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SUBSTITUTION OF WAX AND GREASE CLEANERS WITH BIO-DEGRADABLE SOLVENTS: PHASE I, PART III

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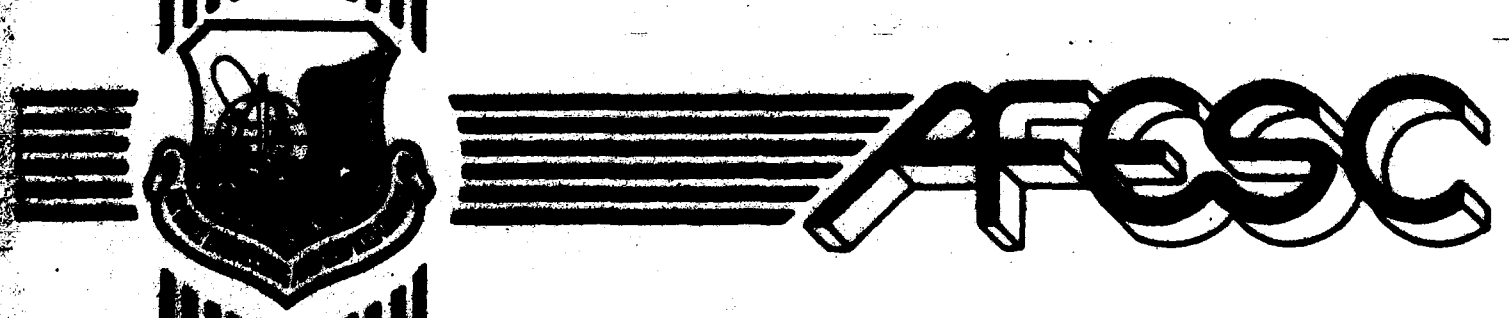
SEPTEMBER 1989

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) Methods have been tested for systematic evaluations of biodegradable solvents for aircraft parts cleaning, degreasing, and masking-wax removal processes. Screening tests have identified solvents that are biodegradable, can efficiently remove soils from aircraft parts in a dip tank, and meet the military specification requirement for corrosiveness (ANSI/ASTM) in processes used at the five Air Force Air Logistics Centers (ALCs). The database developed during Phase I, of this program identifies each process, the chemicals used, tank volumes, testing requirements, and alternative chemicals. To test solvent biodegradability, an ASTM method was modified and used to test a bench-scale activated sludge system by measuring chemical oxygen demand (COD) and adenosine triphosphate (ATP) over a 6-hour period to determine if the bacteria will reduce COD to below the limit established by the National Pollution Discharge Elimination System (NPDES). Solvents were categorized to identify any trends, and six were selected for in-depth pilot-scale testing.			
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PREFACE

This report was prepared by Idaho National Engineering Laboratory, EG&G Idaho, Inc., P.O. Box 1625 Idaho Falls, Idaho 83415 under Contract Number DE-AC07-76ID01570 for the Air Force Engineering and Services Center (AFESC), Tyndall Air Force Base, Florida 32403-6001. Mr Charles J. Carpenter was the Government technical program manager. This report summarizes work accomplished between 1 October 1987 and 30 March 1989.

This report has been reviewed by the Public Affairs Office and is releasable to the National Technical Information Service (NTIS). At NTIS it will be available to the general public, including foreign nations.

This technical publication has been reviewed and is approved for publication.

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APPENDIX G

TEST DATA

These figures and tables contain the test data for the biodegradability, solubility, and cleaning efficiency tests. For each set of solvents the first tables contain the biodegradability tests, a plot of COD versus time, along with the change in ATP during the test. The plot directly below is the plot of the control phenol that was run during the same day. Also on that plot are the solvents that were run on the same day. Also listed are TOC before testing, COD before testing, and TOC after testing.

Following the biodegradability plots are the plots for cleaning efficiency. The solvent is listed, the conditions at which it was tested, the alloy used, and the results in table and plot form.

COMPANY - 3 D INC.	145	.	.	.	.	.	*
PRODUCT - 3D SUPREME	138	.	.	*	.	.	.	0- 112
TOC INIT- 52475	131	.	.	.	*	*	.	1- 109
TOC 2nd - 0	123	.	.	.	.	.	.	2- 108
COD INIT- 148000	116	.	.	.	.	.	.	3- 138
ANILINE PT - 0.0000	109*	*	*	.	.	.	.	4- 134
ATP ----- 1 E-8	102	.	.	.	.	.	.	5- 132
	94	.	.	.	.	.	.	6- 145
SOLUBILITY DATA:	87	.	.	.	.	.	.
1-3 @ 180 1%	80	.	.	.	.	.	.	DRY
	73	.	.	.	.	.	.	WEIGHT
	65	.	.	.	.	.	.	0.0597
	58	.	.	.	.	.	.
	51	.	.	.	.	.	.
	44	.	.	.	.	.	.
	36	.	.	.	.	.	.
	29	.	.	.	.	.	.
	22	.	.	.	.	.	.
	15	.	.	.	.	.	.
	7	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 02/25/88	COD vs TIME	0	1	2	3	4	5	6

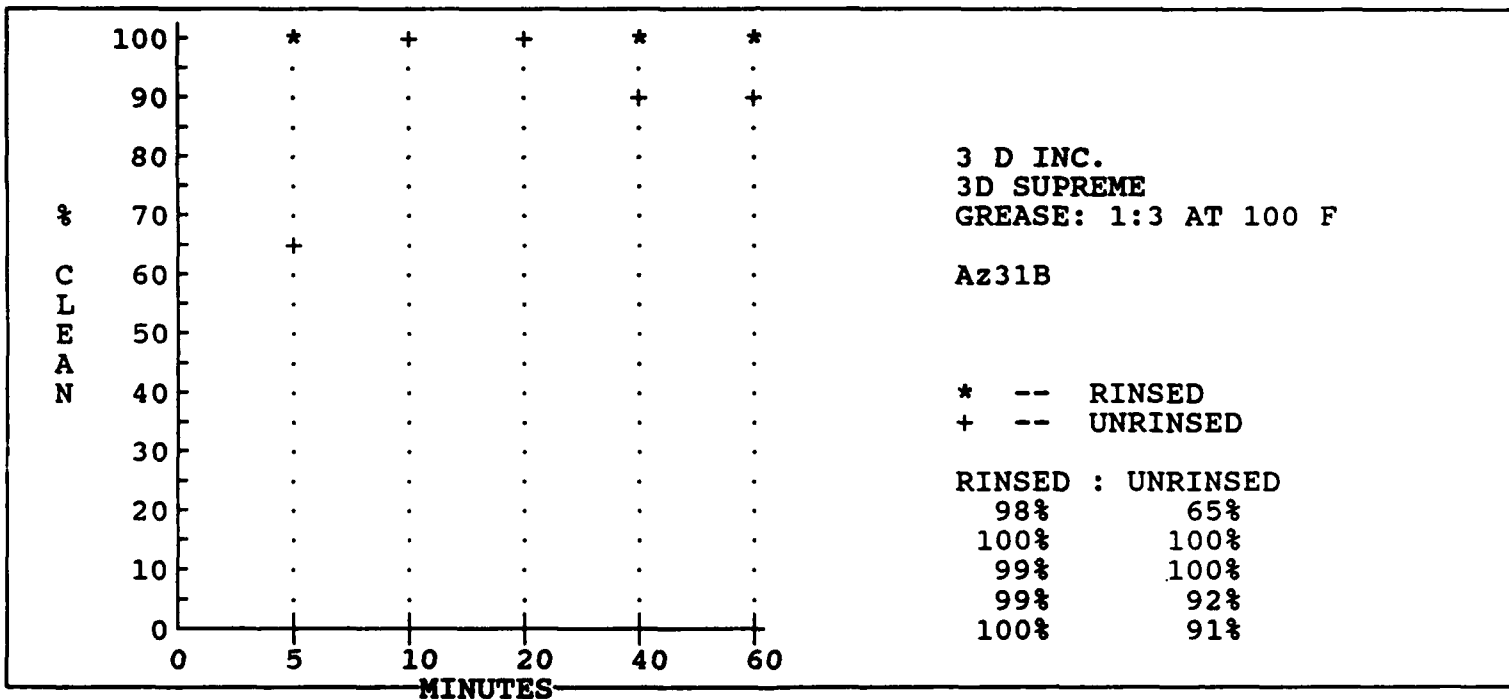
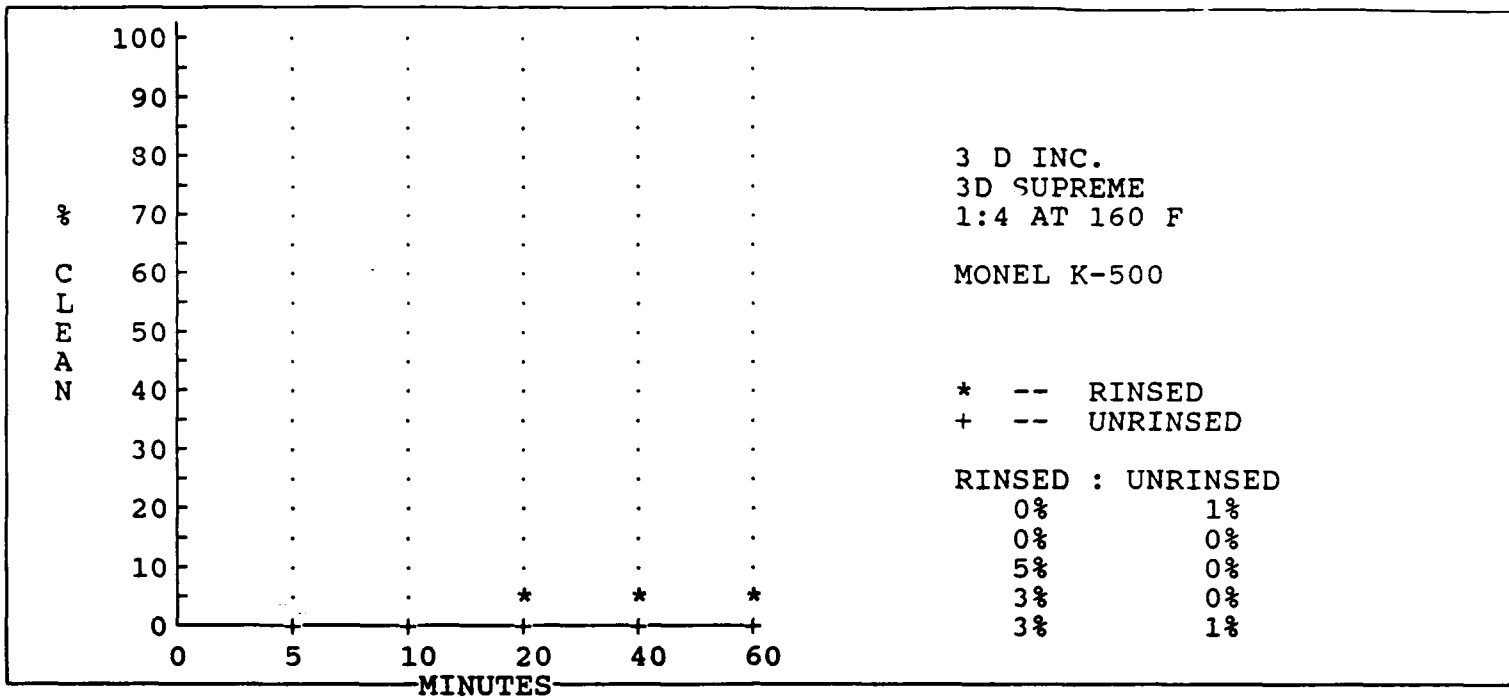
PHENOL 02/25/88 ATP - 16 E-8		165*	*	*	*	.	.	*	
3 D INC.		157	.	.	.	*	.	0- 165	
3D SUPREME		149	.	.	.	.	*	1- 165
		140	.	.	.	.	.	2- 165
		132	3- 165	
		124	4- 154	
		116	5- 146	
		107	6- 165	
		99		
		91	DRY	
		83	WEIGHT	
		74	0.0597	
		66		
		58		
		50		
		41		
		33		
		25		
		17		
		8		
		0		
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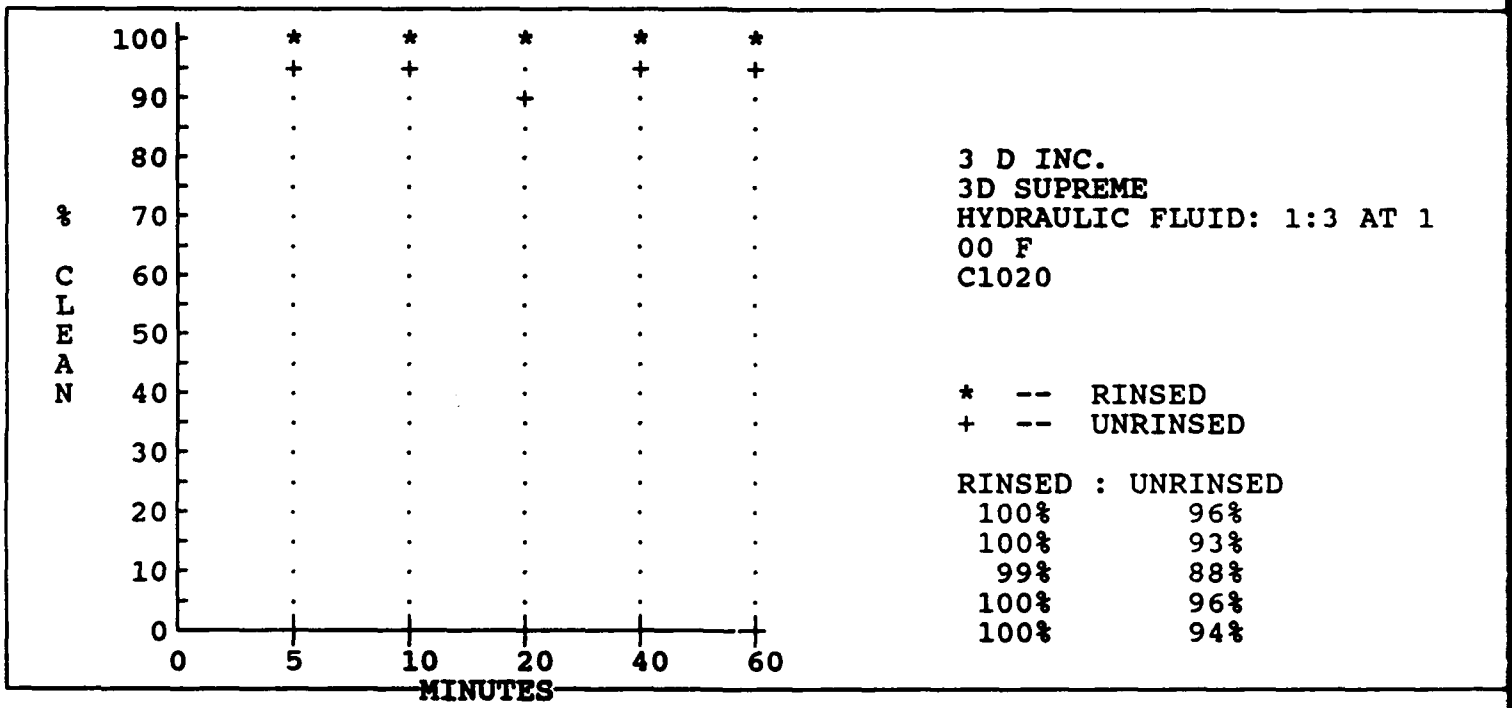
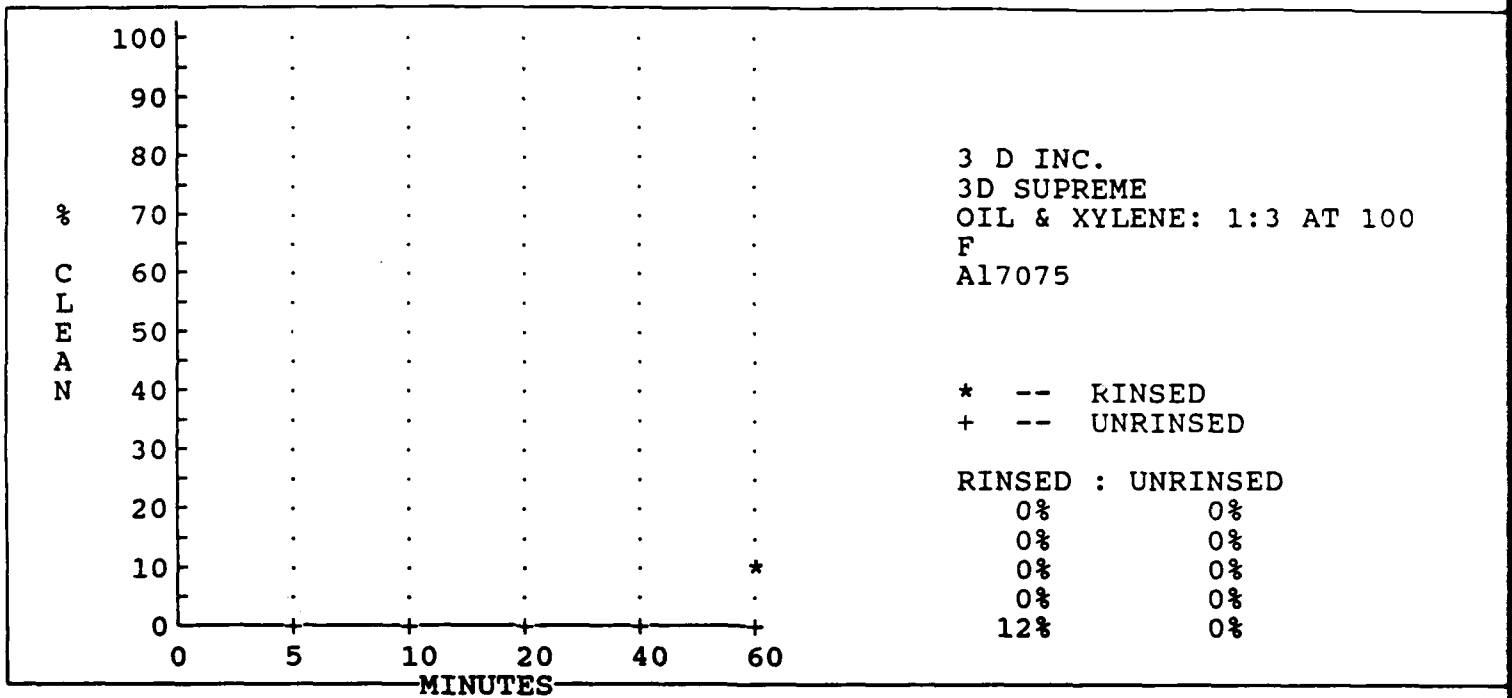
COMPANY - 3 D INC.	246*	
PRODUCT - 3D SUPREME	234	*	0- 246
TOC INIT- 52475	221	.	*	1- 232
TOC 2nd - 0	209	2- 220
COD INIT- 148000	197	.	.	.	.	.	.	3- 164
ANILINE PT - 0.0000	185	.	.	.	*	.	.	4- 182
ATP ----- 93 E-8	172	.	.	.	.	.	.	5- 104
	160	.	.	*	.	.	.	6- 135
SOLUBILITY DATA:	148	
1-3 @ 180 1%	135	*	DRY
	123	WEIGHT
	111	0.0558
	98	*	.	
	86	
	74	
	62	
	49	
	37	
	25	
	12	
	0	
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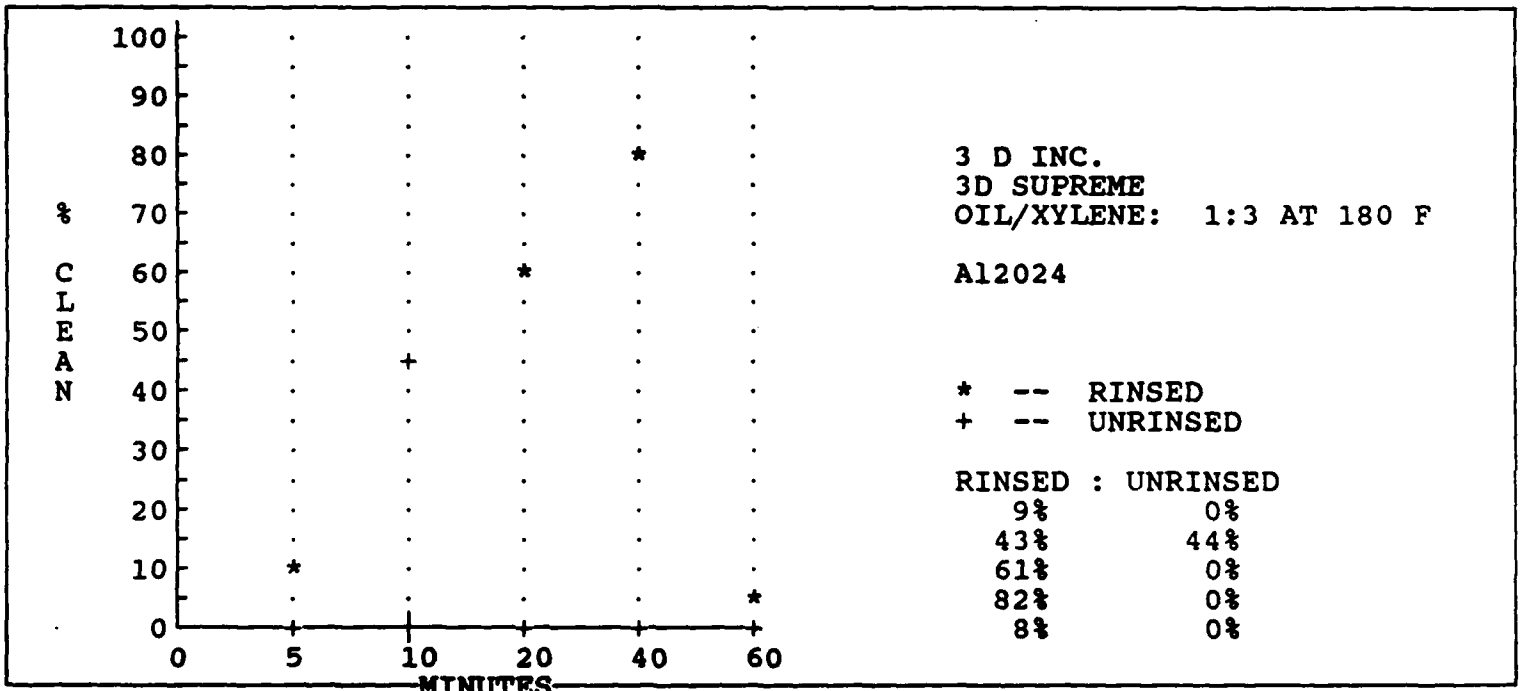
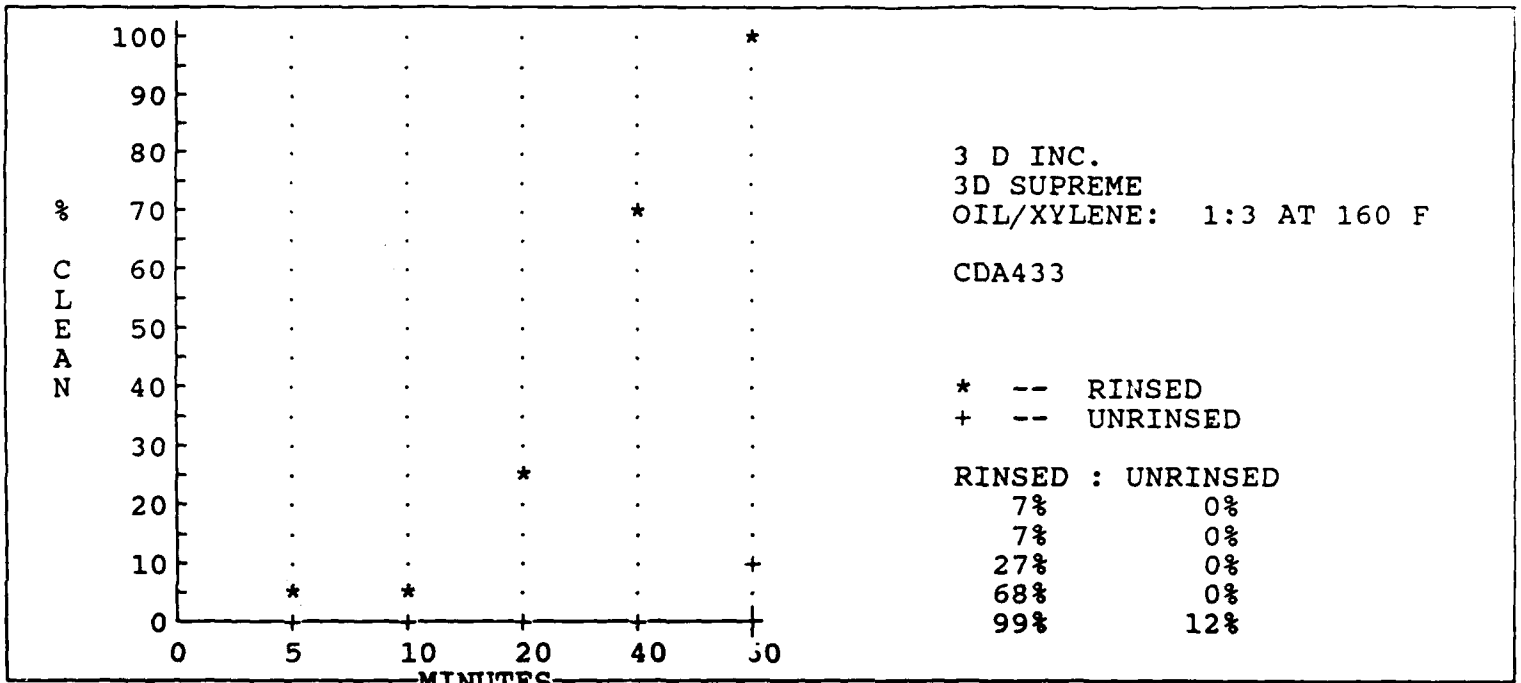
PHENOL 03/07/88 ATP - 211 E-8		439*	
		417	0- 439
		395	*	*	1- 406
		373	2- 386
		351	.	.	*	.	.	.	3- 356
		329	4- 309
3 D INC.		307	.	.	.	*	.	.	5- 270
3D SUPREME		285	.	.	.	.	.	.	6- 246
		263	.	.	.	.	*	.
3 D INC.		241	.	.	.	.	.	*	DRY
CITRIGOLD		220	.	.	.	.	.	.	WEIGHT
		198	.	.	.	.	.	.	0.0558
3 D INC.		176	.	.	.	.	.	.
SIEGE		154	.	.	.	.	.	.
		132	.	.	.	.	.	.
BARTLETT CHEMICAL INC.		110	.	.	.	.	.	.
DOLPHIN 281		88	.	.	.	.	.	.
		66	.	.	.	.	.	.
BIO-TEK INC.		44	.	.	.	.	.	.
134 HI-SOLV		22	.	.	.	.	.	.
		0	.	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6	

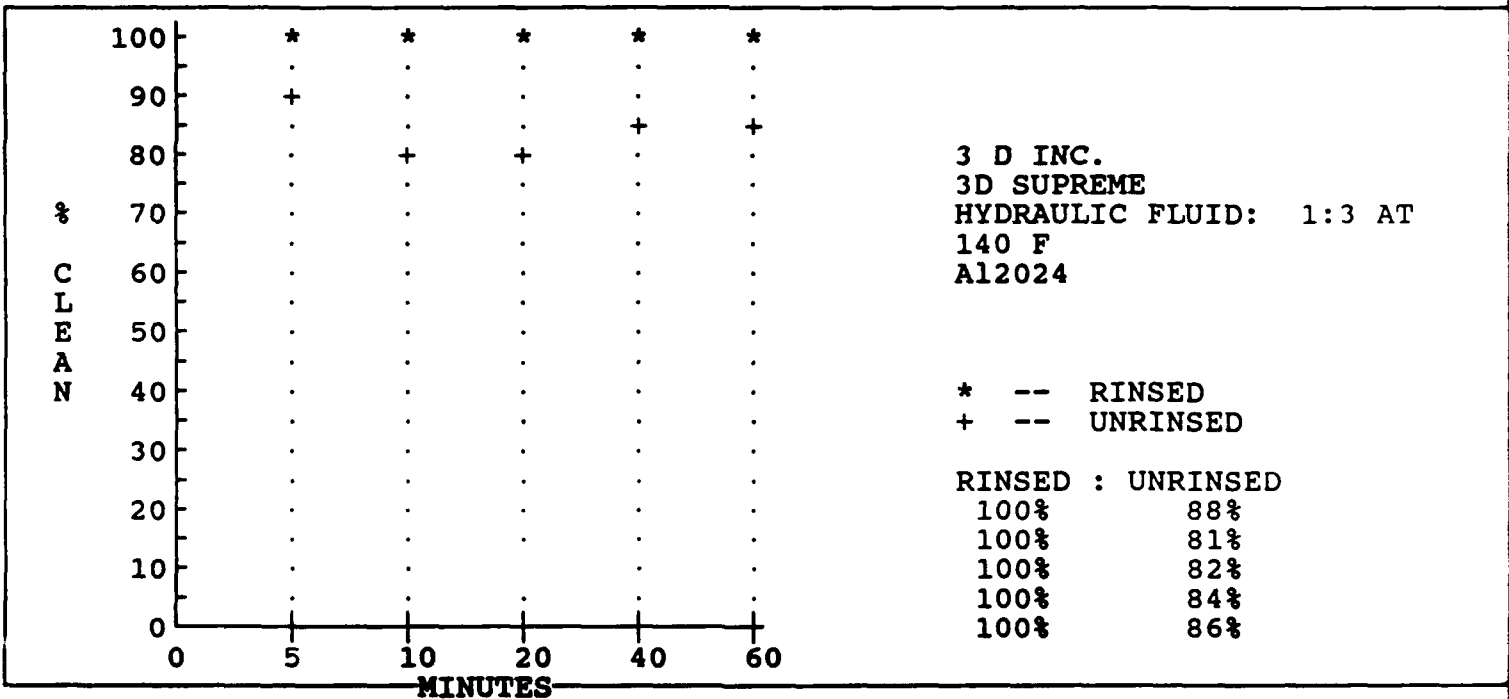
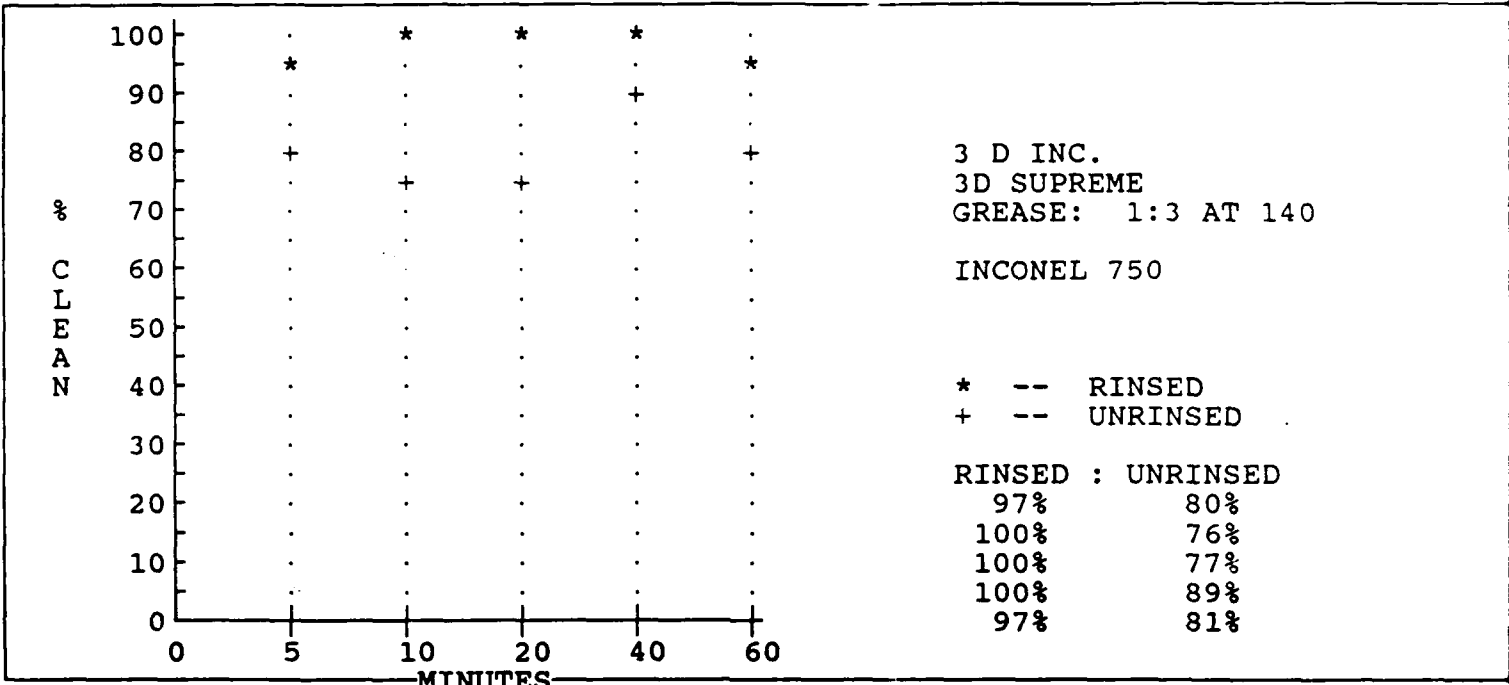
COMPANY - 3 D INC.	181	.	*	.	*	.	.	.	
PRODUCT - 3D SUPREME	172	.	.	*	.	*	.	.	0- 140
TOC INIT- 52475	163	*	.	.	.	.	.	.	1- 160
TOC 2nd - 0	154	.	.	.	.	.	.	*	2- 181
COD INIT- 148000	145	.	.	.	.	.	.	.	3- 170
ANILINE PT - 0.0000	136*	.	.	.	.	.	.	.	4- 180
ATP ----- -21 E-8	127	.	.	.	.	.	.	.	5- 176
	118	.	.	.	.	.	.	.	6- 150
SOLUBILITY DATA:	109	.	.	.	.	.	.	.
1-3 @ 180 1%	100	.	.	.	.	.	.	.	DRY WEIGHT
	91	.	.	.	.	.	.	.	0.0600
	81	.	.	.	.	.	.	.
	72	.	.	.	.	.	.	.
	63	.	.	.	.	.	.	.
	54	.	.	.	.	.	.	.
	45	.	.	.	.	.	.	.
	36	.	.	.	.	.	.	.
	27	.	.	.	.	.	.	.
	18	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.
DATE - 03/22/88	COD vs TIME	0	1	2	3	4	5	6	

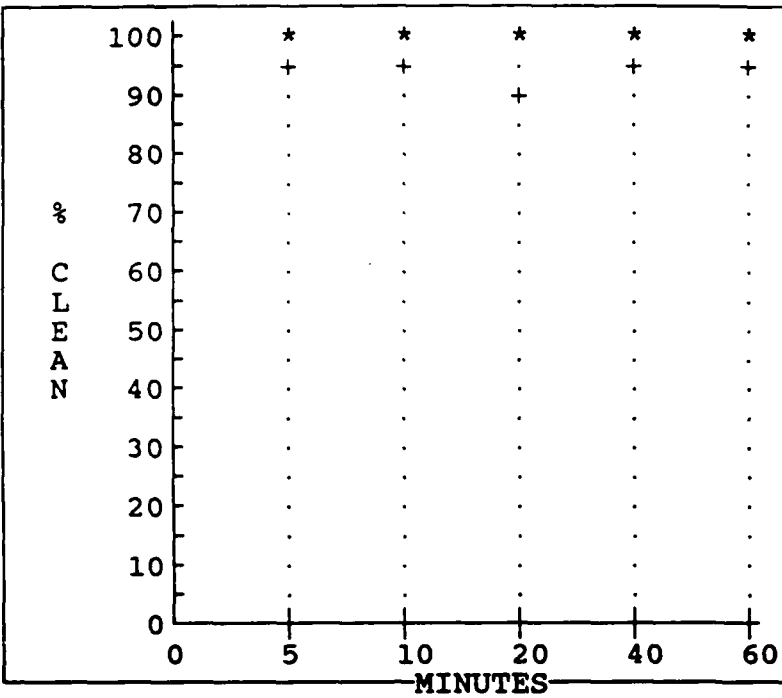
PHENOL 03/22/88 ATP - 69 E-8	306*	.	.	.	.	.	.	.
	291	.	.	.	.	.	.	.	0- 306
	275	.	.	.	.	.	.	.	1- 178
	260	.	.	.	.	.	.	.	2- 58
	245	.	.	.	.	.	.	.	3- 36
	230	.	.	.	.	.	.	.	4- 37
3 D INC.	214	.	.	.	.	.	.	.	5- 34
3D SUPREME	199	.	.	.	.	.	.	.	6- 12
	184	*	.	.	.	.	.	.
3 D INC.	168	.	.	.	.	.	.	.	DRY WEIGHT
CITRIGOLD	153	.	.	.	.	.	.	.	0.0600
	138	.	.	.	.	.	.	.
ZEP MANUFACTURING CO.	122	.	.	.	.	.	.	.
BIG ORANGE	107	.	.	.	.	.	.	.
	92	.	.	.	.	.	.	.
ZEP MANUFACTURING CO.	77	.	.	.	.	.	.	.
ZEP 940	61	.	*	.	.	.	.	.
	46	.	.	.	.	.	.	.
ZEP MANUFACTURING CO.	31	.	.	*	*	*	.	.	
ZEPRIDE	15	.	.	.	.	.	.	*
	0	.	.	.	.	.	.	.
DATE - 03/22/88	COD vs TIME	0	1	2	3	4	5	6	











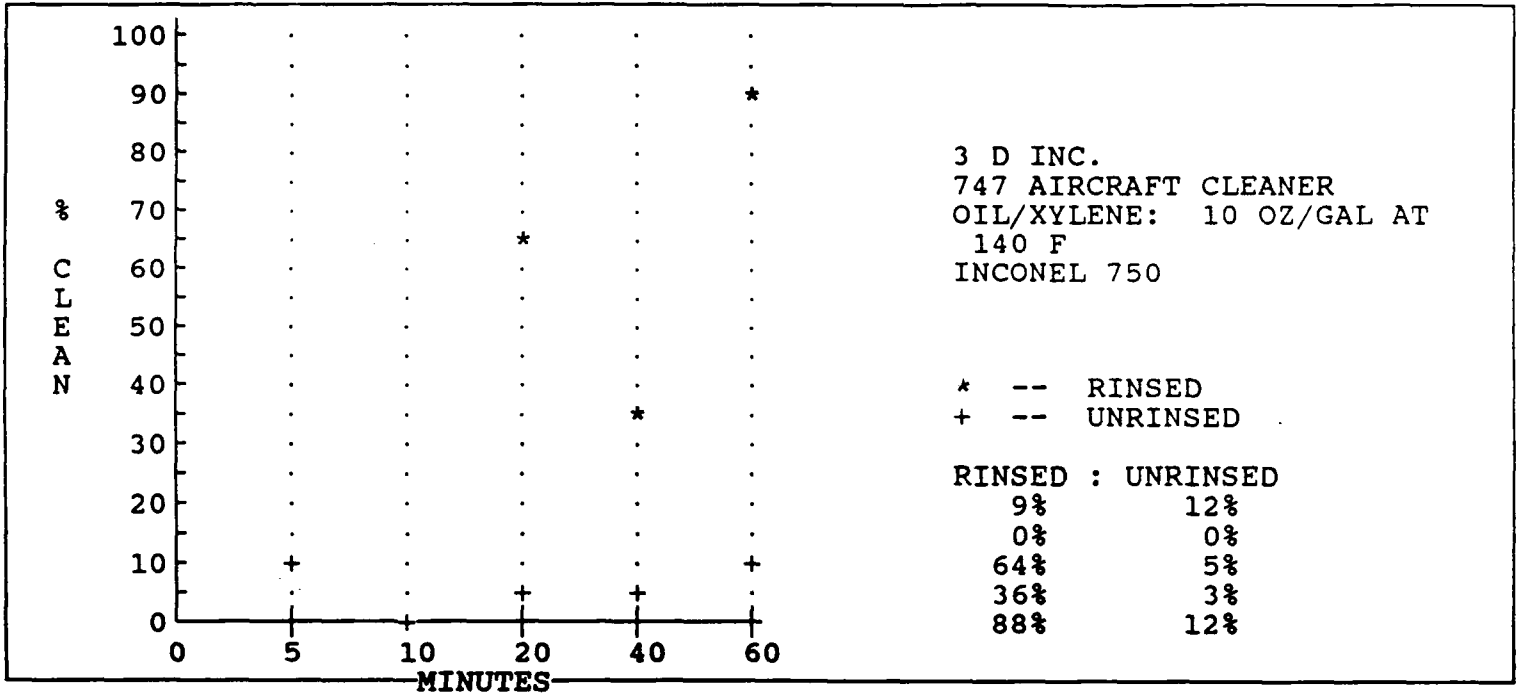
3 D INC.
 3D SUPREME
 HYDRAULIC FLUID: 1:3 AT
 100 F
 A12024

* -- RINSED
 + -- UNRINSED

RINSED	UNRINSED
100%	96%
100%	93%
99%	88%
100%	96%
100%	94%

COMPANY - 3 D INC.	496	.	.	.	*	*	*	
PRODUCT - 747 AIRCRAFT CLEAN	471	.	.	.	.	.	.	0- 402
TOC INIT- 141225	446	.	*	*	.	.	.	1- 426
TOC 2nd - 0	422	*	.	.	.	.	.	2- 436
COD INIT- 189000	397*	.	.	.	.	.	.	3- 442
ANILINE PT - 0.0000	372	.	.	.	.	.	.	4- 484
ATP ----- 15 E-8	347	.	.	.	.	.	.	5- 496
	322	.	.	.	.	.	.	6- 485
SOLUBILITY DATA:	298	.	.	.	.	.	.
	273	.	.	.	.	.	.	DRY
	248	.	.	.	.	.	.	WEIGHT
	223	.	.	.	.	.	.	0.0883
	198	.	.	.	.	.	.
	174	.	.	.	.	.	.
	149	.	.	.	.	.	.
	124	.	.	.	.	.	.
	99	.	.	.	.	.	.
	74	.	.	.	.	.	.
	50	.	.	.	.	.	.
	25	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 06/16/88	COD vs TIME	0	1	2	3	4	5	6

PHENOL	277*	.	.	.	.	.	.
06/16/88	263	*	.	.	.	.	.	0- 277
ATP - 60 E-8	249	.	*	.	.	.	.	1- 266
	235	.	.	.	.	.	.	2- 245
	222	.	.	*	.	.	.	3- 218
	208	.	.	.	.	.	.	4- 196
3 D INC.	194	.	.	.	*	.	.	5- 140
747 AIRCRAFT CLEANER	180	.	.	.	.	.	.	6- 102
	166	.	.	.	.	.	.
3 D INC.	152	.	.	.	.	.	.	DRY
BRITE BOY	139	.	.	.	.	*	.	WEIGHT
	125	.	.	.	.	.	.	0.0883
3 D INC.	111	.	.	.	.	.	.
RUST ERADICATOR	97	.	.	.	.	.	*
	83	.	.	.	.	.	.
CIRCUIT CHEMISTRY CORPORA	69	.	.	.	.	.	.
METAL STRIPPER	55	.	.	.	.	.	.
	42	.	.	.	.	.	.
EXXON CHEMICALS	28	.	.	.	.	.	.
AROMATIC 150	14	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 06/16/88	COD vs TIME	0	1	2	3	4	5	6



COMPANY - 3 D INC.	493	.	.	.	.	*	.
PRODUCT - BRITE BOY	468	.	.	.	.	.	*	0- 382
TOC INIT- 47954	444	.	.	.	*	.	.	1- 428
TOC 2nd - 0	419	*	*	*	.	.	.	2- 430
COD INIT- 548000	394	.	.	.	.	.	.	3- 428
ANILINE PT - 0.0000	370*	.	.	.	.	.	.	4- 456
ATP ----- -3 E-8	345	.	.	.	.	.	.	5- 493
	320	.	.	.	.	.	.	6- 480
SOLUBILITY DATA:	296	.	.	.	.	.	.
	271	.	.	.	.	.	.	DRY
	247	WEIGHT
	222	0.0883
	197	
	173	
	148	
	123	
	99	
	74	
	49	
	25	
	0	
DATE - 06/16/88	COD vs TIME	0	1	2	3	4	5	6

