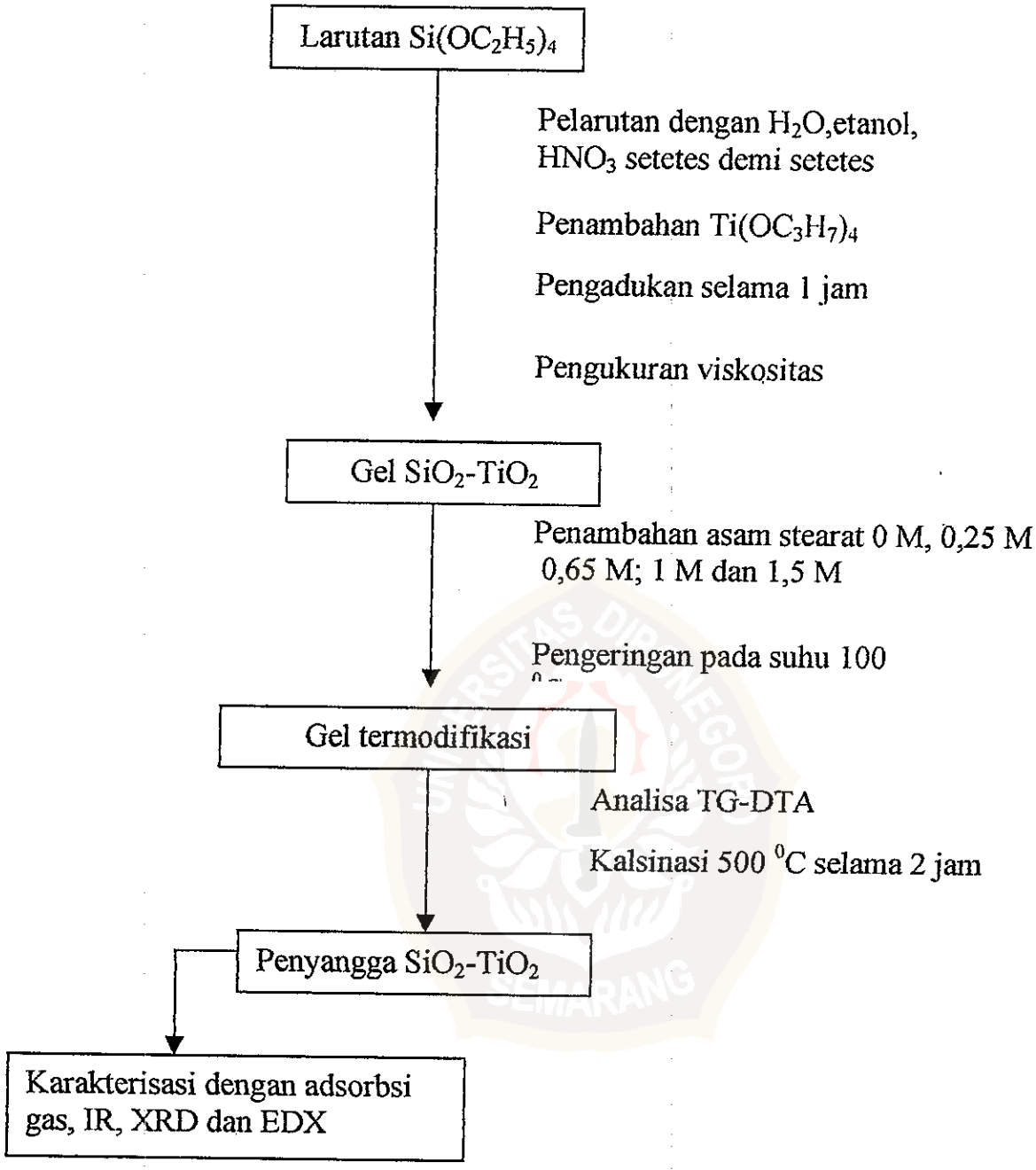
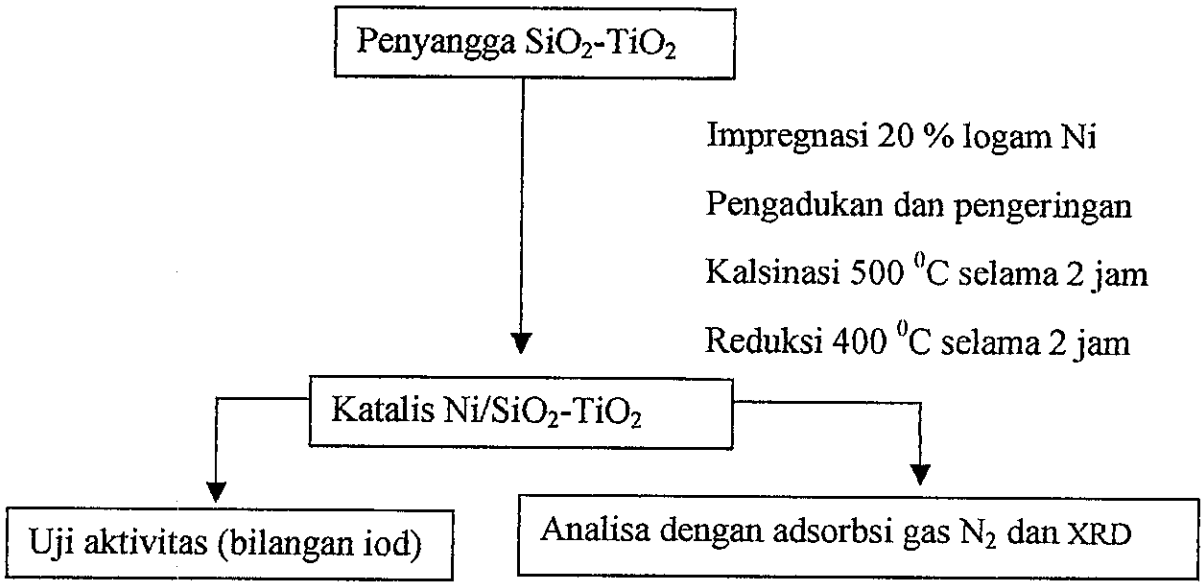
UNIVERSITAS DIPONEGORO

