectrum"*. IOP Conf. Series: Journal of Physics: Conf. Series 979 (2018) 012055

Koesoemadinata, R.P. 1981. "Prinsip-prinsip Sedimentasi", Bandung : Digilib ITB.

Kong, D, Xiao Y, Wu, S. Tang, N. Ling, J. Wang, F. 2017. *Komparative evaluation of designing asphalt treated base mixture with composite aggregate types* . Contruction and Building Materials, Wuhan, 430074, China

ne E, Sayyed M. I, Sidek H. A. A, Matori K. A, Zaid M. H. M. 2020. *Effect of bismuth and lithium substitution on radiation shielding properties of zinc borate glass system using Phy-X/PSD simulation.* Results in Physics cs 20, 103768

Leeuwen, T. v. Steve, A. Arasin., 2007. "*Petrologic, isotopic, and radiometric age constraints on the origin and tectonic history of the Malino Metamorphic Complex, NW Sulawes*i". Indonesia. Journal of Asian Earth Sciences, Volume 29, page. 751-777.

Lujan, M.J dan Ary, T.S. 2014. "*Crystalline Silica Primer"*, Branch of Industrial Minera : U.S

Massinai, M.,A., Syam, M.,R., dan Massinai, M.,F.,I. 2022. "*Characterictics of Rock Minerals of the Camba Formation". Advances in Physics Research*, 5, 95.

Massinai, M.,A., Bundang, S., Ismullah, M,.F.,I. dan Hidayat, W. 2019. "Tipologi Sistem Akuifer Endapan Gunungapi". Jurnal Geomine. 7(2).

Merwade V.M, Maidment D.R, dan J.A. Golff, 2006. *"Anisotropic Considerstion While Interpolating River Channel Bathymetry"*, Journal of Hydrology,Vol.331 page.731-747

Meutter J. D. and Goormaghtigh E. 2021 "*Evaluation of protein secondary structure from FTIR spectra improved after partial deuteration*" European Biophysics Journal 10, 1007

Pambudi, M.A.R., Suprapto, S.Si, M.Sc. 2018. Penentuan Kadar Tembaga(Cu) dalam Sampel Batuan Mineral. Jurnal Sains dan Seni, 7(2), 2337-3520.

Patel, C. M., Patel, C. D., Rami, J. M., Patel, K. R. 2020. *Optical Spectroscopic Study of Natural Rock's Minerals.* Belanda: Elsevier.

Skoog, D.A., Holler, F.J. dan Crouch, S.R. 2016. *Principles of Instrumental Analysis 7th Edition*. Boston: Cengange Learning.

Smith, B.C. 2011. *Fundamental of Fourier Transform Infrared Spectroscopy*. Florida : CRC Press.

Sukamto, R., 1982. "Peta Geologi Lembar Pangkajene dan Watampone bagian Barat". Sulawesi Selatan 1:250.000. Bandung: Pusat Penelitian dan Pengembangan Geolog.

Sumaryono, Triyana, Y.D. (2011). "Simulasi Aliran Bahan Rombakan Di Gunung Bawakaraeng". Sulawesi Selatan. *Jurnal Lingkungan Dan Bencana Geologi*, 2(3), 192-202.

i, S., dan Silviana, S., 2020. "*Synthesis and Characterization ofSiO2/ZnO from Zinc Waste and Mount Merapi Volcanic Ash". Jurnal Kimia Sains Dan Aplikasi*, *23*(10),365–369.

Suseno, J. E. dan Firdausi, K. S. 2008. Rancang Bangun Spektroskopi FTIR *(Fourier Transform Infrared)* untuk Penentuan Kualitas Susu Sapi. *Jurnal Berkala Fisika*, 11(1), 23-28.

Watson, D.F. dan Philip G.M., 1985. "*A Refinement of Inverse Distance Weighted Interpolation. Geoprocessing"*, Volume 2 page.315-327

Yin, Y., Yin, J., Zhang, W., Tian, H., Hu, Z., Ruan, M., Xu, H., Liu, L., Yan, X., Chen, D. 2018. *FT-IR and micro-Raman spectroscopic characterization of minerals in high-calcium coal ashes, Journal of The Energi Institute*, (91)1, 389-396.

Yunitasari Handini Devi, Jhonatan, S. *"Evaluasi Metode Penentuan Half Value Layer (HVL) Menggunakan Multi Purpose Detector (MPD) Barracuda Pada Pesawat Sinar-X Mobile"*. Youngster Physics Journal, hal 113-118, 2014.

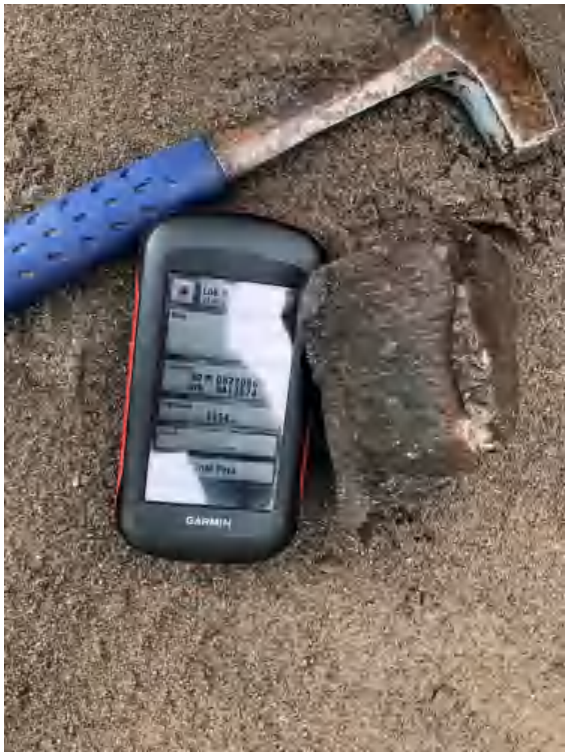
Zhao, Q, H, and Rewes, R, R., 2020. "*Heating characteristics of igneous rock-forming minerals under microwave irradiation*", International Journal of Rock Mechanics and Mining Sciences. 135 (2020) 104519.

LAMPIRAN

1. Sampel BT 1

2. Sampel BT 2

3. Sampel BT 3

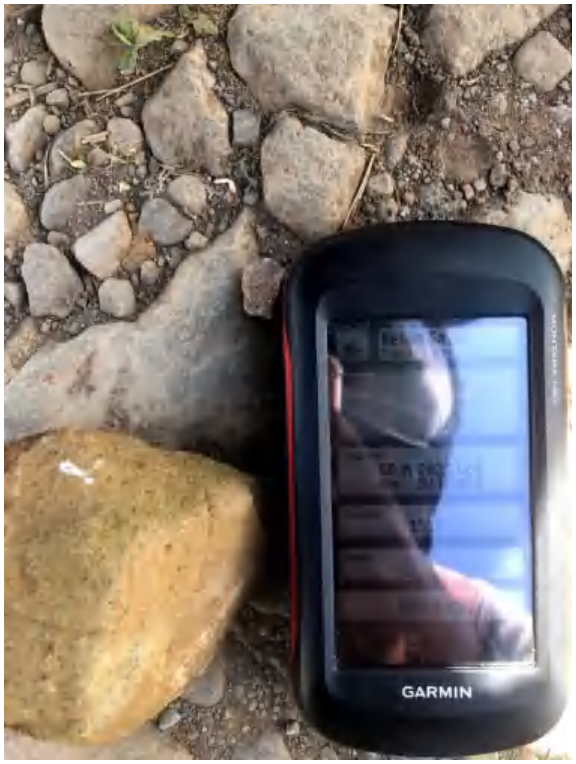


4. Sampel BT 4

5. Sampel BT 5

6. Sampel Jembatan Merah

7. Sampel Kebun Lembanna



8. Sampel POS 1.1 BWK

9. Sampel POS 1 BWK

10. Sampel Takapala

11. Sampel Jalan Lembanna

Lampiran Metode XRD

Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_1 UNHAS.raw
File path	E:/TA Mineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	10.080° - 90.080°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	0.08°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	58.4	Albite	Al Na O8 Si3
B	16.1	Wollastonite	Ca O3 Si
C	11.7	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
D	10.7	Quartz	O2 Si
E	3.1	Hematite	Fe2 O3
	8.1	*Unidentified peak area*	

A: Albite (58.4 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-2200
Figure-of-Merit (FoM)	0.858502
Total number of peaks	250
Peaks in range	250
Peaks matched	172
Intensity scale factor	0.60
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1400 Å b= 12.7910 Å c= 7.1320 Å α= 93.940° β= 116.540 ° γ= 88.460 °
I/Icor	0.83
Calc. density	2.628 g/cm³
Reference	Meneghinello E., Alberti A., Cruciani G., "Order-disorder process in the tetrahedral sites af albite Sample: 1070-7d Note: this sample of feldspar is from Stintino, Sardinia, Italy", American Mineralogist **84**, 1144-1151 (1999)

B: Wollastonite (16.1 %)

Formula sum	Ca O3 Si
Entry number	96-900-5778
Figure-of-Merit (FoM)	0.805099
Total number of peaks	498
Peaks in range	498
Peaks matched	280
Intensity scale factor	0.19
Space group	P -1
Crystal system	triclinic (anorthic)
Unit cell	a= 7.9258 Å b= 7.3202 Å c= 7.0653 Å α= 90.055° β= 95.217 ° γ= 103.426 °
I/Icor	0.94
Calc. density	2.915 g/cm³
Reference	Ohashi Y, "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO1T", Physics and Chemistry of Minerals **10**, 217-229 (1984)

C: Epidote (11.7 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.764515
Total number of peaks	500
Peaks in range	418
Peaks matched	249
Intensity scale factor	0.13
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

D: Quartz (10.7 %)

Formula sum	O2 Si
Entry number	96-901-2605
Figure-of-Merit (FoM)	0.797303
Total number of peaks	31
Peaks in range	25
Peaks matched	22
Intensity scale factor	0.48
Space group	P 31 2 1
	trigonal (hexagonal axes)
	a= 4.5940 Å c= 5.2000 Å
	3.63
	3.149 g/cm³
	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 9.5 GPa", Solid State Communications **72**, 507-511 (1989)

E: Hematite (3.1 %)

Formula sum	Fe2 O3
Entry number	96-901-6458
Figure-of-Merit (FoM)	0.748769
Total number of peaks	34
Peaks in range	29
Peaks matched	22
Intensity scale factor	0.15
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0066 Å c= 13.6411 Å
I/Icor	4.00
Calc. density	5.373 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 43.9 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

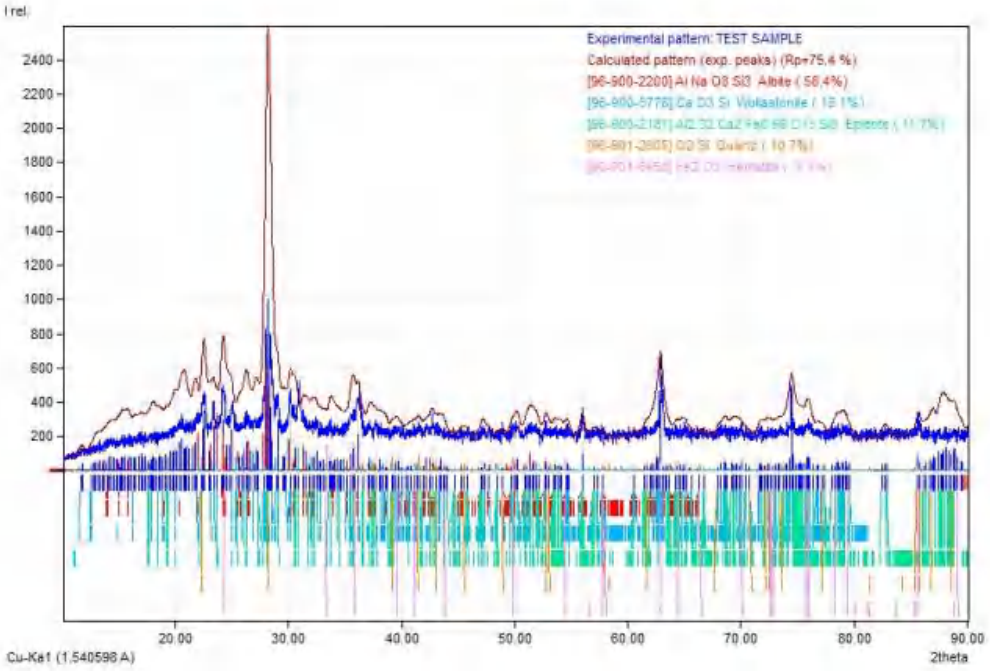
Settings

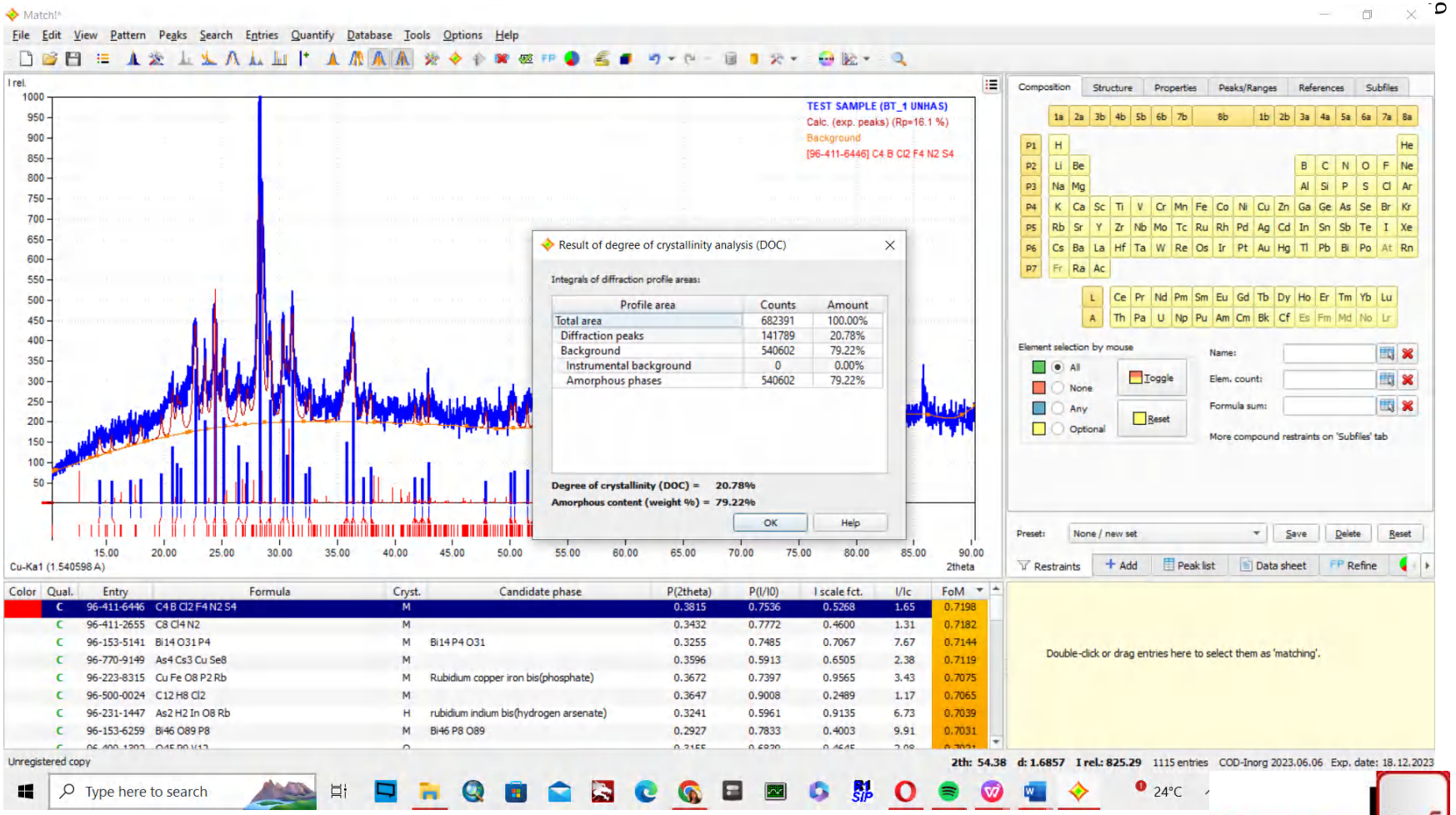
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that must be present:	O, Na, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above




Match!
File Edit View Pattern Peaks Search Entries Quantify Database Tools Options Help
I rel.
TEST SAMPLE (BT_1 UNHAS)
Calc. (exp. peaks) (Rp=16.1 %)
Background
[96-411-6446] C4 B Cl2 F4 N2 S4
Cu-Ka1 (1.540598 A)
2theta
Result of degree of crystallinity analysis (DOC)
Integrals of diffraction profile areas:
Profile area | Counts | Amount
Total area | 682391 | 100.00%
Diffraction peaks | 141789 | 20.78%
Background | 540602 | 79.22%
Instrumental background | 0 | 0.00%
Amorphous phases | 540602 | 79.22%
Degree of crystallinity (DOC) = 20.78%
Amorphous content (weight %) = 79.22%
OK
Help
Composition
Structure
Properties
Peaks/Ranges
References
Subfiles
Element selection by mouse
All
None
Any
Optional
Toggle
Reset
Name:
Elem. count:
Formula sum:
More compound restraints on 'Subfiles' tab
Preset:
None / new set
Save
Delete
Reset
Restraints
Add
Peak list
Data sheet
Refine
Color | Qual. | Entry | Formula | Cryst. | Candidate phase | P(2theta) | P(I/I0) | I scale fct. | I/Ic | FoM
C | 96-411-6446 | C4 B Cl2 F4 N2 S4 | M | | 0.3815 | 0.7536 | 0.5268 | 1.65 | 0.7198
C | 96-411-2655 | C8 Cl4 N2 | M | | 0.3432 | 0.7772 | 0.4600 | 1.31 | 0.7182
C | 96-153-5141 | Bi14 O31 P4 | M | Bi14 P4 O31 | 0.3255 | 0.7485 | 0.7067 | 7.67 | 0.7144
C | 96-770-9149 | As4 Cs3 Cu Se8 | M | | 0.3596 | 0.5913 | 0.6505 | 2.38 | 0.7119
C | 96-223-8315 | Cu Fe O8 P2 Rb | M | Rubidium copper iron bis(phosphate) | 0.3672 | 0.7397 | 0.9565 | 3.43 | 0.7075
C | 96-500-0024 | C12 H8 Cl2 | M | | 0.3647 | 0.9008 | 0.2489 | 1.17 | 0.7065
C | 96-231-1447 | As2 H2 In O8 Rb | H | rubidium indium bis(hydrogen arsenate) | 0.3241 | 0.5961 | 0.9135 | 6.73 | 0.7039
C | 96-153-6259 | Bi46 O89 P8 | M | Bi46 P8 O89 | 0.2927 | 0.7833 | 0.4003 | 9.91 | 0.7031
Double-click or drag entries here to select them as 'matching'.
Unregistered copy
2th: 54.38 d: 1.6857 I rel.: 825.29 1115 entries COD-Inorg 2023.06.06 Exp. date: 18.12.2023
Type here to search
24°C
Optimized using
trial version
www.balesio.com

Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_2 UNHAS.raw
File path	E:/TA Mineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	9.920° - 89.920°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	-0.08°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	57.4	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
B	25.0	Albite	Al Na O8 Si3
C	7.6	Wollastonite	Ca O3 Si
D	6.1	Quartz	O2 Si
E	3.9	Hematite	Fe2 O3
	14.1	*Unidentified peak area*	

A: Epidote (57.4 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.879350
Total number of peaks	500
Peaks in range	390
Peaks matched	121
Intensity scale factor	0.31
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

B: Albite (25.0 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0530
Figure-of-Merit (FoM)	0.732121
Total number of peaks	252
Peaks in range	252
Peaks matched	96
Intensity scale factor	0.11
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.2508 Å b= 12.9489 Å c= 7.1431 Å α= 91.161° β= 116.169 ° γ= 90.030 °
I/Icor	0.73
Calc. density	2.544 g/cm³
Reference	Prewitt C. T., Sueno S., Papike J. J., "The crystal structures of high albite and monalbite at high temperatures T = 950 deg C feldspar", American Mineralogist **61**, 1213-1225 (1976)

C: Wollastonite (7.6 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.663419
Total number of peaks	488
Peaks in range	488
Peaks matched	108
Intensity scale factor	0.09
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89
Calc. density	2.911 g/cm³
Reference	Ohashi Y., "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO2M", Physics and Chemistry of Minerals **10**, 217-229 (1984)

D: Quartz (6.1 %)

Formula sum	O2 Si
Entry number	96-901-2602
Figure-of-Merit (FoM)	0.724389
Total number of peaks	34
Peaks in range	27
Peaks matched	10
Intensity scale factor	0.16
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.8120 Å c= 5.3270 Å
I/Icor	4.38
	2.802 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 2.0 Gpa", Solid State Communications **72**, 507-511 (1989)

E: Hematite (3.9 %)

Formula sum	Fe2 O3
Entry number	96-901-2693
Figure-of-Merit (FoM)	0.615770
Total number of peaks	192
Peaks in range	145
Peaks matched	47
Intensity scale factor	0.09
Space group	P 43 21 2
Crystal system	tetragonal
Unit cell	a= 8.3396 Å c= 8.3220 Å
I/Icor	3.86
Calc. density	4.886 g/cm³
Reference	Greaves C., "A powder neutron diffraction investigation of vacancy ordering and covalence in gamma-Fe2O3 Locality: synthetic Sample: T = 4 K", Journal of Solid State Chemistry **49**, 325-333 (1983)