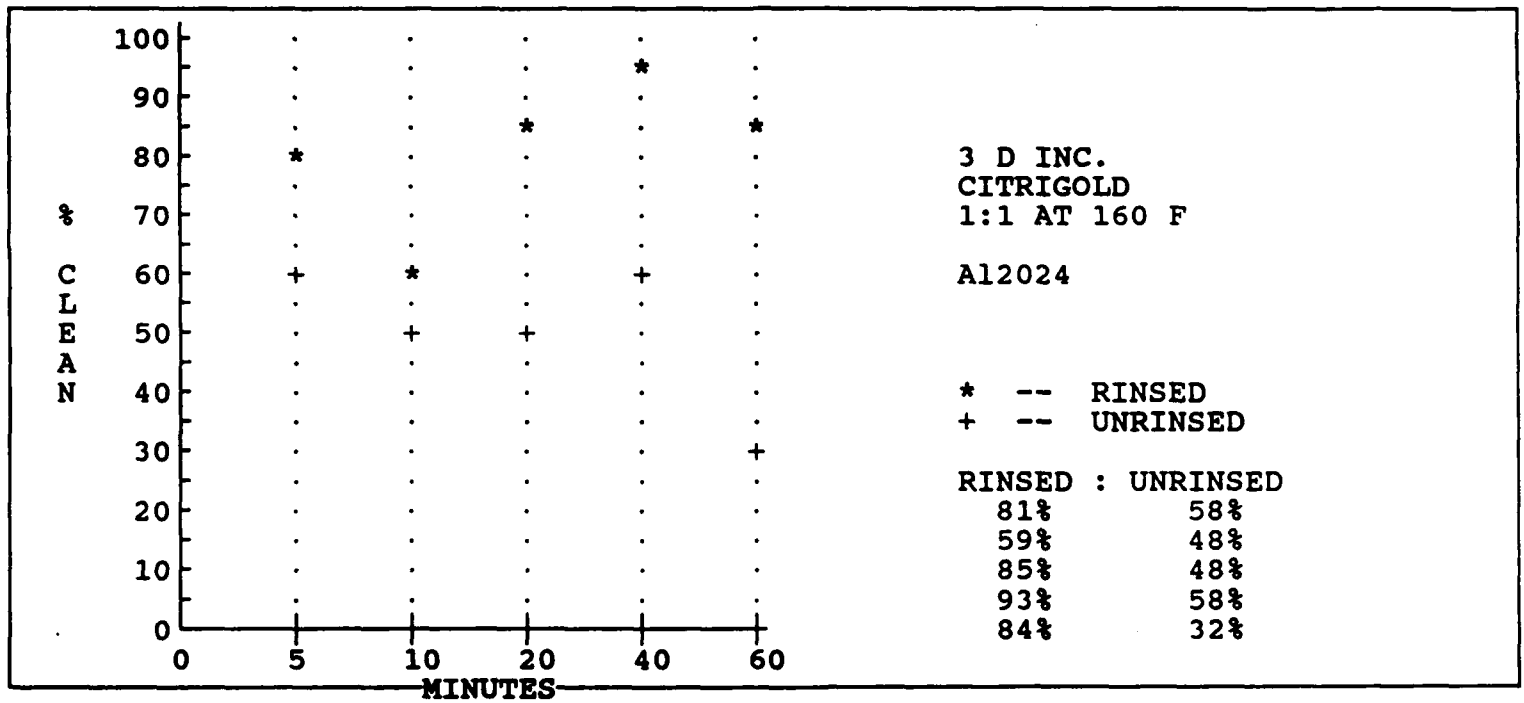
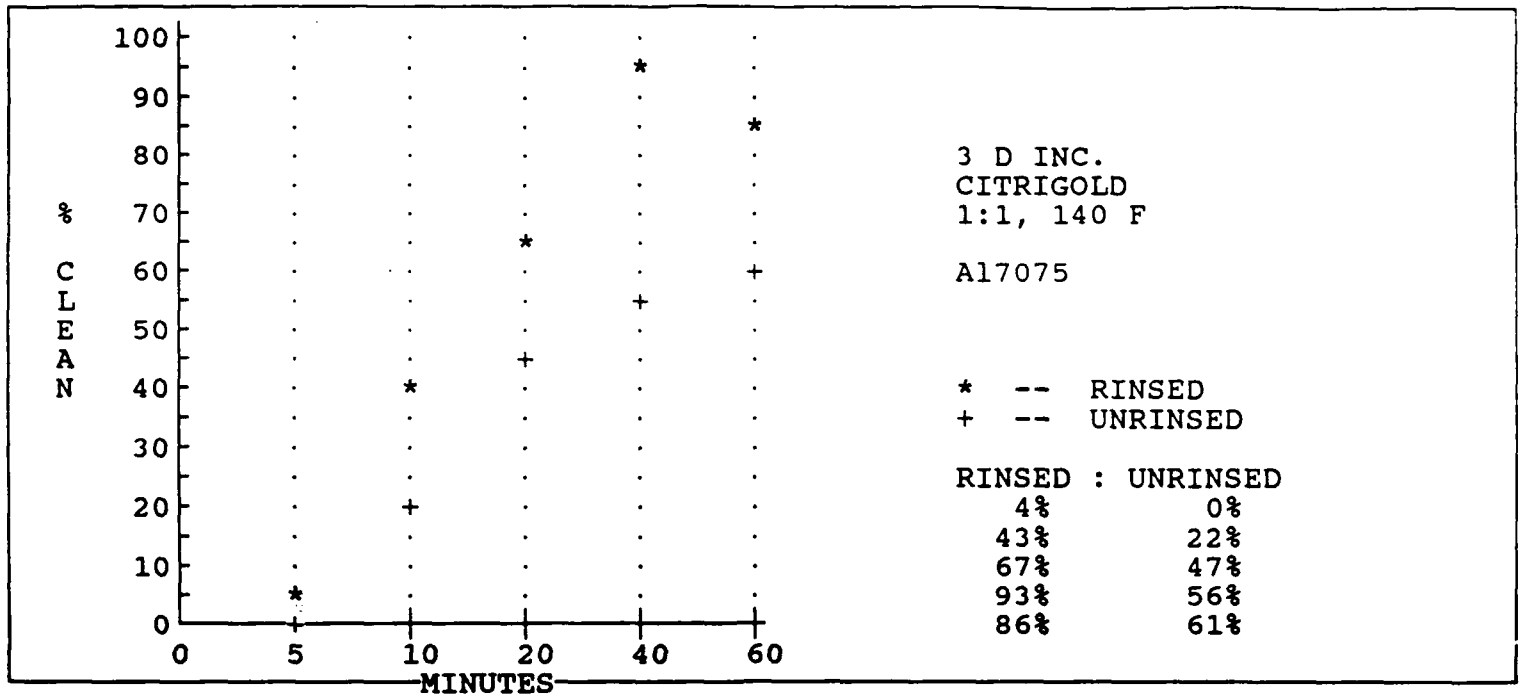
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		263	*	0- 277	
		249	.	*	.	.	.	1- 266	
		235	2- 245	
		222	.	.	*	.	.	3- 218	
		208	4- 196	
3 D INC.		194	.	.	.	*	.	5- 140	
747 AIRCRAFT CLEANER		180	6- 102	
		166	.	.	.	.	.
3 D INC.		152	.	.	.	.	.	DRY
BRITE BOY		139	.	.	.	.	*	WEIGHT
		125	.	.	.	.	.	0.0883
3 D INC.		111	.	.	.	.	.
RUST ERADICATOR		97	.	.	.	.	*
		83	.	.	.	.	.
CIRCUIT CHEMISTRY CORPORA		69		
METAL STRIPPER		55		
		42		
EXXON CHEMICALS		28		
AROMATIC 150		14		
		0		
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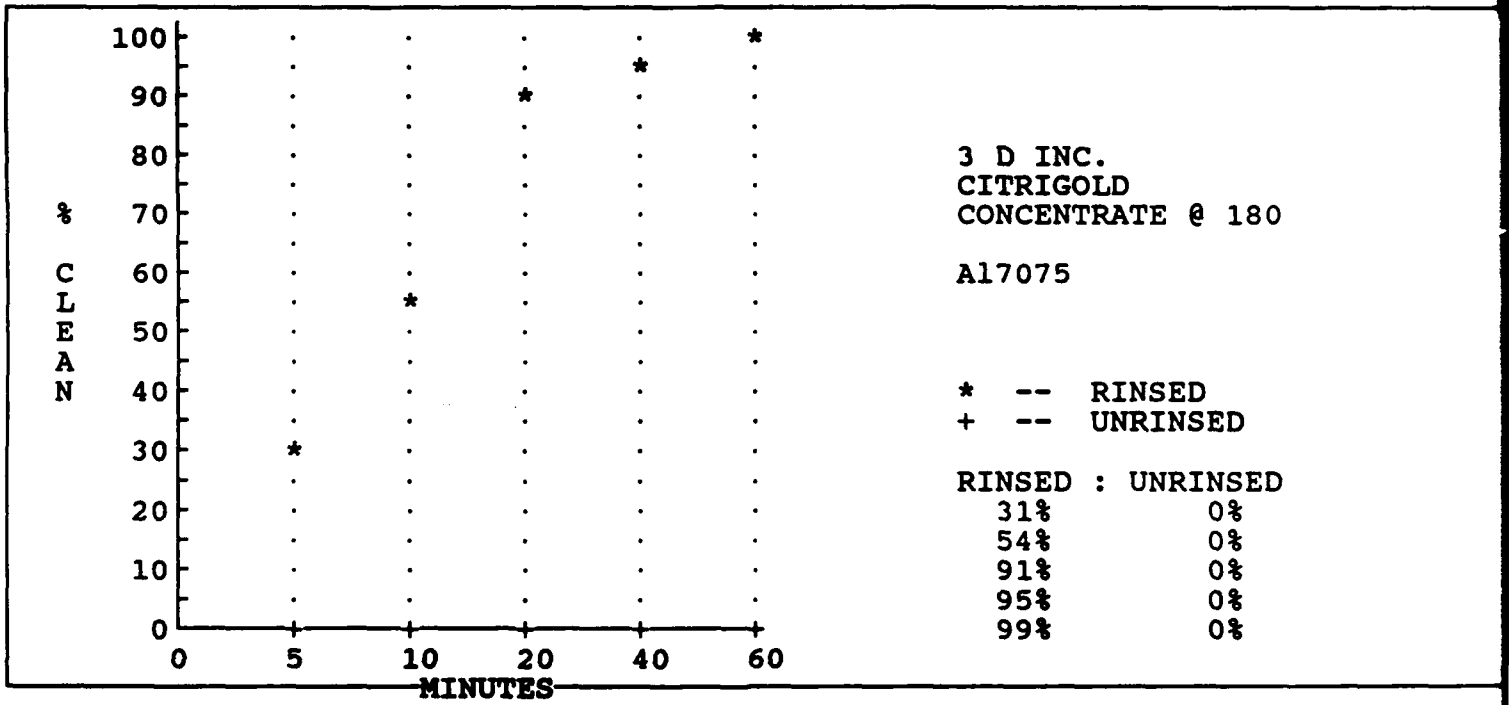
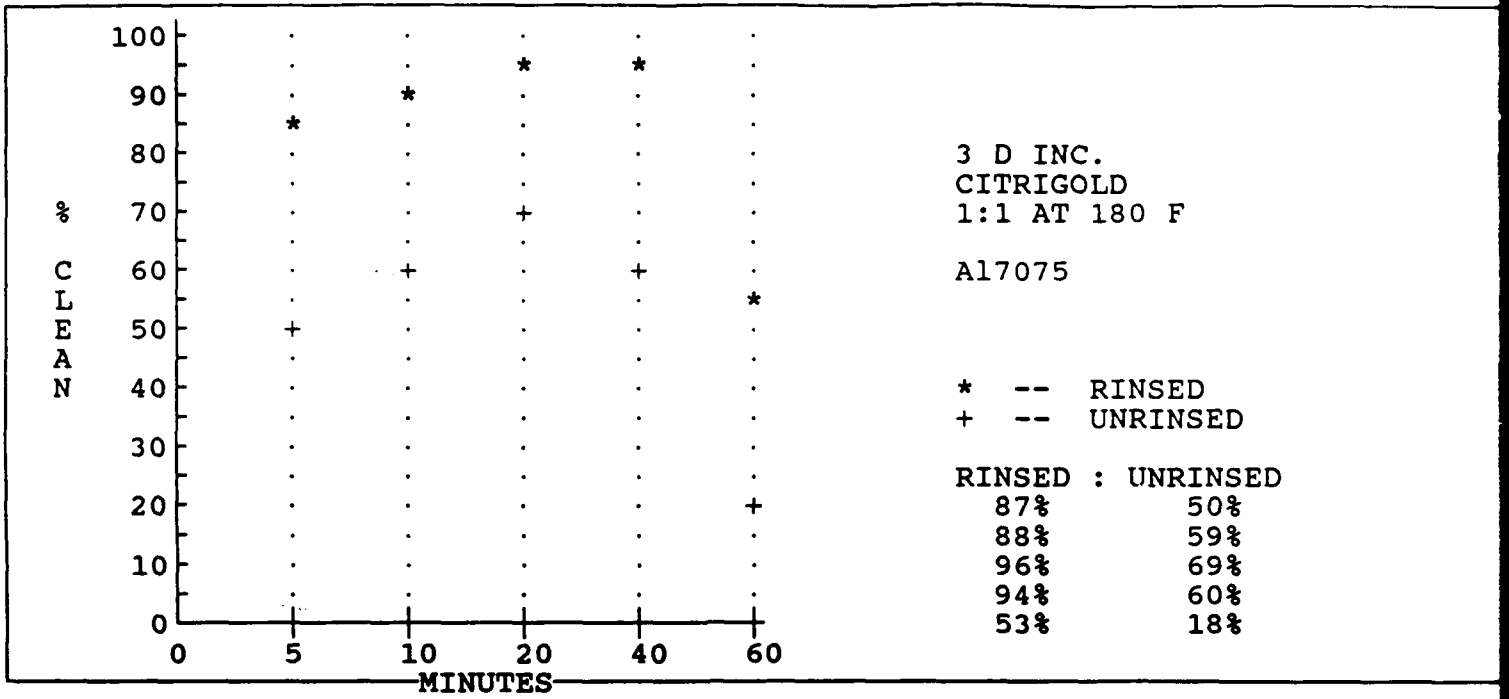
COMPANY - 3 D INC.		1650*	*	
PRODUCT - CITRIGOLD		1568	0- 1650
TOC INIT- 213725		1485	1- 1650
TOC 2nd - 48		1403	.	.	.	.	.	.	2- 1183
COD INIT- 1540000		1320	.	.	.	.	.	.	3- 1106
ANILINE PT - 0.0000		1238	.	.	.	.	.	.	4- 1091
ATP ----- 266 E-8		1155	.	*	.	.	.	.	5- 1040
		1073	.	.	*	*	*	.	6- 942
SOLUBILITY DATA:		990	.	.	.	.	.	.
CONCENT @ 140	18%	908	.	.	.	.	.	*	DRY
CONCENT @ 160	24%	825	.	.	.	.	.	.	WEIGHT
CONCENT @ 180	88%	743	0.0558
1:1 @ 140	35%	660	
1:1 @ 160	49%	578	
1:1 @ 180	88%	495	
		413	
		330	
		248	
		165	
		83	
		0	
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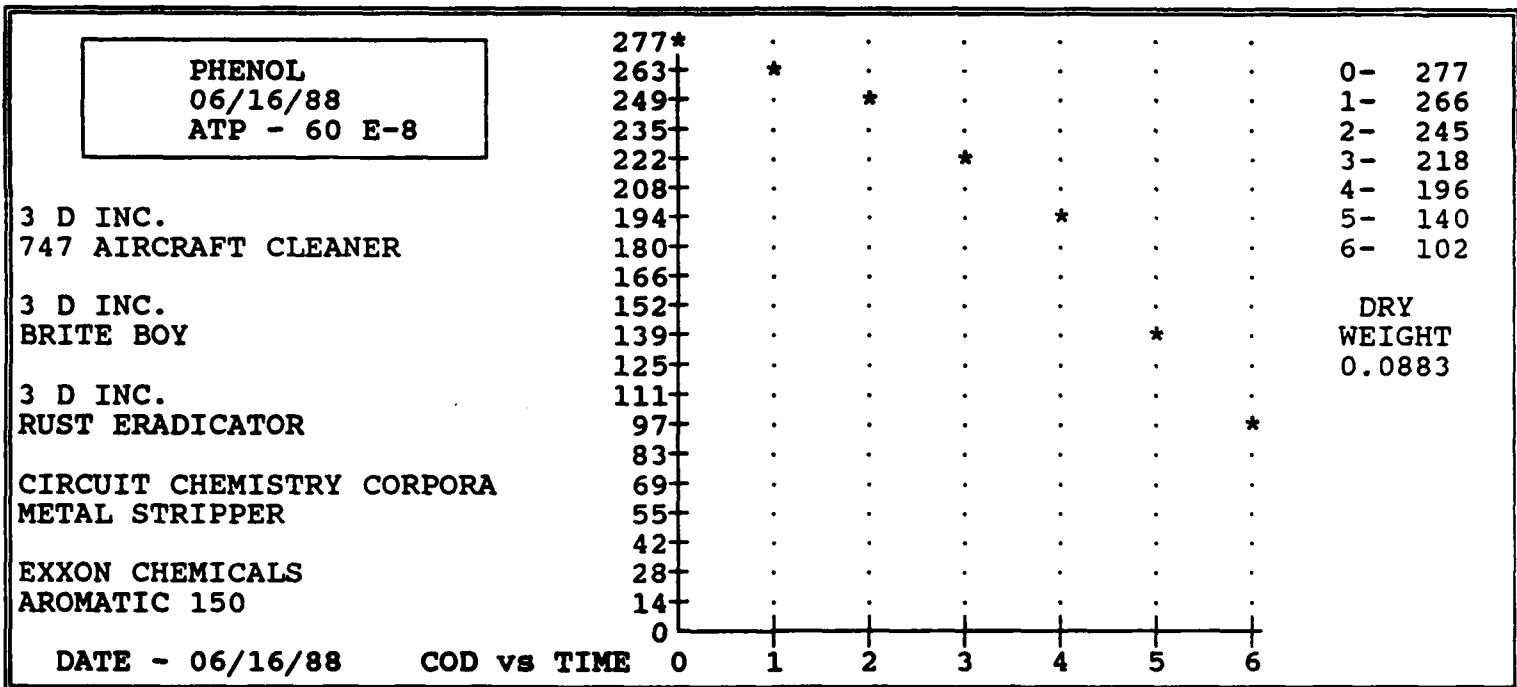
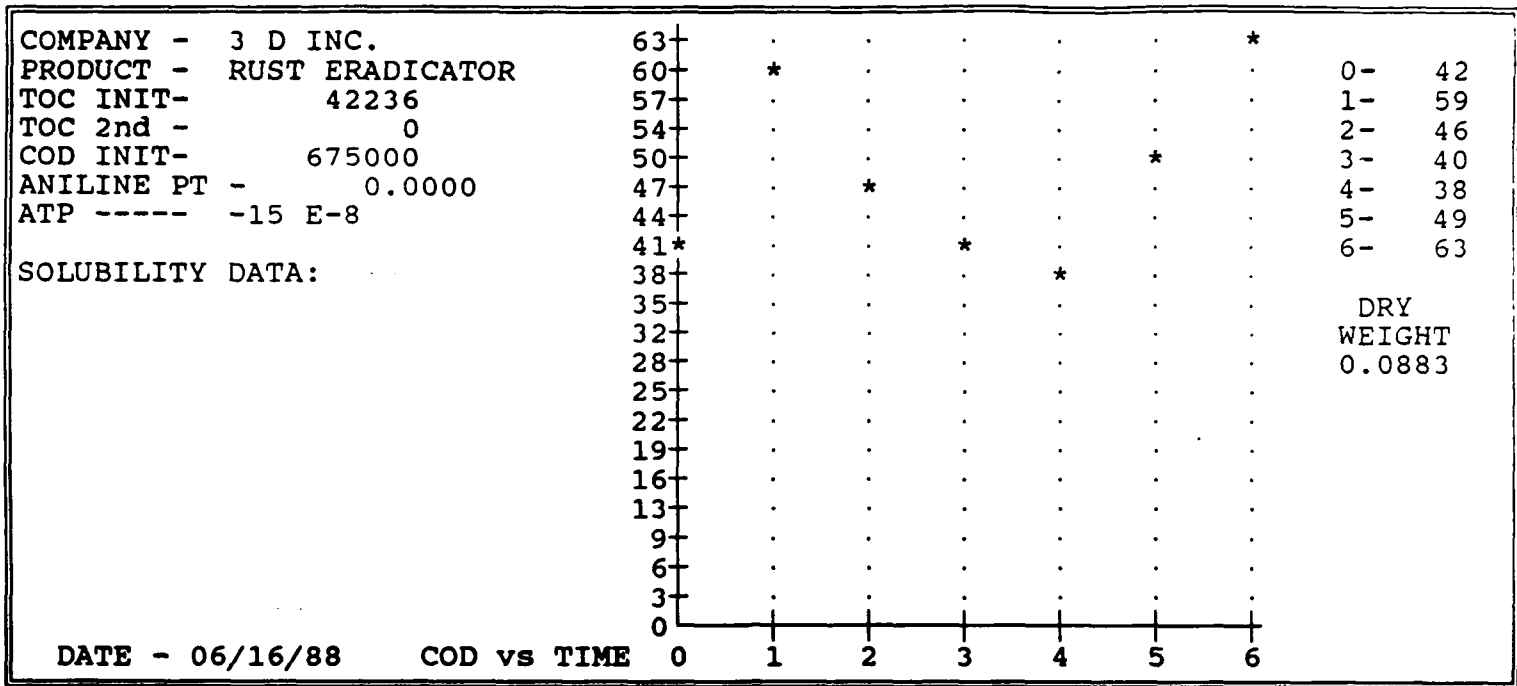
PHENOL 03/07/88 ATP - 211 E-8		439*	
		417	0- 439
		395	*	*	1- 406
		373	2- 386
		351	.	.	*	.	.	.	3- 356
		329	4- 309
3 D INC.		307	.	.	.	*	.	.	5- 270
3D SUPREME		285	.	.	.	.	.	.	6- 246
		263	.	.	.	.	*	.
3 D INC.		241	.	.	.	.	.	*	DRY
CITRIGOLD		220	.	.	.	.	.	.	WEIGHT
		198	.	.	.	.	.	.	0.0558
3 D INC.		176	.	.	.	.	.	.
SIEGE		154	.	.	.	.	.	.
		132	.	.	.	.	.	.
BARTLETT CHEMICAL INC.		110	.	.	.	.	.	.
DOLPHIN 281		88	.	.	.	.	.	.
		66	.	.	.	.	.	.
BIO-TEK INC.		44	.	.	.	.	.	.
134 HI-SOLV		22	.	.	.	.	.	.
		0	.	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6	

COMPANY - 3 D INC.		1650*	.	.	.	.	.	.	0- 1650
PRODUCT - CITRIGOLD		1568	.	.	.	.	.	.	1- 1242
TOC INIT- 213725		1485	.	.	.	.	.	.	2- 1083
TOC 2nd - 48		1403	.	.	.	.	.	.	3- 970
COD INIT- 1540000		1320	.	.	.	.	.	.	4- 971
ANILINE PT - 0.0000		1238	*	.	.	.	.	.	5- 820
ATP ----- 32 E-8		1155	.	.	.	.	.	.	6- 785
		1073	.	*	.	.	.	.
SOLUBILITY DATA:		990	.	.	*	*	.	.	
CONCENT @ 140	18%	908	.	.	.	.	.	.	DRY
CONCENT @ 160	24%	825	.	.	.	.	*	*	WEIGHT
CONCENT @ 180	88%	743	.	.	.	.	.	.	0.0600
1:1 @ 140	35%	660	.	.	.	.	.	.
1:1 @ 160	49%	578	.	.	.	.	.	.
1:1 @ 180	88%	495	.	.	.	.	.	.
		413	.	.	.	.	.	.
		330	.	.	.	.	.	.
		248	.	.	.	.	.	.
		165	.	.	.	.	.	.
		83	.	.	.	.	.	.
		0	.	.	.	.	.	.
DATE - 03/22/88	COD vs TIME	0	1	2	3	4	5	6	

PHENOL 03/22/88 ATP - 69 E-8		306*	.	.	.	.	.	.	0- 306
		291	.	.	.	.	.	.	1- 178
		275	.	.	.	.	.	.	2- 58
		260	.	.	.	.	.	.	3- 36
		245	.	.	.	.	.	.	4- 37
3 D INC.		230	.	.	.	.	.	.	5- 34
3D SUPREME		214	.	.	.	.	.	.	6- 12
		199	.	.	.	.	.	.
		184	*	.	.	.	.	.
3 D INC.		168	.	.	.	.	.	.	DRY
CITRIGOLD		153	.	.	.	.	.	.	WEIGHT
		138	.	.	.	.	.	.	0.0600
ZEP MANUFACTURING CO.		122	.	.	.	.	.	.
BIG ORANGE		107	.	.	.	.	.	.
		92	.	.	.	.	.	.
ZEP MANUFACTURING CO.		77	
ZEP 940		61	.	*	
		46	
ZEP MANUFACTURING CO.		31	.	.	*	*	*	.	
ZEPRIDE		15	*	
		0	
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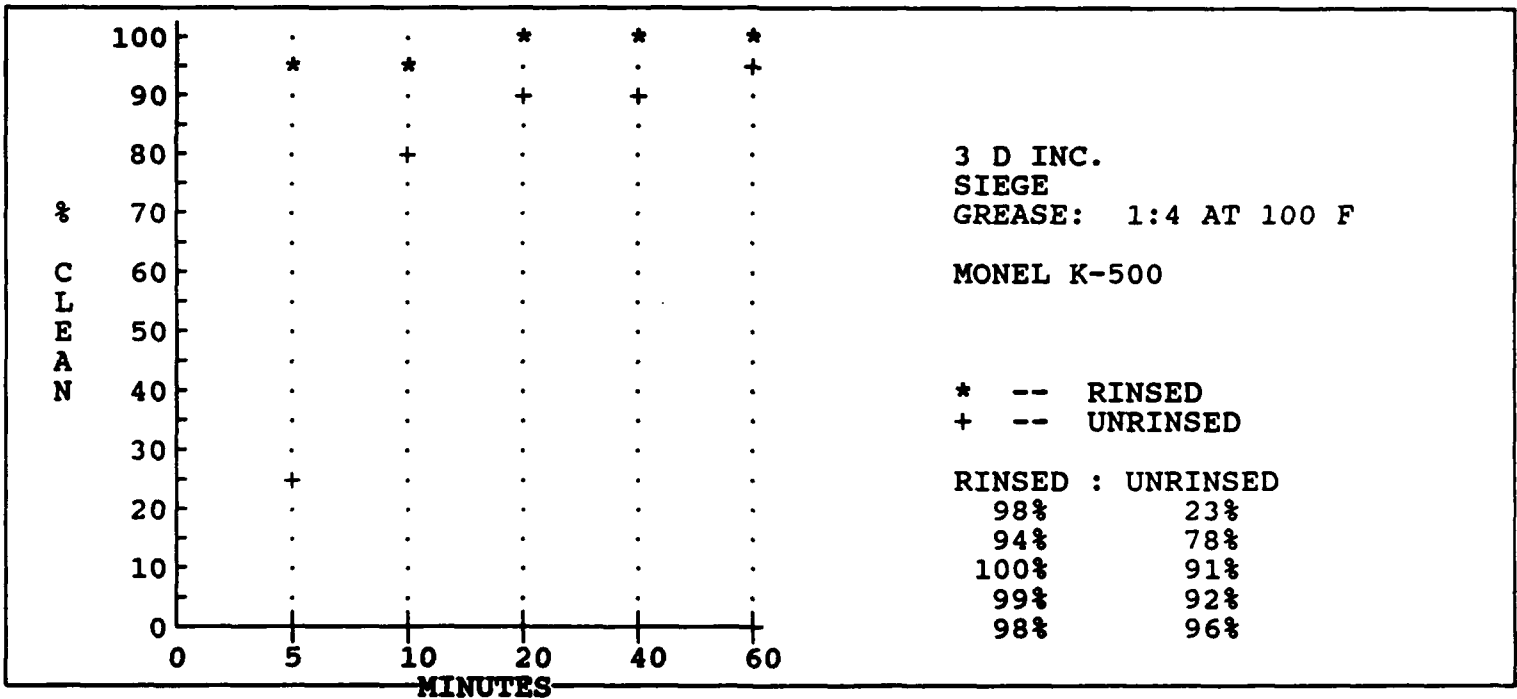
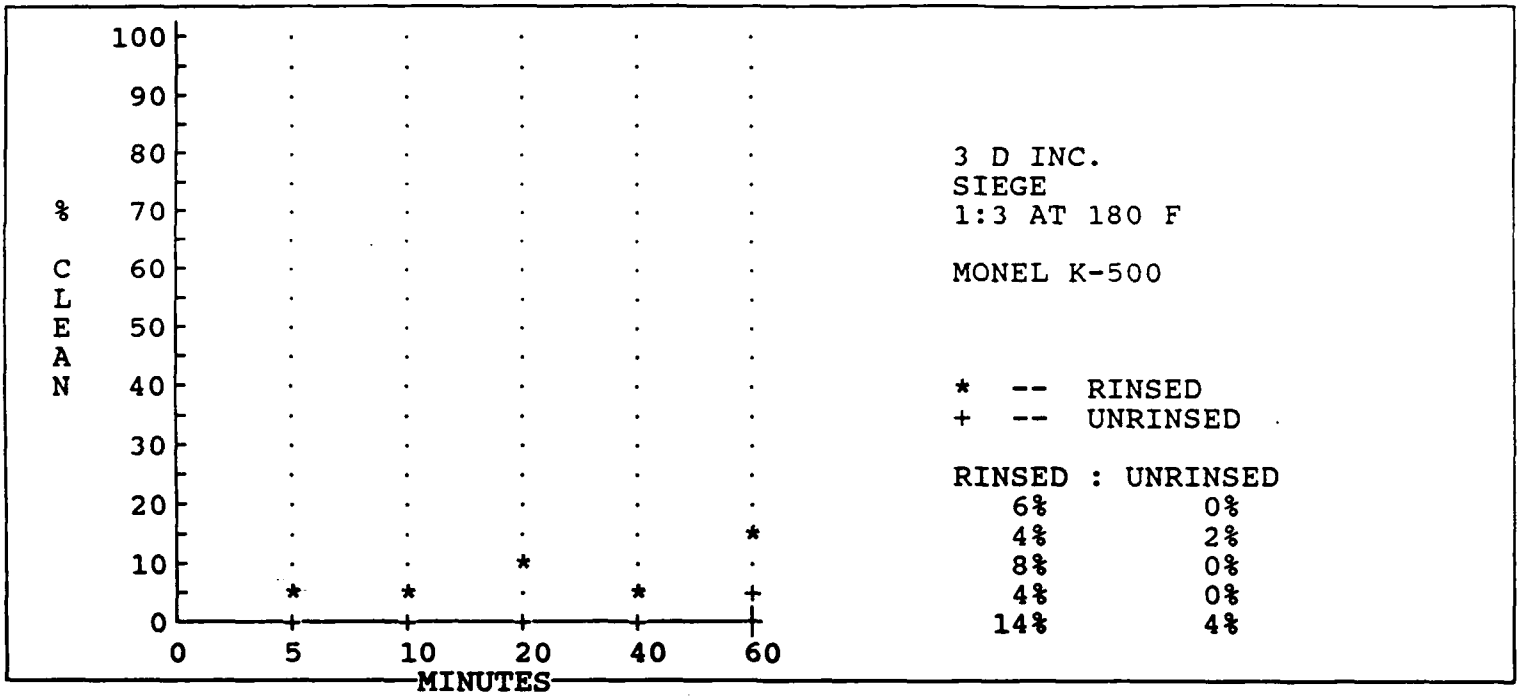


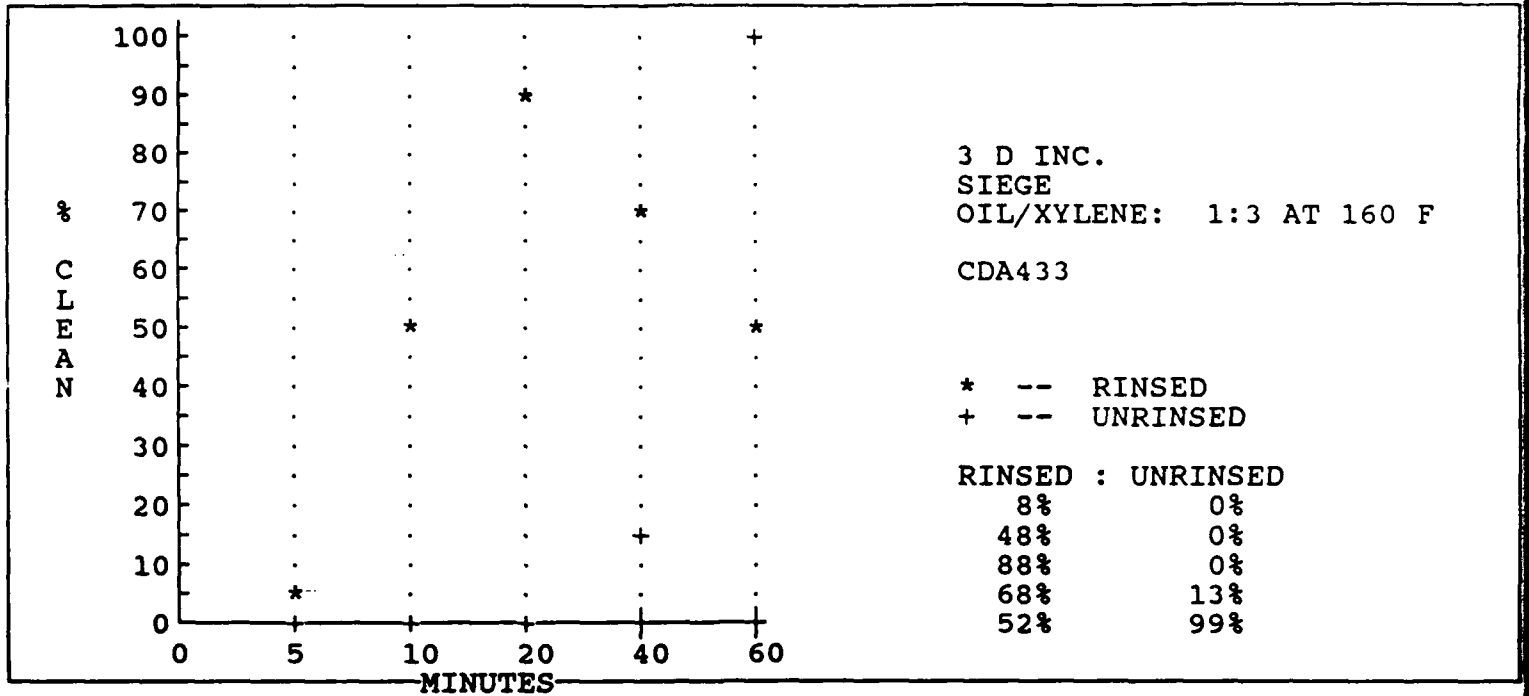




COMPANY - 3 D INC.	347*	0-	347
PRODUCT - SIEGE	330+	1-	288
TOC INIT- 47593	312+	2-	268
TOC 2nd - 0	295+	*	3-	218
COD INIT- 141000	278+	.	.	.	.	.	.	4-	204
ANILINE PT - 0.0000	260+	.	*	.	.	.	.	5-	248
ATP ----- 55 E-8	243+	.	.	.	.	*	.	6-	161
	226+	.	.	*	.	.	.		
SOLUBILITY DATA:	208+	.	.	.	*	.	.		
1:4 @ 160 0%	191+	DRY	
	174+	WEIGHT	
	156+	*	0.0558	
	139+		
	121+		
	104+		
	87+		
	69+		
	52+		
	35+		
	17+		
	0		
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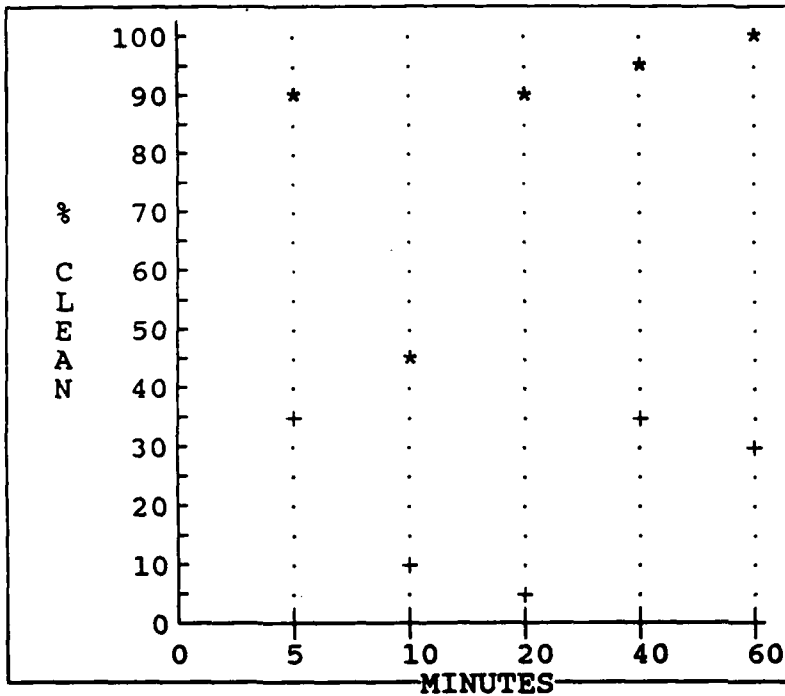
PHENOL 03/07/88 ATP - 211 E-8		439*	0-	439
		417+	1-	406
		395+	*	*	2-	386
		373+	3-	356
		351+	.	.	*	.	.	.	4-	309
		329+	5-	270
3 D INC.		307+	.	.	.	*	.	.	6-	246
3D SUPREME		285+	.	.	.	.	.	.
		263+	.	.	.	.	*	.
3 D INC.		241+	.	.	.	.	.	*	DRY	
CITRIGOLD		220+	.	.	.	.	.	.	WEIGHT	
		198+	.	.	.	.	.	.	0.0558	
		176+	.	.	.	.	.	.
3 D INC.		154+	.	.	.	.	.	.
SIEGE		132+	.	.	.	.	.	.
		110+	.	.	.	.	.	.
BARTLETT CHEMICAL INC.		88+	.	.	.	.	.	.
DOLPHIN 281		66+	.	.	.	.	.	.
		44+	.	.	.	.	.	.
BIO-TEK INC.		22+	.	.	.	.	.	.
134 HI-SOLV		0	.	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6		





COMPANY - BARTLETT CHEMICAL	524	+	*	.	.	.	*	.	
PRODUCT - DOLPHIN 281	498	*	.	.	.	*	.	.	0- 492
TOC INIT-	0	472	+	.	*	*	.	*	1- 514
TOC 2nd -	0	445	+	.	.	.	.	.	2- 464
COD INIT-	134000	419	+	.	.	.	.	.	3- 482
ANILINE PT -	0.0000	393	+	.	.	.	.	.	4- 491
ATP -----	-40 E-8	367	+	.	.	.	.	.	5- 524
		341	+	.	.	.	.	.	6- 463
SOLUBILITY DATA:		314	+	.	.	.	.	.
		288	+	.	.	.	.	.	DRY
		262	+	.	.	.	.	.	WEIGHT
		236	+	.	.	.	.	.	0.0558
		210	+	.	.	.	.	.
		183	+	.	.	.	.	.
		157	+	.	.	.	.	.
		131	+	.	.	.	.	.
		105	+	.	.	.	.	.
		79	+	.	.	.	.	.
		52	+	.	.	.	.	.
		26	+	.	.	.	.	.
		0	+	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6	

PHENOL 03/07/88 ATP - 211 E-8		439*	.	.	.	.	.	.
		417	+	.	.	.	.	.	0- 439
		395	+	*	*	.	.	.	1- 406
		373	+	.	.	.	.	.	2- 386
		351	+	.	.	*	.	.	3- 356
		329	+	.	.	.	.	.	4- 309
3 D INC.		307	+	.	.	.	*	.	5- 270
3D SUPREME		285	+	.	.	.	.	.	6- 246
		263	+	.	.	.	.	*
3 D INC.		241	+	.	.	.	.	.	DRY
CITRIGOLD		220	+	.	.	.	.	*	WEIGHT
		198	+	.	.	.	.	.	0.0558
3 D INC.		176	+	.	.	.	.	.
SIEGE		154	+	.	.	.	.	.
		132	+	.	.	.	.	.
BARTLETT CHEMICAL INC.		110	+	.	.	.	.	.
DOLPHIN 281		88	+	.	.	.	.	.
		66	+	.	.	.	.	.
BIO-TEK INC.		44	+	.	.	.	.	.
134 HI-SOLV		22	+	.	.	.	.	.
		0	+	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6	

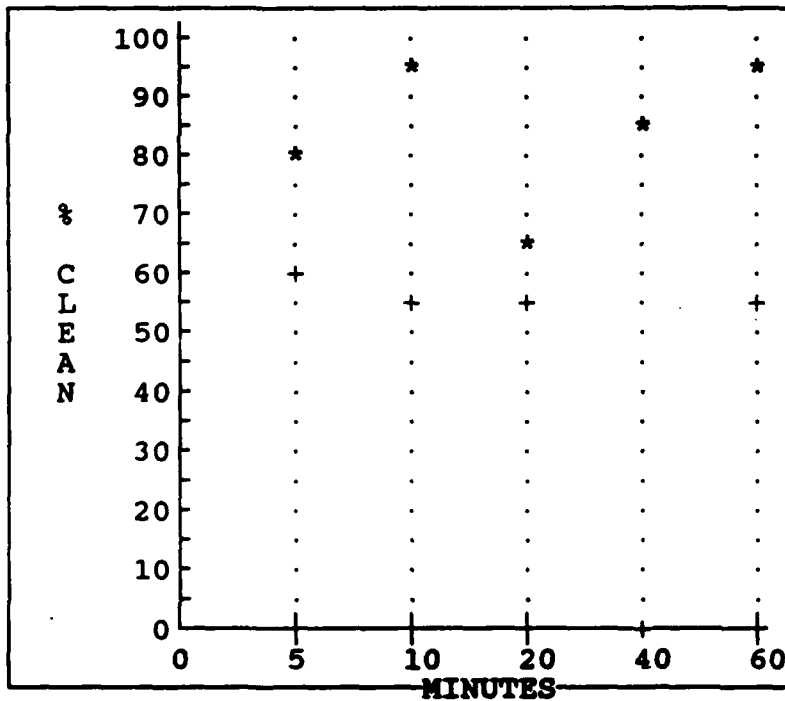


BARTLETT CHEMICAL INC.
DOLPHIN TPS CODE 219
GREASE: 1:1 AT AMBIENT

A17075

* -- RINSED
+ -- UNRINSED

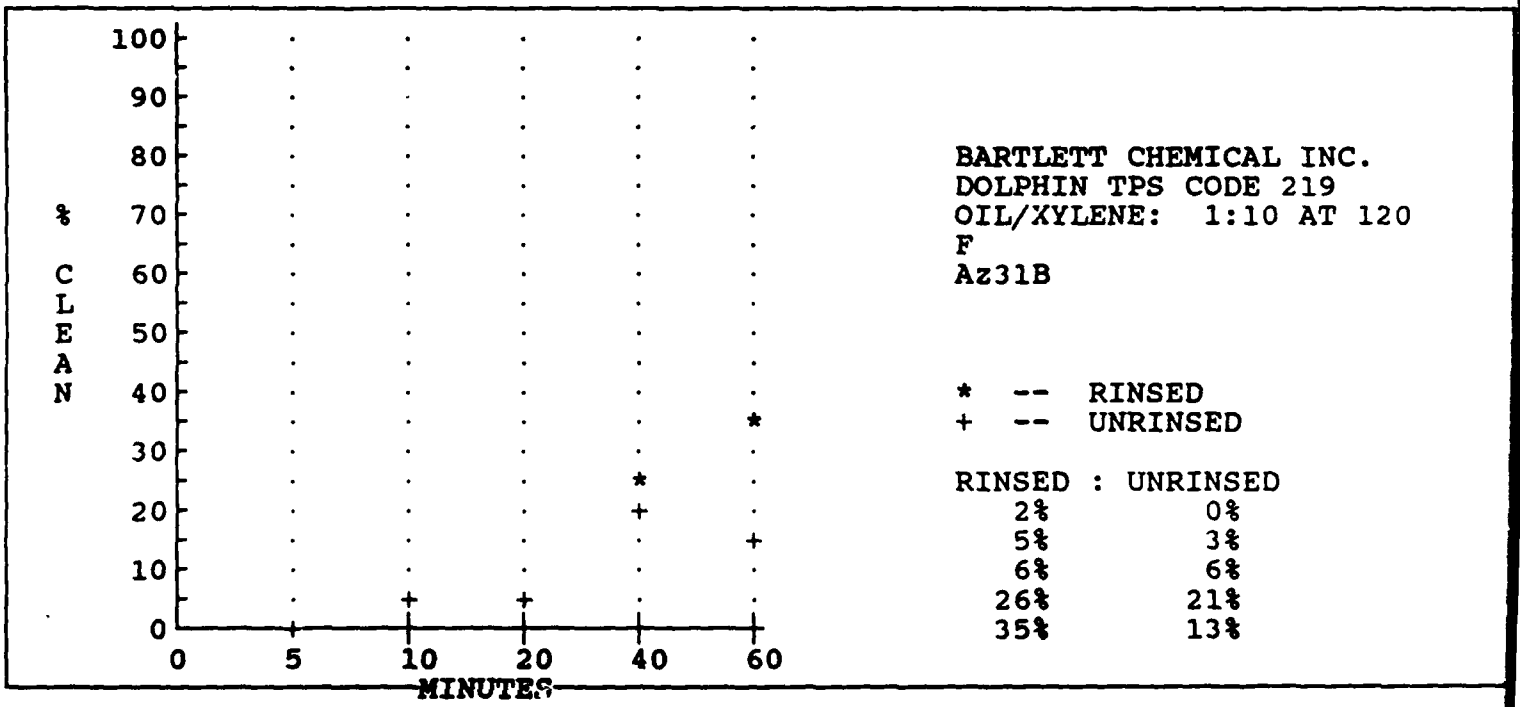
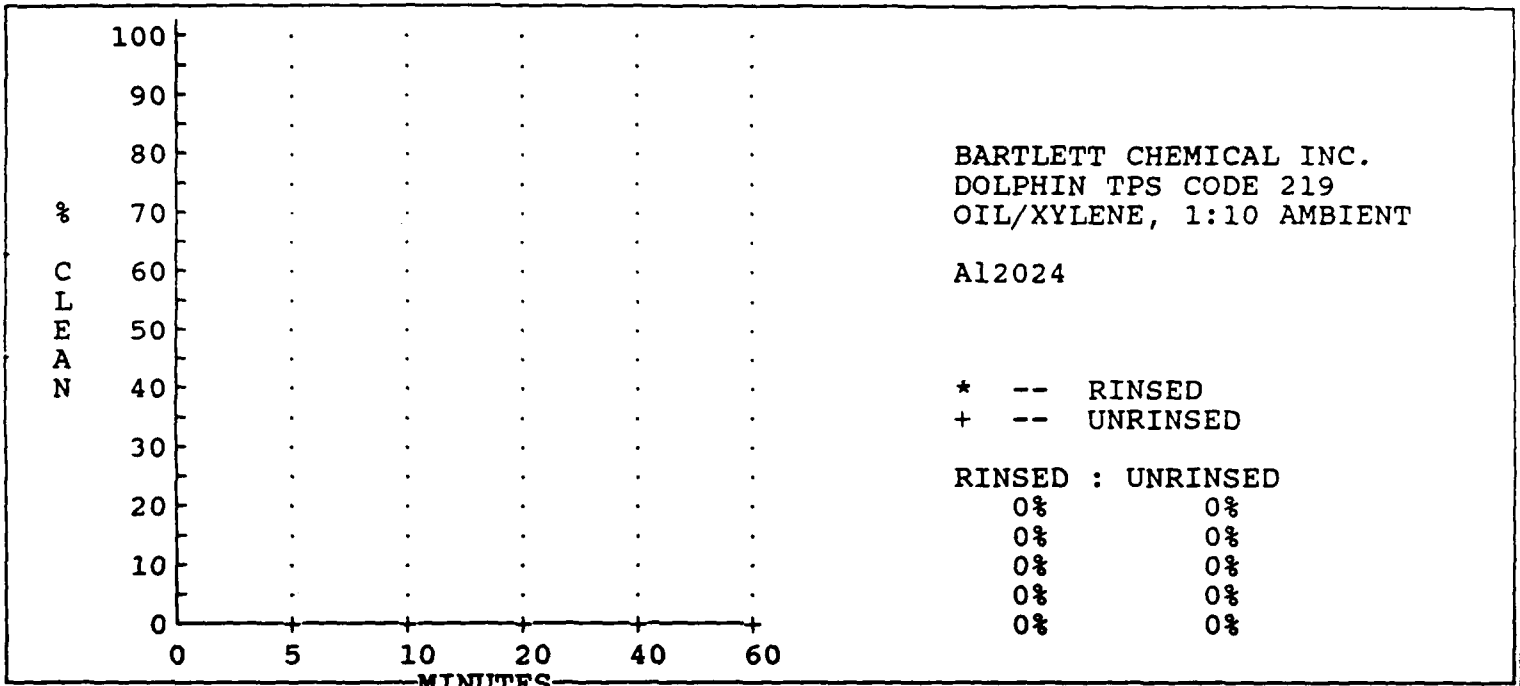
RINSED :	UNRINSED
92%	35%
44%	12%
90%	7%
95%	37%
98%	29%

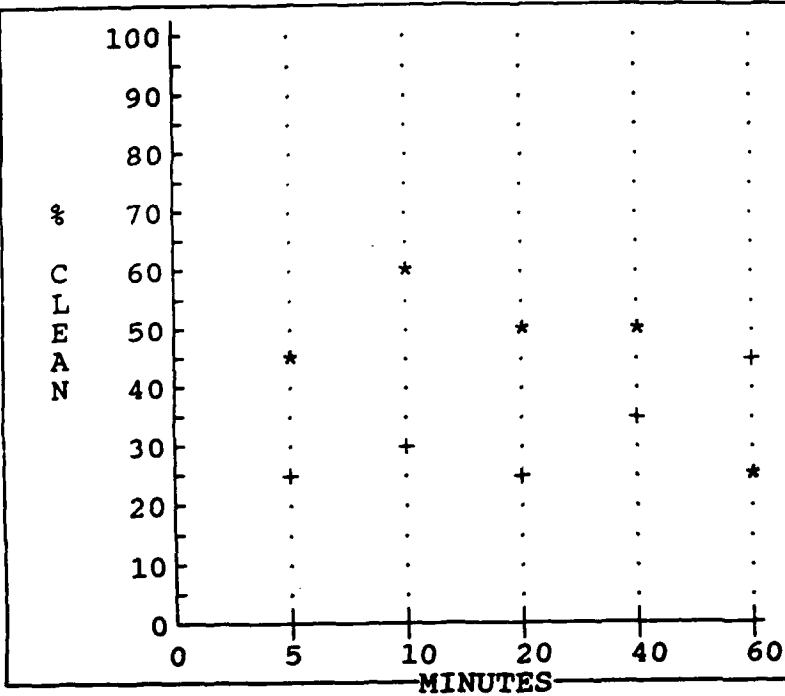


BARTLETT CHEMICAL INC.
DOLPHIN TPS CODE 219
HYDRAULIC FLUID: 1:10 AT AMBIENT
C1020

* -- RINSED
+ -- UNRINSED

RINSED :	UNRINSED
78%	62%
93%	57%
67%	56%
83%	0%
94%	55%

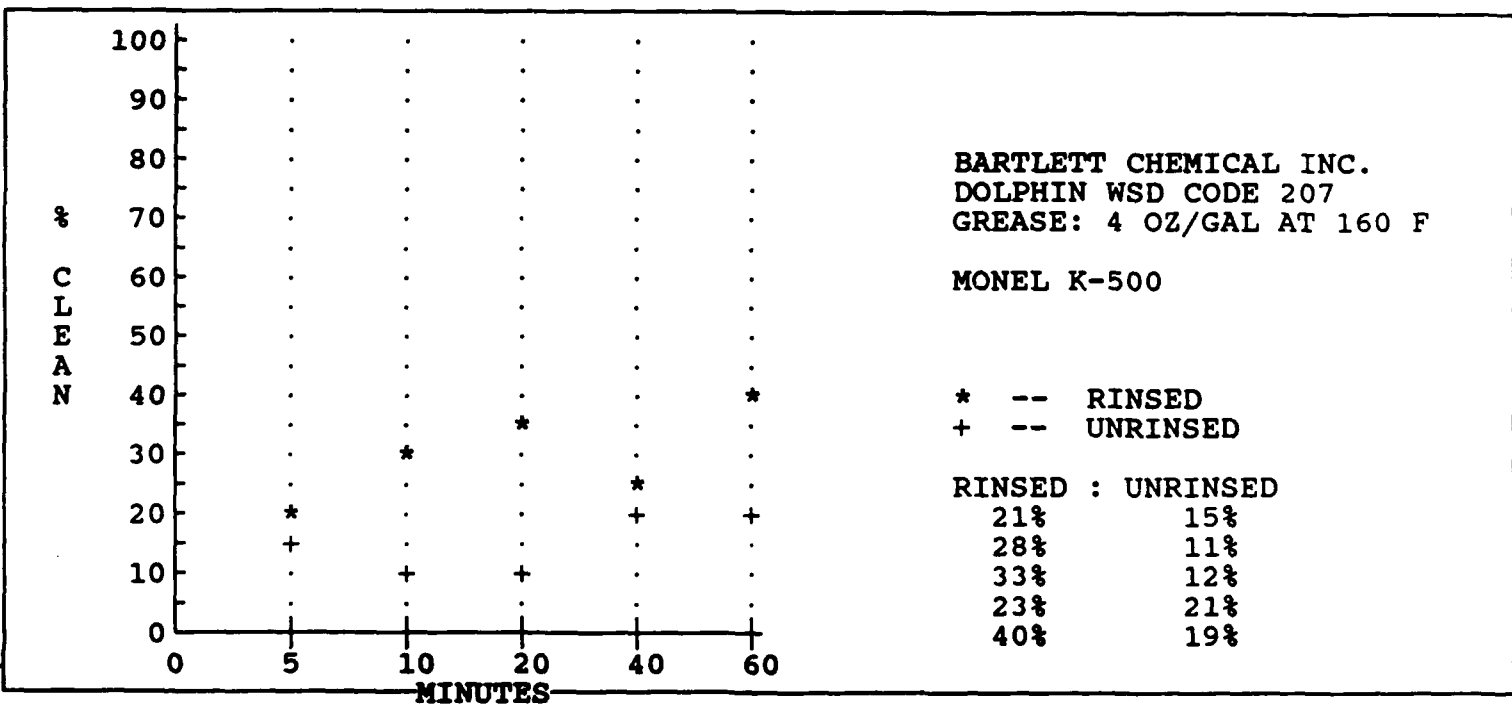
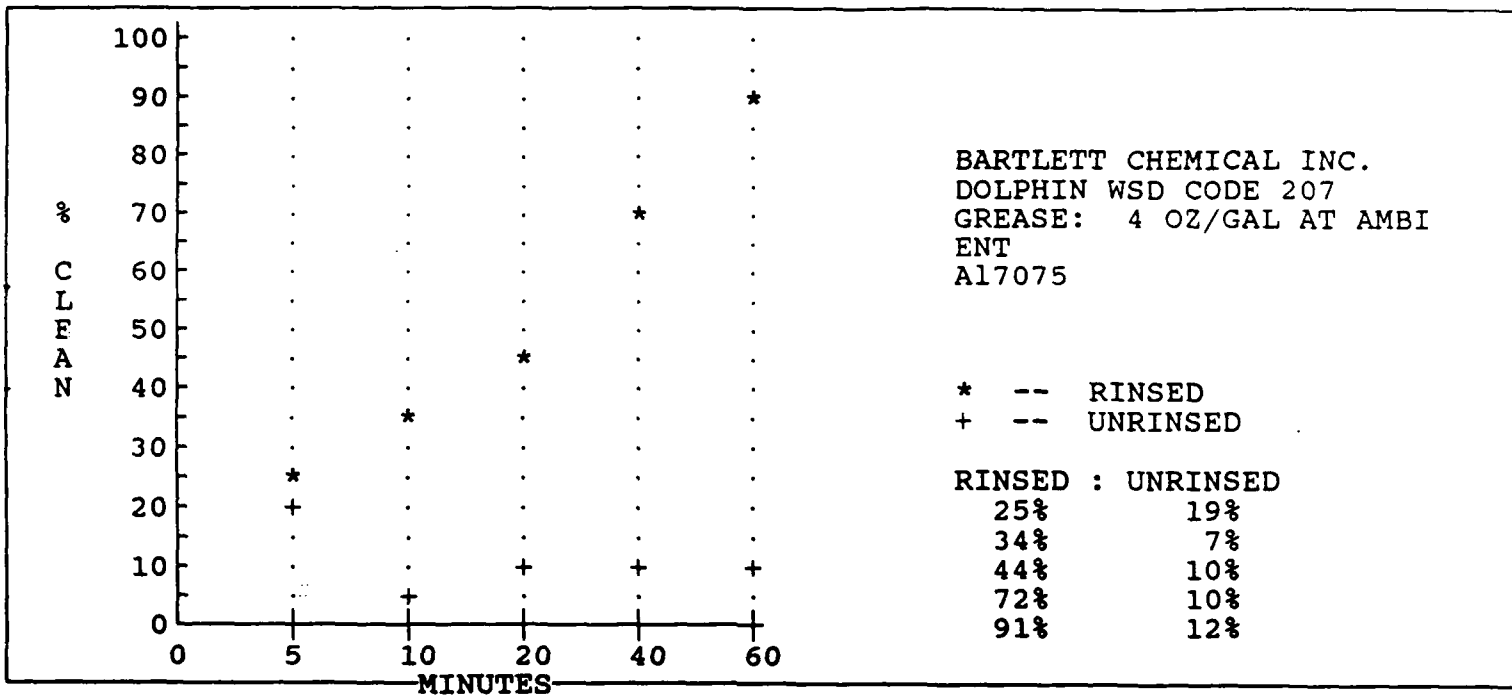


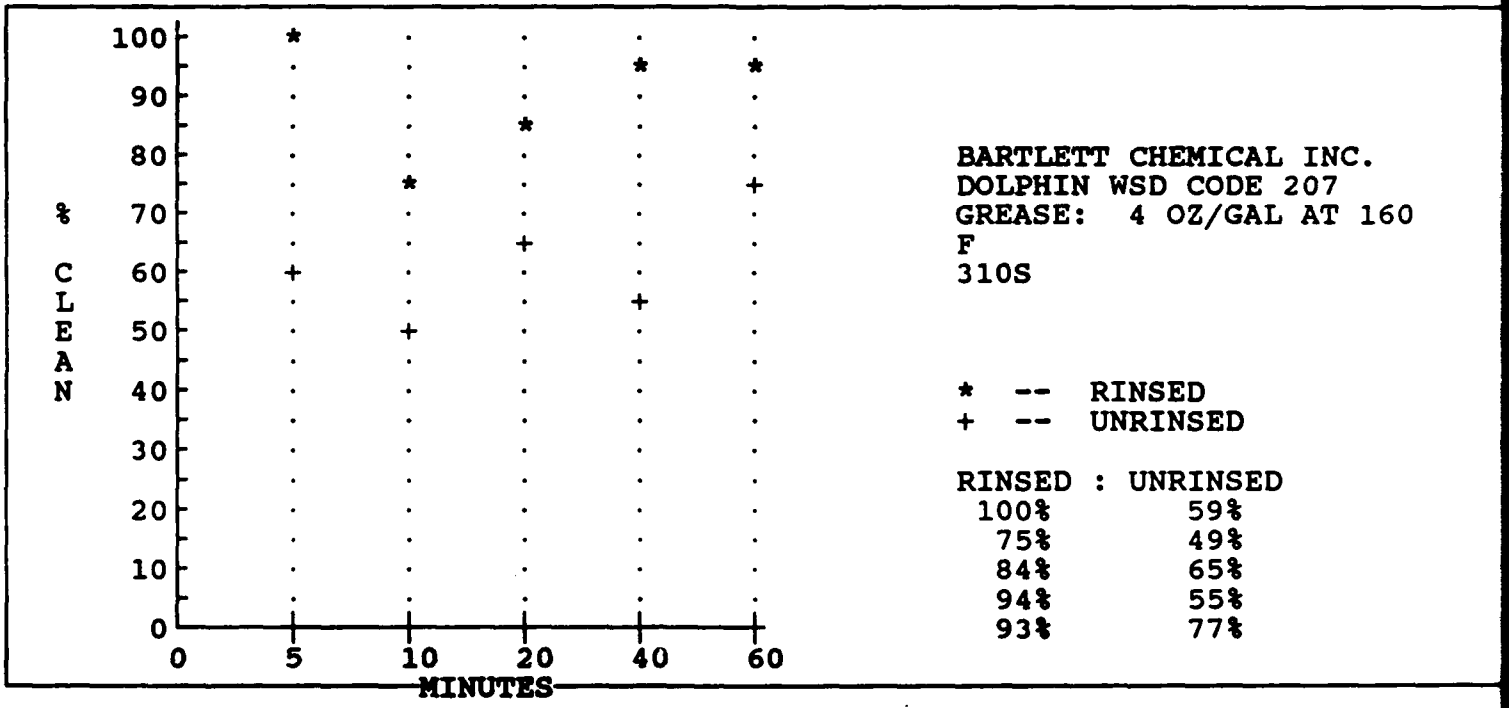
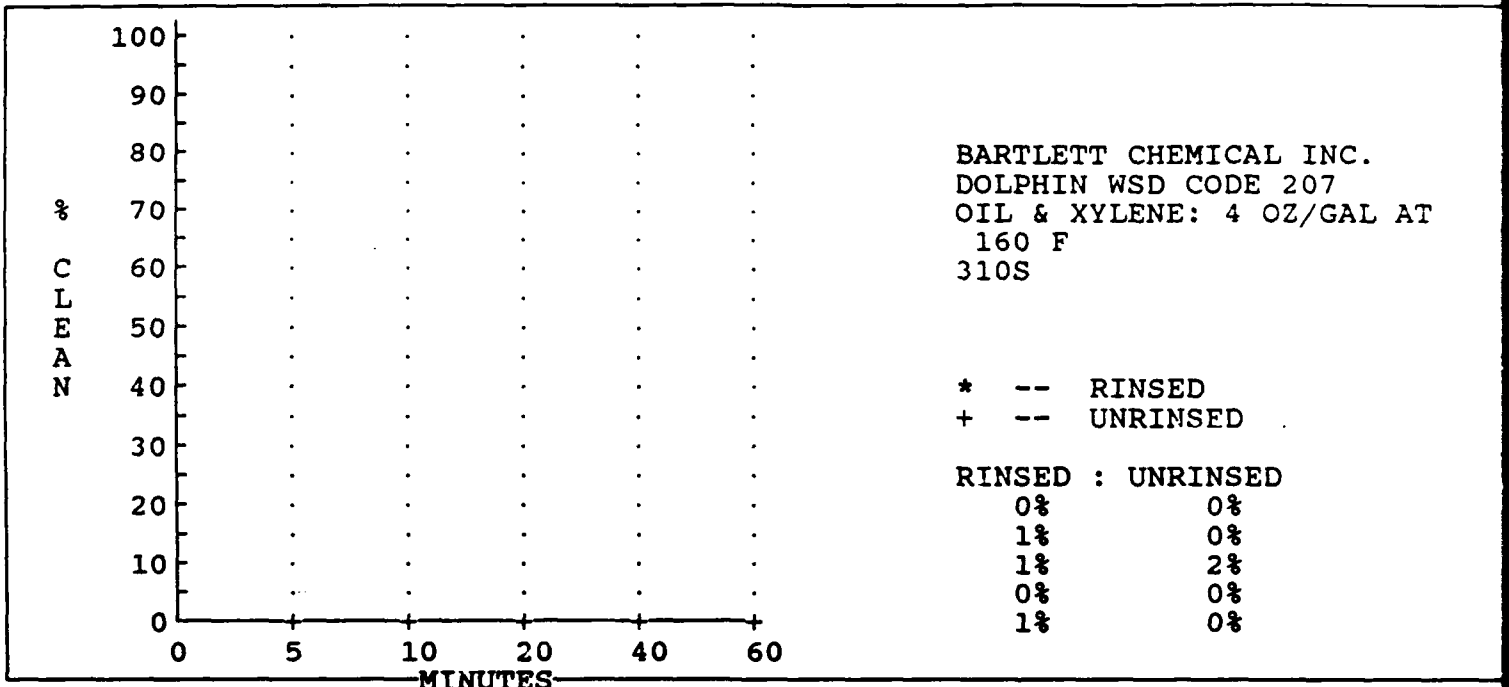


