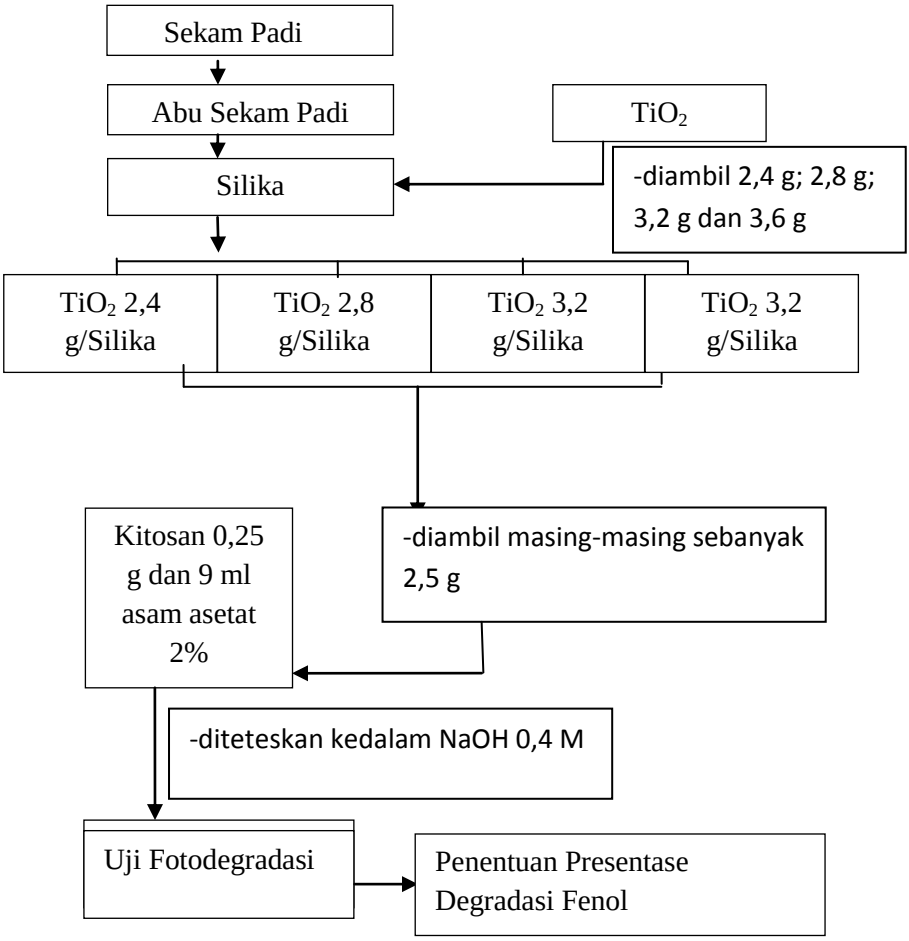
LAMPIRAN

LAMPIRAN A Diagram Alir Penelitian



LAMPIRAN B Perhitungan dan Pembuatan Larutan

B.1 Pembuatan Larutan Fenol

Padatan fenol sebanyak 100 mg ditimbang dan dilarutkan dengan aquades secukupnya dalam gelas kimia. Setelah larut, larutan fenol dipindahkan ke dalam labu takar 1000 mL dan ditambahkan akuades sampai tanda batas.

a. Larutan Fenol 100 mg/L

100 ppm = 100 mg/L

b. Larutan Fenol 25 mg/L

$$V_1.M_1 = V_2.M_2$$

$$V_1.\ 100\ mg/L = 1\ L\ .\ 25\ mg/L$$

$$V_1 = 0{,}25\ L$$

$$V_1 = 250\ ml$$

Sebanyak 250 ml larutan fenol 100 mg/l dimasukkan kedalam labu takar 1 L dan ditambahkan akuades sampai tanda batas.

B.2 Pembuatan Larutan Standar Fenol Konsentrasi 0, 2, 4, 6, 8, dan 10 mg/l dari larutan stok fenol 25 mg/l

$M_1 x\ V_1 = M_2 x\ V_2$

Tabel B.1: Volume larutan fenol 25 mg/l yang dibutuhkan untuk membuat larutan Standar Fenol Konsentrasi 0, 2, 4, 6, 8, dan 10 mg/l

No.	V_1 (mL)	M_1 (mg/l)	V_2 (mL)	M_2 (mg/l)
1	2	25	25	2
2	4			4
3	6			6
4	8			8
5	10			10

B.3 Pembuatan Larutan NaOH 0,4 M

$$[NaOH] = \frac{\text{mol NaOH}}{\text{Volume NaOH (ml)}}$$

$$0{,}4\ M = \frac{\text{mol NaOH}}{100\ \text{ml}}$$

mol NaOH = 40 mmol

mol NaOH = 0,004 mol

Massa NaOH (g) = mol NaOH x Mr NaOH
= 0,004 mol x 40 g/mol
= 1,6 g
Larutan NaOH 0,4 M dibuat dengan menimbang padatan sebanyak 1,6 g dan diencerkan dalam labu takar 100 mL dengan aquades hingga tanda batas.