Search-Match

Settings

Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

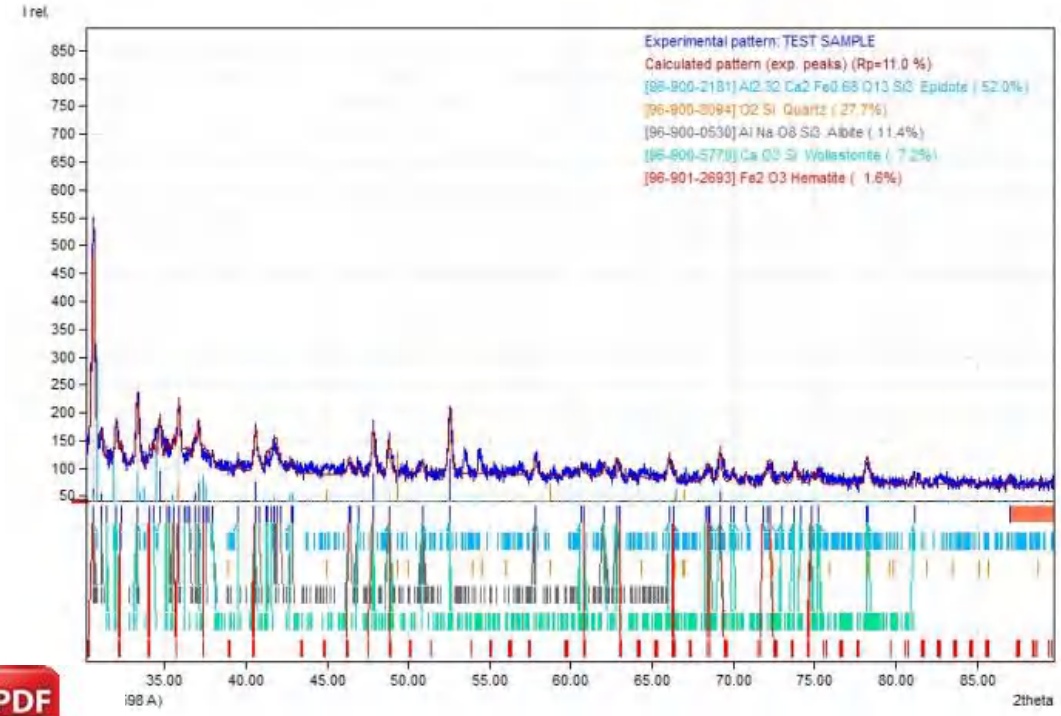
Selection Criteria

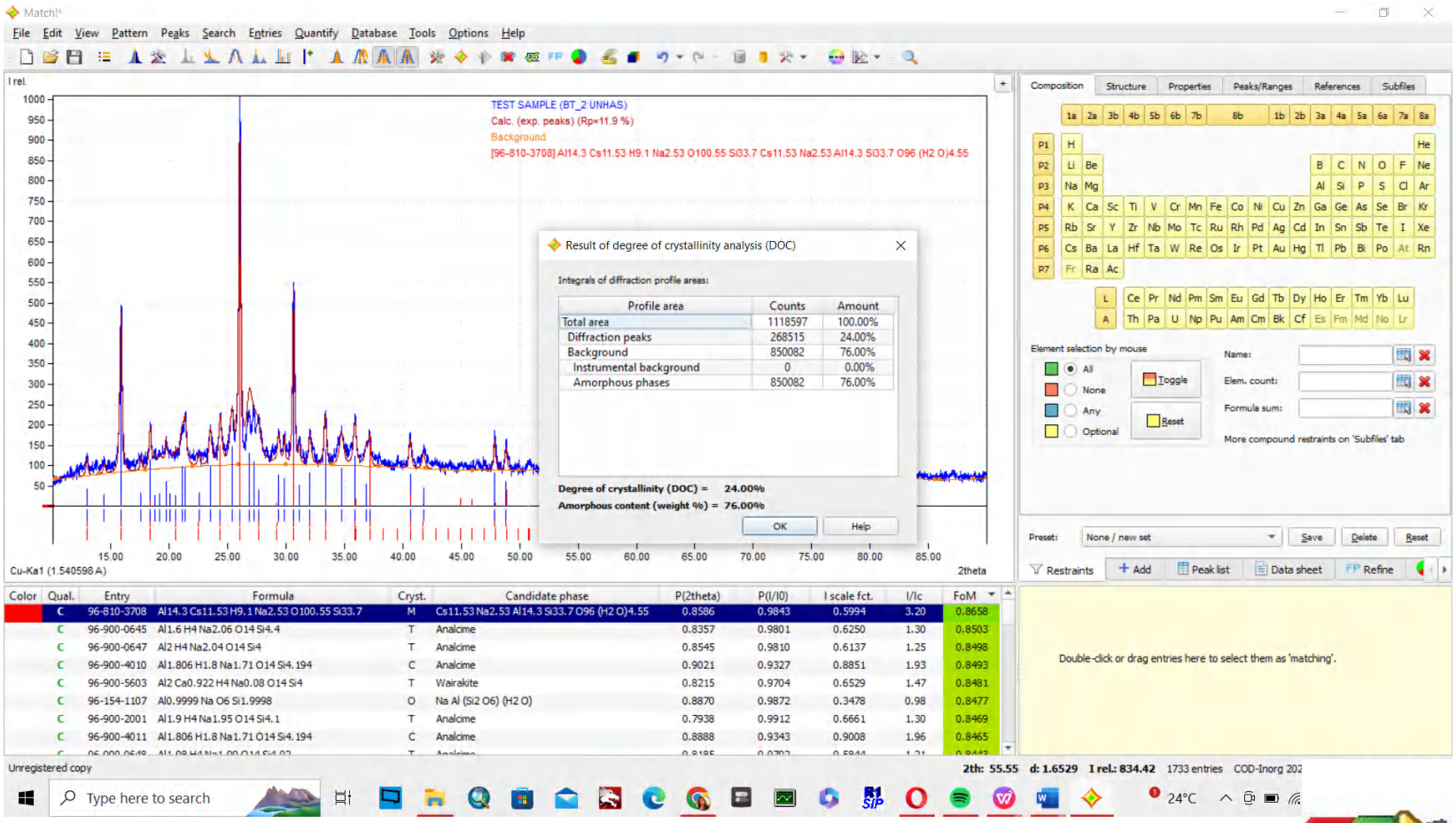
Elements:

Elements that must be present:	O, Na, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics

Calc. density	2.802 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 2.0 Gpa", Solid State Communications **72**, 507-511 (1989)





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_3 UNHAS.raw
File path	E:/TAMineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	9.970° - 89.970°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	-0.03°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	68.4	Albite	Al Na O8 Si3
B	21.4	Gobbinsite	Al3 Ca0.3 H12 K1.125 Na1.3 O21.325 Si5
C	7.6	Quartz	O2 Si
D	2.7	Hematite	Fe2 O3
	2.9	*Unidentified peak area*	

A: Albite (68.4 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0529
Figure-of-Merit (FoM)	0.851650
Total number of peaks	251
Peaks in range	251
Peaks matched	168
Intensity scale factor	0.67
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.2296 Å b= 12.9336 Å c= 7.1357 Å α= 91.956° β= 116.232 ° γ= 90.078 °
I/Icor	0.74
Calc. density	2.556 g/cm³
Reference	Prewitt C. T., Sueno S., Papike J. J., "The crystal structures of high albite and monalbite at high temperatures T = 750 deg C feldspar", American Mineralogist **61**, 1213-1225 (1976)

B: Epidote (24.4 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.711783
Total number of peaks	500
Peaks in range	380
Peaks matched	179
Intensity scale factor	0.23
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

C: Quartz (8.5 %)

Formula sum	O2 Si
Entry number	96-901-2603
Figure-of-Merit (FoM)	0.794242
Total number of peaks	32
Peaks in range	25
Peaks matched	14
Intensity scale factor	0.36
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7050 Å c= 5.2500 Å
I/Icor	3.93
Calc. density	2.974 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 5.1 GPa", Solid State Communications **72**, 507-511 (1989)

D: Wollastonite (5.7 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.719627
Total number of peaks	488
Peaks in range	488
Peaks matched	159
Intensity scale factor	0.12
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °

E: Hematite (2.1 %)

Formula sum	Fe2 O3
Entry number	96-901-6458
Figure-of-Merit (FoM)	0.733390
Total number of peaks	34
Peaks in range	27
Peaks matched	14
Intensity scale factor	0.09
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0066 Å c= 13.6411 Å
I/Icor	4.00
Calc. density	5.373 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 43.9 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

Settings

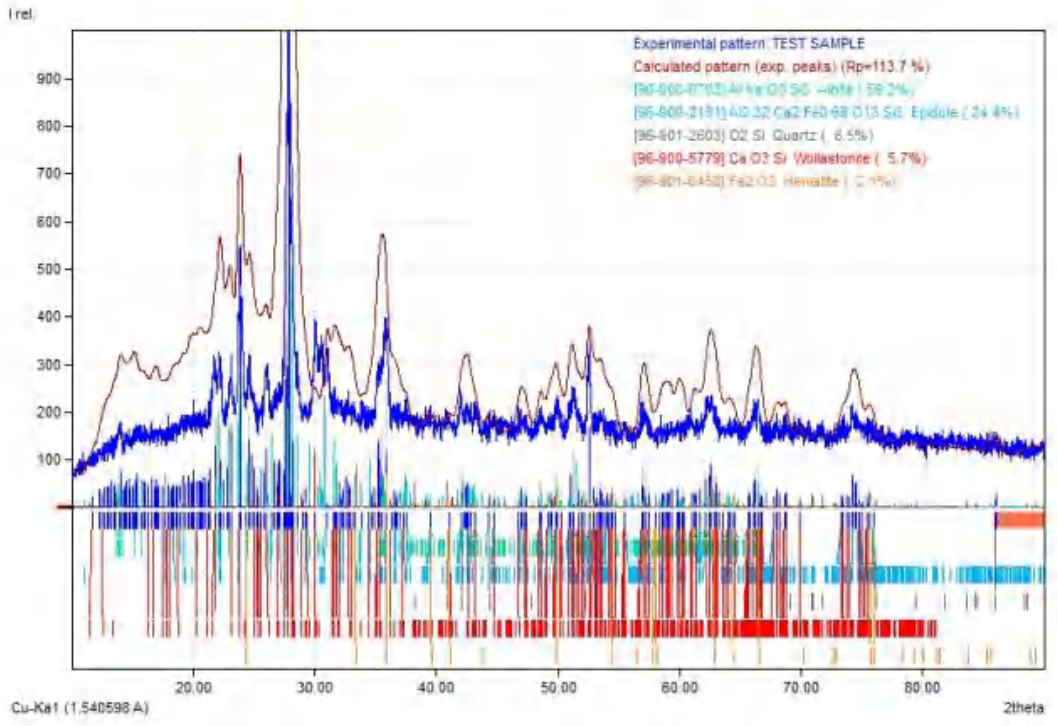
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

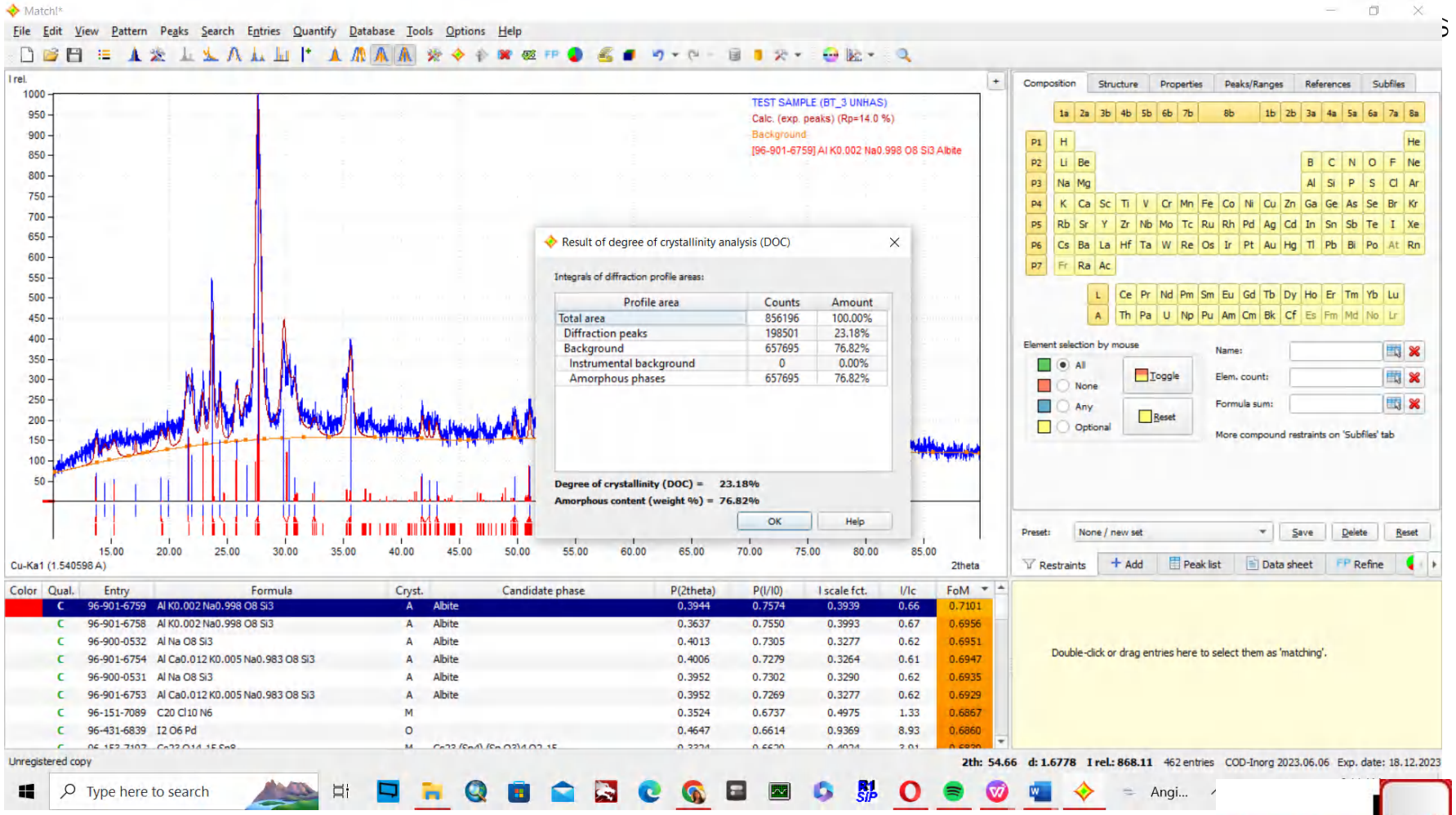
Selection Criteria

Elements:

Elements that must be present:	O, Na, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics




Match!*
File Edit View Pattern Peaks Search Entries Quantify Database Tools Options Help
I rel.
TEST SAMPLE (BT_3 UNHAS)
Calc. (exp. peaks) (Rp=14.0 %)
Background
[96-901-6759] Al K0.002 Na0.998 O8 Si3 Albite
Cu-Ka1 (1.540598 A)
2theta
Result of degree of crystallinity analysis (DOC)
Integrals of diffraction profile areas:
Profile area | Counts | Amount
Total area | 856196 | 100.00%
Diffraction peaks | 198501 | 23.18%
Background | 657695 | 76.82%
Instrumental background | 0 | 0.00%
Amorphous phases | 657695 | 76.82%
Degree of crystallinity (DOC) = 23.18%
Amorphous content (weight %) = 76.82%
OK
Help
Composition
Structure
Properties
Peaks/Ranges
References
Subfiles
Element selection by mouse
All
None
Any
Optional
Toggle
Reset
Name:
Elem. count:
Formula sum:
More compound restraints on 'Subfiles' tab
Preset:
None / new set
Save
Delete
Reset
Restraints
Add
Peak list
Data sheet
Refine
Color | Qual. | Entry | Formula | Cryst. | Candidate phase | P(2theta) | P(I/I0) | I scale fct. | I/Ic | FoM
C | 96-901-6759 | Al K0.002 Na0.998 O8 Si3 | A | Albite | 0.3944 | 0.7574 | 0.3939 | 0.66 | 0.7101
C | 96-901-6758 | Al K0.002 Na0.998 O8 Si3 | A | Albite | 0.3637 | 0.7550 | 0.3993 | 0.67 | 0.6956
C | 96-900-0532 | Al Na O8 Si3 | A | Albite | 0.4013 | 0.7305 | 0.3277 | 0.62 | 0.6951
C | 96-901-6754 | Al Ca0.012 K0.005 Na0.983 O8 Si3 | A | Albite | 0.4006 | 0.7279 | 0.3264 | 0.61 | 0.6947
C | 96-900-0531 | Al Na O8 Si3 | A | Albite | 0.3952 | 0.7302 | 0.3290 | 0.62 | 0.6935
C | 96-901-6753 | Al Ca0.012 K0.005 Na0.983 O8 Si3 | A | Albite | 0.3952 | 0.7269 | 0.3277 | 0.62 | 0.6929
C | 96-151-7089 | C20 Cl10 N6 | M | | 0.3524 | 0.6737 | 0.4975 | 1.33 | 0.6867
C | 96-431-6839 | I2 O6 Pd | O | | 0.4647 | 0.6614 | 0.9369 | 8.93 | 0.6860
Double-click or drag entries here to select them as 'matching'.
Unregistered copy
2th: 54.66 d: 1.6778 I rel.: 868.11 462 entries COD-Inorg 2023.06.06 Exp. date: 18.12.2023
Type here to search
Optimized using
trial version
www.balesio.com

Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_4 UNHAS.raw
File path	E:/TA Mineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	9.960° - 89.960°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	-0.04°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	66.5	Albite	Al Na O8 Si3
B	10.8	Quartz	O2 Si
C	10.4	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
D	9.0	Wollastonite	Ca O3 Si
E	3.2	Hematite	Fe2 O3
	3.1	*Unidentified peak area*	

A: Albite (66.5 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0529
Figure-of-Merit (FoM)	0.865669
Total number of peaks	251
Peaks in range	251
Peaks matched	165
Intensity scale factor	0.63
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.2296 Å b= 12.9336 Å c= 7.1357 Å α= 91.956° β= 116.232 ° γ= 90.078 °
I/Icor	0.74
Calc. density	2.556 g/cm³
Reference	Prewitt C. T., Sueno S., Papike J. J., "The crystal structures of high albite and monalbite at high temperatures T = 750 deg C feldspar", American Mineralogist **61**, 1213-1225 (1976)

B: Quartz (10.8 %)

Formula sum	O2 Si
Entry number	96-901-2603
Figure-of-Merit (FoM)	0.777021
Total number of peaks	32
Peaks in range	25
Peaks matched	12
Intensity scale factor	0.54
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7050 Å c= 5.2500 Å
I/Icor	3.93
Calc. density	2.974 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 5.1 GPa", Solid State Communications **72**, 507-511 (1989)

C: Epidote (10.4 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.637691
Total number of peaks	500
Peaks in range	405
Peaks matched	181
Intensity scale factor	0.12
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

D: Wollastonite (9.0 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.741167
Total number of peaks	488
Peaks in range	488
Peaks matched	151
Intensity scale factor	0.22
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
	1.89

E: Hematite (3.2 %)

Formula sum	Fe2 O3
Entry number	96-400-2384
Figure-of-Merit (FoM)	0.708856
Total number of peaks	233
Peaks in range	177
Peaks matched	80
Intensity scale factor	0.12
Space group	P n a 21
Crystal system	orthorhombic
Unit cell	a= 5.0850 Å b= 8.7740 Å c= 9.4680 Å
I/Icor	2.99
Calc. density	5.022 g/cm³
Reference	Gich M., Frontera C., Ritter C., Roig A., Nogues J., Taboada E., Molins E., Macedo W.A.A., Ardisson J.D., Hardy V., Rechenberg H.R., Sort J., Skumryev V., "High- and low-temperature crystal and magnetic structure of epsilon-Fe2 O3 and their correlation to its magnetic properties", Chemistry of Materials (1,1989-) **18**, 3889-3897 (2007)

Search-Match

Settings

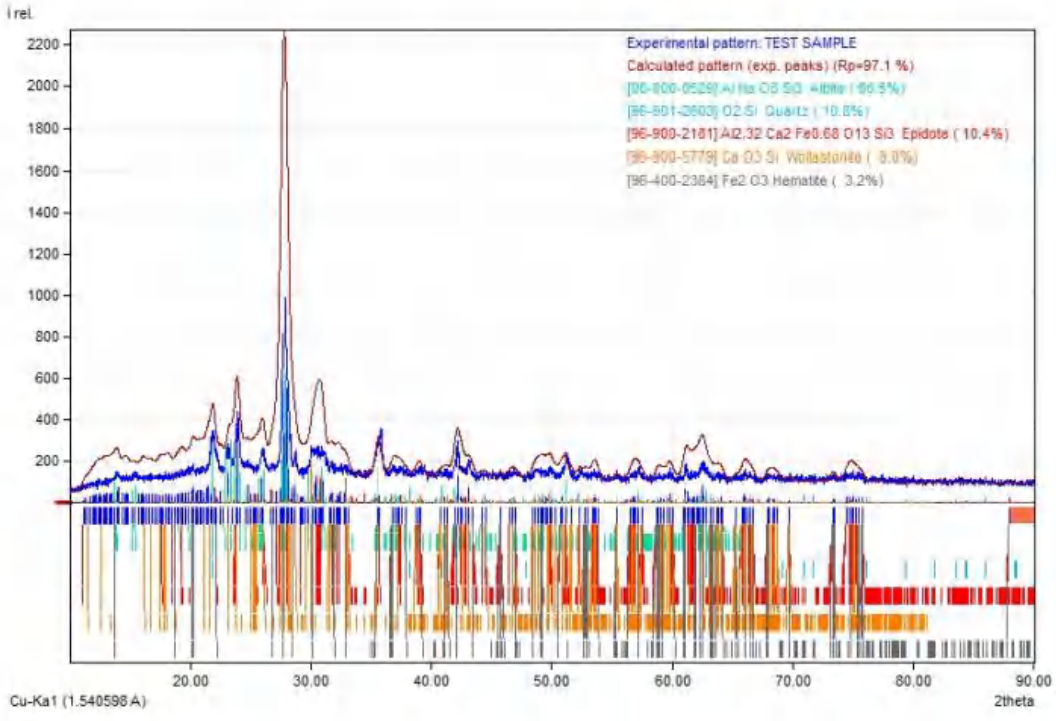
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

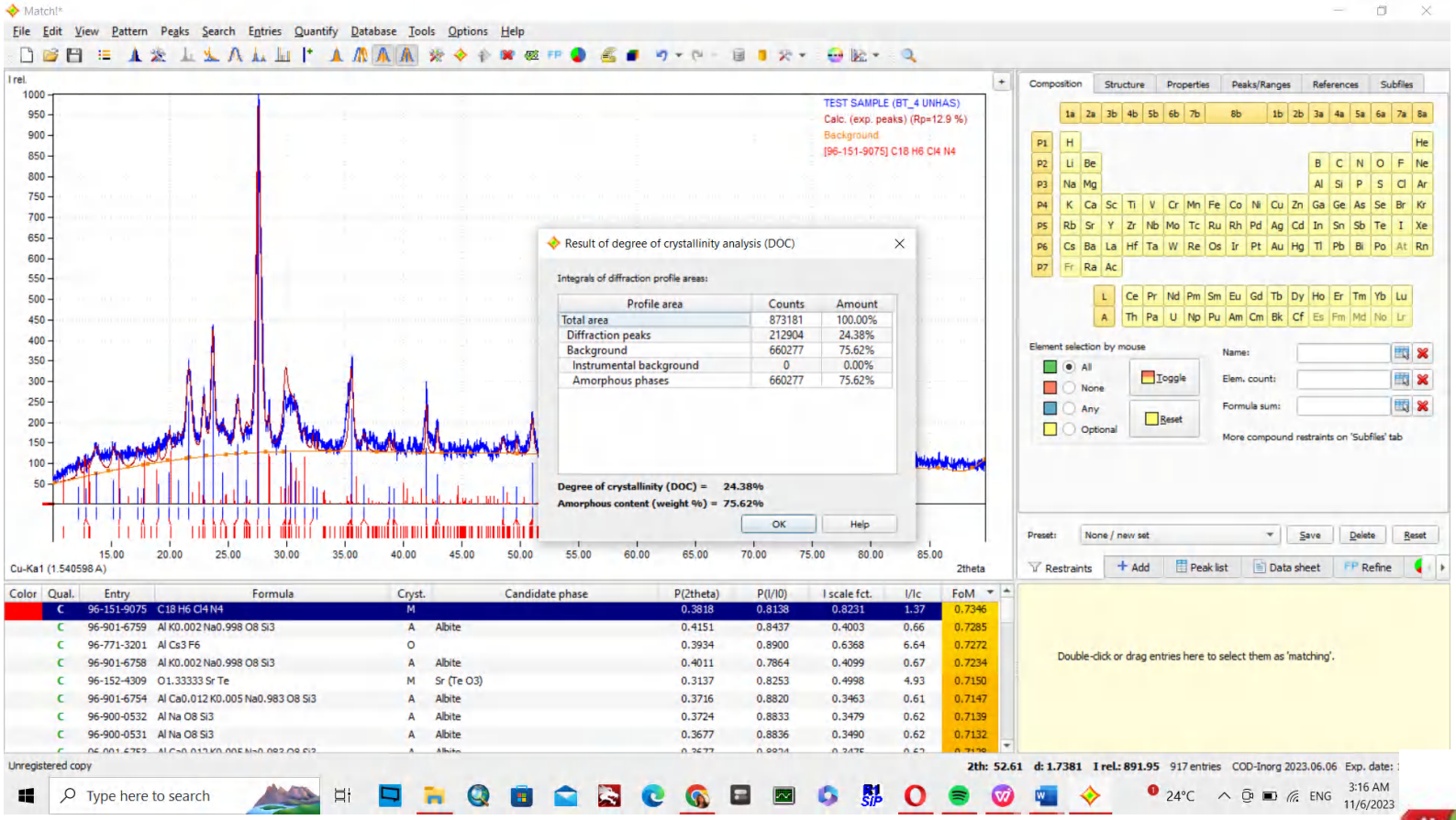
Selection Criteria

Elements:

Elements that must be present:	O, Na, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_5 UNHAS.raw
File path	E:/TAMineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	10.040° - 90.040°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	0.04°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	46.5	Albite	Al Na O8 Si3
B	21.5	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
C	20.8	Quartz	O2 Si
D	8.4	Wollastonite	Ca O3 Si
E	2.8	Hematite	Fe2 O3
	1.8	*Unidentified peak area*	