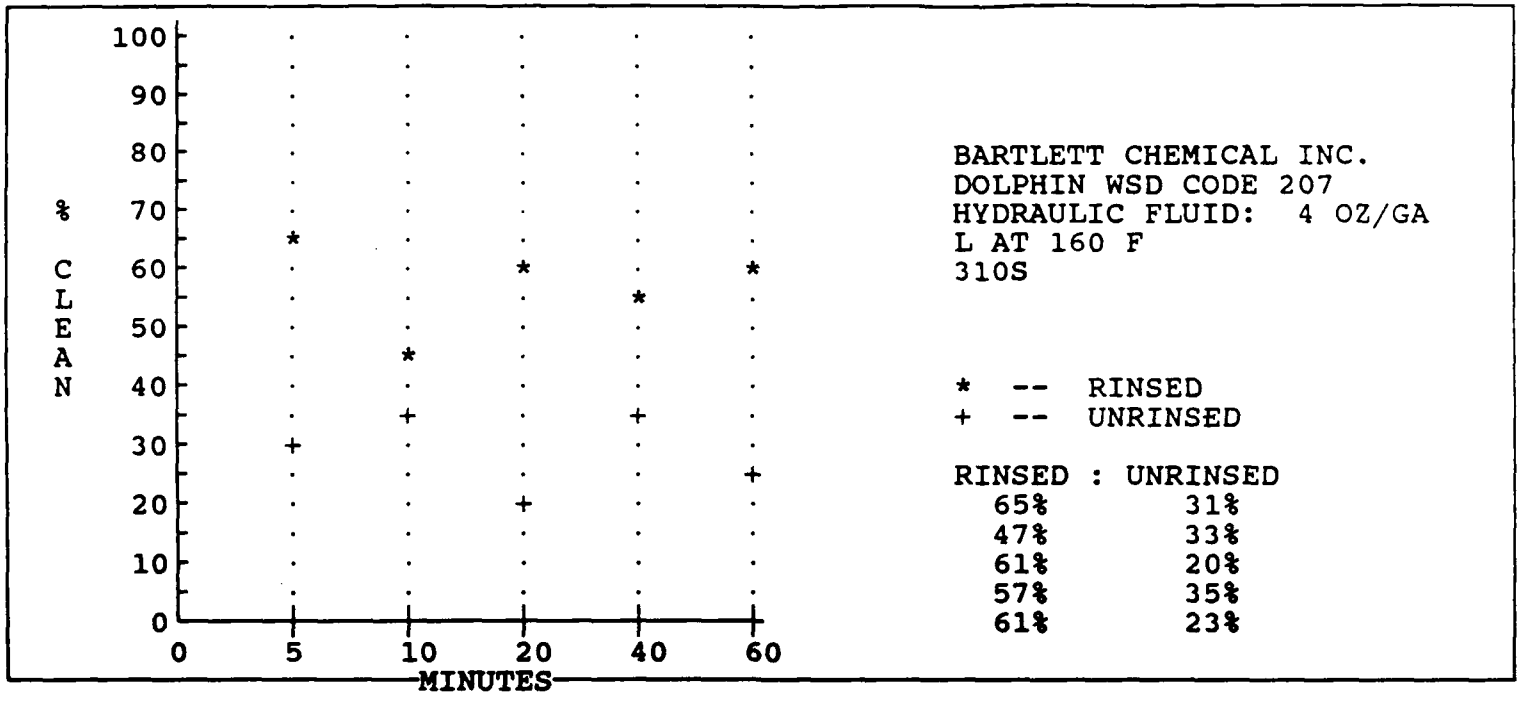
BARTLETT CHEMICAL INC.
 DOLPHIN TPS CODE 219
 HYDRAULIC FLUID: 1:10 AT
 AMBIENT
 MONEL K-500

* -- RINSED
 + -- UNRINSED

RINSED	UNRINSED
47%	25%
61%	31%
48%	25%
51%	33%
25%	46%







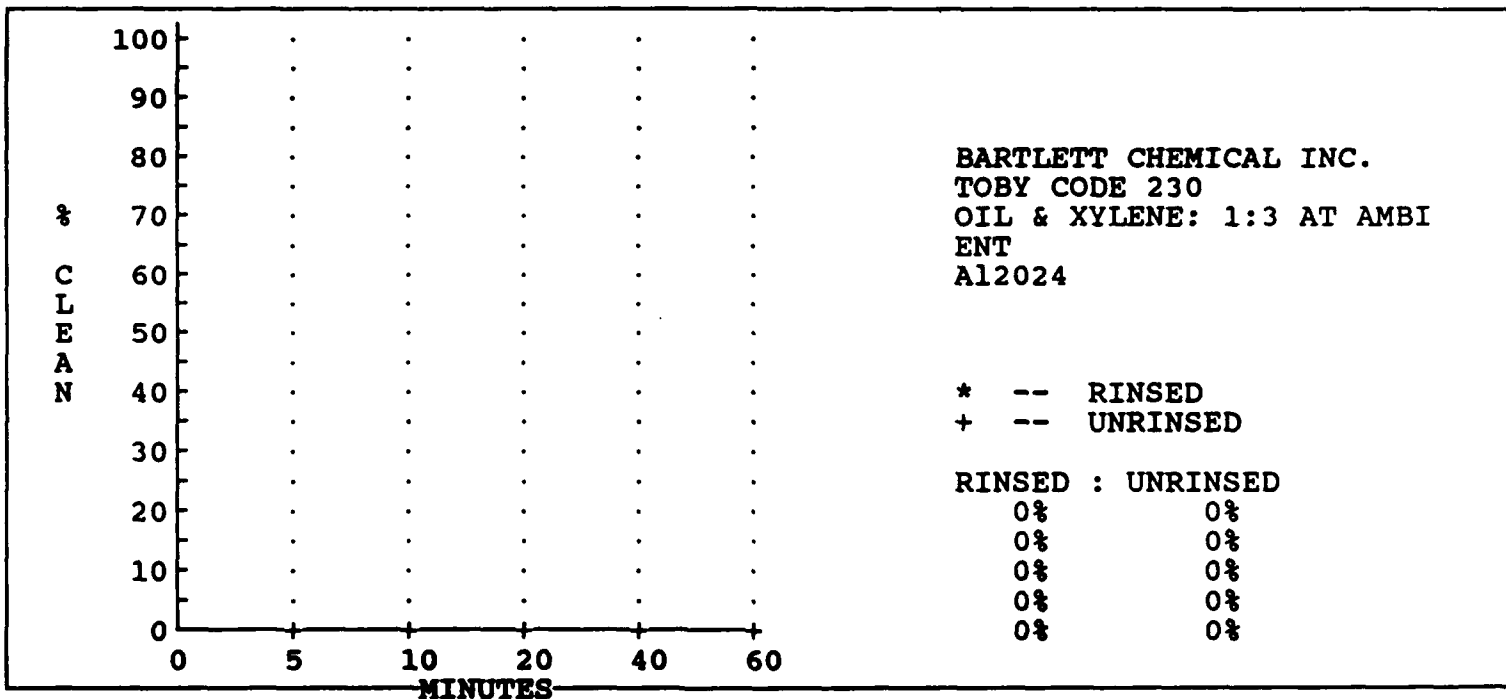
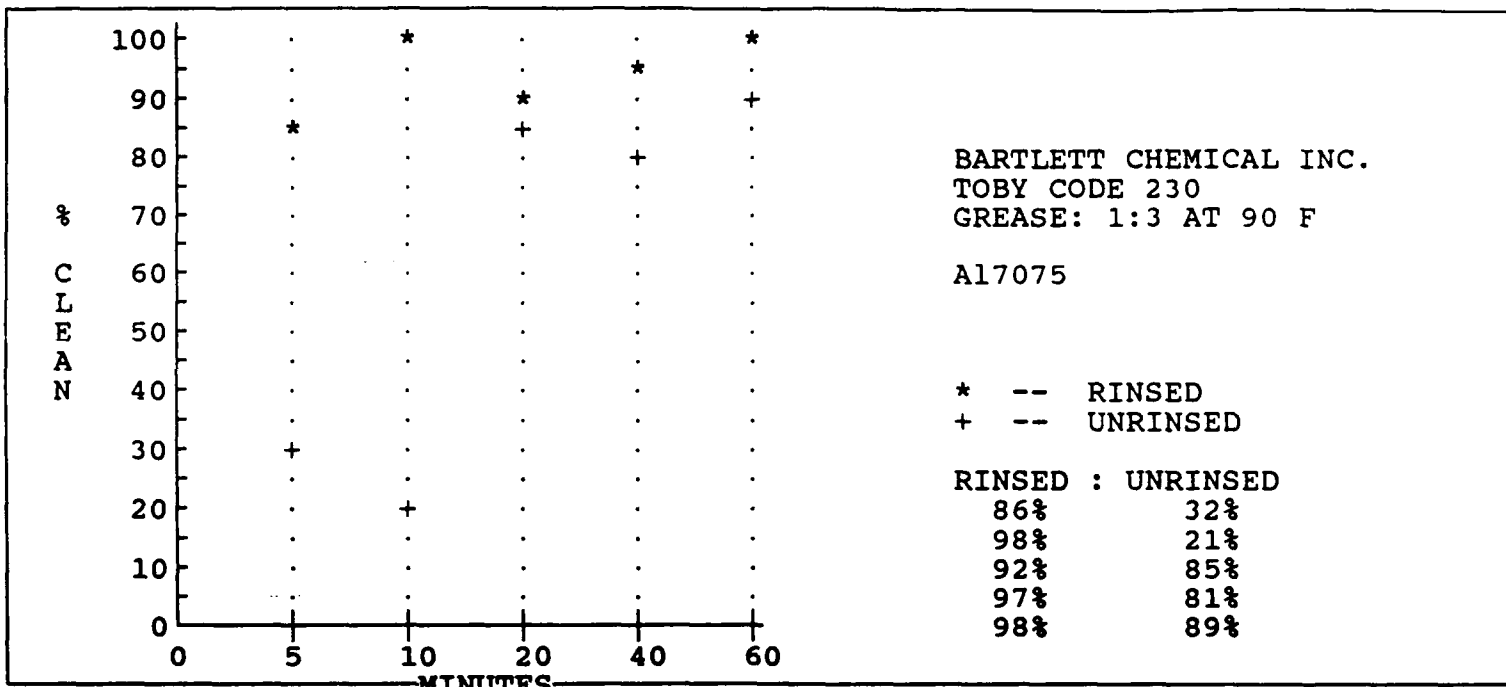
BARTLETT CHEMICAL INC.
 DOLPHIN WSD CODE 207
 HYDRAULIC FLUID: 4 OZ/GA
 L AT 160 F
 310S

* -- RINSED
 + -- UNRINSED

RINSED	UNRINSED
65%	31%
47%	33%
61%	20%
57%	35%
61%	23%

COMPANY - BARTLETT CHEMICAL	325*	.	.	*	.	.	.	
PRODUCT - TOBY CODE 230	309†	*	*	.	*	.	.	0- 318
TOC INIT- 10373	293†	.	.	.	.	*	.	1- 316
TOC 2nd - 0	276†	.	.	.	.	.	*	2- 314
COD INIT- 160500	260†	.	.	.	.	.	.	3- 325
ANILINE PT - 0.0000	244†	.	.	.	.	.	.	4- 309
ATP ----- 12 E-8	228†	.	.	.	.	.	.	5- 290
	211†	.	.	.	.	.	.	6- 284
SOLUBILITY DATA:	195†	.	.	.	.	.	.
	179†	.	.	.	.	.	.
	163†	.	.	.	.	.	.	DRY
	146†	.	.	.	.	.	.	WEIGHT
	130†	.	.	.	.	.	.	0.0515
	114†	.	.	.	.	.	.
	98†	.	.	.	.	.	.
	81†	.	.	.	.	.	.
	65†	.	.	.	.	.	.
	49†	.	.	.	.	.	.
	33†	.	.	.	.	.	.
	16†	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 06/02/88	COD vs TIME	0	1	2	3	4	5	6

PHENOL 06/02/88 ATP - 90 E-8		318†	*	
		302*	.	.	.	.	.
		286†	.	.	.	.	.	0- 309
		270†	.	.	.	.	.	1- 318
		254†	.	.	.	.	.	2- 42
		239†	.	.	.	.	.	3- 31
BARTLETT CHEMICAL INC.		223†	.	.	.	.	.	4- 28
TOBY CODE 230		207†	.	.	.	.	.	5- 14
		191†	.	.	.	.	.	6- 62
CIRCUIT CHEMISTRY CORPORA		175†	.	.	.	.	.
NCN-CU A, B		159†	.	.	.	.	.	DRY
		143†	.	.	.	.	.	WEIGHT
ELGENE CHEMICALS INC.		127†	.	.	.	.	.	0.0515
A-CD		111†	.	.	.	.	.
		95†	.	.	.	.	.
ELGENE CHEMICALS INC.		80†	.	.	.	.	.
SAFETY SOLVENT #10		64†	.	.	.	.	*
		48†	.	*	.	.	.		
M-OIL-FREE CO.		32†	.	.	*	*	.		
SERIES M		16†	.	.	.	.	*
		0	.	.	.	.	.
DATE - 06/02/88	COD vs TIME	0	1	2	3	4	5	6	

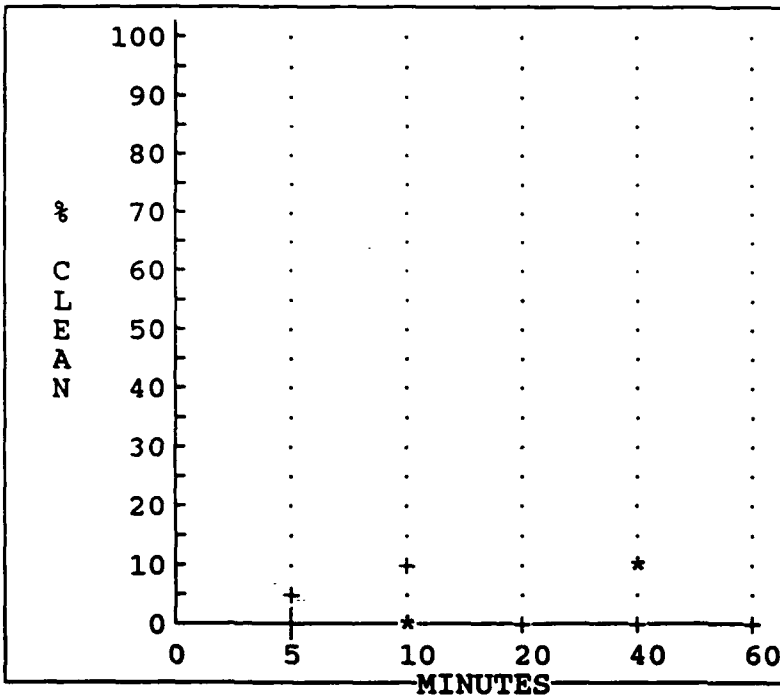


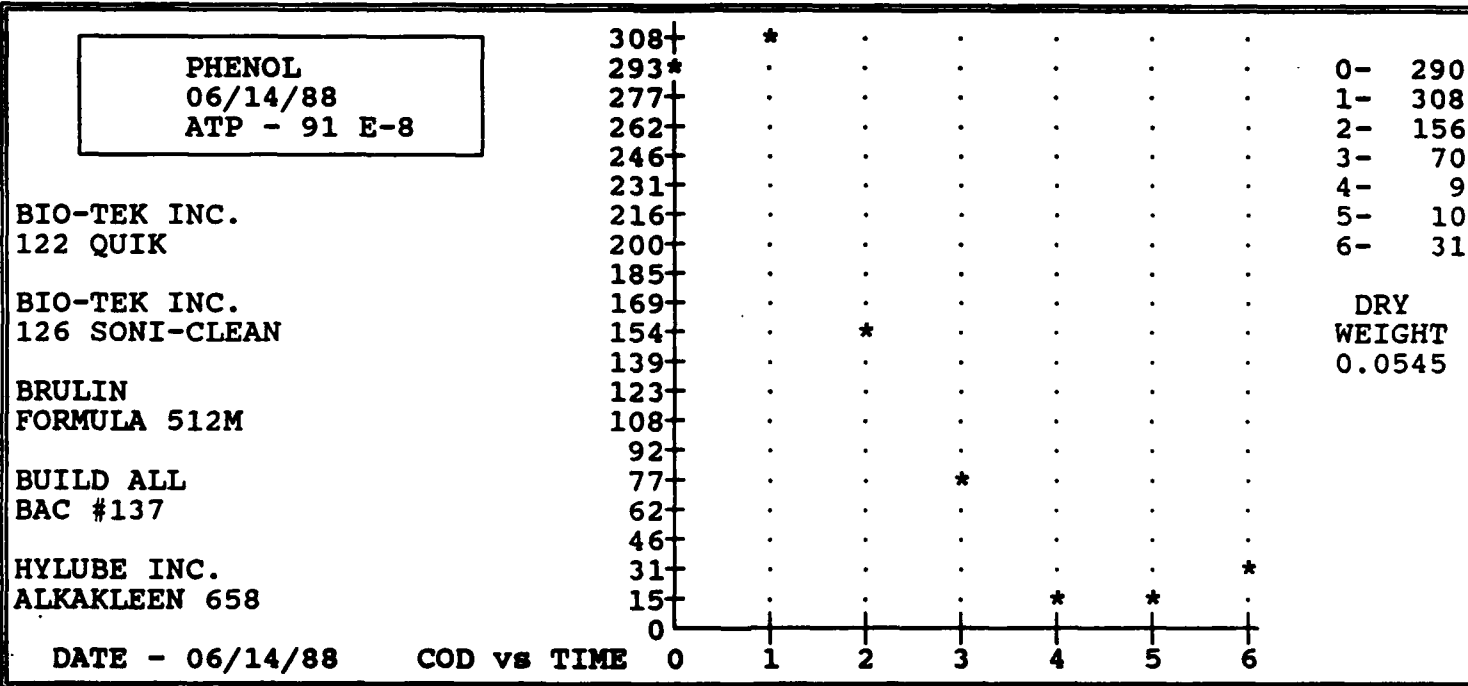
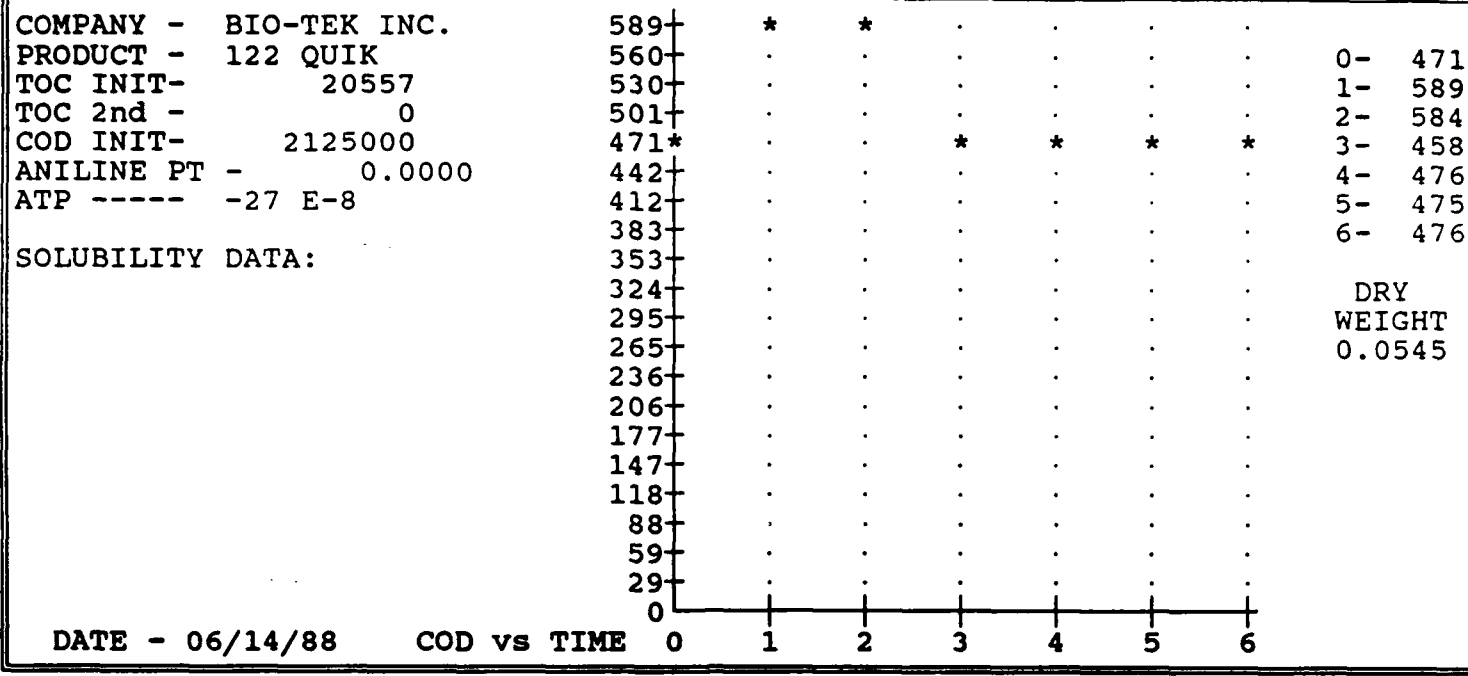
BARTLETT CHEMICAL INC.
 TOBY CODE 230
 OIL/XYLENE: 1:3 AT 120 F

Az31B

* -- RINSED
 + -- UNRINSED

RINSED :	UNRINSED
3%	6%
2%	9%
3%	1%
11%	0%
1%	0%



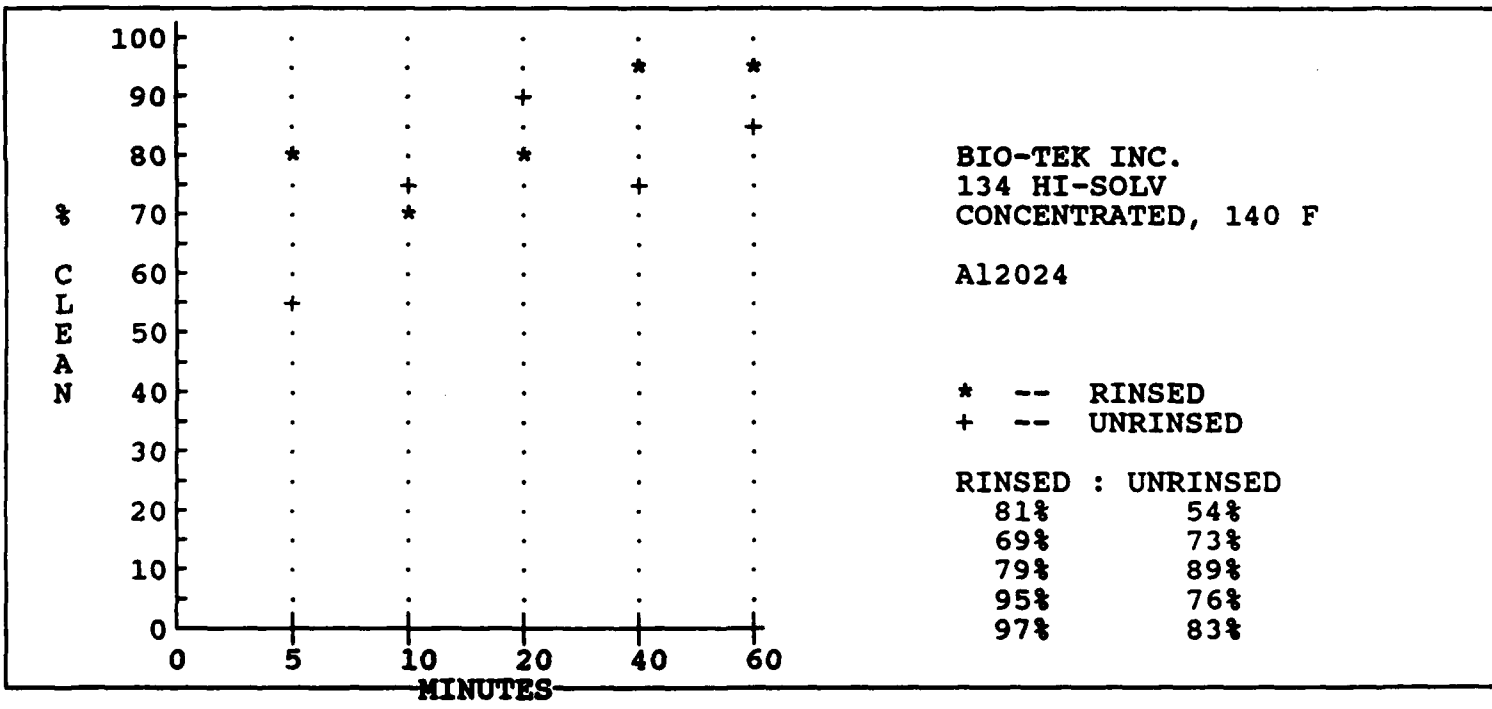
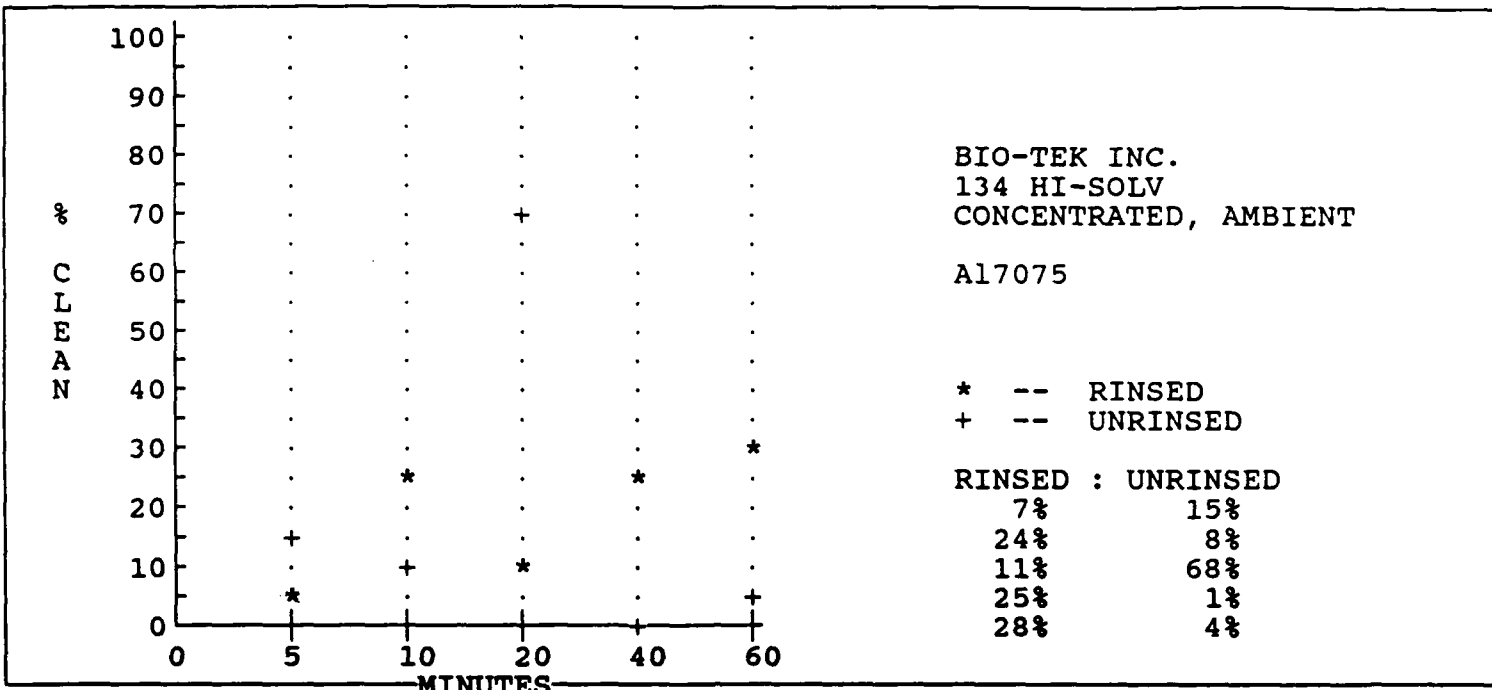


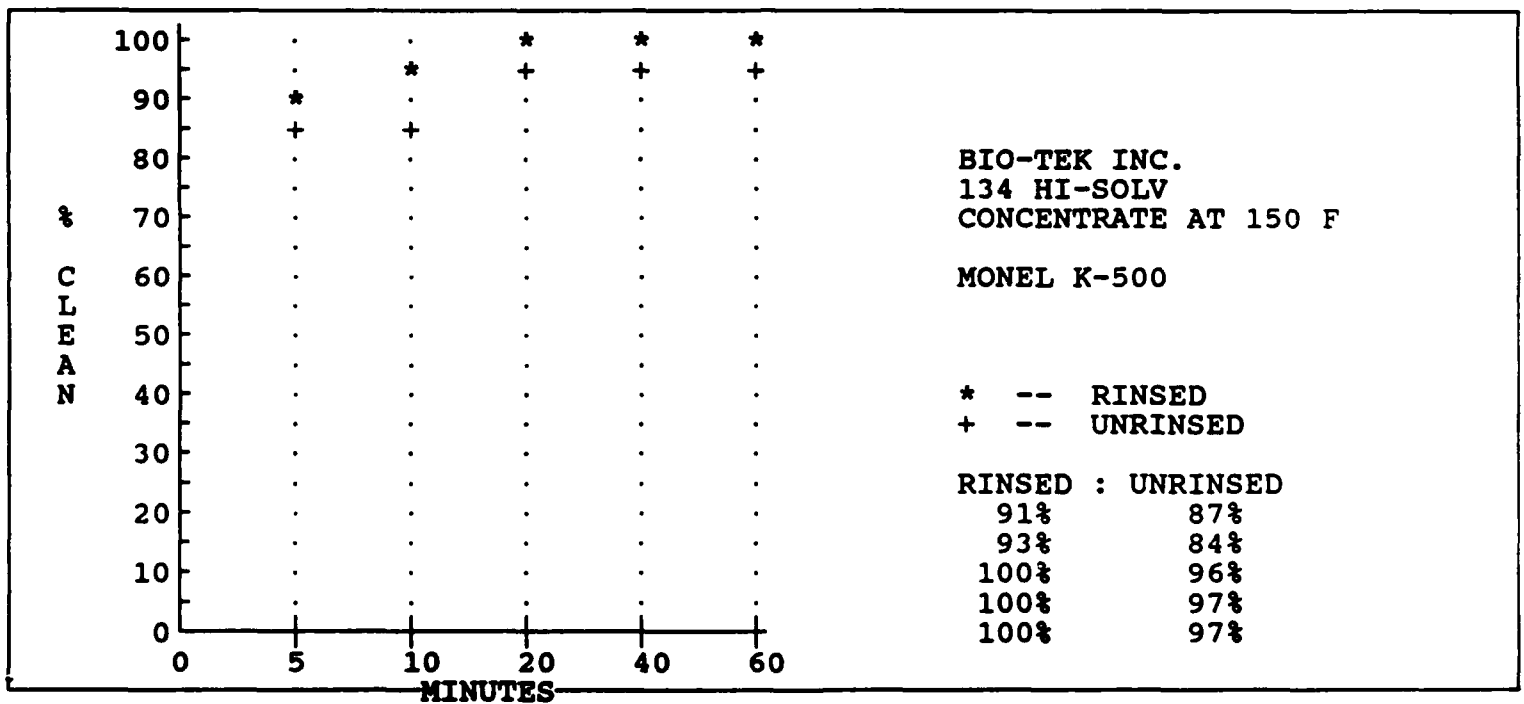
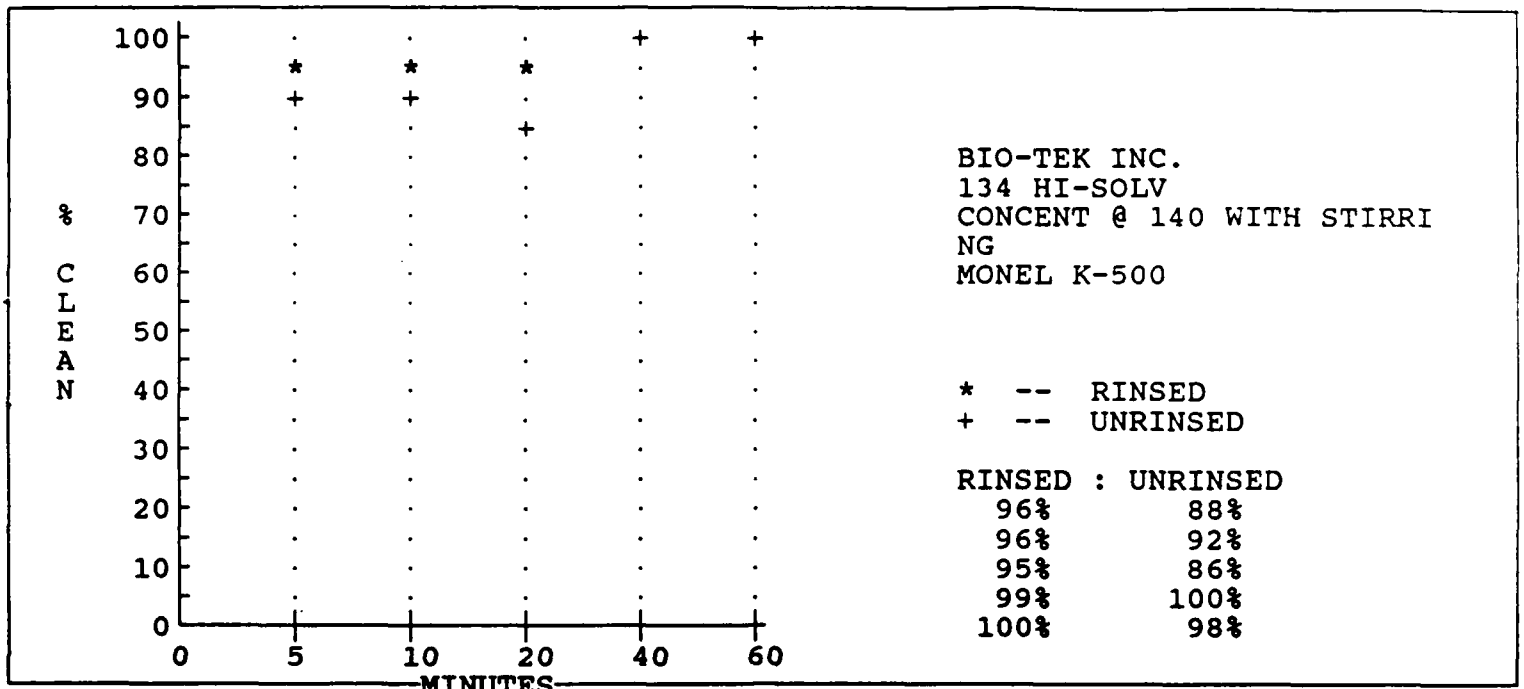
COMPANY - BIO-TEK INC.	775	*	*	.	.	.	.	.
PRODUCT - 126 SONI-CLEAN	736	.	.	.	*	.	*	.	0- 696
TOC INIT- 71182	698*	.	.	*	.	*	.	.	1- 757
TOC 2nd - 0	659	.	.	.	.	.	.	.	2- 775
COD INIT- 33900	620	.	.	.	.	.	.	.	3- 694
ANILINE PT - 0.0000	581	.	.	.	.	.	.	.	4- 718
ATP ----- -14 E-8	543	.	.	.	.	.	.	.	5- 714
	504	.	.	.	.	.	.	.	6- 744
SOLUBILITY DATA:	465	.	.	.	.	.	.	.
	426	.	.	.	.	.	.	.
	388	.	.	.	.	.	.	.	DRY
	349	.	.	.	.	.	.	.	WEIGHT
	310	.	.	.	.	.	.	.	0.0545
	271	.	.	.	.	.	.	.
	233	.	.	.	.	.	.	.
	194	.	.	.	.	.	.	.
	155	.	.	.	.	.	.	.
	116	.	.	.	.	.	.	.
	78	.	.	.	.	.	.	.
	39	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.
DATE - 06/14/88	COD vs TIME	0	1	2	3	4	5	6	

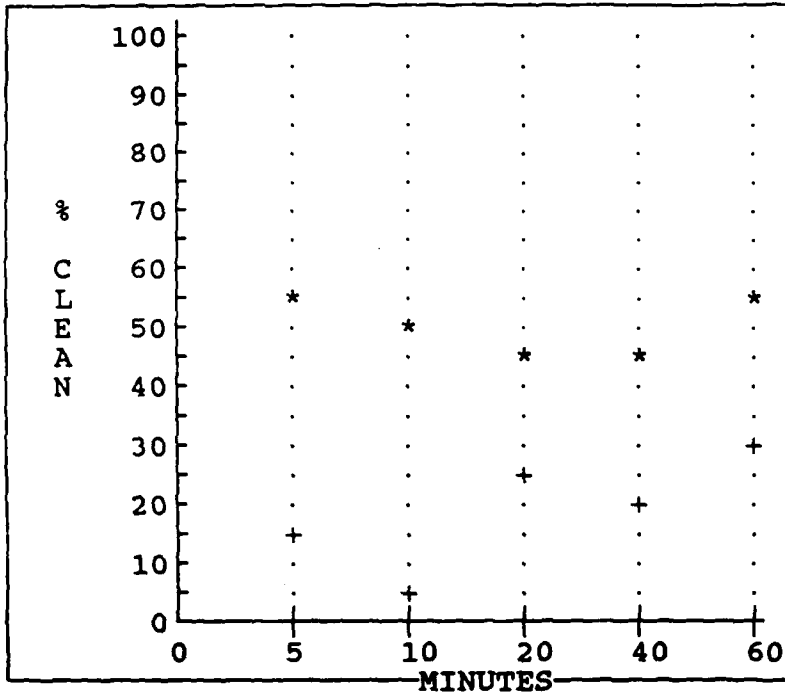
PHENOL	308	*	.	.	.	.	.	.
06/14/88	293*	.	.	.	.	.	.	.	0- 290
ATP - 91 E-8	277	.	.	.	.	.	.	.	1- 308
	262	.	.	.	.	.	.	.	2- 156
	246	.	.	.	.	.	.	.	3- 70
	231	.	.	.	.	.	.	.	4- 9
BIO-TEK INC.	216	.	.	.	.	.	.	.	5- 10
122 QUIK	200	.	.	.	.	.	.	.	6- 31
	185	.	.	.	.	.	.	.
BIO-TEK INC.	169	.	.	.	.	.	.	.	DRY
126 SONI-CLEAN	154	.	*	.	.	.	.	.	WEIGHT
	139	.	.	.	.	.	.	.	0.0545
BRULIN	123	.	.	.	.	.	.	.
FORMULA 512M	108	.	.	.	.	.	.	.
	92	.	.	.	.	.	.	.
BUILD ALL	77	.	.	*	.	.	.	.
BAC #137	62	.	.	.	.	.	.	.
	46	.	.	.	.	.	.	.
HYLUBE INC.	31	.	.	.	.	.	.	*
ALKAKLEEN 658	15	.	.	.	*	*	.	.	
	0	.	.	.	.	.	.	.
DATE - 06/14/88	COD vs TIME	0	1	2	3	4	5	6	

COMPANY - BIO-TEK INC.	252*	.	.	.	.	.	.	0-	252
PRODUCT - 134 HI-SOLV	239	.	.	.	.	.	.	1-	160
TOC INIT- 40727	227	.	.	.	.	.	.	2-	140
TOC 2nd - 0	214	.	.	.	.	.	.	3-	110
COD INIT- 134000	202	.	.	.	.	.	.	4-	64
ANILINE PT - 0.0000	189	.	.	.	.	.	.	5-	70
ATP ----- 71 E-8	176	.	.	.	.	.	.	6-	62
	164	*	.	.	.	.	.
SOLUBILITY DATA:	151	.	.	.	.	.	.
CONCENT @ AMBIE 15%	139	.	*	.	.	.	.	DRY	
CONCENT @ 140 20%	126	.	.	.	.	.	.	WEIGHT	
	113	.	.	*	.	.	.	0.0558	
	101	.	.	.	.	.	.
	88	.	.	.	.	.	.
	76	.	.	.	.	*	.
	63	.	.	.	.	*	*
	50	.	.	.	.	.	.
	38	.	.	.	.	.	.
	25	.	.	.	.	.	.
	13	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6	

<div style="border: 1px solid black; padding: 5px; display: inline-block;"> PHENOL 03/07/88 ATP - 211 E-8 </div>		439*	0-	439
		417	.	.	.	.	.	1-	406
		395	*	*	.	.	.	2-	386	
		373	.	.	.	.	.	3-	356
		351	.	.	*	.	.	4-	309	
		329	.	.	.	.	.	5-	270
3 D INC.	3D SUPREME	307	.	.	.	*	.	6-	246	
		285	.	.	.	.	.
		263	.	.	.	.	*
3 D INC.	CITRIGOLD	241	.	.	.	.	.	*	DRY
		220	.	.	.	.	.		WEIGHT
		198	.	.	.	.	.		0.0558
		176	.	.	.	.	.
3 D INC.	SIEGE	154	.	.	.	.	.
		132	.	.	.	.	.
		110	.	.	.	.	.
BARTLETT CHEMICAL INC.	DOLPHIN 281	88	.	.	.	.	.
		66	.	.	.	.	.
BIO-TEK INC.	134 HI-SOLV	44	.	.	.	.	.
		22	.	.	.	.	.
		0	.	.	.	.	.
DATE - 03/07/88	COD vs TIME	0	1	2	3	4	5	6		



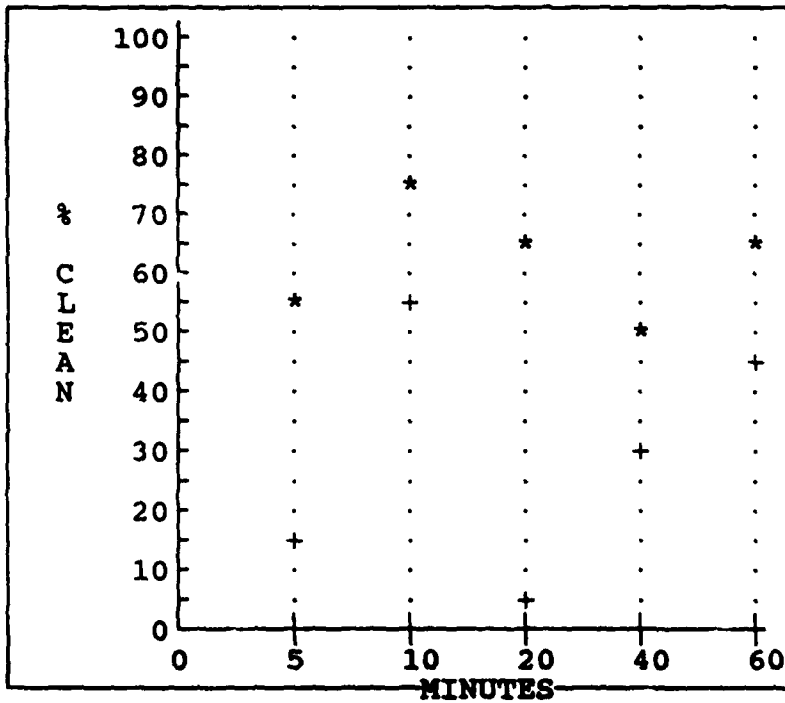




BIO-TEK INC.
 134 HI-SOLV
 GREASE: CONCENTRATE AT AM
 BIENT
 A12024

* -- RINSED
 + -- UNRINSED

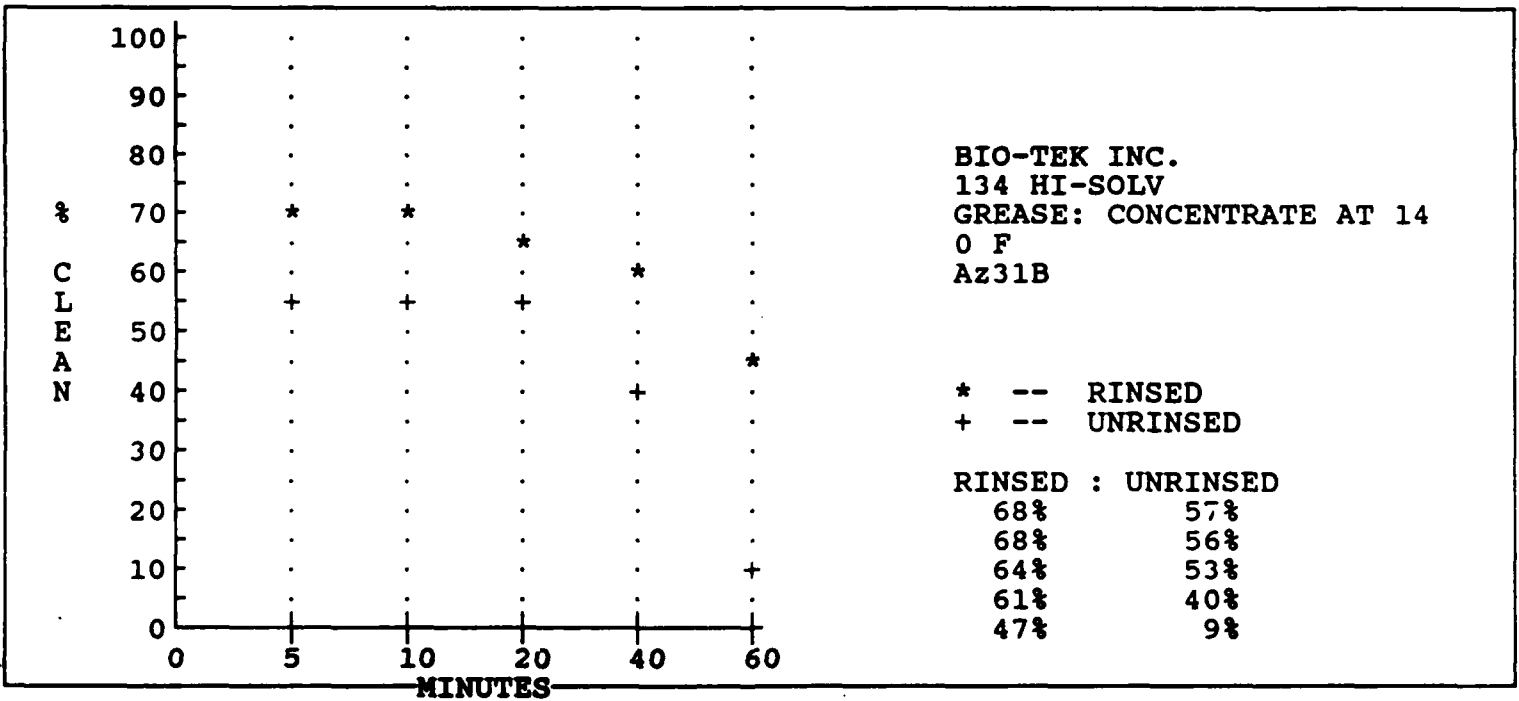
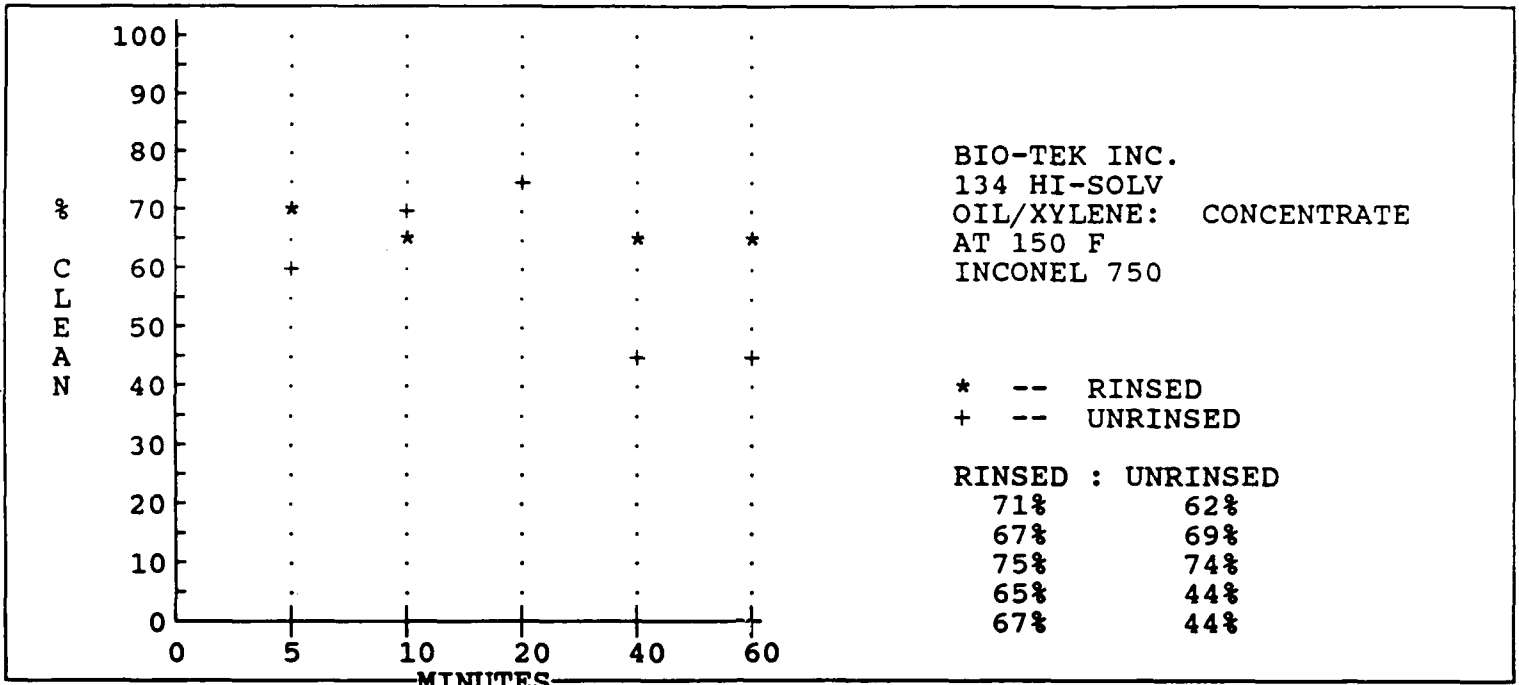
RINSED : UNRINSED
 56% : 16%
 52% : 6%
 43% : 25%
 46% : 22%
 56% : 28%



BIO-TEK INC.
 134 HI-SOLV
 OIL/XYLENE: CONCENTRATE
 AT 140 F
 C1020

* -- RINSED
 + -- UNRINSED

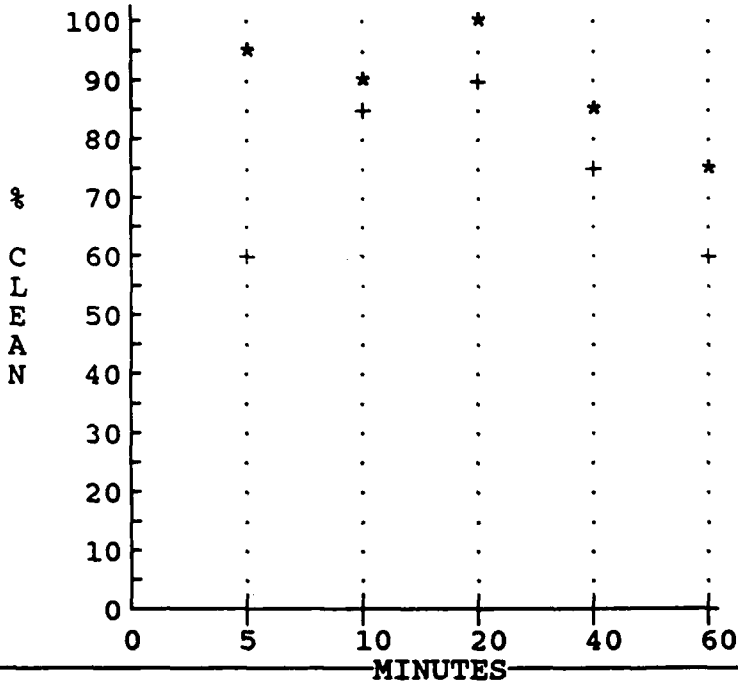
RINSED : UNRINSED
 56% : 15%
 75% : 55%
 63% : 5%
 52% : 29%
 64% : 47%



