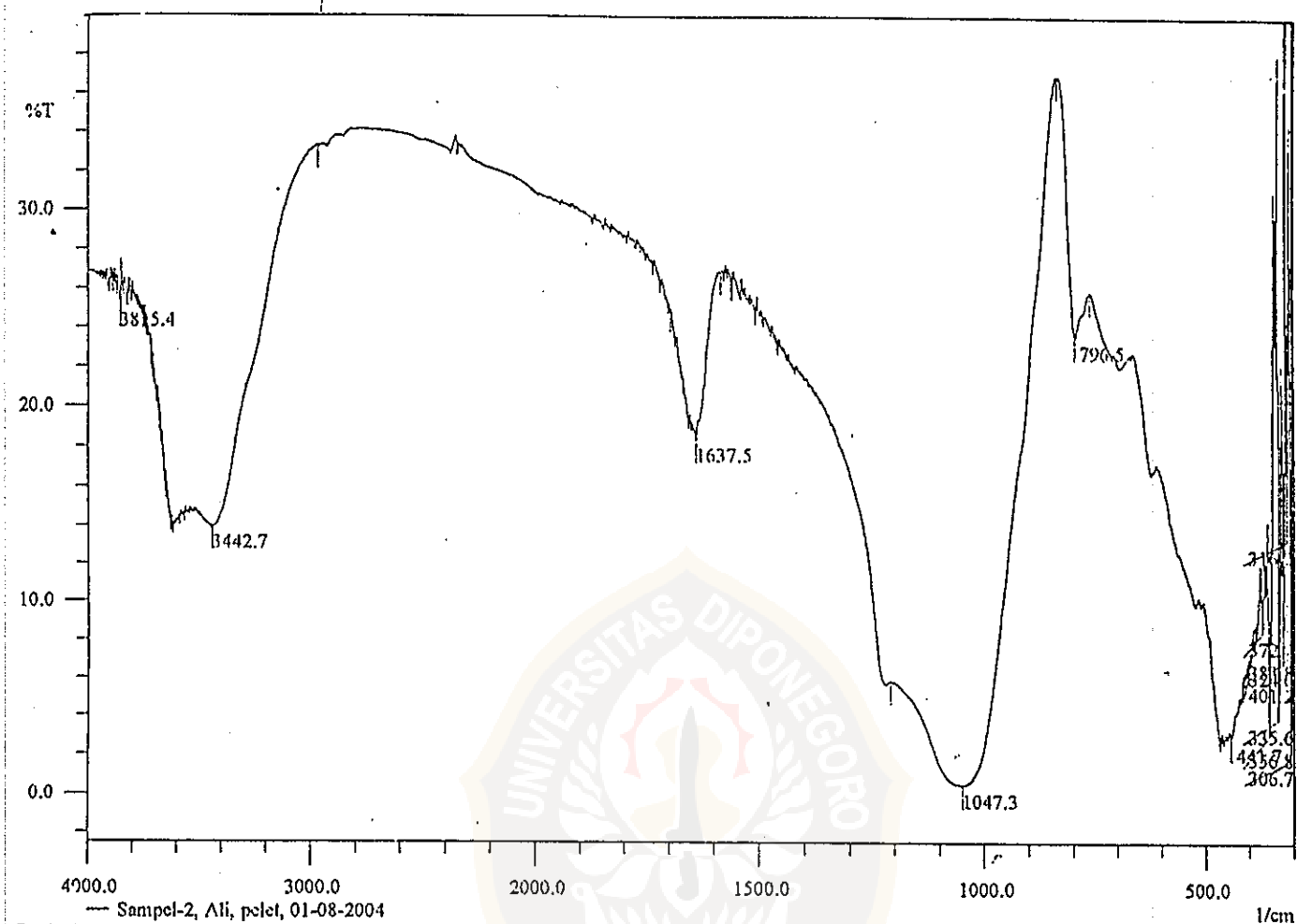
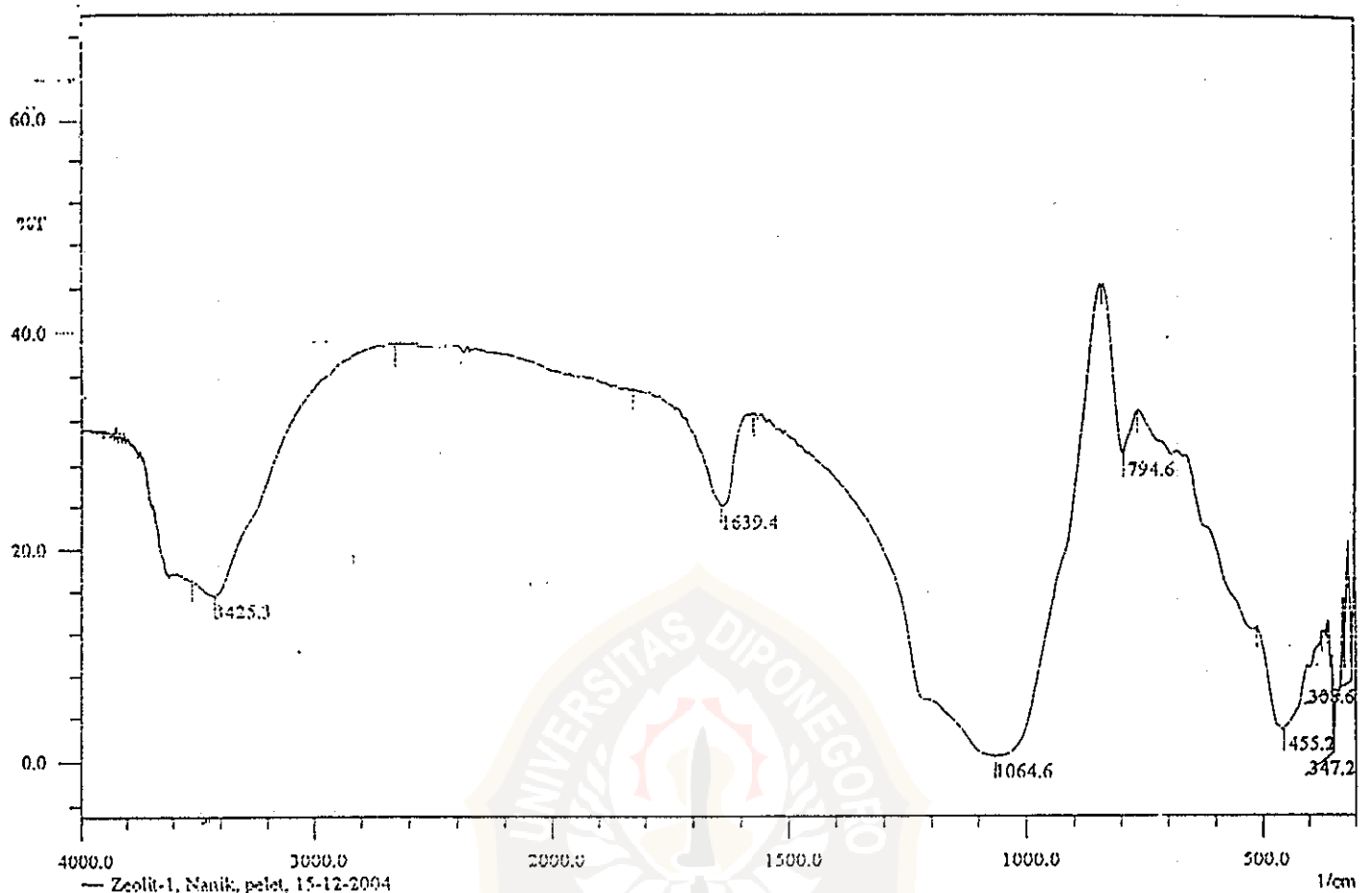


Lampiran A. Spektra FTIR zeolit alam



Nr.	Pos. (1/cm)	Inten. (%T)
1	306.7	1.800
2	316.3	13.242
3	324.0	6.888
4	335.6	3.877
5	356.8	3.036
6	372.2	8.475
7	383.8	8.328
8	401.2	6.643
9	441.7	2.928
10	796.5	23.608
11	1047.3	0.475
12	1637.5	18.402
13	3442.7	13.935
14	3855.4	25.170