B.4 Preparasi NaOH 1 M sebanyak 1 L

Mr NaOH= 40 g/mol
Konsentrasi NaOH= 1 M
Volume larutan= 1 L
Sehingga massa padatan NaOH yang ditimbang sebanyak:

$$M = \frac{\text{mol zat terlarut}}{\text{volume larutan}} = \frac{n}{V}$$

$$1\ M = \frac{\text{Massa NaOH}/\ 40\ \frac{g}{mol}}{1\ L}$$

$$\text{Massa NaOH} = 1\ M \times 1\ L \times 40 \frac{g}{mol} = 40\ g$$

Sebanyak 40 g NaOH dilarutkan dengan sedikit akuades dalam gelas kimia. K emudian, dipindahkan ke dalam labu takar 1 L dan ditambah dengan akuades sampai tanda batas lalu dikocok.

B.5 Preparasi Larutan CH_3COOH 2%

Kadar CH_3COOH = 98%
Volume untuk CH_3COOH 2% = $C_1 \times V_1 = C_2 \times V_2$
$98\% \times V_1 = 2\ \% \times 100\ mL$
$V_1 = 2\ mL$

Asam asetat glasial 2% dapat dibuat dengan memipet 2 ml CH_3COOH 98% kemudian diencerkan dengan aquades pada labu takar 100 ml hingga tanda batas.

B. 6 Preparasi larutan HCl 1 M sebanyak 1 L dari Larutan HCl 37 %

Berat jenis HCl = 1,187 $^{mg}/_{mmol}$
Kadar HCl = 37%
Mr HCl = 36,461 $^{mg}/_{mmol}$
Konsentrasi HCl akhir = 1 M
Volume akhir = 1 L

$$[HCl] = \frac{\text{berat jenis (g/mL)}}{\text{Mr (g/mol)}} \times \frac{37}{100} \times \frac{1000\ \text{mL}}{1\ \text{L}}$$

$$= \frac{1{,}187\ \text{mg/mL}}{36{,}461\ \text{mg/mmol}} \times \frac{37}{100} \times \frac{1000\ \text{mL}}{1\ \text{L}}$$

$$= 12{,}04\ \text{M}$$

HCl 1 M

$V_1.M_1 = V_2.M_2$

V_1. 12,04 M = 1 L . 1 M

V_1 = 0,08 L= 80 mL

Sebanyak 80 mL HCl dimasukkan ke dalam labu takar 1 L dan ditambah akuades sampai tanda batas lalu dikocok.

LAMPIRAN C Hasil Karakterisasi XRD

C.1 Sampel TiO_2 Anatase

Pos. [°2Th.]	Height [cts]	FWHM Left [°2Th.]	d-spacing [Å]	Rel. Int. [%]
20.4786	5.03	0.8029	4.33696	0.32
25.3259	1585.20	0.1840	3.51680	100.00
27.2590	19.50	0.2676	3.27164	1.23
36.9634	99.18	0.2007	2.43197	6.26
37.7919	350.50	0.1673	2.38053	22.11
38.5583	108.37	0.2007	2.33496	6.84
47.9938	485.11	0.1506	1.89565	30.60
53.8561	297.06	0.1506	1.70233	18.74
55.0355	281.41	0.1338	1.66861	17.75
62.1127	45.45	0.1673	1.49441	2.87
62.6278	181.95	0.1506	1.48335	11.48
68.7419	88.32	0.1673	1.36558	5.57
70.2698	107.77	0.1004	1.33959	6.80
74.0159	12.19	0.2676	1.28078	0.77
75.0663	183.78	0.1836	1.26440	11.59
75.2658	89.25	0.1224	1.26468	5.63
76.0084	55.37	0.0816	1.25106	3.49

C.2 Sampel TiO_2 Rutil

Pos. [°2Th.]	Height [cts]	FWHM Left [°2Th.]	d-spacing [Å]	Rel. Int. [%]
20.1653	19.22	0.3346	4.40363	1.22
23.1042	92.96	0.1004	3.84970	5.91
25.3841	565.46	0.1840	3.50887	35.94
27.4793	302.77	0.2007	3.24591	19.24
29.5099	1573.49	0.1506	3.02702	100.00
31.5109	26.73	0.3346	2.83921	1.70
36.1078	198.56	0.0836	2.48760	12.62
37.0128	29.52	0.2676	2.42883	1.88
37.8679	119.45	0.1004	2.37593	7.59
38.6780	30.89	0.1673	2.32801	1.96
39.5323	152.05	0.2007	2.27965	9.66
41.2824	52.94	0.2007	2.18696	3.36
43.2354	138.38	0.0836	2.09260	8.79
44.1204	19.96	0.2007	2.05265	1.27
47.2416	53.61	0.1004	1.92406	3.41
47.5692	171.46	0.2676	1.91158	10.90
48.1176	154.44	0.2007	1.89106	9.82
48.6019	181.16	0.1171	1.87335	11.51
53.9466	89.87	0.1673	1.69969	5.71
54.3790	137.54	0.1171	1.68719	8.74
55.0904	76.60	0.1673	1.66708	4.87
56.6714	59.98	0.2007	1.62427	3.81
57.5009	48.50	0.2676	1.60279	3.08
60.7600	39.43	0.1004	1.52440	2.51
61.5202	27.32	0.2007	1.50737	1.74
62.2265	13.32	0.2007	1.49195	0.85
62.7502	85.19	0.0816	1.47953	5.41
64.1133	16.67	0.2007	1.45252	1.06
64.7524	41.26	0.1171	1.43972	2.62
65.6939	37.43	0.1004	1.42135	2.38
69.0266	67.39	0.1338	1.36064	4.28
69.8252	28.45	0.1004	1.34702	1.81
70.3115	49.65	0.1338	1.33889	3.16
73.0294	20.10	0.2676	1.29563	1.28
75.0912	47.50	0.1338	1.26509	3.02
76.1372	15.89	0.2676	1.25029	1.01
77.2757	18.59	0.2007	1.23469	1.18