A: Albite (46.5 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-2204
Figure-of-Merit (FoM)	0.854735
Total number of peaks	249
Peaks in range	249
Peaks matched	195
Intensity scale factor	0.48
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1520 Å b= 12.8310 Å c= 7.1100 Å α= 93.460° β= 116.520 ° γ= 89.720 °
I/Icor	0.80
Calc. density	2.623 g/cm³
Reference	Meneghinello E., Alberti A., Cruciani G., "Order-disorder process in the tetrahedral sites af albite Sample: 1090-12d Note: this sample of feldspar is from Stintino, Sardinia, Italy", American Mineralogist **84**, 1144-1151 (1999)

B: Epidote (21.5 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.701345
Total number of peaks	500
Peaks in range	388
Peaks matched	235
Intensity scale factor	0.25
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

C: Quartz (20.8 %)

Formula sum	O2 Si
Entry number	96-901-1497
Figure-of-Merit (FoM)	0.733149
Total number of peaks	31
Peaks in range	24
Peaks matched	17
Intensity scale factor	0.71
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.6040 Å c= 5.2070 Å
I/Icor	2.64
Calc. density	3.129 g/cm³
Reference	Glinnemann J., King H. E., Schulz H., Hahn T., La Placa S. J., Dacol F., "Crystal structures of the low-temperature quartz-type phases of SiO2 and GeO2 at elevated pressure P = 10.2GPa = 102 kbar", Zeitschrift fur Kristallographie **198**, 177-212 (1992)

D: Wollastonite (8.4 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
[illegible] (FoM)	0.783944
[illegible]aks	488
	488
	195
[illegible]tor	0.21
	P 1 21/a 1
	monoclinic
	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
	1.89

E: Hematite (2.8 %)

Formula sum	Fe2 O3
Entry number	96-901-5066
Figure-of-Merit (FoM)	0.718321
Total number of peaks	34
Peaks in range	27
Peaks matched	21
Intensity scale factor	0.15
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0249 Å c= 13.7163 Å
I/Icor	4.01
Calc. density	5.304 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 15.4 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

Settings

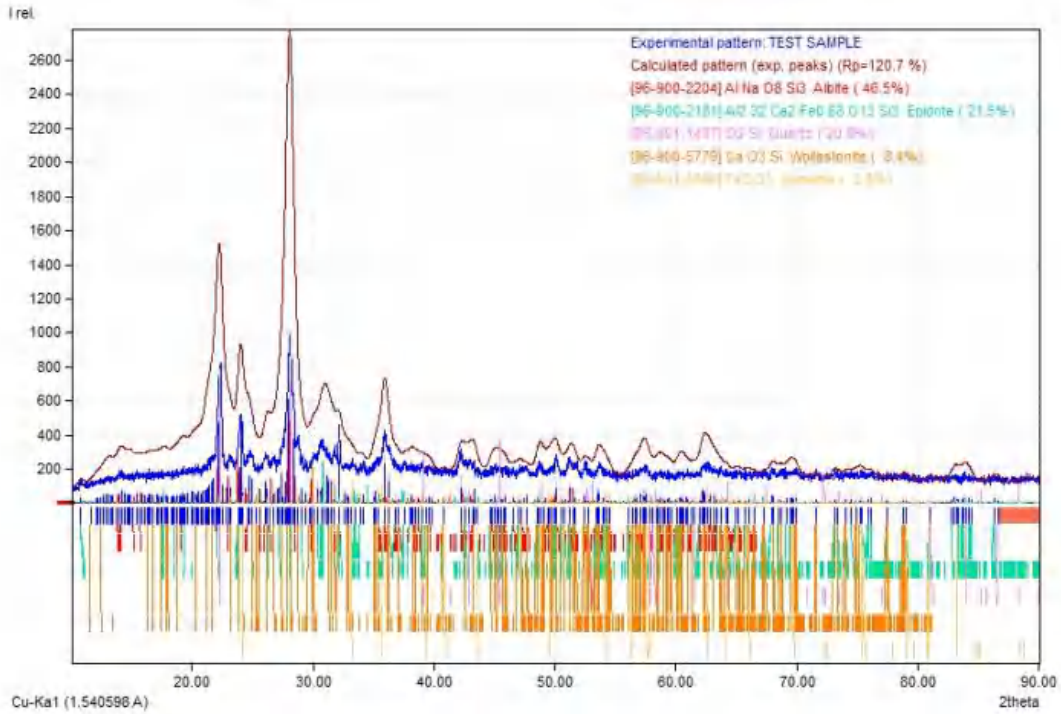
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

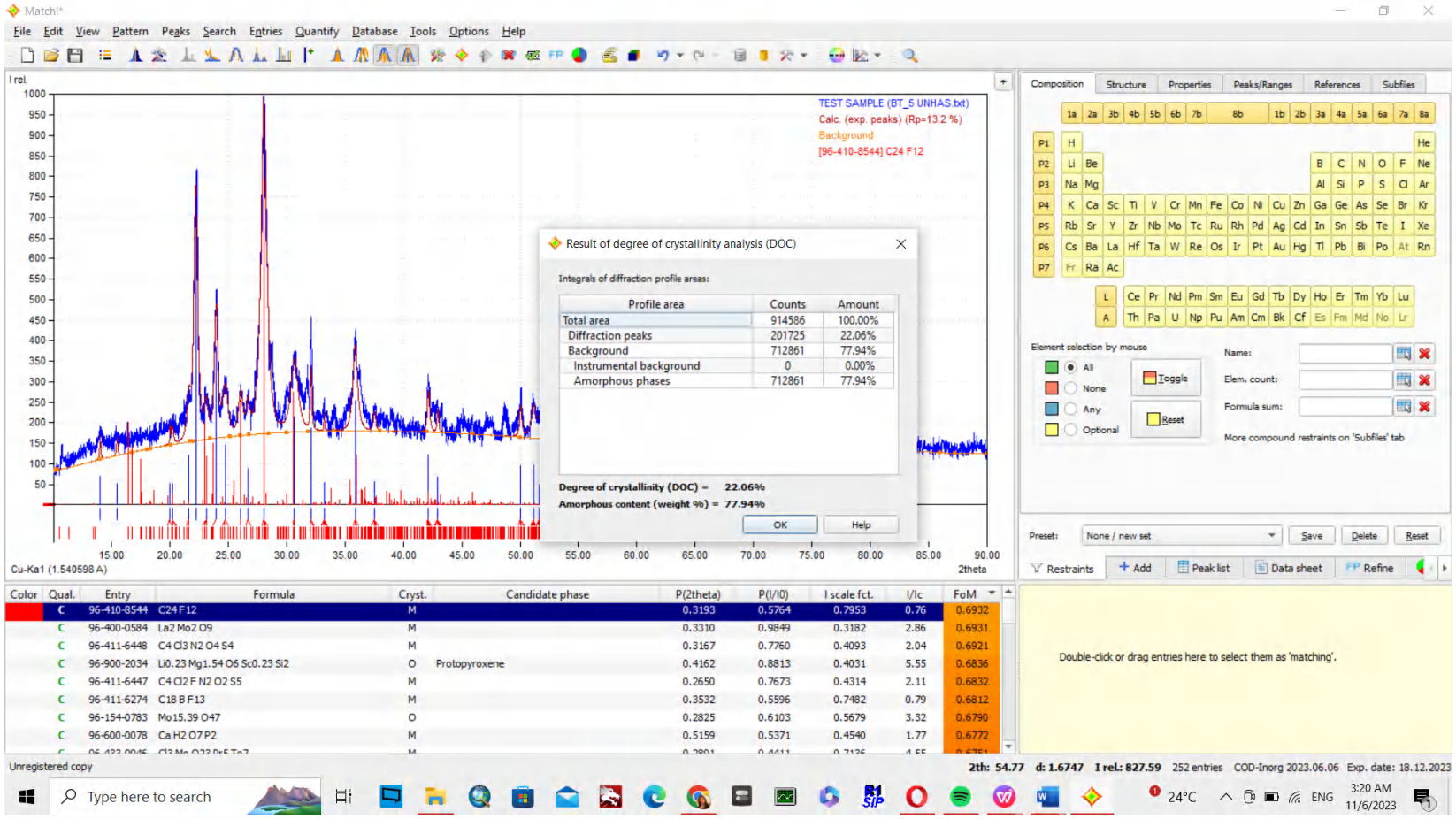
Selection Criteria

Elements:

Elements that must be present:	O, Na, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_6 POS 1 Bawakaraeng.raw
File path	E:/TAMineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	10.060° - 90.060°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	0.06°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	52.1	Albite	Al Na O8 Si3
B	18.9	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
C	15.9	Quartz	O2 Si
D	10.6	Wollastonite	Ca O3 Si
E	2.5	Hematite	Fe2 O3
	3.6	*Unidentified peak area*	

A: Albite (52.1 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0526
Figure-of-Merit (FoM)	0.863770
Total number of peaks	250
Peaks in range	250
Peaks matched	187
Intensity scale factor	0.56
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1530 Å b= 12.8694 Å c= 7.1070 Å α= 93.521° β= 116.458 ° γ= 90.257 °
I/Icor	0.78
Calc. density	2.616 g/cm³
Reference	Prewitt C. T., Sueno S., Papike J. J., "The crystal structures of high albite and monalbite at high temperatures T = 24 deg C feldspar", American Mineralogist **61**, 1213-1225 (1976)

Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 2.0 Gpa", Solid State Communications **72**, 507-511 (1989)

B: Epidote (18.9 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.703538
Total number of peaks	500
Peaks in range	380
Peaks matched	217
Intensity scale factor	0.23
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

C: Quartz (15.9 %)

Formula sum	O2 Si
Entry number	96-901-2602
Figure-of-Merit (FoM)	0.780634
Total number of peaks	34
Peaks in range	25
Peaks matched	15
Intensity scale factor	0.95
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.8120 Å c= 5.3270 Å
I/Icor	4.38
Calc. density	2.802 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 2.0 Gpa", Solid State Communications **72**, 507-511 (1989)

D: Wollastonite (10.6 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.790607
Total number of peaks	488
Peaks in range	488
Peaks matched	173
Intensity scale factor	0.27
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89

E: Hematite (2.5 %)

Formula sum	Fe2 O3
Entry number	96-901-5504
Figure-of-Merit (FoM)	0.731588
Total number of peaks	34
Peaks in range	27
Peaks matched	20
Intensity scale factor	0.14
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0020 Å c= 13.6202 Å
I/Icor	4.03
Calc. density	5.391 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 52.4 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

Settings

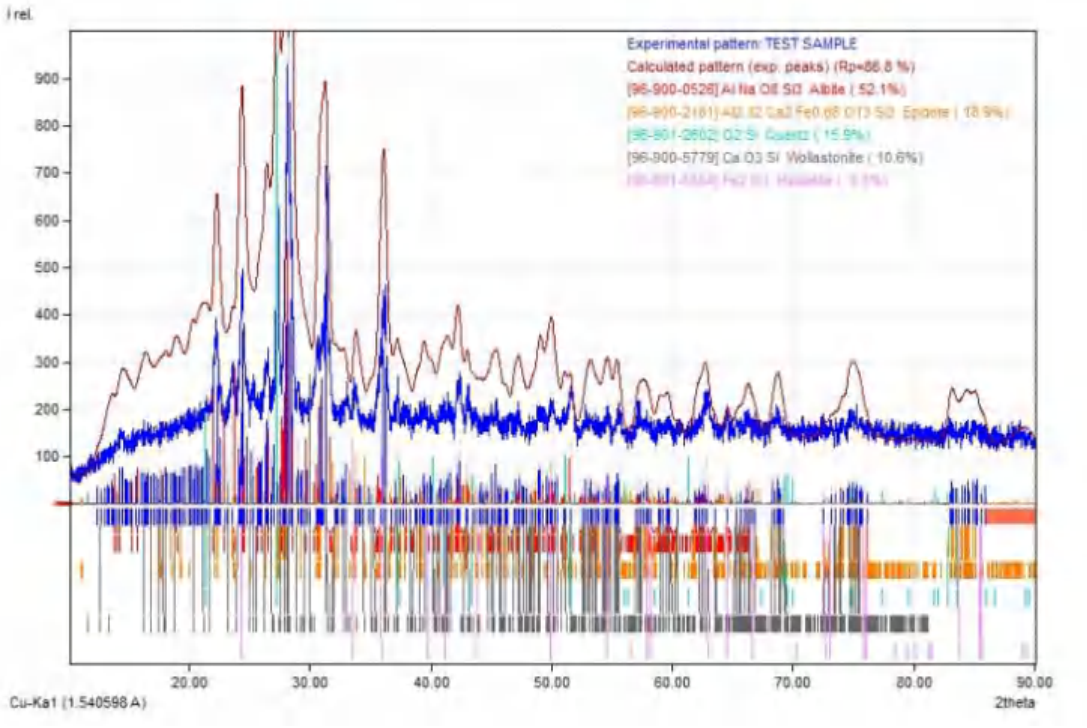
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

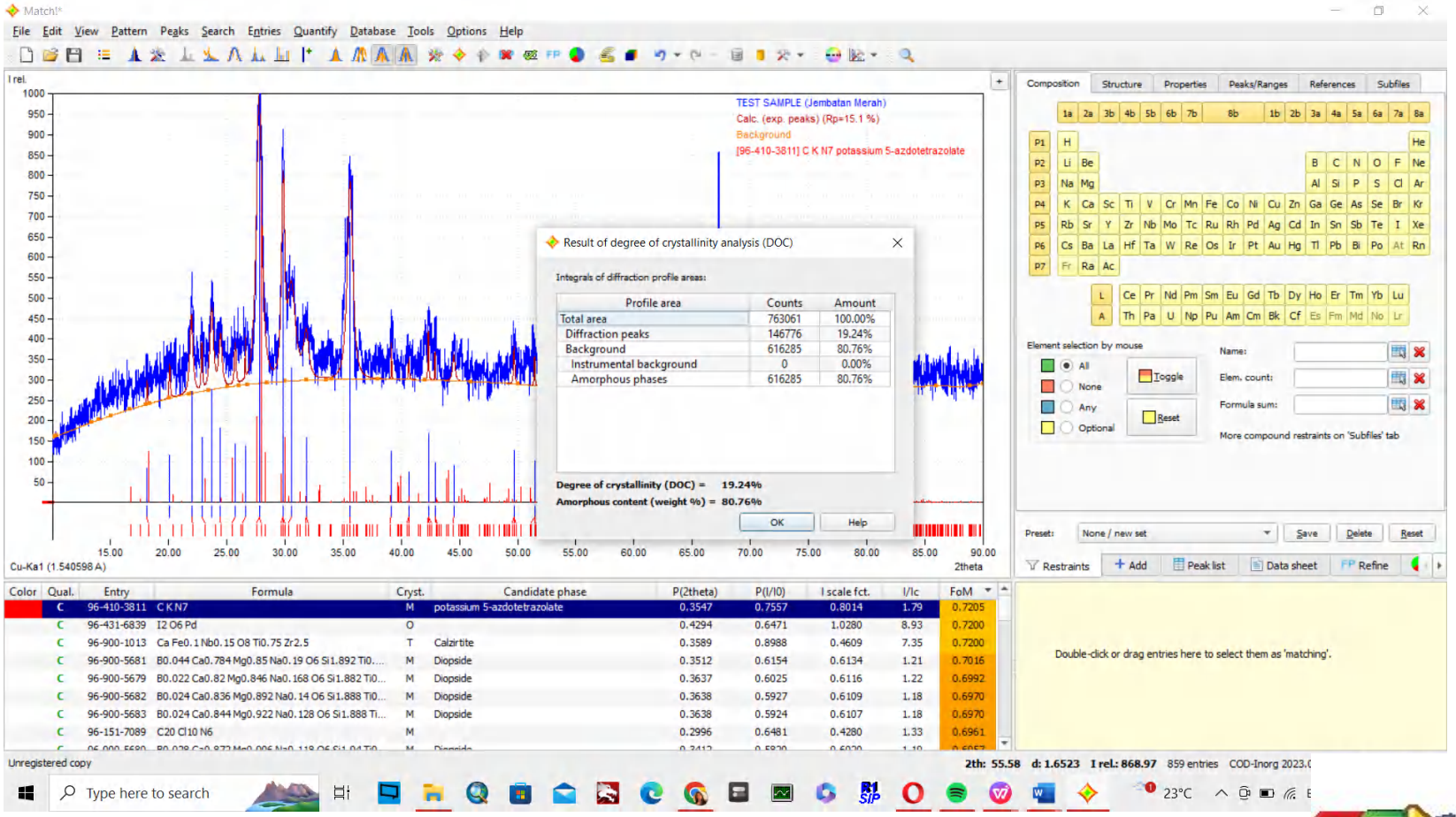
Selection Criteria

Elements:

Elements that must be present:	O, Na, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_7 POS 1 1 BAWAKARAENG.raw
File path	E:\TAMineralogi\Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	9.920° - 89.920°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	-0.08°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	36.9	Wollastonite	Ca O3 Si
B	28.1	Albite	Al Na O8 Si3
C	19.7	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
D	6.5	Quartz	O2 Si
E	6.0	Magnesioferrite	Fe2 Mg O4
F	2.8	Hematite	Fe2 O3
	8.6	*Unidentified peak area*	

A: Wollastonite (36.9 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.855583
Total number of peaks	488
Peaks in range	488
Peaks matched	196
Intensity scale factor	0.72
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89
Calc. density	2.911 g/cm³
Reference	Ohashi Y, "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO2M", Physics and Chemistry of Minerals **10**, 217-229 (1984)

B: Albite (28.1 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0526
Figure-of-Merit (FoM)	0.840026
Total number of peaks	250
Peaks in range	250
Peaks matched	192
Intensity scale factor	0.23
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1530 Å b= 12.8694 Å c= 7.1070 Å α= 93.521° β= 116.458 ° γ= 90.257 °
I/Icor	0.78
Calc. density	2.616 g/cm³
Reference	Prewitt C. T., Sueno S., Papike J. J., "The crystal structures of high albite and monalbite at high temperatures T = 24 deg C feldspar", American Mineralogist **61**, 1213-1225 (1976)

C: Epidote (19.7 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.782438
Total number of peaks	500
Peaks in range	500
Peaks matched	215
Intensity scale factor	0.18
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

D: Quartz (6.5 %)

Formula sum	O2 Si
Entry number	96-901-1496
Figure-of-Merit (FoM)	0.777125
Total number of peaks	32
Peaks in range	32
Peaks matched	16
Intensity scale factor	0.18
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
	a= 4.6764 Å c= 5.2475 Å

E: Magnesioferrite (6.0 %)

Formula sum	Fe2 Mg O4
Entry number	96-900-3786
Figure-of-Merit (FoM)	0.713709
Total number of peaks	34
Peaks in range	34
Peaks matched	12
Intensity scale factor	0.29
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.3730 Å
I/Icor	4.78
Calc. density	4.525 g/cm³
Reference	Antao S. M., Hassan I., Crichton W. A., Parise J. B., "Effects of high pressure and high temperature on cation ordering in magnesioferrite, MgFe2O4, using in situ synchrotron X-ray powder diffraction up to 1430 K and 6 GPa Sample: T = 1130 K, P = 5 GPa during heating", American Mineralogist **90**, 1500-1505 (2005)

F: Hematite (2.8 %)

Formula sum	Fe2 O3
Entry number	96-901-4881
Figure-of-Merit (FoM)	0.672333
Total number of peaks	34
Peaks in range	34
Peaks matched	16
Intensity scale factor	0.11
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0143 Å c= 13.6733 Å
I/Icor	3.91
Calc. density	5.344 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 31.4 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

Settings

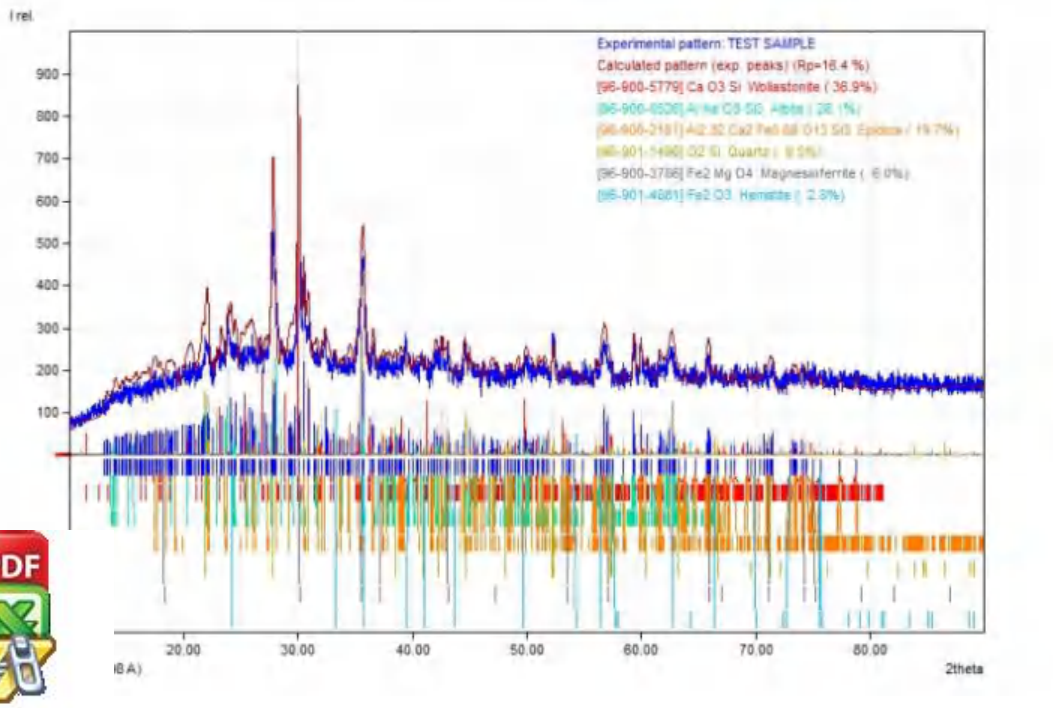
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

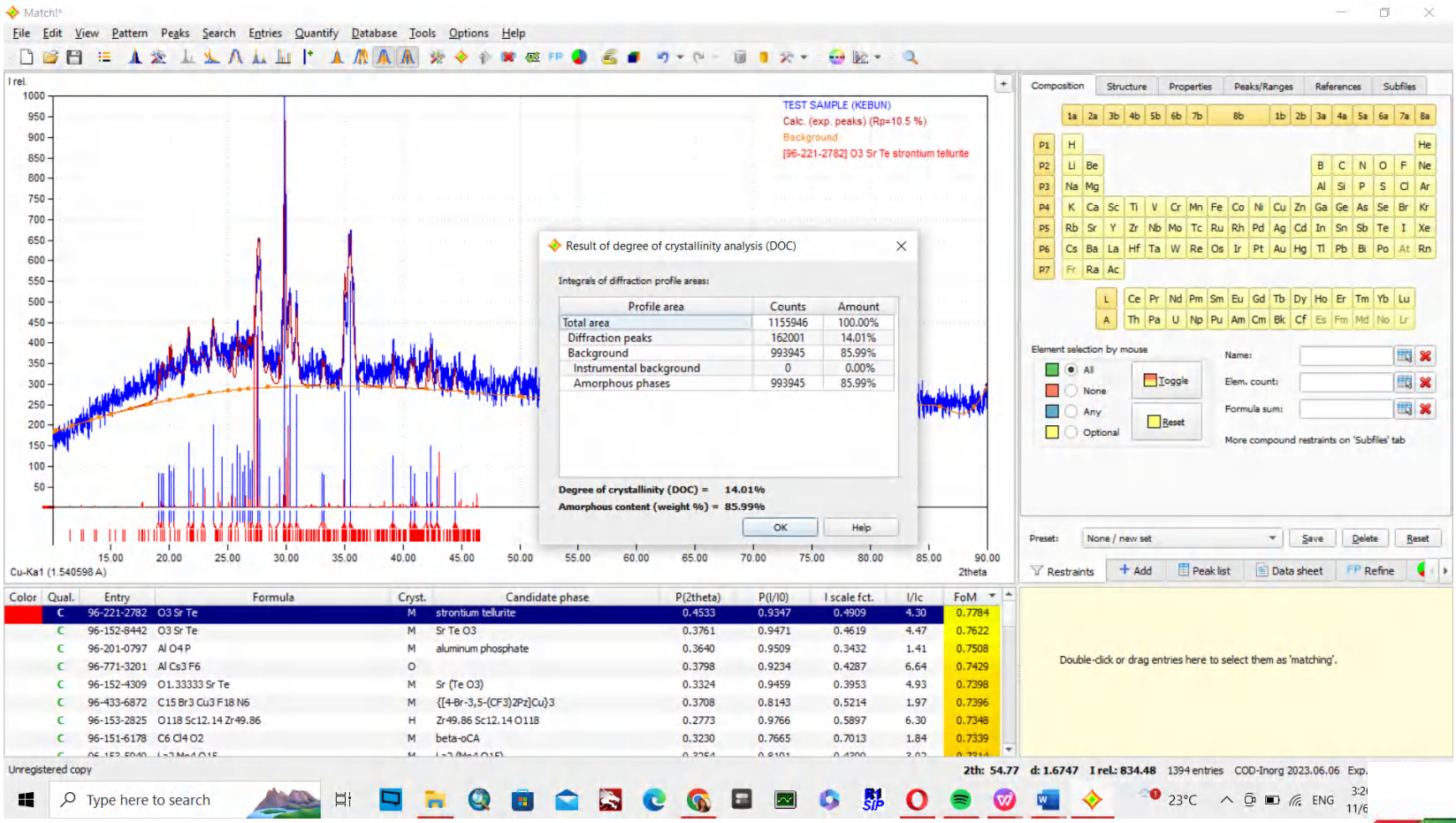
Selection Criteria

Elements:

Elements that must be present:	O, Na, Mg, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_8 KEBUN.raw
File path	E:/TAMineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	10.080° - 90.080°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	0.08°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	36.5	Albite	Al Na O8 Si3
B	26.9	Wollastonite	Ca O3 Si
C	24.6	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
D	6.8	Magnesioferrite	Fe2 Mg O4
E	3.6	Quartz	O2 Si
F	1.6	Hematite	Fe2 O3
	7.1	*Unidentified peak area*	

A: Albite (36.5 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0587
Figure-of-Merit (FoM)	0.861927
Total number of peaks	251
Peaks in range	251
Peaks matched	189
Intensity scale factor	0.47
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.2770 Å b= 12.8600 Å c= 7.1810 Å α= 93.300° β= 116.200 ° γ= 87.600 °
I/Icor	0.82
Calc. density	2.544 g/cm³
Reference	Winter J. K., Ghose S., Okamura F. P., "Ahigh-temperature study of the thermal expansion and the anisotropy of the sodium atom in low albite T = 970 deg C Note: this sample of feldspar is from Tiburon, Marin County, California, USA", American Mineralogist **62**, 921-931 (1977)

B: Wollastonite (26.9 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.844714
Total number of peaks	488
Peaks in range	488
Peaks matched	207
Intensity scale factor	0.80
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89
Calc. density	2.911 g/cm³
Reference	Ohashi Y., "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO2M", Physics and Chemistry of Minerals **10**, 217-229 (1984)

C: Epidote (24.6 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.819764
Total number of peaks	500
Peaks in range	418
Peaks matched	253
Intensity scale factor	0.34
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

D: Magnesioferrite (6.8 %)

Formula sum	Fe2 Mg O4
Entry number	96-900-3785
Figure-of-Merit (FoM)	0.825138
Total number of peaks	34
Peaks in range	17
Peaks matched	14
Intensity scale factor	0.51
Space group	F d -3 m
	cubic

E: Quartz (3.6 %)

Formula sum	O2 Si
Entry number	96-901-3322
Figure-of-Merit (FoM)	0.754786
Total number of peaks	35
Peaks in range	29
Peaks matched	25
Intensity scale factor	0.27
Space group	P 32 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.9134 Å c= 5.4051 Å
I/Icor	4.74
Calc. density	2.649 g/cm³
Reference	Antao S. M., Hassan I., Wang J., Lee P. L., Toby B. H., "State-of-the-art high-resolution powder x-ray diffraction (HRPXRD) illustrated with Rietveld structure refinement of quartz, sodalite, tremolite, and meionite Locality: not specified", The Canadian Mineralogist **46**, 1501-1509 (2008)

F: Hematite (1.6 %)

Formula sum	Fe2 O3
Entry number	96-901-4881
Figure-of-Merit (FoM)	0.754279
Total number of peaks	34
Peaks in range	29
Peaks matched	24
Intensity scale factor	0.10
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0143 Å c= 13.6733 Å
I/Icor	3.91
Calc. density	5.344 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 31.4 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

Settings

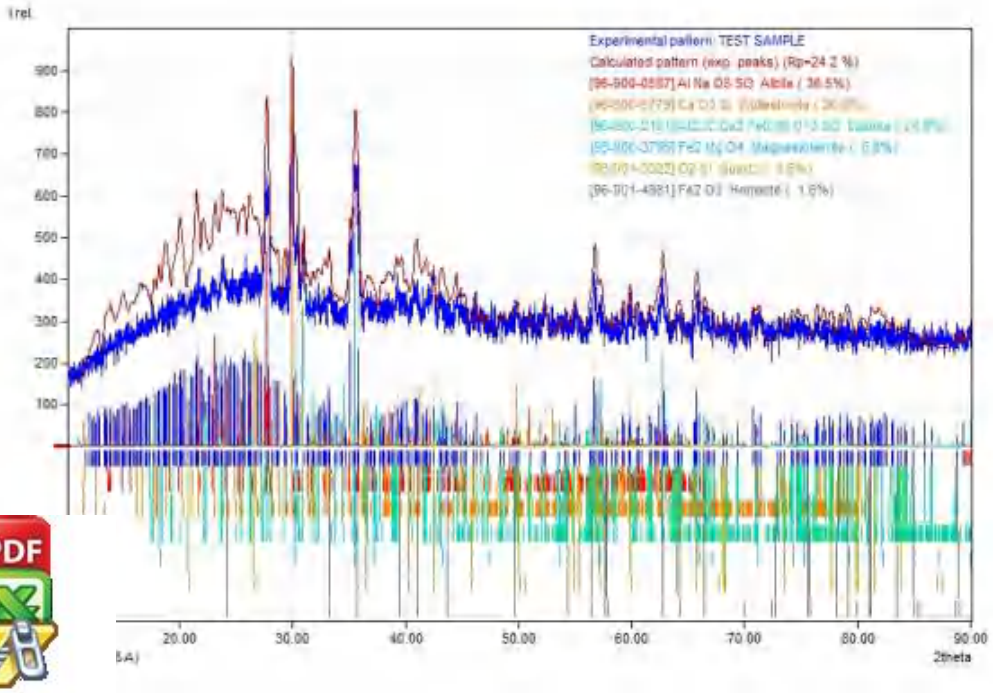
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

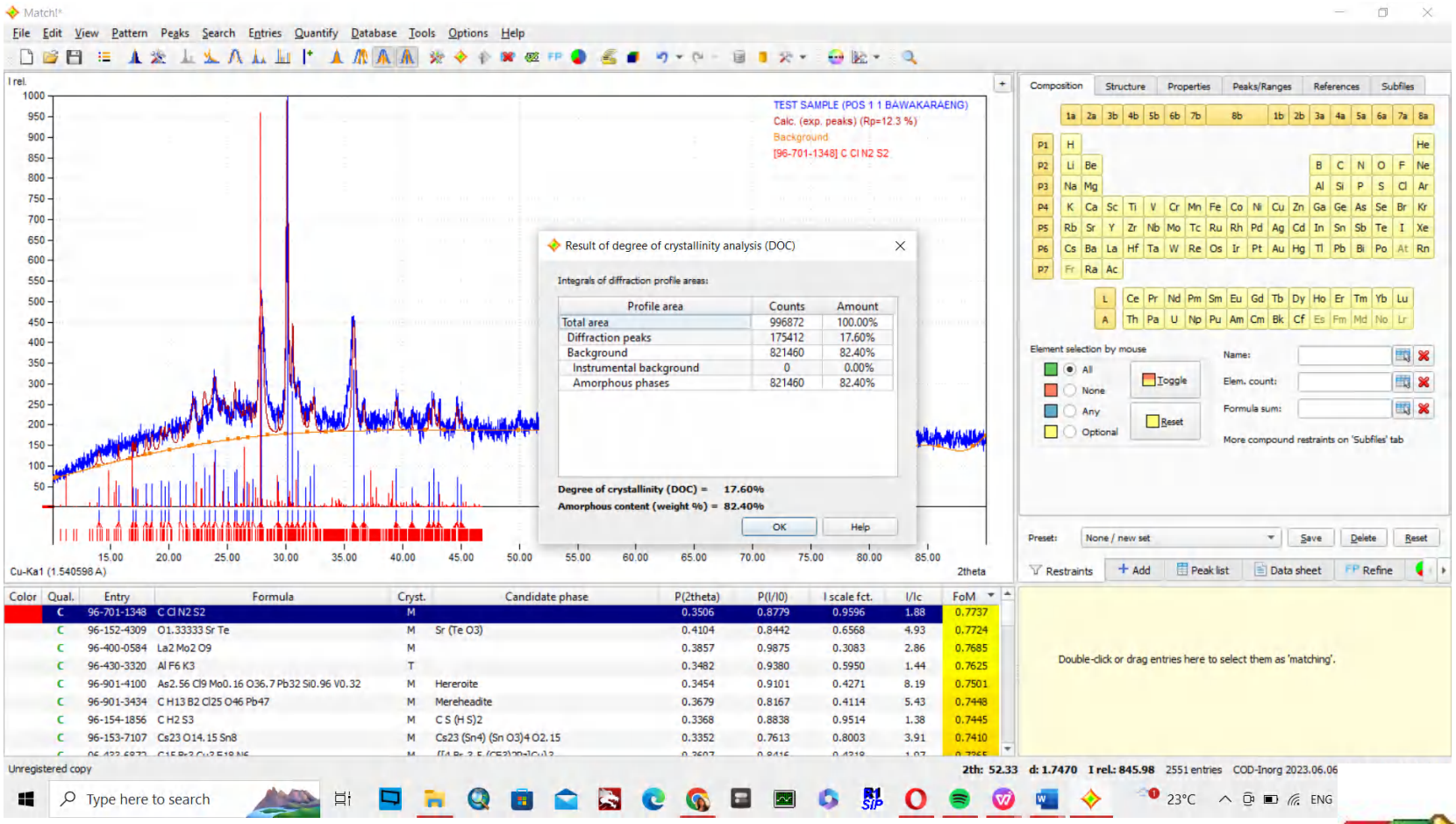
Selection Criteria

Elements:

Elements that must be present:	O, Na, Mg, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_9 Jembatan Merah.raw
File path	E:/TA Mineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	9.960° - 89.960°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	-0.04°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	47.3	Albite	Al Na O8 Si3
B	28.1	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
C	8.8	Wollastonite	Ca O3 Si
D	6.5	Magnesioferrite	Fe2 Mg O4
E	6.3	Quartz	O2 Si
F	3.0	Hematite	Fe2 O3
	3.8	*Unidentified peak area*	

A: Albite (47.3 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-0527
Figure-of-Merit (FoM)	0.889384
Total number of peaks	250
Peaks in range	250
Peaks matched	201
Intensity scale factor	0.72
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1829 Å b= 12.8947 Å c= 7.1190 Å α= 93.041° β= 116.352 ° γ= 90.172 °
I/Icor	0.76
Calc. density	2.592 g/cm³
Reference	Prewitt C. T., Sueno S., Papike J. J., "The crystal structures of high albite and monalbite at high temperatures T = 350 deg C feldspar", American Mineralogist **61**, 1213-1225 (1976)

B: Epidote (28.1 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.857920
Total number of peaks	500
Peaks in range	412
Peaks matched	279
Intensity scale factor	0.50
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

C: Wollastonite (8.8 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.784959
Total number of peaks	488
Peaks in range	488
Peaks matched	228
Intensity scale factor	0.33
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89
Calc. density	2.911 g/cm³
Reference	Ohashi Y, "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO2M", Physics and Chemistry of Minerals **10**, 217-229 (1984)

D: Magnesioferrite (6.5 %)

Formula sum	Fe2 Mg O4
Entry number	96-900-3798
Figure-of-Merit (FoM)	0.817313
Total number of peaks	36
Peaks in range	17
Peaks matched	16
Intensity scale factor	0.59
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.4479 Å

4.52
4.407 g/cm³
Antao S. M., Hassan I., Crichton W. A., Parise J. B., "Effects of high pressure and high temperature on cation ordering in magnesioferrite, MgFe2O4, using in situ synchrotron X-ray powder diffraction up to 1430 K and 6 GPa Sample: T = 1430 K, P = 3 GPa during heating", American Mineralogist **90**, 1500-1505 (2005)

E: Quartz (6.3 %)

Formula sum	O2 Si
Entry number	96-900-0781
Figure-of-Merit (FoM)	0.823753
Total number of peaks	32
Peaks in range	27
Peaks matched	25
Intensity scale factor	0.33
Space group	P 32 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7020 Å c= 5.2560 Å
I/Icor	2.64
Calc. density	2.974 g/cm³
Reference	Levien L., Prewitt C. T., Weidner D. J., "Structure and elastic properties of quartz at pressure P = 61.4 kbar", American Mineralogist **65**, 920-930 (1980)

F: Hematite (3.0 %)

Formula sum	Fe2 O3
Entry number	96-901-6458
Figure-of-Merit (FoM)	0.767794
Total number of peaks	34
Peaks in range	27
Peaks matched	25
Intensity scale factor	0.24
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0066 Å c= 13.6411 Å
I/Icor	4.00
Calc. density	5.373 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 43.9 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

Search-Match

Settings

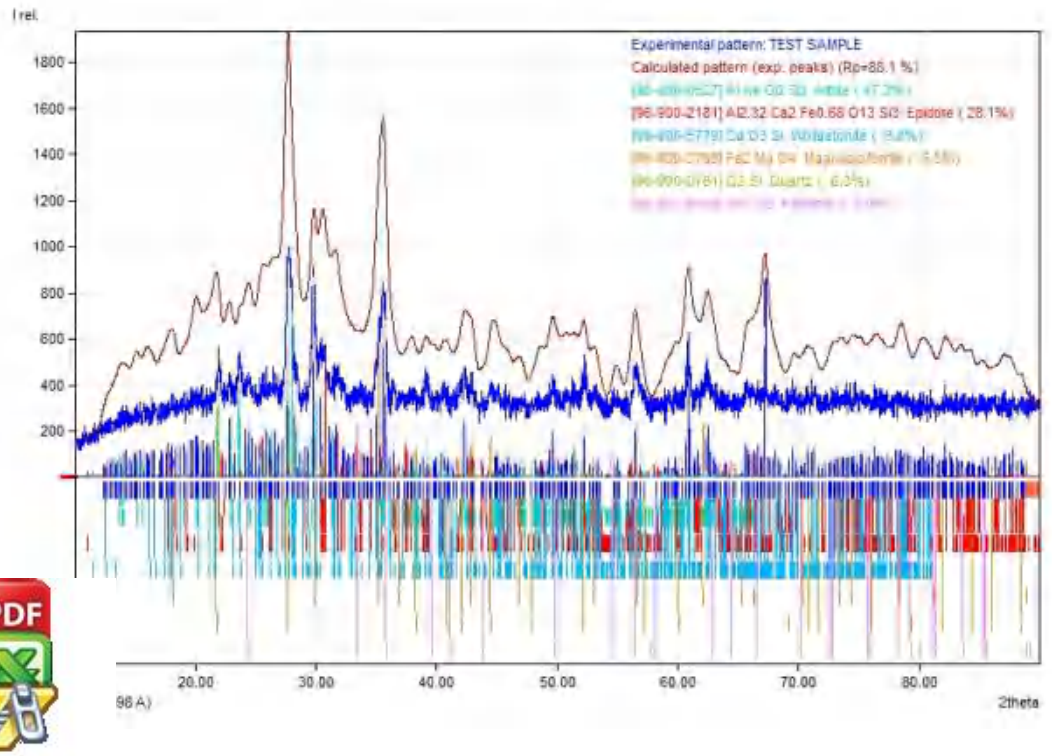
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

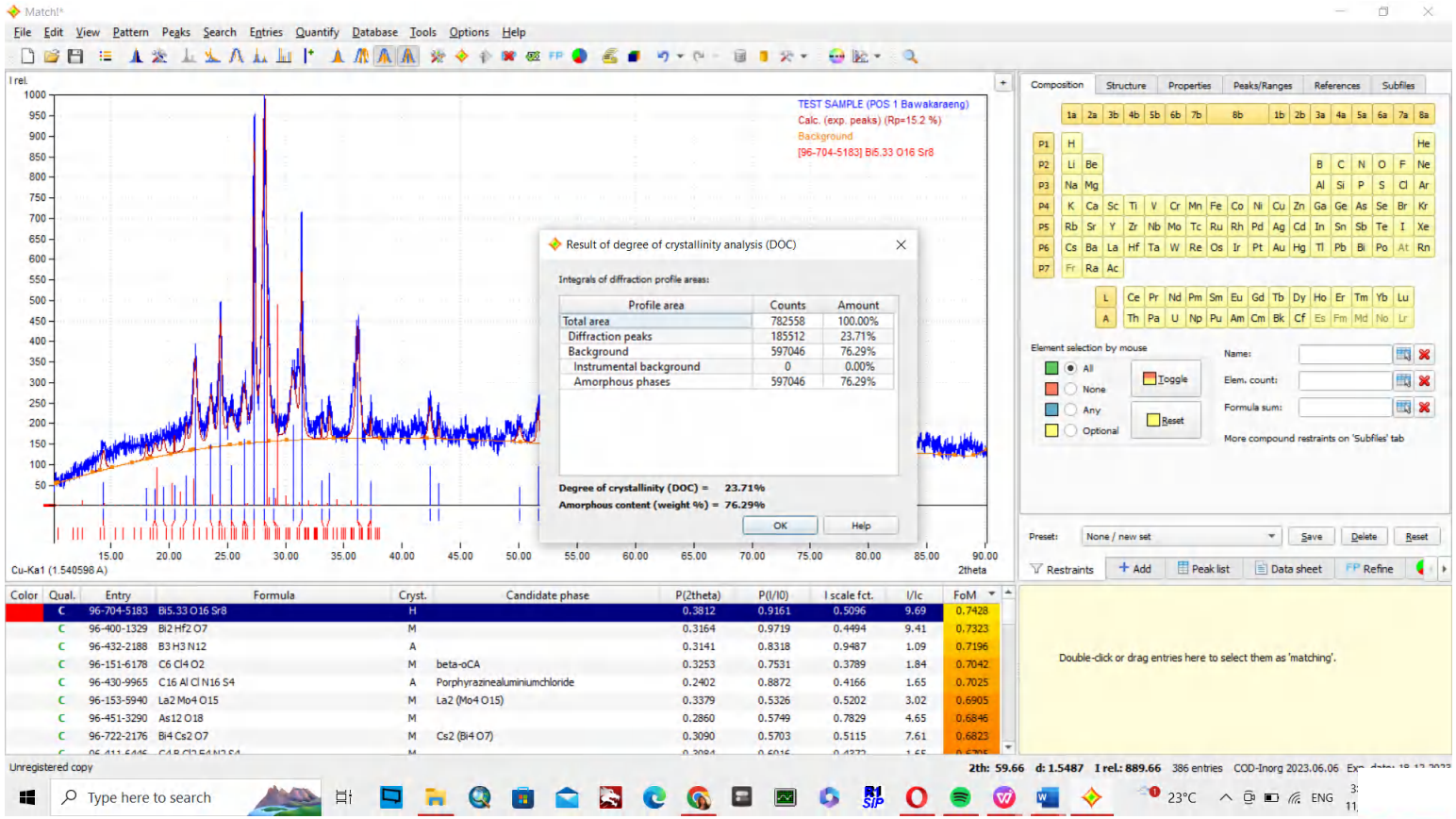
Selection Criteria

Elements:

Elements that must be present:	O, Na, Mg, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data

File name	BT_10 Jalan Lembanna.raw
File path	E:/TAMineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	9.950° - 89.950°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	-0.05°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	38.6	Albite	Al Na O8 Si3
B	24.0	Wollastonite	Ca O3 Si
C	22.0	Epidote	Al2.32 Ca2 Fe0.68 O13 Si3
D	7.2	Hematite	Fe2 O3
E	4.6	Quartz	O2 Si
F	3.7	Magnesioferrite	Fe2 Mg O4
	9.1	*Unidentified peak area*	

A: Albite (38.6 %)

Formula sum	Al Na O8 Si3
Entry number	96-900-2204
Figure-of-Merit (FoM)	0.828025
Total number of peaks	249
Peaks in range	249
Peaks matched	165
Intensity scale factor	0.74
Space group	C -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1520 Å b= 12.8310 Å c= 7.1100 Å α= 93.460° β= 116.520 ° γ= 89.720 °
I/Icor	0.80
Calc. density	2.623 g/cm³
Reference	Meneghinello E., Alberti A., Cruciani G., "Order-disorder process in the tetrahedral sites af albite Sample: 1090-12d Note: this sample of feldspar is from Stintino, Sardinia, Italy", American Mineralogist **84**, 1144-1151 (1999)

B: Wollastonite (24.0 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.858383
Total number of peaks	488
Peaks in range	488
Peaks matched	190
Intensity scale factor	1.09
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89
Calc. density	2.911 g/cm³
Reference	Ohashi Y, "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO2M", Physics and Chemistry of Minerals **10**, 217-229 (1984)

C: Epidote (22.0 %)

Formula sum	Al2.32 Ca2 Fe0.68 O13 Si3
Entry number	96-900-2181
Figure-of-Merit (FoM)	0.804009
Total number of peaks	500
Peaks in range	416
Peaks matched	257
Intensity scale factor	0.46
Space group	P 1 21/m 1
Crystal system	monoclinic
Unit cell	a= 8.8910 Å b= 5.6240 Å c= 10.1640 Å β= 115.440 °
I/Icor	0.88
Calc. density	3.423 g/cm³
Reference	Giuli G., Bonazzi P., Menchetti S., "Al-Fe disorder in synthetic epidotes: A single-crystal X-ray diffraction study Sample: CC11c", American Mineralogist **84**, 933-936 (1999)

D: Hematite (7.2 %)

Formula sum	Fe2 O3
Entry number	96-152-8613
Figure-of-Merit (FoM)	0.808597
Total number of peaks	468
Peaks in range	437
Peaks matched	136
Intensity scale factor	0.57
Space group	P 41 21 2
Crystal system	tetragonal
Unit cell	a= 8.3320 Å c= 25.1130 Å
I/Icor	3.27
Calc. density	4.865 g/cm³
Reference	Jorgensen J.E., Mosegaard L., Hanson J.C., Jensen T.R., Thomsen L.E., "Formation of gamma-Fe2 O3 nanoparticles and vacancy ordering: an in situ x-ray powder diffraction study", Journal of Solid State Chemistry **180**, 180-185 (2007)

E: Quartz (4.6 %)

Formula sum	O2 Si
Entry number	96-901-2602
Figure-of-Merit (FoM)	0.745278
Total number of peaks	34
Peaks in range	27
Peaks matched	23
Intensity scale factor	0.48
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.8120 Å c= 5.3270 Å
I/Icor	4.38
Calc. density	2.802 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 2.0 Gpa", Solid State Communications **72**, 507-511 (1989)

F: Magnesioferrite (3.7 %)

Formula sum	Fe2 Mg O4
Entry number	96-900-3794
Figure-of-Merit (FoM)	0.747286
Total number of peaks	35
Peaks in range	17
Peaks matched	15
Intensity scale factor	0.41
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.4101 Å
I/Icor	4.70
Calc. density	4.466 g/cm³
Reference	Antao S. M., Hassan I., Crichton W. A., Parise J. B., "Effects of high pressure and high temperature on cation ordering in magnesioferrite, MgFe2O4, using in situ synchrotron X-ray powder diffraction up to 1430 K and 6 GPa Sample: T = 1090 K, P = 3 GPa during heating", American Mineralogist **90**, 1500-1505 (2005)