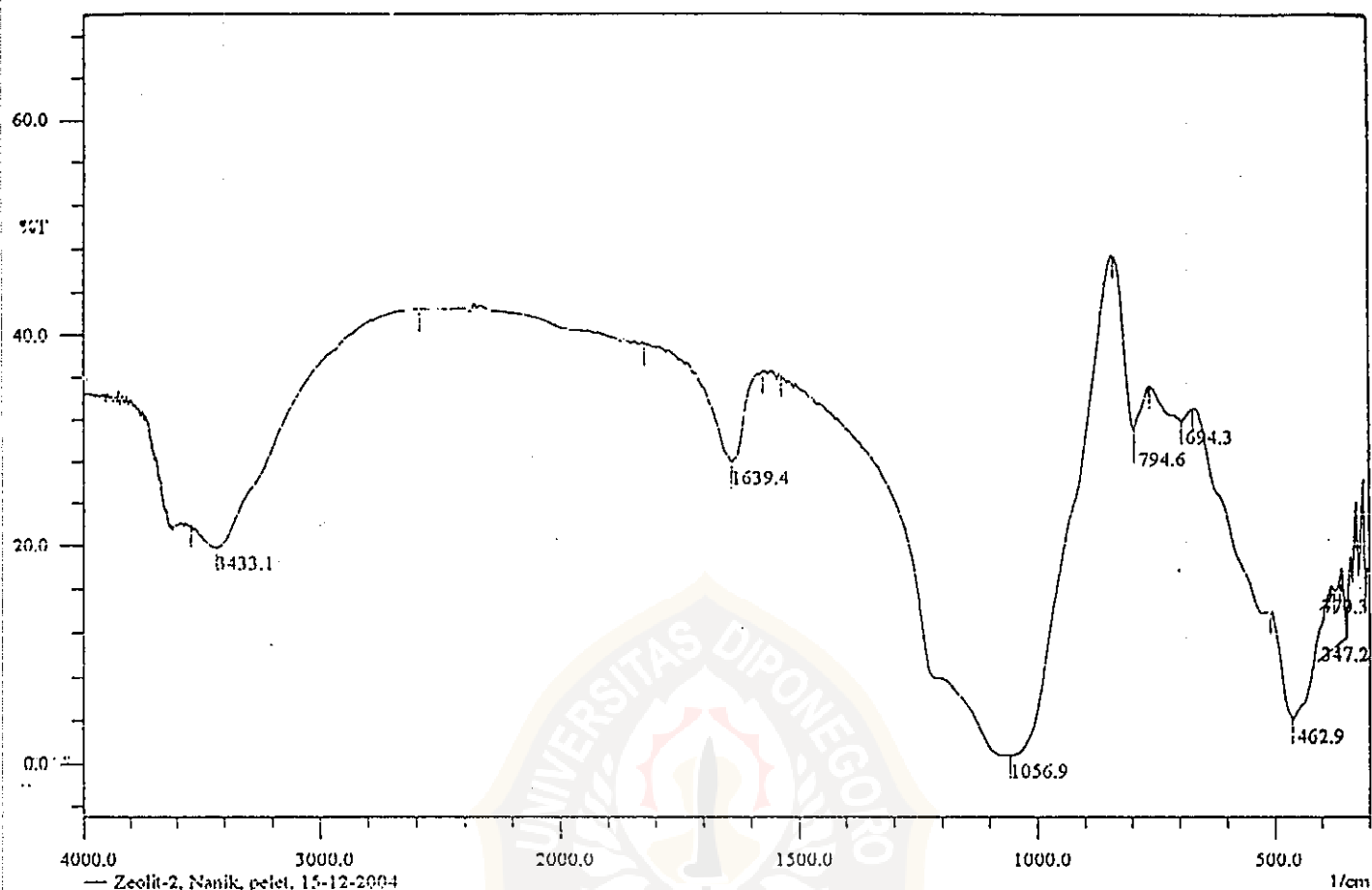
Lampiran B. Spektra FTIR zeolit I



Peaktable of NANIK4.IRS, 7 Peaks
 Threshold: 80, Noise: 1, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	308.6	7.332
2	347.2	0.724
3	455.2	2.967
4	794.6	23.934
5	11064.6	0.478
6	1639.4	24.033
7	3425.3	15.532

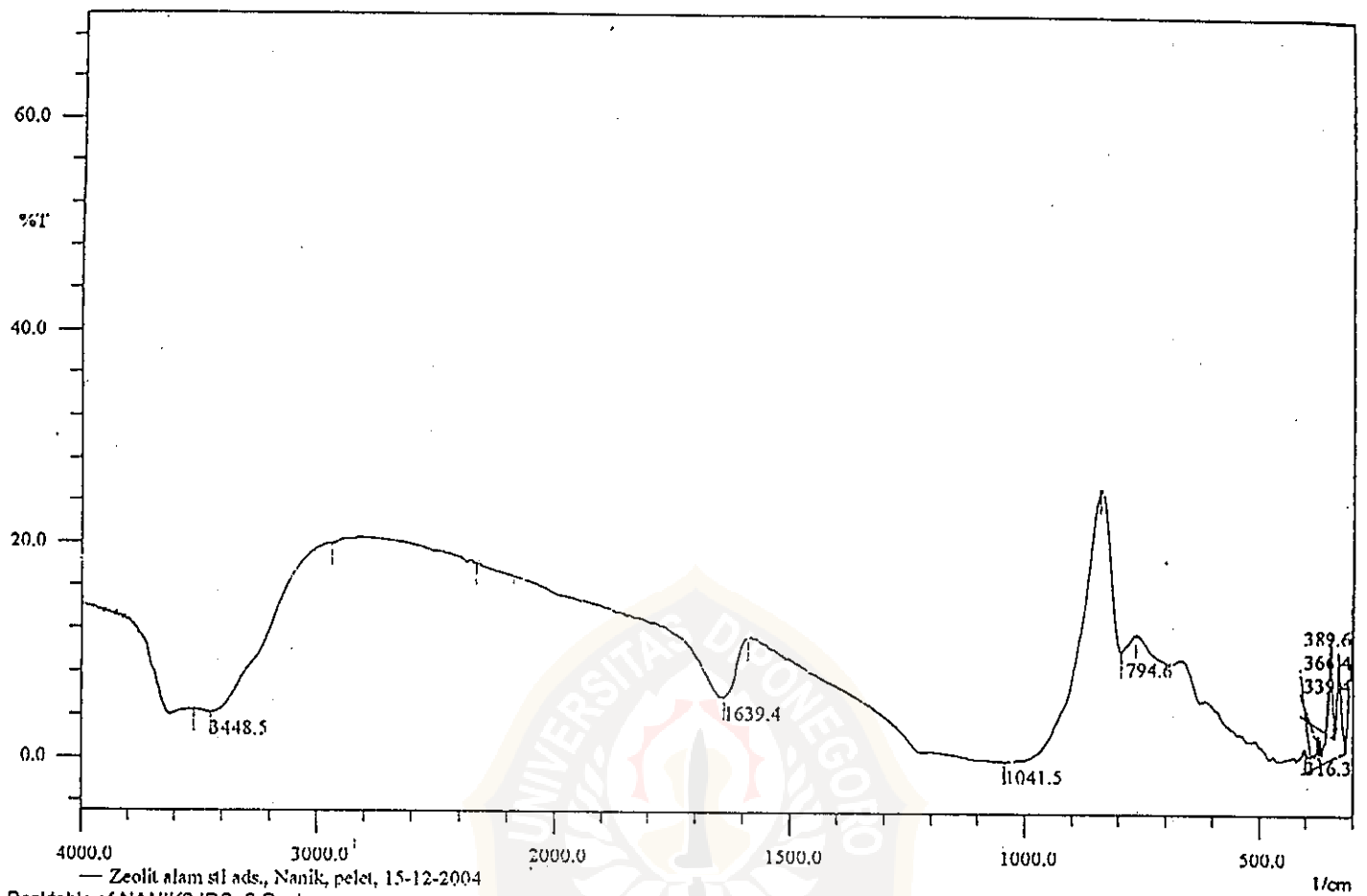
Lampiran C. Spektra FTIR zeolit II



— Zeolit-2, Nanik, pelet, 15-12-2004
 Peaktable of NANIK5.IRS, 8 Peaks
 Threshold: 80, Noise: 1, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	347.2	11.499
2	370.3	15.833
3	462.9	4.056
4	694.3	31.811
5	794.6	31.072
6	1056.9	0.818
7	1639.4	27.874
8	3433.1	19.850