C.3 Data JCPDS TiO_2 Rutil Nomor 00-021-1276

Rutile (TiO_2)

Name and formula

Reference code:	00-021-1276
Mineral name:	Rutile, syn
Compound name:	Titanium Oxide
Common name:	titania
PDF index name:	Titanium Oxide
Empirical formula:	O_2Ti
Chemical formula:	TiO_2

Crystallographic parameters

Crystal system:	Tetragonal
Space group:	P42/mnm
Space group number:	136
a (Å):	4.5933
b (Å):	4.5933
c (Å):	2.9592

Alpha (°):	90.0000
Beta (°):	90.0000
Gamma (°):	90.0000
Calculated density (g/cm^3):	4.25
Measured density (g/cm^3):	4.23
Volume of cell (10^6 pm^3):	62.43
Z:	2.00
RIR:	3.40

Subfiles and quality

Subfiles:	Alloy, metal or intermetalic Common Phase Corrosion Educational pattern Excipient Forensic Inorganic Mineral NBS pattern Pharmaceutical Pigment/Dye
Quality:	Star (S)

Comments

Color:	White
Creation Date:	1/01/1970
Modification Date:	24/01/2006
General Comments:	Pattern reviewed by Syvinski, W., McCarthy, G., North Dakota State Univ, Fargo, North Dakota, USA, ICDD Grant-in-Aid (1990). Agrees well with experimental and calculated patterns. Additional weak reflections (indicated by brackets) were observed. Naturally occurring material may be reddish brown
Additional Patterns:	Validated by calculated pattern
Analysis:	No impurity over 0.001%
Color:	White
Polymorphism/Phase Transition:	Two other polymorphs, anatase (tetragonal) and brookite (orthorhombic), converted to rutile on heating above 700 C
Reflectance:	Opaque mineral optical data on specimen from Sweden: R3R%=20.3, Disp.=Std. Sample Source or Locality: Sample obtained from National Lead Co., South Amboy, New Jersey, USA. Temperature of Data Collection: Pattern taken at 298 K. Vickers Hardness Number: VHN100=1132-1187. Unit Cell Data Source: Powder Diffraction.

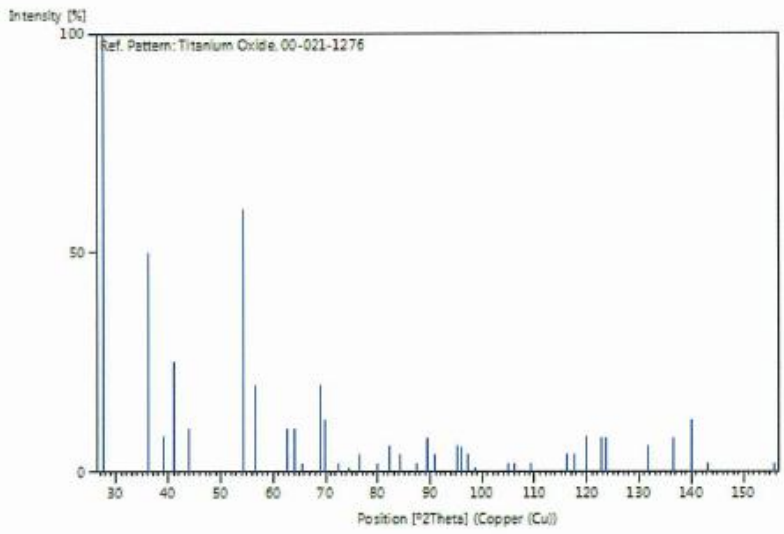
References

Primary reference:	*Natl. Bur. Stand. (U.S.) Monogr. 25*, **7**, 83, (1969)
Optical data:	*Dana's System of Mineralogy, 7th Ed.*, **I**, 575

Peak list

No.	h	k	l	d [A]	2Theta[deg]	I [%]
1	1	1	0	3.24700	27.447	100.0
2	1	0	1	2.48700	36.086	50.0
3	2	0	0	2.29700	39.188	8.0
4	1	1	1	2.18800	41.226	25.0
5	2	1	0	2.05400	44.052	10.0
6	2	1	1	1.68740	54.323	60.0
7	2	2	0	1.62370	56.642	20.0
8	0	0	2	1.47970	62.742	10.0
9	3	1	0	1.45280	64.040	10.0
10	2	2	1	1.42430	65.480	2.0
11	3	0	1	1.35980	69.010	20.0
12	1	1	2	1.34650	69.790	12.0
13	3	1	1	1.30410	72.410	2.0
14	3	2	0	1.27390	74.411	1.0
15	2	0	2	1.24410	76.510	4.0
16	2	1	2	1.20060	79.822	2.0
17	3	2	1	1.17020	82.335	6.0
18	4	0	0	1.14830	84.260	4.0
19	4	1	0	1.11430	87.464	2.0
20	2	2	2	1.09360	89.557	8.0
21	3	3	0	1.08270	90.708	4.0
22	4	1	1	1.04250	95.275	6.0
23	3	1	2	1.03640	96.017	6.0
24	4	2	0	1.02710	97.177	4.0
25	3	3	1	1.01670	98.514	1.0
26	4	2	1	0.97030	105.099	2.0
27	1	0	3	0.96440	106.019	2.0
28	1	1	3	0.94380	109.406	2.0
29	4	0	2	0.90720	116.227	4.0
30	5	1	0	0.90090	117.527	4.0
31	2	1	3	0.88920	120.059	8.0
32	4	3	1	0.87740	122.788	8.0
33	3	3	2	0.87380	123.660	8.0
34	4	2	2	0.84370	131.847	6.0
35	3	0	3	0.82920	136.549	8.0
36	5	2	1	0.81960	140.052	12.0
37	4	4	0	0.81200	143.116	2.0
38	5	3	0	0.78770	155.870	2.0