Search-Match

Settings

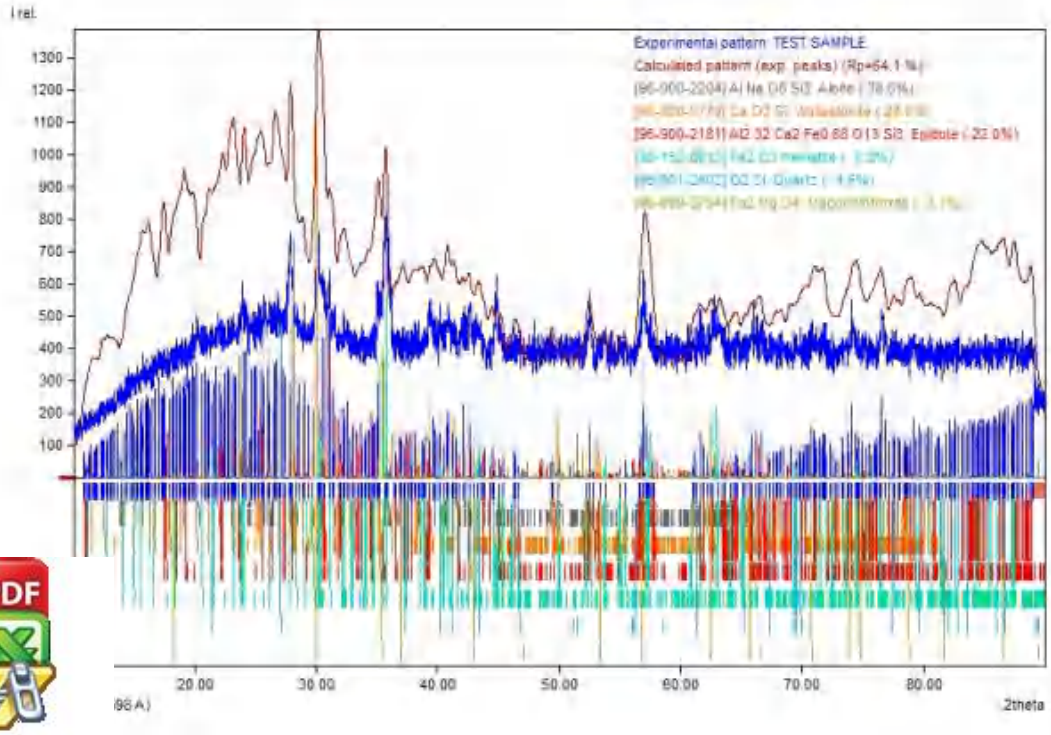
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

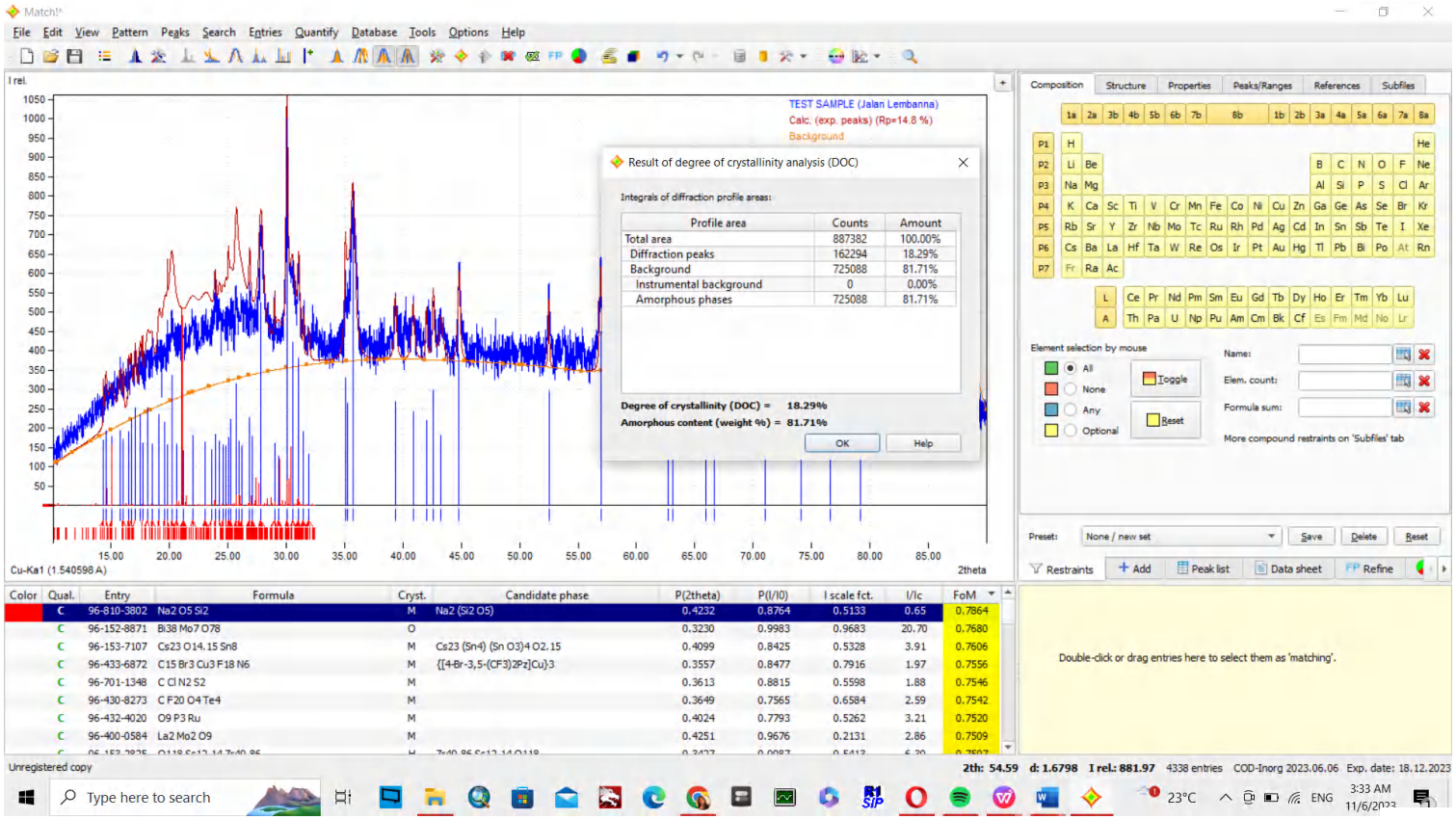
Selection Criteria

Elements:

Elements that must be present:	O, Na, Mg, Al, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

Diffraction Pattern Graphics





Match! Phase Analysis Report

Sample: TEST SAMPLE

Sample Data	
File name	BT_11 Takapala.raw
File path	E:/TAMineralogi/Pengujian XRD
Data collected	Aug 24, 2022 16:29:35
Data range	10.110° - 90.110°
Number of points	4001
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
2theta correction	0.11°
Radiation	X-rays
Wavelength	1.540598 Å

Matched Phases

Index	*Amount (%)*	*Name*	*Formula sum*
A	41.7	Quartz	O2 Si
B	33.5	Wollastonite	Ca O3 Si
C	13.9	Hematite	Fe2 O3
D	10.9	Magnesioferrite	Fe2 Mg O4
	19.3	*Unidentified peak area*	

A: Quartz (41.7 %)

Formula sum	O2 Si
Entry number	96-901-2604
Figure-of-Merit (FoM)	0.771820
Total number of peaks	31
Peaks in range	24
Peaks matched	24
Intensity scale factor	0.61
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.6250 Å c= 5.2160 Å
I/Icor	3.59
Calc. density	3.096 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartz Locality: synthetic Sample: P = 8.0 GPa", Solid State Communications **72**, 507-511 (1989)

B: Wollastonite (33.5 %)

Formula sum	Ca O3 Si
Entry number	96-900-5779
Figure-of-Merit (FoM)	0.778396
Total number of peaks	488
Peaks in range	488
Peaks matched	200
Intensity scale factor	0.26
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 15.4240 Å b= 7.3240 Å c= 7.0692 Å β= 95.371 °
I/Icor	1.89
Calc. density	2.911 g/cm³
Reference	Ohashi Y., "Polysynthetically-twinned structures of enstatite and wollastonite Sample: WO2M", Physics and Chemistry of Minerals **10**, 217-229 (1984)

C: Hematite (13.9 %)

Formula sum	Fe2 O3
Entry number	96-901-6458
Figure-of-Merit (FoM)	0.771630
Total number of peaks	34
Peaks in range	27
Peaks matched	25
Intensity scale factor	0.23
Space group	R -3 c
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 5.0066 Å c= 13.6411 Å
I/Icor	4.00
Calc. density	5.373 g/cm³
Reference	Finger L. W., Hazen R. M., "Crystal structure and isothermal compression of Fe2O3, Cr2O3, and V2O3 to 50 kbars Note: P = 43.9 kbar", Journal of Applied Physics **51**, 5362-5367 (1980)

D: Magnesioferrite (10.9 %)

Formula sum	Fe2 Mg O4
Entry number	96-900-3787
Figure-of-Merit (FoM)	0.778526
Total number of peaks	34
Peaks in range	16
Peaks matched	14
tor	0.21
	F d -3 m
	cubic
	a= 8.3730 Å
	4.76
	4.525 g/cm³

Antao S. M., Hassan I., Crichton W. A., Parise J. B., "Effects of high pressure and high temperature on cation ordering in magnesioferrite, $MgFe_2O_4$, using in situ synchrotron X-ray powder diffraction up to 1430 K and 6 GPa Sample: T = 1010 K, P = 5 GPa during cooling", American Mineralogist **90**, 1500-1505 (2005)

Search-Match

Settings

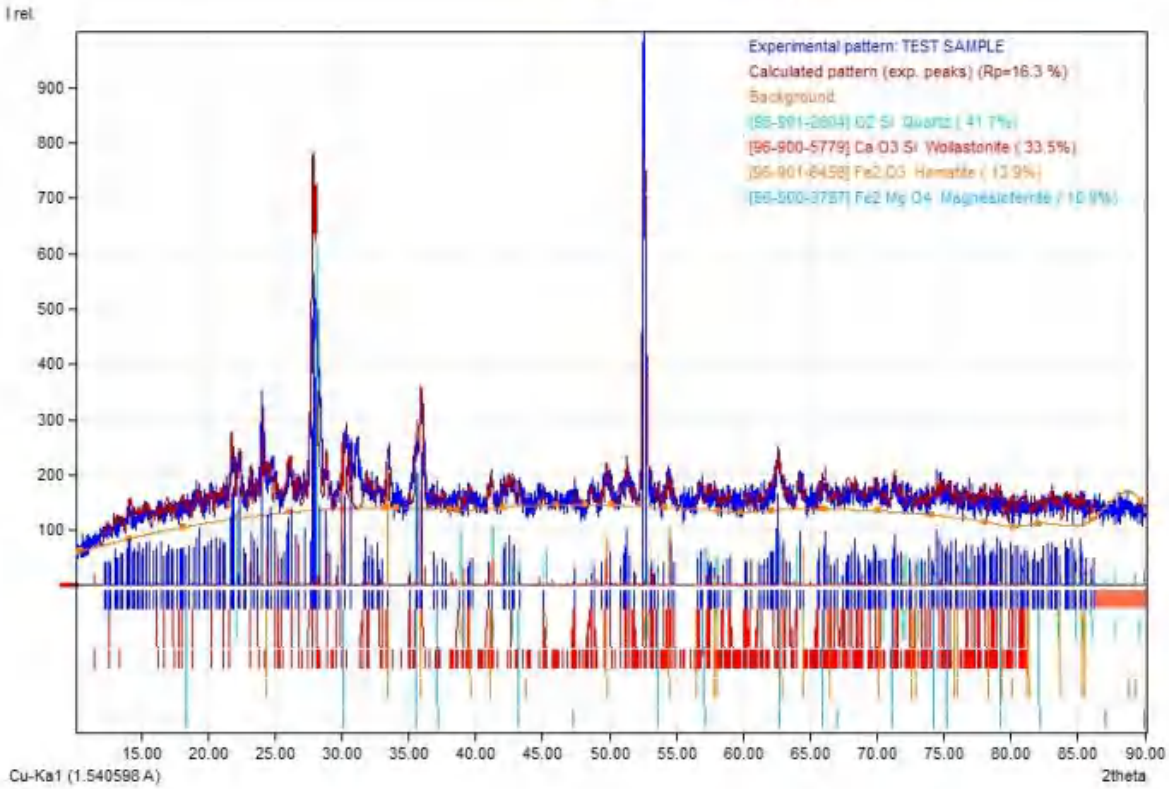
Reference database used	COD-Inorg REV173445 2016.01.04
Automatic zeropoint adaptation	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	1
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

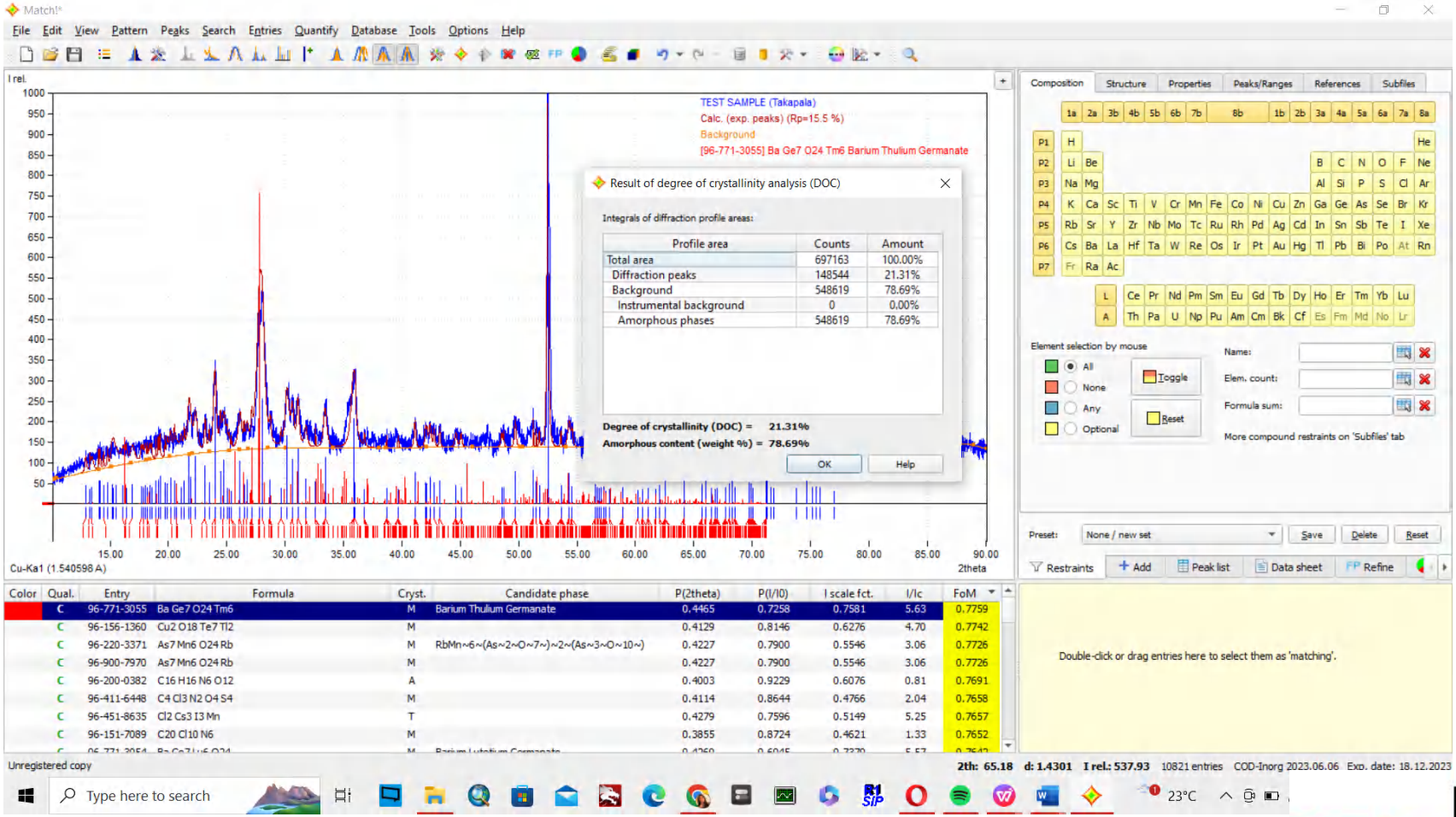
Selection Criteria

Elements:

Elements that must be present:	O, Na, Mg, Si, K, Ca, Fe
Elements that must NOT be present:	All elements not mentioned above

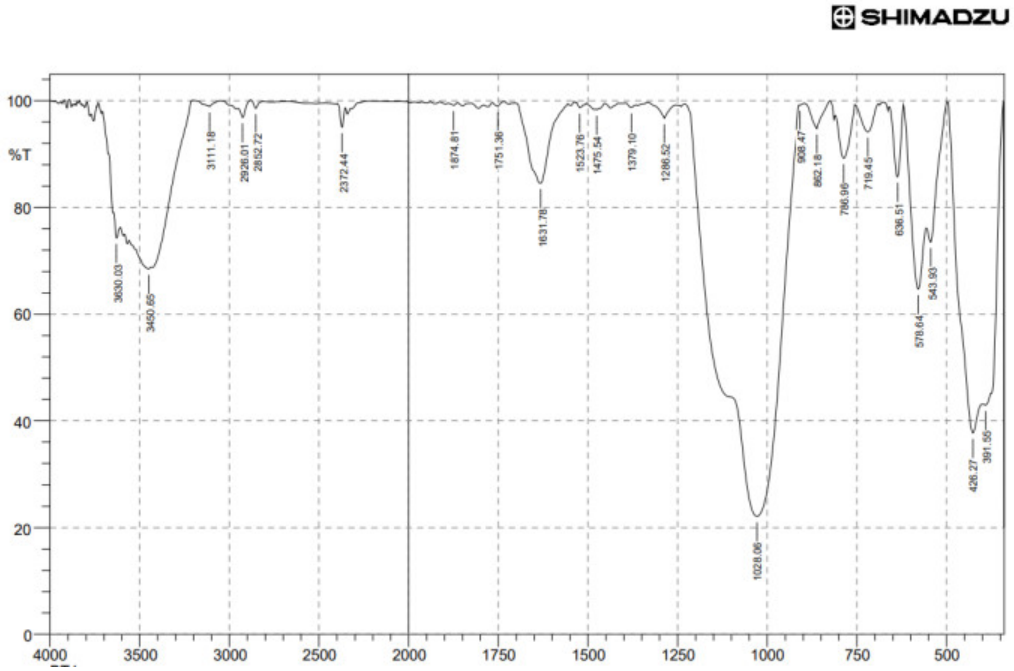
Diffraction Pattern Graphics





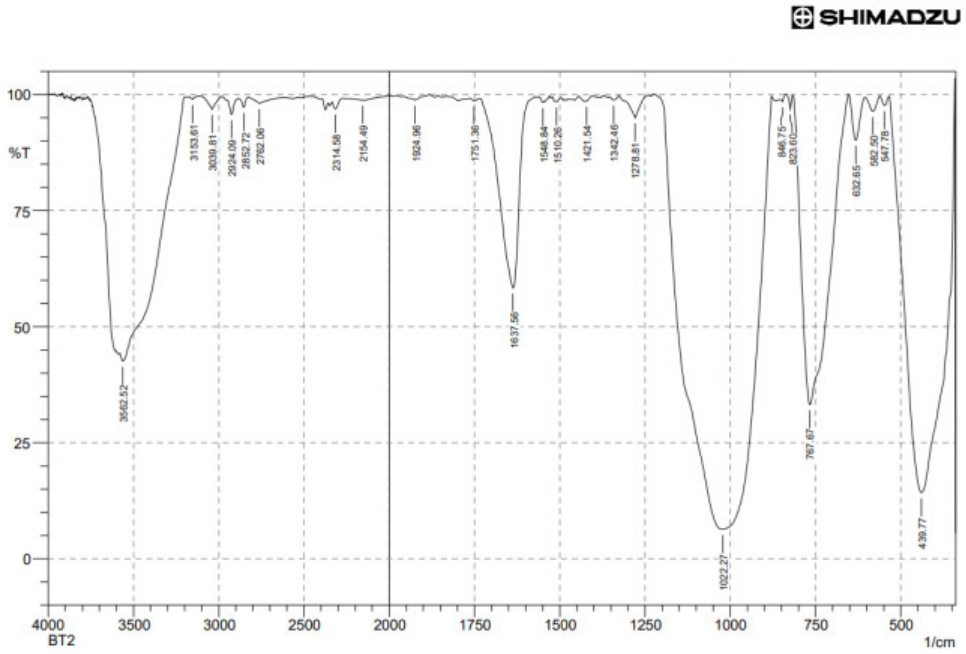
Lampiran Metode FTIR

1. Hasil Metode FTIR sampel BT1



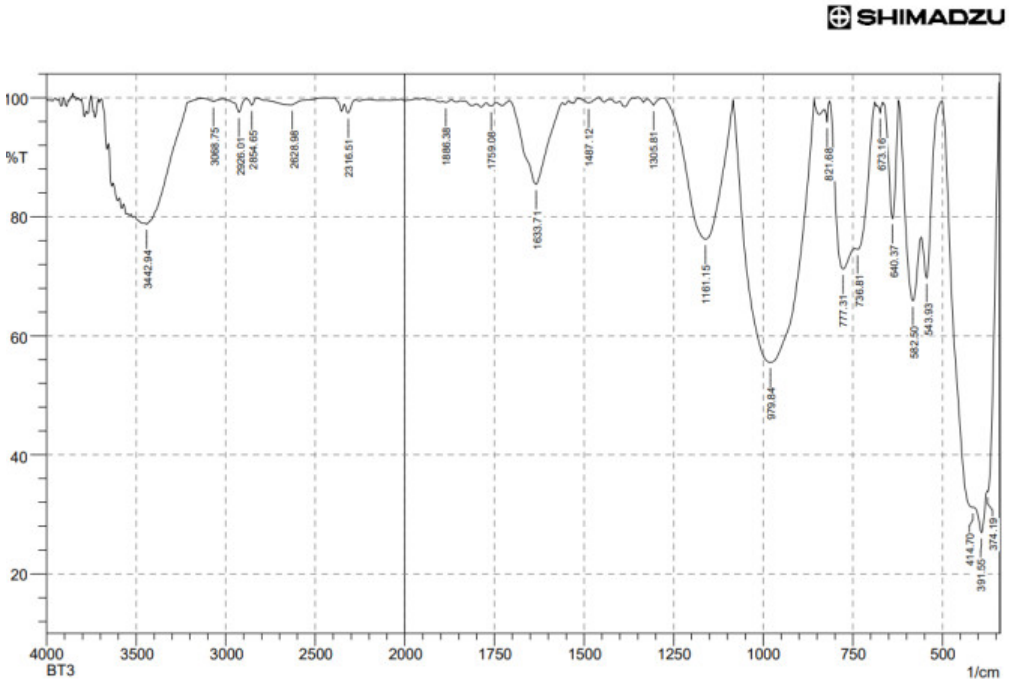
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	391.55	42.951	0.9	399.26	378.05	7.661	0.137
2	426.27	37.742	20.361	495.71	401.19	25.667	7.97
3	543.93	73.503	7.367	555.5	497.63	3.997	0.736
4	578.64	64.693	19.165	619.15	557.43	7.562	3.615
5	636.51	85.739	13.288	657.73	621.08	1.413	1.253
6	719.45	94.16	5.145	754.17	690.52	0.993	0.799
7	786.96	89.24	8.889	810.1	756.1	1.692	1.291
8	862.18	94.78	4.965	896.9	825.53	0.772	0.694
9	908.47	99.177	0.321	1230.58	898.83	101.787	100.961
10	1028.06	22.112	77.172	1230.58	910.4	101.751	100.774
11	1286.52	96.707	2.69	1334.74	1255.66	0.513	0.325
12	1379.1	98.72	0.657	1394.53	1365.6	0.119	0.042
13	1475.54	98.278	0.207	1479.4	1469.76	0.068	0.005
14	1523.76	98.689	0.827	1531.48	1512.19	0.082	0.037
15	1631.78	84.532	14.934	1697.36	1556.55	4.831	4.501
16	1751.36	98.935	0.774	1766.8	1737.86	0.085	0.048
17	1874.81	99.157	0.425	1888.31	1865.17	0.067	0.024
18	2372.44	95.034	4.001	2397.52	2353.16	0.529	0.352
19	2852.72	98.588	1.446	2879.72	2806.43	0.168	0.165
20	2926.01	96.877	2.224	2951.09	2879.72	0.467	0.262
21	3111.18	98.891	0.661	3145.9	3051.39	0.234	0.089
22	3450.65	68.488	0.838	3558.67	3437.15	18.421	0.496
23	3630.03	74.25	3.534	3645.46	3610.74	4.188	0.352