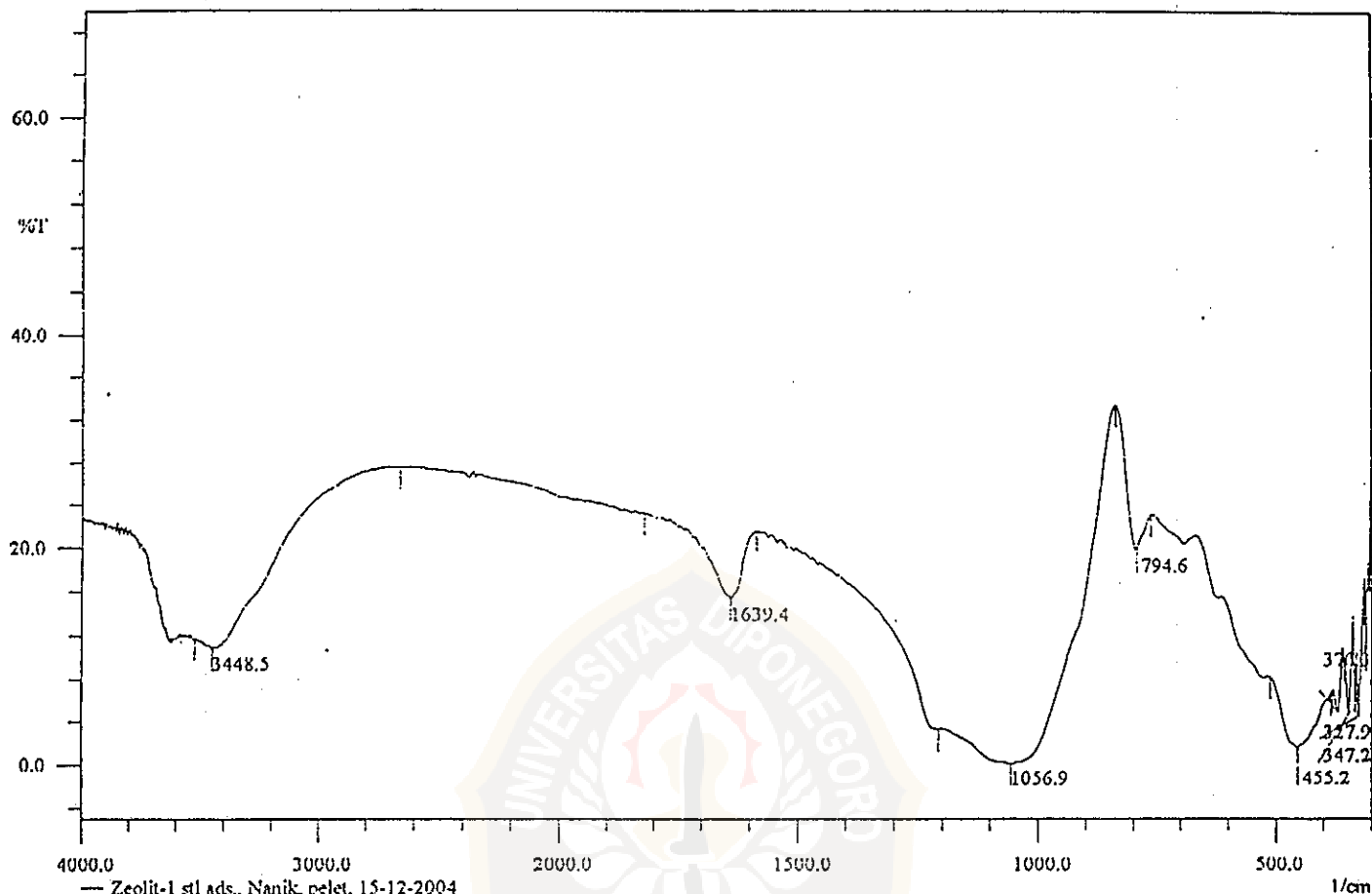
Lampiran D. Spektra FTIR zeolit alam setelah adsorpsi



Peaktable of NANIK8.IRS, 8 Peaks
Threshold: 80, Noise: 1, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	316.3	1.120
2	339.4	2.423
3	366.4	0.661
4	389.6	0.531
5	794.6	10.100
6	1041.5	0.029
7	1639.4	5.812
8	3448.5	4.214

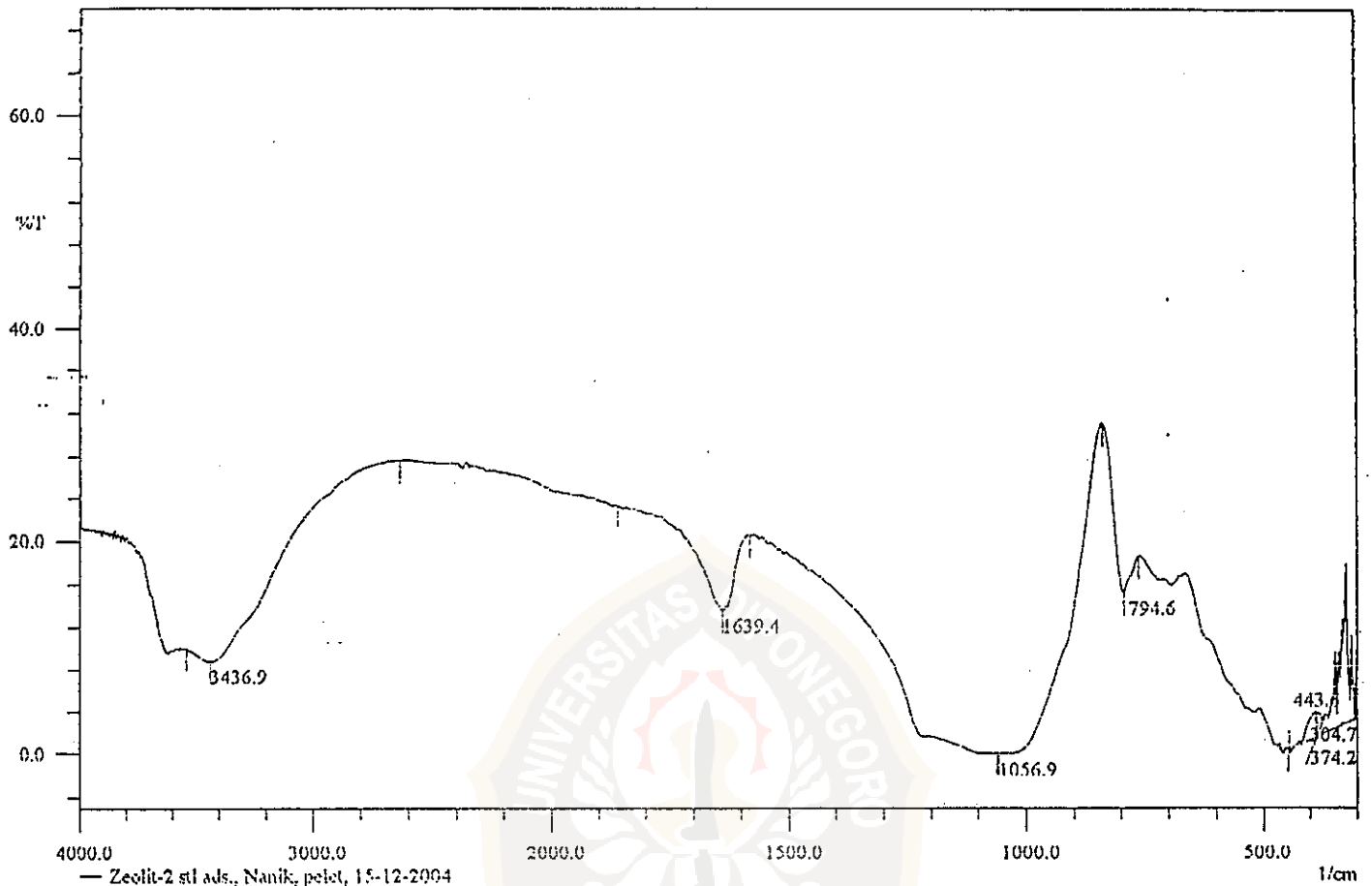
Lampiran E. Spektra FTIR zeolit I setelah adsorpsi



Peaktable of NANIK7.IRS, 8 Peaks
 Threshold: 80, Noise: 1, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	327.9	4.563
2	347.2	4.800
3	370.3	4.961
4	455.2	1.464
5	794.6	19.863
6	1056.9	0.270
7	1639.4	15.456
8	3448.5	10.954

