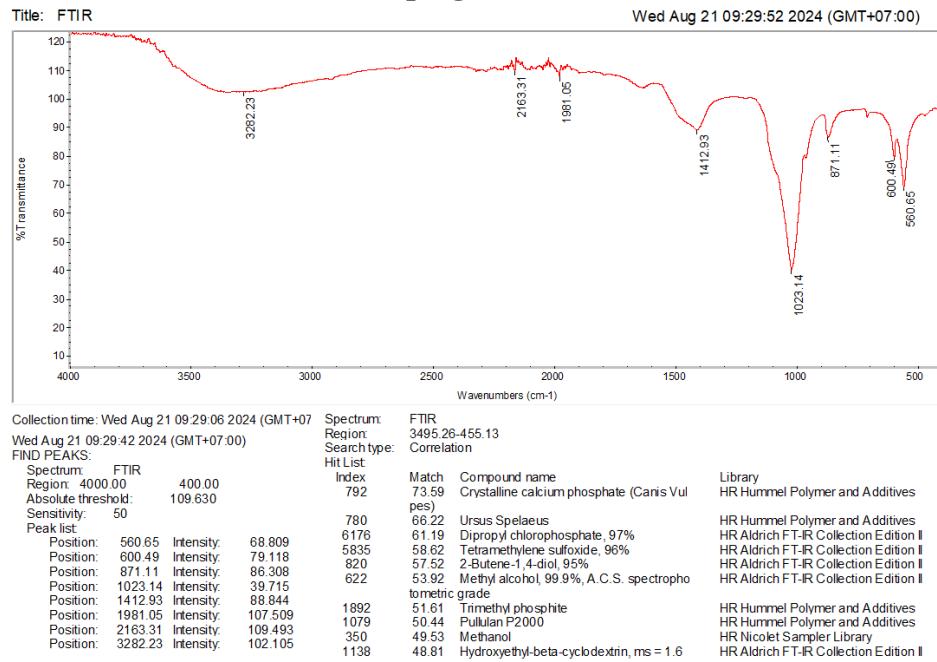


LAMPIRAN

Lampiran 1. Hasil uji karakterisasi sintesis hidroksiapatit cangkang kerang simping metode FTIR



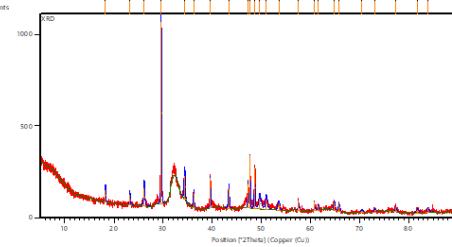
Lampiran 2. Hasil uji karakterisasi sintesis hidroksiapatit cangkang kerang simping metode XRD

This is the simple example template containing only headers for each report item and the bookmarks. The invisible bookmarks are indicated by text between brackets.
Modify it according to your own needs and standards.

Measurement Conditions: (Bookmark 1)

Dataset Name XRD
 File name D:\Pengujian XRD\2024\Agustus\Khabib-XRD\XRD.xrdml
 Comment Configuration=Reflection-Transmission Spinner, Owner=User-1, Creation date=1/15/2016 11:44:36 AM
 Goniometer=PW3050/60 (Theta/Theta); Minimum step size 2Theta:0.001; Minimum step size Omega:0.001
 Sample stage=Reflection-Transmission Spinner PW3064/60; Minimum step size Phi:0.1
 Diffractometer system=XPERT-PRO
 Measurement program=C:\PANalytical\XRD\Collector\Programs\Scan 5-90.xrdmp, Identifier={748FED38-4AEA-495D-84C0-04EBA43A401B}
 Measurement Date / Time 8/21/2024 9:26:58 AM
 Operator Institut Teknologi
 Raw Data Origin XRD measurement (*.XRDML)
 Scan Axis Gonio
 Start Position [°2θ] 5.0084
 End Position [°2θ] 89.9744
 Step Size [°2θ] 0.0170
 Scan Step Time [s] 10.1600
 Scan Type Continuous
 PSD Mode Scanning
 PSD Length [°2θ] 2.12
 Offset [°2θ] 0.0000
 Divergence Slit Type Fixed
 Divergence Slit Size [°] 1.0000
 Specimen Length [mm] 10.00
 Measurement Temperature [°C] 25.00
 Anode Material Cu
 K-Alpha1 [Å] 1.54060
 K-Alpha2 [Å] 1.54443
 K-Beta [Å] 1.39225
 K-A2 / K-A1 Ratio 0.50000
 Generator Settings 30 mA, 40 kV
 Diffractometer Type 0000000011119014
 Diffractometer Number 0
 Goniometer Radius [mm] 240.00
 Dist. Focus-Diverg. Slit [mm] 91.00
 Incident Beam Monochromator No
 Spinning No