Stick Pattern



C.4 Data JCPDS TiO_2 Anatase Nomor 00-021-1272

Appendix A JCPDS database phase information

Anatase (TiO_2)

Name and formula

Reference code:	00-021-1272
Mineral name:	Anatase, syn
Compound name:	Titanium Oxide
PDF index name:	Titanium Oxide
Empirical formula:	O_2Ti
Chemical formula:	TiO_2

Crystallographic parameters

Crystal system:	Tetragonal
Space group:	I41/amd
Space group number:	141
a (Å):	3.7852
b (Å):	3.7852
c (Å):	9.5139
Alpha (°):	90.0000
Beta (°):	90.0000
Gamma (°):	90.0000

Calculated density (g/cm^3):	3.89
Volume of cell (10^6 pm^3):	136.31
Z:	4.00
RIR:	3.30

Subfiles and quality

Subfiles:	Alloy, metal or intermetalic Common Phase Corrosion Educational pattern Excipient Forensic Inorganic Mineral NBS pattern Pharmaceutical Pigment/Dye
Quality:	Star (S)

Comments

Color:	Colorless
Creation Date:	1/01/1970
Modification Date:	24/01/2006
General Comments:	Pattern reviewed by Holzer, J., McCarthy, G., North Dakota State Univ, Fargo, North Dakota, USA, ICDD Grant-in-Aid (1990). Agrees well with experimental and calculated patterns
Additional Patterns:	See PDF 01-071-1166. Validated by calculated pattern
Color:	Colorless
Polymorphism/Phase Transition:	Anatase and another polymorph, brookite (orthorhombic), are converted to rutile (tetragonal) by heating above 700 C
Sample Source or Locality:	Sample obtained from National Lead Co., South Amboy, New Jersey, USA
Temperature of Data Collection:	Pattern taken at 298 K
Unit Cell Data Source:	Powder Diffraction.

References

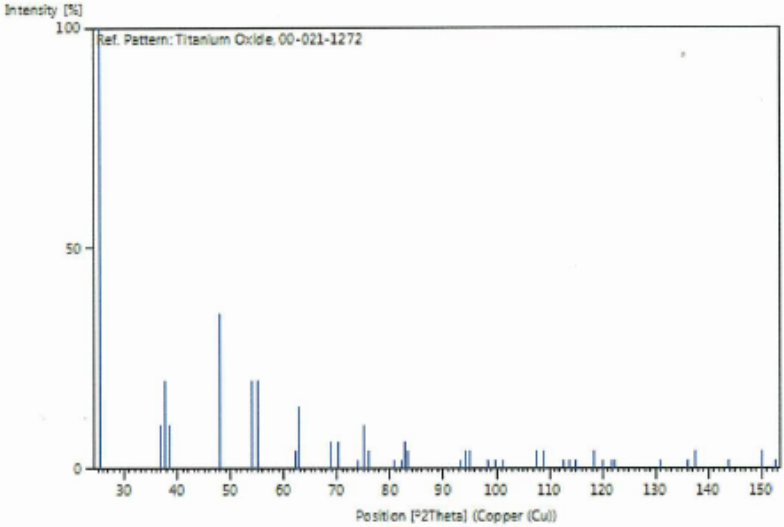
Primary reference:	*Natl. Bur. Stand. (U.S.) Monogr. 25*, **7**, 82, (1969)

Peak list

No.	h	k	l	d [A]	2Theta [deg]	I [%]
1	1	0	1	3.52000	25.281	100.0
2	1	0	3	2.43100	36.947	10.0
3	0	0	4	2.37800	37.801	20.0
4	1	1	2	2.33200	38.576	10.0
5	2	0	0	1.89200	48.050	35.0
6	1	0	5	1.69990	53.891	20.0
7	2	1	1	1.66650	55.062	20.0
8	2	1	3	1.49300	62.121	4.0
9	2	0	4	1.48080	62.690	14.0
10	1	1	6	1.36410	68.762	6.0
11	2	2	0	1.33780	70.311	6.0
12	1	0	7	1.27950	74.031	2.0
13	2	1	5	1.26490	75.032	10.0
14	3	0	1	1.25090	76.020	4.0
15	0	0	8	1.18940	80.727	2.0
16	3	0	3	1.17250	82.139	2.0
17	2	2	4	1.16640	82.662	6.0
18	3	1	2	1.16080	83.149	4.0
19	2	1	7	1.06000	93.221	2.0
20	3	0	5	1.05170	94.182	4.0
21	3	2	1	1.04360	95.143	4.0
22	1	0	9	1.01820	98.319	2.0
23	2	0	8	1.00700	99.804	2.0
24	3	2	3	0.99670	101.221	2.0
25	3	1	6	0.95550	107.448	4.0
26	4	0	0	0.94640	108.963	4.0
27	3	0	7	0.92460	112.841	2.0
28	3	2	5	0.91920	113.861	2.0
29	4	1	1	0.91380	114.909	2.0
30	2	1	9	0.89660	118.439	4.0
31	2	2	8	0.88900	120.104	2.0
32	4	1	3	0.88190	121.725	2.0
33	4	0	4	0.87930	122.336	2.0
34	4	2	0	0.84640	131.036	2.0
35	3	2	7	0.83080	135.998	2.0
36	4	1	5	0.82680	137.391	4.0