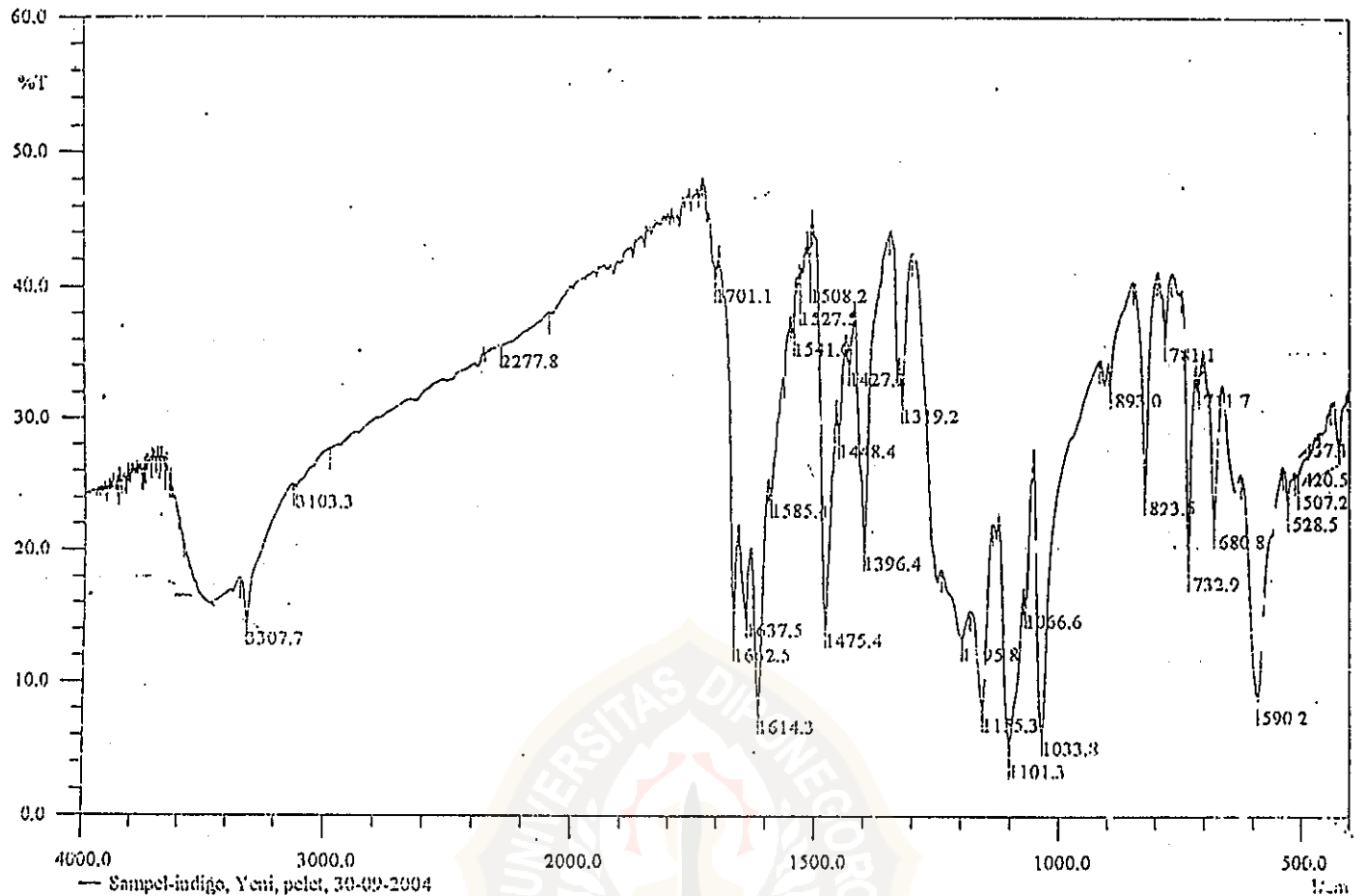
Lampiran F. Spektra FTIR zeolit II setelah adsorpsi



Peaktable of NANIK6.IRS, 7 Peaks
Threshold: 80, Noise: 1, No Range Selection

Nr.	Pos. (1/cm)	Inten. (%T)
1	304.7	3.275
2	374.2	2.956
3	443.6	0.160
4	794.6	15.245
5	1056.9	0.054
6	1639.4	13.586
7	3436.9	8.783

Lampiran G. Spektra FTIR indigo carmine



Nr.	Pos. (1/cm)	Inten. (%T)
1	368.4	35.341
2	387.7	31.531
3	420.5	26.637
4	457.1	28.883
5	507.2	25.635
6	528.5	23.806
7	590.2	8.557
8	690.8	21.801
9	711.7	32.627
10	732.9	18.618
11	781.1	36.157
12	823.5	24.334
13	893.0	32.653
14	1033.3	6.202
15	1066.6	15.831
16	1101.3	5.564
17	1155.3	8.013
18	1195.3	13.286
19	1319.2	31.434
20	1396.4	20.172
21	1427.2	34.224
22	1448.4	29.719
23	1475.4	14.319
24	1508.2	40.536
25	1527.5	40.905
26	1541.0	36.458
27	1585.4	24.189
28	1614.3	7.822
29	1637.5	15.103
30	1662.5	13.218
31	1701.1	40.551
32	2277.8	35.519
33	3103.3	24.840
34	3307.7	11.100

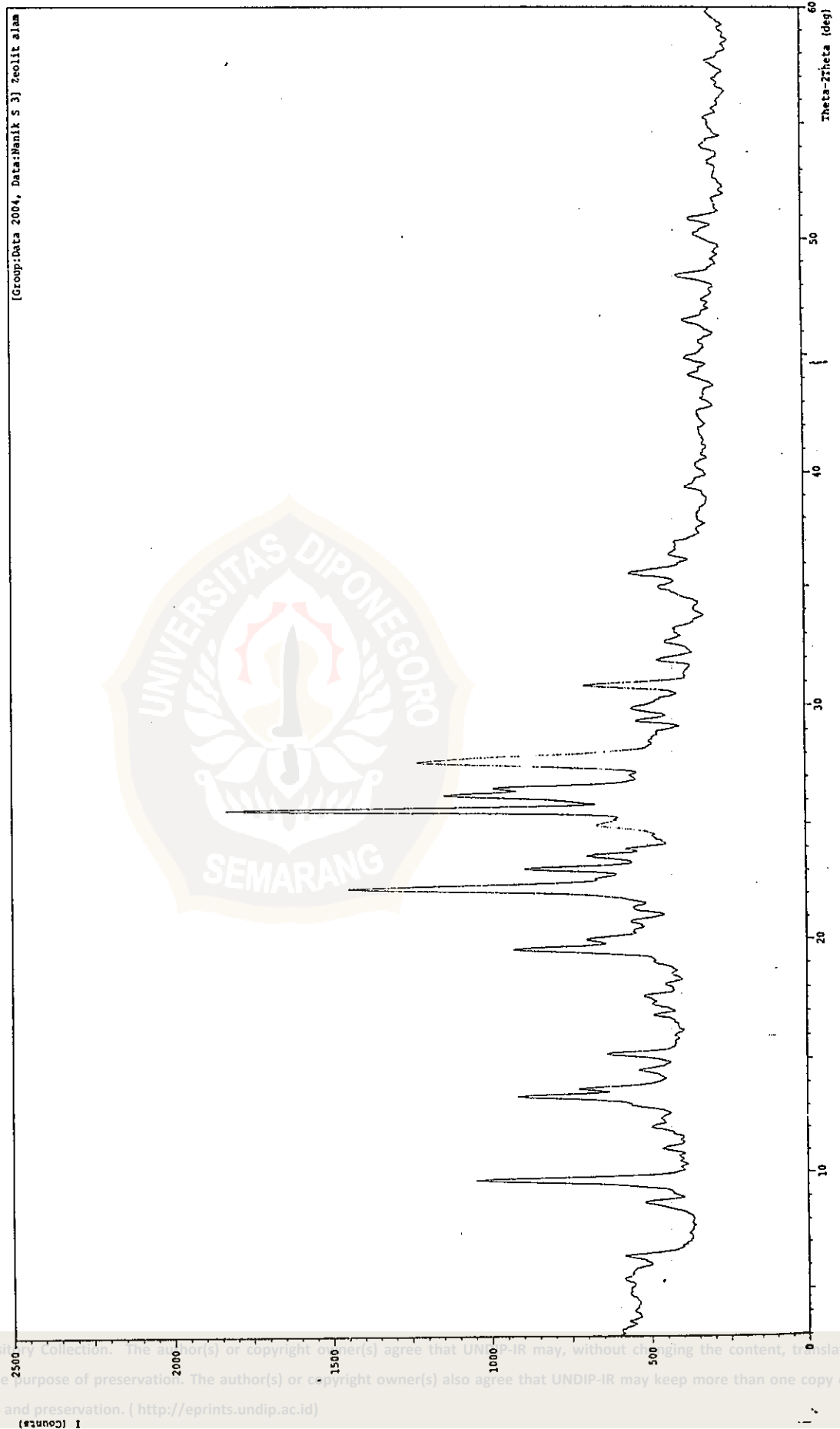
Lampiran H. Spektra XRD zeolit alam

*** Multi Plot ***

File Name : Data 2004\Nanik S 3
 Sample Name : Zeolit alam
 Date & Time : 06-07-04 10:28:53
 Comment : Zeolit alam

Condition

X-ray Tube : Cu(1.54060 Å) Voltage : 40.0 kV Current : 30.0 mA
 Scan Range : 3.0000 <-> 60.0000 deg Step Size : 0.0200 deg
 Count Time : 0.24 sec Slit DS : 1.00 deg SS : 1.00 deg RS : 0.30 mm



Lampiran H. Spektra XRD zeolit alam (lanjutan)