Main Graphics, Analyze View: (Bookmark 2)



Peak List: (Bookmark 3)

Pos. [°2θ]	Height [cts]	FWHM Left [°2θ]	d-spacing [Å]	Rel. Int. [%]
18.2707	69.94	0.1338	4.85576	7.05
23.2361	57.96	0.2007	3.82815	5.84
26.1291	99.48	0.2676	3.41050	10.03
29.6106	991.92	0.0836	3.01695	100.00
34.5744	128.89	0.2342	2.60897	12.99
36.2100	76.32	0.1673	2.48082	7.69
39.6043	165.07	0.1004	2.27567	16.64
43.4096	107.62	0.2007	2.08460	10.85
47.3151	132.60	0.1338	1.92124	13.37
47.6964	289.12	0.0669	1.90677	29.15
48.6724	223.97	0.1004	1.87080	22.58
49.7248	57.82	0.5353	1.83364	5.83
51.0406	57.50	0.4015	1.78942	5.80
53.5622	38.91	0.4015	1.71098	3.92
57.5780	54.33	0.1338	1.60083	5.48
60.8372	50.13	0.1004	1.52265	5.05
61.5928	25.05	0.2007	1.50577	2.53
64.8720	45.13	0.2007	1.43736	4.55
65.7978	36.92	0.2676	1.41936	3.72
70.4513	12.46	0.4015	1.33658	1.26
73.1002	13.21	0.4015	1.29455	1.33
77.3280	26.96	0.2007	1.23399	2.72
81.7664	18.11	0.5353	1.17787	1.83
83.8708	24.71	0.2007	1.15359	2.49

Document History: (Bookmark 5)

Insert Measurement:

- File name = "XRD.xrdml"
 - Modification time = "8/22/2024 9:18:34 AM"
 - Modification editor = "its"
- Default properties:
- Measurement step axis = "None"
 - Internal wavelengths used from anode material: Copper (Cu)
 - Original K-Alpha1 wavelength = "1.54060"
 - Used K-Alpha1 wavelength = "1.54060"
 - Original K-Alpha2 wavelength = "1.54443"
 - Used K-Alpha2 wavelength = "1.54443"
 - Original K-Beta wavelength = "1.39225"
 - Used K-Beta wavelength = "1.39225"
 - Divergence slit type = "Fixed"
 - Irradiated length = "10.00000"
 - Fixed div. slit size = "1.00000"
 - Dist. focus to div. slit = "91.00000"
 - Spinner used = "No"
 - Receiving slit size = "0.10000"
 - Step axis value = "0.00000"
 - Offset = "0.00000"
 - Sample length = "10.00000"
 - Modification time = "8/22/2024 9:18:34 AM"
 - Modification editor = "its"

Interpolate Step Size:

- Derived = "Yes"
- Step Size = "0.01"
- Modification time = "8/22/2024 9:18:34 AM"
- Modification editor = "PANalytical"

Search Peaks:

- Minimum significance = "2"
- Minimum tip width = "0.01"
- Maximum tip width = "1"
- Peak base width = "2"
- Method = "Minimum 2nd derivative"
- Modification time = "2/20/2001 11:55:18 AM"
- Modification editor = "PANalytical"

More items... (Bookmark 8)

More items... (Bookmark 9)