BIO-TEK INC.
 134 HI-SOLV
 HYDRAULIC FLUID: CONCENT
 RATE AT 140 F
 A17075

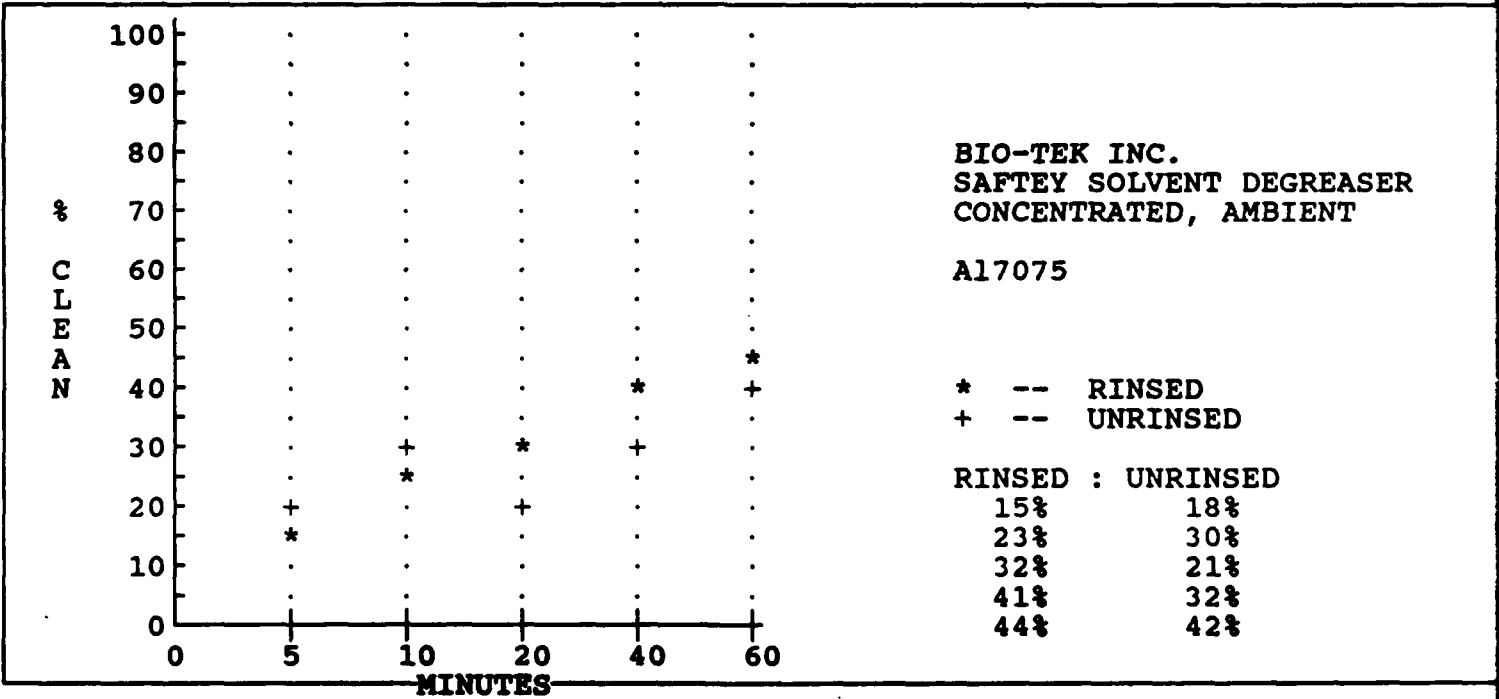
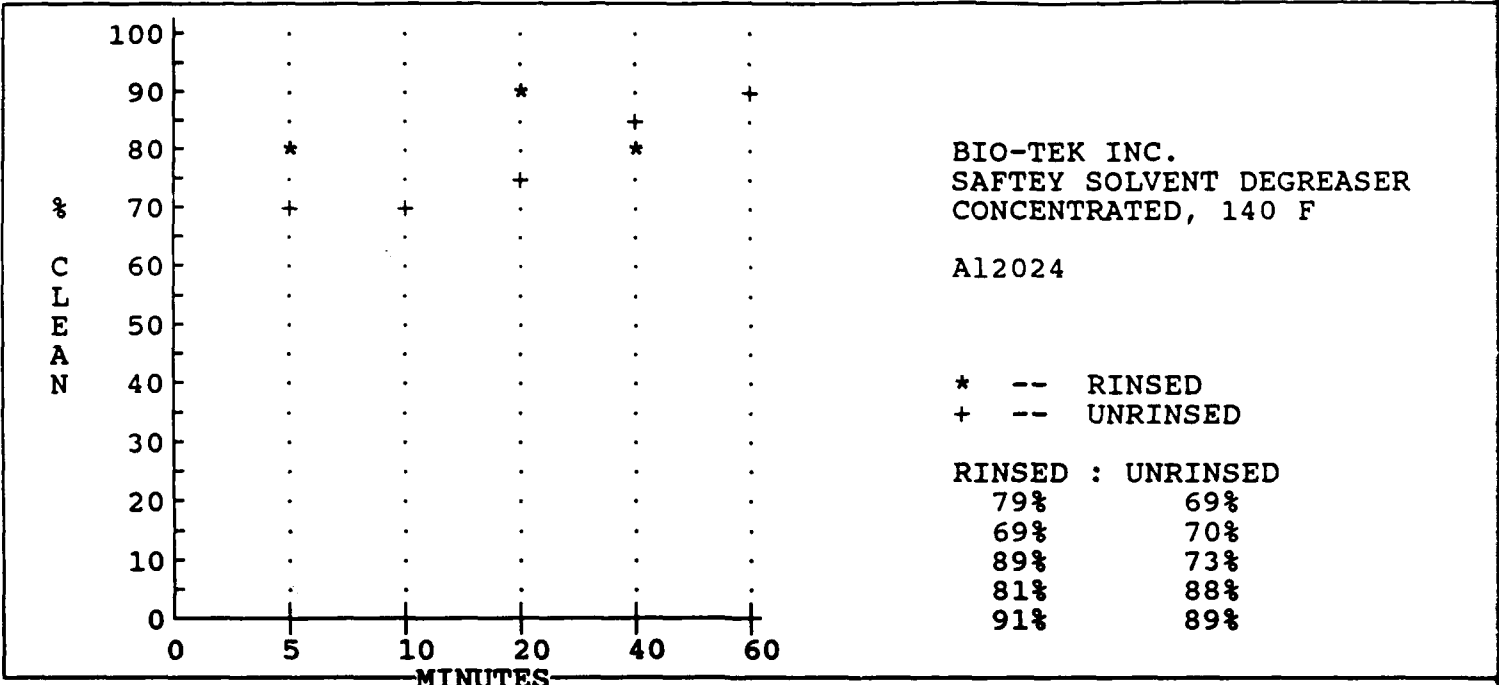
* -- RINSED
 + -- UNRINSED

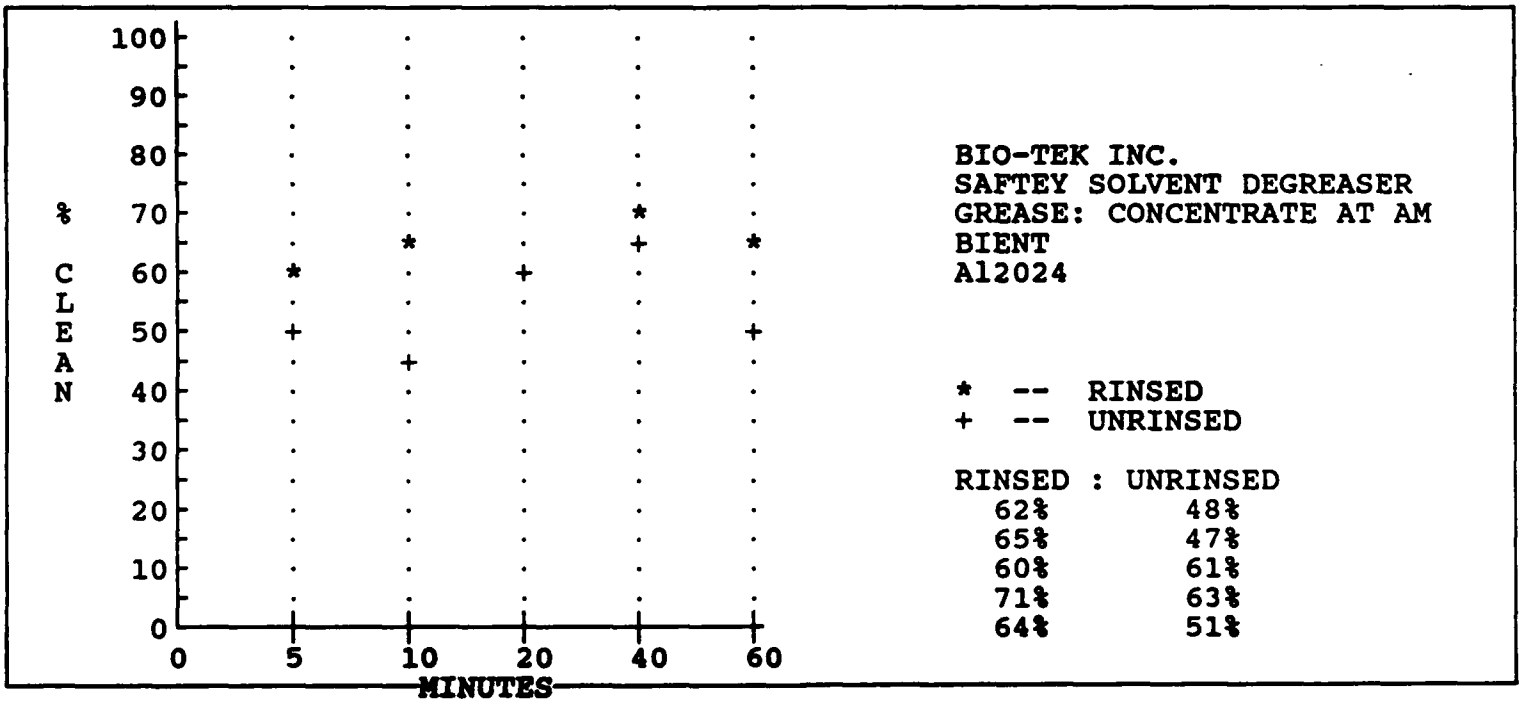
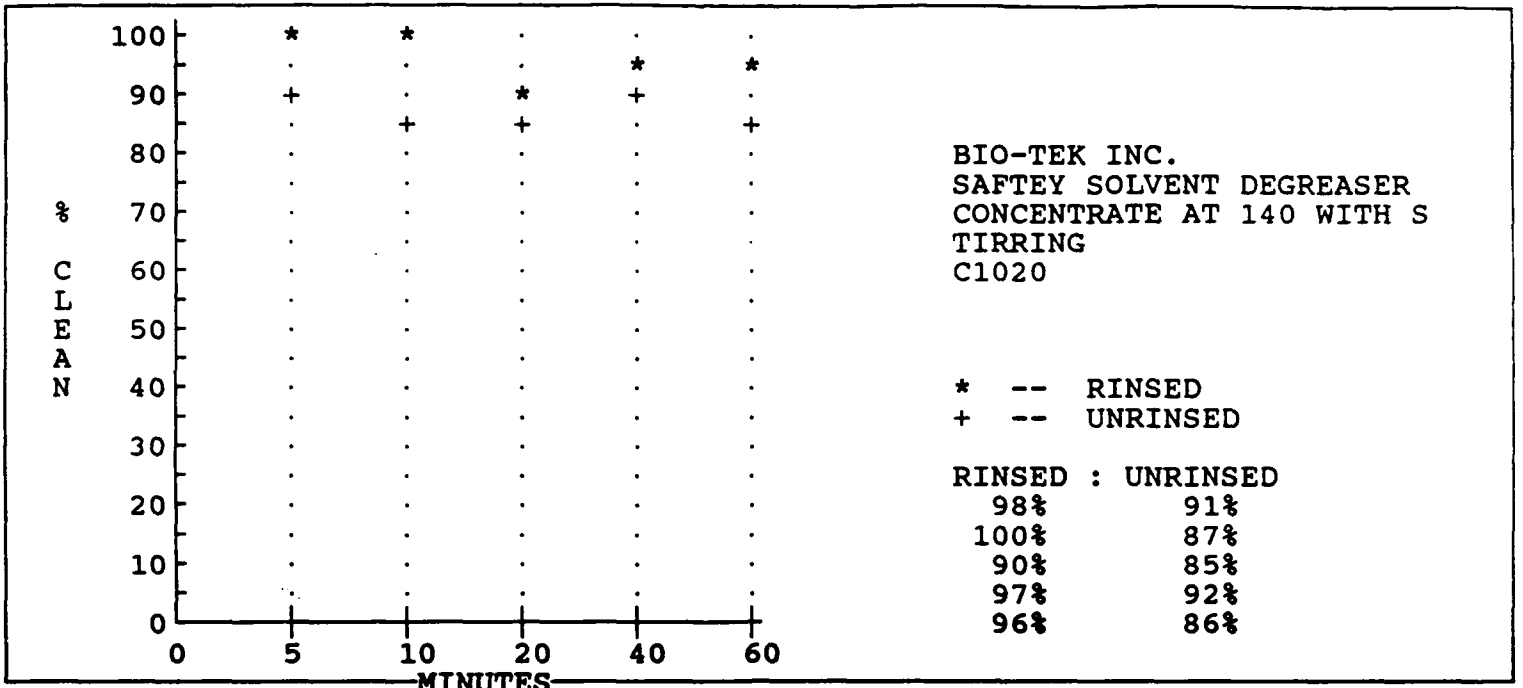
RINSED :	UNRINSED
95%	61%
91%	84%
100%	91%
87%	76%
74%	61%

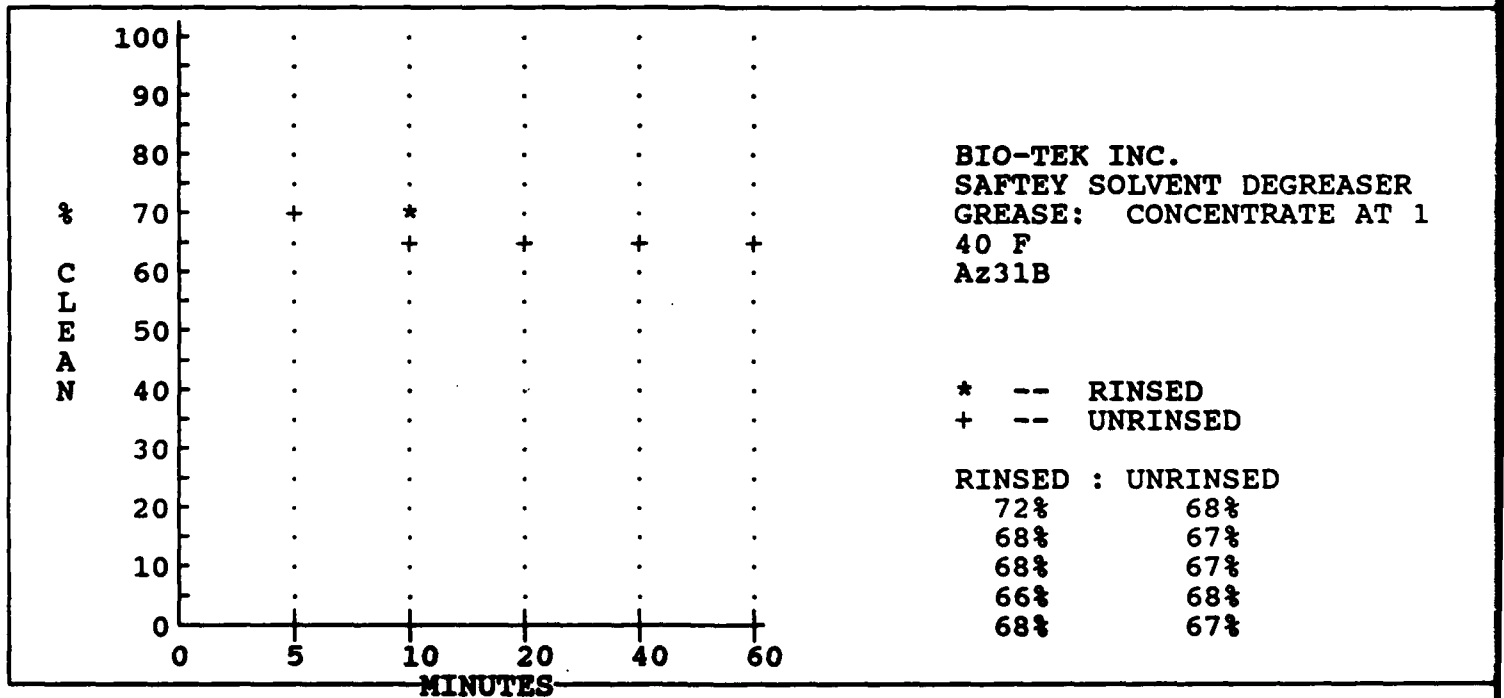
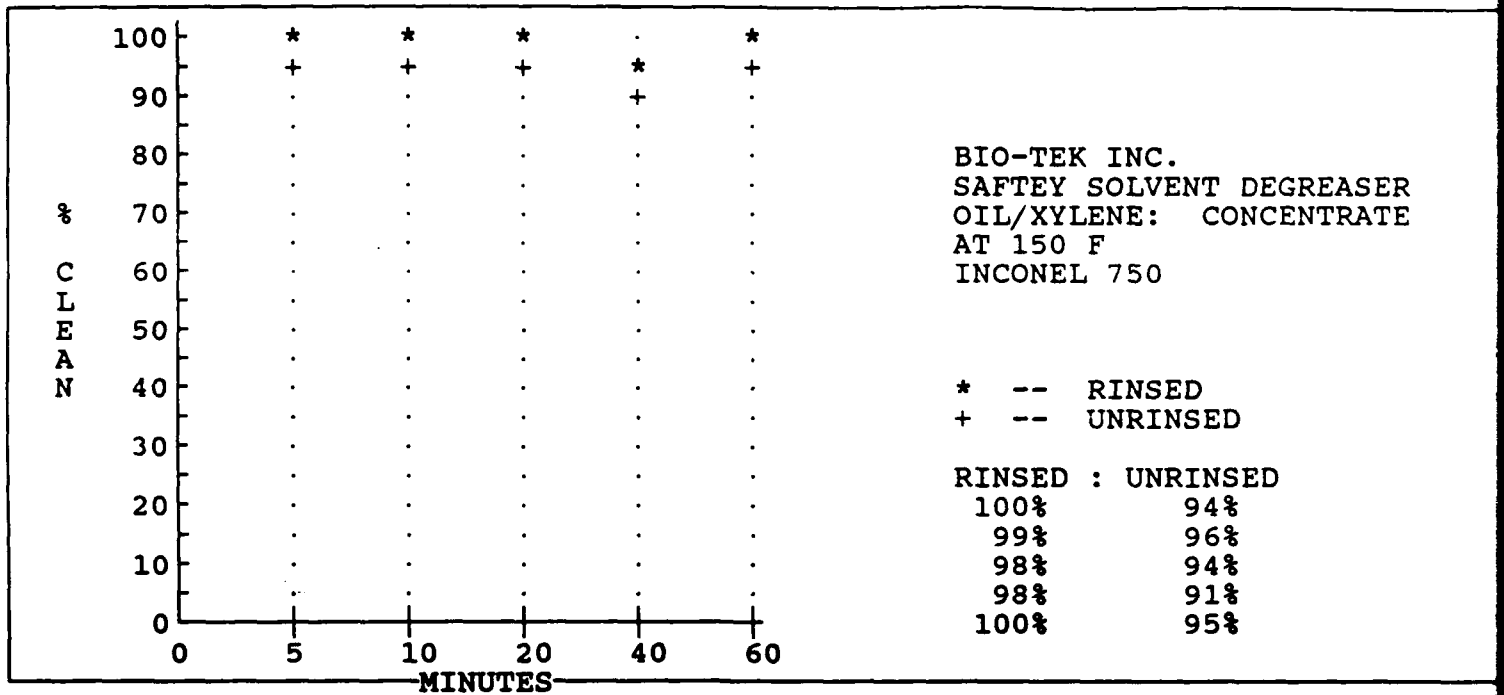


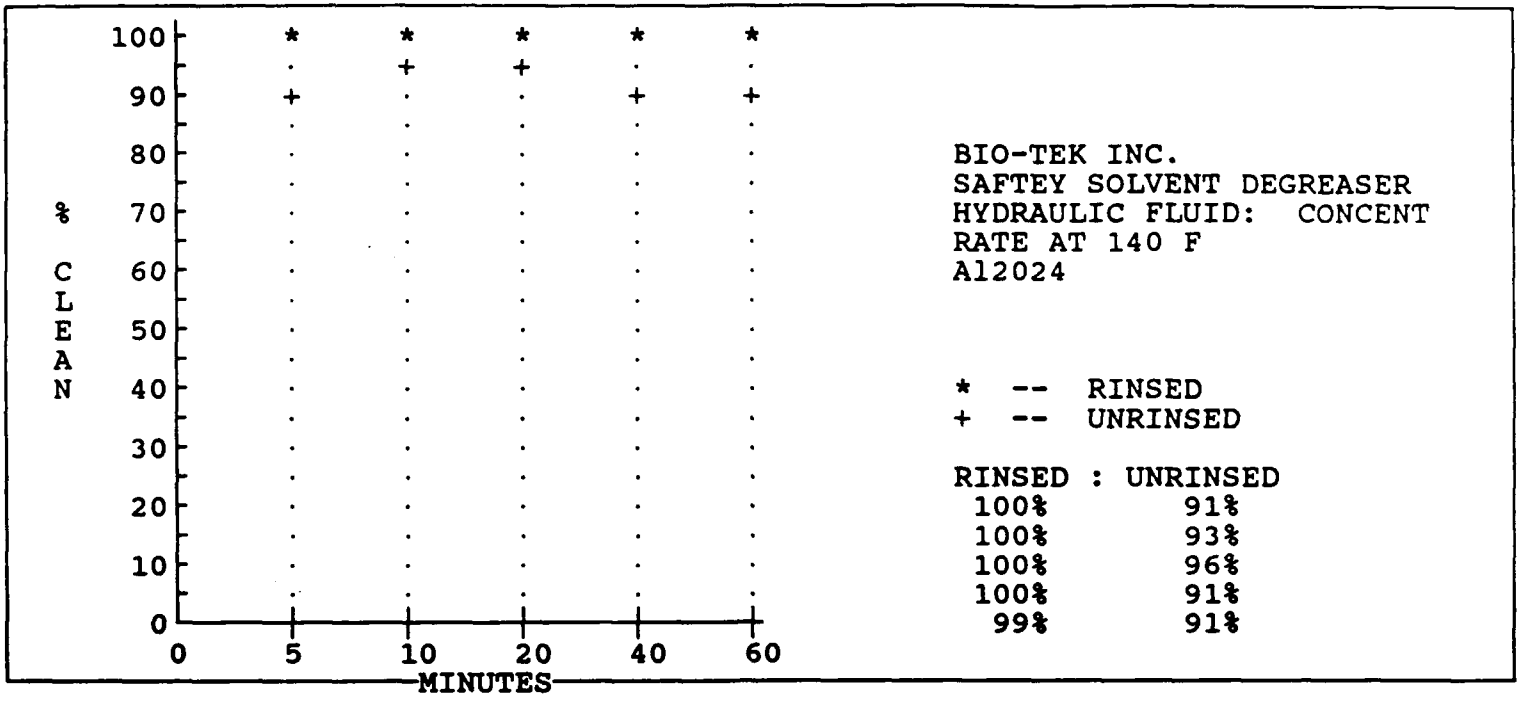
COMPANY -	BIO-TEK INC.	76	.	.	.	*	.	.		
PRODUCT -	SAFTEY SOLVENT DEG	72	.	.	.	.	.	.	0-	64
TOC INIT-	107185	68	.	.	.	.	.	.	1-	60
TOC 2nd -	0	65*	.	.	.	.	.	.	2-	32
COD INIT-	59000	61	*	.	.	.	.	.	3-	-7
ANILINE PT -	0.0000	57	.	.	.	.	.	.	4-	76
ATP -----	-46 E-8	53	.	.	.	.	*	*	5-	54
		49	.	.	.	.	.	.	6-	55
SOLUBILITY DATA:		46	.	.	.	.	.	.
CONCENT @ AMBIE	12%	42	.	.	.	.	.	.
CONCENT @ 140	79%	38	.	.	.	.	.	.	DRY	
		34	.	.	.	.	.	.	WEIGHT	
		30	.	*	.	.	.	.	0.0678	
		27	.	.	.	.	.	.
		23	.	.	.	.	.	.
		19	.	.	.	.	.	.
		15	.	.	.	.	.	.
		11	.	.	.	.	.	.
		8	.	.	.	.	.	.
		4	.	.	.	.	.	.
		0	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6		

PHENOL 03/08/88 ATP - 30 E-8		307*	.	.	.	.	.	.
		292	.	.	.	.	.	.	0-	307
		276	*	.	.	.	.	.	1-	276
		261	.	.	.	.	.	.	2-	209
		246	.	.	.	.	.	.	3-	174
		230	.	.	.	.	.	.	4-	156
BIO-TEK INC.		215	.	*	.	.	.	.	5-	108
SAFTEY SOLVENT DEGREASER		200	.	.	.	.	.	.	6-	88
		184	.	.	.	.	.	.
BRULIN		169	.	.	*	.	.	.	DRY	
AQUA SAFE		154	.	.	.	*	.	.	WEIGHT	
		138	.	.	.	.	.	.	0.0678	
BRULIN		123	.	.	.	.	.	.
NATURE-SOL 100		107	.	.	.	.	*	.
		92	.	.	.	.	.	*
CALLA CHEMICAL CORP		77	.	.	.	.	.	.
CALLA 301-A-LEMON		61	.	.	.	.	.	.
		46	.	.	.	.	.	.
CROWLEY CHEMICAL COMPANY		31	.	.	.	.	.	.
METHYL NAPHTHALENE #5		15	.	.	.	.	.	.
		0	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6		





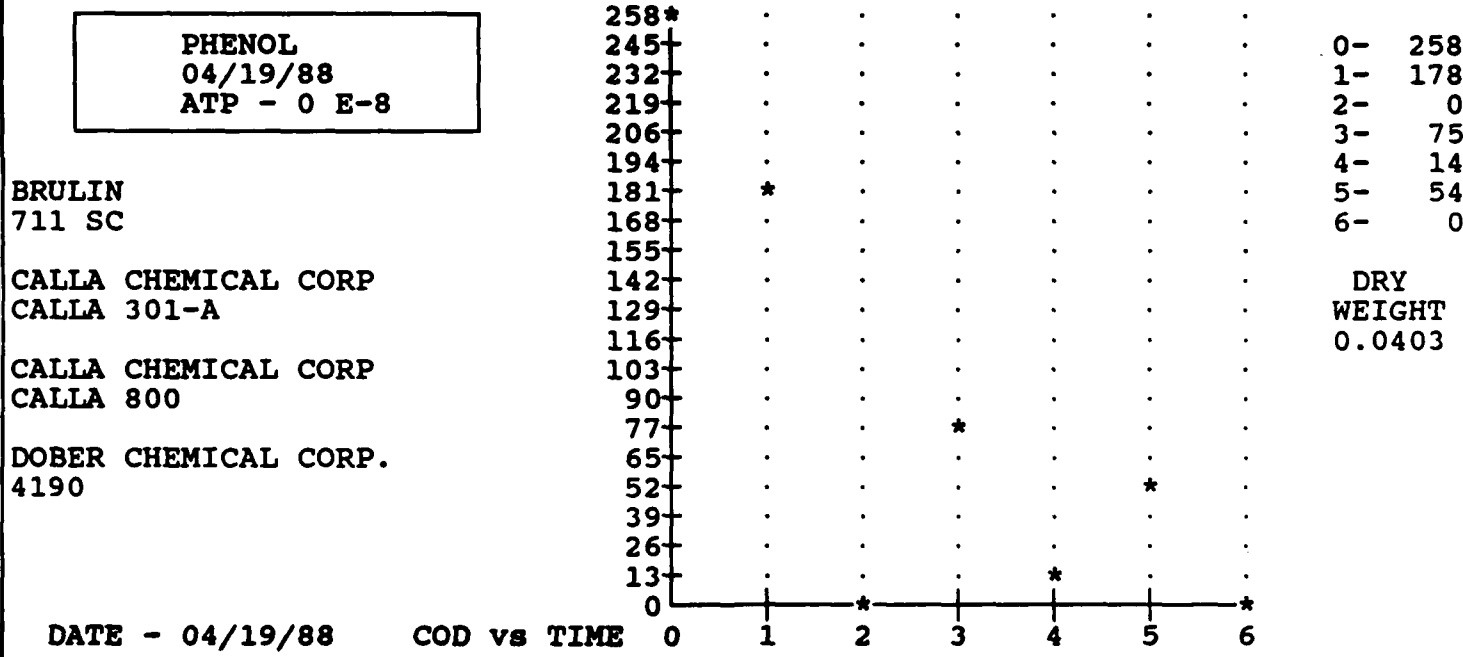
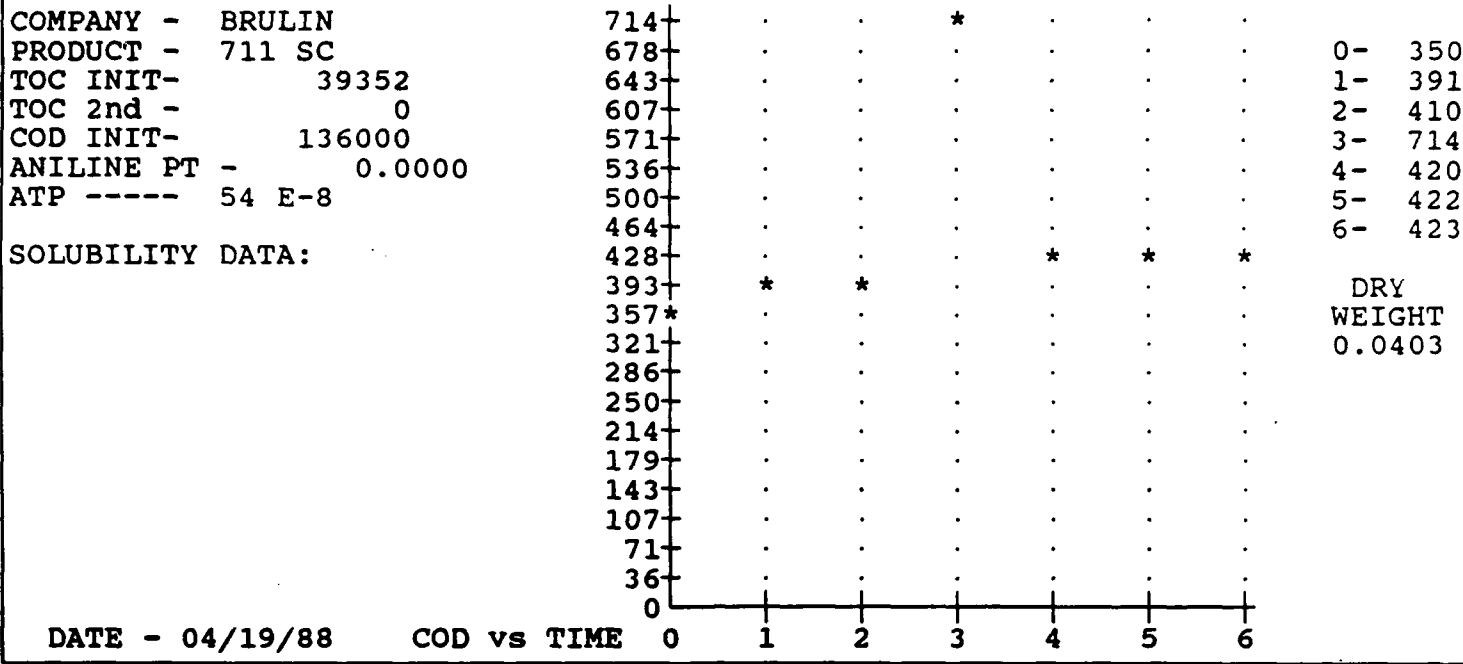


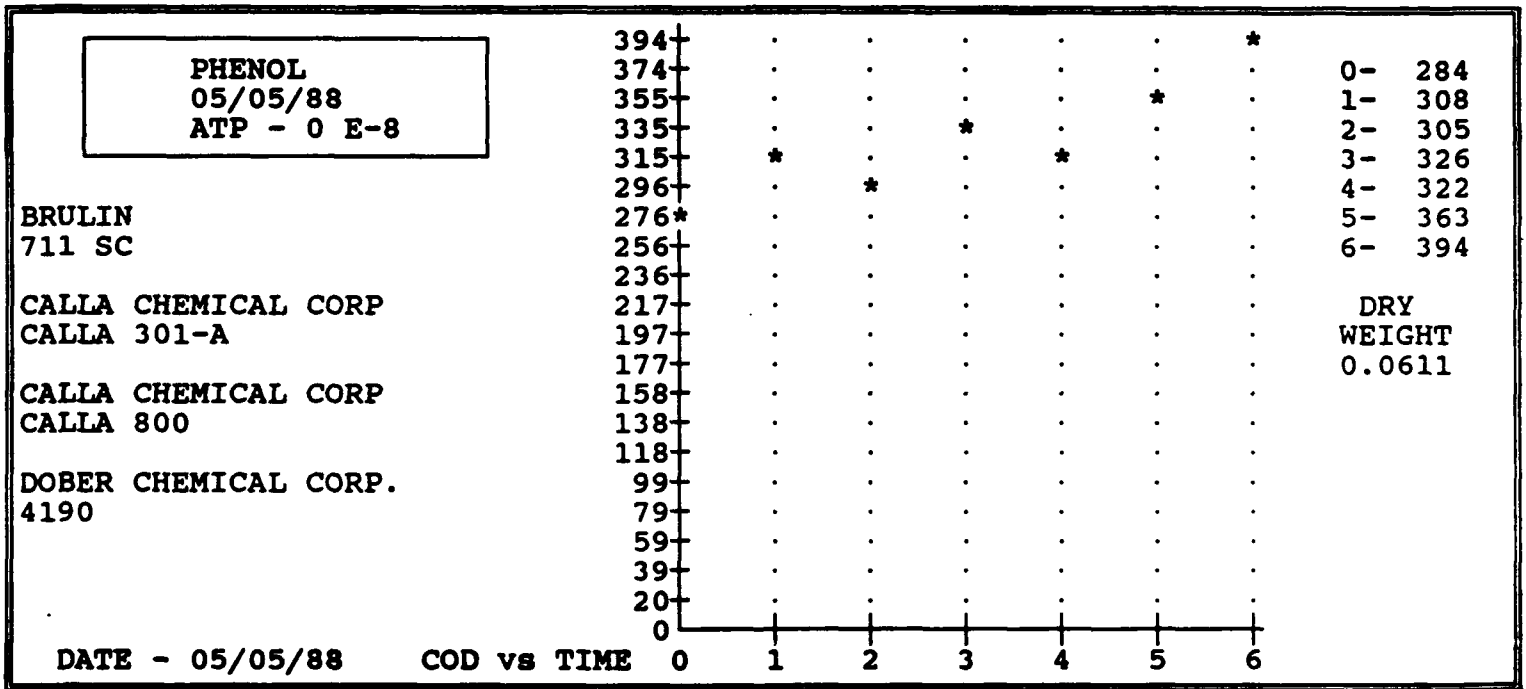
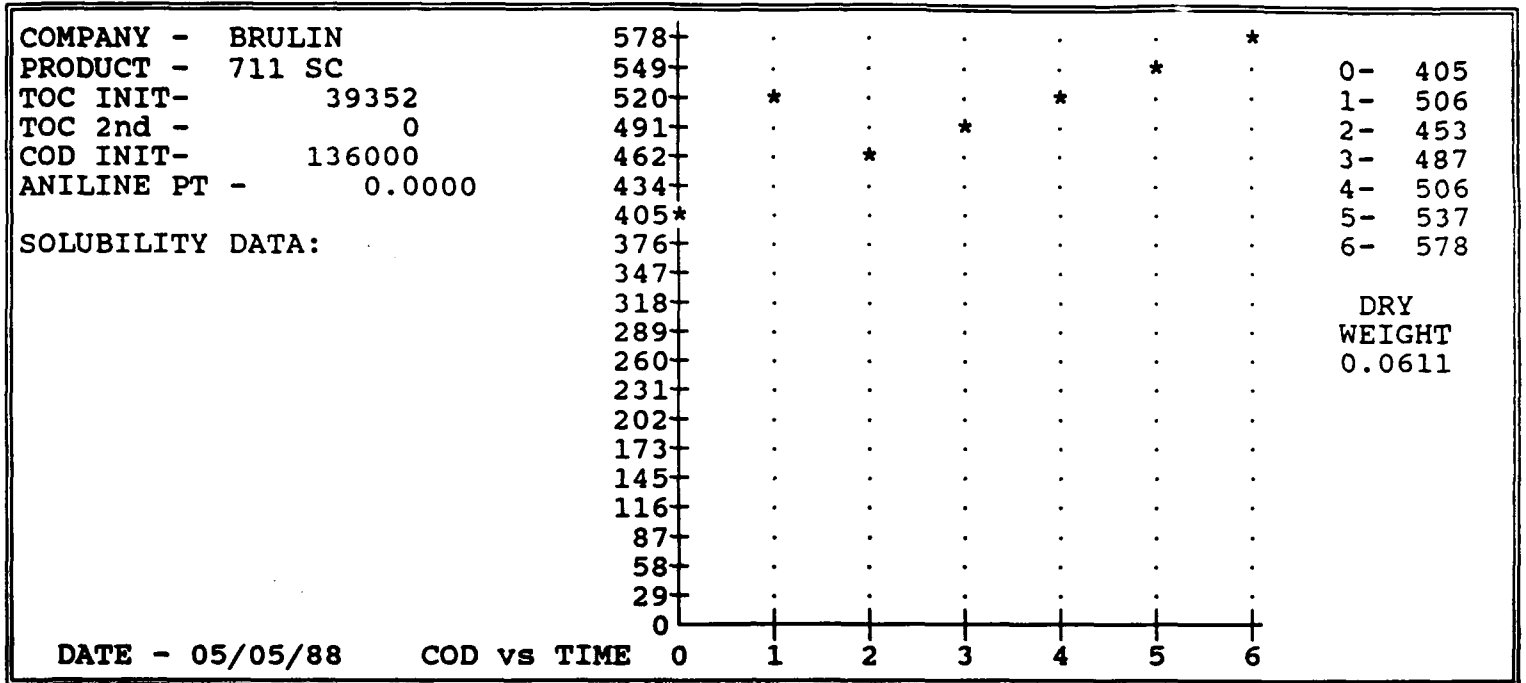


BIO-TEK INC.
 SAFTEY SOLVENT DEGREASER
 HYDRAULIC FLUID: CONCENT
 RATE AT 140 F
 A12024

* -- RINSED
 + -- UNRINSED

RINSED	UNRINSED
100%	91%
100%	93%
100%	96%
100%	91%
99%	91%





COMPANY - BRULIN	483	.	.	.	.	.	*
PRODUCT - 711 SC	459	.	.	.	.	*	.	0- 352
TOC INIT- 39352	435	.	.	*	*	.	.	1- 397
TOC 2nd - 0	411	.	*	.	.	.	.	2- 422
COD INIT- 136000	386	*	.	.	.	.	.	3- 427
ANILINE PT - 0.0000	362*	.	.	.	.	.	.	4- 432
ATP ----- -28 E-8	338	.	.	.	.	.	.	5- 458
	314	.	.	.	.	.	.	6- 483

SOLUBILITY DATA:

290	.	.	.	.	.	.	.
266	.	.	.	.	.	.	.
242	.	.	.	.	.	.	.	DRY WEIGHT
217	.	.	.	.	.	.	.	0.0764
193	.	.	.	.	.	.	.
169	.	.	.	.	.	.	.
145	.	.	.	.	.	.	.
121	.	.	.	.	.	.	.
97	.	.	.	.	.	.	.
72	.	.	.	.	.	.	.
48	.	.	.	.	.	.	.
24	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.

DATE - 06/15/88 COD vs TIME 0 1 2 3 4 5 6

PHENOL
06/15/88
ATP - -19 E-8

254*	.	.	.	.	.	.	.
241	.	.	.	.	.	.	.	0- 254
229	.	.	.	.	.	.	.	1- 187
216	.	.	.	.	.	.	.	2- 107
203	.	.	.	.	.	.	.	3- 32
191	*	.	.	.	.	.	.	4- 20
178	.	.	.	.	.	.	.	5- 16
165	.	.	.	.	.	.	.	6- 50
152	.	.	.	.	.	.	.
140	.	.	.	.	.	.	.	DRY WEIGHT
127	.	.	.	.	.	.	.	0.0764
114	.	.	.	.	.	.	.
102	.	*	.	.	.	.	.
89	.	.	.	.	.	.	.
76	.	.	.	.	.	.	.
64	.	.	.	.	.	.	.
51	.	.	.	.	.	.	*
38	.	.	*	.	.	.	.
25	.	.	.	*	.	.	.	
13	.	.	.	.	*	.	.
0	.	.	.	.	.	.	.

BRULIN
711 SC

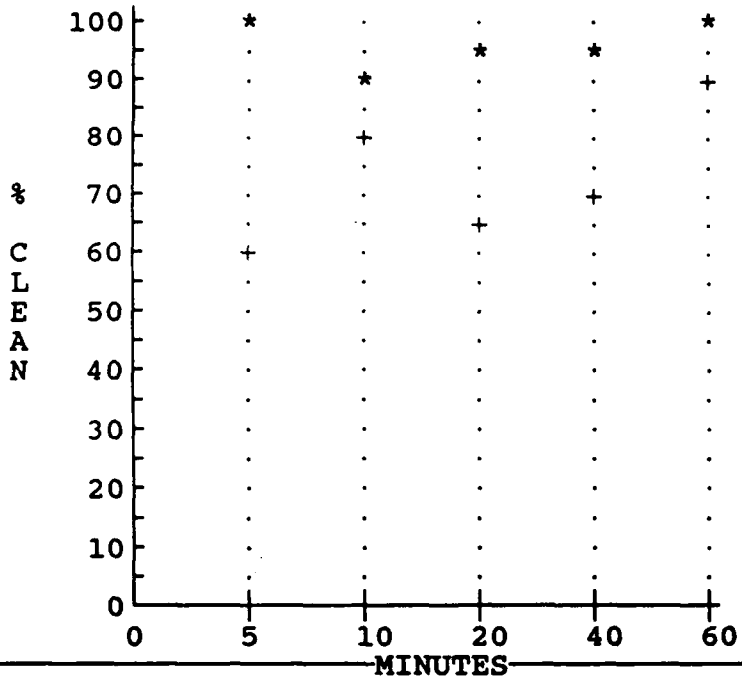
CABOT CHEMICAL CORP.
X-166

CALLA CHEMICAL CORP
CALLA 301-A

CALLA CHEMICAL CORP
CALLA 800

DOBER CHEMICAL CORP.
4190

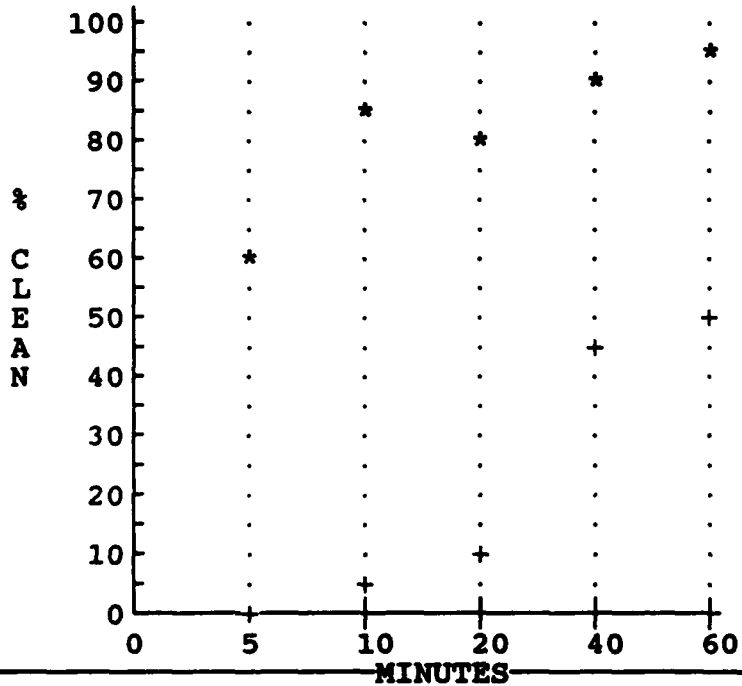
DATE - 06/15/88 COD vs TIME 0 1 2 3 4 5 6



BRULIN
711 SC
GREASE: 1:3 AT AMBIENT
MONEL K-500

* -- RINSED
+ -- UNRINSED

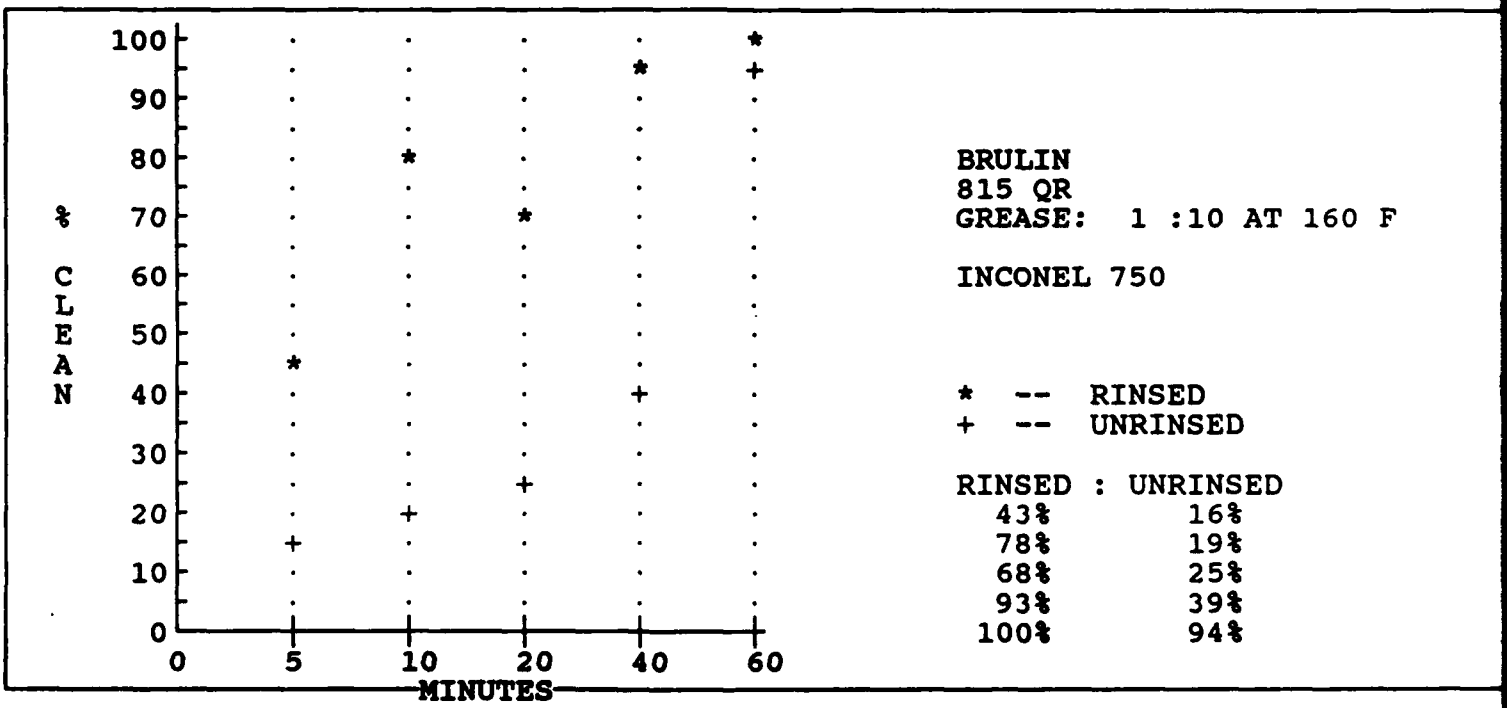
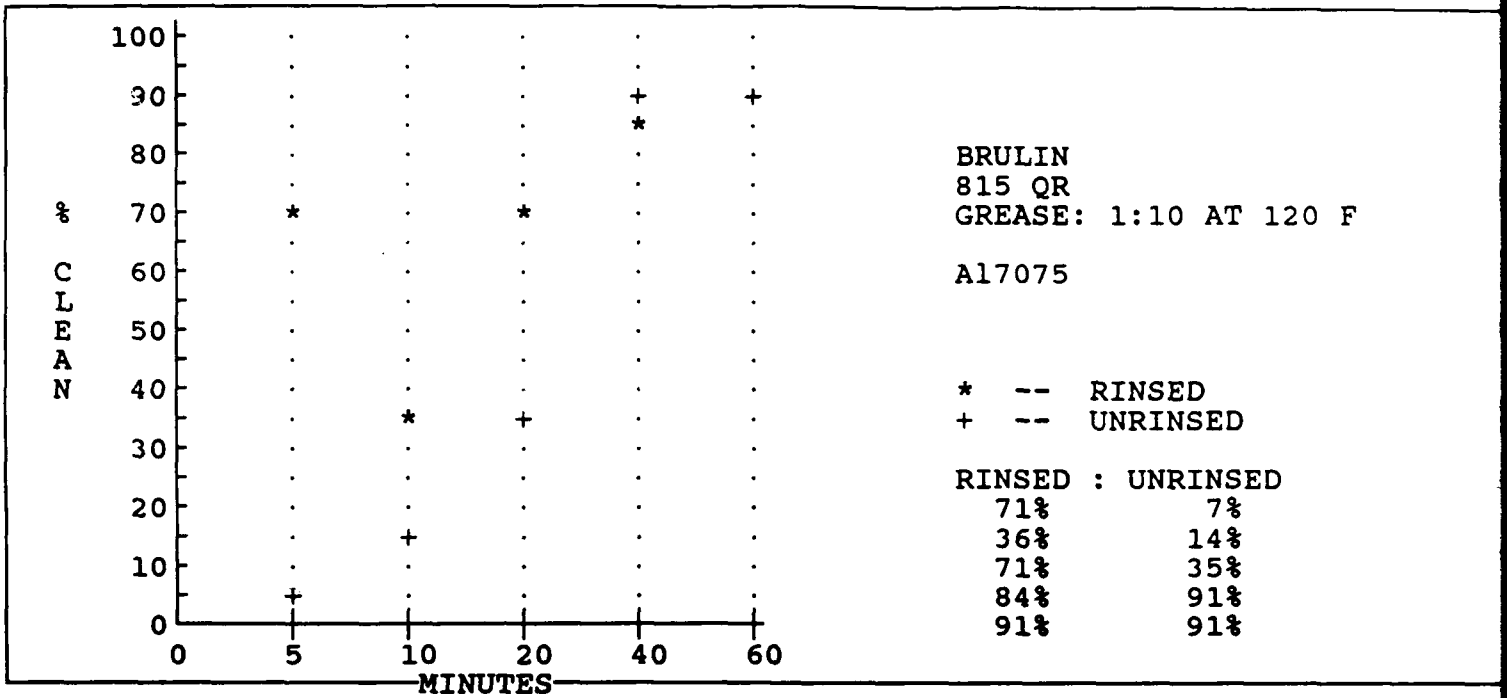
RINSED	UNRINSED
98%	58%
92%	80%
93%	67%
95%	68%
99%	88%

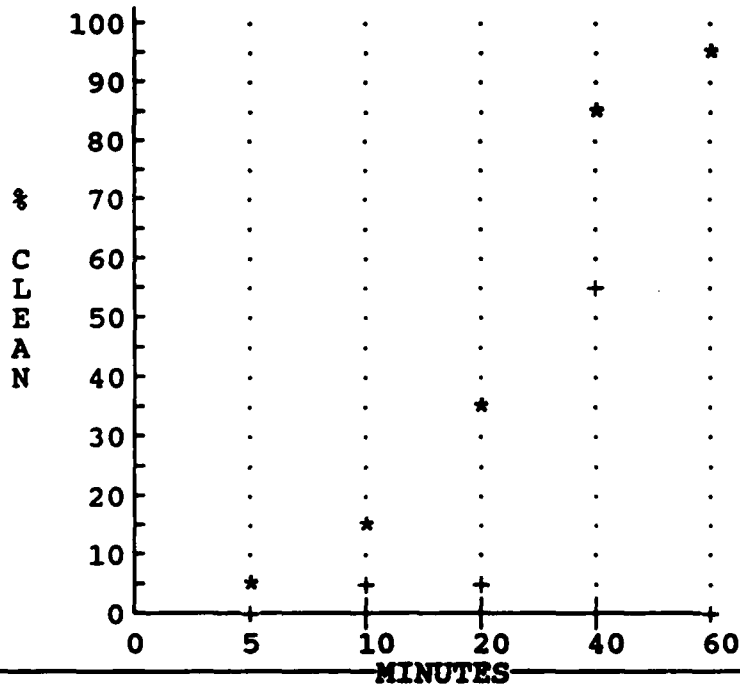
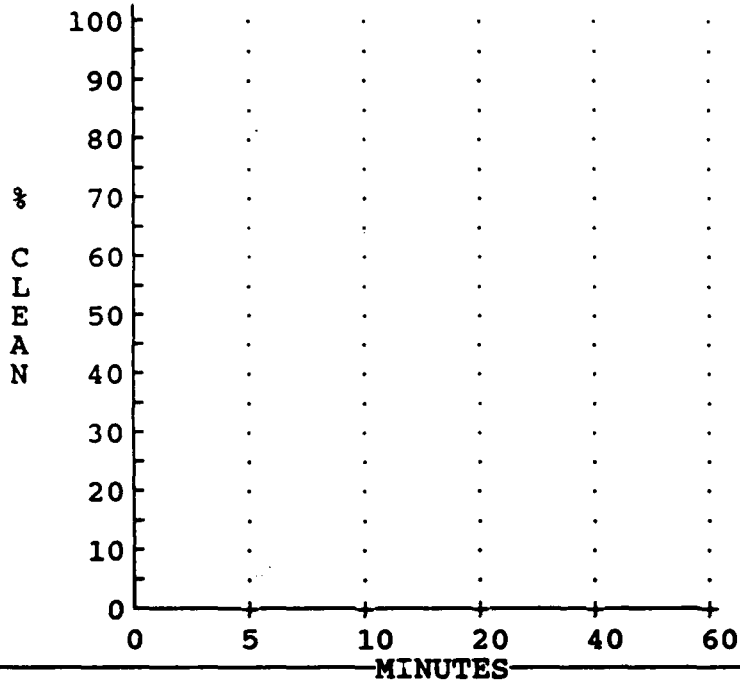


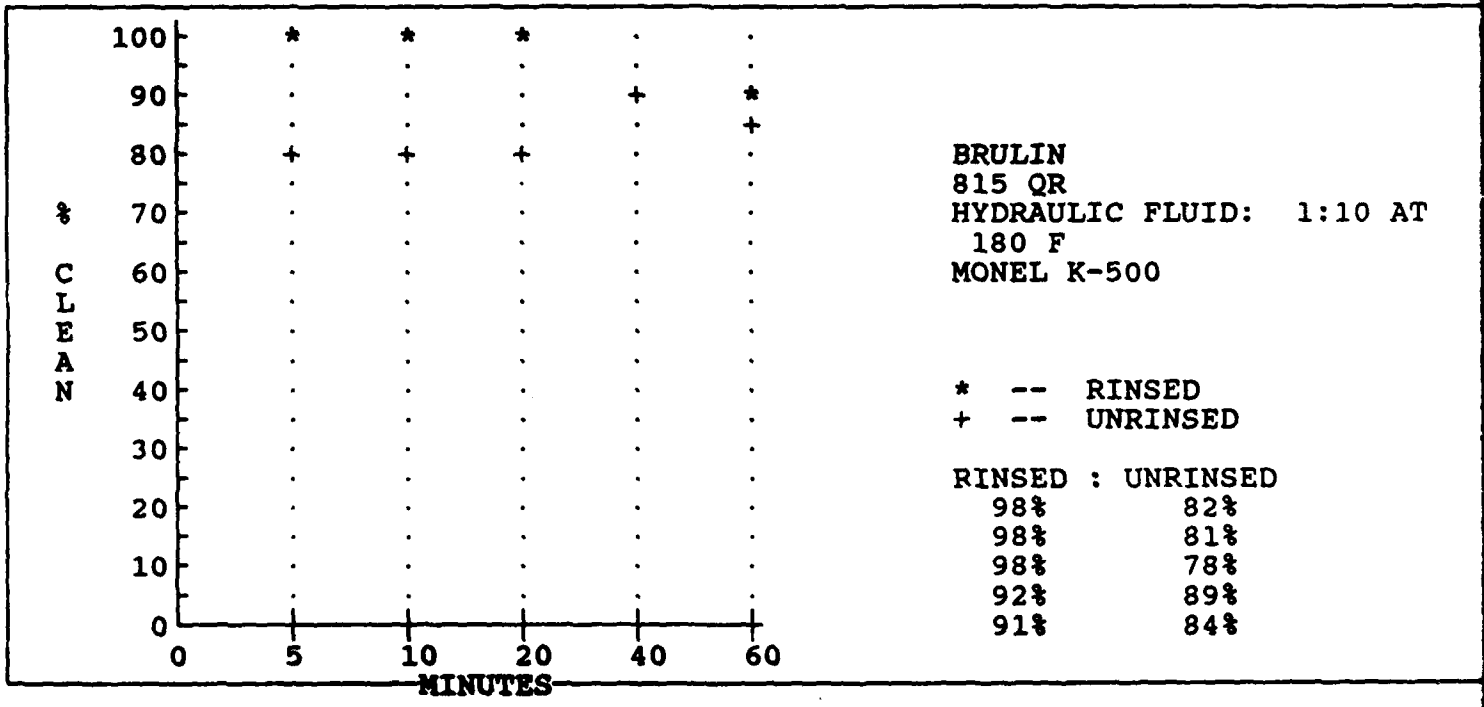
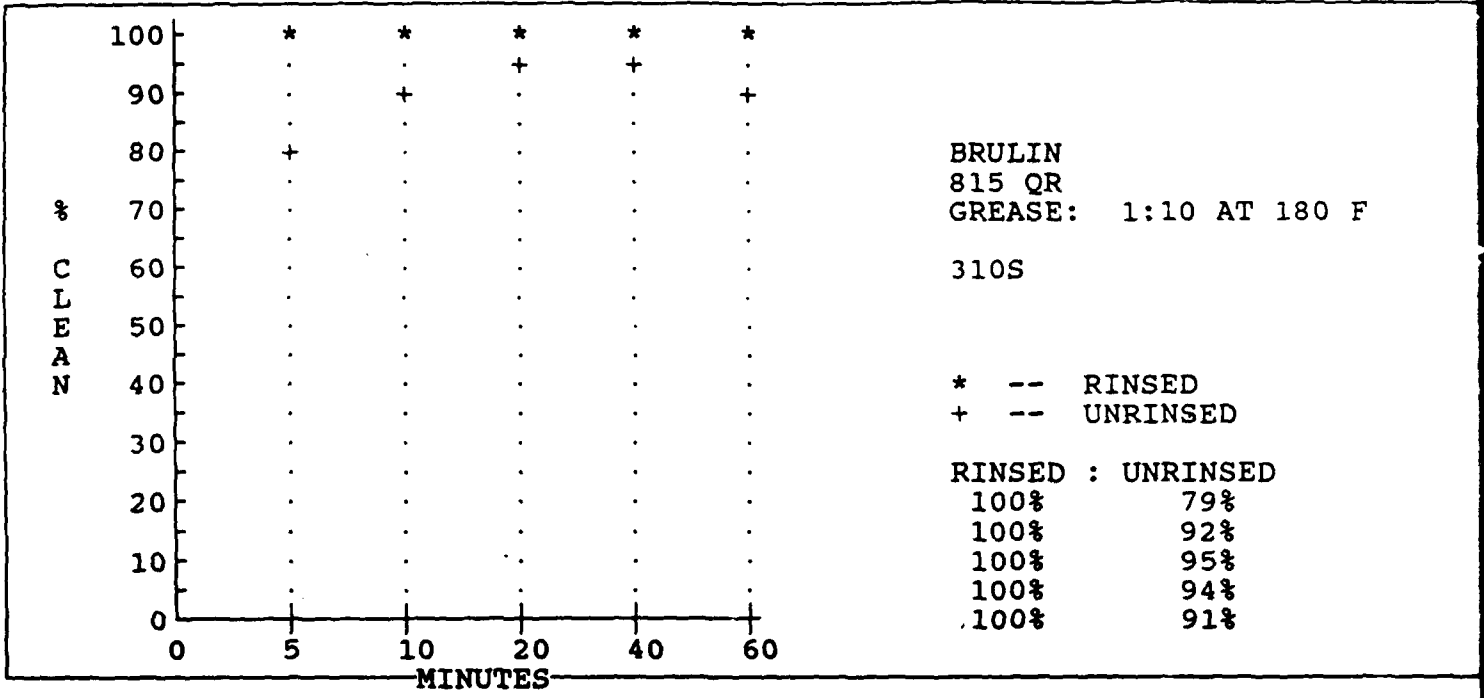
BRULIN
711 SC
HYDRAULIC FLUID: 1:3 AT
AMBIENT
C1020