Lampiran A. BAGAN KERJA





Lampiran B. Preparasi penyangga SiO_2-TiO_2

Perbandingan mol SiO_2 : TiO_2 = 0,8 : 0,2

$$SiO2 = \frac{Mr\,SiO_2}{Mr\,Si(OC_2H_5)_4} \text{ X mol } Si(OC_2H_5)_4$$

$$0,02 = \frac{60}{208} \text{ X mol } Si(OC_2H_5)_4$$

$Si(OC_2H_5)_4$ = 0,06 mol

Masaa $Si(OC_2H_5)_4$ = 0,06 mol x $Si(OC_2H_5)_4$

= 13,6 gram

$$TiO_2 = \frac{Mr\,TiO_2}{Mr\,Ti(OC_3H_7)_4} \text{ x mol } Ti(OC_3H_7)_4$$

$$0,04 = \frac{79,65}{284,23} \text{ x mol } Ti(OC_3H_7)_4$$

$Ti(OC_3H_7)_4$ = 0,016 mol

Massa $Ti(OC_3H_7)_4$ = 0,016 x Mr $Ti(OC_3H_7)_4$

= 4,69 gram

H2O/Alkoksida = 2/1

= 2 (0,06 + 0,016) x Mr H2O

= 2,88 ml

Etanol/alkoksida = 12/1

= 12 (0,06 + 0,016) x Mr etanol

= 9,0 ml

HNO_3/Alkoksida = 0,06/1

= 0,06 (0,06 + 0,016) x Mr HNO_3

= 0,28 ml

Lampiran C

Pengukuran bilangan iod

Hasil standarisasi larutan $Na_2S_2O_3$

$$[S_2O_3^{=}] = \frac{mg\,KIO_3}{VS_2O_3\,X\,35,7}$$

$$= \frac{140}{38,4\,ml\,x35,7}$$

$= 0,12$ N

$$\text{Bilangan iod} = \frac{12,69\,x\,NS_2O_3\,x\,(vblanko - v\,sampel)}{m\,sampel}$$

No	Waktu/menit	Massa (gram)	Bilangan iod
1	0	0,1359	45,7
2	30	0,1388	41,13
4.	60	0,124	31,43
5	90	0,1219	27,33