More items... (Bookmark 10)

More items... (Bookmark 11)

More items... (Bookmark 12)

More items... (Bookmark 13)

More items... (Bookmark 14)

More items... (Bookmark 15)

More items... (Bookmark 6)

More items... (Bookmark 7)



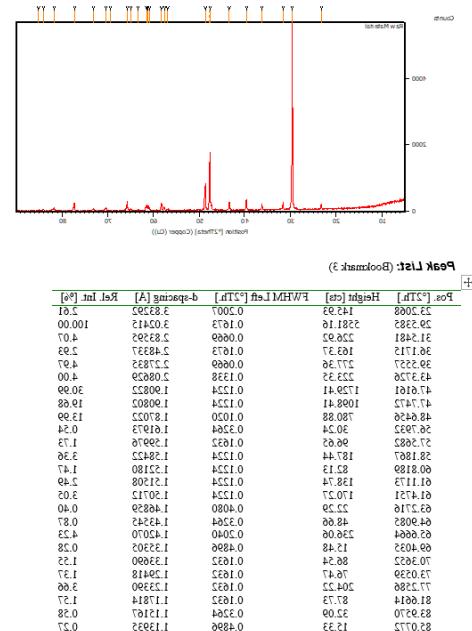
Lampiran 3. Hasil uji karakterisasi hidroksiapatit Raw Material metode XRD

This is the simple example template containing only headers for each report item and the bookmarks. The invisible bookmarks are indicated by text between brackets. Modify it according to your own needs and standards.

Measurement Conditions: (Bookmark 1)

Dataset Name	Raw Material
File name	E:\DATA PENGUJIAN-XRD\Pengujian
2023\Oktober\Rilo\Raw Material\Raw Material.rd	
Comment	Configuration=Reflection-Transmission Sp Goniometer=PW3050/60 (Theta/Theta); Mini
Measurement Date / Time	10/23/2023 12:04:00 PM
Raw Data Origin	PHILIPS-binary (scan) (.RD)
Scan Axis	Gonio
Start Position [°2Th.]	5.0084
End Position [°2Th.]	89.9744
Step Size [°2Th.]	0.0170
Scan Step Time [s]	10.1500
Scan Type	Continuous
Offset [°2Th.]	0.0000
Divergence Slit Type	Fixed
Divergence Slit Size [°]	1.0000
Specimen Length [mm]	10.00
Receiving Slit Size [mm]	12.7500
Measurement Temperature [°C]	-273.15
Anode Material	Cu
K-Alpha1 [Å]	1.54060
K-Alpha2 [Å]	1.54443
K-Beta [Å]	1.39225
K-A2 / K-A1 Ratio	0.50000
Generator Settings	30 mA, 40 kV
Diffractometer Type	Xpert MPD
Diffractometer Number	1
Goniometer Radius [mm]	200.00
Dist. Focus-Diverg. Slit [mm]	91.00
Incident Beam Monochromator	No
Spinning	Yes

Main Graphics, Analyze View: (Bookmark 2)



Pattern List: (Bookmark 4)

Document History: (Bookmark 5)

Insert Measurement:

- File name = Raw Material.rd
- Modification time = "10/23/2023 2:26:03 PM"
- Modification editor = "Teknik Material"

Interpolate Step Size:

- Derived = "Yes"
- Step Size = "0.01"
- Modification time = "10/23/2023 2:26:03 PM"
- Modification editor = "PANalytical"

Search Peaks:

- Minimum significance = "2"
- Minimum tip width = "0.02"
- Maximum tip width = "1.5"
- Peak base width = "2"
- Method = "Minimum 2nd derivative"
- Modification time = "7/21/2023 9:24:35 AM"
- Modification editor = "Teknik Material"

More items... (Bookmark 6)

More items... (Bookmark 7)

More items... (Bookmark 8)

More items... (Bookmark 9)

More items... (Bookmark 10)

More items... (Bookmark 11)

More items... (Bookmark 12)