* -- RINSED
+ -- UNRINSED

RINSED	UNRINSED
62%	0%
88%	4%
80%	8%
92%	44%
97%	50%

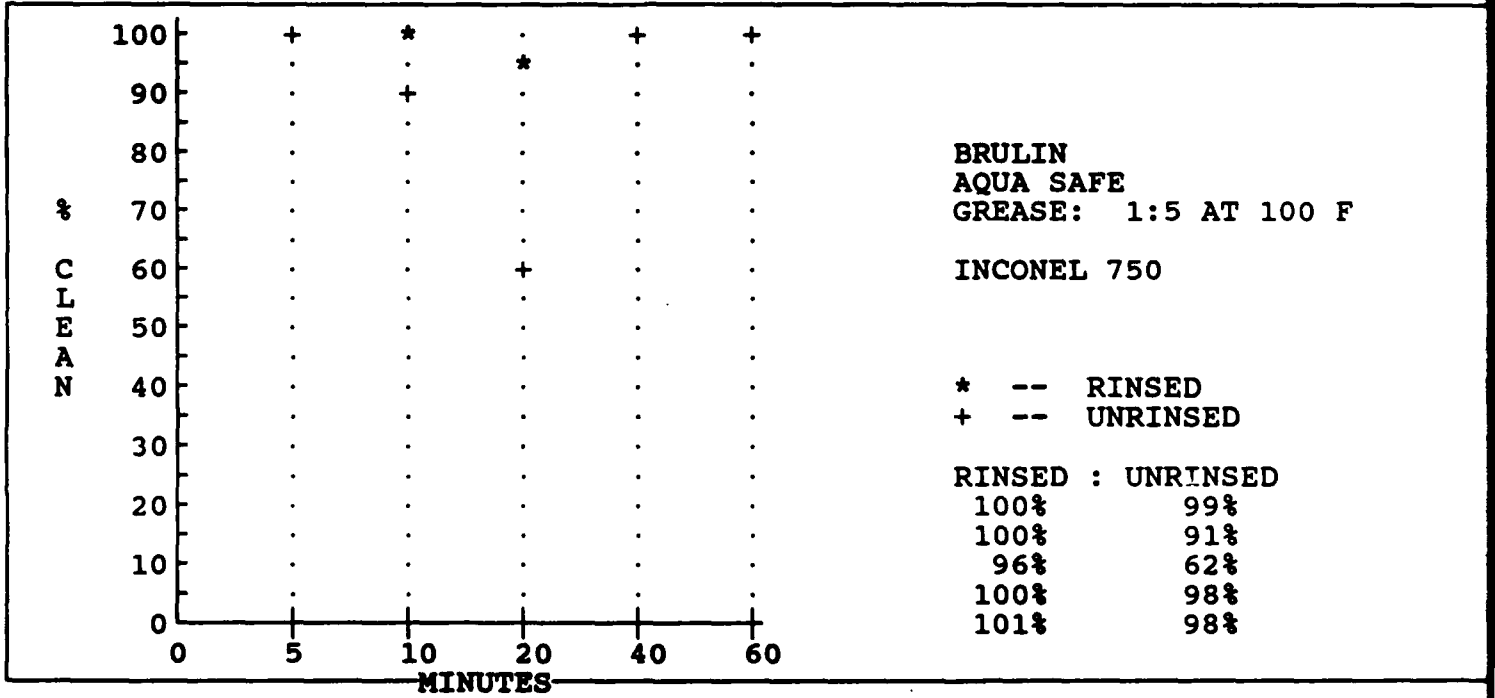
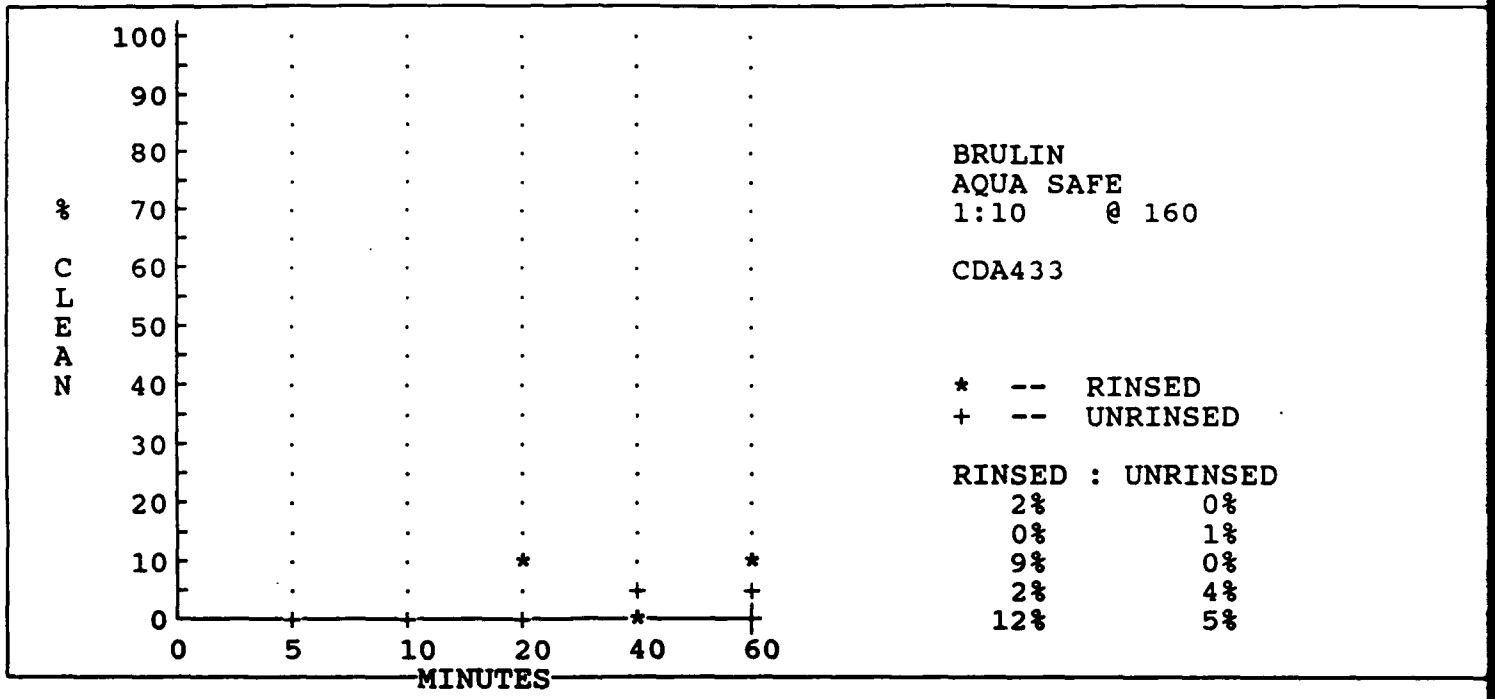


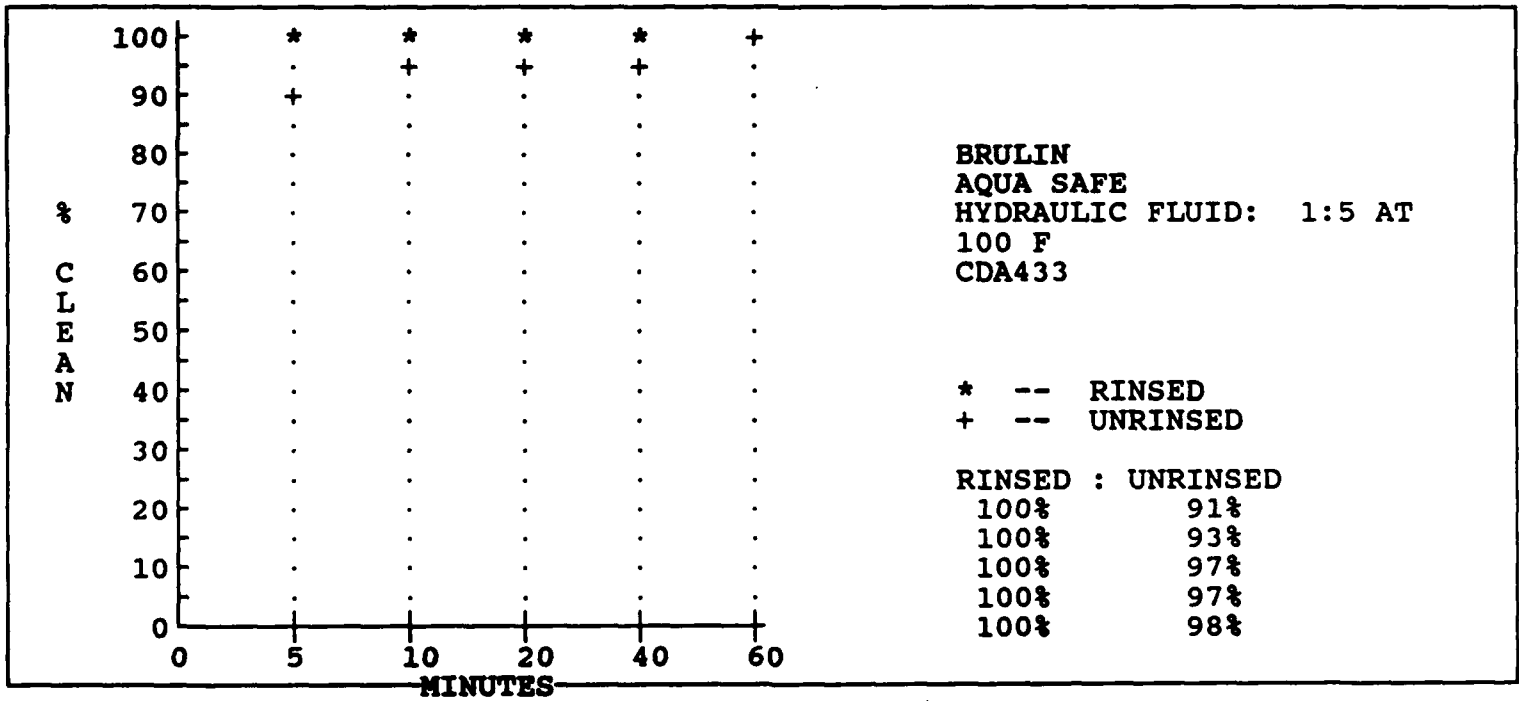
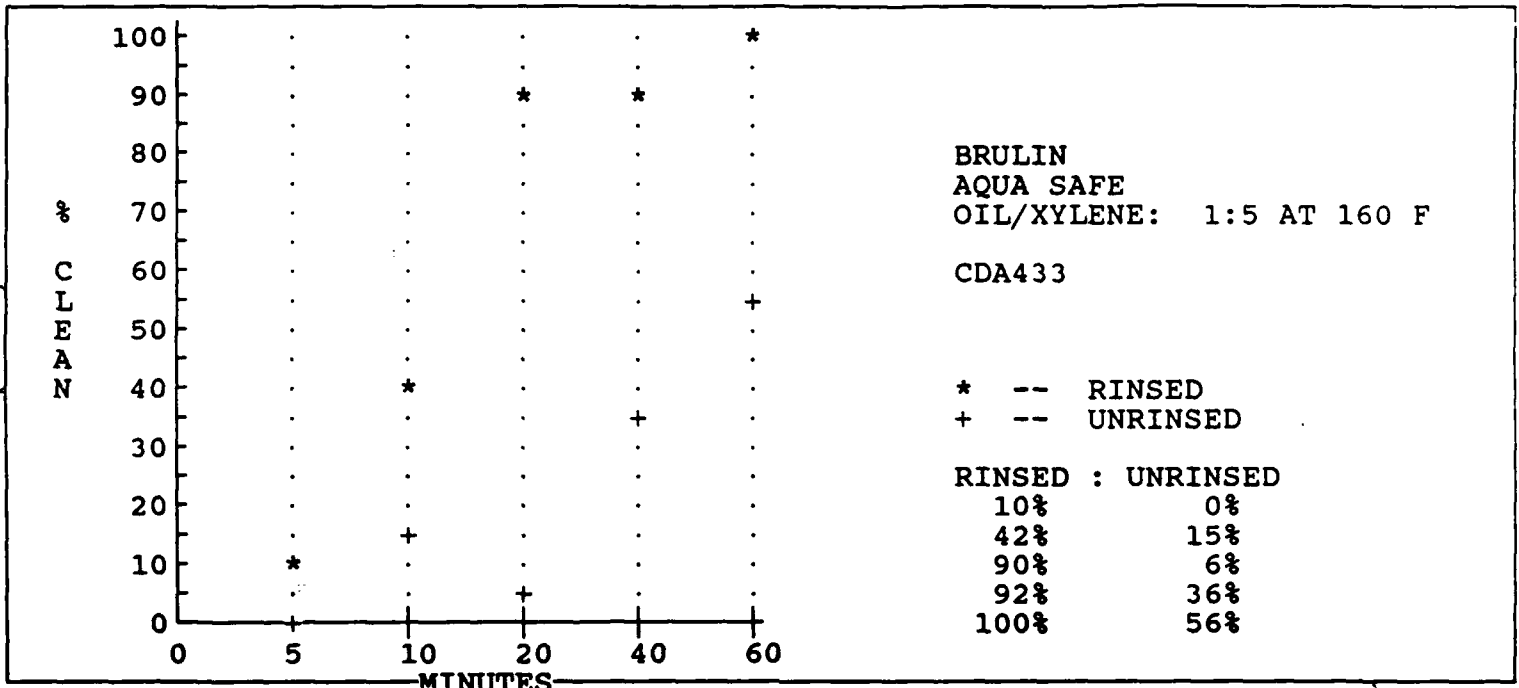


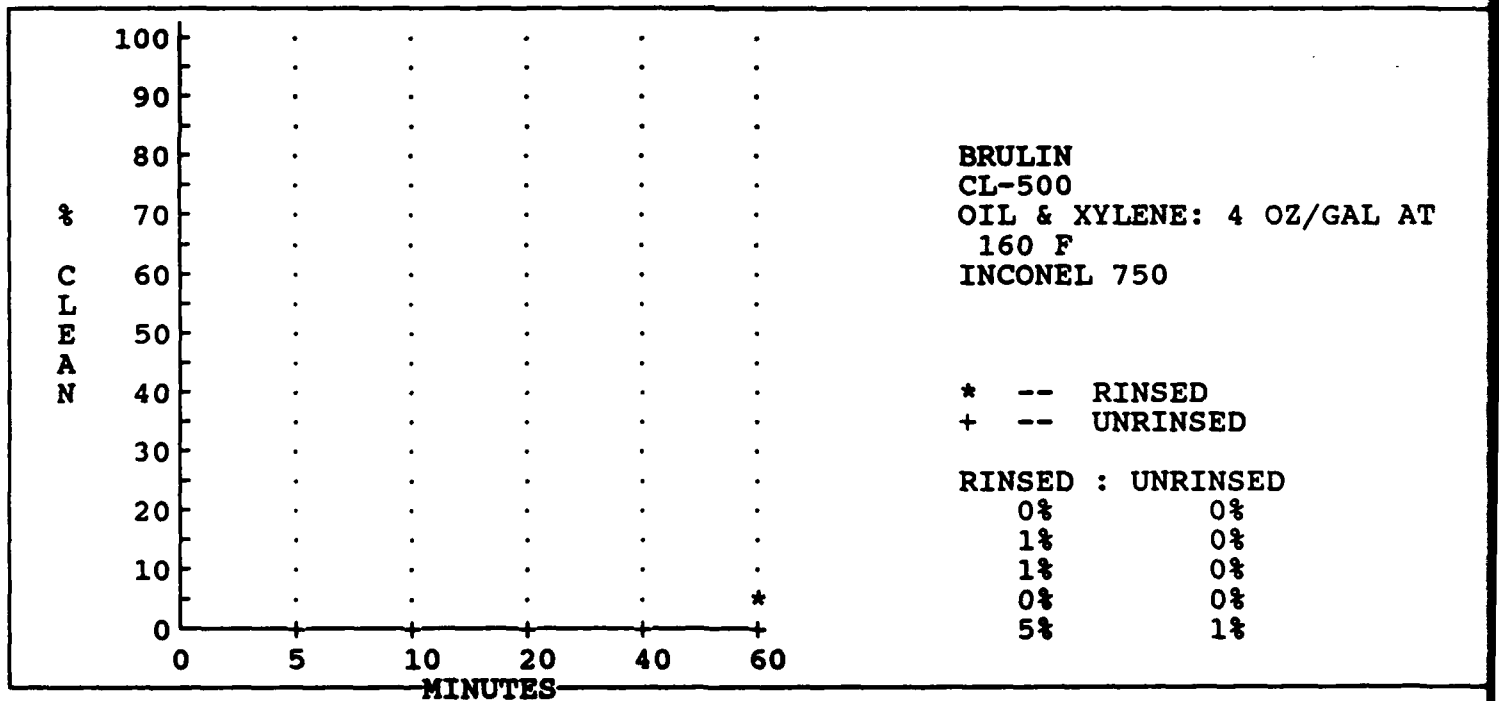
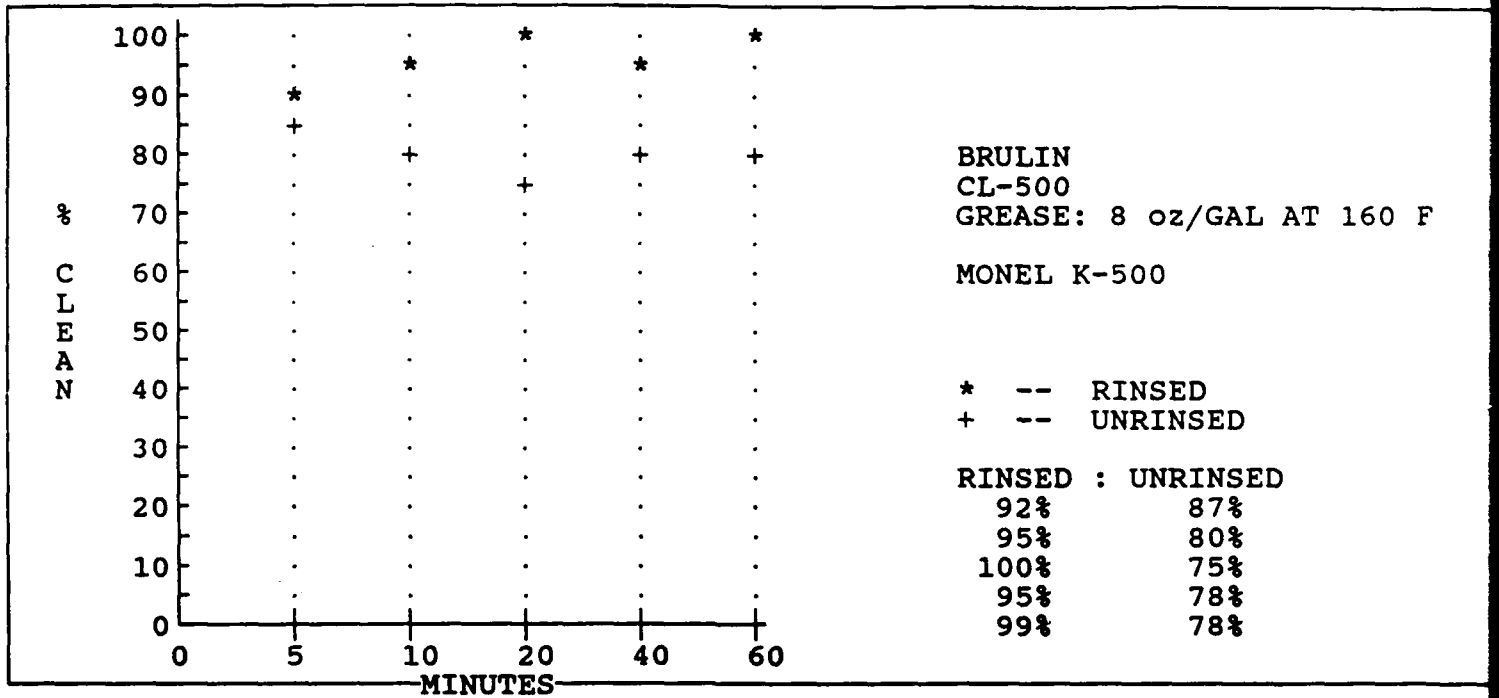


COMPANY - BRULIN	217	*	.	.	.	.	.	.	0-	65
PRODUCT - AQUA SAFE	206	.	.	.	.	.	.	.	1-	217
TOC INIT- 56669	195	.	.	.	.	.	.	.	2-	58
TOC 2nd - 0	184	.	.	.	.	.	.	.	3-	119
COD INIT- 220000	174	.	.	.	*	*	.	.	4-	175
ANILINE PT - 0.0000	163	.	.	.	.	.	*	.	5-	170
ATP ----- -33 E-8	152	.	.	.	.	.	.	.	6-	160
	141	.	.	.	.	.	.	.
SOLUBILITY DATA:	130	.	.	.	.	.	.	.
1:5 @ 160 0%	119	.	.	*	.	.	.	.	DRY	
1:10 @ 160 0%	109	.	.	.	.	.	.	.	WEIGHT	
	98	.	.	.	.	.	.	.	0.0678	
	87	.	.	.	.	.	.	.
	76	.	.	.	.	.	.	.
	65*	.	.	.	.	.	.	.
	54	.	*	.	.	.	.	.
	43	.	.	.	.	.	.	.
	33	.	.	.	.	.	.	.
	22	.	.	.	.	.	.	.
	11	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6		

PHENOL 03/08/88 ATP - 30 E-8	307*	.	.	.	.	.	.	.	0-	307
	292	.	.	.	.	.	.	.	1-	276
	276	*	.	.	.	.	.	.	2-	209
	261	.	.	.	.	.	.	.	3-	174
	246	.	.	.	.	.	.	.	4-	156
	230	.	.	.	.	.	.	.	5-	108
BIO-TEK INC.	215	.	*	.	.	.	.	.	6-	88
SAFTEY SOLVENT DEGREASER	200	.	.	.	.	.	.	.
	184	.	.	.	.	.	.	.
BRULIN	169	.	.	*	.	.	.	.	DRY	
AQUA SAFE	154	.	.	.	*	.	.	.	WEIGHT	
	138	.	.	.	.	.	.	.	0.0678	
BRULIN	123	.	.	.	.	.	.	.
NATURE-SOL 100	107	.	.	.	.	.	*	.
	92	.	.	.	.	.	.	*
CALLA CHEMICAL CORP	77	.	.	.	.	.	.	.
CALLA 301-A-LEMON	61	.	.	.	.	.	.	.
	46	.	.	.	.	.	.	.
CROWLEY CHEMICAL COMPANY	31	.	.	.	.	.	.	.
METHYL NAPHTHALENE #5	15	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6		

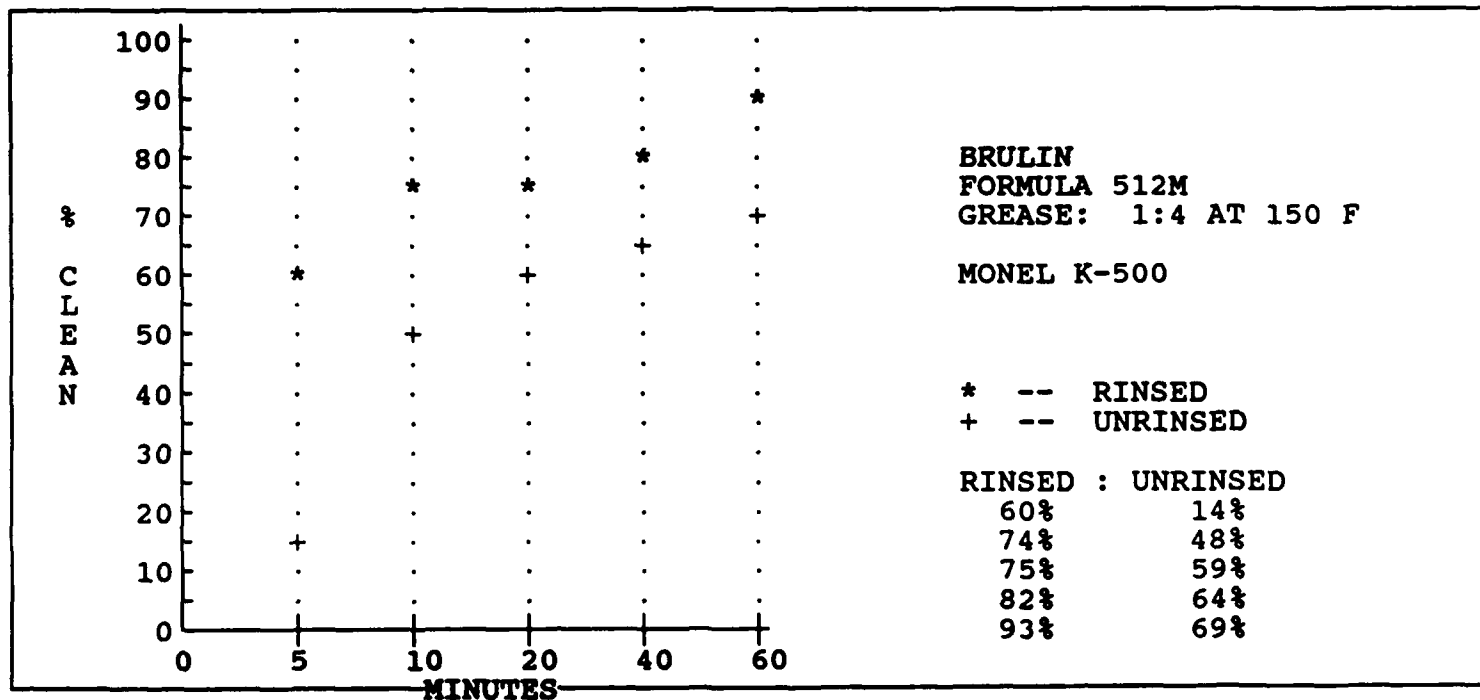
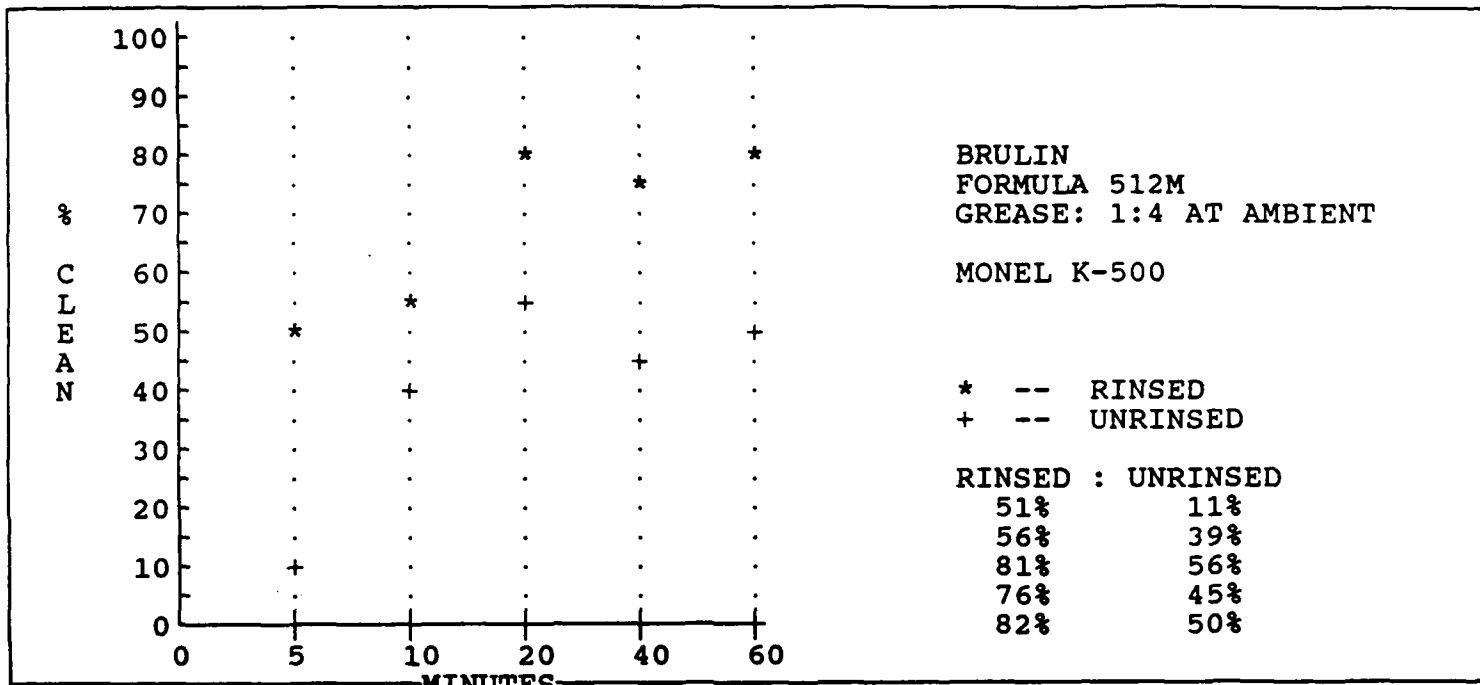


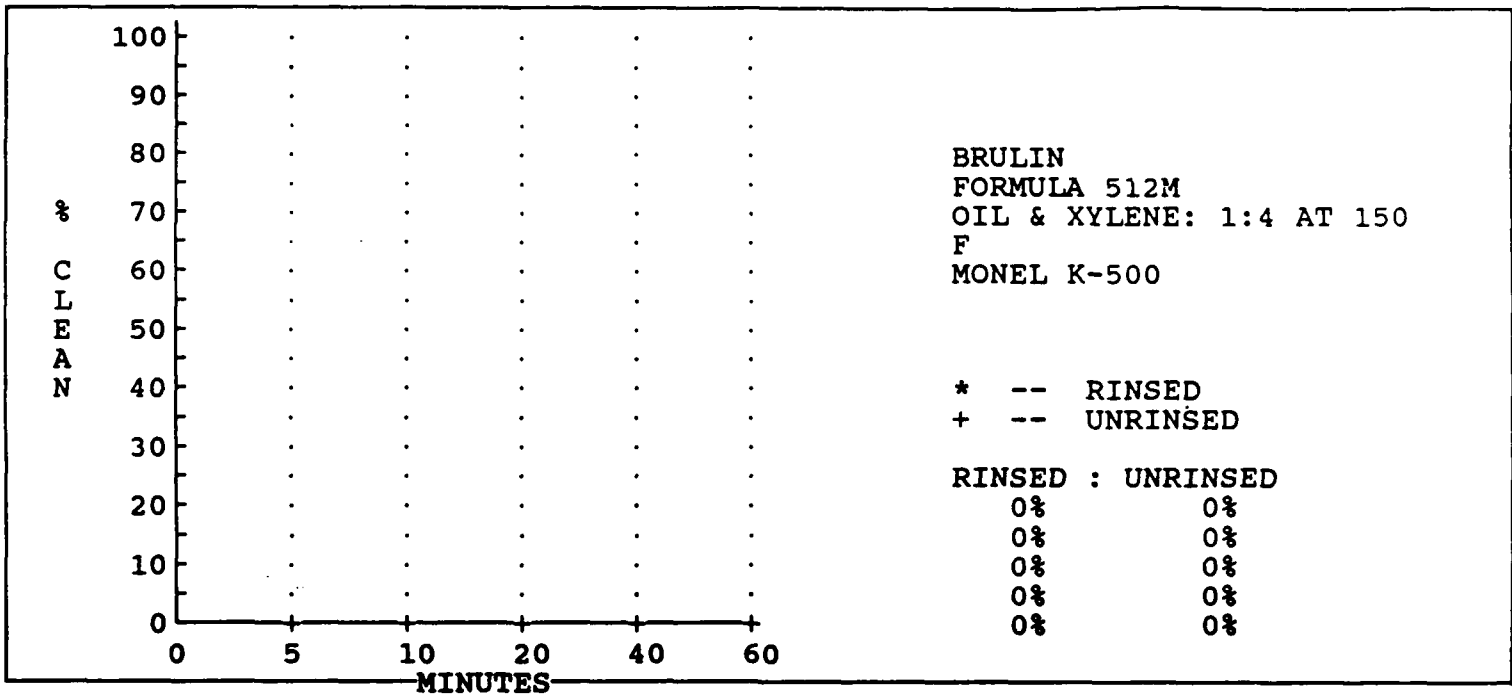




COMPANY - BRULIN	1650*	.	.	.	.	.	.	0- 1650
PRODUCT - FORMULA 512M	1568	.	.	.	.	.	.	1- 1233
TOC INIT- 285407	1485	.	.	.	.	.	.	2- 926
TOC 2nd - 0	1403	.	.	.	.	.	.	3- 886
COD INIT- 13990000	1320	.	.	.	.	.	.	4- 907
ANILINE PT - 0.0000	1238	*	.	.	.	.	.	5- 928
ATP ----- -17 E-8	1155	.	.	.	.	.	.	6- 940
	1073	.	.	.	.	.	.
SOLUBILITY DATA:	990	.	.	.	.	.	.
	908	.	*	*	*	*	*	DRY WEIGHT
	825	.	.	.	.	.	.	0.0545
	743	.	.	.	.	.	.
	660	.	.	.	.	.	.
	578	.	.	.	.	.	.
	495	.	.	.	.	.	.
	413	.	.	.	.	.	.
	330	.	.	.	.	.	.
	248	.	.	.	.	.	.
	165	.	.	.	.	.	.
	83	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 06/14/88	COD vs TIME	0	1	2	3	4	5	6

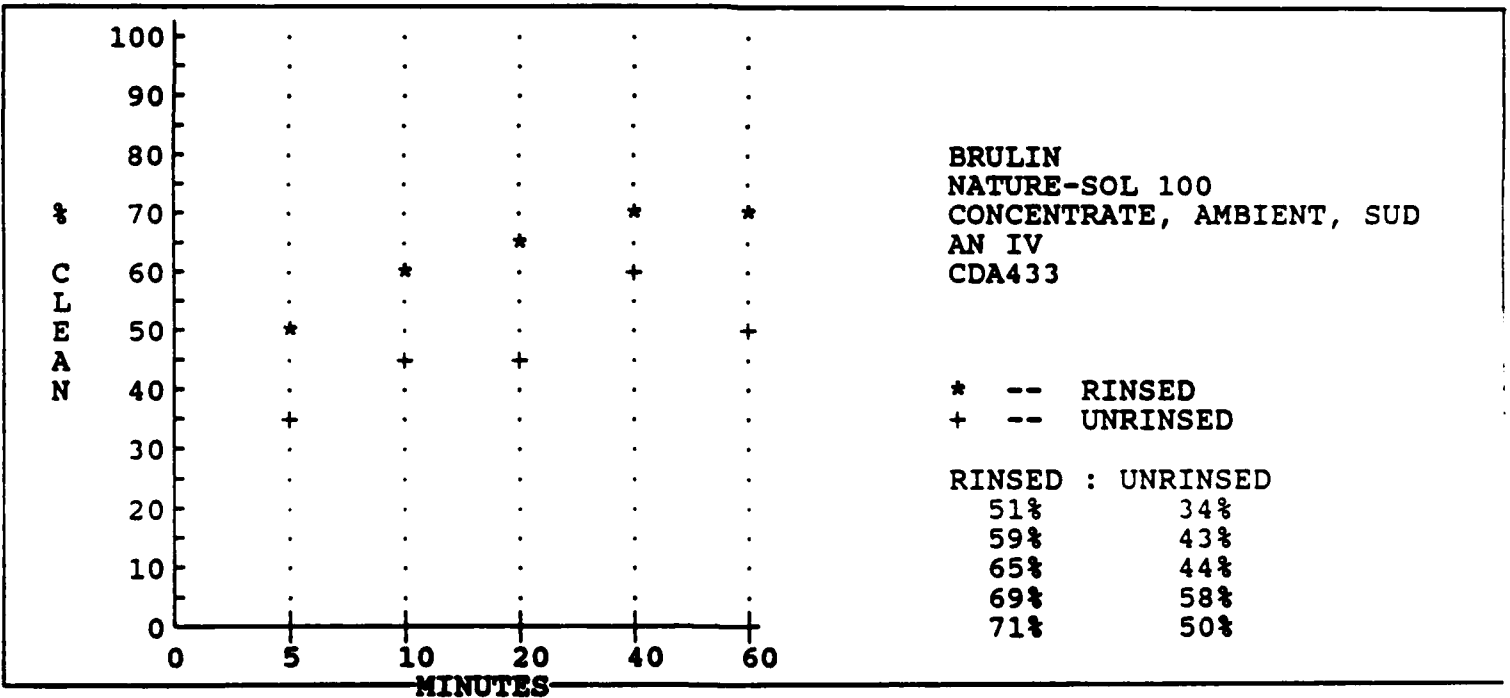
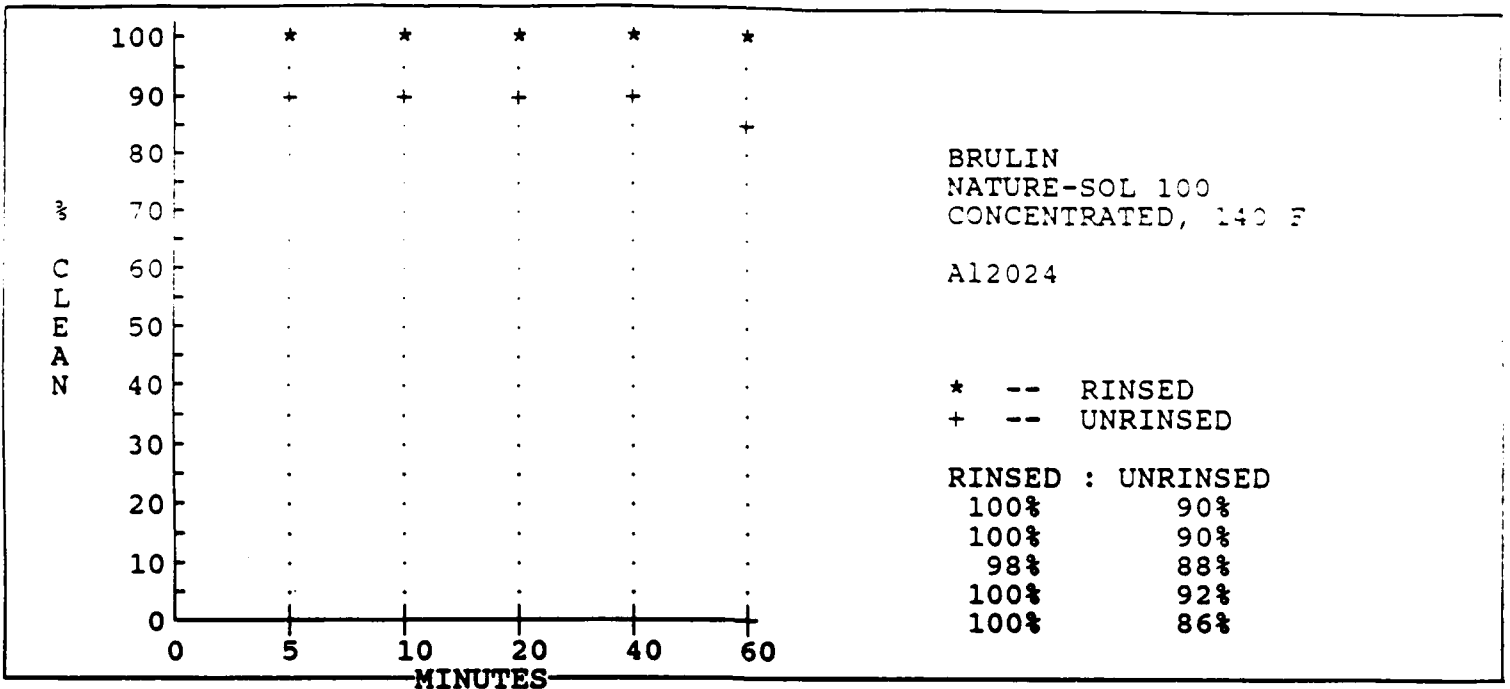
PHENOL 06/14/88 ATP - 91 E-8		308	*	.	.	.	.	.	0- 290
		293*	.	.	.	.	.	.	1- 308
		277	.	.	.	.	.	.	2- 156
		262	.	.	.	.	.	.	3- 70
		246	.	.	.	.	.	.	4- 9
		231	.	.	.	.	.	.	5- 10
BIO-TEK INC.		216	.	.	.	.	.	.	6- 31
122 QUIK		200	.	.	.	.	.	.
		185	.	.	.	.	.	.
BIO-TEK INC.		169	.	.	.	.	.	.	DRY WEIGHT
126 SONI-CLEAN		154	.	*	.	.	.	.	0.0545
		139	.	.	.	.	.	.
BRULIN		123	.	.	.	.	.	.
FORMULA 512M		108	.	.	.	.	.	.
		92	.	.	.	.	.	.
BUILD ALL		77	.	.	*	.	.	.	
BAC #137		62	.	.	.	.	.	.
		46	.	.	.	.	.	.
HYLUBE INC.		31	.	.	.	.	.	*
ALKAKLEEN 658		15	.	.	.	*	*	.	
		0	.	.	.	.	.	.
DATE - 06/14/88	COD vs TIME	0	1	2	3	4	5	6	

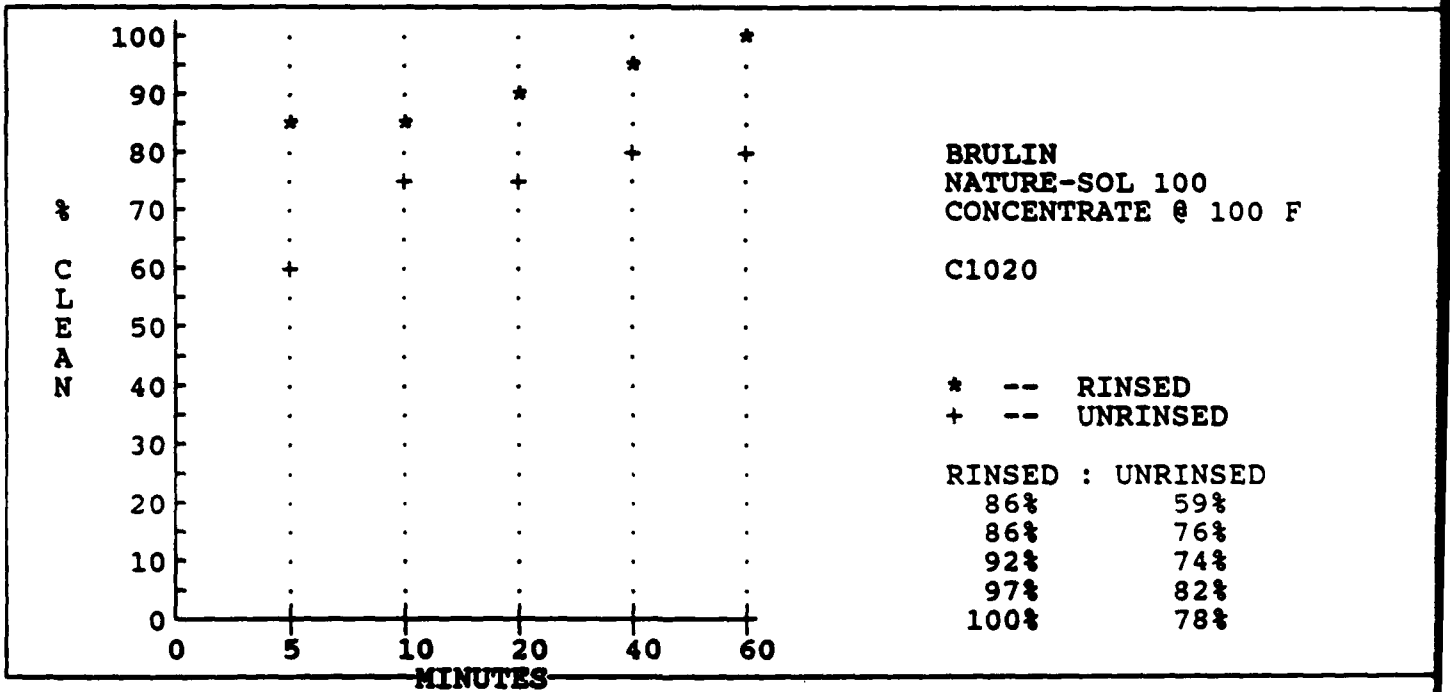
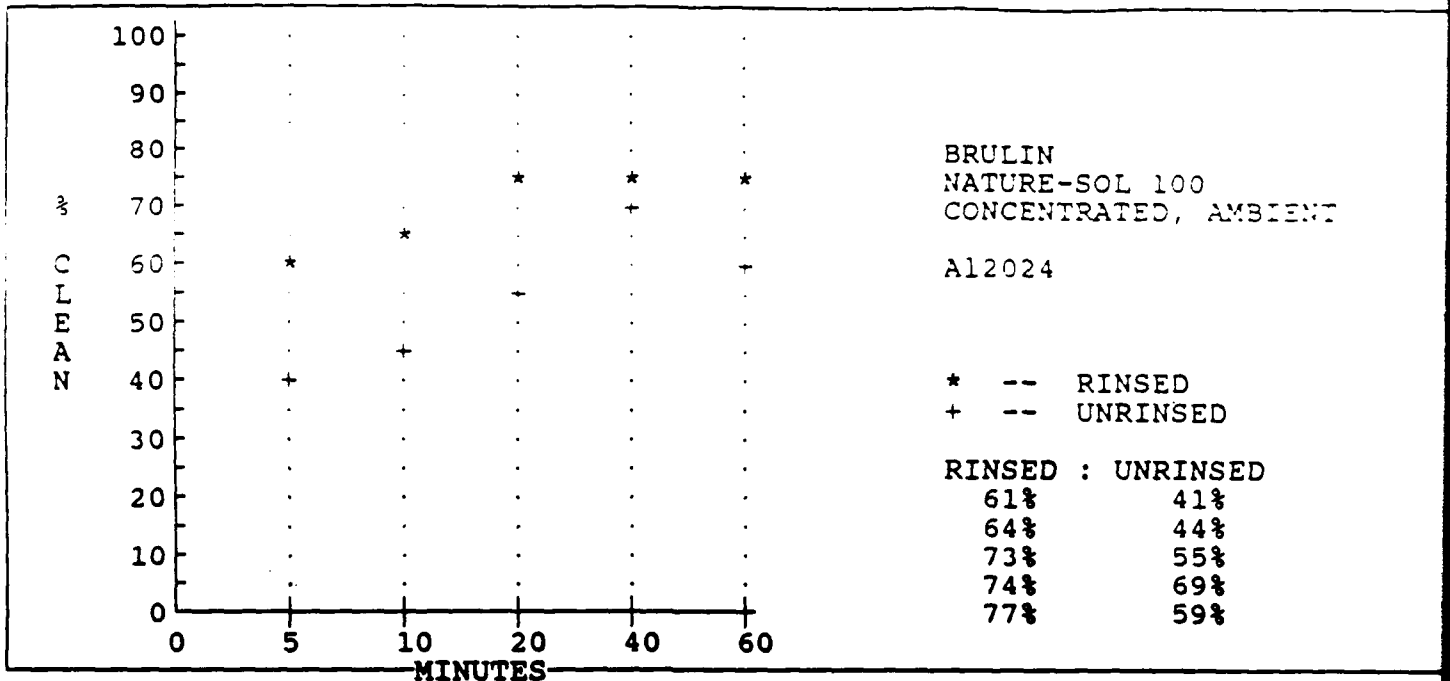


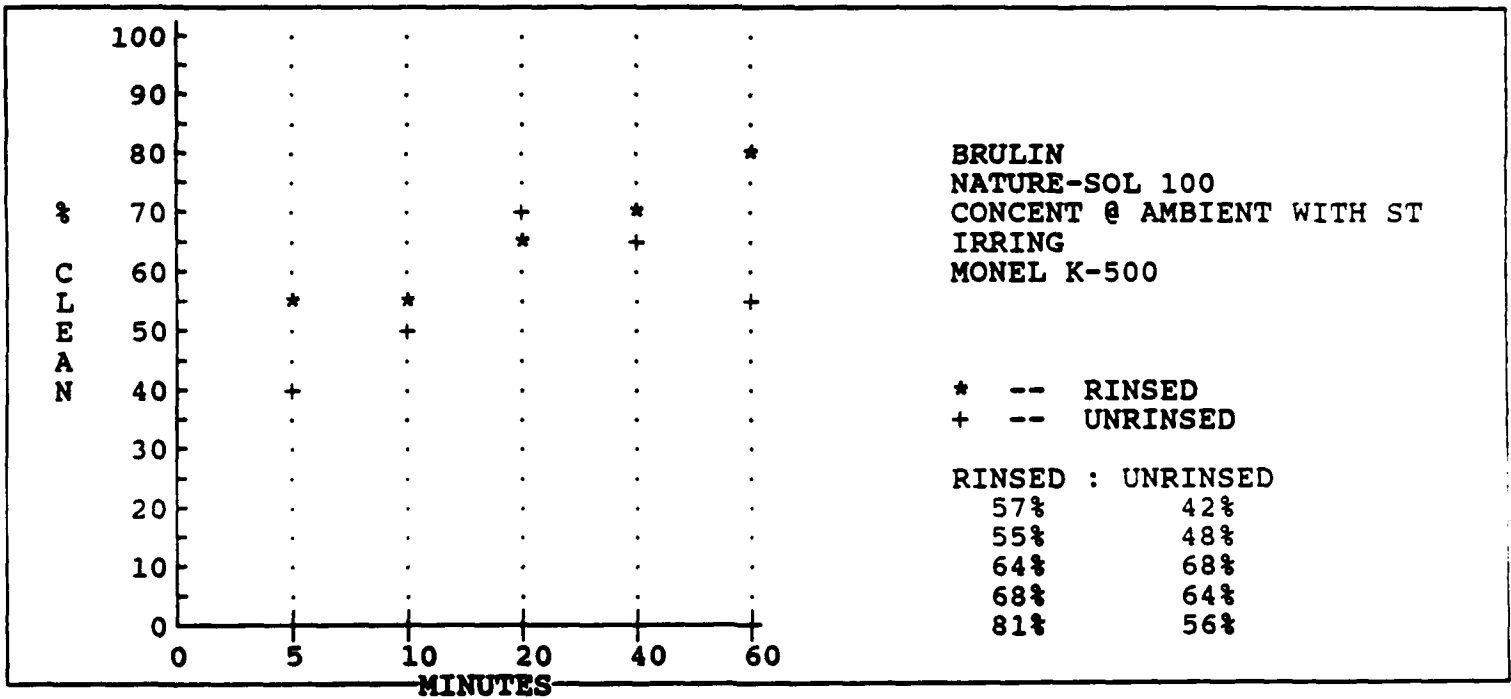
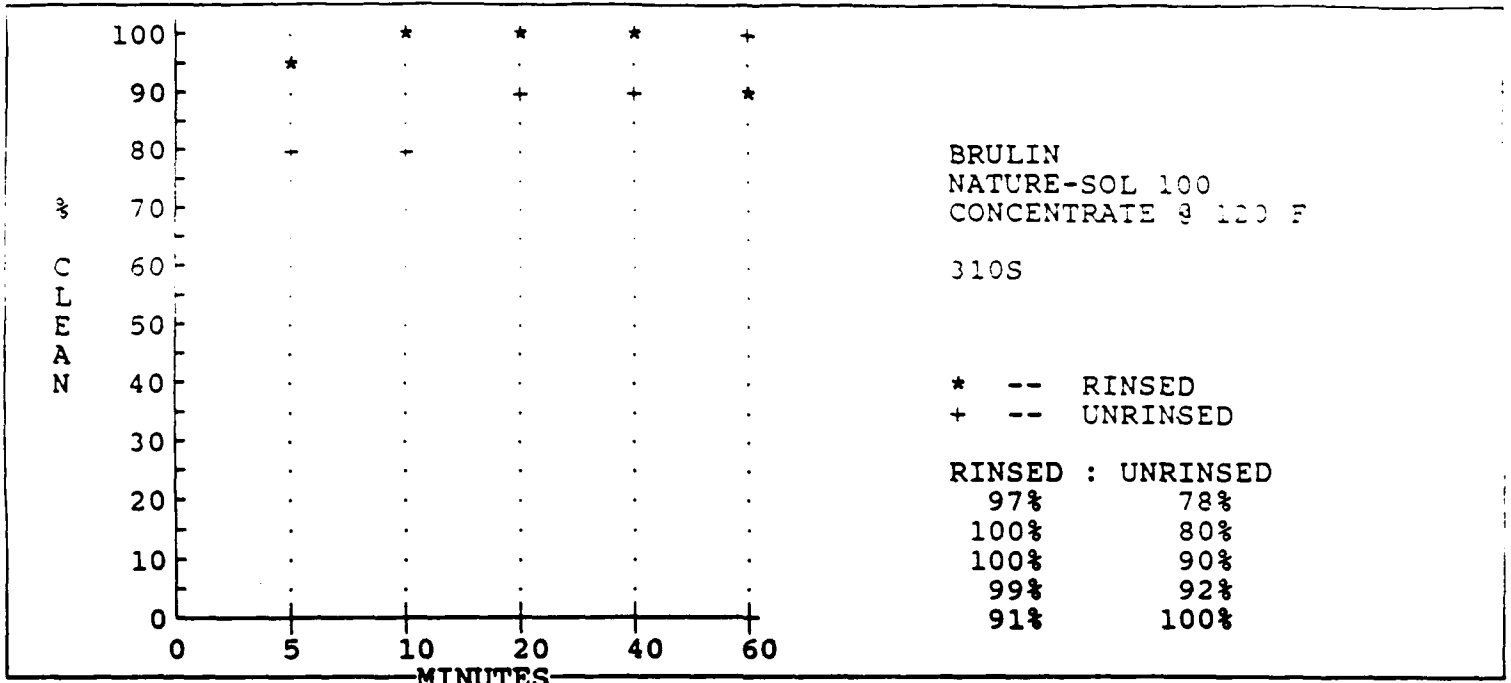