Lampiran D

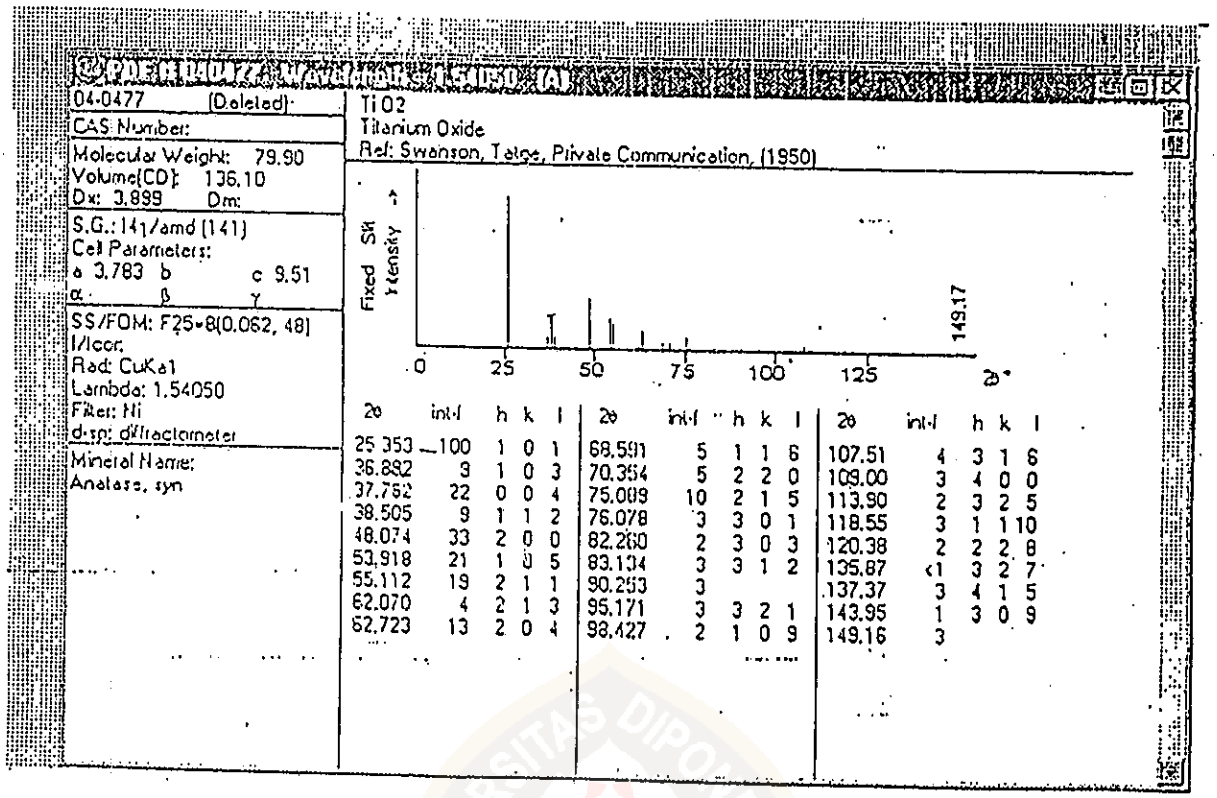
Data TG-DTA

Time	Temp.	DTA	TG	DTG
min	Cel	uV	ug	ug/min
0,008333	31,1024	3,02448	7695,2	142,721
0,016667	31,0937	2,94806	7693,49	146,788
0,025	31,0812	2,87222	7691,77	150,328
0,033333	31,065	2,7976	7690,12	153,742
0,041667	31,0488	2,7234	7688,46	156,858
9,308333	50,0321	6,77581	7450,77	16,3398
9,316667	50,1023	6,78669	7450,58	16,2607
9,325	50,1567	6,79523	7450,43	16,2627
9,333333	50,2405	6,80867	7450,27	16,5029
9,341667	50,3107	6,8203	7450,14	16,542
14,70833	100,024	14,7228	7375,02	11,585
14,71667	100,106	14,7377	7374,93	11,5781
14,725	100,188	14,753	7374,83	11,5342
14,73333	100,272	14,7685	7374,74	11,5537
14,74167	100,357	14,7826	7374,65	11,5938
24,25833	200,011	30,3503	6189,65	485,422
24,26667	200,1	30,3627	6185,56	486,37
24,275	200,196	30,3753	6181,46	487,454
24,28333	200,287	30,3871	6177,34	488,639
24,29167	200,376	30,3982	6173,16	489,651
33,23333	300,018	58,1883	3541,5	113,565
33,24167	300,115	58,2544	3540,56	113,66
33,25	300,216	58,3207	3539,61	113,756
33,25833	**300,312**	**58,3865**	**3538,66**	**114,06**
33,26667	300,414	58,4532	3537,7	114,334
40,625	380,086	58,4479	2704,61	14,4214
40,63333	380,176	58,4408	2704,47	14,2598