2. Hasil Metode FTIR sampel BT2



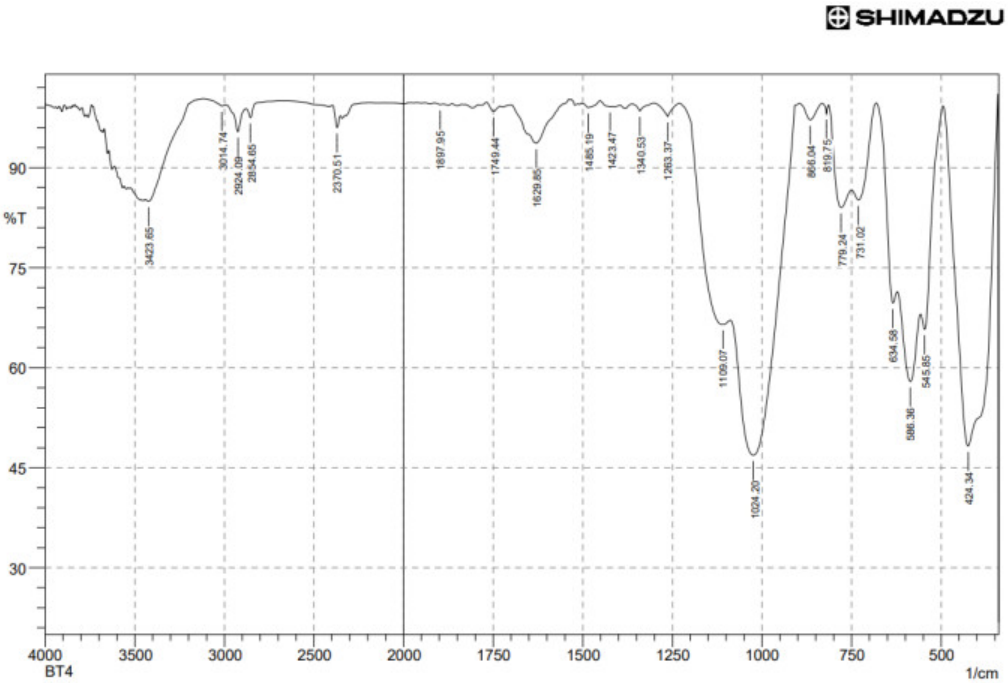
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	439.77	14.222	83.0067	532.35	343.33	82.5791	80.1888
2	547.78	97.6375	2.0255	561.29	534.28	0.1648	0.1253
3	582.5	96.3772	3.2085	605.65	561.29	0.3973	0.3161
4	632.65	90.1619	9.5227	651.94	605.65	1.083	1.0107
5	767.67	33.219	66.6585	815.89	653.87	36.9439	36.8946
6	823.6	96.9604	2.9653	837.11	815.89	0.0886	0.086
7	846.75	98.4813	0.8938	852.54	837.11	0.0506	0.0188
8	1022.27	6.3247	93.2935	1209.37	879.54	195.5986	195.0475
9	1278.81	95.0364	4.7698	1327.03	1240.23	0.7606	0.6855
10	1342.46	98.8583	0.7245	1352.1	1327.03	0.0948	0.0527
11	1421.54	98.5824	0.1301	1423.47	1406.11	0.0692	0.0046
12	1510.26	98.4548	0.9797	1521.84	1496.76	0.1266	0.0642
13	1548.84	98.2993	0.3704	1558.48	1546.91	0.0633	0.0112
14	1637.56	58.3724	40.9538	1730.15	1573.91	13.7687	13.2819
15	1751.36	98.6646	0.2833	1762.94	1747.51	0.0747	0.0105
16	1924.96	98.8499	0.5401	1936.53	1882.52	0.1425	0.0537
17	2154.49	98.8347	0.0293	2237.43	2148.7	0.3896	0.0076
18	2314.58	96.9186	1.7274	2333.87	2270.22	0.5325	0.2009
19	2762.06	98.1309	1.229	2825.72	2634.76	0.9564	0.4167
20	2852.72	97.297	1.9998	2885.51	2825.72	0.3777	0.1921
21	2924.09	95.7202	3.2778	2953.02	2885.51	0.6558	0.3679
22	3039.81	96.8591	2.8043	3109.25	2978.09	0.8064	0.616
23	3153.61	98.9936	0.6155	3184.48	3120.82	0.1674	0.0599
24	3562.52	42.5823	4.2437	3579.88	3205.69	78.9603	12.5416

3. Hasil Metode FTIR sampel BT3



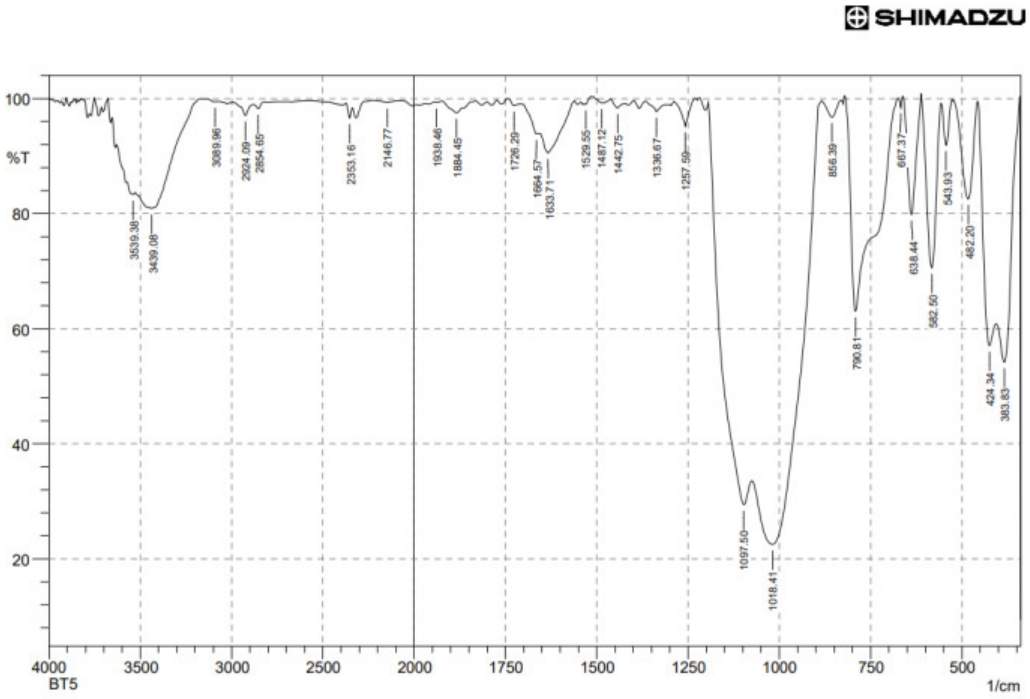
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	374.19	33.8631	3.8246	376.12	343.33	8.601	1.2448
2	391.55	26.946	5.746	410.84	376.12	18.285	1.379
3	414.7	31.1661	1.4698	503.42	412.77	25.6191	2.5619
4	543.93	69.7178	12.394	557.43	503.42	4.0553	1.2092
5	582.5	65.8592	19.2162	621.08	559.36	7.547	3.759
6	640.37	79.7192	19.6698	665.44	623.01	2.0989	1.9823
7	673.16	97.5015	1.4794	682.8	665.44	0.1185	0.039
8	736.81	74.5279	3.5258	744.52	688.59	4.5664	1.054
9	777.31	71.233	14.6933	813.96	746.45	7.5388	3.037
10	821.68	95.8747	2.9362	829.39	815.89	0.1411	0.0649
11	979.84	55.5421	44.014	1083.99	858.32	37.9639	37.5339
12	1161.15	76.2361	22.9783	1278.81	1085.92	12.0244	11.4638
13	1305.81	98.7446	1.1111	1325.1	1280.73	0.1006	0.0742
14	1487.12	99.1172	0.6307	1500.62	1463.97	0.0901	0.0576
15	1633.71	85.4525	13.869	1707	1560.41	5.0237	4.5887
16	1759.08	98.5894	0.599	1772.58	1745.58	0.1367	0.0411
17	1886.38	99.243	0.2527	1896.03	1870.95	0.0681	0.0172
18	2316.51	97.4738	1.6742	2337.72	2276	0.4037	0.208
19	2628.98	98.7913	1.0037	2827.64	2538.32	0.8617	0.6701
20	2854.65	98.7847	1.1365	2885.51	2827.64	0.14	0.119
21	2926.01	97.5648	2.1665	2978.09	2885.51	0.4425	0.3278
22	3068.75	99.3397	0.5003	3126.61	3016.67	0.1634	0.0877
23	3442.94	78.7827	1.3395	3460.3	3151.69	15.1449	1.0462

4. Hasil Metode FTIR sampel BT4



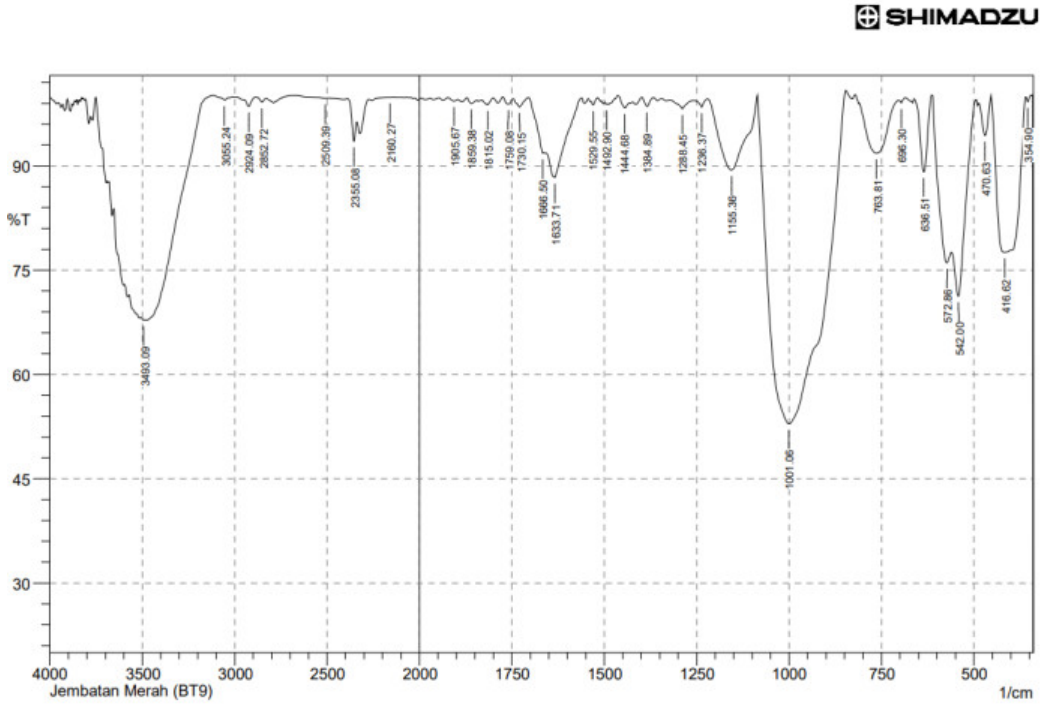
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	424.34	48.251	50.773	493.78	343.33	28.689	28.037
2	545.85	65.754	8.146	557.43	495.71	5.587	0.87
3	586.36	57.91	11.503	621.08	559.36	12.418	2.685
4	634.58	69.692	7.378	680.87	623.01	4.792	0.792
5	731.02	85.172	5.179	750.31	682.8	3.132	1.043
6	779.24	84.014	8.183	813.96	752.24	3.467	1.403
7	819.75	98.12	1.355	831.32	813.96	0.067	0.031
8	866.04	97.171	2.471	894.97	831.32	0.43	0.331
9	1024.2	46.884	31.669	1087.85	908.47	37.903	22.277
10	1109.07	66.473	5.161	1228.66	1089.78	14.46	2.82
11	1263.37	97.685	1.966	1301.95	1230.58	0.329	0.221
12	1340.53	98.501	1.094	1361.74	1301.95	0.198	0.098
13	1423.47	99.149	0.057	1429.25	1417.68	0.042	0.002
14	1485.19	99.023	0.228	1504.48	1479.4	0.073	0.008
15	1629.85	93.645	6.107	1697.36	1539.2	2.179	2.055
16	1749.44	98.417	1.103	1768.72	1730.15	0.172	0.092
17	1897.95	99.463	0.145	1913.39	1888.31	0.048	0.007
18	2370.51	96.024	2.375	2397.52	2353.16	0.483	0.205
19	2854.65	97.511	1.542	2879.72	2752.42	0.4	0.061
20	2924.09	95.387	3.677	2991.59	2879.72	1.047	0.617
21	3014.74	99.261	0.32	3120.82	2991.59	0.083	0.017
22	3423.65	84.948	1.088	3441.01	3120.82	9.072	-1.804

5. Hasil Metode FTIR pada sampel BT5



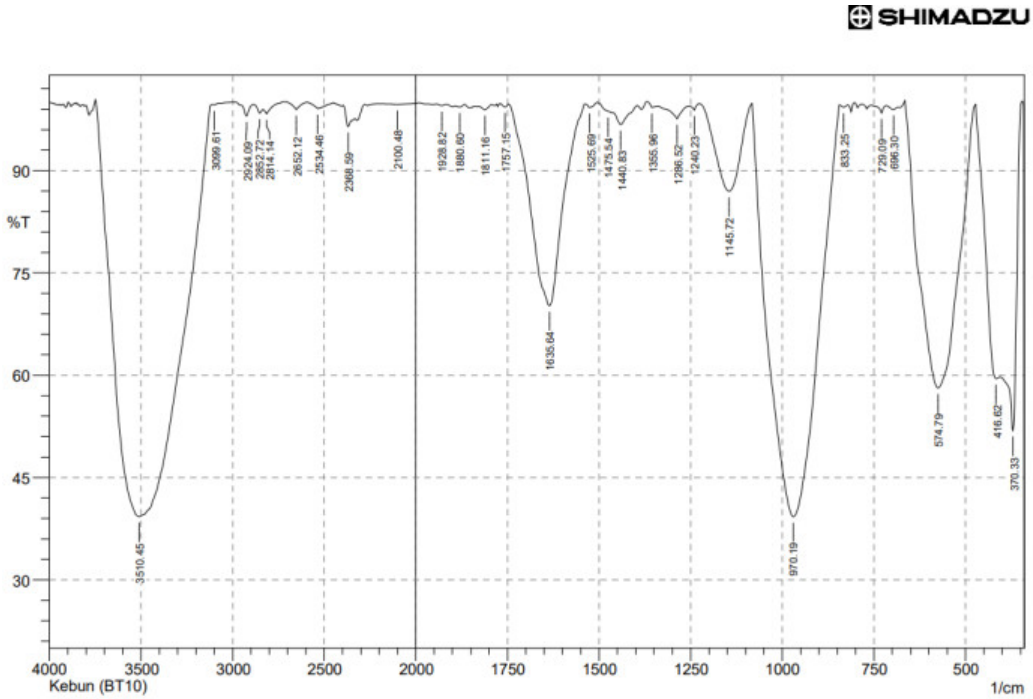
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	383.83	54.181	19.65	405.05	343.33	10.121	3.481
2	424.34	57.056	17.156	457.13	406.98	8.448	2.808
3	482.2	82.565	16.774	526.57	459.06	2.807	2.643
4	543.93	91.891	7.556	557.43	526.57	0.575	0.506
5	582.5	70.586	29.355	611.43	557.43	4.231	4.223
6	638.44	79.86	20.128	661.58	613.36	2.346	2.337
7	667.37	98.498	1.763	675.09	661.58	0.019	0.033
8	790.81	63.02	37.286	819.75	675.09	14.062	14.199
9	856.39	96.759	2.901	883.4	831.32	0.419	0.341
10	1018.41	22.511	30.569	1074.35	885.33	76.464	32.059
11	1097.5	29.433	15.974	1193.94	1076.28	40.641	12.102
12	1257.59	95.199	4.588	1288.45	1230.58	0.512	0.454
13	1336.67	97.726	1.446	1367.53	1313.52	0.323	0.138
14	1442.75	98.354	0.944	1463.97	1431.18	0.148	0.065
15	1487.12	99.206	0.217	1500.62	1483.26	0.04	0.01
16	1529.55	98.947	0.427	1533.41	1516.05	0.032	0.011
17	1633.71	90.535	4.682	1654.92	1562.34	2.462	1.131
18	1664.57	93.868	0.293	1701.22	1662.64	0.6	-0.012
19	1726.29	98.778	0.581	1743.65	1716.65	0.092	0.034
20	1884.45	97.526	1.166	1924.96	1869.02	0.408	0.156
21	1938.46	99.282	0.163	1944.25	1924.96	0.053	0.009
22	2146.77	99.275	0.377	2227.78	2092.77	0.285	0.084
23	2353.16	96.625	2.107	2372.44	2337.72	0.337	0.151
24	2854.65	98.229	0.895	2881.65	2819.93	0.319	0.09
25	2924.09	97.052	2.035	2989.66	2881.65	0.748	0.336
	9.96	99.449	0.02	3097.68	3068.75	0.067	0.001
	9.08	80.909	0.161	3448.72	3421.72	2.473	0.014
	9.38	83.287	0.769	3572.17	3529.73	3.253	0.152

6. Hasil metode FTIR pada sampel Jembatan Merah



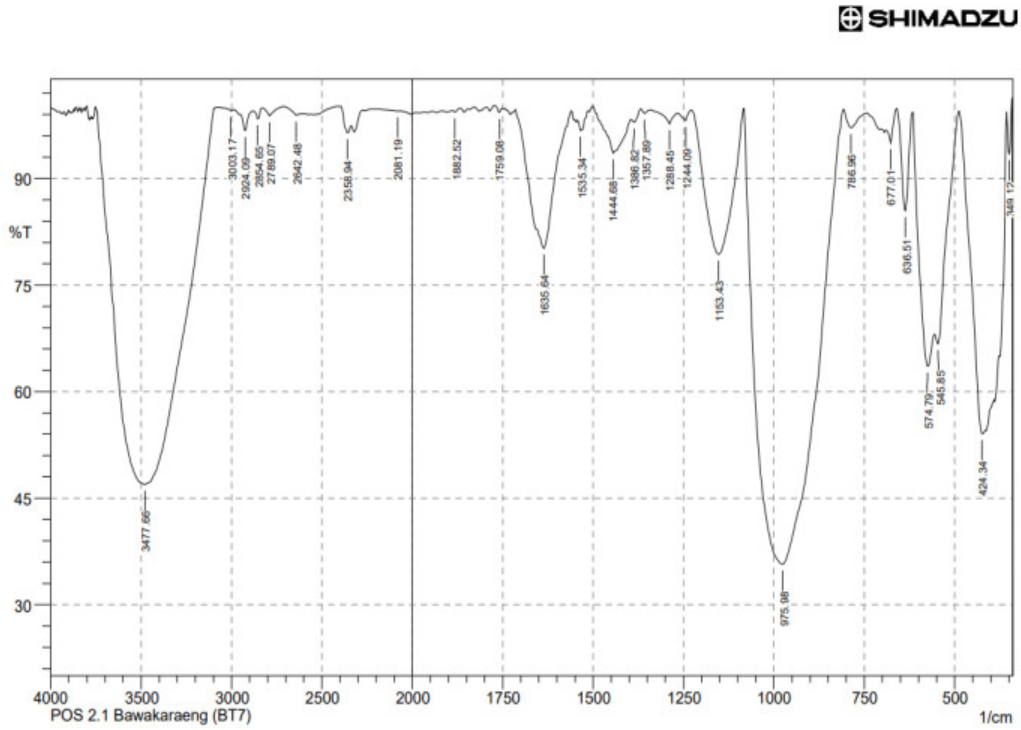
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	354.9	99.23	0.767	360.69	345.26	0.019	0.021
2	416.62	77.579	7.498	453.27	399.26	4.568	1.556
3	470.63	94.369	5.187	487.99	453.27	0.483	0.415
4	542	71.256	12.278	559.36	495.71	5.22	1.762
5	572.86	76.061	6.713	611.43	561.29	4.258	1.394
6	636.51	89.144	10.74	659.66	613.36	1.073	1.052
7	696.3	99.065	0.521	704.02	684.73	0.046	0.014
8	763.81	91.821	7.285	808.17	705.95	2.321	1.941
9	1001.06	52.903	47.447	1085.92	846.75	41.092	41.577
10	1155.36	89.425	10.141	1220.94	1087.85	3.777	3.525
11	1236.37	98.452	1.094	1259.52	1220.94	0.14	0.06
12	1288.45	98.221	1.225	1321.24	1259.52	0.277	0.129
13	1384.89	98.565	1.282	1398.39	1367.53	0.104	0.083
14	1444.68	98.334	1.173	1463.97	1431.18	0.138	0.08
15	1492.9	98.852	0.1	1498.69	1490.97	0.035	0.002
16	1529.55	98.762	0.67	1535.34	1517.98	0.057	0.021
17	1633.71	88.339	5.273	1654.92	1562.34	2.721	0.984
18	1666.5	91.836	0.798	1703.14	1662.64	0.773	0.011
19	1730.15	98.494	1.211	1745.58	1707	0.151	0.104
20	1759.08	98.881	0.893	1774.51	1745.58	0.091	0.064
21	1815.02	98.802	0.813	1830.45	1799.59	0.106	0.055
22	1859.38	98.975	0.656	1870.95	1845.88	0.083	0.042
23	1905.67	99.331	0.321	1923.03	1896.03	0.057	0.021
24	2160.27	99.868	0.014	2171.85	2140.99	0.016	0.001
25	2355.08	93.547	3.841	2387.87	2339.65	0.718	0.29
	.39	99.716	0.05	2567.25	2490.1	0.07	0.004
	.72	99.172	0.601	2885.51	2831.5	0.105	0.057
	.09	98.563	1.114	2949.16	2885.51	0.203	0.125
	.24	99.461	0.377	3084.18	3032.1	0.071	0.035
	.09	67.813	0.134	3508.52	3487.3	3.562	0.01