Group Name : Data 2004
 Data Name : Nanik S 3
 File Name : Nanik S 3.PKR
 Sample Name : Zeolit alam
 Comment : Zeolit alam

# Strongest 3 peaks							
no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	37	25.5582	3.48248	100	0.22270	932	11447
2	31	22.1923	4.00247	70	0.32430	656	12526
3	41	27.6486	3.22375	55	0.44900	509	10943

# Peak Data List							
peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)	
1	4.8000	18.39494	5	0.36000	44	1237	
2	5.0000	17.65958	5	0.00000	47	0	
3	5.4400	16.23218	8	0.00000	75	0	
4	5.7800	15.27808	8	0.00000	71	0	
5	6.3940	13.81228	12	0.30440	114	2937	
6	8.4800	10.41869	4	0.19420	40	442	
7	8.7000	10.15572	10	0.30340	94	1262	
8	9.1200	9.68894	3	0.20660	31	383	
9	9.4000	9.40095	11	0.17820	100	1031	
10	9.6791	9.13049	47	0.28920	440	6324	
11	11.0671	7.98829	5	0.20080	47	523	
12	12.0291	7.35152	6	0.29030	58	886	
13	12.4000	7.13245	4	0.28000	33	531	
14	12.9800	6.81502	10	0.23260	91	1314	
15	13.3609	6.62157	35	0.28450	329	4512	
16	13.7000	6.45843	22	0.24660	202	2927	
17	14.5025	6.10281	8	0.27500	75	1292	
18	14.9800	5.90933	4	0.14400	39	322	
19	15.1981	5.82502	16	0.24130	151	1949	
20	16.8039	5.27181	7	0.19790	65	943	
21	17.2800	5.12762	7	0.30000	64	952	
22	17.5600	5.04649	9	0.31500	85	1260	
23	18.0953	4.89839	4	0.18270	38	475	
24	19.0200	4.66228	5	0.26660	47	948	
25	19.5428	4.53872	36	0.31440	334	5056	
26	19.9600	4.44478	18	0.40000	170	3651	
27	20.3800	4.35412	6	0.00000	57	0	
28	20.7400	4.27935	7	0.28440	64	1271	
29	21.3466	4.15909	5	0.28400	47	692	
30	21.7000	4.09215	5	0.15560	51	648	
31	22.1923	4.00247	70	0.32430	656	12526	
32	22.6200	3.92775	14	0.00000	130	0	
33	23.0436	3.85650	30	0.24500	283	4768	
34	23.5801	3.76995	16	0.26520	152	2136	
35	23.8880	3.72206	8	0.17600	76	680	
36	24.9000	3.57303	13	0.30000	120	2640	
37	25.5582	3.48248	100	0.22270	932	11447	
38	26.2000	3.39861	47	0.38140	436	7570	
39	26.4800	3.36331	35	0.26340	329	4274	
40	27.0133	3.29811	4	0.25330	41	845	
41	27.6486	3.22375	55	0.44900	509	10943	
42	28.0400	3.17963	11	0.14940	106	1448	
43	28.4800	3.13150	4	0.00000	41	0	
44	28.6600	3.11224	4	0.00000	39	0	

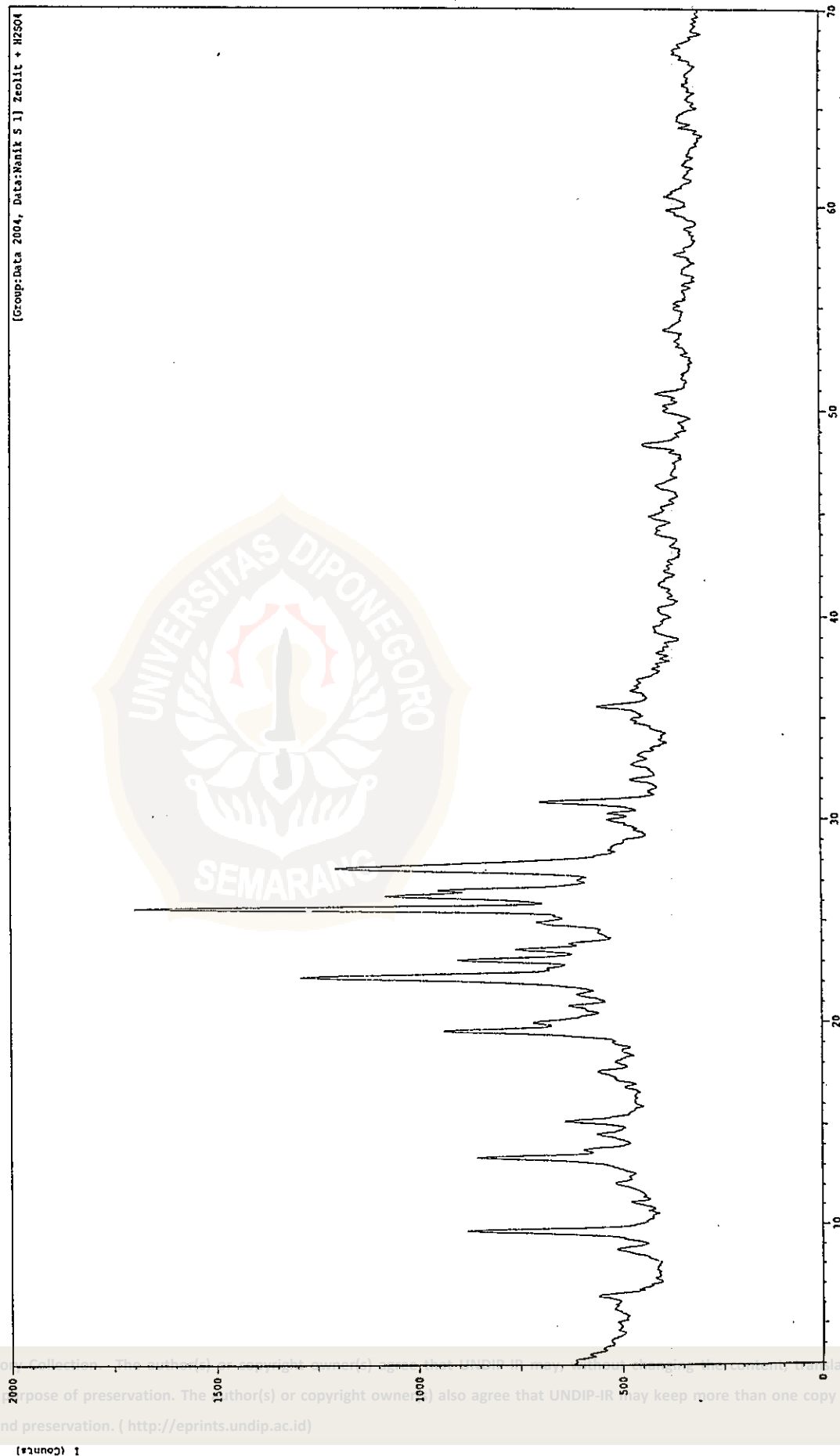
Lampiran H. Spektra XRD zeolit alam (lanjutan)

peak no.	2Theta (deg)	d (Å)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
45	28.9200	3.08485	4	0.11140	36	527
46	29.3510	3.04053	10	0.19000	96	907
47	29.9112	2.98484	11	0.44420	104	2073
48	30.2800	2.94932	4	0.18000	38	467
49	30.8187	2.89899	24	0.23910	222	2894
50	31.8864	2.80431	8	0.23150	75	862
51	32.6466	2.74073	7	0.26670	61	854
52	33.0400	2.70899	4	0.27000	40	479
53	33.2000	2.69629	5	0.19340	47	447
54	34.5200	2.59615	4	0.12440	35	294
55	34.9471	2.56540	9	0.49430	83	1877
56	35.5580	2.52271	15	0.38730	144	2671
57	36.0000	2.49274	4	0.16800	37	383
58	36.3400	2.47020	7	0.22000	61	1265
59	36.7200	2.44550	5	0.00000	48	0
60	36.9000	2.43398	6	0.23660	55	889
61	39.3708	2.28674	6	0.22970	56	595
62	39.6000	2.27403	3	0.36660	30	904
63	42.4256	2.12888	3	0.52120	32	1292
64	43.1200	2.09619	3	0.17340	28	451
65	44.1000	2.05186	6	0.27340	53	822
66	44.4150	2.03804	3	0.19000	30	288
67	44.8491	2.01931	6	0.32330	58	1103
68	45.5525	1.98975	3	0.22500	31	510
69	46.4484	1.95344	8	0.28540	70	1553
70	47.3747	1.91738	3	0.12660	32	337
71	48.3619	1.88052	10	0.30110	90	1697
72	50.1478	1.81766	6	0.33560	53	962
73	50.4400	1.80781	4	0.16440	34	298
74	50.8225	1.79510	8	0.28000	71	1168
75	53.2975	1.71743	3	0.20500	31	442
76	53.9916	1.69698	5	0.33670	42	971
77	55.2133	1.66228	4	0.21330	39	855
78	56.8700	1.61773	3	0.16660	32	507
79	57.4200	1.60353	3	0.16000	28	301
80	57.6800	1.59692	5	0.16800	45	653