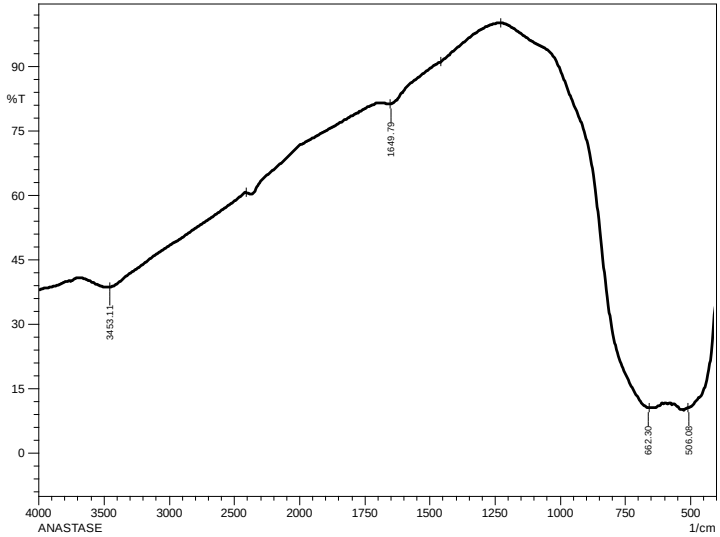
37	3	0	9	0.81020	143.888	2.0
38	4	2	4	0.79740	150.039	4.0
39	0	0	12	0.79280	152.634	2.0