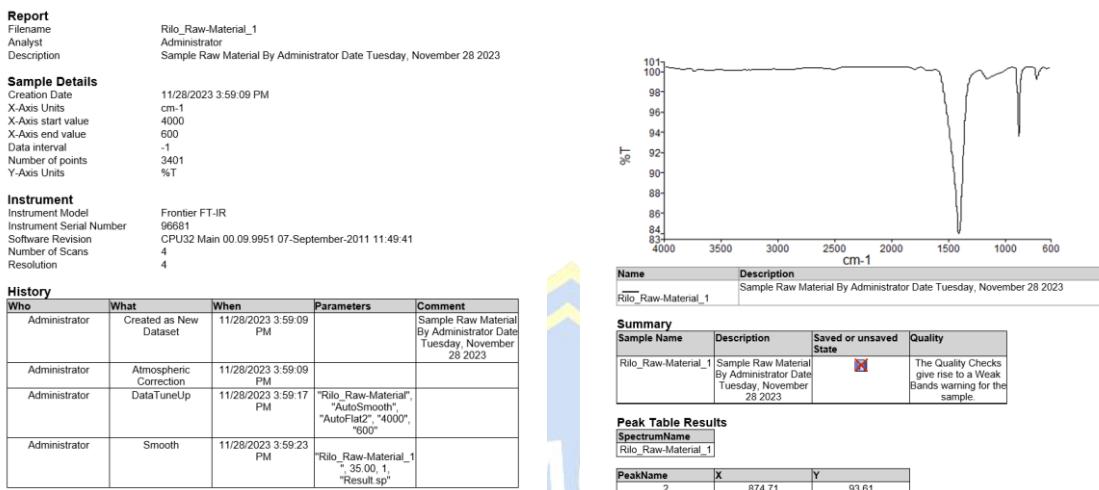
More items... (Bookmark 13)

More items... (Bookmark 14)

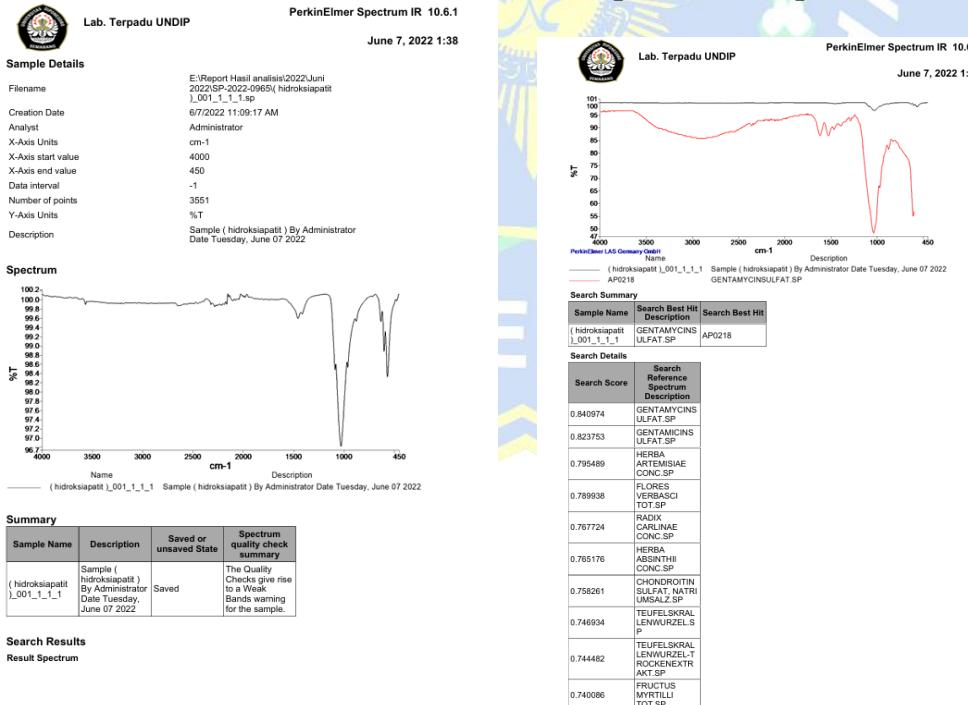
More items... (Bookmark 15)