Lampiran I. Spektra XRD zeolit I

*** Multi Plot ***

File Name : Data 2004\Nanik S 1
 Sample Name : Zeolit + H2SO4 Comment : Zeolit + H2SO4
 Date & Time : 05-27-04 09:36:27
 Condition
 X-ray Tube : Cu(1.54060 A) Voltage : 40.0 kV Current : 30.0 mA
 Scan Range : 3.0000 <-> 70.0000 deg Step Size : 0.0200 deg
 Count Time : 0.24 sec Slit DS : 1.00 deg SS : 1.00 deg RS : 0.30 mm



Lampiran I. Spektra XRD zeolit I (lanjutan)

Group Name : Data 2004
 Data Name : Nanik S 1
 File Name : Nanik S 1.PKR
 Sample Name : Zeolit + H2SO4
 Comment : Zeolit + H2SO4

# Strongest 3 peaks							
no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	37	25.5484	3.48380	100	0.23690	803	10307
2	31	22.1718	4.00613	64	0.34650	510	8491
3	42	27.6114	3.22801	58	0.45720	468	11450

# Peak Data List							
peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)	
1	5.7200	15.43821	5	0.36000	38	990	
2	5.9800	14.76755	5	0.00000	43	0	
3	6.3733	13.85709	10	0.37330	84	1755	
4	6.7668	13.05214	4	0.15770	30	294	
5	8.5600	10.32150	6	0.30000	49	801	
6	8.7400	10.10933	9	0.31340	72	897	
7	9.2400	9.56338	6	0.20000	50	791	
8	9.6548	9.15342	39	0.29490	313	5162	
9	11.0821	7.97752	5	0.18430	37	461	
10	12.0483	7.33985	6	0.32330	48	1181	
11	12.7200	6.95373	3	0.16000	27	250	
12	12.9200	6.84653	6	0.36000	46	1001	
13	13.3500	6.62696	34	0.28860	270	3585	
14	13.7400	6.43972	11	0.28580	91	1568	
15	14.2800	6.19739	4	0.24000	36	413	
16	14.4800	6.11224	9	0.32000	69	1064	
17	15.1490	5.84379	16	0.24660	127	2197	
18	16.7950	5.27459	3	0.17000	24	297	
19	17.2000	5.15129	5	0.25340	37	404	
20	17.4844	5.06814	7	0.36890	59	906	
21	18.0097	4.92148	3	0.21060	26	295	
22	19.2600	4.60472	8	0.13820	67	632	
23	19.5315	4.54132	36	0.29700	286	3834	
24	19.9600	4.44478	16	0.41340	129	2369	
25	20.2600	4.37964	6	0.16000	52	452	
26	20.5400	4.32056	5	0.10340	42	233	
27	20.7320	4.28098	8	0.26400	65	724	
28	21.3340	4.16152	6	0.29200	45	656	
29	21.7200	4.08843	8	0.17340	64	542	
30	21.9000	4.05523	19	0.25340	152	1744	
31	22.1718	4.00613	64	0.34650	510	8491	
32	22.6000	3.93118	12	0.00000	97	0	
33	23.0378	3.85746	31	0.25980	249	4375	
34	23.5455	3.77542	20	0.24620	159	2042	
35	23.8600	3.72636	8	0.20360	67	807	
36	24.9200	3.57020	14	0.40000	112	2775	
37	25.5484	3.48380	100	0.23690	803	10307	
38	26.2000	3.39861	46	0.35820	366	6442	
39	26.5000	3.36081	35	0.23160	285	3513	
40	26.7600	3.32875	7	0.00000	59	0	
41	27.0000	3.29970	7	0.00000	56	0	
42	27.6114	3.22801	58	0.45720	468	11450	
43	28.2000	3.16196	7	0.15700	56	651	
44	28.4600	3.13366	6	0.11200	46	254	

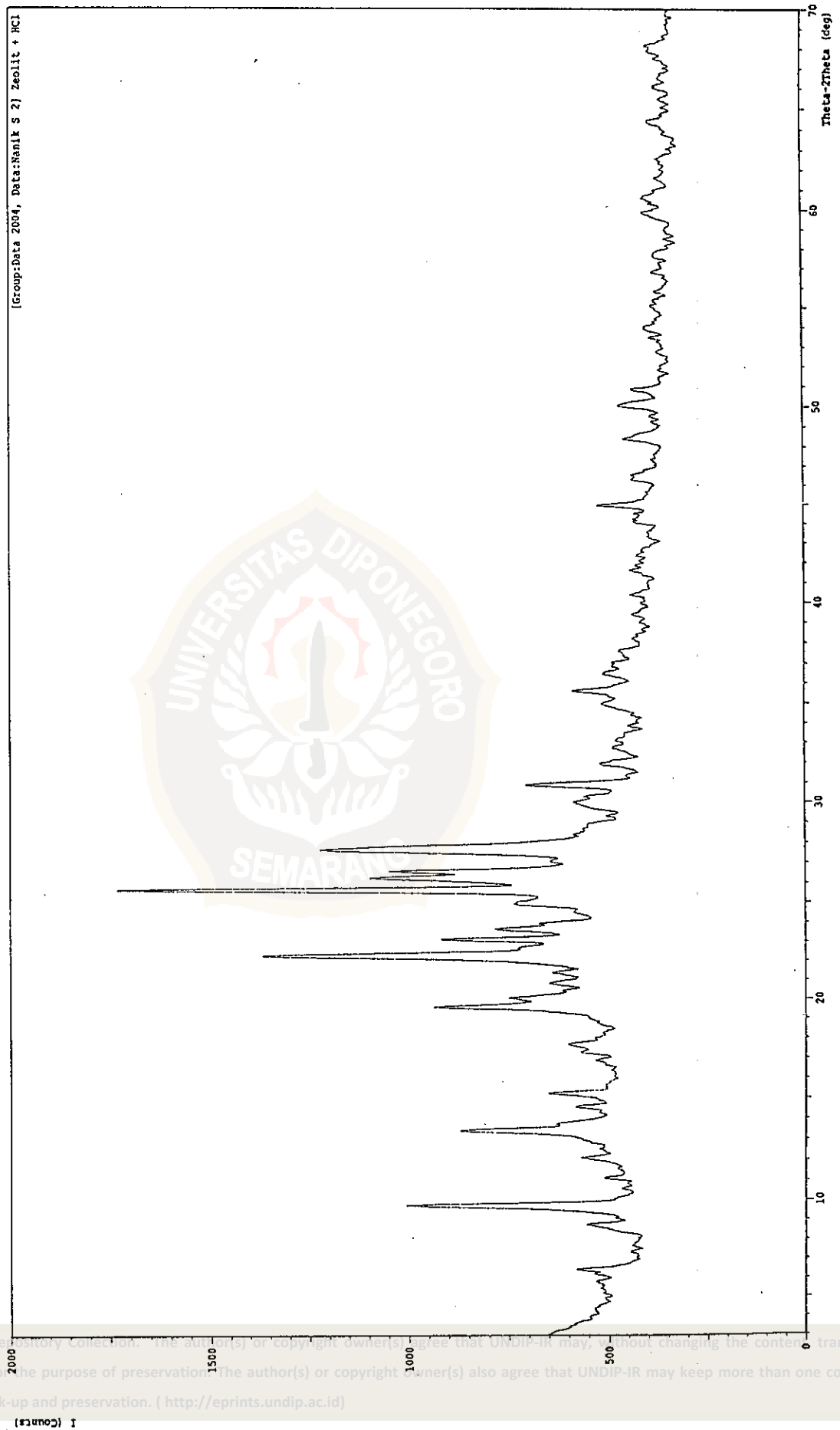
Lampiran I. Spektra XRD zeolit I (lanjutan)