Stick Pattern

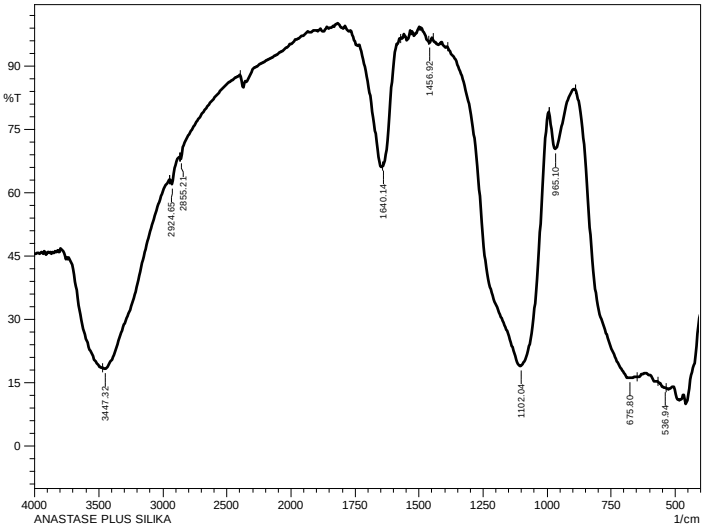


LAMPIRAN D Hasil Karakterisasi FTIR

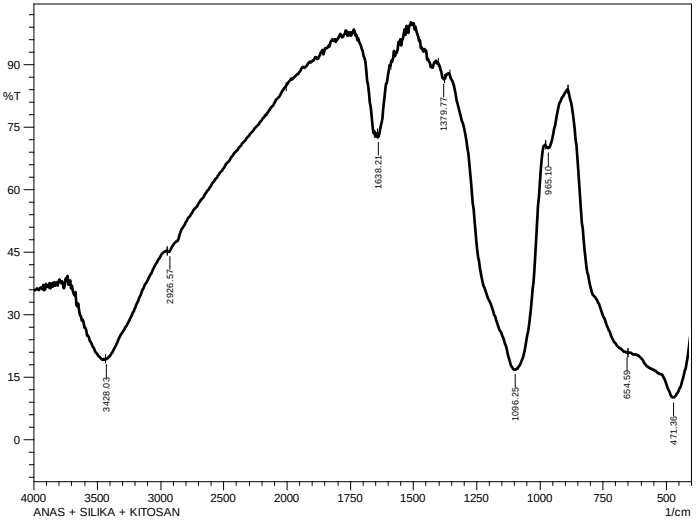
D.1 Spektra FTIR TiO_2 Anatase



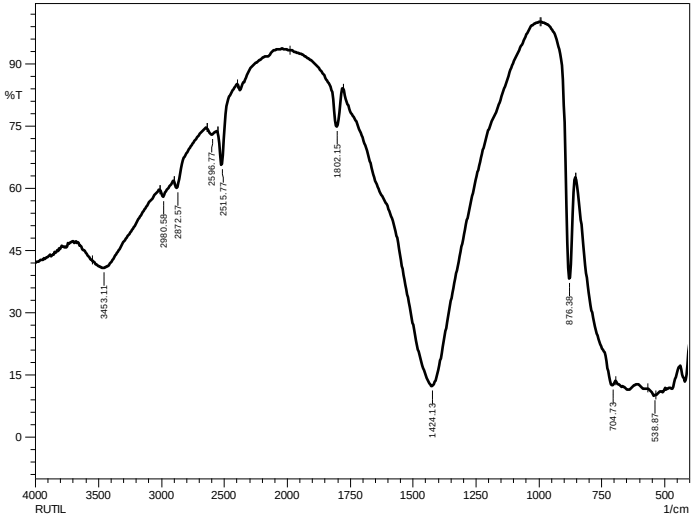
D.2 Spektra FTIR TiO_2 Anatase+Silika



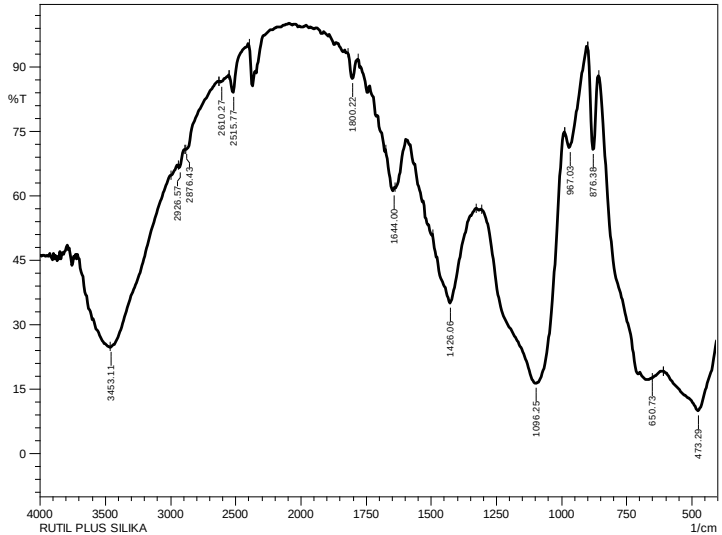
D.3 Spektra FTIR TiO_2 Anatase+Silika/Kitosan



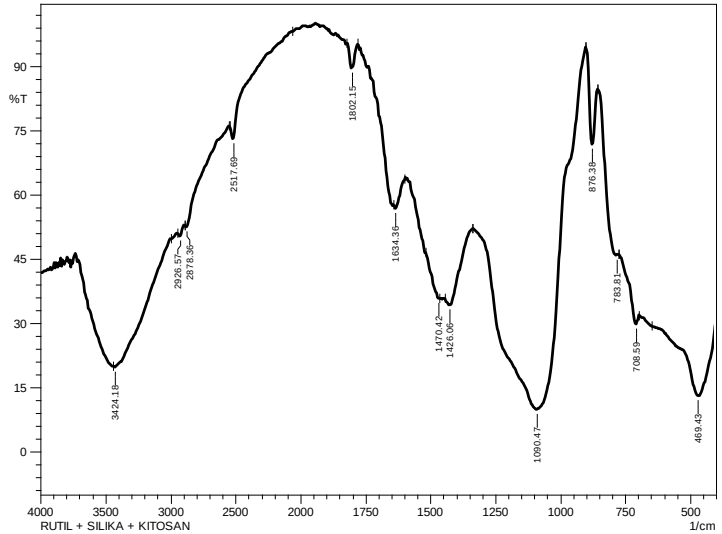
D.4 Spektra FTIR TiO_2 Rutil



D. 5 Spektra FTIR TiO_2 Rutil-Silika



D.6 Spektra FTIR TiO_2 Rutil-Silika/Kitosan



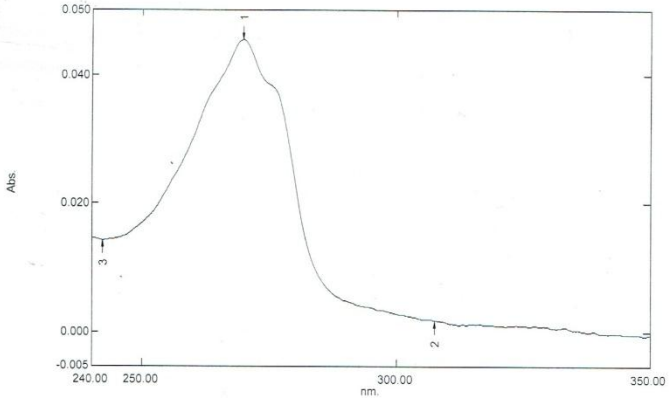
LAMPIRAN E Penentuan Konsentrasi Fenol

E.1 Pengukuran Panjang Gelombang Maksimum Fenol

Spectrum Peak Pick Report

03/08/2017 06:37:57 PM

Data Set: Storage 183526 - RawData - E:\Tiwi\3 ppm.spc



No.	P/V	Wavelength	Abs.	Description
1	↑	269.70	0.046	
2	↓	307.60	0.002	
3	↓	242.00	0.014	

Measurement Properties
Wavelength Range (nm.): 240.00 to 350.00
Scan Speed: Fast
Sampling Interval: 0.1
Auto Sampling Interval: Enabled
Scan Mode: Single