Lampiran 4. Hasil uji karakterisasi hidroksiapatit *Raw Material* metode FTIR



Lampiran 5. Hasil uji karakterisasi hidroksiapatit PT. Phapros Metode FTIR





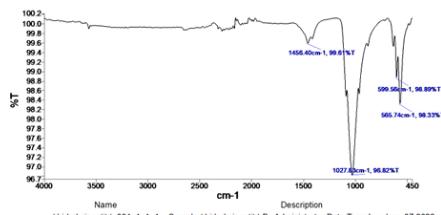
Lab. Terpadu UNDIP

PerkinElmer Spectrum IR 10.6.1

June 7, 2022 1:38

Peak Table Results

Result Spectrum



Name

Description

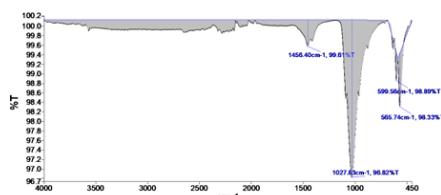
(hidrosikapatt)_001_1_1_1 Sample (hidrosikapatt) By Administrator Date Tuesday, June 07 2022

Peak Table

Peak Number	X (cm ⁻¹)	Y (%T)
1	1456.40	99.61
2	1027.83	96.82
3	599.56	98.89
4	565.74	98.33

Peak Area/Height Results

Result Spectrum



Name

Description

(hidrosikapatt)_001_1_1_1 Sample (hidrosikapatt) By Administrator Date Tuesday, June 07 2022

Peak Area/Height Table

Peak Number	Area (%T)	Height (%T)	Start	End	Base1
1	-430.99	-0.53	4000	1179.97	4000
2	-441.55	-3.32	1179.97	685.71	1179.97
3	-3.11	-0.54	685.71	587.29	685.71



Lab. Terpadu UNDIP

PerkinElmer Spectrum IR 10.6.1

June 7, 2022 1:38

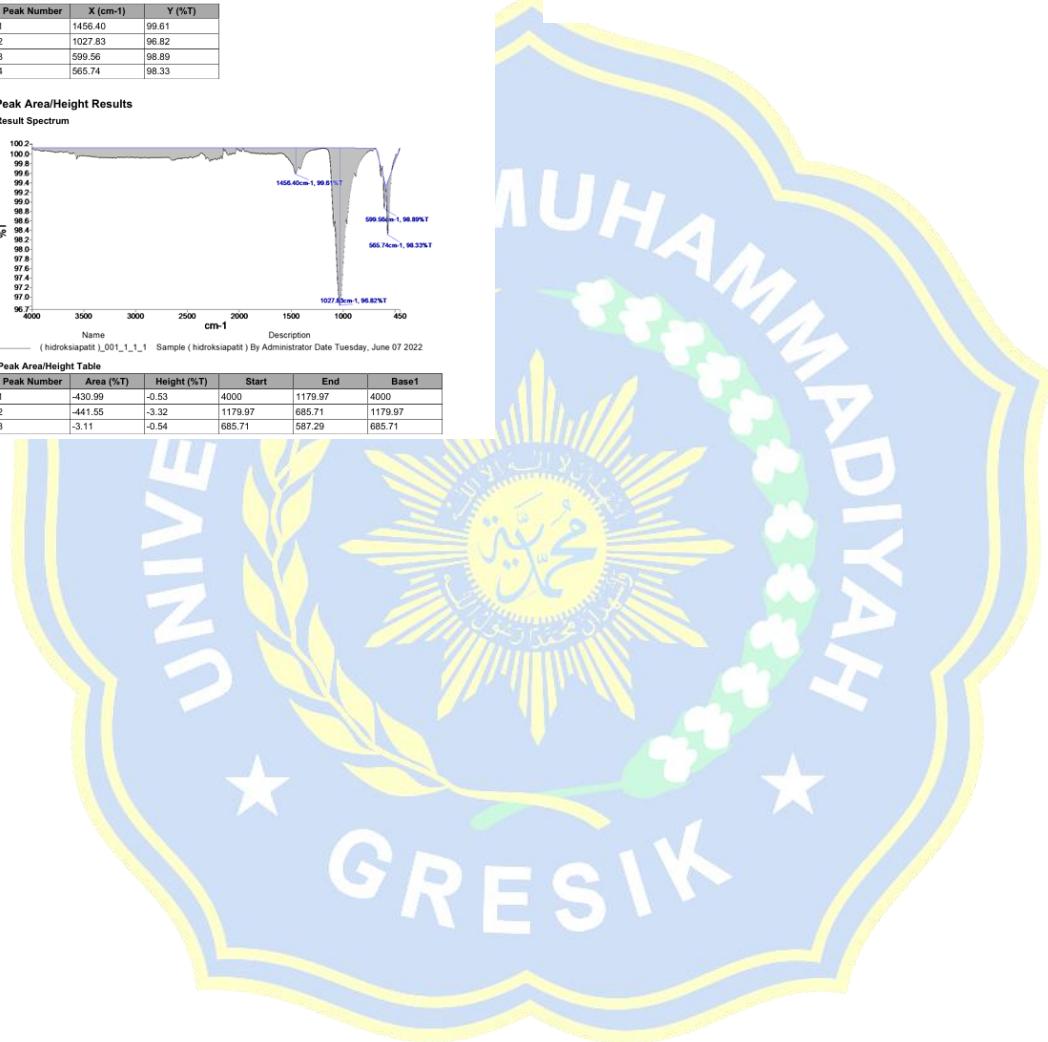
Peak Number	Area (%T)	Height (%T)	Start	End	Base1
4	-29.58	-1.12	587.29	450	587.29