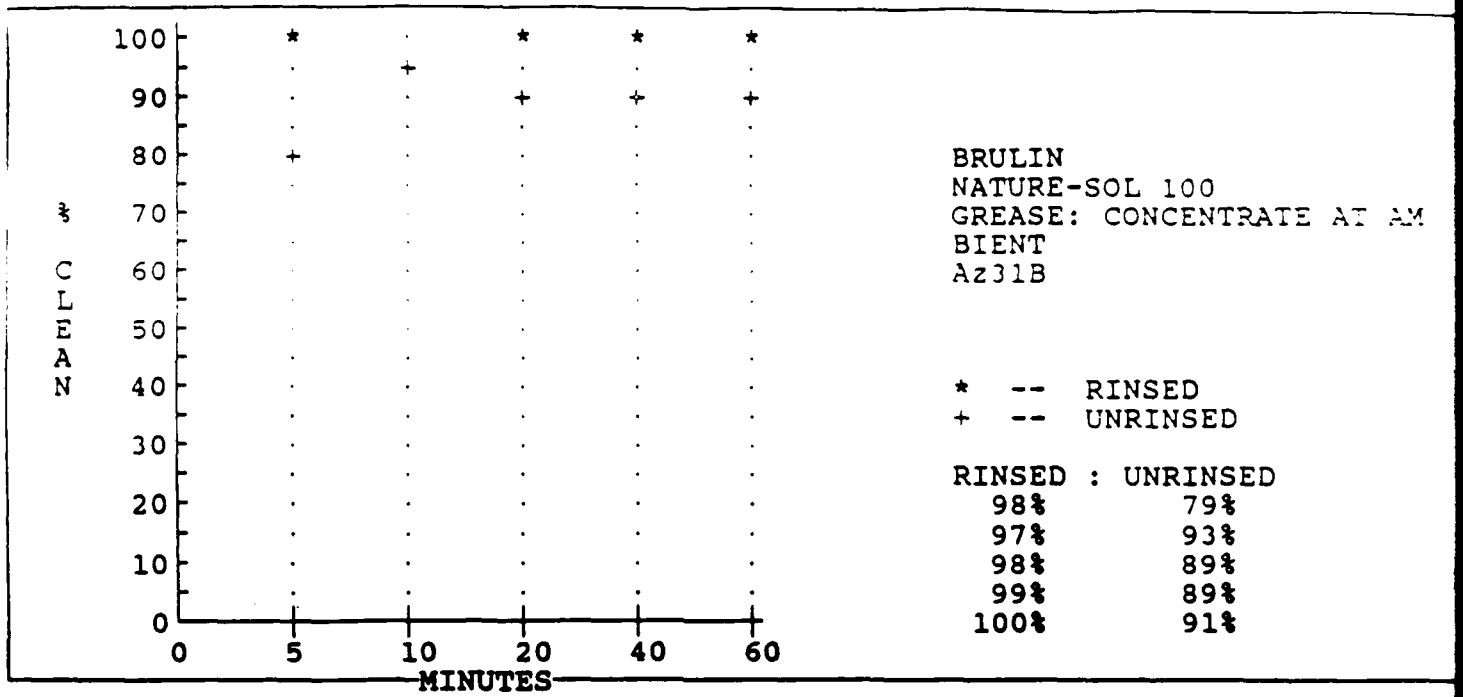
COMPANY - BRULIN	769*	.	.	.	.	.	.	.	.
PRODUCT - NATURE-SOL 100	731	.	.	.	.	.	.	.	0- 769
TOC INIT- 295437	692	.	.	.	.	.	.	.	1- 580
TOC 2nd - 38	654	.	.	.	.	.	.	.	2- 500
COD INIT- 846000	615	.	.	.	.	.	.	.	3- 572
ANILINE PT - 0.0000	577	*	.	*	.	.	.	.	4- 496
ATP ----- 18 E-8	538	.	.	.	.	.	.	.	5- 460
	500	.	*	.	*	.	.	.	6- 428
SOLUBILITY DATA:	461	.	.	.	.	.	*	.
CONCENT @ AMBIE 31%	423	.	.	.	.	.	.	*	DRY
CONCENT @ 0%	385	.	.	.	.	.	.	.	WEIGHT
CONCENT @ 140 97%	346	.	.	.	.	.	.	.	0.0678
	308	.	.	.	.	.	.	.
	269	.	.	.	.	.	.	.
	231	.	.	.	.	.	.	.
	192	.	.	.	.	.	.	.
	154	.	.	.	.	.	.	.
	115	.	.	.	.	.	.	.
	77	.	.	.	.	.	.	.
	38	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6	

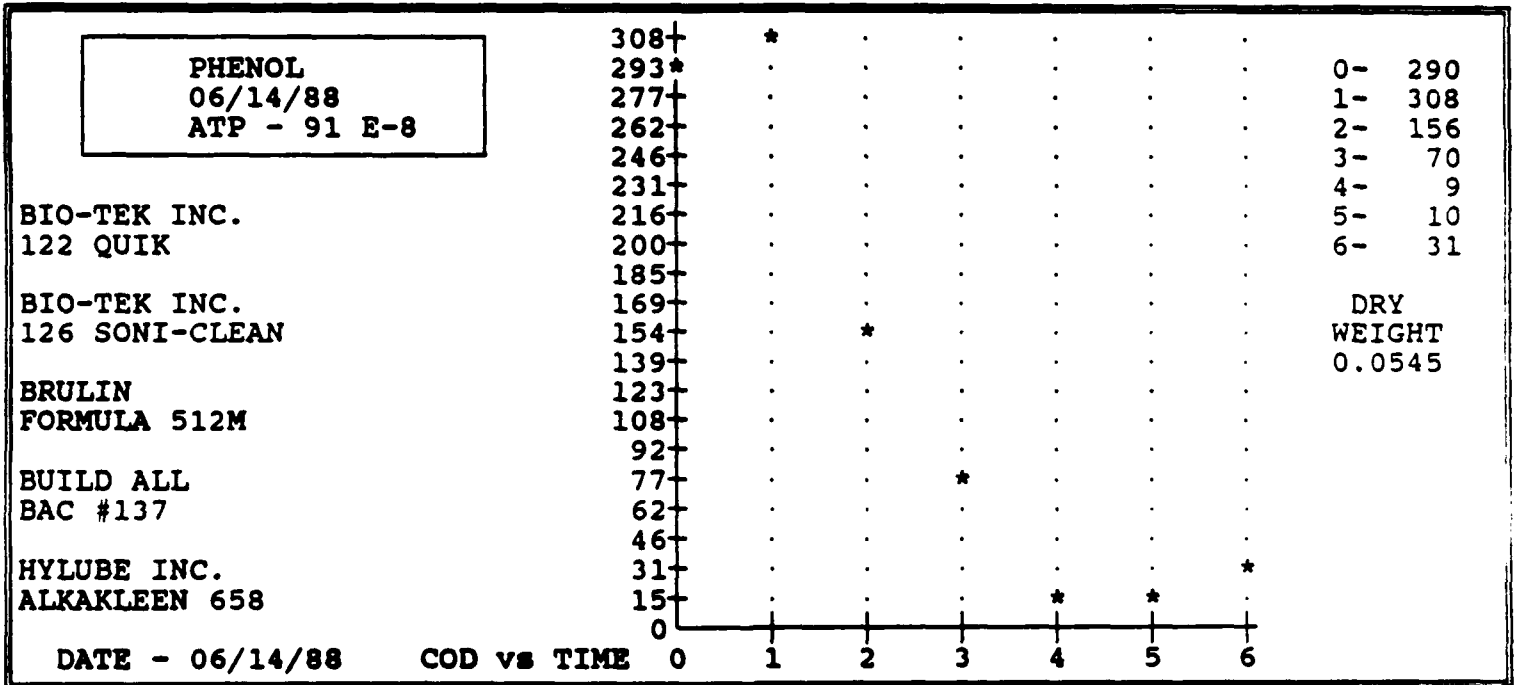
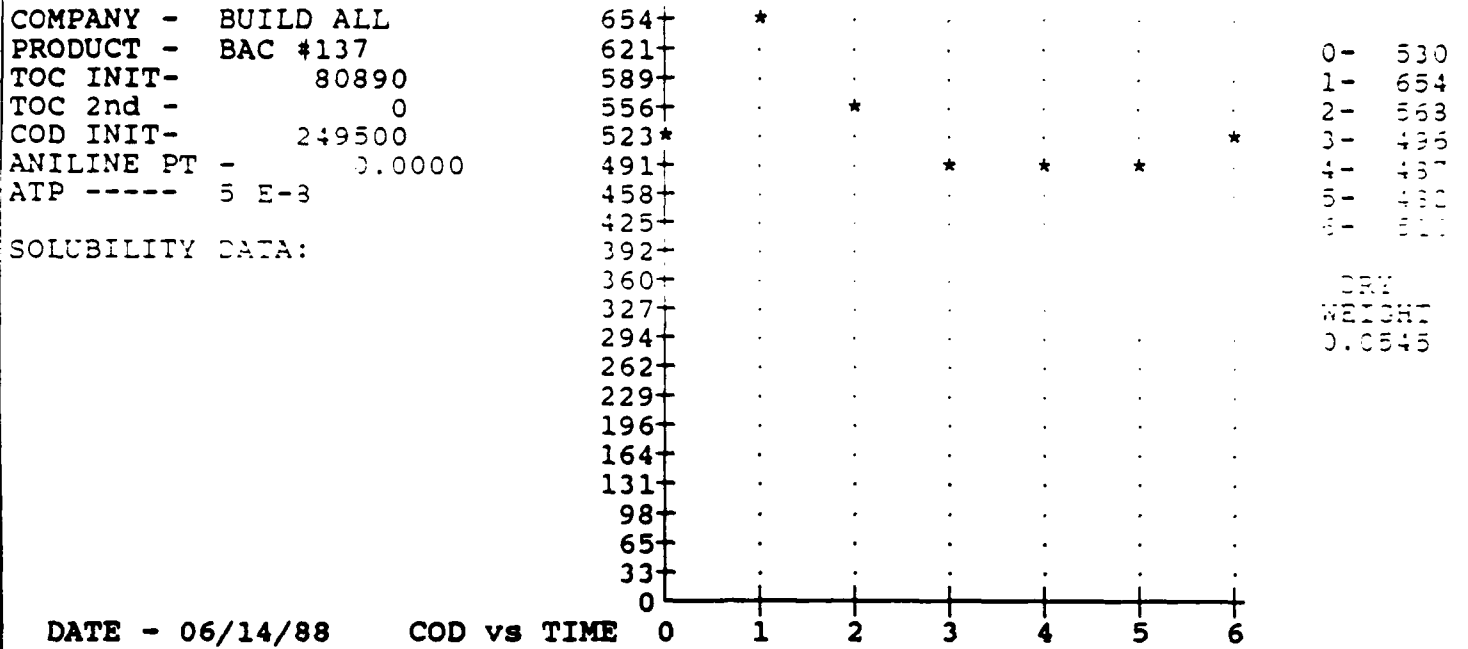
PHENOL 03/08/88 ATP - 30 E-8		307*	.	.	.	.	.	.	.
		292	.	.	.	.	.	.	.	0- 307
		276	*	.	.	.	.	.	.	1- 276
		261	.	.	.	.	.	.	.	2- 209
		246	.	.	.	.	.	.	.	3- 174
		230	.	.	.	.	.	.	.	4- 156
BIO-TEK INC.		215	.	*	.	.	.	.	.	5- 108
SAFTEY SOLVENT DEGREASER		200	.	.	.	.	.	.	.	6- 88
		184	.	.	.	.	.	.	.
BRULIN		169	.	.	*	.	.	.	.	DRY
AQUA SAFE		154	.	.	.	*	.	.	.	WEIGHT
		138	.	.	.	.	.	.	.	0.0678
BRULIN		123	.	.	.	.	.	.	.
NATURE-SOL 100		107	.	.	.	.	*	.	.
		92	.	.	.	.	.	*	.
CALLA CHEMICAL CORP		77	.	.	.	.	.	.	.
CALLA 301-A-LEMON		61	.	.	.	.	.	.	.
		46	.	.	.	.	.	.	.
CROWLEY CHEMICAL COMPANY		31	.	.	.	.	.	.	.
METHYL NAPHTHALENE #5		15	.	.	.	.	.	.	.
		0	.	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6		

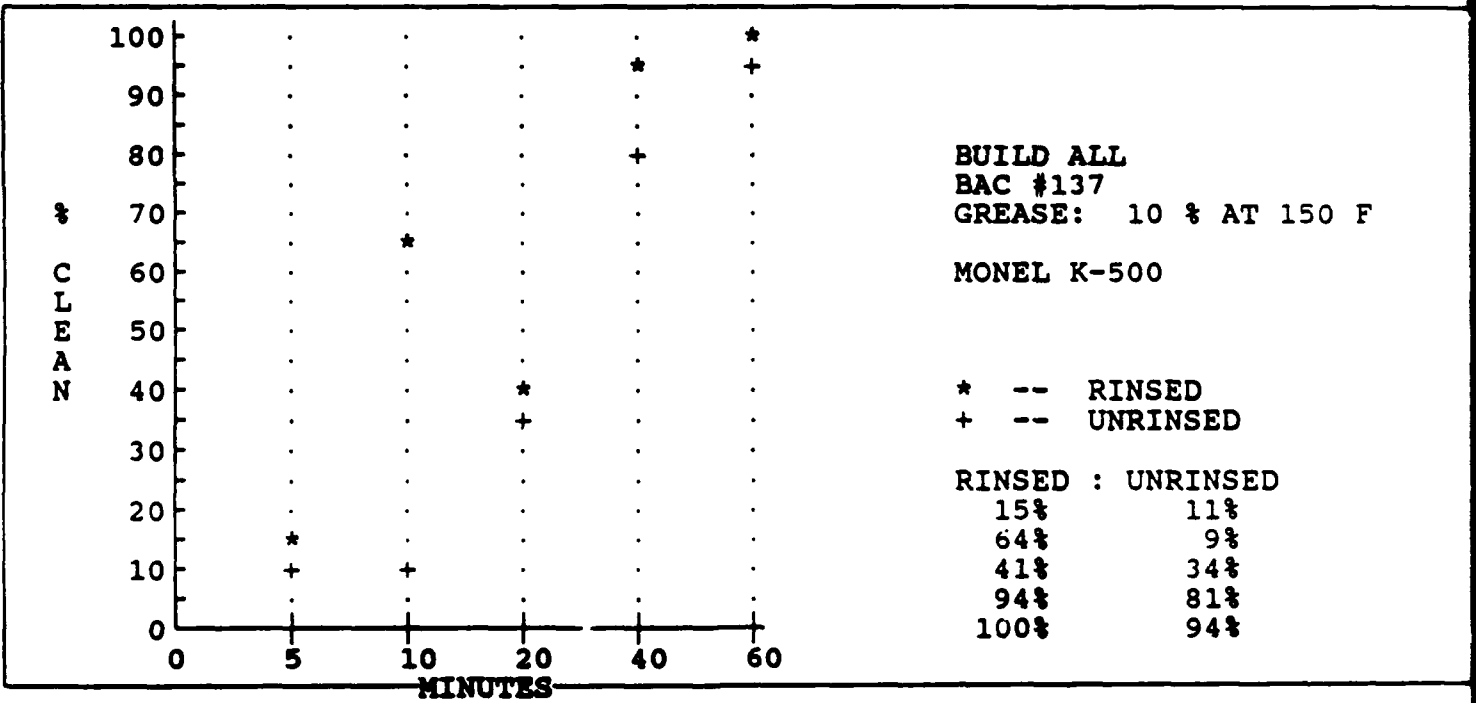
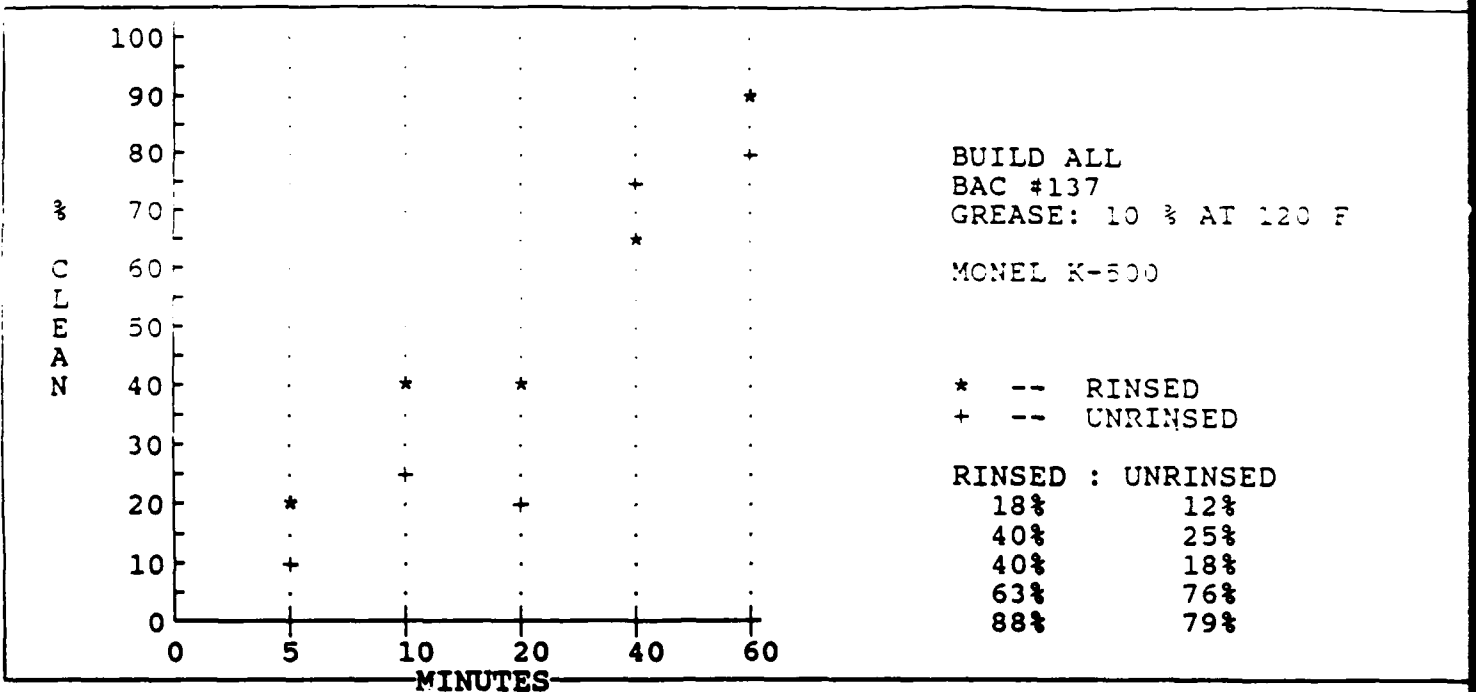


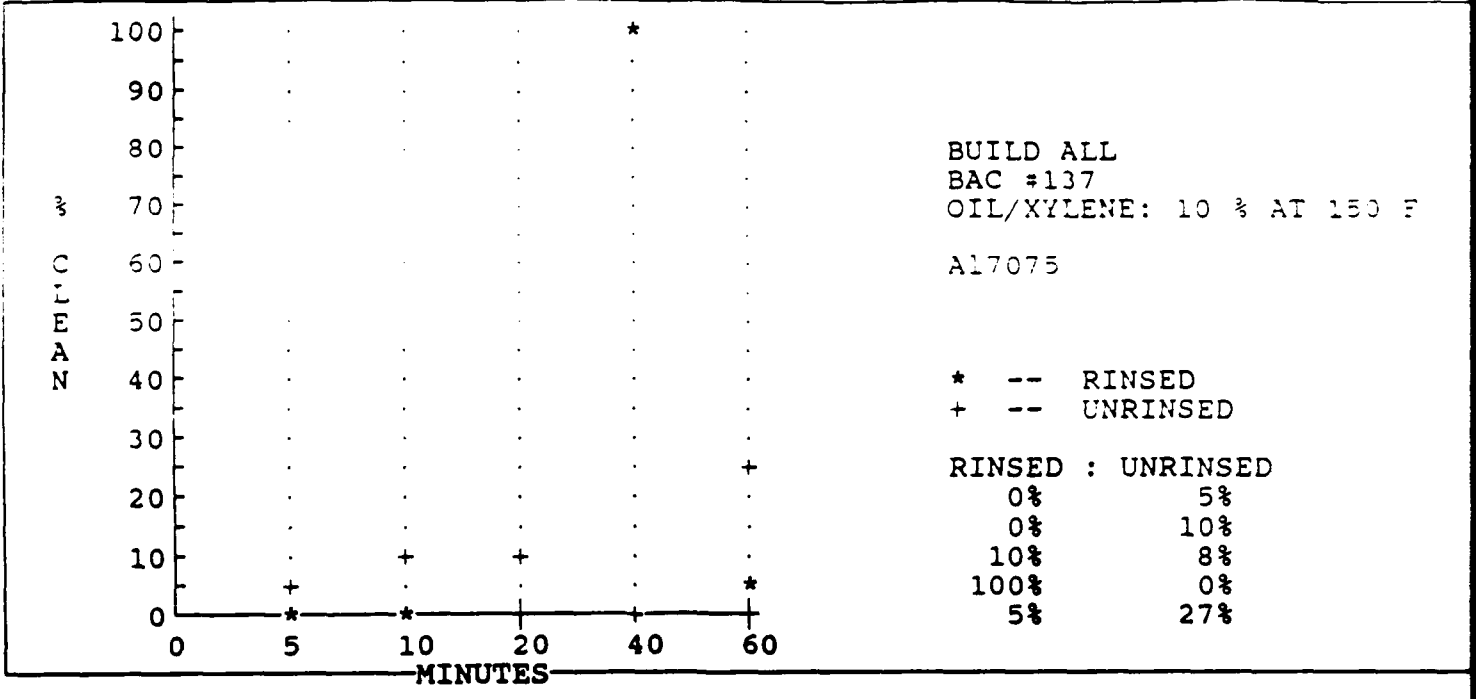


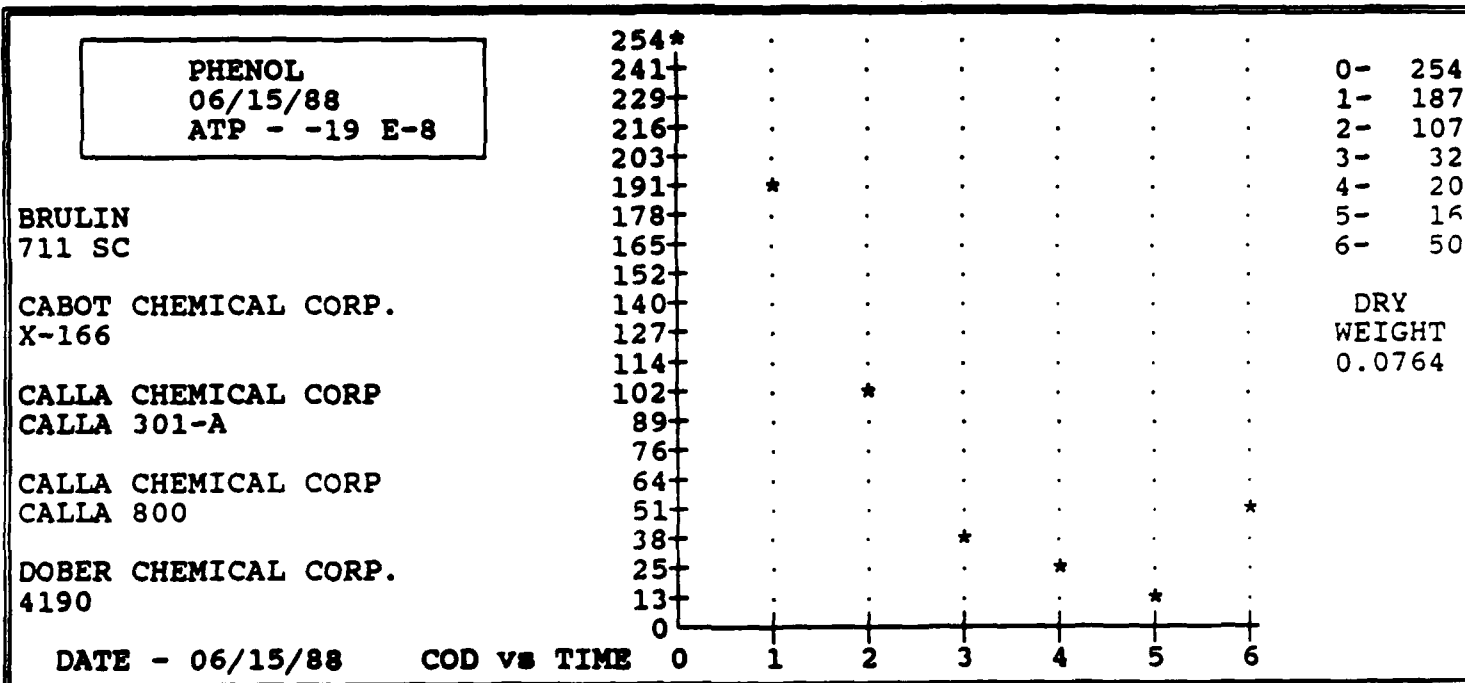
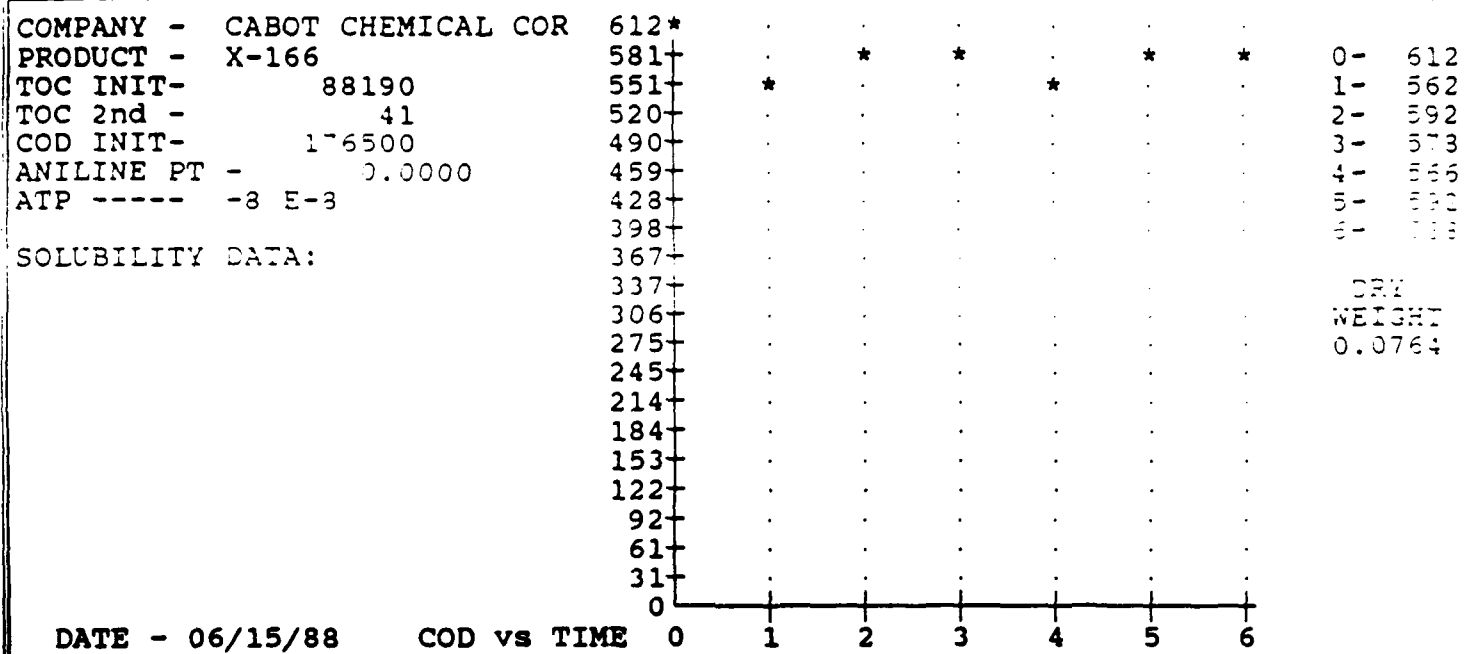


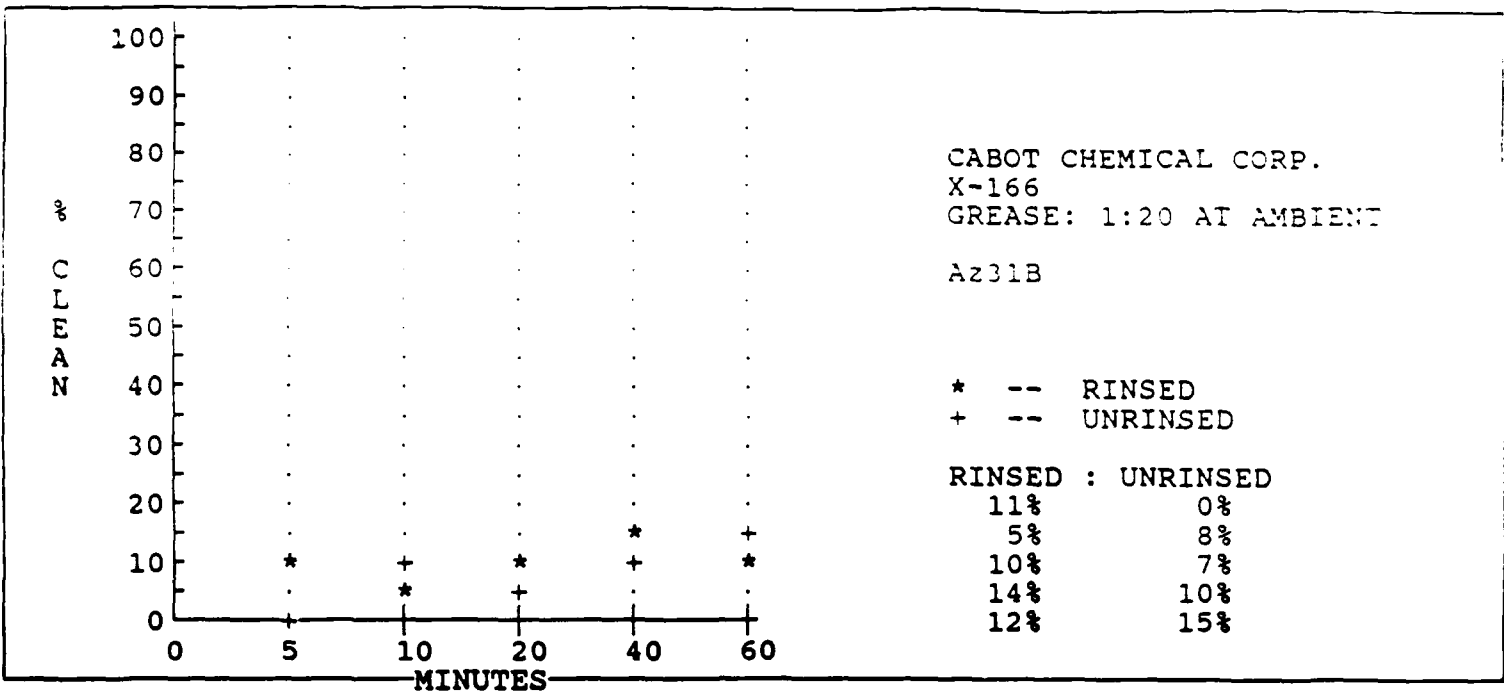


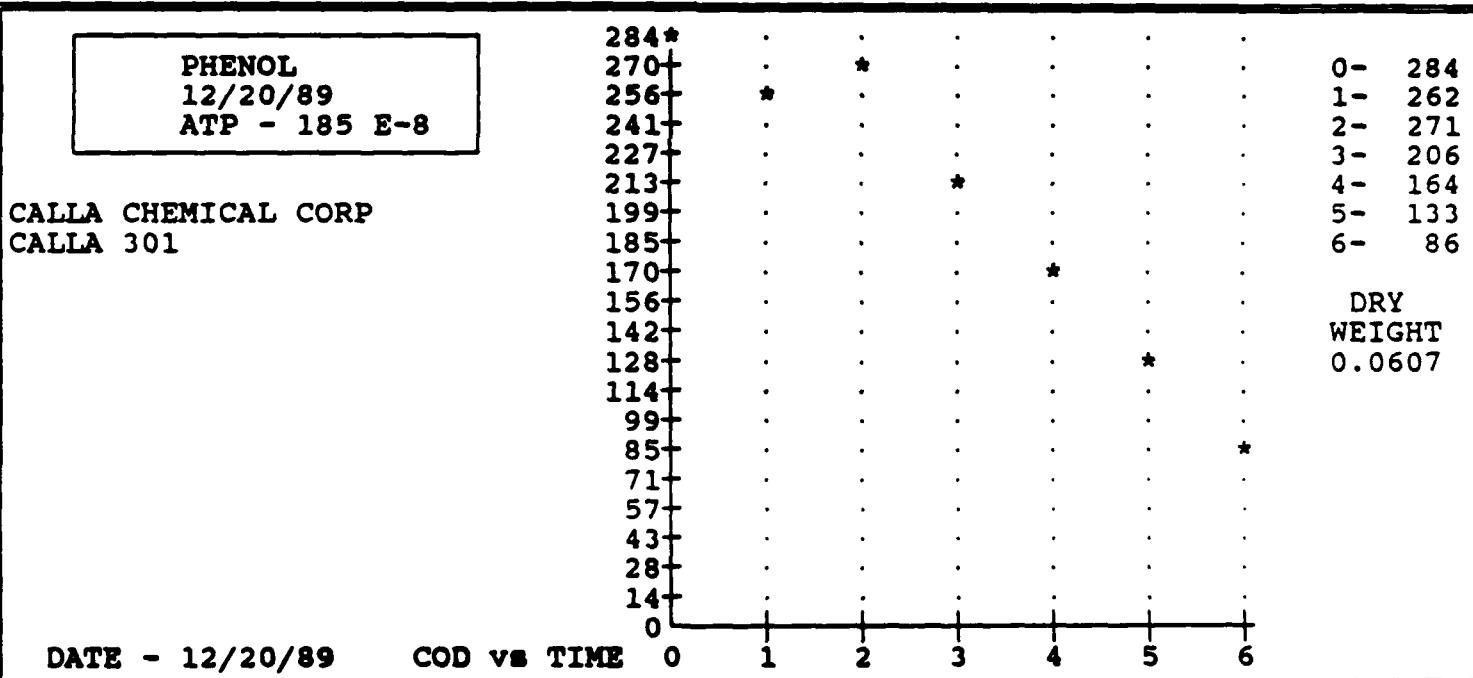
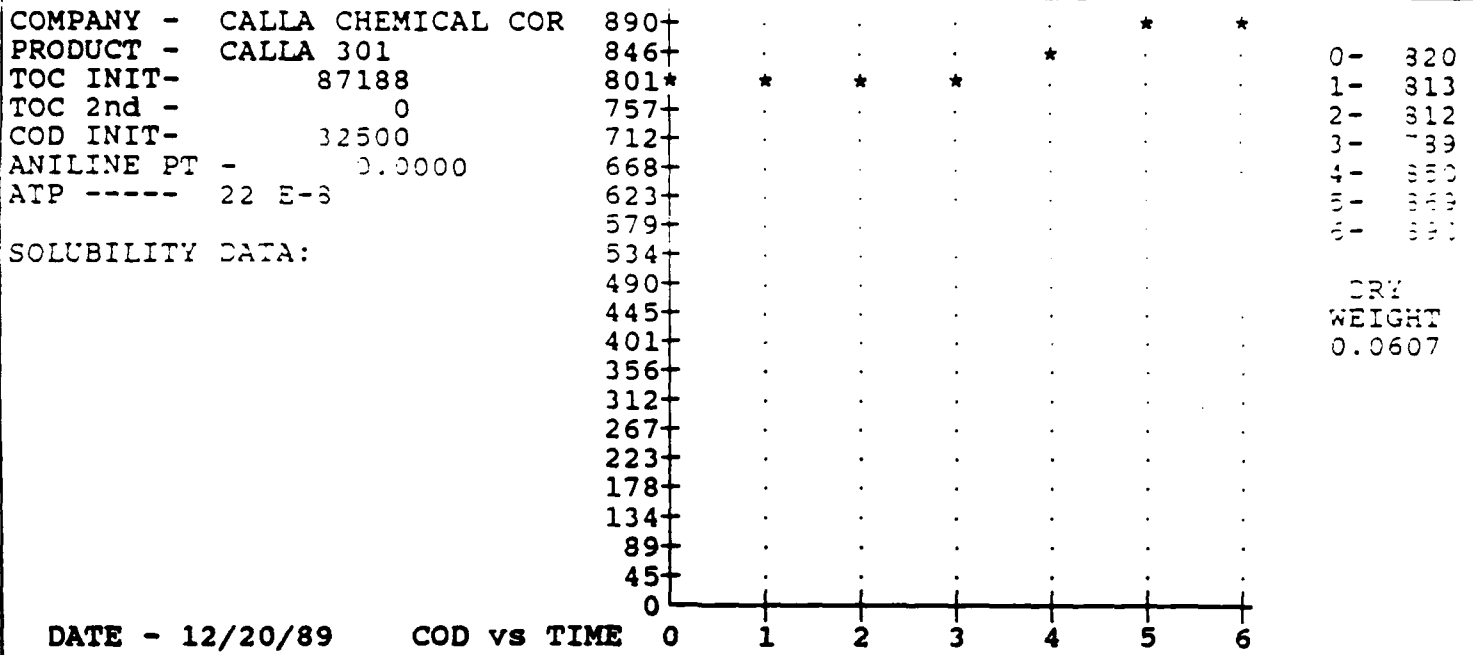


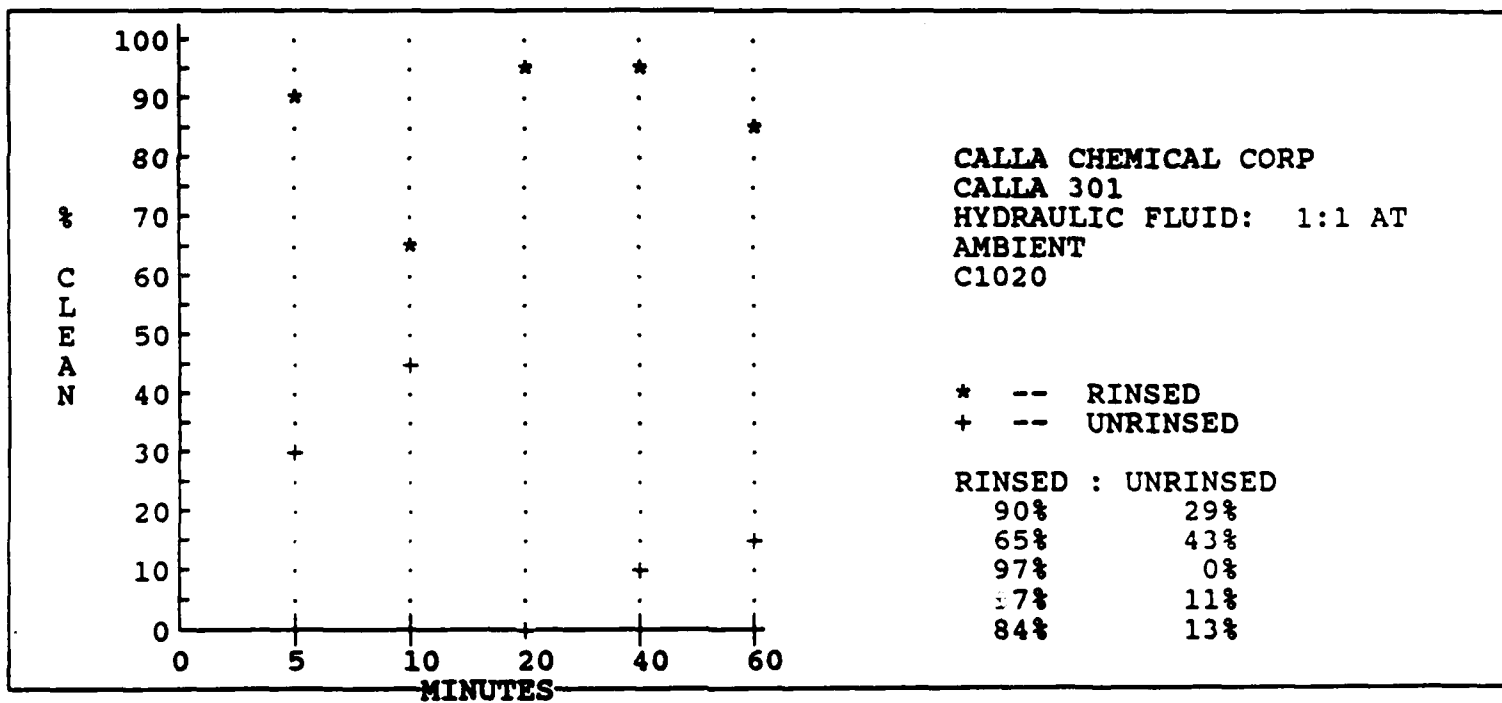
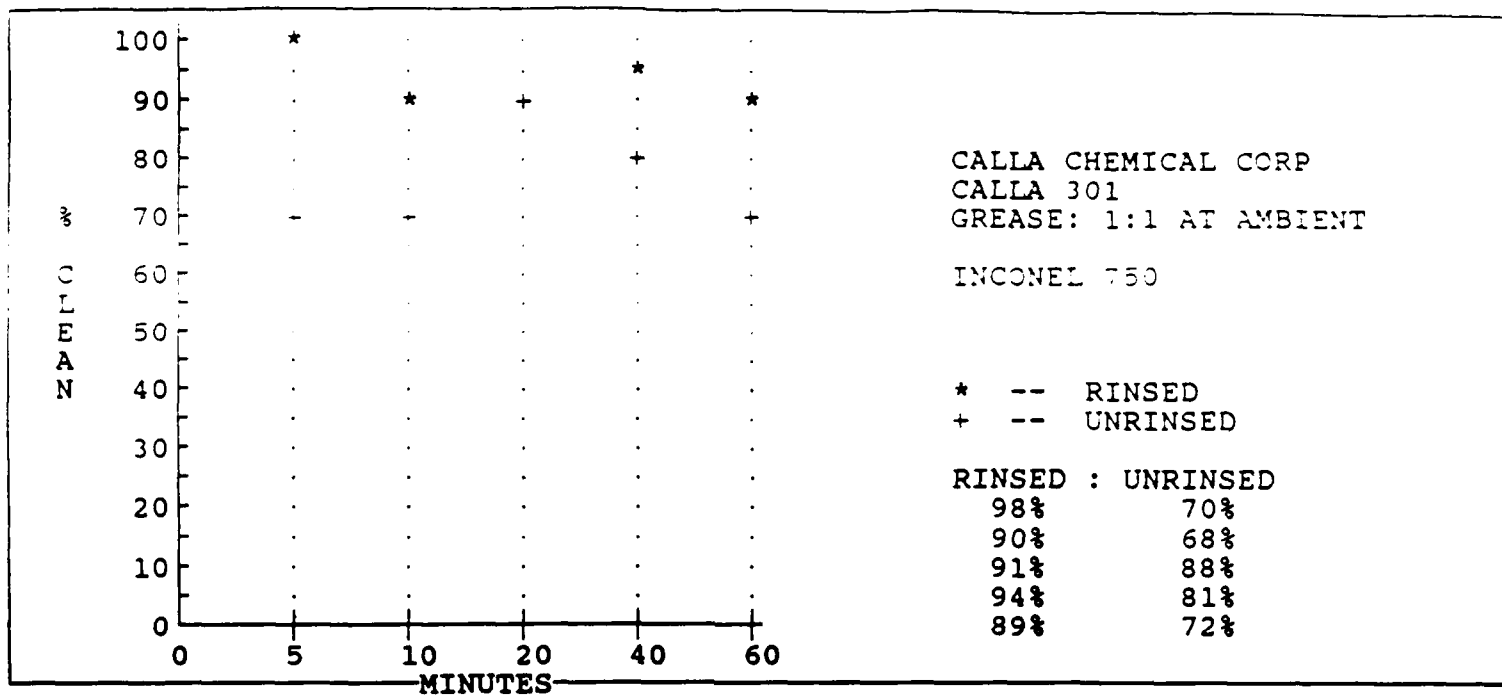


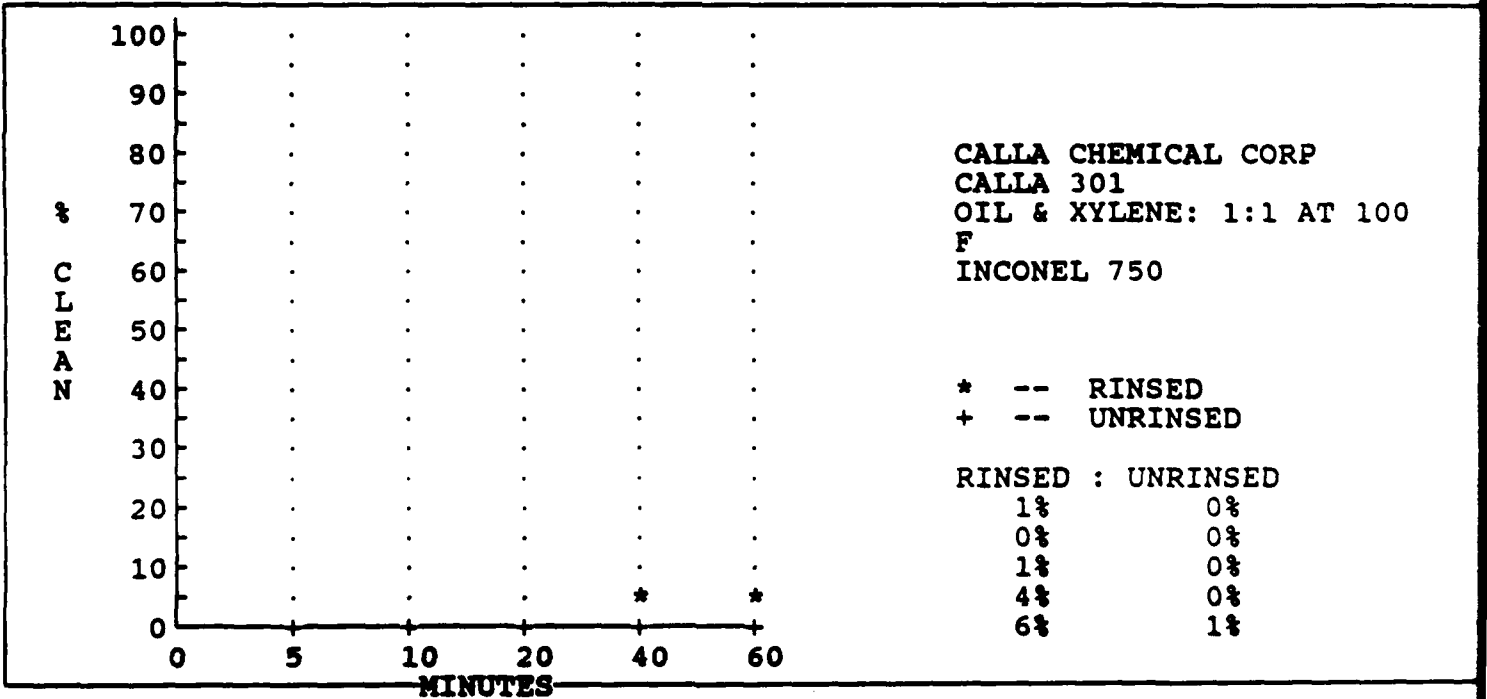
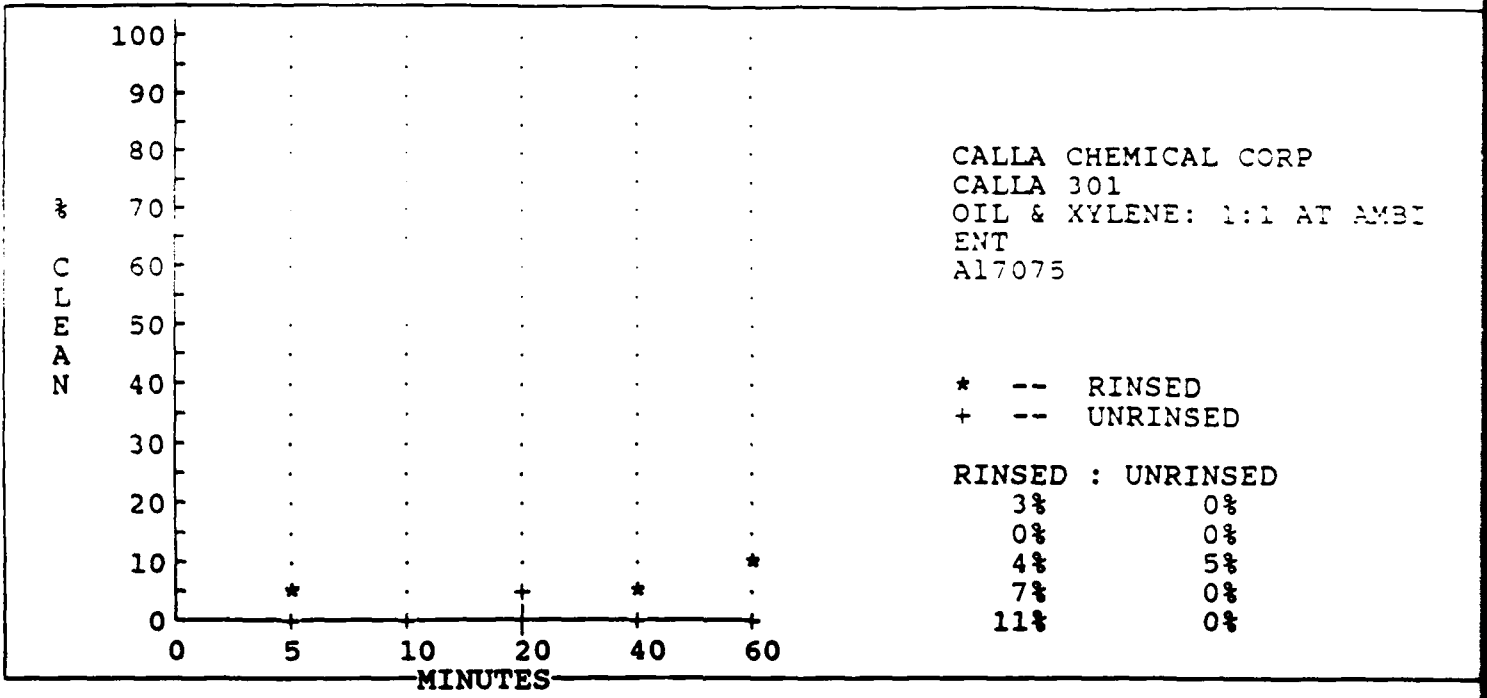