Sample Preparation Properties
Weight:
Volume:
Dilution:
Path Length:
Additional Information:

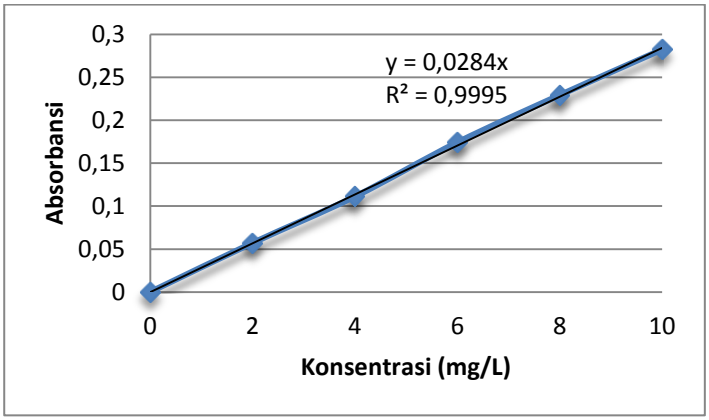
Instrument Properties
Instrument Type: UV-1600 Series
Measuring Mode: Absorbance
Slit Width: 2.0 nm
Light Source Change Wavelength: 340.8 nm
S/R Exchange: Normal

Attachment Properties
Attachment: None

Page 1 / 1

E.2 Pembuatan Kurva Baku Larutan Fenol

Konsentrasi	Absorbansi
0	0
2	0,056
4	0,111
6	0,174
8	0,229
10	0,282



E.3 Uji Aktivitas Fotokatalis Terhadap Degradasi Fenol

E.3.1 Pengaruh Lama Penyinaran, Konsentrasi Penambahan TiO_2 Jenis Kristal Anatase dengan Sumber Sinar UV untuk Degradasi Fenol

Konsentrasi	LP(Jam)	C0 (mg/L)	Abs	Abs rata-rata	Fp	Ct (mg/L)	Degradasi (%)
2,4 g	1	25	0,111	0,1115	5	19,630	21,478
			0,112				
	2	25	0,110	0,1105	5	19,454	22,183
			0,111				
	3	25	0,107	0,1075	5	18,926	24,295
			0,108				
	4	25	0,106	0,1055	5	18,75	25
			0,107				
	5	25	0,105	0,1055	5	18,573	25,704
			0,106				
2,8 g	1	25	0,111	0,1115	5	19,630	21,478
			0,112				
	2	25	0,111	0,1105	5	19,454	22,183
			0,110				
	3	25	0,109	0,1095	5	19,278	22,887
			0,110				
	4	25	0,107	0,1075	5	18,926	24,295
			0,108				
	5	25	0,105	0,1055	5	18,573	25,704
			0,106				
3,2 g	1	25	0,112	0,1115	5	19,630	21,478
			0,111				
	2	25	0,110	0,1115	5	19,454	22,183
			0,111				
	3	25	0,110	0,1105	5	19,454	22,183
			0,111				
	4	25	0,108	0,1085	5	19,102	23,591
			0,109				
	5	25	0,107	0,1075	5	18,926	24,295

			0,108				
3,6 g	1	25	0,110	0,1095	5	19,278	22,887
			0,109				
	2	25	0,114	0,113	5	19,894	20,422
			0,112				
	3	25	0,112	0,1125	5	19,806	20,477
			0,113				
	4	25	0,110	0,1105	5	19,454	22,183
			0,111				
	5	25	0,108	0,1085	5	19,102	23,591
			0,109				

E.3.2 Pengaruh Lama Penyinaran, Konsentrasi Penambahan TiO_2 Jenis Kristal Anatase dengan Sumber Sinar Matahari untuk Degradasi Fenol

Konsen-trasi	LP (Jam)	C0 (mg/L)	Abs	Abs rata-rata	Fp	Ct (mg/L)	Degrada-si (%)
2,4 g	1	25	0,123	0,1225	5	21,566	13,732
			0,122				
	2	25	0,122	0,1215	5	21,390	14,436
			0,121				
	3	25	0,113	0,1125	5	19,806	20,774
			0,112				
	4	25	0,111	0,1115	5	19,630	21,478
			0,112				
	5	25	0,107	0,1075	5	18,926	24,295
			0,108				
2,8 g	1	25	0,123	0,1225	5	21,566	13,732
			0,122				
	2	25	0,122	0,1215	5	21,390	14,436
			0,121				
	3	25	0,114	0,1145	5	20,158	19,366
			0,115				
	4	25	0,112	0,1115	5	19,630	21,478
			0,111				
	5	25	0,107	0,1075	5	18,926	24,295

			0,108				
3,2 g	1	25	0,121	0,1215	5	21,390	14,436
			0,122				
	2	25	0,120	0,1195	5	21,038	15,845
			0,119				
	3	25	0,118	0,1185	5	20,862	16,549
			0,119				
	4	25	0,118	0,1185	5	20,862	16,549
			0,119				
	5	25	0,118	0,1185	5	20,862	16,549
			0,119				
3,6 g	1	25	0,124	0,1245	5	21,919	12,323
			0,125				
	2	25	0,123	0,1235	5	21,742	13,028
			0,124				
	3	25	0,122	0,1225	5	21,566	13,732
			0,123				
	4	25	0,122	0,1225	5	21,566	13,732
			0,123				
	5	25	0,122	0,1225	5	21,566	13,732
			0,123				