7. Hasil metode FTIR sampel batuan Kebun Lembanna



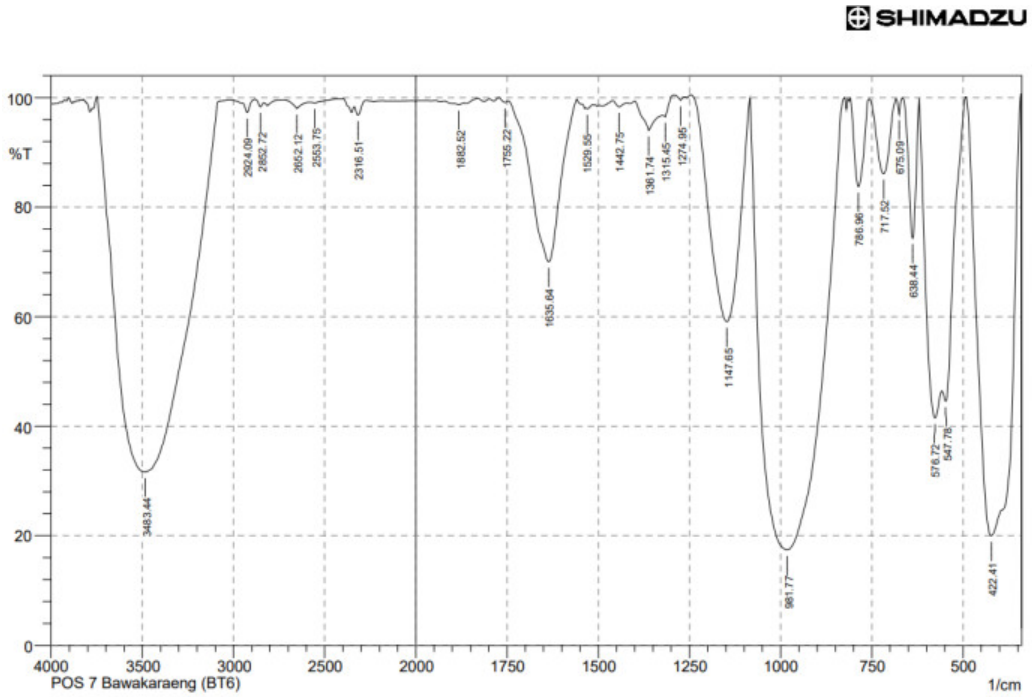
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	370.33	51.893	32.042	405.05	347.19	10.873	4.651
2	416.62	59.494	6.099	472.56	406.98	8.886	1.306
3	574.79	58.125	41.83	665.44	474.49	25.689	25.635
4	696.3	98.97	0.85	715.59	665.44	0.152	0.131
5	729.09	98.47	1.085	758.02	715.59	0.136	0.055
6	833.25	99.3	0.329	842.89	821.68	0.052	0.017
7	970.19	39.272	60.451	1082.07	844.82	52.297	52.004
8	1145.72	86.978	12.818	1224.8	1083.99	4.404	4.28
9	1240.23	98.87	0.789	1255.66	1226.73	0.079	0.035
10	1286.52	97.598	1.861	1338.6	1255.66	0.444	0.248
11	1355.96	99.27	0.553	1369.46	1338.6	0.057	0.028
12	1440.83	96.75	2.119	1463.97	1396.46	0.585	0.298
13	1475.54	98.667	0.158	1506.41	1471.69	0.11	0.011
14	1525.69	99.24	0.631	1539.2	1506.41	0.062	0.047
15	1635.64	70.208	29.535	1745.58	1539.2	14.056	13.825
16	1757.15	99.344	0.465	1770.65	1747.51	0.046	0.027
17	1811.16	98.949	0.586	1828.52	1791.87	0.119	0.046
18	1880.6	99.332	0.258	1892.17	1867.09	0.06	0.016
19	1928.82	99.537	0.195	1942.32	1915.31	0.043	0.012
20	2100.48	99.708	0.08	2194.99	2059.98	0.143	0.023
21	2368.59	96.455	1.74	2397.52	2351.23	0.471	0.16
22	2534.46	99.07	0.921	2596.19	2449.6	0.272	0.262
23	2652.12	98.953	1.101	2715.77	2596.19	0.176	0.205
24	2814.14	98.335	0.812	2835.36	2715.77	0.318	0.066
25	2852.72	98.436	0.757	2885.51	2835.36	0.214	0.062
[illegible]	[illegible].09	98.012	1.598	2953.02	2885.51	0.292	0.179
[illegible]	[illegible].61	99.632	0.118	3111.18	3076.46	0.041	0.008
[illegible]	[illegible].45	39.281	60.782	3747.69	3113.11	146.831	146.791

8. Hasil metode FTIR sampel batuan 1.1 BWK



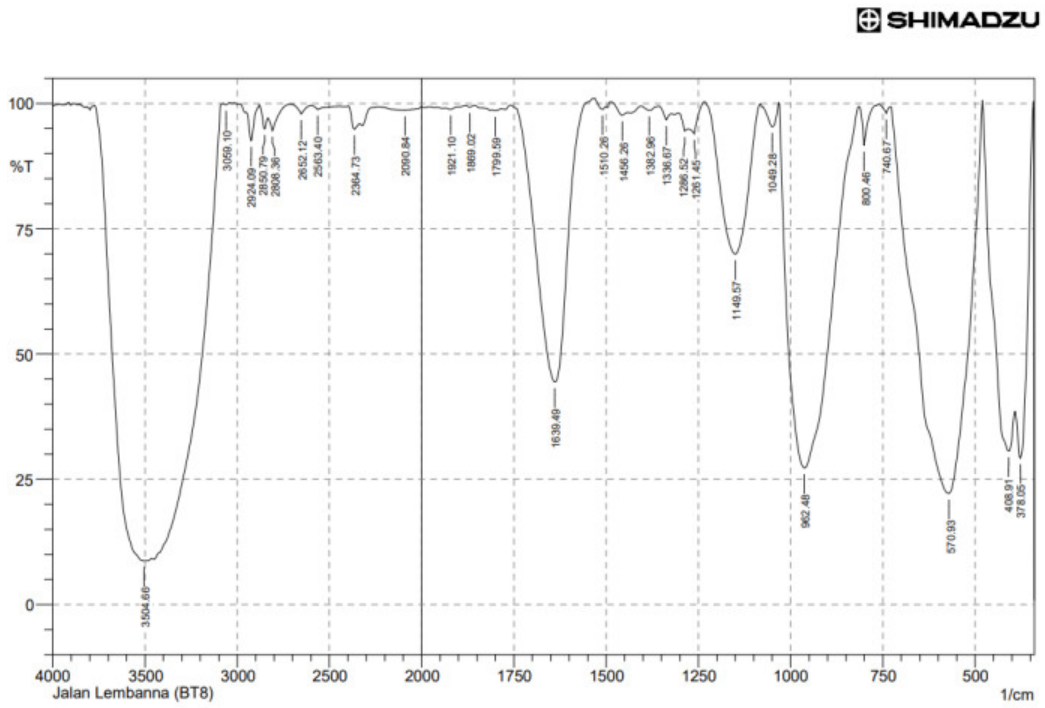
No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	349.12	93.4881	6.8574	356.83	341.4	0.2478	0.2706
2	424.34	54.0645	17.8988	487.99	393.48	15.7508	4.5131
3	545.85	66.7417	5.9392	555.5	489.92	5.8652	0.5886
4	574.79	63.5625	13.8262	615.29	557.43	8.1323	3.0382
5	636.51	85.4704	14.0865	659.66	617.22	1.4321	1.3523
6	677.01	95.0387	3.197	690.52	661.58	0.3815	0.1693
7	786.96	97.1542	2.4131	808.17	742.59	0.4784	0.3284
8	975.98	35.712	64.0827	1082.07	808.17	71.9647	71.7071
9	1153.43	79.3474	20.4032	1228.66	1083.99	8.2049	8.0458
10	1244.09	98.1386	1.3217	1267.23	1228.66	0.1887	0.0913
11	1288.45	97.7152	1.6303	1340.53	1267.23	0.3525	0.1723
12	1357.89	99.1563	0.5831	1367.53	1340.53	0.0632	0.0302
13	1386.82	97.913	0.9109	1396.46	1367.53	0.1763	0.0579
14	1444.68	93.5902	4.6347	1481.33	1396.46	1.6062	0.9521
15	1535.34	96.7625	0.3313	1543.05	1533.41	0.1046	-0.0013
16	1635.64	80.2	19.4075	1714.72	1560.41	7.2165	6.9536
17	1759.08	99.3023	0.7385	1772.58	1751.36	0.0201	0.0287
18	1882.52	99.352	0.328	1890.24	1869.02	0.0389	0.0138
19	2081.19	99.4978	0.025	2198.85	2075.41	0.1936	-0.0016
20	2358.94	96.4332	1.9935	2395.59	2337.72	0.5811	0.2735
21	2642.48	98.8976	0.5285	2709.99	2613.55	0.2238	0.0675
22	2789.07	98.7989	1.2067	2829.57	2709.99	0.2005	0.2199
	.65	98.3985	1.3268	2881.65	2829.57	0.1821	0.118
	.09	96.7574	2.4525	2951.09	2885.51	0.4869	0.2728
	.17	99.5422	0.2214	3043.67	2985.81	0.064	0.0172
	.66	46.9474	1.3803	3487.3	3097.68	72.8782	9.2852

9. Hasil metode FTIR sampel batuan Pos 1 BWK



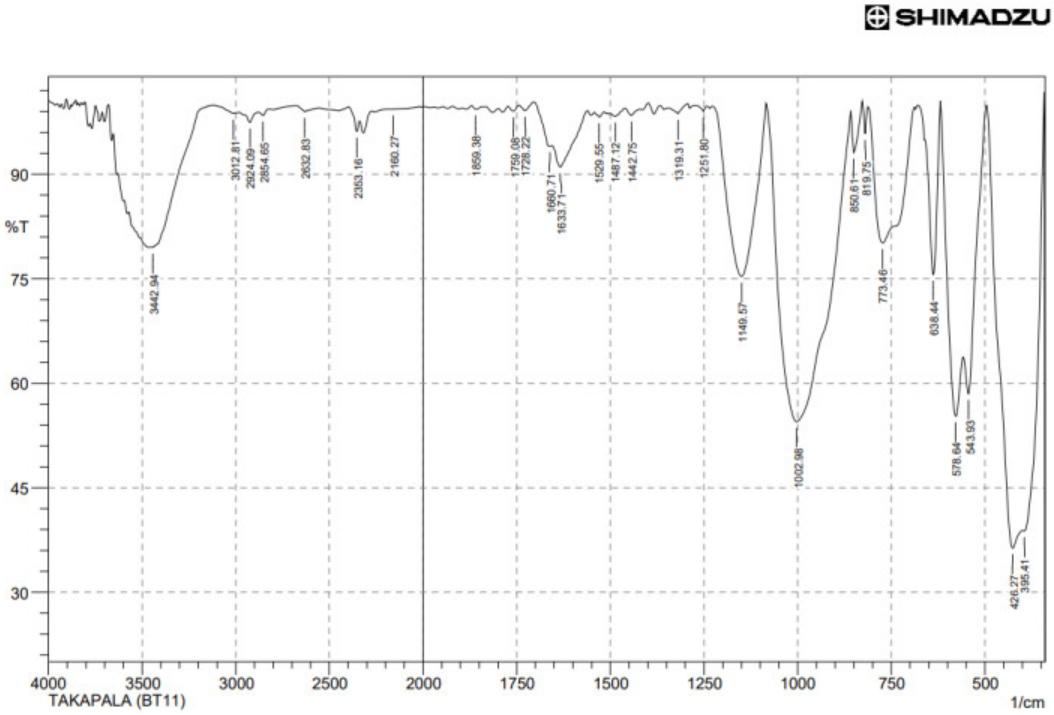
	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	422.41	20.0143	79.6922	491.85	343.33	59.8813	59.6682
2	547.78	44.5797	9.9881	557.43	493.78	10.5733	1.2843
3	576.72	41.5179	19.6998	619.15	559.36	16.1022	5.4855
4	638.44	74.3866	25.539	665.44	621.08	2.7156	2.7034
5	675.09	96.96	2.908	684.73	665.44	0.0914	0.0804
6	717.52	86.105	13.6128	756.1	684.73	2.4775	2.3896
7	786.96	83.7546	15.9518	808.17	758.02	2.1204	2.0573
8	981.77	17.4175	82.488	1083.99	825.53	114.4875	114.4031
9	1147.65	59.0853	40.6036	1246.02	1085.92	18.8239	18.7041
10	1274.95	99.4821	0.7829	1292.31	1263.37	-0.0057	0.0313
11	1315.45	96.5062	1.1491	1323.17	1292.31	0.2092	0.0159
12	1361.74	94.0014	4.0273	1398.39	1325.1	1.2504	0.6027
13	1442.75	98.287	0.9799	1460.11	1421.54	0.206	0.0796
14	1529.55	97.9564	0.2956	1533.41	1516.05	0.132	0.0116
15	1635.64	70.0438	29.395	1745.58	1560.41	12.9336	12.4711
16	1755.22	99.1032	0.4649	1772.58	1747.51	0.0636	0.0306
17	1882.52	98.7117	0.2879	1896.03	1869.02	0.1372	0.0193
18	2316.51	96.8002	1.9114	2337.72	2274.07	0.539	0.2351
19	2553.75	99.0083	0.259	2580.76	2434.17	0.3895	0.0376
20	2652.12	98.002	1.3821	2731.2	2580.76	0.6885	0.2925
21	2852.72	98.3135	0.9972	2883.58	2833.43	0.2231	0.0876
	.09	97.2946	1.9884	2951.09	2883.58	0.4147	0.2232
	.44	31.6457	68.1527	3749.62	3088.03	189.2468	188.3592

10. Hasil metode FTIR sampel batuan Jalan Lembanna



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	378.05	29.2134	26.1999	391.55	343.33	16.0411	6.3357
2	408.91	30.6274	18.6821	478.35	393.48	28.5094	10.1886
3	570.93	22.1542	77.9864	727.16	480.28	83.9388	83.8918
4	740.67	98.0451	1.4677	761.88	729.09	0.1334	0.0746
5	800.46	91.5964	7.8733	815.89	769.6	0.6003	0.5006
6	962.48	27.2582	72.557	1029.99	815.89	61.3339	61.054
7	1049.28	95.3454	4.4947	1076.28	1031.92	0.536	0.489
8	1149.57	69.947	30.1098	1232.51	1083.99	11.9622	12.0154
9	1261.45	93.9457	2.9484	1276.88	1234.44	0.6193	0.1708
10	1286.52	94.4887	1.5541	1303.88	1276.88	0.4716	0.0511
11	1336.67	96.71	1.8343	1357.89	1323.17	0.2982	0.1025
12	1382.96	98.622	0.8656	1406.11	1357.89	0.197	0.0893
13	1456.26	97.6548	1.2589	1487.12	1440.83	0.2624	0.1126
14	1510.26	98.811	1.1486	1531.48	1498.69	0.0658	0.0948
15	1639.49	44.3979	55.9918	1759.08	1531.48	28.6996	29.0526
16	1799.59	98.5723	0.2076	1809.23	1782.23	0.1523	0.0125
17	1869.02	99.2913	0.3081	1880.6	1857.45	0.055	0.0146
18	1921.1	98.842	0.3518	1936.53	1901.81	0.1453	0.0256
19	2090.84	98.6524	0.061	2104.34	2075.41	0.1658	0.0033
20	2364.73	94.8566	2.7545	2397.52	2335.8	0.9817	0.3595
21	2563.4	98.7763	0.8036	2596.19	2447.67	0.4804	0.1742
22	2652.12	97.8807	1.8549	2708.06	2596.19	0.4323	0.3037
23	2808.36	94.6117	3.059	2833.43	2717.7	1.1814	0.4313
	.79	94.9214	3.1067	2881.65	2833.43	0.6323	0.2924
	.09	92.554	6.2814	2951.09	2881.65	1.0839	0.7852
	.1	99.7669	0.317	3076.46	3041.74	0.0116	0.0243
	.66	8.7185	3.8385	3772.76	3493.09	160.2456	19.1986

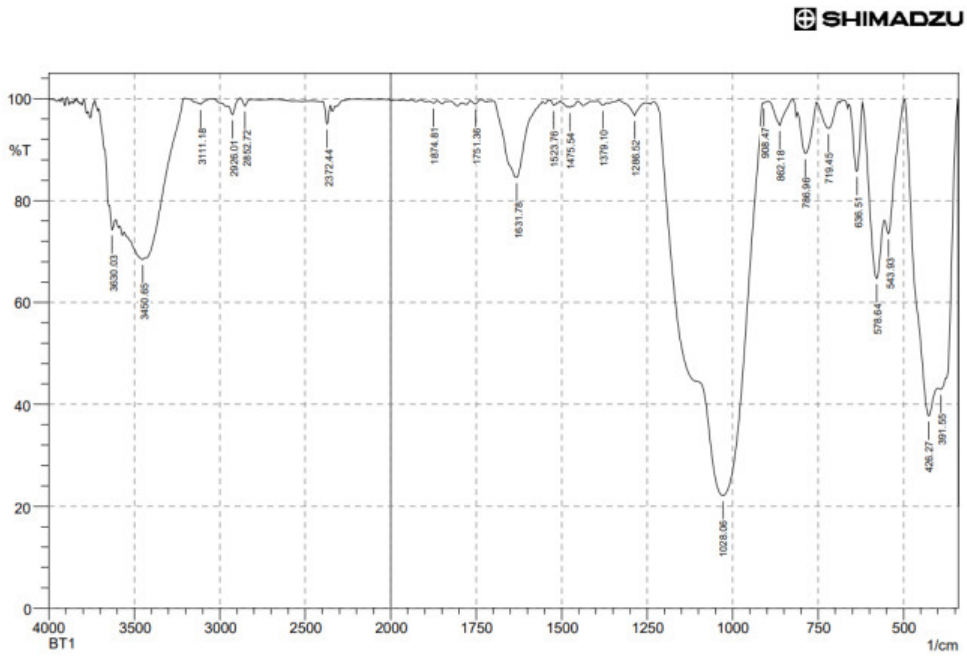
11.Hasil metode FTIR sampel batuan Takapala



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	395.41	38.7774	4.1539	399.26	343.33	15.1481	3.8452
2	426.27	36.3155	18.7027	495.71	401.19	25.9081	6.1437
3	543.93	58.4832	13.3716	557.43	497.63	7.4887	1.8114
4	578.64	55.2637	20.1063	617.22	559.36	10.2439	4.2336
5	638.44	75.599	24.7183	677.01	619.15	2.9098	2.964
6	773.46	80.1204	19.5368	812.03	688.59	7.6721	7.4788
7	819.75	95.7774	4.2844	827.46	812.03	0.1125	0.1166
8	850.61	93.084	6.3745	858.32	827.46	0.532	0.5029
9	1002.98	54.4695	44.6077	1082.07	860.25	35.5519	34.4217
10	1149.57	75.3379	24.597	1226.73	1083.99	9.6004	9.552
11	1251.8	99.0263	0.7505	1273.02	1242.16	0.0605	0.0344
12	1319.31	98.6803	1.117	1344.38	1292.31	0.1472	0.1039
13	1442.75	98.4376	0.9571	1460.11	1421.54	0.1803	0.0775
14	1487.12	98.2905	0.6359	1498.69	1460.11	0.2109	0.0553
15	1529.55	98.176	0.7175	1543.05	1516.05	0.1686	0.0381
16	1633.71	90.9998	4.2475	1654.92	1562.34	2.3685	0.9819
17	1660.71	94.0153	0.8169	1705.07	1654.92	0.674	0.0522
18	1728.22	99.1119	0.9703	1743.65	1705.07	0.0596	0.0811
19	1759.08	99.0564	0.7615	1772.58	1743.65	0.0749	0.0526
20	1859.38	99.3114	0.4651	1870.95	1843.95	0.0574	0.0298
21	2160.27	99.318	0.0285	2179.56	2115.91	0.1809	0.0034
	.16	96.1164	2.0264	2397.52	2337.72	0.5298	0.1717
	.83	98.9904	0.7347	2671.41	2557.61	0.3352	0.1718
	.65	98.4266	0.6405	2879.72	2823.79	0.2839	0.062
	.09	97.4458	1.1958	2953.02	2879.72	0.5625	0.1395
	.81	98.6984	0.3785	3120.82	2983.88	0.4289	0.0621
	.94	79.4975	0.088	3446.79	3421.72	2.4727	0.007

Tabel Gugus Fungsi Dominan

1. Sampel batuan BT1



(Grafik transmisi terhadap bilangan gelombang FTIR sampel BT1)

(Daerah serapan senyawa sampel BT1)

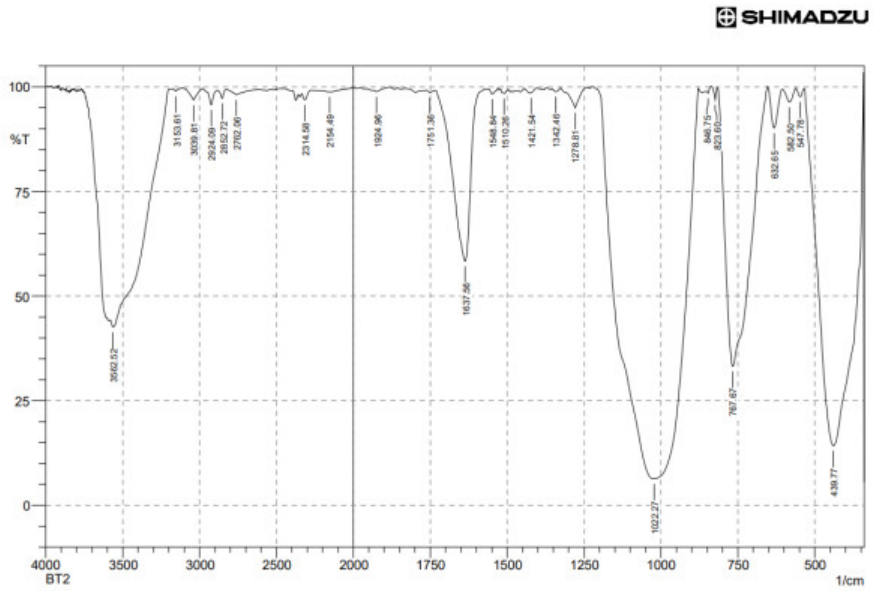
Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
1028,06	22,112	Si–O–(Mg,Al)	*Kaolinite*
426,27	37,742	Si–O	*Feldspars*
578,64	64,693	Si–O, Si–O–Al	*Anhydrite*
3450,65	68.488	H–O–H	*Kaolinite*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan BT1 dengan titik koordinat 5º18’47,26” LS - 125 º54’41,6” BT, didapatkan hasil:

- Bilangan gelombang 1028,06 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O–(Mg,Al).

- Bilangan gelombang 426,27 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O.
- Bilangan gelombang 578,64 cm^{-1} merupakan jenis mineral *Anhydrite* dengan gugus fungsi Si–O–Al.
- Bilangan gelombang 3450,65 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.

2. Sampel batuan BT2



(Grafik transmisi terhadap bilangan gelombang FTIR sampel BT2)

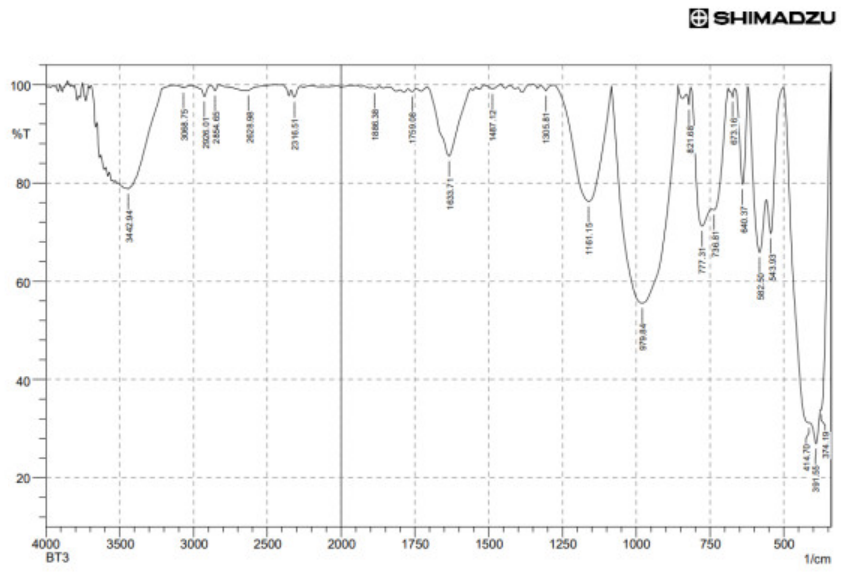
(Daerah serapan senyawa sampel BT2)

Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
1022,27	6,3247	Si–O–Si, Si–O	*Kaolinite*
439,77	14,222	Si-O	*Feldspars*
767,67	33,219	Si–O, Si–O–A l	*Quartz*
52	42,5823	H–O–H	*Kaolinite*
56	58.3724	H–O–H	*Aromatic C=C*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan BT2 dengan titik koordinat 5º18’31,64” LS - 125 º54’41,52” BT, didapatkan hasil:

- Bilangan gelombang 1022,27 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O–Si, Si–O.
- Bilangan gelombang 439,77 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O.
- Bilangan gelombang 767,67 cm^{-1} merupakan jenis mineral *Quartz* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 3562,52 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.
- Bilangan gelombang 1637,56cm^{-1} merupakan jenis mineral *Aromatic C=C* dengan gugus fungsi H–O–H.