Peak Area/Height Table

Base1 Left	Base1 Right	Base2	Base2 Left	Base2 Right	X (cm ⁻¹)
4000	3999	1179.97	1180.97	1178.97	1456.4
1180.97	1178.97	685.71	686.71	684.71	1027.83
686.71	684.71	587.29	588.29	586.29	599.56
588.29	586.29	451	451	450	565.74

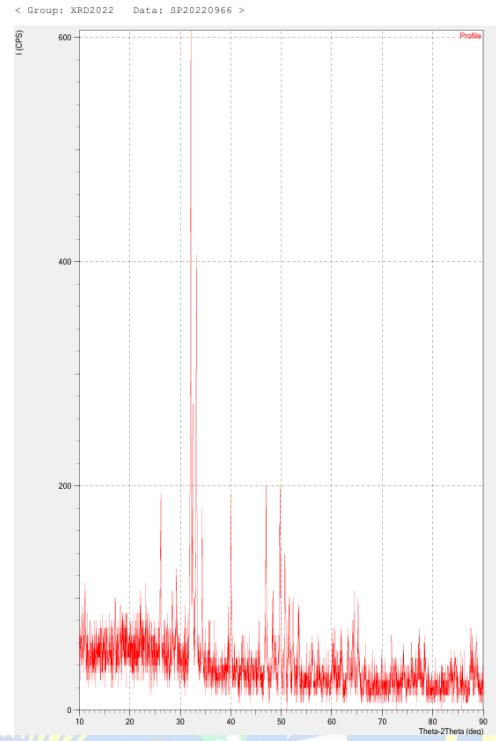
Peak Area/Height Table

Y (%T)
99.61
96.82
98.89
98.33



Lampiran 6. Hasil uji karakterisasi sintesis hidroksiapatit PT. Phapros metode XRD

```
*** Basic Data Process ***
Group : XRD2022
Data : SP20220966
*** Basic Data Process ***
# Data Information
Group : XRD2022
Data : SP20220966
Sample Name : Powder
Comment : Hidroksiapatit
Date & Time : 06-08-22 09:58:04
# Measurement Condition
X-ray tube
target : Cu
voltage : 30.0 (kV)
current : 30.0 (mA)
Slits
Auto Slit : not Used
divergence slit : 1.00000 (deg)
scatter slit : 1.00000 (deg)
receiving slit : 0.15000 (mm)
Scanning
drive axis : Theta-2Theta
scan range : 10.0000 - 90.0000 (deg)
scan mode : Continuous Scan
scan speed : 4.0000 (deg/min)
sampling pitch : 0.0200 (deg)
preset time : 0.30 (sec)
# Data Process Condition
Smoothing [ AUTO ]
smoothing points : 0
B.G.Subtraction [ AUTO ]
sampling points : 0
repeat times : 0
Kal-a2 Separate [ MANUAL ]
Kal a2 ratio : 50 (%) [ YES ]
Peak Search [ AUTO ]
differential points : 1
FWHM threshold : 0.000 (deg)
intensity threshold : 0 (par mil)
FWHM ratio (n1)/n : 0
System error Correction [ YES ]
Precise peak Correction [ YES ]
Y = b**X + c*X + d
b : 0.000000
c : 0.000000
d : 0.000000
```



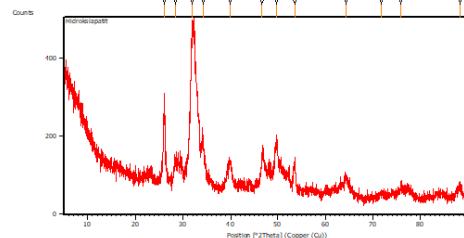
Lampiran 7. Hasil uji karakterisasi sintesis hidroksiapatit peneliti sebelumnya metode XRD