E.3.3 Pengaruh Lama Penyinaran, Konsentrasi Penambahan TiO_2 Jenis Kristal Rutil dengan Sumber Sinar UV untuk Degradasi Fenol

Konsen-trasi	LP (Jam)	C0 (mg/L)	Abs	Abs rata-rata	Fp	Ct (mg/L)	Degrada-si (%)
2,4 g	1	25	0,111	0,1105	5	19,454	22,183
			0,110				
	2	25	0,109	0,1095	5	19,278	22,887
			0,110				
	3	25	0,109	0,1085	5	19,102	23,591
			0,108				
	4	25	0,107	0,1075	5	18,926	24,295
			0,108				
	5	25	0,107	0,1065	5	18,75	26,408

			0,106				
2,8 g	1	25	0,110	0,1105	5	19,454	22,183
			0,111				
	2	25	0,109	0,1085	5	19,102	23,591
			0,108				
	3	25	0,108	0,108	5	19,014	23,943
			0,108				
	4	25	0,107	0,1065	5	18,75	25
			0,106				
	5	25	0,106	0,104	5	18,397	26,408
			0,103				
3,2 g	1	25	0,109	0,1085	5	19,102	23,591
			0,108				
	2	25	0,108	0,1075	5	18,926	24,295
			0,107				
	3	25	0,108	0,1065	5	18,75	25
			0,105				
	4	25	0,107	0,1065	5	18,75	25
			0,106				
	5	25	0,105	0,1055	5	18,573	25,704
			0,106				
3,6 g	1	25	0,111	0,110	5	19,366	22,535
			0,109				
	2	25	0,110	0,109	5	19,190	23,239
			0,108				
	3	25	0,112	0,1125	5	19,806	20,774
			0,113				
	4	25	0,111	0,1105	5	19,454	22,183
			0,110				
	5	25	0,106	0,1055	5	18,573	25,704
			0,105				

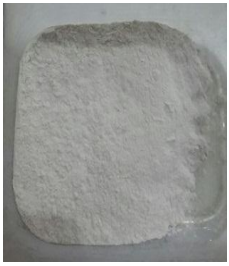
E.3.4 Pengaruh Lama Penyinaran, Konsentrasi Penambahan TiO_2 Jenis Kristal Rutil dengan Sumber Sinar Matahari untuk Degradasi Fenol

Konsen-trasi	LP(Jam)	C0 (mg /L)	Abs	Abs rata-rata	Fp	Ct(mg/L)	Degradasi (%)
2,4 g	1	25	0,120	0,1205	5	21,214	15,140
			0,121				
	2	25	0,116	0,1165	5	20,510	17,957
			0,117				
	3	25	0,114	0,1145	5	20,158	19,366
			0,115				
	4	25	0,113	0,1125	5	19,806	20,774
			0,112				
	5	25	0,110	0,1095	5	19,278	22,887
			0,119				
2,8 g	1	25	0,120	0,1195	5	21,038	15,845
			0,119				
	2	25	0,115	0,1145	5	20,158	19,366
			0,114				
	3	25	0,111	0,1115	5	19,630	21,478
			0,112				
	4	25	0,111	0,1115	5	19,630	21,478
			0,112				
	5	25	0,109	0,1085	5	19,102	23,591
			0,108				
3,2 g	1	25	0,120	0,1195	5	21,038	15,845
			0,119				
	2	25	0,114	0,1145	5	20,158	19,366
			0,115				
	3	25	0,112	0,1115	5	19,630	21,478
			0,111				
	4	25	0,111	0,1115	5	19,630	21,478
			0,112				
	5	25	0,111	0,1105	5	19,385	22,456
			0,110				
3,6 g	1	25	0,120	0,1205	5	21,214	15,140
			0,121				

	2	25	0,116	0,1165	5	20,510	17,957
			0,117				
	3	25	0,115	0,1145	5	20,158	19,366
			0,114				
	4	25	0,113	0,1125	5	19,806	20,774
			0,112				
	5	25	0,113	0,1125	5	19,806	20,774
			0,112				

LAMPIRAN F Dokumentasi Penelitian





(a) Sekam Padi (b) Abu Sekam Padi (c) Abu Halus


(d) Pencucian dengan HCl (d) Penetralan dengan aquades

(e) Silika dengan NaOH (f) Penyaringan


(g) Filtrat Natrium Silika (h) Hasil Natrium Silikat + HCl

(i)Penambahan TiO_2

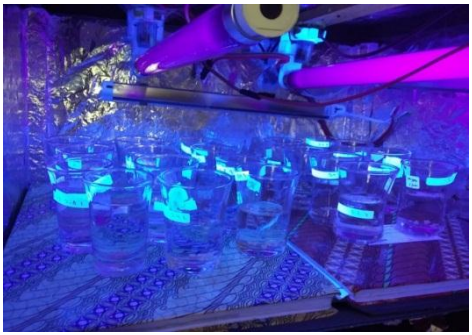
(j) Didiamkan 24 jam

(k) Penyaringan (l) TiO_2-Silika

(m) Kitosan+asam asetat (n) Kitosan larut+TiO_2/Silika

(o) Pembuatan Granul (p) Penetralan Granul

(q) Granul Kering (r) Fotodegradasi (Matahari)



(s) Fotodegradasi (UV)