3. Sampel batuan BT3



Grafik transmisi terhadap bilangan gelombang FTIR sampel BT3)

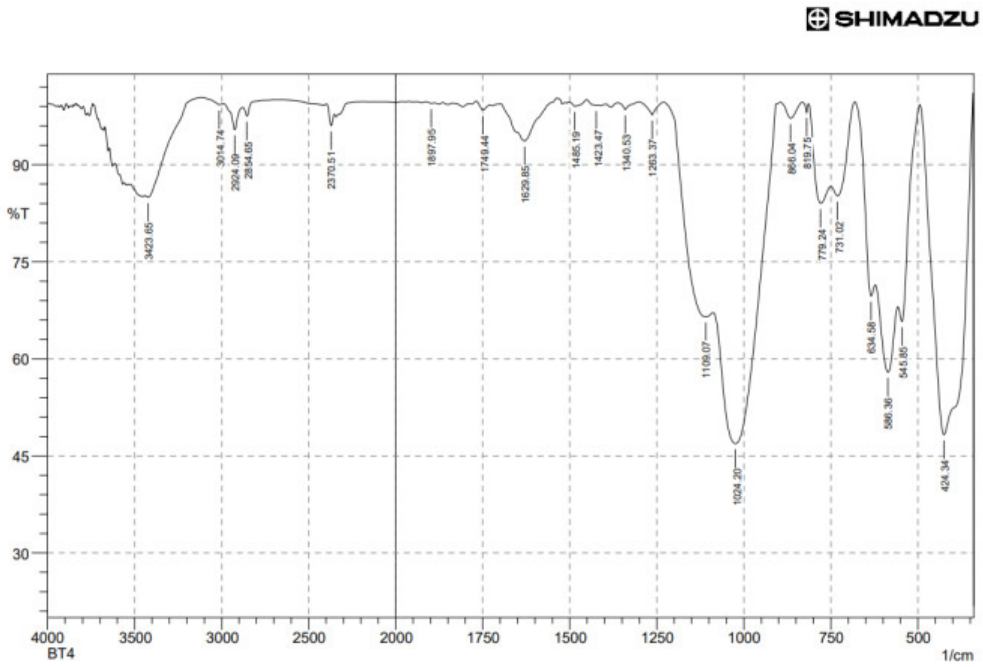
(Daerah serapan senyawa sampel BT3)

Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
391,55	26,946	Si–O	*Feldspars*
979,84	55,5421	Si–O–(Mg,Al)	*Kaolinite*
582,50	65.8592	Si–O, Si–O–Al	*Anhydrite*
543,93	69.7178	Si–O, Si–O–Fe	*Kaolinite*
777,31	71.233	Si–O, Si–O–Al	*Quartz*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan BT3 dengan titik koordinat 5º18’27,48” LS - 125 º54’20,35” BT, didapatkan hasil:

- Bilangan gelombang 391,55 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O.
- Bilangan gelombang 979,84 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O–(Mg,Al).
- Bilangan gelombang 582,50 cm^{-1} merupakan jenis mineral *Anhydrite* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 1161,15 cm^{-1} merupakan jenis mineral *Quartz* dengan gugus fungsi Si–O–(Mg,Al).
- Bilangan gelombang 543,93 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O, Si–O–Fe.

4. Sampel batuan BT4



(Grafik transmisi terhadap bilangan gelombang FTIR sampel BT4)

(Daerah serapan senyawa sampel BT4)

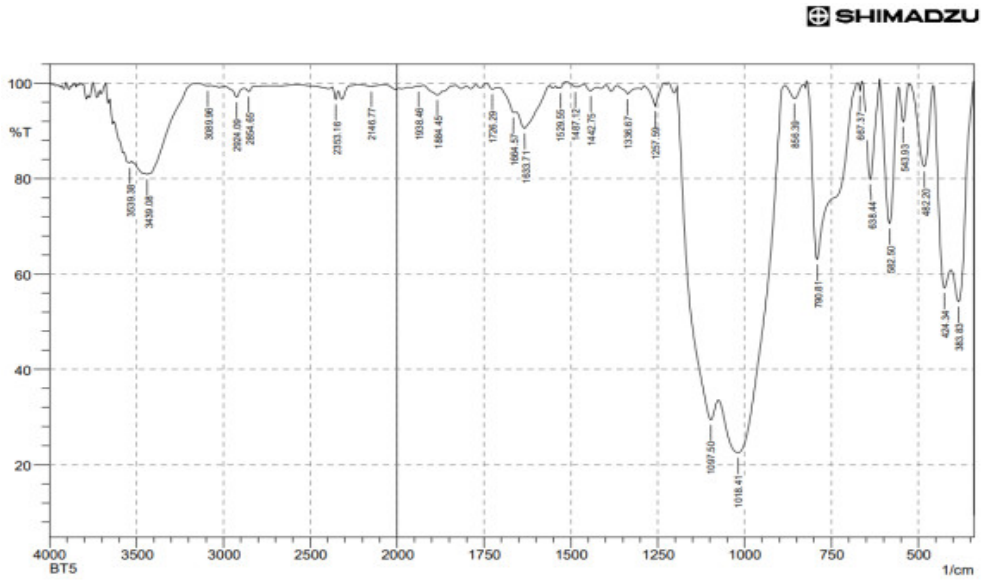
Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
1024,20	46.884	Si–O– (Mg, Al)	*Kaolinite*
424,34	48.251	Si–O, Si–O–Fe	*Feldspars*
586,36	57.91	Si–O, Si–O–Al	*Anhydrite*
545,85	65.754	Si–O, Si–O–Fe	*Kaolinite*
634,58	69.692	Si–O, Si–O–Al	*Feldspars*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan BT4 dengan titik koordinat 5º18’27,93” LS - 125 º54’2,50” BT, didapatkan hasil:

- Bilangan gelombang 1024,20 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).

- Bilangan gelombang 424,34 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 586,36 cm^{-1} merupakan jenis mineral *Anhydrite* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 545,85 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O, Si–O–Fe.

5. Sampel batuan BT5



(Grafik transmisi terhadap bilangan gelombang FTIR sampel BT5)

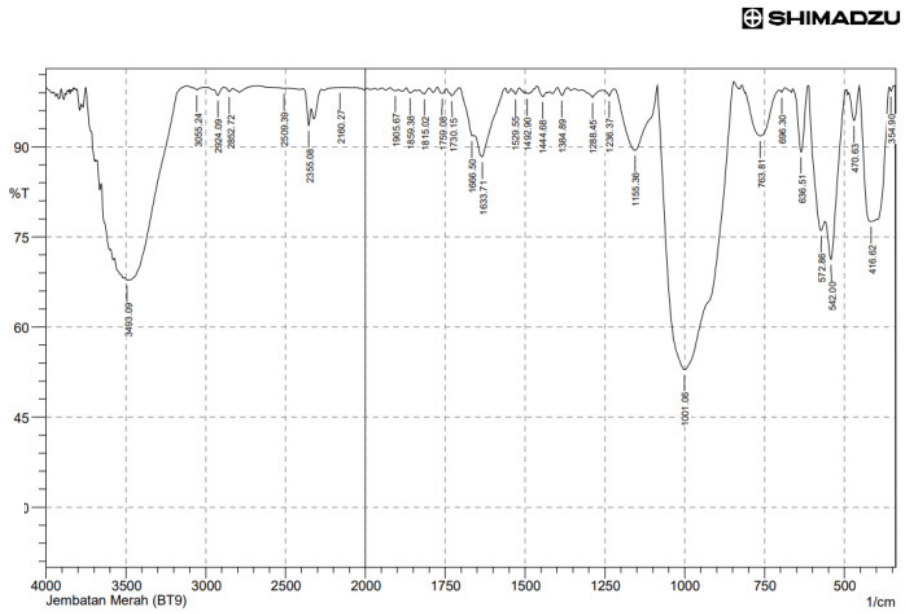
(Daerah serapan senyawa sampel batuan BT5)

Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
1018,41	22.511	Si–O– (Mg, Al)	*Kaolinite*
383,81	54.181	Si–O, Si–O–Al	*Feldspars*
424,34	57.056	Si–O, Si–O–Al	*Feldspars*
1	63.02	Si–O, Si–O–Fe	*Quartz*
0	70.586	Si–O, Si–O–Al	*Anhydrite*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan BT5 dengan titik koordinat 5º18’20,01” LS - 125 º53’57,37” BT, didapatkan hasil:

- Bilangan gelombang 1018,41 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).
- Bilangan gelombang 383,81 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 424,34 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 790,81 cm^{-1} merupakan jenis mineral *Quartz* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 582,50 cm^{-1} merupakan jenis mineral *Anhydrite* dengan gugus fungsi Si–O, Si–O–Al.

6. Sampel batuan Jembatan Merah



(Grafik transmisi terhadap bilangan gelombang FTIR sampel batuan Jembatan Merah)

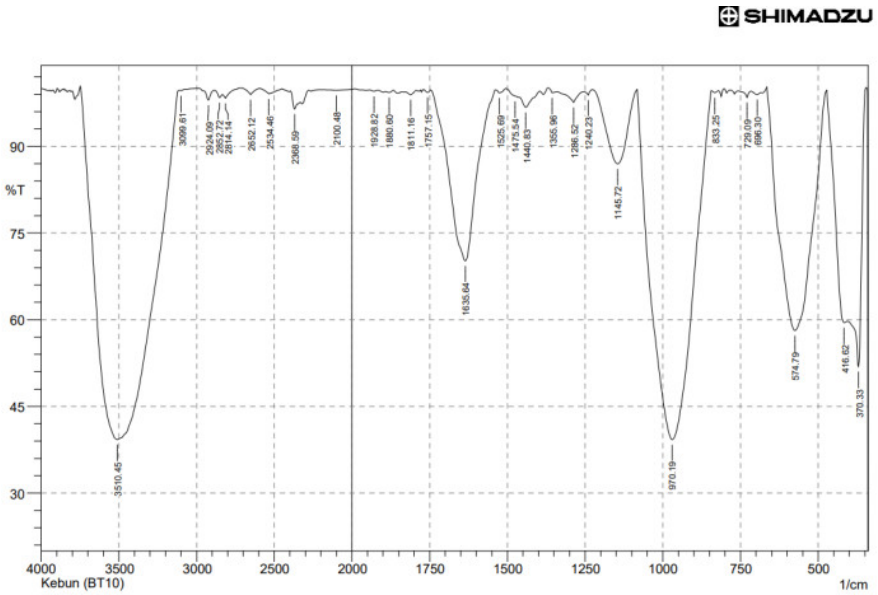
(Daerah serapan senyawa sampel batuan Jembatan Merah)

Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
1001,06	52.903	Si–O– (Mg, Al)	*Kaolinite*
3483,09	54.181	H–O–H	*Kaolinite*
542,00	63.02	Si–O	*Kaolinite*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan BT5 dengan titik koordinat 5º15’2,51” LS - 125 º54’19,46” BT, didapatkan hasil:

- Bilangan gelombang 1001,06 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O–(Mg, Al).
- Bilangan gelombang 3493,09 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.
- Bilangan gelombang 542,00 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O.

7. Sampel batuan Kebun Lembanna



(Grafik transmisi terhadap bilangan gelombang FTIR sampel batuan Kebun Lembanna)

(Daerah serapan senyawa sampel batuan Kebun Lembanna)

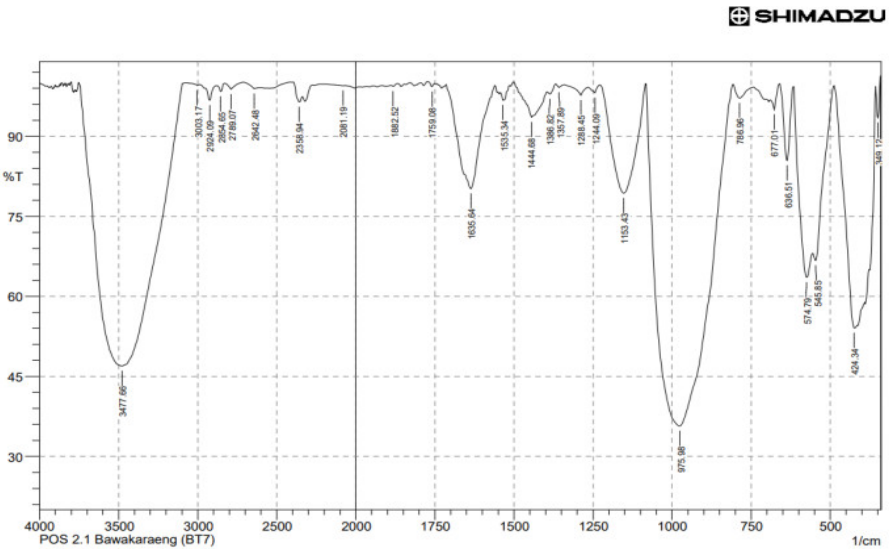
Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
3510,45	39.281	H–O–H	*Kaolinite*
970,19	39.272	Si–O– (Mg, Al)	*Kaolinite*
574,79	58.125	Si–O, Si–O–Al	*Metakaolinite*
416,62	59.494	Si–O, Si–O–Fe	*Feldspars*
1635,64	70.208	H–O–H	*Aromatic C=C*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan Kebun Lembanna dengan titik koordinat 5º15’14,99” LS - 125 º53’20,68” BT, didapatkan hasil:

- Bilangan gelombang 3510,45 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.
- Bilangan gelombang 970,19 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).

- Bilangan gelombang 574,79 cm^{-1} merupakan jenis mineral *Metakaolinite* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 1635,64 cm^{-1} merupakan jenis mineral *Aromatic C=C* dengan gugus fungsi H–O–H.
- Bilangan gelombang 416,62 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Fe.

8. Sampel batuan Pos 1.1 BWK



(Grafik transmisi terhadap bilangan gelombang FTIR sampel batuan Pos 1.1 BWK)

(Daerah serapan senyawa sampel batuan Pos 1.1 BWK)

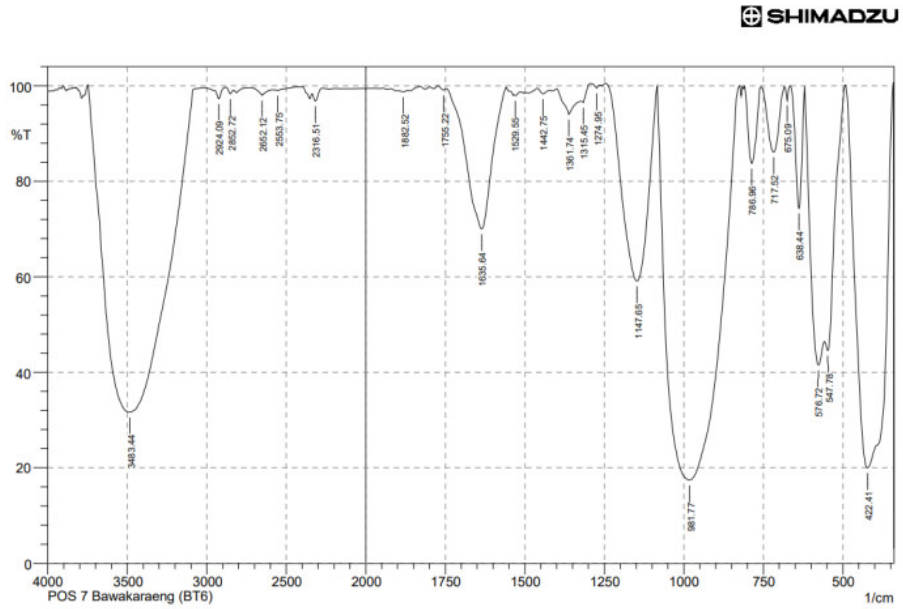
Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
975,98	35.712	Si–O– (Mg, Al)	*Kaolinite*
3477,66	46.9474	H–O–H	*Kaolinite*
424,34	54.0645	Si–O, Si–O–Fe	*Feldspars*
574,79	63.5625	Si–O, Si–O–Al	*Metakaolinite*
545,85	66.7417	Si–O, Si–O–Fe	*Kaolinite*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan Pos 1.1 BWK dengan titik koordinat 5º16’1,62” LS - 125 º53’43,94” BT, didapatkan hasil:

- Bilangan gelombang 975,98 m^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).

- Bilangan gelombang 3477,66 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.
- Bilangan gelombang 424,34 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 574,79 cm^{-1} merupakan jenis mineral *Metakaolinite* dengan gugus fungsi Si–O, Si–O–Al.
- Bilangan gelombang 545,85 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O, Si–O–Fe.

9. Sampel batuan Pos 1 BWK



(Grafik transmisi terhadap bilangan gelombang FTIR sampel batuan Pos 1 BWK)

(Daerah serapan senyawa sampel batuan Pos 1 BWK)

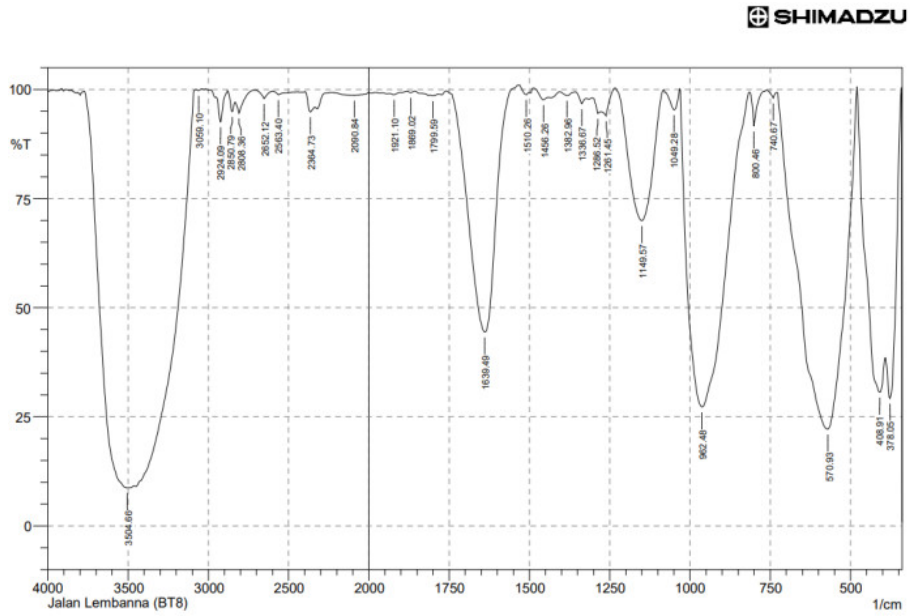
Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
7	17.4175	Si–O– (Mg, Al)	*Kaolinite*
1	20.0143	Si–O, Si–O–Fe	*Feldspars*
44	31.6457	H–O–H	*Kaolinite*

576,72	41.5179	Si–O, Si–O–Fe	*Kaolinite*
1635,64	70.0438	H–O–H	*Aromatic C=C*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan Pos 1 Bawakaraeng dengan titik koordinat 5º16’1,62” LS - 125 º53’43,94” BT, didapatkan hasil:

- Bilangan gelombang 981,77 m^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).
- Bilangan gelombang 424,41 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 3483,44 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.
- Bilangan gelombang 576,72 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 1635,64 cm^{-1} merupakan jenis mineral *Aromatic C=C* dengan gugus fungsi H–O–H.

10. Sampel batuan Jalan Lembanna



(Grafik transmisi terhadap bilangan gelombang FTIR sampel batuan Jalan Lembanna)

(Daerah serapan senyawa sampel batuan Jalan Lembanna)

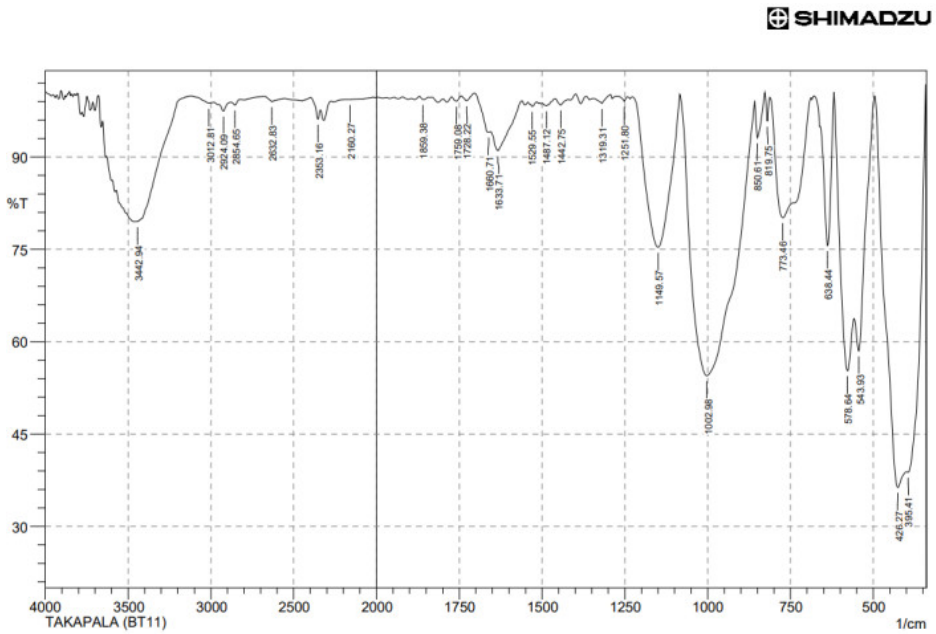
Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
3504,66	8.7185	H–O–H	*Kaolinite*
570,93	22.1542	Si–O, Si–O–Fe	*Metakaolinite*
962,48	27.2582	Si–O– (Mg, Al)	*Kaolinite*
408,91	30.6274	Si–O, Si–O–Fe	*Feldspars*
1639,49	44.3979	Si–O– (Mg, Al)	*Aromatic C=C*
1149,57	69.947	Si–O– (Mg, Al)	*Anhydrite*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan Jalan Lembanna dengan titik koordinat 5º15’2,24” LS - 125 º54’15,27” BT, ın hasil:

- Bilangan gelombang 3504, 66 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi H–O–H.

- Bilangan gelombang 570,93 cm^{-1} merupakan jenis mineral *Metakaolinite* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 962,48 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).
- Bilangan gelombang 408,91 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 1639,49 cm^{-1} merupakan jenis mineral *Aromatic C=C* dengan gugus fungsi Si–O– (Mg, Al).
- Bilangan gelombang 1149,57 cm^{-1} merupakan jenis mineral *Anhydrite* dengan gugus fungsi Si–O– (Mg, Al).

11. Sampel batuan Takapala



(Grafik transmisi terhadap bilangan gelombang FTIR sampel batuan Takapala)

(Daerah serapan senyawa sampel batuan Takapala)

Daerah serapan senyawa (cm^{-1})	Transmisi (%)	Gugus Fungsi	Jenis Mineral
426,27	36.3155	Si–O, Si–O–Fe	*Feldspars*
578,64	55.2637	Si–O, Si–O–Fe	*Anhydrite*
1002,98	54.4695	Si–O– (Mg, Al)	*Kaolinite*
638,44	75.599	Si–O, Si–O–Al	*Feldspars*

Berdasarkan hasil identifikasi spektrum gelombang dari sampel batuan Takapala dengan titik koordinat 5º16’32,56” LS - 125 º51’25,95” BT, didapatkan hasil:

- Bilangan gelombang 426,27 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 578,64 cm^{-1} merupakan jenis mineral *Anhydrite* dengan gugus fungsi Si–O, Si–O–Fe.
- Bilangan gelombang 1002,98 cm^{-1} merupakan jenis mineral *Kaolinite* dengan gugus fungsi Si–O– (Mg, Al).
- Bilangan gelombang 638,44 cm^{-1} merupakan jenis mineral *Feldspars* dengan gugus fungsi Si–O, Si–O–Al.

TABEL GUGUS FUNGSI DOMINAN

Sampel	Nilai Puncak Grafik FTIR			
	Daerah serapan senyawa (cm^{-1})	**Transmisi (%)**	**Gugus Fungsi**	**Jenis Mineral**
BT1	1028,06	22,112	Si–O–(Mg,Al)	*Kaolinite*
BT2	1022,27	6,3247	Si–O–Si, Si–O	*Kaolinite*
BT3	391,55	26,946	Si–O	*Feldspars*
BT4	1024,20	46.884	Si–O– (Mg, Al)	*Kaolinite*
BT5	1018,41	22.511	Si–O– (Mg, Al)	*Kaolinite*
Jembatan Merah	1001,06	52.903	Si–O– (Mg, Al)	*Kaolinite*
Kebun Lembanna	970,19	39.272	Si–O– (Mg, Al)	*Kaolinite*
POS 1.1 Bawakaraeng	975,98	35.712	Si–O– (Mg, Al)	*Kaolinite*
POS 1 Bawakaraeng	981,77	17.4175	Si–O– (Mg, Al)	*Kaolinite*
Jalan Lembanna	3504,66	8.7185	H–O–H	*Kaolinite*
Takapala	426,27	36.3155	Si–O, Si–O–Fe	*Feldspars*