40,64167	380,264	58,4346	2704,34	14,438
40,65	380,355	58,4282	2704,19	14,4995
40,65833	380,446	58,4208	2704,08	14,3857
42,49167	400,039	57,689	2675,99	16,3096
42,5	400,142	57,6825	2675,82	16,3042
42,50833	400,212	57,6783	2675,73	16,4458
42,51667	400,319	57,6711	2675,59	16,707
42,525	400,389	57,6667	2675,49	16,8213
52,025	500,042	45,4429	2434,49	22,5044
52,03333	500,125	45,4166	2434,31	22,3076
52,04167	500,209	45,3901	2434,12	22,2544
52,05	500,293	45,3638	2433,92	22,2109
52,05833	500,38	45,3374	2433,74	22,1348
61,84167	600,043	23,564	2347,22	1,67334
61,85	600,128	23,5579	2347,22	1,58789
61,85833	600,212	23,5501	2347,2	1,58984
61,86667	600,297	23,5412	2347,2	1,52979
61,875	600,38	23,5319	2347,17	1,48975
71,66667	700,026	8,34881	2342,82	-0,06055
71,675	700,108	8,33195	2342,8	-0,08252
71,68333	700,193	8,31666	2342,8	-0,10742
71,69167	700,275	8,30271	2342,81	-0,27393
71,7	700,36	8,28849	2342,8	-0,20752
81,5	800,076	-5,93545	2332,3	-1,44531
81,50833	800,165	-5,94239	2332,32	-1,46533
81,51667	800,25	-5,94912	2332,32	-1,30664
81,525	800,336	-5,9572	2332,34	-1,21143
81,53333	800,424	-5,96591	2332,35	-0,96338
91,16667	900,086	-18,3781	2342,86	-1,00537
91,175	900,173	-18,3838	2342,87	-0,91797
91,18333	900,263	-18,3881	2342,86	-1,021

91,19167	900,351	-18,392	2342,87	-1,04395
91,2	900,443	-18,3945	2342,89	-1,14795
100,4917	1000,02	-27,1279	2353,36	-0,97461
100,5	1000,12	-27,1298	2353,37	-0,96631
100,5083	1000,21	-27,1322	2353,36	-0,99609
100,5167	1000,3	-27,137	2353,36	-0,82227
100,525	1000,39	-27,1424	2353,37	-0,92041