peak no.	2Theta (deg)	d (Å)	I/I ₁	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
45	28.6400	3.11437	5	0.31340	44	519
46	28.9200	3.08485	4	0.24000	30	333
47	29.4503	3.03050	3	0.11660	27	160
48	29.7200	3.00361	5	0.30280	44	461
49	29.9343	2.98259	8	0.26280	68	797
50	30.2586	2.95136	10	0.18930	77	781
51	30.8047	2.90027	25	0.24220	199	2894
52	31.9074	2.80251	6	0.20690	48	600
53	32.6600	2.73963	5	0.25340	44	540
54	32.8000	2.72826	4	0.21720	33	279
55	33.1523	2.70006	4	0.32870	35	652
56	34.7400	2.58021	6	0.21140	52	684
57	34.9200	2.56733	7	0.22500	57	656
58	35.1600	2.55035	5	0.00000	41	0
59	35.5425	2.52377	14	0.27500	116	2079
60	36.1200	2.48474	4	0.20000	33	425
61	36.3200	2.47151	7	0.17340	54	770
62	36.6000	2.45324	5	0.00000	44	0
63	36.8800	2.43526	5	0.22000	41	828
64	39.2600	2.29294	4	0.32580	32	576
65	39.5200	2.27845	4	0.10000	33	283
66	40.1400	2.24467	3	0.16000	24	452
67	40.4800	2.22660	3	0.08660	25	246
68	41.4600	2.17621	4	0.08580	31	294
69	41.6800	2.16523	3	0.14500	28	376
70	42.2112	2.13920	3	0.17250	24	363
71	44.0000	2.05629	5	0.25500	37	616
72	44.3200	2.04218	4	0.24000	35	458
73	44.8487	2.01933	5	0.34250	44	783
74	45.3025	2.00015	3	0.20500	28	427
75	46.2600	1.96096	5	0.19000	37	327
76	46.4200	1.95457	4	0.19420	35	425
77	48.0046	1.89368	4	0.12420	30	211
78	48.3450	1.88114	10	0.29000	80	1337
79	49.9785	1.82342	5	0.24290	43	625
80	50.2491	1.81423	5	0.17820	44	374
81	50.5485	1.80419	5	0.13050	37	252
82	50.8188	1.79522	8	0.15760	65	613
83	53.3970	1.71446	3	0.14600	26	346
84	53.8911	1.69990	6	0.16440	52	695
85	54.9552	1.66948	3	0.18460	28	309
86	55.2388	1.66158	4	0.15100	29	271
87	56.1320	1.63724	3	0.13600	24	217
88	56.7000	1.62217	3	0.16000	27	381
89	57.6044	1.59884	5	0.16890	42	440
90	57.9185	1.59091	3	0.11710	25	147
91	58.9033	1.56664	3	0.16670	24	305
92	59.6200	1.54951	5	0.19200	40	547
93	59.8200	1.54480	6	0.20000	48	496
94	60.4998	1.52906	7	0.23160	58	768
95	60.7800	1.52268	4	0.21820	31	468
96	62.1012	1.49342	3	0.17750	25	318
97	64.0069	1.45348	6	0.15200	47	459
98	64.3530	1.44649	7	0.19800	56	434
99	64.6000	1.44156	4	0.39000	30	563
100	65.4142	1.42557	3	0.11650	25	194
101	67.4400	1.38759	4	0.09340	31	223
102	67.8250	1.38065	5	0.39000	37	748
103	68.2045	1.37389	3	0.20100	28	340

Lampiran J. Spektra XRD zeolit II

*** Multi Plot ***

File Name : Data 2004\Nanik S 2
 Sample Name : Zeolit + HCl
 Date & Time : 05-27-04 09:51:45
 Condition
 X-ray Tube : Cu(1.54060 A) Voltage : 40.0 kV Current : 30.0 mA
 Scan Range : 3.0000 <-> 70.0000 deg Step Size : 0.0200 deg
 Count Time : 0.24 sec Slit DS : 1.00 deg SS : 1.00 deg RS : 0.30 mm
 Comment : Zeolit + HCl



Lampiran J. Spektra XRD zeolit II (lanjutan)

Group Name : Data 2004
 Data Name : Nanik S 2
 File Name : Nanik S 2.PKR
 Sample Name : Zeolit + HCl
 Comment : Zeolit + HCl

# Strongest 3 peaks							
no.	peak no.	2Theta (deg)	d (Å)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	35	25.5708	3.48080	100	0.22170	812	10266
2	29	22.1969	4.00165	67	0.33100	544	8382
3	39	27.6175	3.22731	57	0.42920	461	9516

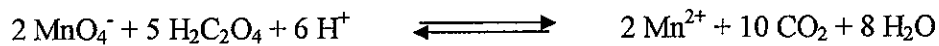
# Peak Data List							
peak no.	2Theta (deg)	d (Å)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)	
1	5.4600	16.17276	3	0.38400	27	616	
2	5.7866	15.26067	5	0.33330	41	586	
3	6.2200	14.19827	7	0.30000	53	650	
4	6.4239	13.74805	11	0.23930	87	987	
5	8.4600	10.44328	5	0.29720	40	566	
6	8.6606	10.20183	10	0.35250	83	1068	
7	9.0800	9.73153	4	0.24800	32	420	
8	9.3600	9.44104	10	0.20000	78	1018	
9	9.6773	9.13218	47	0.27810	378	5469	
10	11.0775	7.98082	5	0.16500	37	298	
11	12.0505	7.33852	8	0.21310	62	745	
12	12.5375	7.05453	3	0.31500	26	372	
13	12.7800	6.92122	5	0.12400	41	481	
14	13.3708	6.61669	32	0.29300	256	3927	
15	13.7000	6.45843	11	0.36000	92	1841	
16	14.5253	6.09328	7	0.21070	60	790	
17	15.1755	5.83364	14	0.24100	110	1690	
18	16.8225	5.26603	4	0.14910	30	342	
19	17.2200	5.14535	7	0.16000	53	429	
20	17.5816	5.04033	9	0.41670	70	1294	
21	17.9400	4.94044	3	0.14860	24	299	
22	19.2200	4.61421	7	0.16500	58	868	
23	19.5491	4.53727	34	0.30930	273	4149	
24	20.0200	4.43159	17	0.29340	139	2373	
25	20.4000	4.34989	5	0.14000	42	368	
26	20.7833	4.27053	8	0.25330	62	809	
27	21.3550	4.15747	7	0.15000	53	499	
28	21.8000	4.07360	10	0.21340	78	1301	
29	22.1969	4.00165	67	0.33100	544	8382	
30	22.6200	3.92775	13	0.38660	107	2438	
31	23.0563	3.85440	30	0.22610	240	2845	
32	23.5929	3.76794	18	0.29780	150	2209	
33	23.8800	3.72328	10	0.17000	80	729	
34	24.8400	3.58152	14	0.22800	112	2272	
35	25.5708	3.48080	100	0.22170	812	10266	
36	26.1858	3.40042	43	0.38830	352	6601	
37	26.5200	3.35833	40	0.21680	321	3869	
38	27.0000	3.29970	7	0.14660	57	686	
39	27.6175	3.22731	57	0.42920	461	9516	
40	28.0200	3.18186	11	0.23560	93	1804	
41	28.3600	3.14448	6	0.00000	49	0	
42	28.6200	3.11650	5	0.00000	42	0	
43	28.8000	3.09743	5	0.34660	39	754	
44	29.6200	3.01352	6	0.15560	45	1114	

Lampiran J. Spektra XRD zeolit II (lanjutan)

peak no.	2Theta (deg)	d (Å)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
45	30.0000	2.97621	10	0.00000	81	0
46	30.2400	2.95313	9	0.22220	70	1225
47	30.8284	2.89810	22	0.28140	182	2789
48	31.7000	2.82037	3	0.10860	27	138
49	31.8910	2.80392	9	0.24070	74	680
50	32.0600	2.78952	5	0.13760	43	285
51	32.6750	2.73841	6	0.32340	47	846
52	33.0683	2.70673	5	0.32330	42	564
53	33.3600	2.68373	3	0.26660	25	419
54	34.7200	2.58165	5	0.24000	37	380
55	34.9200	2.56733	7	0.60000	56	1165
56	35.3200	2.53916	6	0.00000	46	0
57	35.5685	2.52199	13	0.26700	107	1575
58	35.9000	2.49946	4	0.13780	31	295
59	36.4541	2.46273	7	0.34520	53	947
60	36.8000	2.44037	5	0.19340	42	358
61	37.0000	2.42764	6	0.17860	46	374
62	37.2800	2.41004	3	0.08000	26	124
63	37.5414	2.39386	4	0.28290	34	605
64	39.3650	2.28706	3	0.16000	27	331
65	40.3750	2.23215	5	0.13000	40	396
66	41.5845	2.16998	6	0.15760	45	495
67	41.8468	2.15698	5	0.13030	38	258
68	42.0875	2.14520	4	0.14500	30	233
69	42.3514	2.13244	5	0.14290	42	306
70	42.6423	2.11857	3	0.24030	28	499
71	44.0400	2.05452	5	0.20000	44	652
72	44.2600	2.04481	4	0.00000	35	0
73	44.4900	2.03477	5	0.14000	39	436
74	44.8975	2.01725	14	0.20160	112	1187
75	45.1720	2.00563	3	0.12400	27	290
76	46.2923	1.95966	6	0.20190	45	441
77	46.5183	1.95067	6	0.18330	46	479
78	48.3464	1.88109	9	0.21290	75	834
79	48.5800	1.87259	5	0.20000	40	462
80	49.5035	1.83980	3	0.13290	27	286
81	49.8200	1.82885	3	0.10660	26	138
82	50.0475	1.82107	11	0.29500	87	958
83	50.2400	1.81454	6	0.14660	45	321
84	50.8112	1.79547	8	0.21050	67	1068
85	51.7911	1.76378	3	0.15110	26	427
86	53.4654	1.71243	4	0.13080	32	278
87	53.7800	1.70315	5	0.12000	37	225
88	54.0000	1.69673	4	0.21340	30	510
89	55.0700	1.66627	3	0.18000	25	353
90	55.3615	1.65818	3	0.13910	26	196
91	55.8170	1.64573	3	0.14060	27	250
92	56.7983	1.61960	5	0.17670	41	525
93	57.6033	1.59887	4	0.23330	36	722
94	59.5600	1.55093	3	0.18000	27	342
95	59.8600	1.54387	6	0.15600	45	510
96	60.3000	1.53365	5	0.10280	39	251
97	60.5680	1.52750	6	0.33600	47	740
98	60.9775	1.51822	3	0.15500	26	195
99	61.5400	1.50569	3	0.20000	28	403
100	62.3600	1.48785	3	0.21720	28	433
101	62.5400	1.48400	4	0.30220	31	373
102	63.0450	1.47332	3	0.11000	25	171
103	63.7600	1.45851	4	0.18280	32	381