This is the simple example template containing only headers for each report item and the bookmarks. The invisible bookmarks are indicated by text between brackets. Modify it according to your own needs and standards.

Measurement Conditions: (Bookmark 1)

Dataset Name Hidroksiapatit
File name E:\DATA PENGUJIAN-XRD\Pengujian
2023\Oktober Rilo\Hidroksiapatit.xrdml
Comment Configuration=Reflection-Transmission Spinner, Owner=User-1, Creation date=1/15/2016 11:44:36 AM
Goniometer=PW3050/60 (Theta/Theta); Minimum step size 2Theta:0.001; Minimum step size Omega:0.001
Sample stage=Reflection-Transmission Spinner PW3064/60;
Minimum step Phi:0.1
Diffractometer system=XPERT-T-PRO
Measurement program=C:\PANalytical\Data
Collector Programs\Scan 5.90\spin4.xrdmp, Identifier=(EA1354A2-691F-46A9-86C1-7E2BBEE477A)
Measurement Date / Time 10/23/2023 12:20:55 PM
Operator Institut Teknologi
Raw Data Origin XRD measurement (*.XRDML)
Scan Axis Gonio
Start Position [°2Th] 5.0084
End Position [°2Th] 89.9744
Step Size [°2Th] 0.0170
Scan Step Time [s] 10.1600
Scan Type Continuous
PSD Mode Scanning
PSD Length [°2Th] 2.12
Offset [°2Th] 0.0000
Divergence Slit Type Fixed
Divergence Slit Size [°] 1.0000
Specimen Length [mm] 10.00
Measurement Temperature [°C] 25.00
Anode Material Cu
K-Alpha1 [Å] 1.54060
K-Alpha2 [Å] 1.54443
K-Beta [Å] 1.39225
K-A2 / K-A1 Ratio 0.05000
Generator Settings 30 mA, 40 kV
Diffractometer Type 0000000011119014
Diffractometer Number 0
Goniometer Radius [mm] 240.00
Dist. Focus-Diverg. Slit [mm] 91.00
Incident Beam Monochromator No
Spinning Yes

Main Graphics, Analyze View: (Bookmark 2)



Peak List: (Bookmark 3)