Lampiran E Data ASTM mineral TiO_2- dan SiO_2



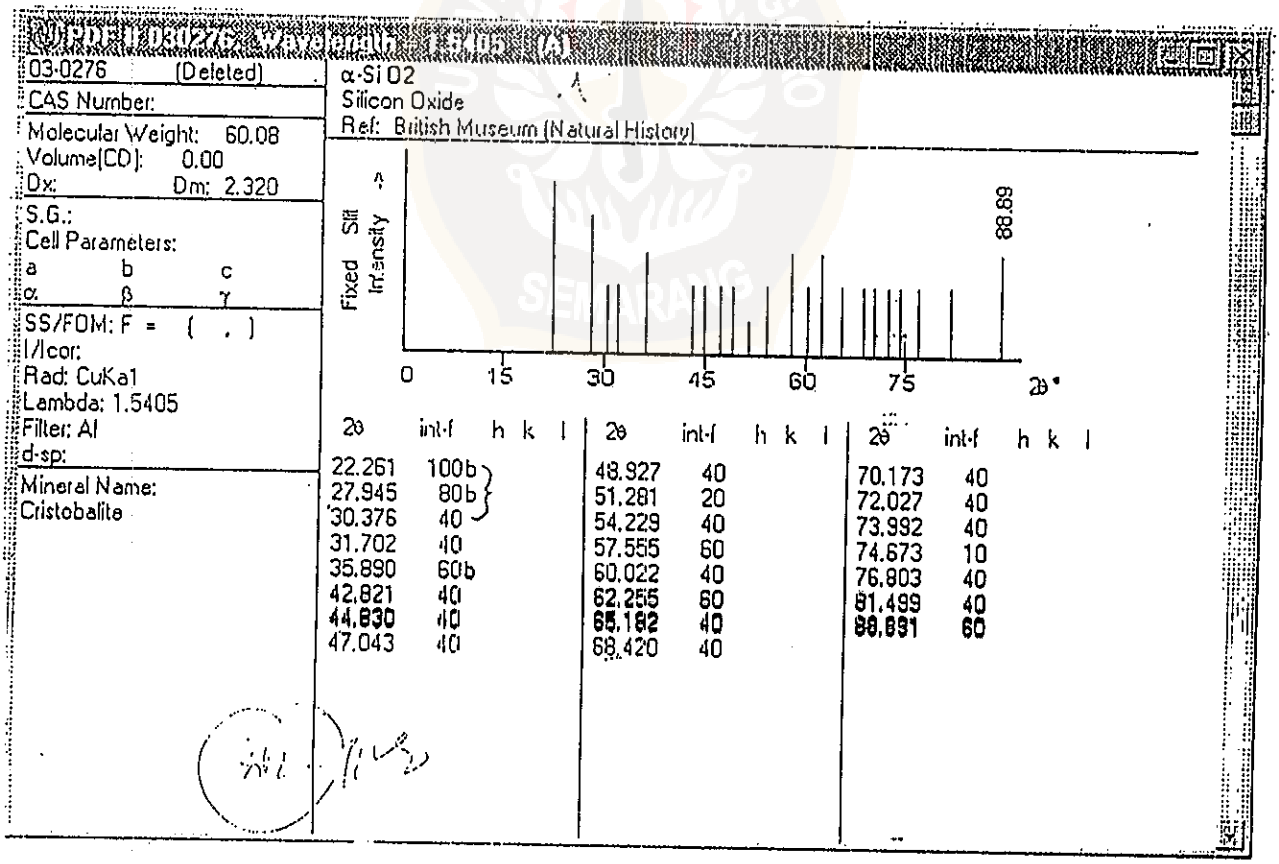
04-0477 (Deleted)
CAS Number:
Molecular Weight: 79.90
Volume[CD]: 136.10
Dx: 3.899 Dm:
S.G.: I41/amd (141)
Cell Parameters:
a 3.783 b c 9.51
α β γ
SS/FOM: F25=8(0.062, 48)
I/Icor:
Rad: CuKa1
Lambda: 1.54050
Filter: Ni
d-sp: diffractometer
Mineral Name:
Anatase, syn

Ti O2
Titanium Oxide
Ref: Swanson, Tatge, Private Communication, (1950)

Fixed Slit Intensity →

149.17

2θ	int-f	h	k	l	2θ	int-f	h	k	l	2θ	int-f	h	k	l
25.353	100	1	0	1	68.591	5	1	1	6	107.51	4	3	1	6
36.882	9	1	0	3	70.354	5	2	2	0	109.00	3	4	0	0
37.752	22	0	0	4	75.089	10	2	1	5	113.90	2	3	2	5
38.505	9	1	1	2	76.078	3	3	0	1	118.55	3	1	1	10
48.074	33	2	0	0	82.260	2	3	0	3	120.38	2	2	2	8
53.918	21	1	0	5	83.134	3	3	1	2	135.87	<1	3	2	7
55.112	19	2	1	1	90.253	3				137.37	3	4	1	5
62.070	4	2	1	3	95.171	3	3	2	1	143.95	1	3	0	9
62.723	13	2	0	4	98.427	2	1	0	9	149.16	3			