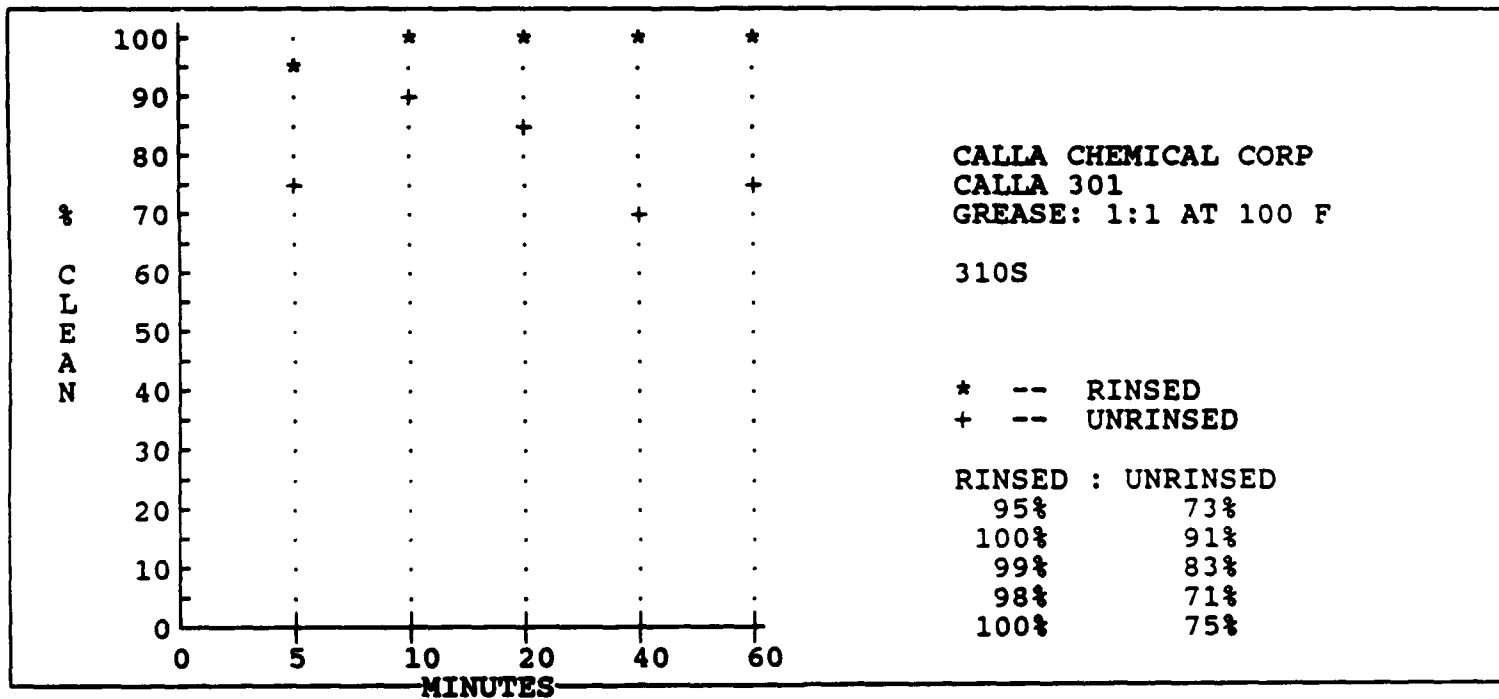
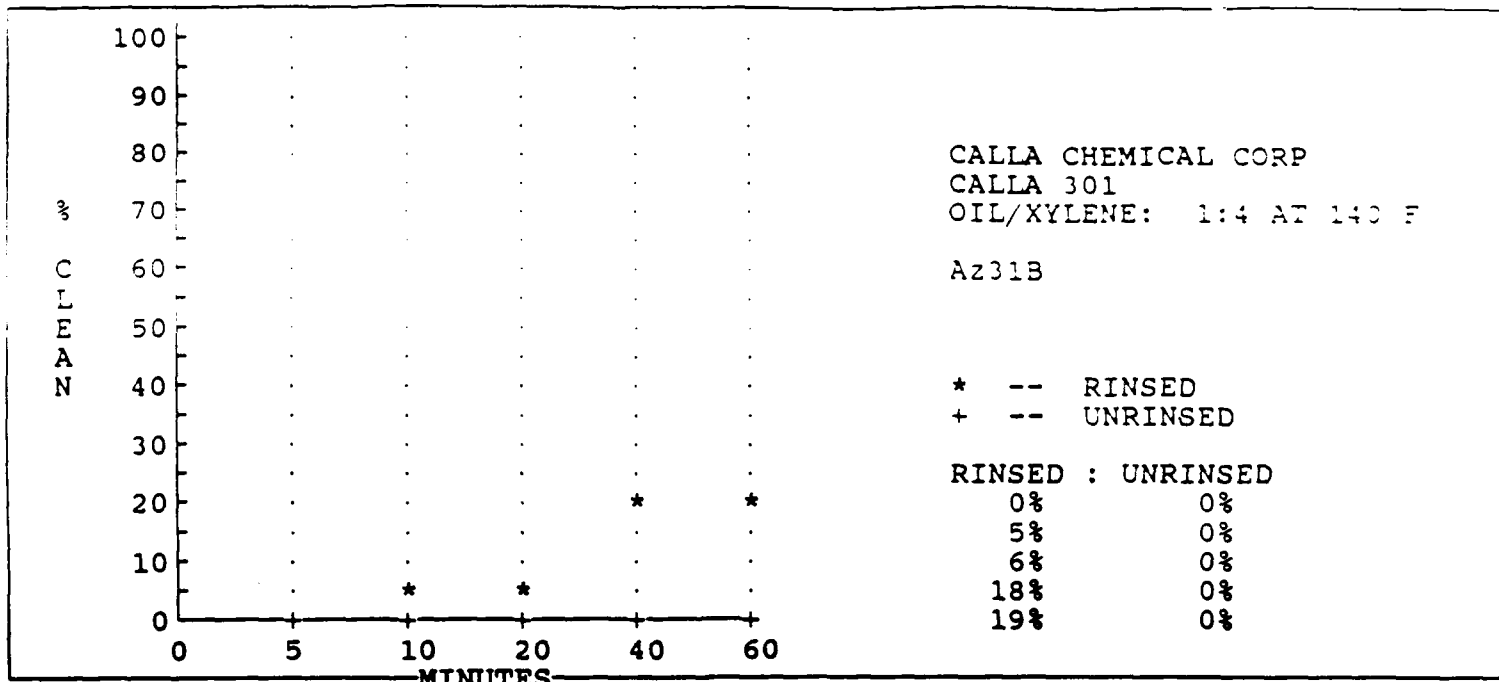


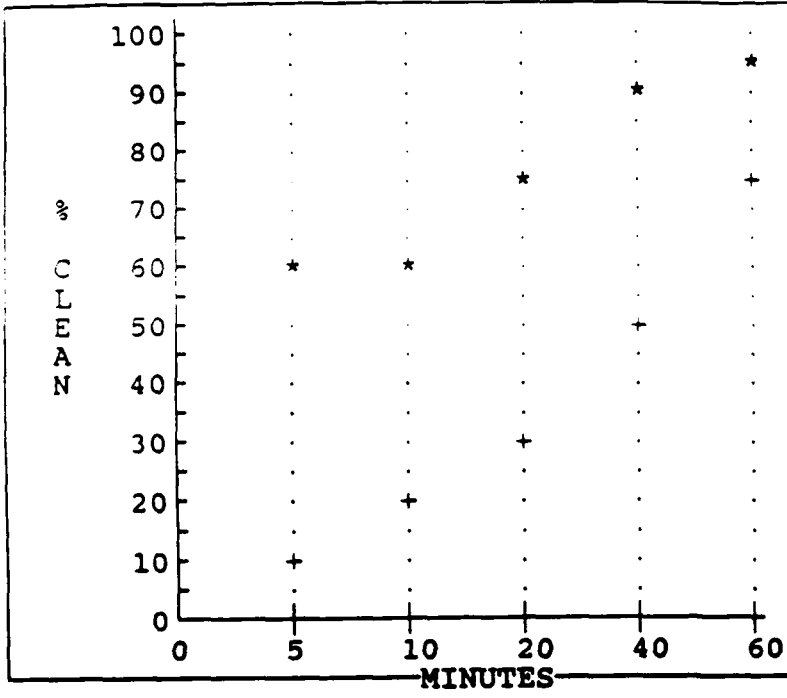








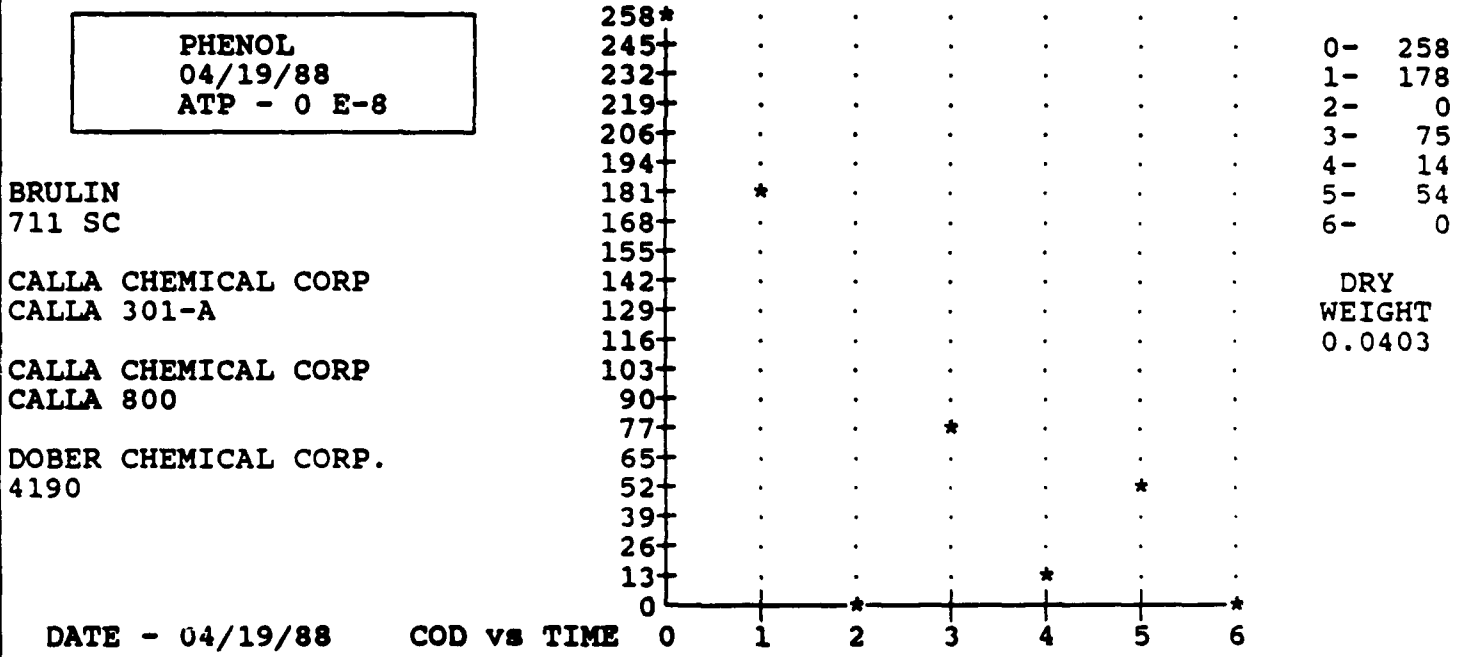
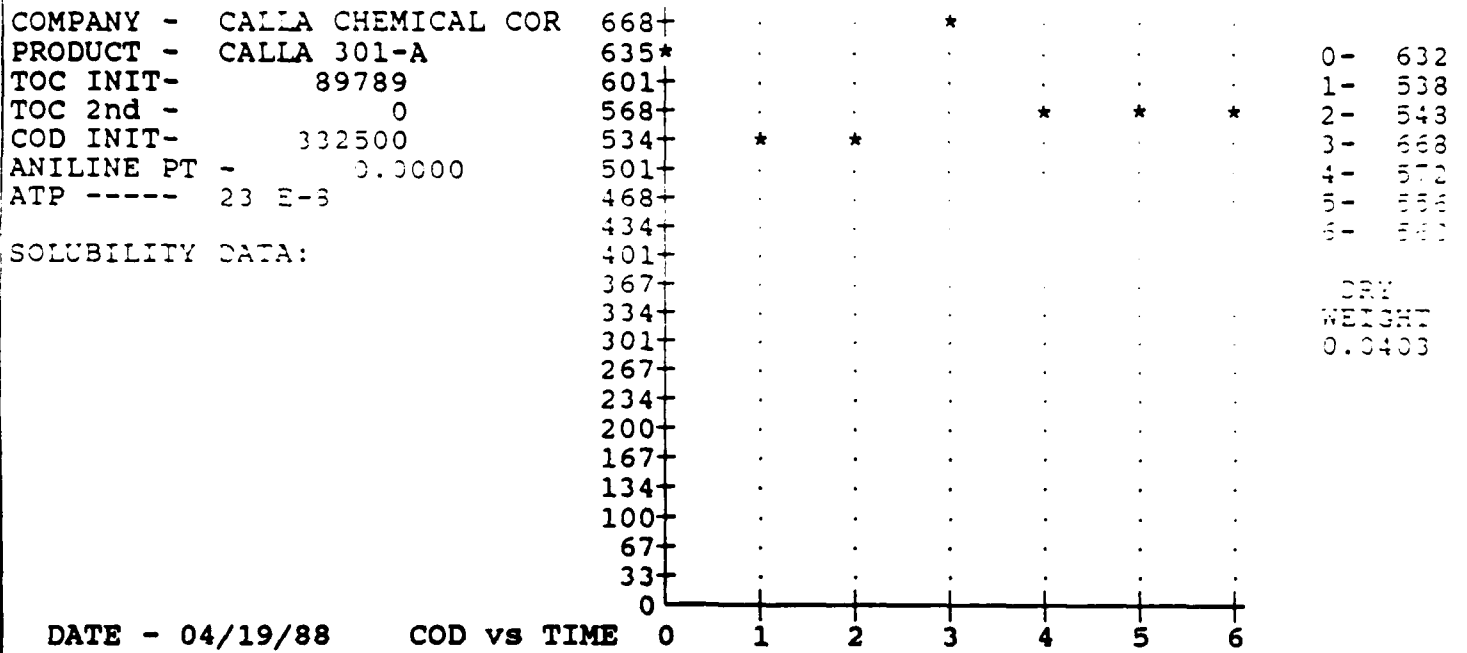




CALLA CHEMICAL CORP
 CALLA 301
 HYDRAULIC FLUID: 1:1 AT
 100 F
 A12024

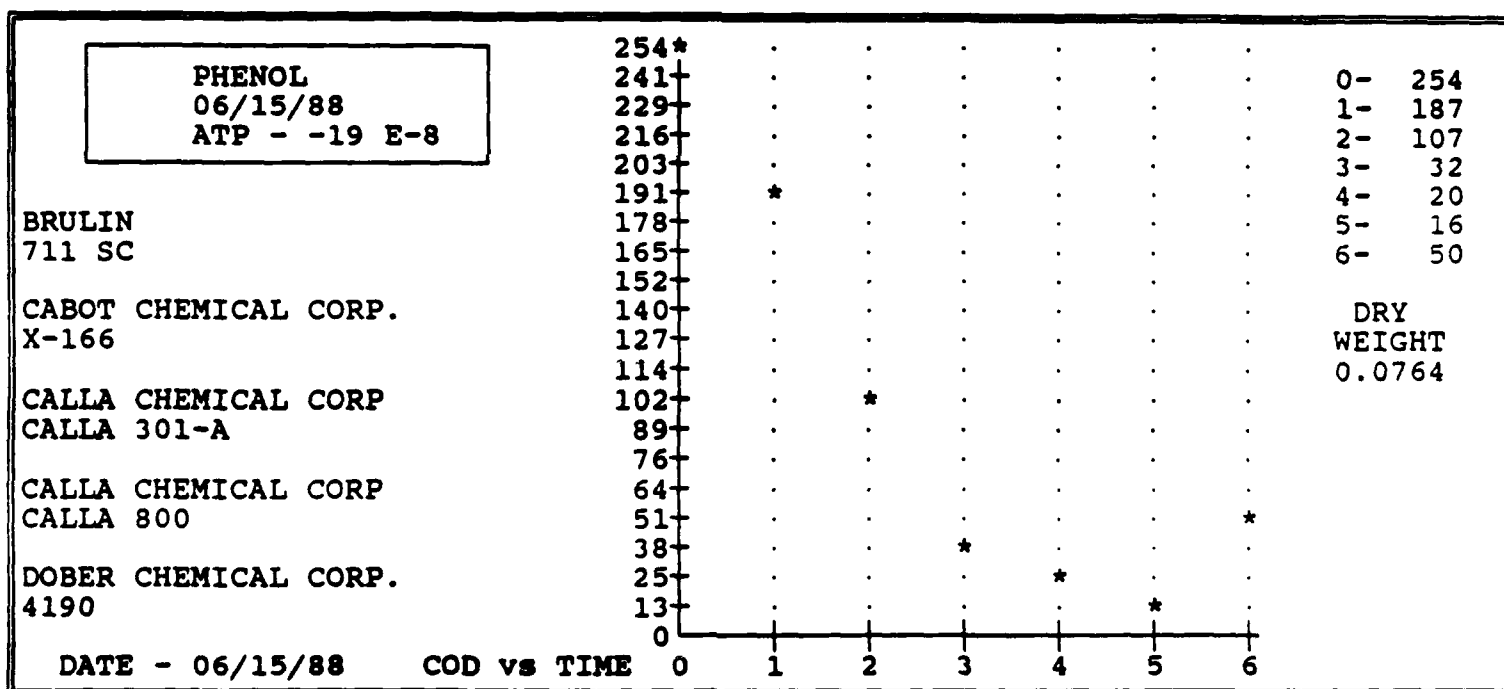
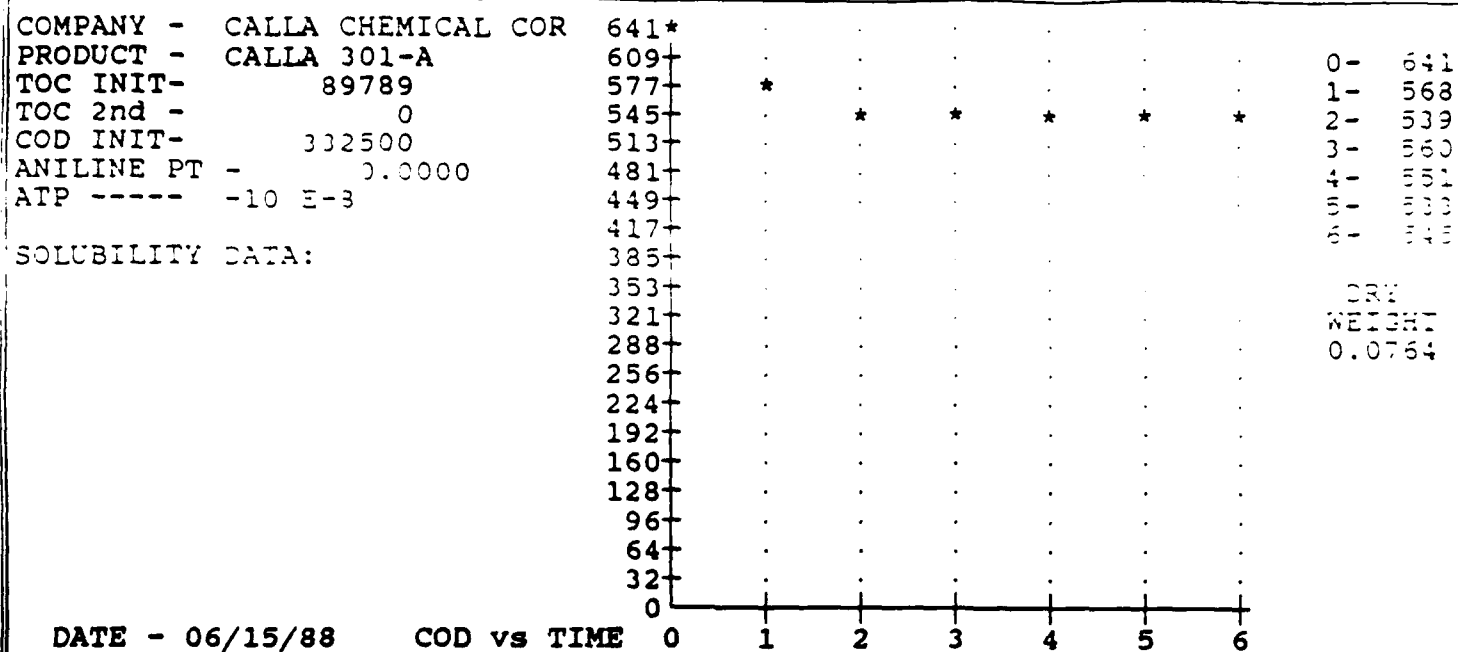
* -- RINSED
 + -- UNRINSED

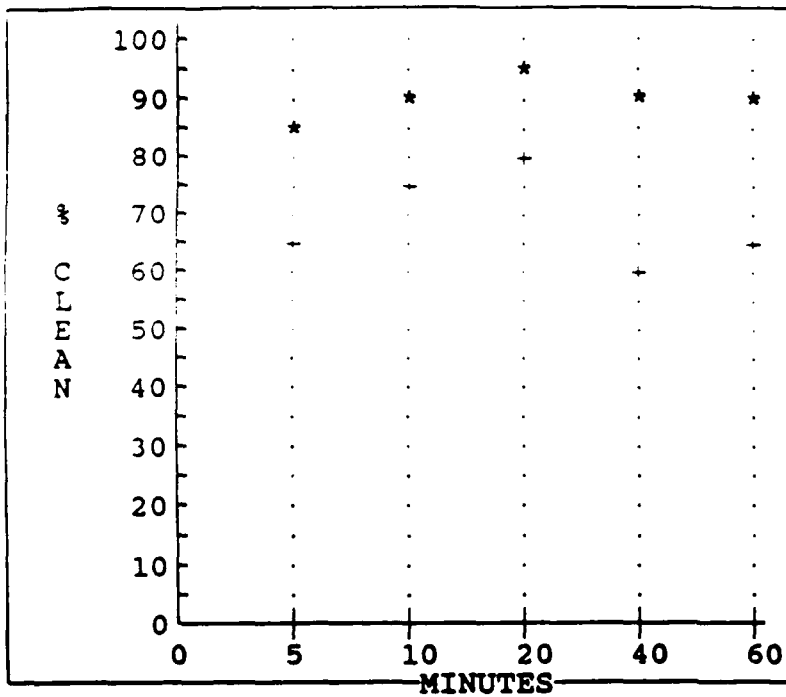
RINSED	UNRINSED
62%	12%
61%	19%
77%	30%
91%	50%
96%	76%



COMPANY - CALLA CHEMICAL COR	744*	.	.	.	.	.	*	0-	744
PRODUCT - CALLA 301-A	707	.	.	*	*	*	.	1-	654
TOC INIT- 89789	670	*	*	.	.	.	.	2-	687
TOC 2nd - 0	632	.	.	.	.	.	.	3-	691
COD INIT- 302500	595	.	.	.	.	.	.	4-	706
ANILINE PT - 0.0000	558	.	.	.	.	.	.	5-	696
	521	.	.	.	.	.	.	6-	741
SOLUBILITY DATA:	484	.	.	.	.	.	.
	446	.	.	.	.	.	.
	409	.	.	.	.	.	.
	372	.	.	.	.	.	.
	335	.	.	.	.	.	.		DRY
	298	.	.	.	.	.	.		WEIGHT
	260	.	.	.	.	.	.		0.0611
	223	.	.	.	.	.	.
	186	.	.	.	.	.	.
	149	.	.	.	.	.	.
	112	.	.	.	.	.	.
	74	.	.	.	.	.	.
	37	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 05/05/88	COD vs TIME	0	1	2	3	4	5	6	

PHENOL 05/05/88 ATP - 0 E-8		394	.	.	.	.	.	*	0-	284
		374	.	.	.	.	.	.	1-	308
		355	.	.	.	.	*	.	2-	305
		335	.	.	*	.	.	.	3-	326
		315	*	.	.	*	.	.	4-	322
		296	.	*	.	.	.	.	5-	361
BRULIN		276*	.	.	.	.	.	.	6-	394
711 SC		256	.	.	.	.	.	.
		236	.	.	.	.	.	.
CALLA CHEMICAL CORP		217	.	.	.	.	.	.
CALLA 301-A		197	.	.	.	.	.	.		DRY
		177	.	.	.	.	.	.		WEIGHT
		158	.	.	.	.	.	.		0.0611
CALLA CHEMICAL CORP		138	.	.	.	.	.	.
CALLA 800		118	.	.	.	.	.	.
DOBER CHEMICAL CORP.		99	.	.	.	.	.	.
4190		79	.	.	.	.	.	.
		59	.	.	.	.	.	.
		39	.	.	.	.	.	.
		20	.	.	.	.	.	.
		0	.	.	.	.	.	.
DATE - 05/05/88	COD vs TIME	0	1	2	3	4	5	6		



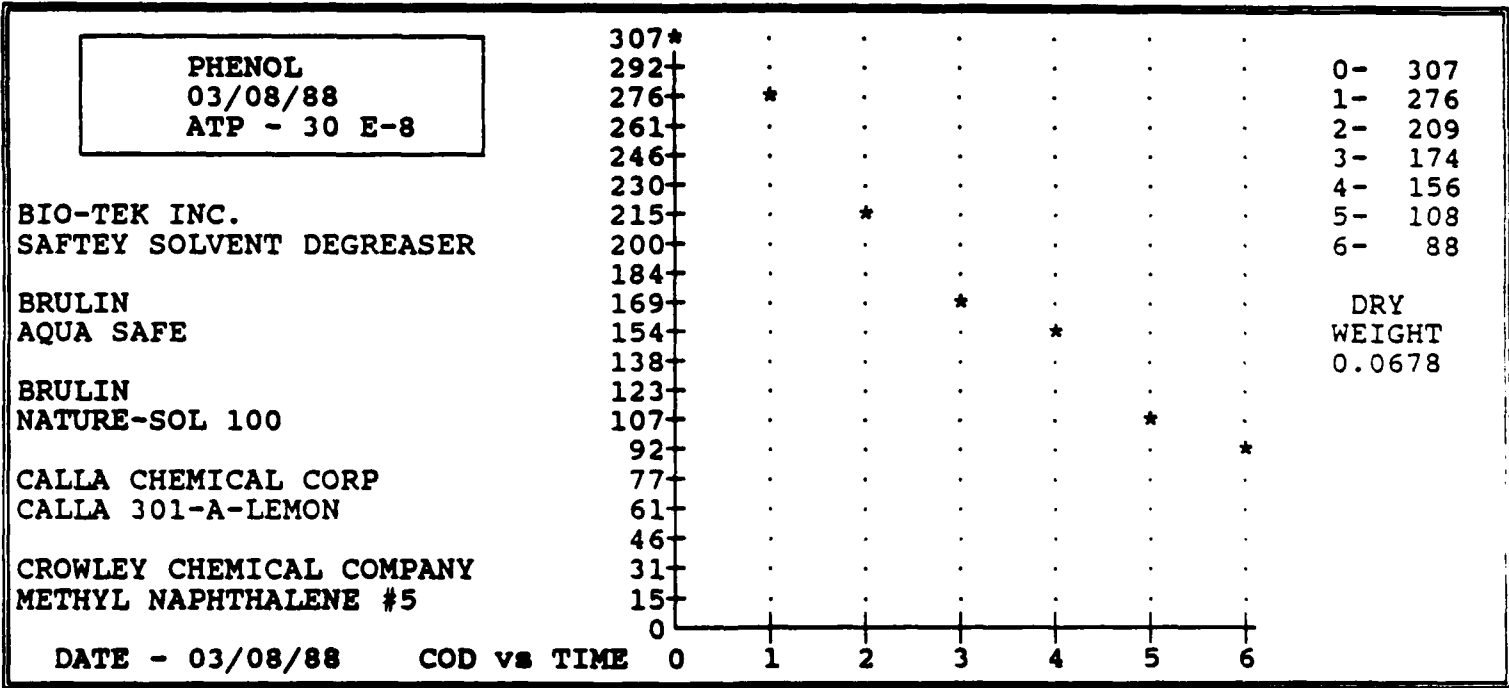
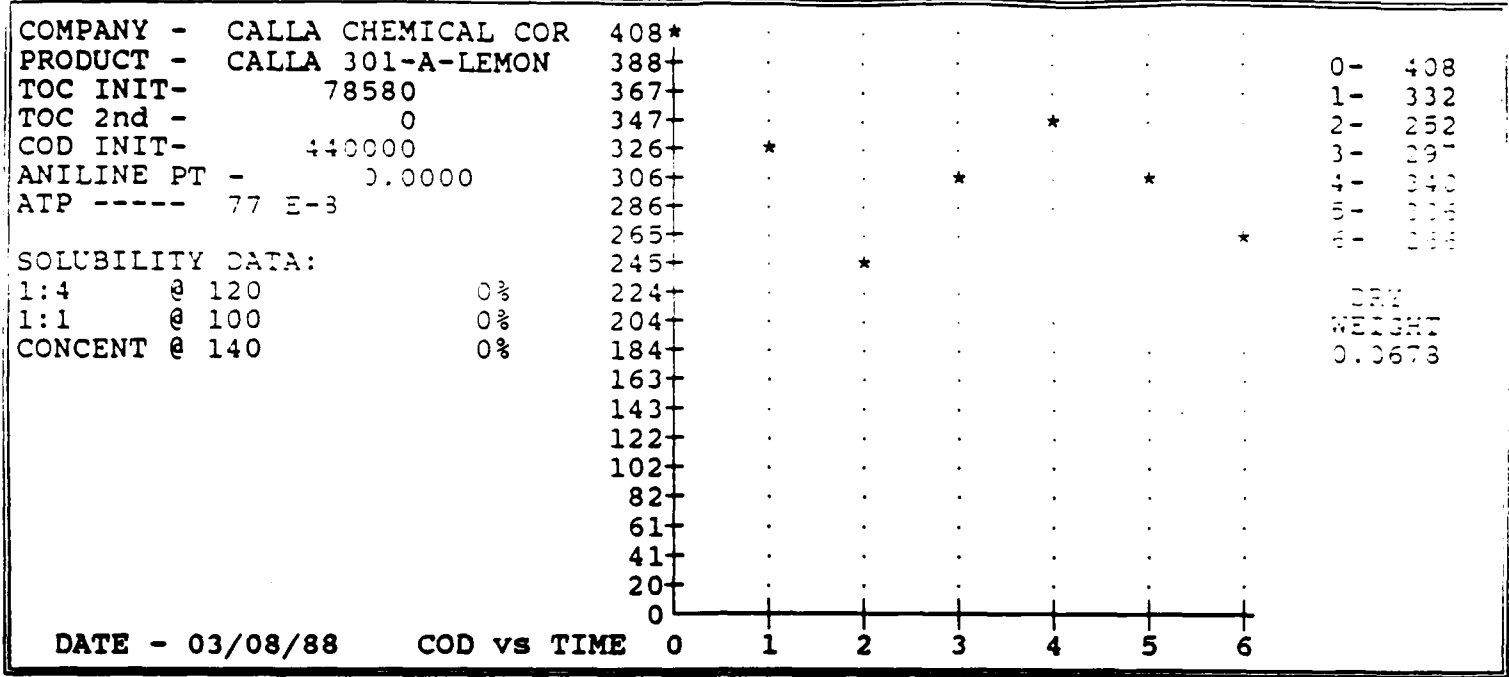


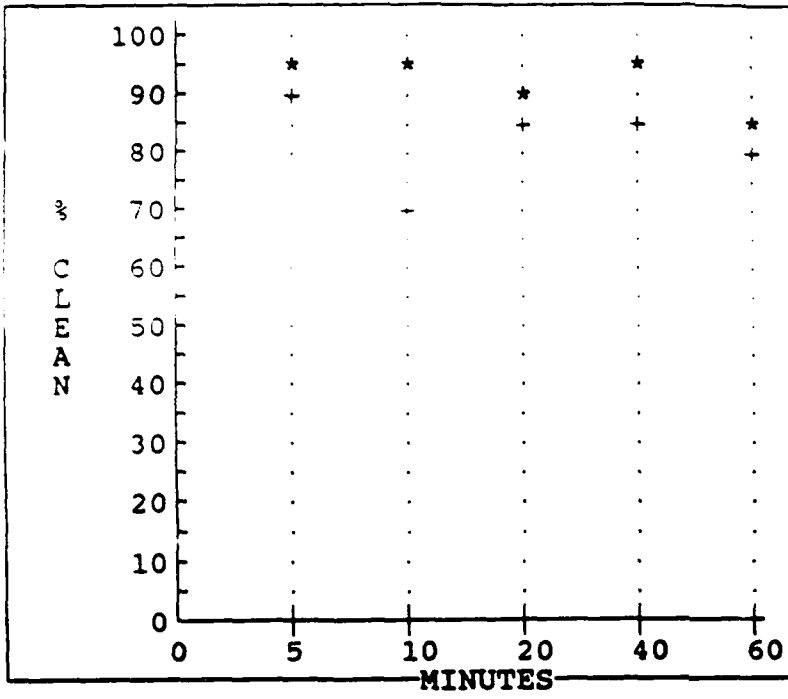
CALLA CHEMICAL CORP
 CALLA 301-A
 GREASE: 1:1 AT AMBIENT

INCONEL 750

* -- RINSED
 + -- UNRINSED

RINSED :	UNRINSED
87%	65%
92%	73%
96%	80%
88%	59%
90%	66%

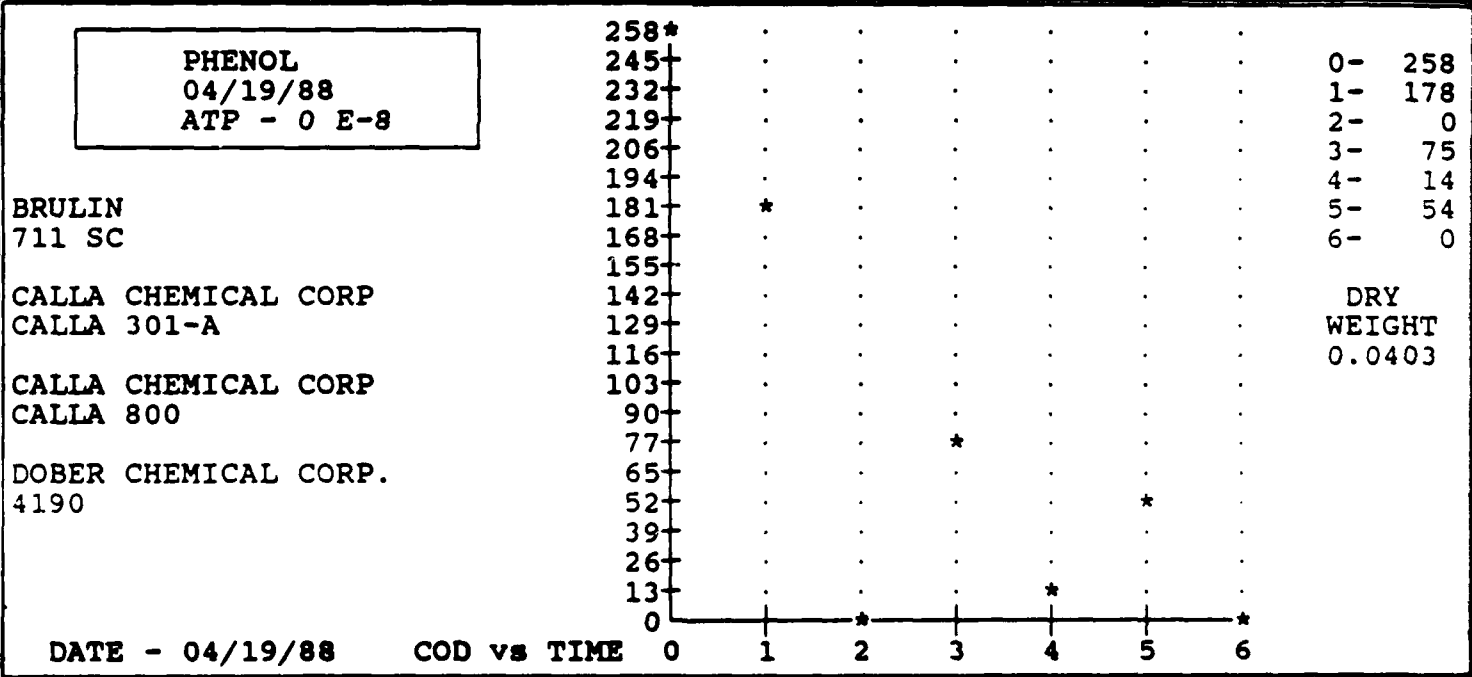
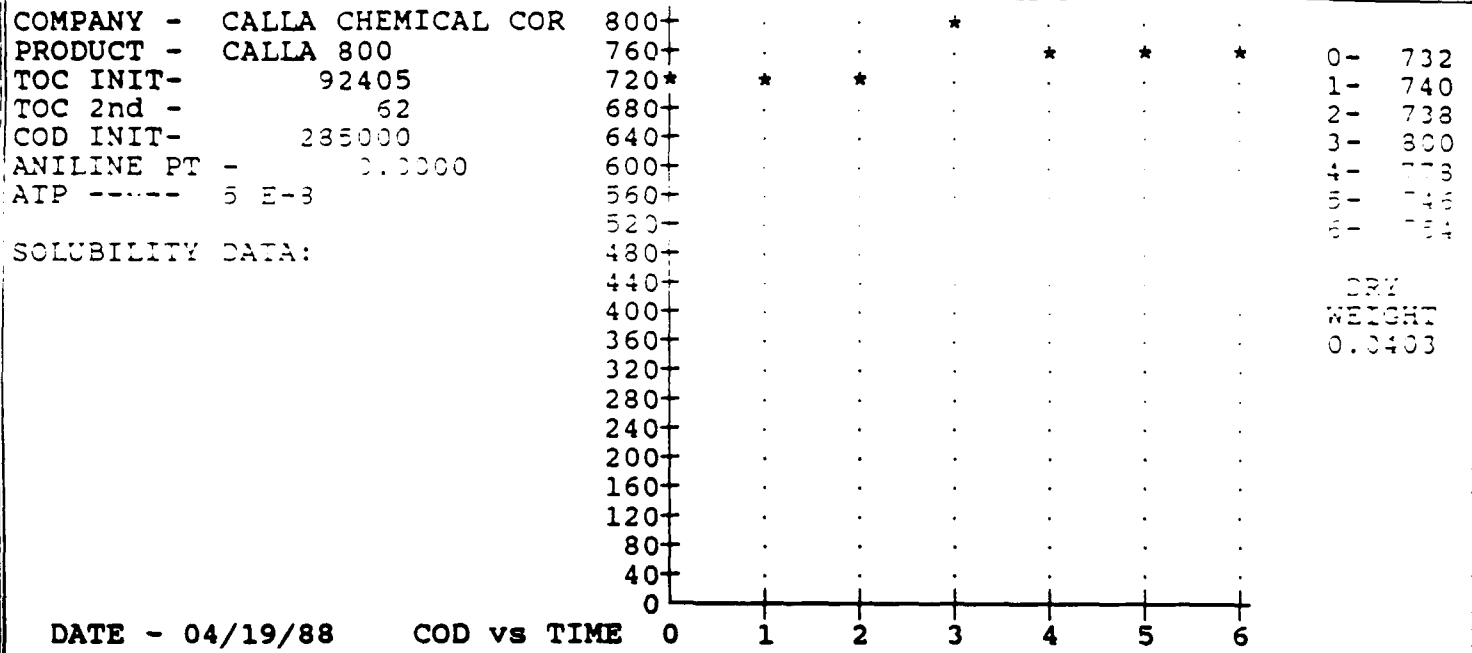


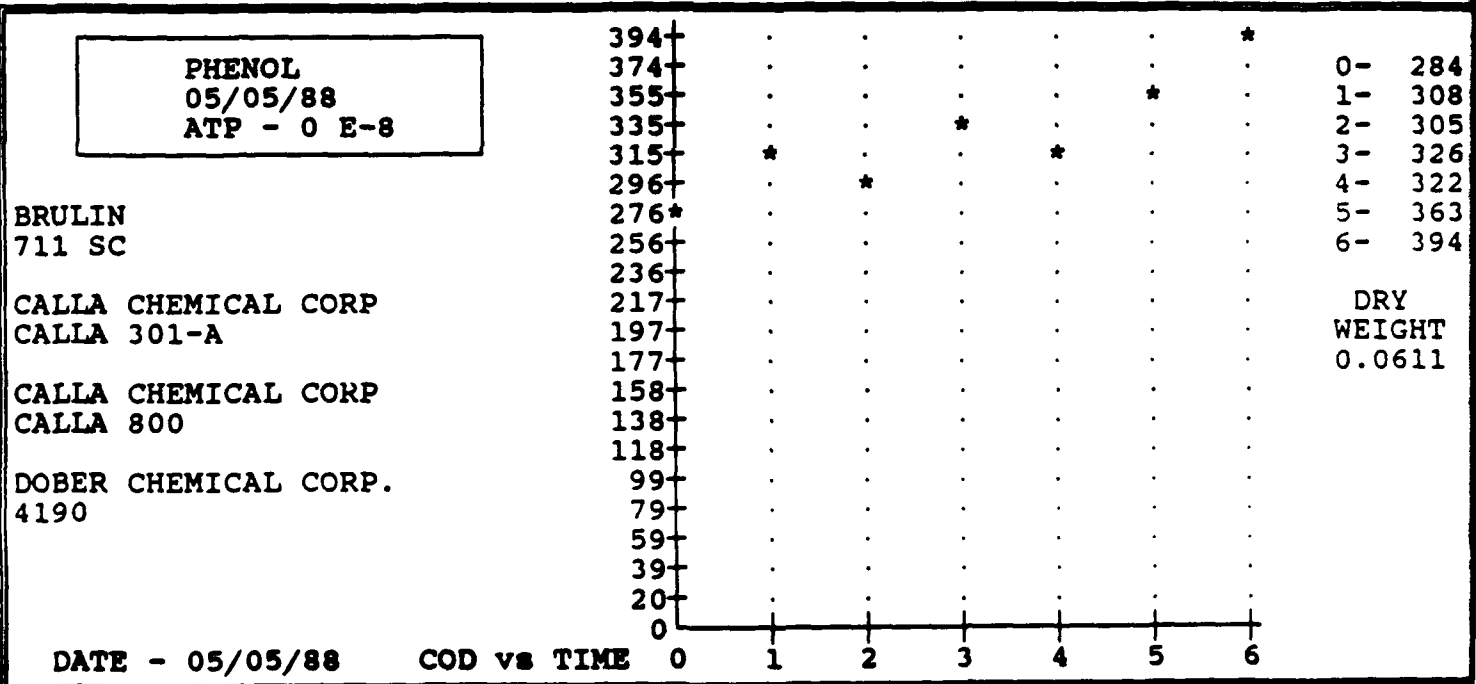
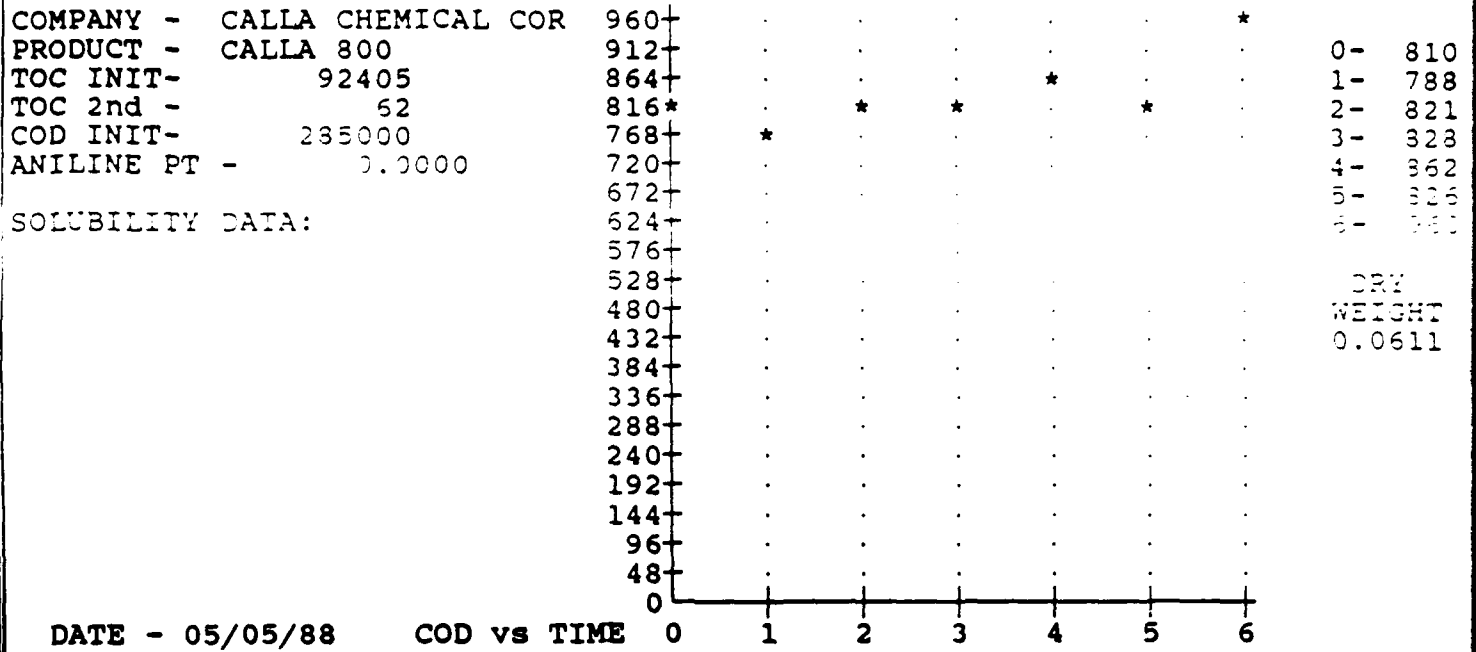


CALLA CHEMICAL CORP
 CALLA 301-A-LEMON
 GREASE: 1:1 AT AMBIENT
 INCONEL 750

* -- RINSED
 + -- UNRINSED

RINSED	UNRINSED
96%	88%
93%	71%
91%	86%
97%	83%
85%	79%





COMPANY - CALLA CHEMICAL COR	710*	.	.	.	.	.	*
PRODUCT - CALLA 800	675+	.	*	*	*	*	.	0- 710
TOC INIT- 92405	639+	*	.	.	.	.	.	1- 638
TOC 2nd - 62	604+	.	.	.	.	.	.	2- 682
COD INIT- 235000	568+	.	.	.	.	.	.	3- 684
ANILINE PT - 0.0000	533+	.	.	.	.	.	.	4- 687
ATP ----- 10 E-3	497+	.	.	.	.	.	.	5- 682
	462+	.	.	.	.	.	.	6- 650

SOLUBILITY DATA:

426+	.	.	.	.	.	.	.
391+	.	.	.	.	.	.	.	DRY
355+	.	.	.	.	.	.	.	WEIGHT
320+	.	.	.	.	.	.	.	0.0764
284+	.	.	.	.	.	.	.
249+	.	.	.	.	.	.	.
213+	.	.	.	.	.	.	.
178+	.	.	.	.	.	.	.
142+	.	.	.	.	.	.	.
107+	.	.	.	.	.	.	.
71+	.	.	.	.	.	.	.
36+	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.

DATE - 06/15/88 COD vs TIME 0 1 2 3 4 5 6

PHENOL
06/15/88
ATP - -19 E-8

BRULIN
711 SC

CABOT CHEMICAL CORP.
X-166

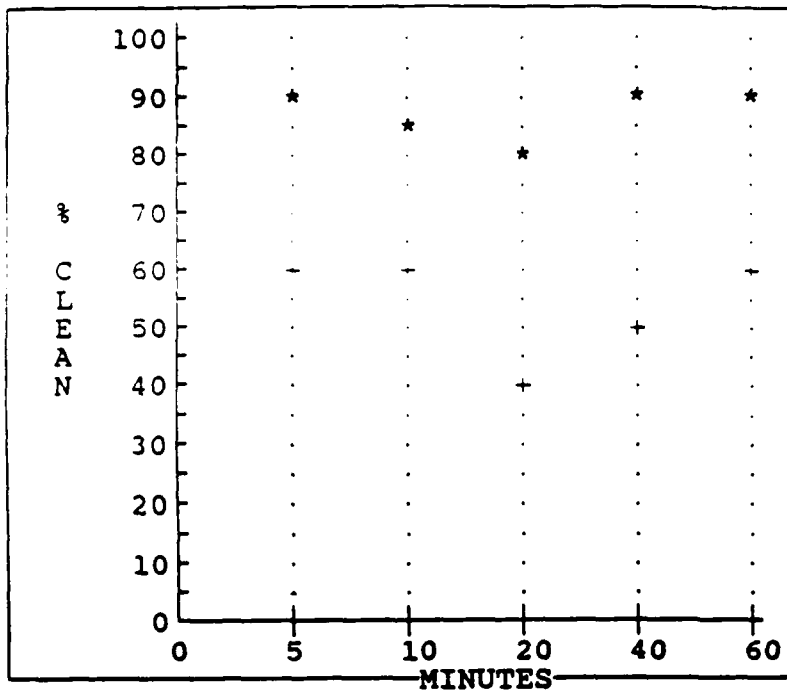
CALLA CHEMICAL CORP
CALLA 301-A

CALLA CHEMICAL CORP
CALLA 800

DOBER CHEMICAL CORP.
4190

254*	.	.	.	.	.	.	.
241+	.	.	.	.	.	.	.	0- 254
229+	.	.	.	.	.	.	.	1- 187
216+	.	.	.	.	.	.	.	2- 107
203+	.	.	.	.	.	.	.	3- 32
191+	*	.	.	.	.	.	.	4- 20
178+	.	.	.	.	.	.	.	5- 16
165+	.	.	.	.	.	.	.	6- 50
152+	.	.	.	.	.	.	.
140+	.	.	.	.	.	.	.	DRY
127+	.	.	.	.	.	.	.	WEIGHT
114+	.	.	.	.	.	.	.	0.0764
102+	.	*	.	.	.	.	.
89+	.	.	.	.	.	.	.
76+	.	.	.	.	.	.	.
64+	.	.	.	.	.	.	.
51+	.	.	.	.	.	.	*
38+	.	.	*	.	.	.	.
25+	.	.	.	*	.	.	.	
13+	.	.	.	.	.	*	.
0	.	.	.	.	.	.	.