Lampiran K. Perhitungan titrasi KMnO_4

KMnO_4 0,5 M hasil pengenceran distandarisasi dengan $\text{Na}_2\text{C}_2\text{O}_4$, reaksi yang terjadi adalah:



$\text{Na}_2\text{C}_2\text{O}_4$ yang digunakan 0,3 gram dilarutkan dalam 250 ml akuades dan 12,5 ml H_2SO_4 5 % yang berfungsi memberikan suasana asam sehingga KMnO_4 teroksidasi menjadi Mn^{2+} . Volume KMnO_4 yang dibutuhkan untuk mencapai titik akhir titrasi adalah 4,5 ml, maka:

$$V_{\text{KMnO}_4} \times N_{\text{KMnO}_4} / 1000 = m.n / \text{BM}$$

$$V \times N = 0,3 \times 1000 \times 5 / \text{BM}$$

$$N = \frac{1500}{134 \times 4,5}$$

$$N = 2,47 \approx 0,5 \text{ M}$$

Karena 1 M $\text{KMnO}_4 = 5 \text{ N } \text{KMnO}_4$, maka konsentrasi KMnO_4 adalah 0,5 M.

Lampiran L. Tabel pengukuran rasio Si/Al

Pengukuran rasio Si/Al dilakukan dengan metode (AAS) Spektroskopi Serapan Atom dan diperoleh hasil:

No	Jenis zeolit	Parameter	Hasil pengukuran			Rasio Si/Al
1	Zeolit alam	Al	45247,657	44578,313	43908,969	0,935
		Si	36186,613	44692,360	44192,022	
2	Zeolit I	Al	38248,231	37584,199	38248,231	2,075
		Si	70148,749	86528,864	80076,092	
3	Zeolit II	Al	21109,054	11083,933	7748,893	7,912
		Si	114510,668	103525,201	98032,468	

Lampiran M. Perhitungan pengukuran rasio Si/Al

1. Perhitungan kadar Si dan Al

- Pertama dibuat kurva standar Si dan Al, sehingga diperoleh persamaan regresi $y = mx + c$ yang digunakan untuk menentukan berapa konsentrasi dari Si dan Al

$$y = mx + c$$

$$x = \frac{y - c}{m}$$

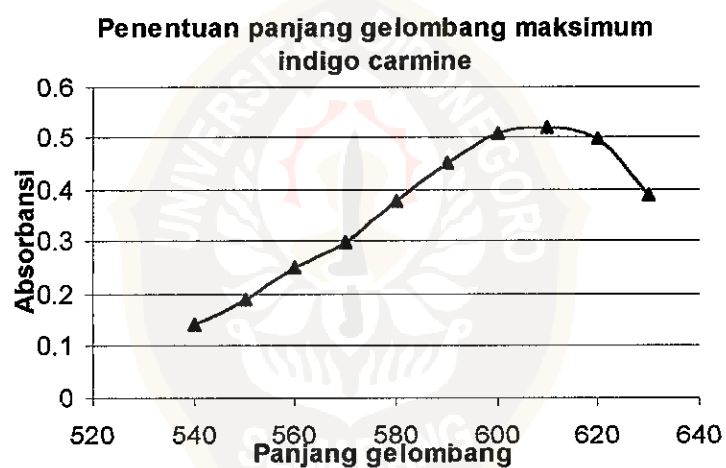
$$\text{ppm} = \frac{\text{ppmPerhitungan} \times \text{Volumeinduk} \times \text{Pengenceran}}{\text{gramPenimbangan}}$$



Lampiran N. Tabel panjang gelombang maksimum indigo carmine

Penentuan panjang gelombang maksimum dilakukan pada konsentrasi indigo carmine 5 ppm.

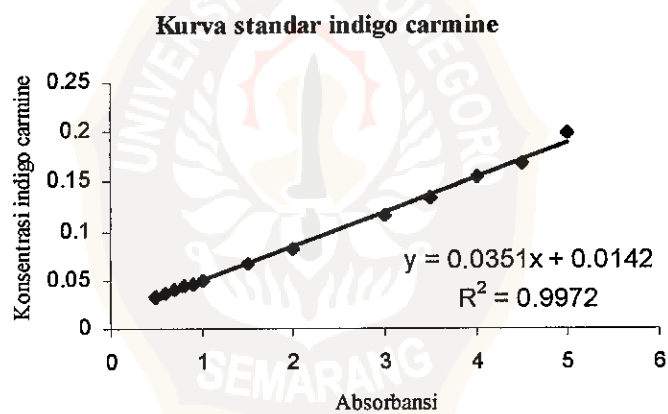
Panjang gelombang	Absorbansi
540	0,14
550	0,19
560	0,25
570	0,30
580	0,38
590	0,45
600	0,51
610	0,52
620	0,50
630	0,39



Lampiran O. Tabel kurva standar indigo carmine

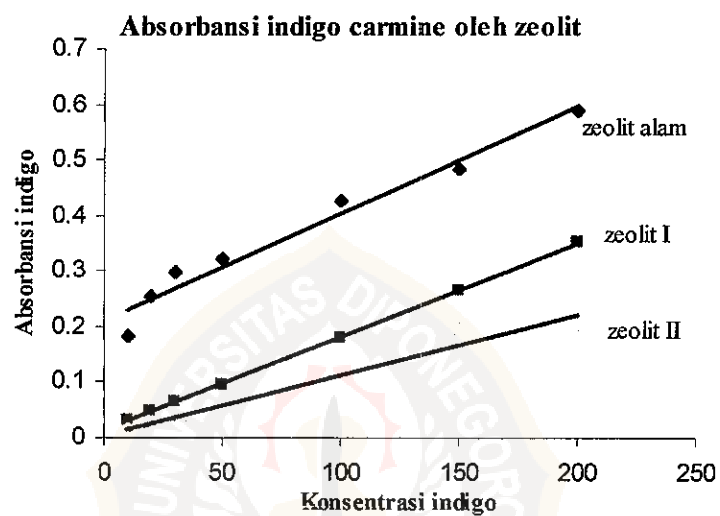
Pengukuran absorbansi indigo carmine dilakukan pada panjang gelombang maksimum yaitu pada panjang gelombang 610 nm.

Konsentrasi indigo	Absorbansi
0,5	0,032
0,6	0,037
0,7	0,040
0,8	0,043
0,9	0,046
1	0,050
1,5	0,066
2	0,083
3	0,117
3,5	0,134
4	0,154
4,5	0,168
5	0,198



Lampiran P. Absorbansi indigo carmine setelah diadsorpsi oleh zeolit

Konsentrasi indigo	Abs. zeolit alam	Abs. zeolit I	Abs. zeolit II
10	0,182	0,031	0,020
20	0,253	0,047	0,026
30	0,299	0,063	0,029
50	0,321	0,095	0,043
100	0,426	0,178	0,101
150	0,495	0,265	0,195
200	0,587	0,351	0,203



Lampiran Q. Tabel persen (%) terserap indigo carmine

Konsentrasi indigo	% terserap zeolit alam	% terserap zeolit I	% terserap zeolit II
10	94,979	95,214	98,348
20	92,863	95,328	98,319
30	91,492	95,366	98,594
50	90,837	95,396	98,359
100	87,694	95,333	97,527
150	85,617	95,236	98,465
200	82,859	95,202	97,311