03-0276 (Deleted)
CAS Number:
Molecular Weight: 60.08
Volume[CD]: 0.00
Dx: Dm: 2.320
S.G.:
Cell Parameters:
a b c
α β γ
SS/FOM: F = (,)
I/Icor:
Rad: CuKa1
Lambda: 1.5405
Filter: Al
d-sp:
Mineral Name:
Cristobalite

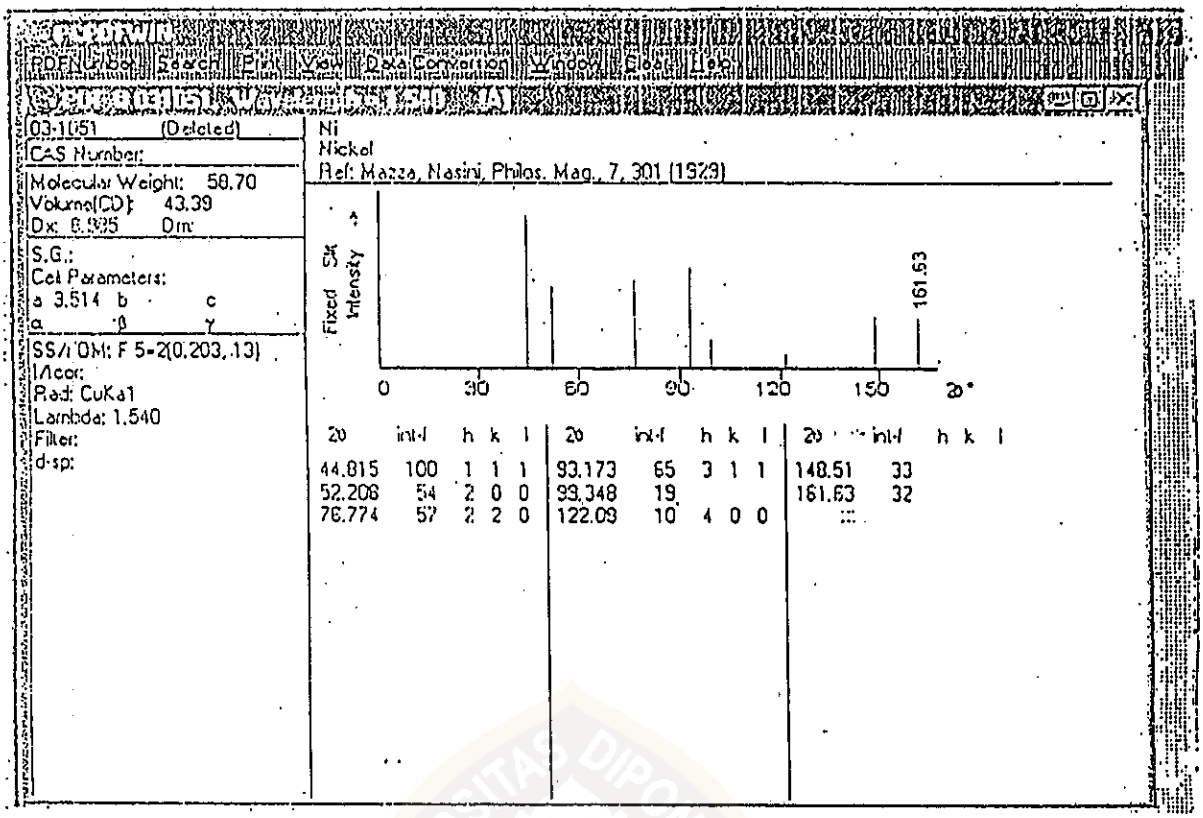
α-Si O2
Silicon Oxide
Ref: British Museum (Natural History)