Pos. [°2Th]	Height [cts]	FWHM Left [°2Th]	d-spacing [Å]	Rel. Int. [%]
26.0977	211.44	0.1673	3.41453	60.49
28.3473	35.85	0.4015	3.14846	10.26
31.8831	349.56	0.4015	2.80692	100.00
34.1827	99.69	0.2676	2.62316	28.52
39.9349	58.43	1.0706	2.25759	16.72
46.7001	58.57	0.4015	1.94510	16.75
49.7669	72.83	0.6022	1.83219	20.83
53.4947	66.09	0.3346	1.71298	18.91
64.2719	34.88	0.5353	1.44932	9.98
71.6779	7.59	0.9368	1.31670	2.17
75.8814	12.44	0.8029	1.25387	3.56
88.2203	25.79	0.6691	1.10760	7.38

Pattern List: (Bookmark 4)

Document History: (Bookmark 5)

Insert Measurement:
- File name = "Hidroksiapatit.xrdml"
- Modification time = "10/23/2023 2:24:03 PM"
- Modification editor = "Teknik Material"

Default properties:
 - Measurement step axis = "None"
 - Internal wavelengths used from anode material: Copper (Cu)
 - Original K-Alpha1 wavelength = "1.54060"
 - Used K-Alpha1 wavelength = "1.54060"
 - Original K-Alpha2 wavelength = "1.54443"
 - Used K-Alpha2 wavelength = "1.54443"
 - Original K-Beta wavelength = "1.39225"
 - Used K-Beta wavelength = "1.39225"
 - Divergence slit type = "Fixed"
 - Irradiated length = "10.00000"
 - Fixed div. slit size = "1.00000"
 - Dist. focus to div. slit = "91.00000"
 - Receiving slit size = "0.10000"
 - Step axis value = "0.00000"
 - Offset = "0.00000"
 - Sample length = "10.00000"
 - Modification time = "10/23/2023 2:24:03 PM"
 - Modification editor = "Teknik Material"

[More items... \(Bookmark 14\)](#)

[More items... \(Bookmark 15\)](#)

Interpolate Step Size:

- Derived = "Yes"
 - Step Size = "0.01"
 - Modification time = "10/23/2023 2:24:03 PM"
 - Modification editor = "PANalytical"

Search Peaks:

- Minimum significance = "2"
 - Minimum tip width = "0.02"
 - Maximum tip width = "1.5"
 - Peak base width = "2"
 - Method = "Minimum 2nd derivative"
 - Modification time = "7/21/2023 9:24:35 AM"
 - Modification editor = "Teknik Material"

[More items... \(Bookmark 6\)](#)

[More items... \(Bookmark 7\)](#)

[More items... \(Bookmark 8\)](#)

[More items... \(Bookmark 9\)](#)

[More items... \(Bookmark 10\)](#)

[More items... \(Bookmark 11\)](#)

[More items... \(Bookmark 12\)](#)

[More items... \(Bookmark 13\)](#)



Lampiran 8. Hasil uji karakterisasi sintesis hidroksiapatit peneliti sebelumnya metode FTIR

Report				
Filename	Rilo_Hidroksiapatit_1			
Analyst	Administrator			
Description	Sample Hidroksiapatit By Administrator Date Tuesday, November 28 2023			
Sample Details				
Creation Date	11/28/2023 4:14:59 PM			
X-Axis Units	cm ⁻¹			
X-Axis start value	4000			
X-Axis end value	600			
Data interval	-1			
Number of points	3401			
Y-Axis Units	%T			
Instrument				
Instrument Model	Frontier FT-IR			
Instrument Serial Number	95881			
Software Revision	OI32 Main 00.09.9951 07-September-2011 11:49:41			
Number of Scans	4			
Resolution	4			
History				
Who	What	When	Parameters	Comment
Administrator	Created as New Dataset	11/28/2023 4:14:59 PM		Sample Hidroksiapatit By Administrator Date Tuesday, November 28 2023
Administrator	Atmospheric Correction	11/28/2023 4:14:59 PM		
Administrator	Data FuneUp	11/28/2023 4:15:12 PM	"Rilo_Hidroksiapatit", "AutoFlat2", "4000", "800"	
Administrator	Smooth	11/28/2023 4:15:17 PM	"Rilo_Hidroksiapatit", "T": 35.00, 1, "Result.sp"	

Spectrum Graph