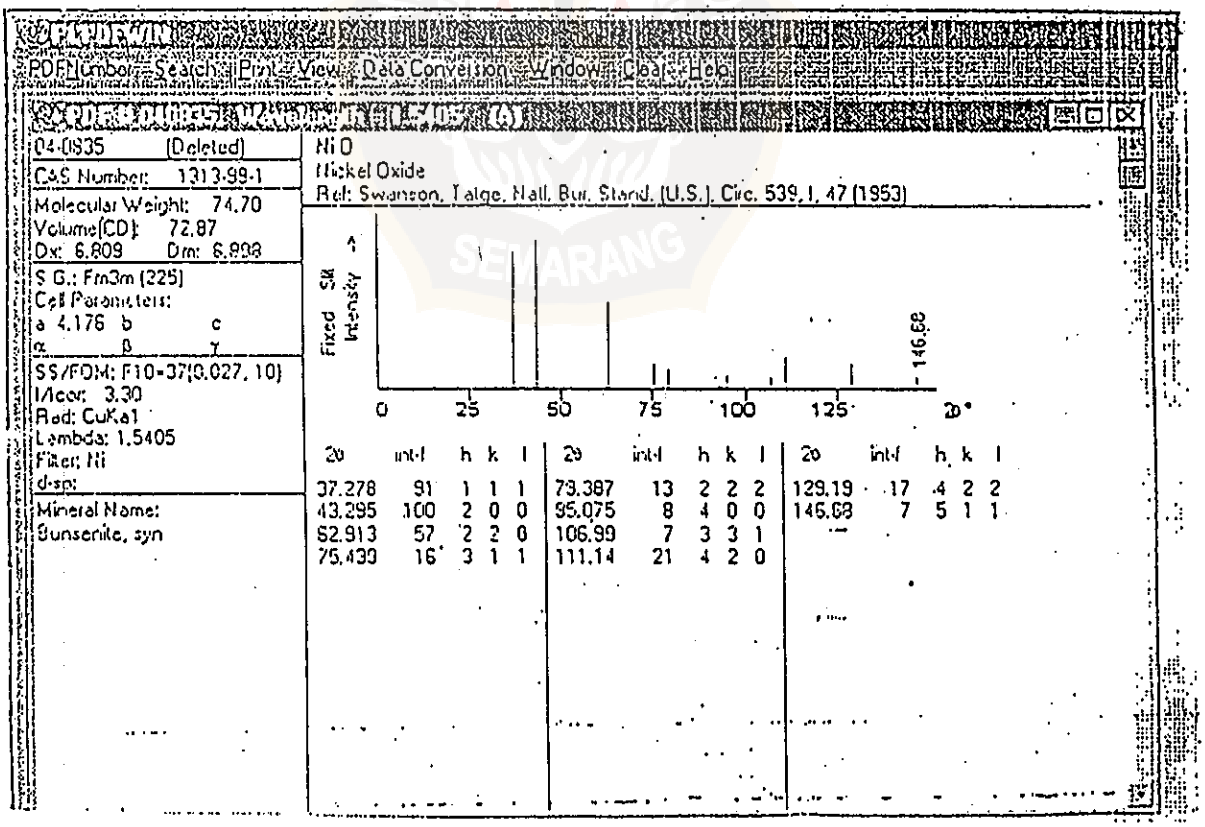
Fixed Slit Intensity →

88.69

2θ	int-f	h	k	l	2θ	int-f	h	k	l	2θ	int-f	h	k	l
22.261	100b				48.927	40				70.173	40			
27.945	80b				51.281	20				72.027	40			
30.376	40				54.229	40				73.992	40			
31.702	40				57.555	60				74.673	10			
35.890	60b				60.022	40				76.803	40			
42.821	40				62.255	60				81.499	40			
44.830	40				65.182	40				88.691	60			
47.043	40				68.420	40								

Lampiran F Data ASTM mineral NiO dan Ni





Lampiran G.

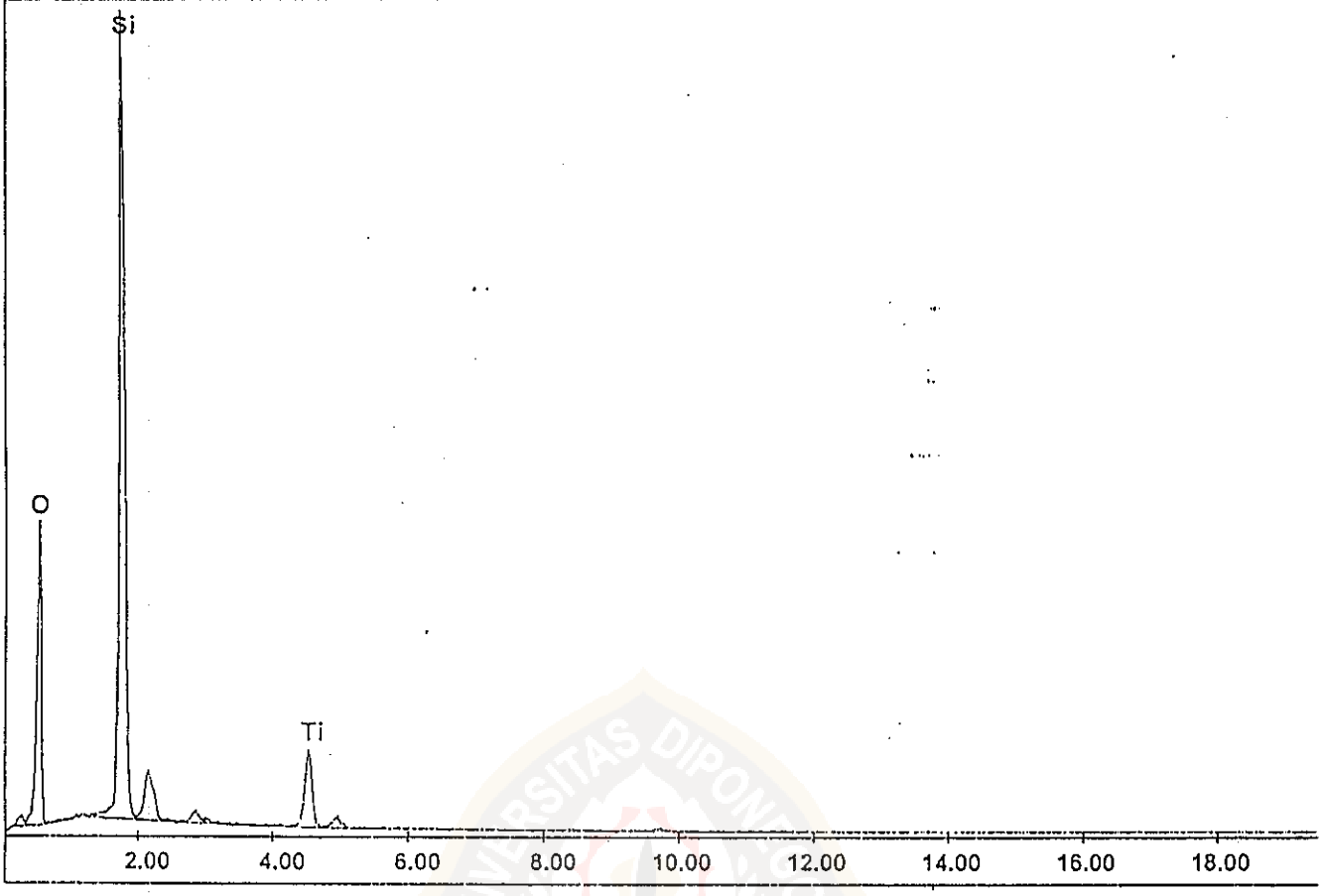
Tabel pola difraksi sunar X dibandingkan dengan standar (ASTM)

Difraktogram sinar X 2θ (derajat)	ASTM 2θ (derajat)	Counts	Komponen
75	75,08	825	TiO_2
48	48,07	815	
25	25,35	620	
44	44,8	723	SiO_2
54	54,2	710	
75	75,4	1015	NiO
63	62,9	989	
37	37,2	510	
45	44,8	1025	Ni

Lampiran H Hasil spektra EDX

Label:Sample 1

kV:15.0	Tilt:0.0	Take-off:8.4	Det Type:SUTW+	Res:134	Tc:40
FS : 5614	Lsec : 96			5-Jun- 3	11:30:33



Element	Wt %	At %
O K	56.27	70.84
SiK	36.31	26.04
TiK	7.42	3.12
Total	100.00	100.00

Lampiran I

Tabel hasil pengukuran luas permukaan penyangga dan katalis dengan metode adsorbsi gas N_2

Konsentrasi asam stearat	Luas permukaan penyangga (m/g)	Luas Permukaan Katalis (m/g)
0	398,3	182,93
0,25	756,39	200,61
0,65	820,11	428,74
1	782,84	212,31
1,5	625,22	393,94