DATE - 06/15/88 COD vs TIME 0 1 2 3 4 5 6



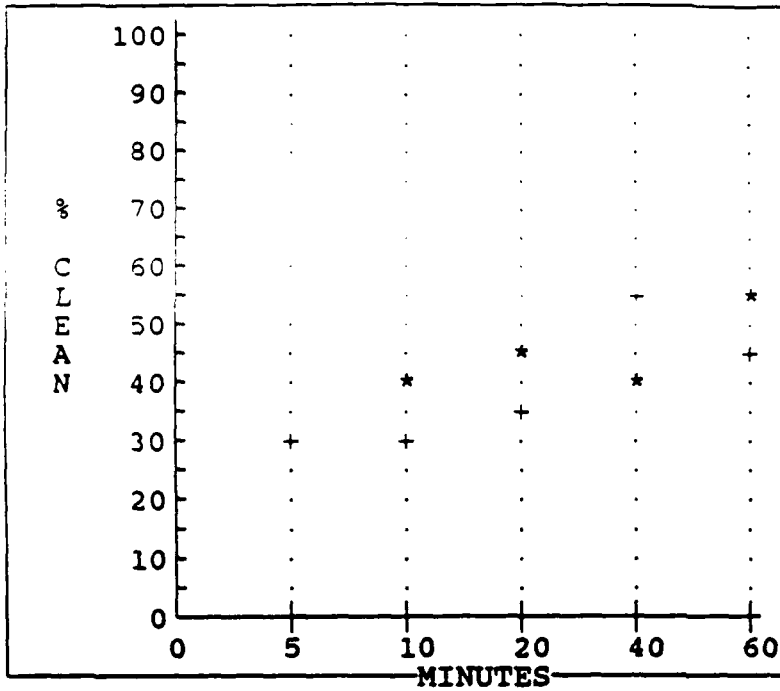
CALLA CHEMICAL CORP
 CALLA 800
 GREASE: CONCENTRATE AT AMBIENT
 INCONEL 750

* -- RINSED
 + -- UNRINSED

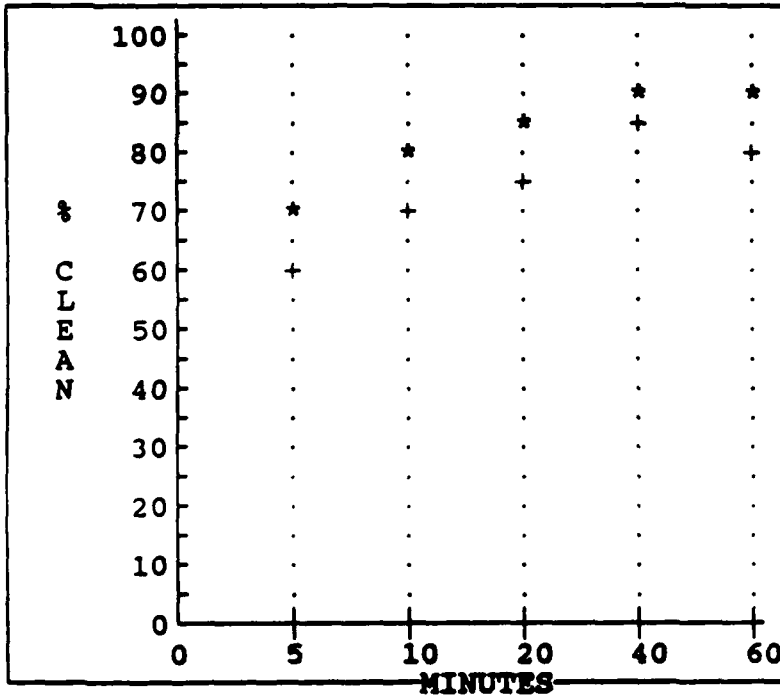
RINSED	UNRINSED
92%	61%
85%	61%
82%	39%
91%	50%
92%	58%

COMPANY - CROWLEY CHEMICAL C	547	.	.	.	.	*	.
PRODUCT - METHYL NAPHTHALENE	520	.	.	.	.	.	.	0- 95
TOC INIT- 410469	492	.	.	.	.	.	.	1- 312
TOC 2nd - 0	465	.	.	.	.	.	.	2- 70
COD INIT- 1060000	438	.	.	.	.	.	.	3- 105
ANILINE PT - 0.0000	410	.	.	.	.	.	.	4- 114
ATP ----- -37 E-3	383	.	.	.	.	.	.	5- 347
	356	.	.	.	.	.	.	6- 107
SOLUBILITY DATA:	328	.	.	.	.	.	.
CONCENT @ AMBIE 12%	301	.	*	.	.	.	.	DRY
	274	.	.	.	.	.	.	WEIGHT
	246	.	.	.	.	.	.	0.0678
	219	.	.	.	.	.	.
	191	.	.	.	.	.	.
	164	.	.	.	.	.	.
	137	.	.	.	.	.	*
	109*	.	.	*	*	.	.	
	82	.	*	.	.	.	.
	55	.	.	.	.	.	.
	27	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6

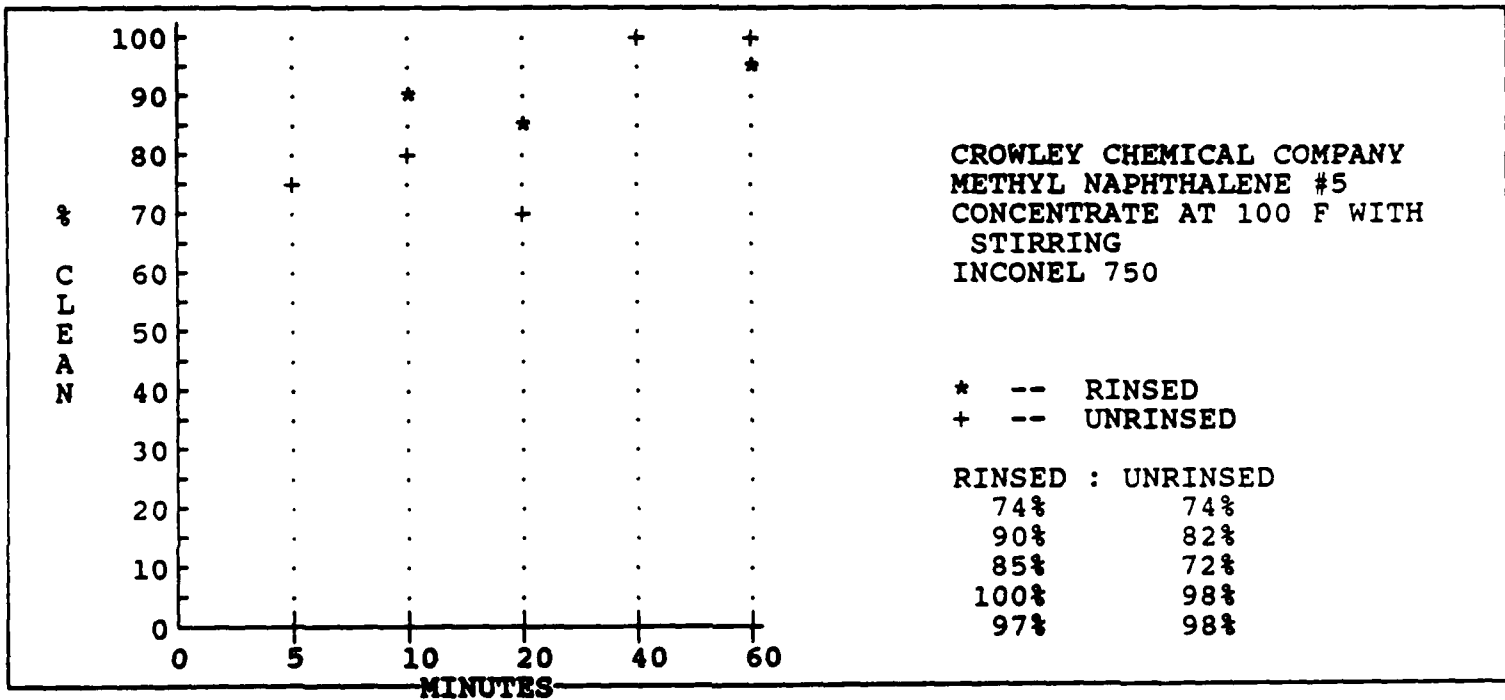
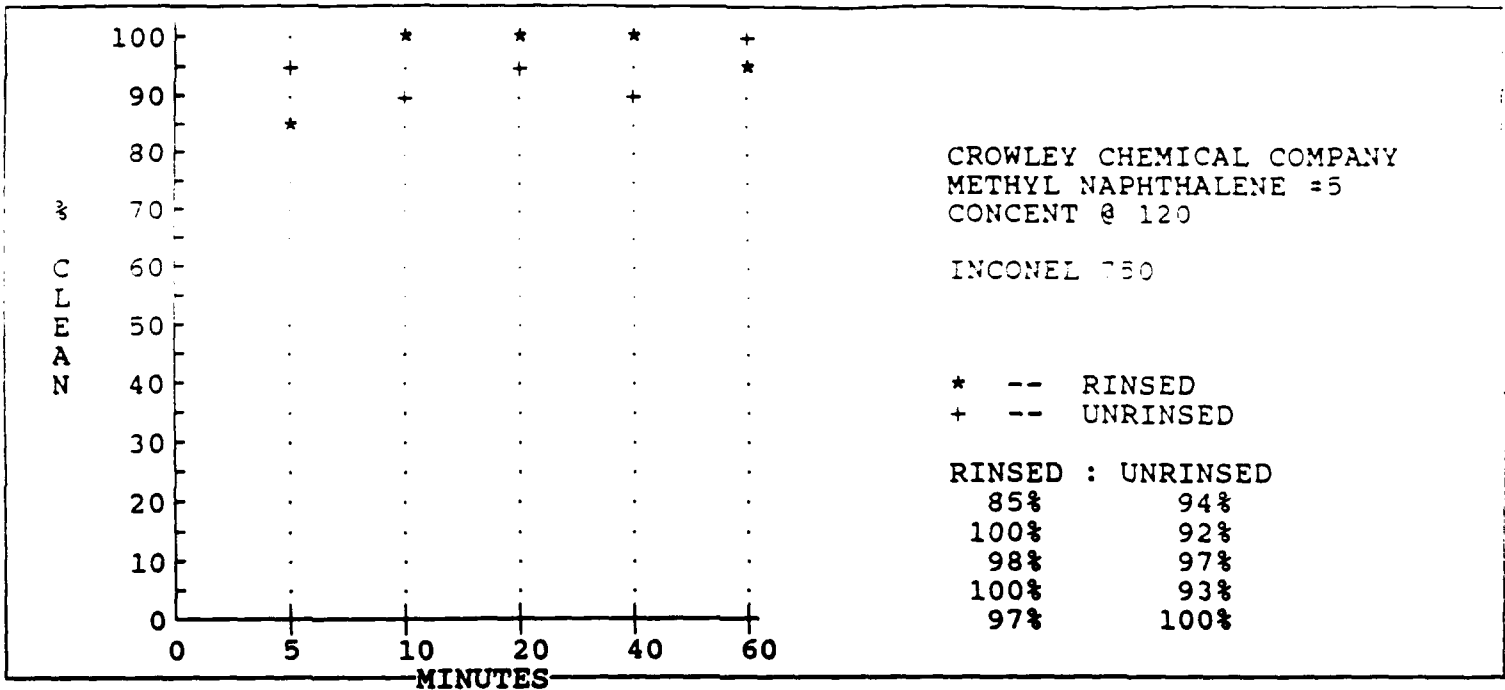
PHENOL 03/08/88 ATP - 30 E-8		307*	
		292	.	.	.	.	.	0- 307
		276	.	*	.	.	.	1- 276	
		261	.	.	.	.	.	2- 209
		246	.	.	.	.	.	3- 174
		230	.	.	.	.	.	4- 156
BIO-TEK INC.		215	.	*	.	.	.	5- 108	
SAFTEY SOLVENT DEGREASER		200	.	.	.	.	.	6- 88
		184	.	.	.	.	.
BRULIN		169	.	.	*	.	.	DRY	
AQUA SAFE		154	.	.	.	*	.	WEIGHT	
		138	.	.	.	.	.	0.0678
BRULIN		123	.	.	.	.	.
NATURE-SOL 100		107	.	.	.	.	*
		92	.	.	.	.	.	*
CALLA CHEMICAL CORP		77	.	.	.	.	.
CALLA 301-A-LEMON		61	.	.	.	.	.
		46	.	.	.	.	.
CROWLEY CHEMICAL COMPANY		31	.	.	.	.	.
METHYL NAPHTHALENE #5		15	.	.	.	.	.
		0	.	.	.	.	.
DATE - 03/08/88	COD vs TIME	0	1	2	3	4	5	6	

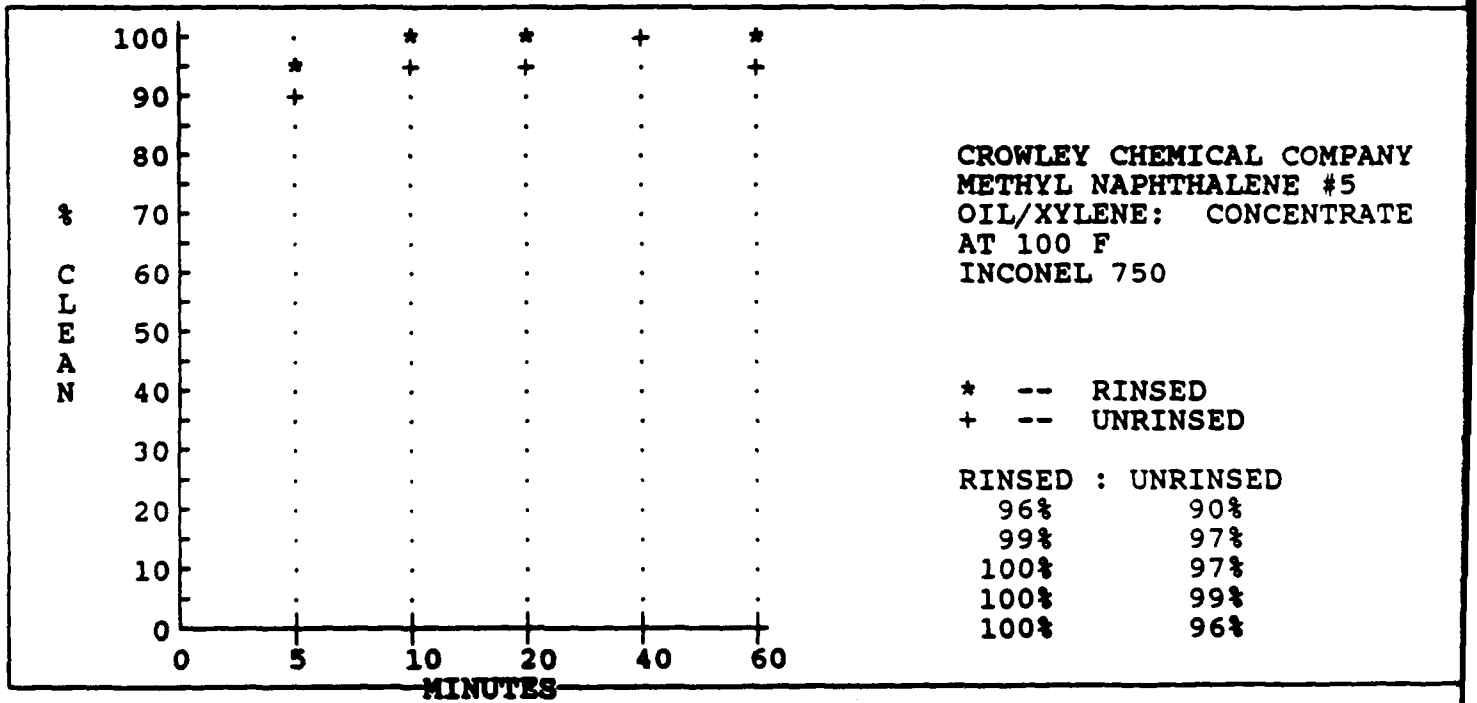
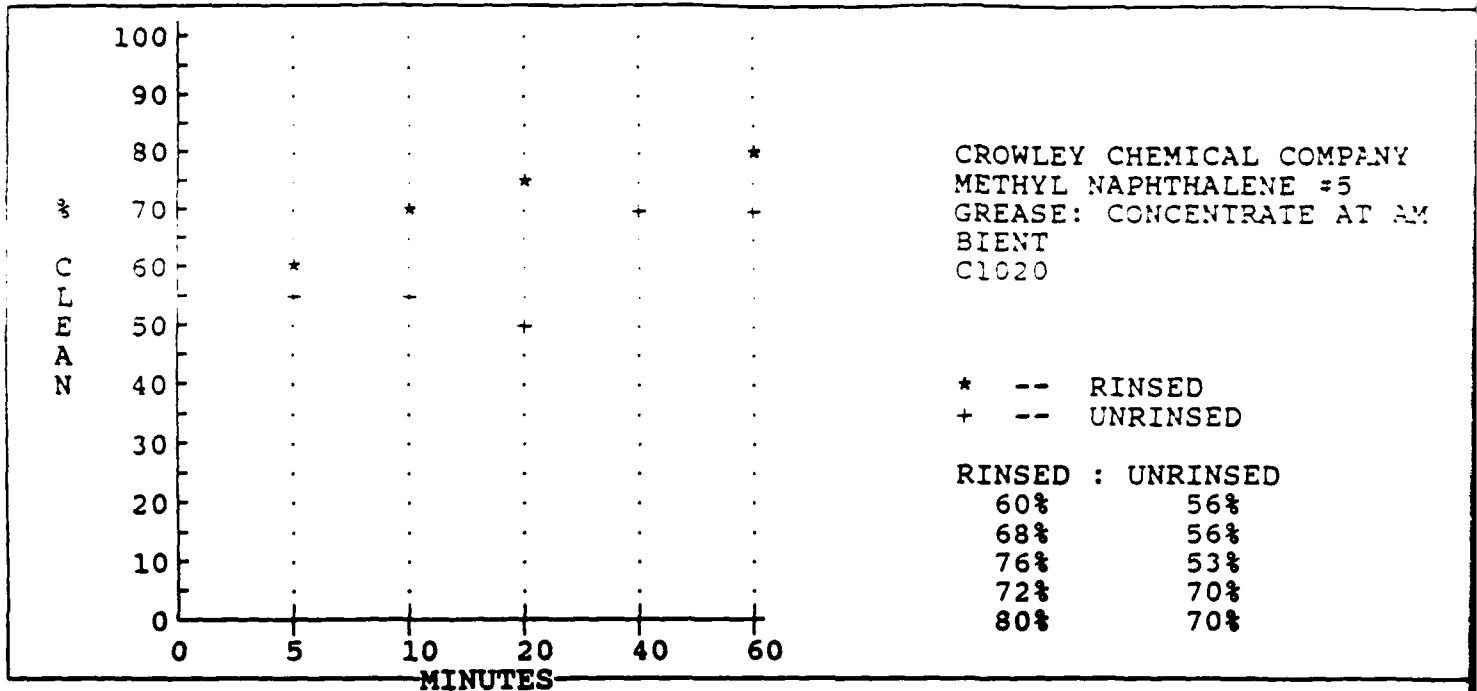


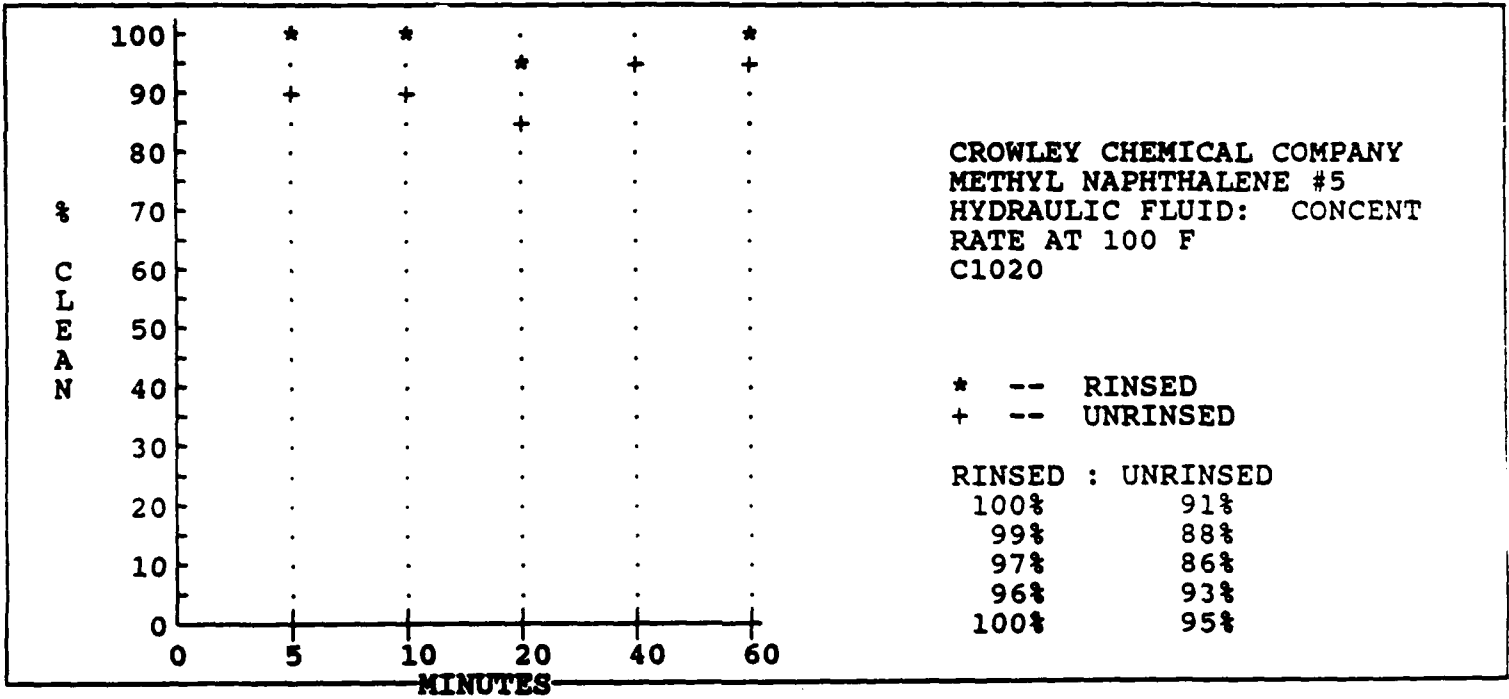
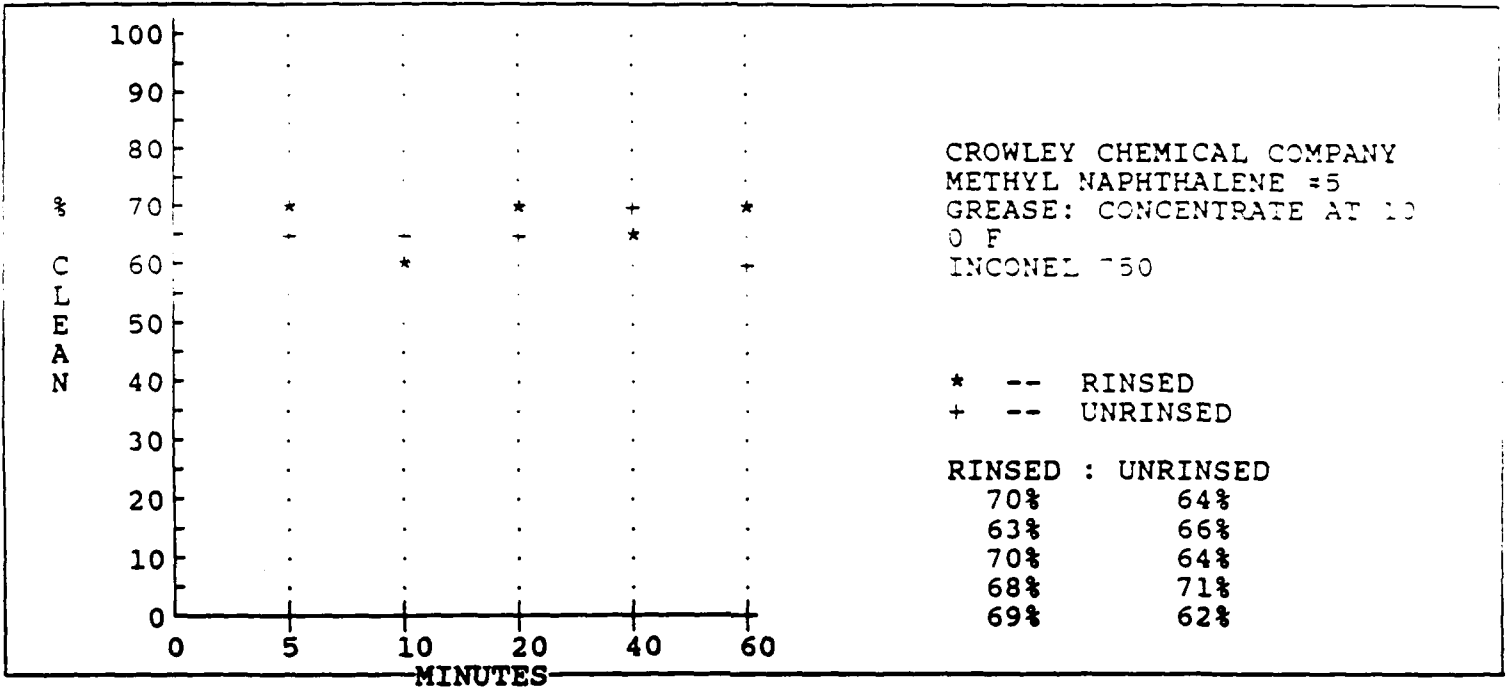
RINSED	UNRINSED
32%	29%
41%	29%
46%	37%
43%	54%
56%	46%



RINSED	UNRINSED
68%	61%
78%	69%
83%	76%
88%	86%
90%	79%

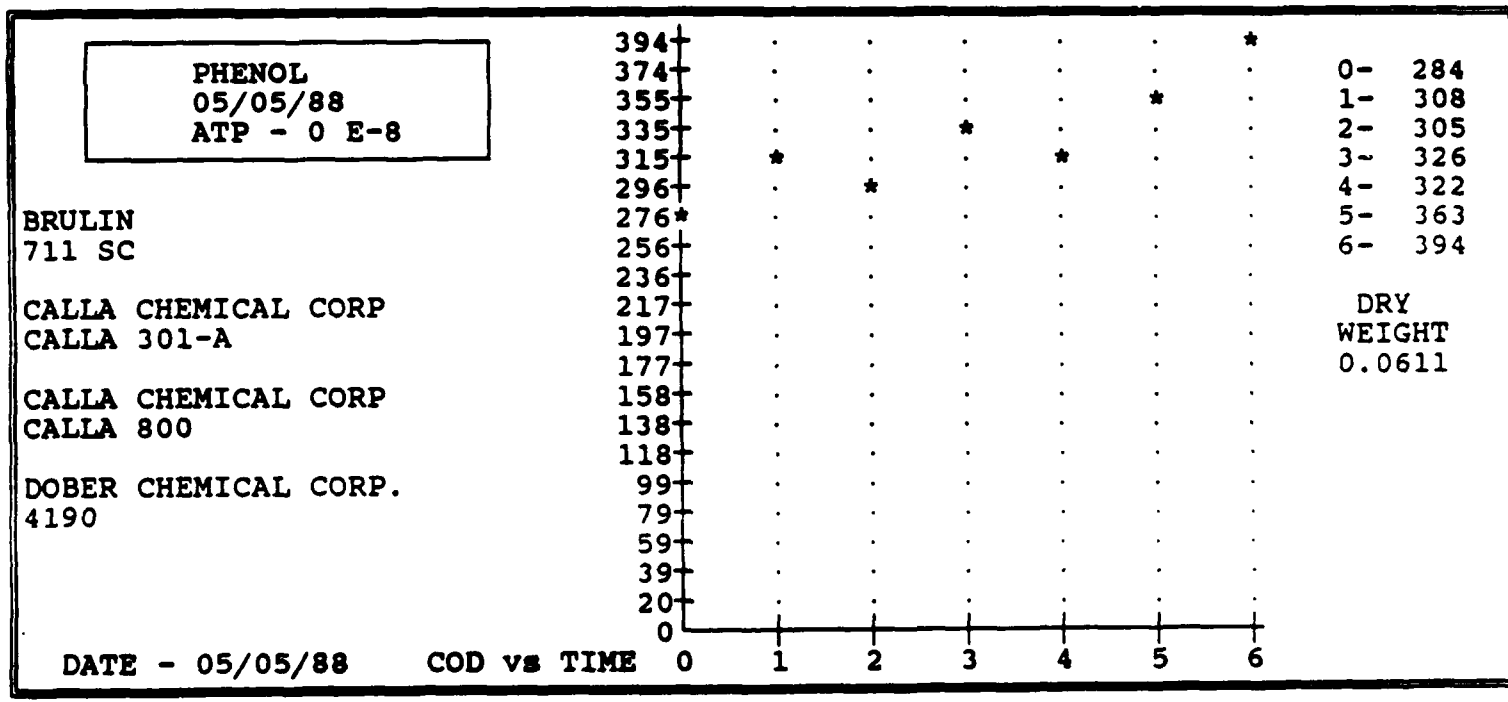
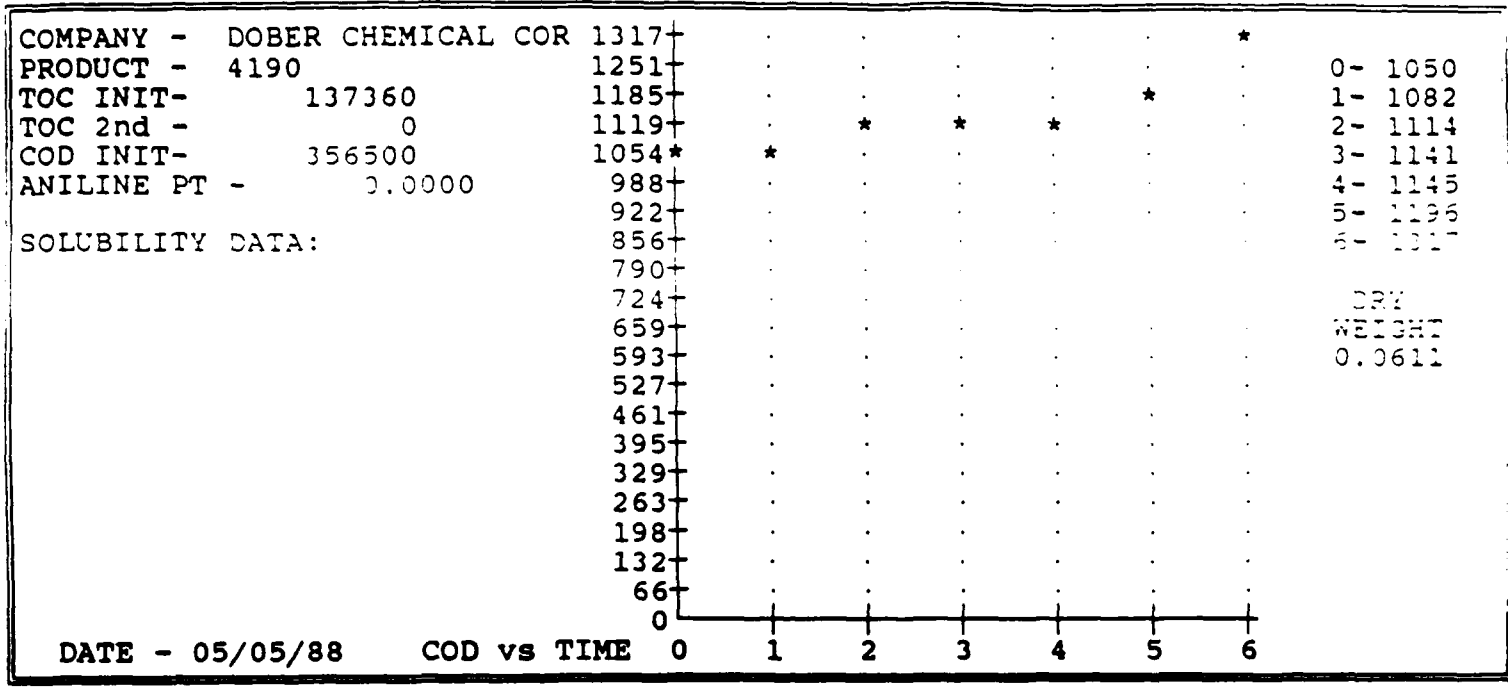






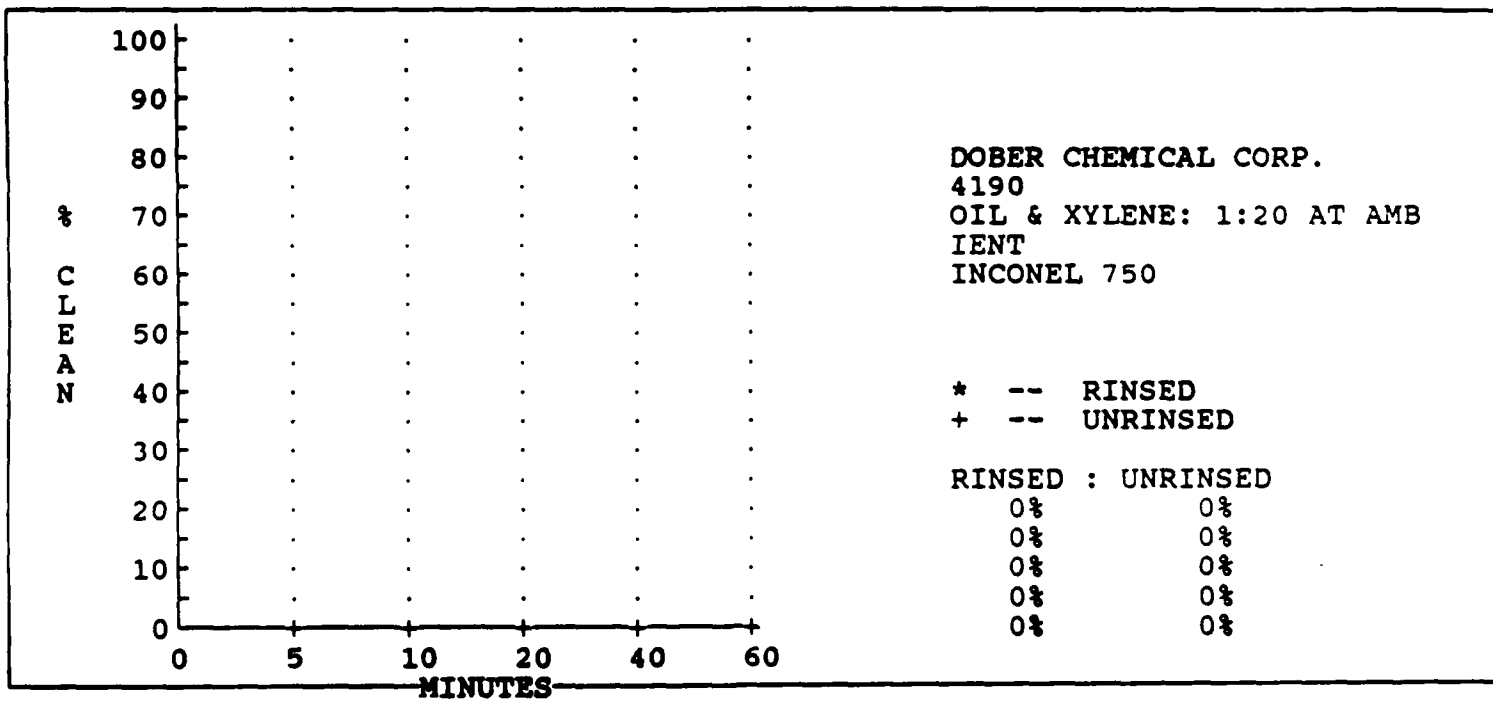
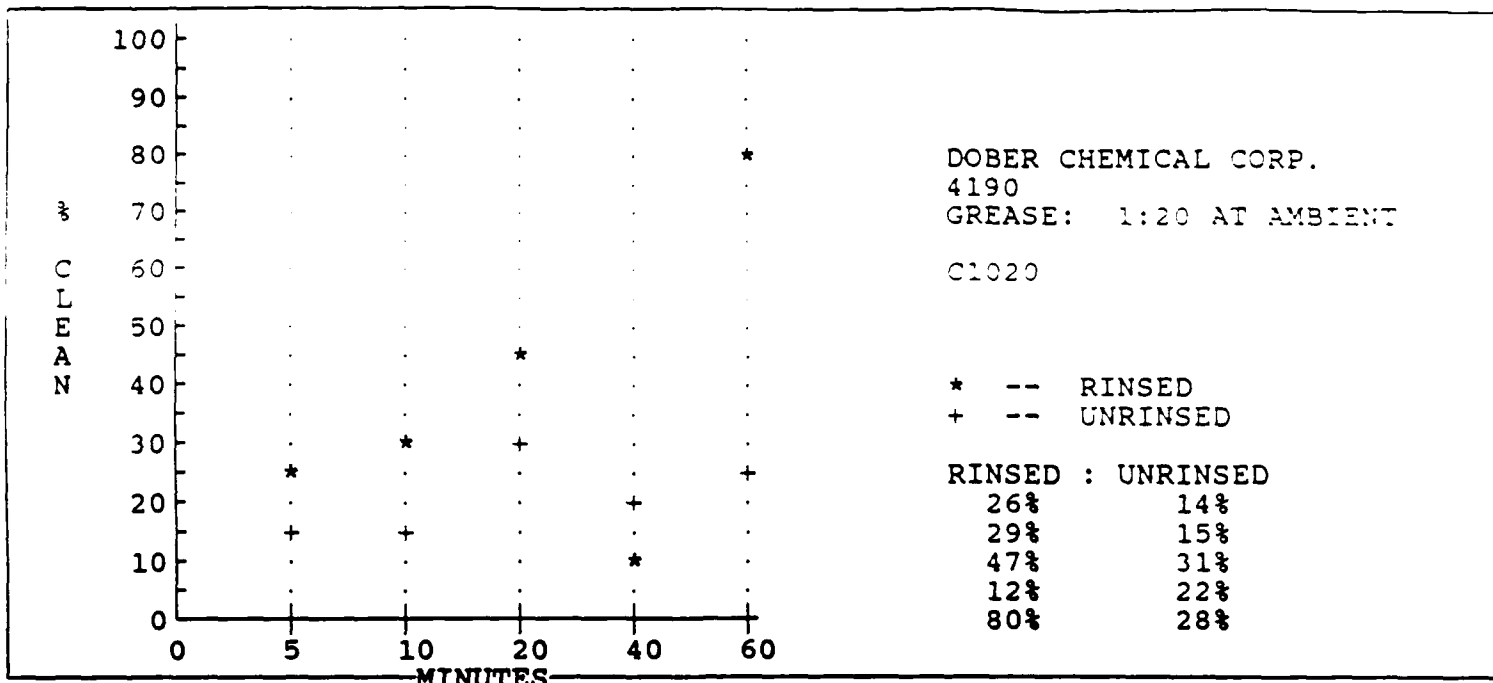
COMPANY - DOBER CHEMICAL COR	1232	.	.	.	.	*	*
PRODUCT - 4190	1170	.	.	*	.	.	.	0- 992
TOC INIT- 137360	1109	.	*	.	*	.	.	1- 1067
TOC 2nd - 0	1047	*	.	.	.	.	.	2- 1105
COD INIT- 356500	986*	.	.	.	.	.	.	3- 1156
ANILINE PT - 0.0000	924	.	.	.	.	.	.	4- 1106
ATP ----- 5 E-8	862	.	.	.	.	.	.	5- 1006
	801	.	.	.	.	.	.	6- 1001
SOLUBILITY DATA:	739	.	.	.	.	.	.
	678	.	.	.	.	.	.	DRY
	616	.	.	.	.	.	.	WEIGHT
	554	.	.	.	.	.	.	0.0403
	493	.	.	.	.	.	.
	431	.	.	.	.	.	.
	370	.	.	.	.	.	.
	308	.	.	.	.	.	.
	246	.	.	.	.	.	.
	185	.	.	.	.	.	.
	123	.	.	.	.	.	.
	62	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 04/19/88	COD vs TIME	0	1	2	3	4	5	6

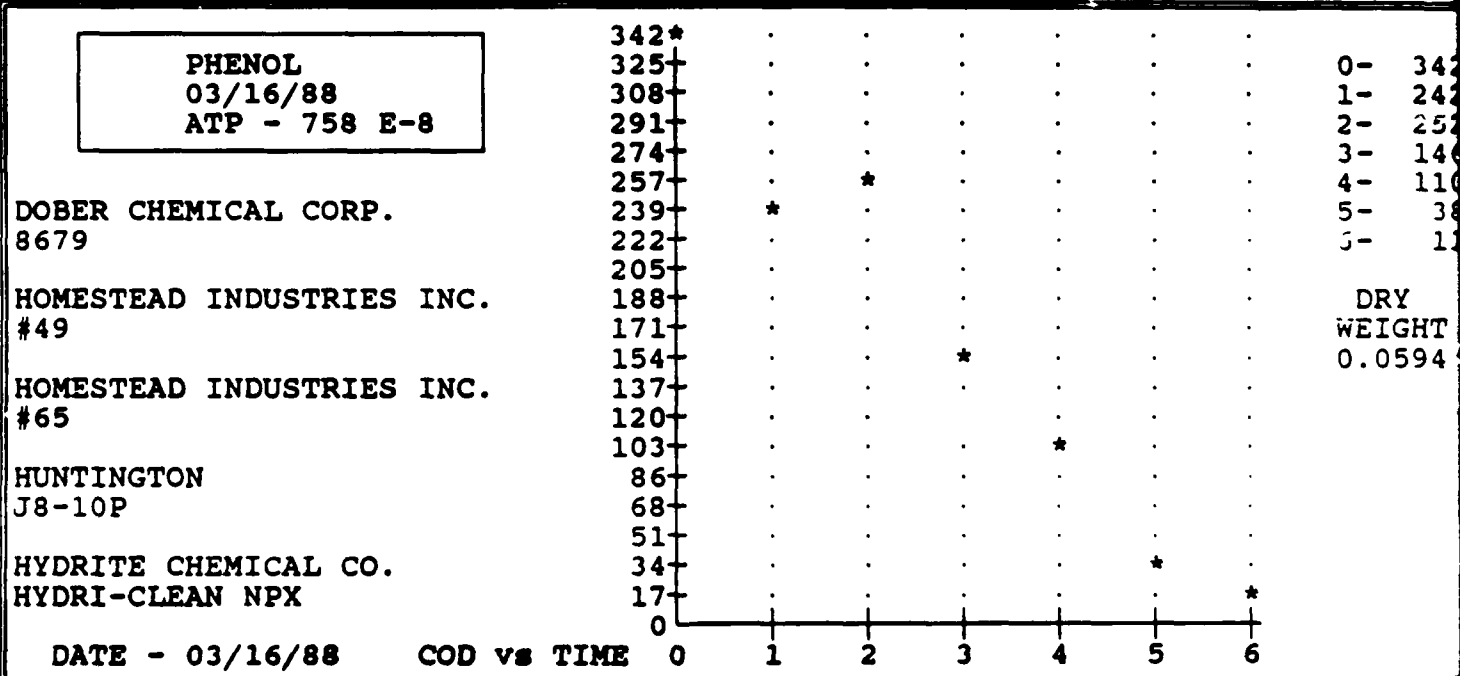
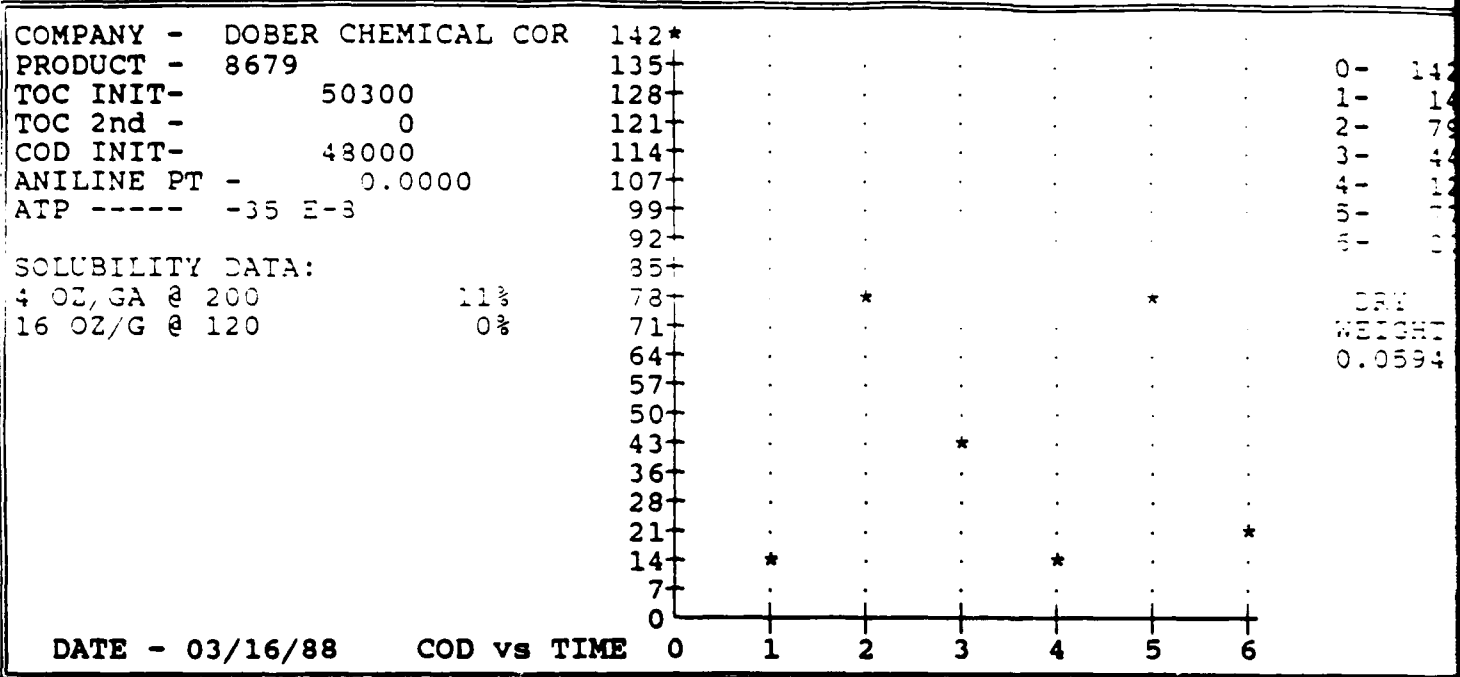
PHENOL 04/19/88 ATP - 0 E-8		258*	.	.	.	.	.	.	0- 258
		245	.	.	.	.	.	.	1- 178
		232	.	.	.	.	.	.	2- 0
		219	.	.	.	.	.	.	3- 75
		206	.	.	.	.	.	.	4- 14
		194	.	.	.	.	.	.	5- 54
BRULIN		181	*	.	.	.	.	.	6- 0
711 SC		168	.	.	.	.	.	.
		155	.	.	.	.	.	.
CALLA CHEMICAL CORP		142	.	.	.	.	.	.	DRY
CALLA 301-A		129	.	.	.	.	.	.	WEIGHT
		116	.	.	.	.	.	.	0.0403
CALLA CHEMICAL CORP		103	.	.	.	.	.	.
CALLA 800		90	.	.	.	.	.	.
		77	.	.	*	.	.	.	
DOBER CHEMICAL CORP.		65	.	.	.	.	.	.
4190		52	.	.	.	.	*	.
		39	.	.	.	.	.	.
		26	.	.	.	.	.	.
		13	.	.	.	.	*	.
		0	.	.	.	.	.	*
DATE - 04/19/88	COD vs TIME	0	1	2	3	4	5	6	

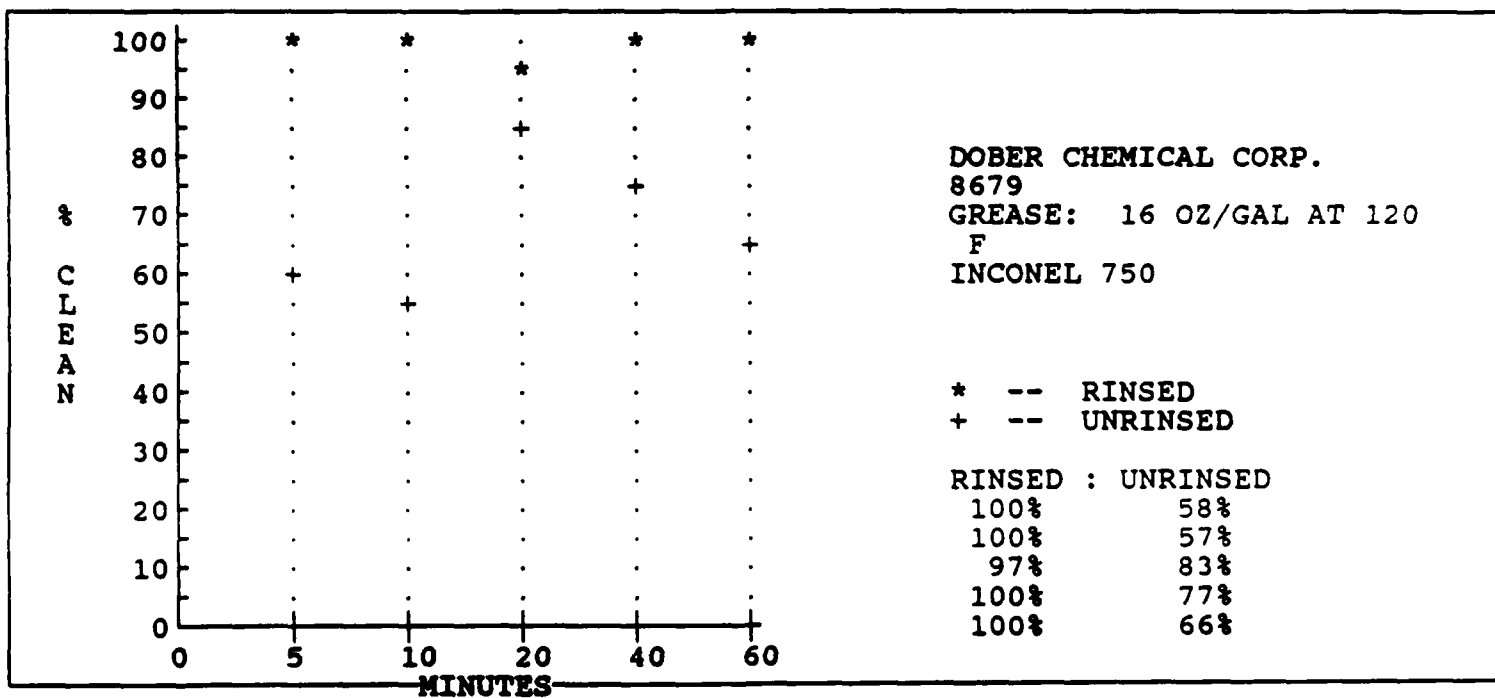
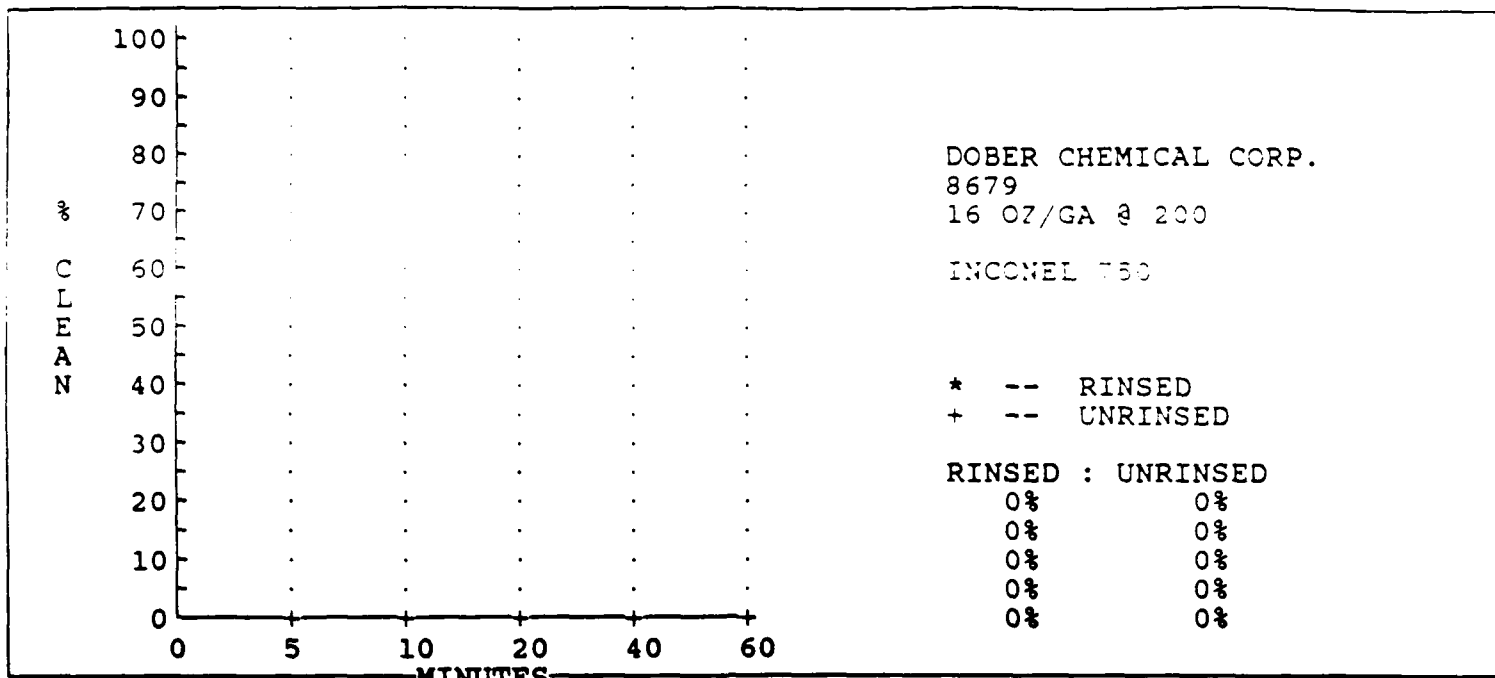


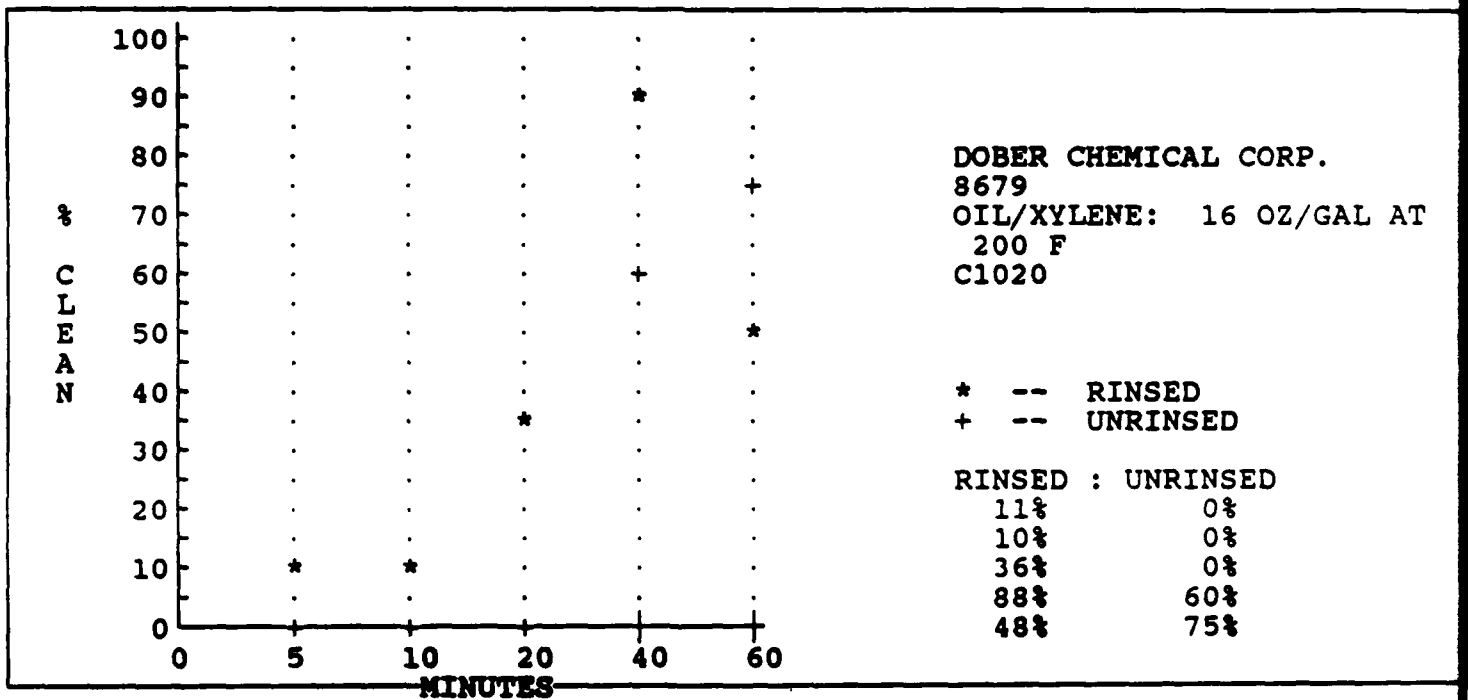
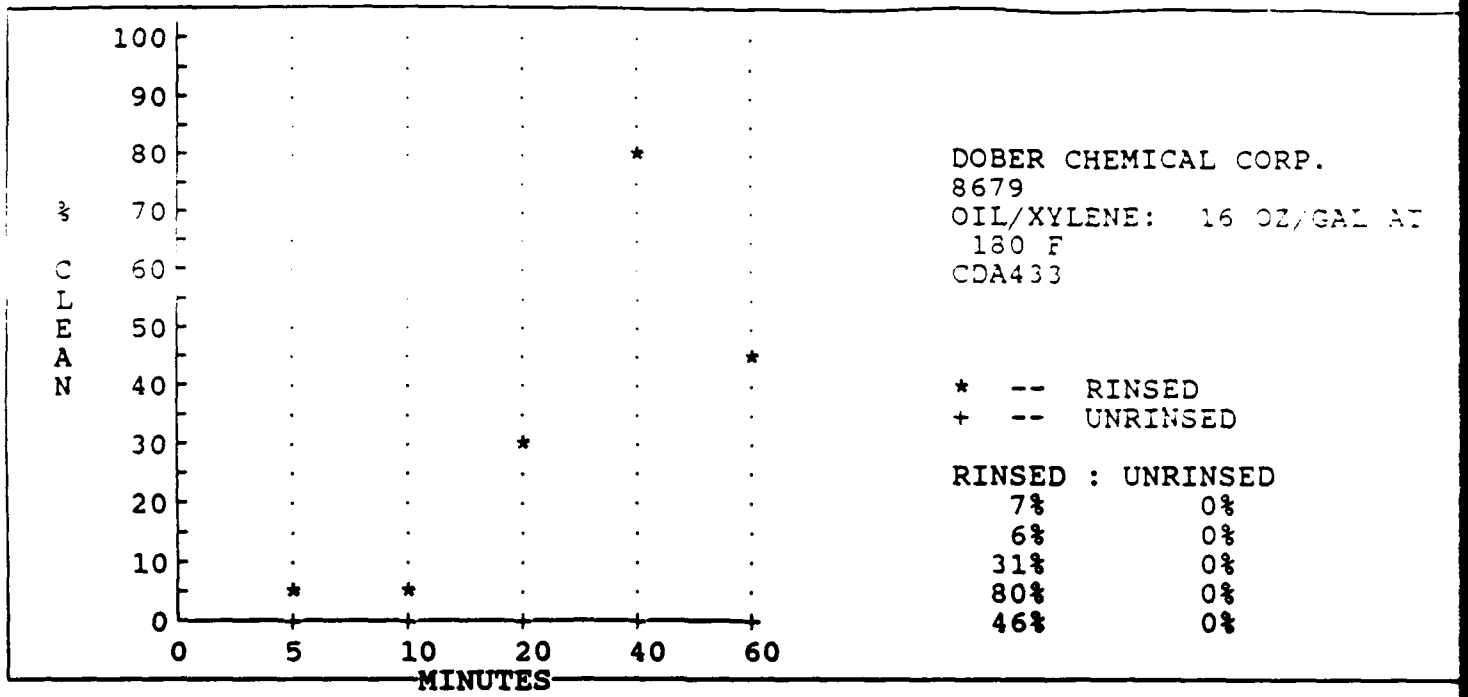
COMPANY - DOBER CHEMICAL COR	1088	.	.	.	.	*	*
PRODUCT - 4190	1034	.	.	*	*	.	.	0- 969
TOC INIT- 137360	979*	*	*	.	.	.	.	1- 988
TOC 2nd - 0	925	.	.	.	.	.	.	2- 987
COD INIT- 356500	870	.	.	.	.	.	.	3- 1012
ANILINE PT - 0.0000	816	.	.	.	.	.	.	4- 1022
ATP ----- 4 E-3	762	.	.	.	.	.	.	5- 1064
	707	.	.	.	.	.	.	6- 1088
SOLUBILITY DATA:	653	.	.	.	.	.	.
	598	.	.	.	.	.	.	DRY
	544	.	.	.	.	.	.	WEIGHT
	490	.	.	.	.	.	.	0.7640
	435	.	.	.	.	.	.
	381	.	.	.	.	.	.
	326	.	.	.	.	.	.
	272	.	.	.	.	.	.
	218	.	.	.	.	.	.
	163	.	.	.	.	.	.
	109	.	.	.	.	.	.
	54	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 06/15/88	COD vs TIME	0	1	2	3	4	5	6

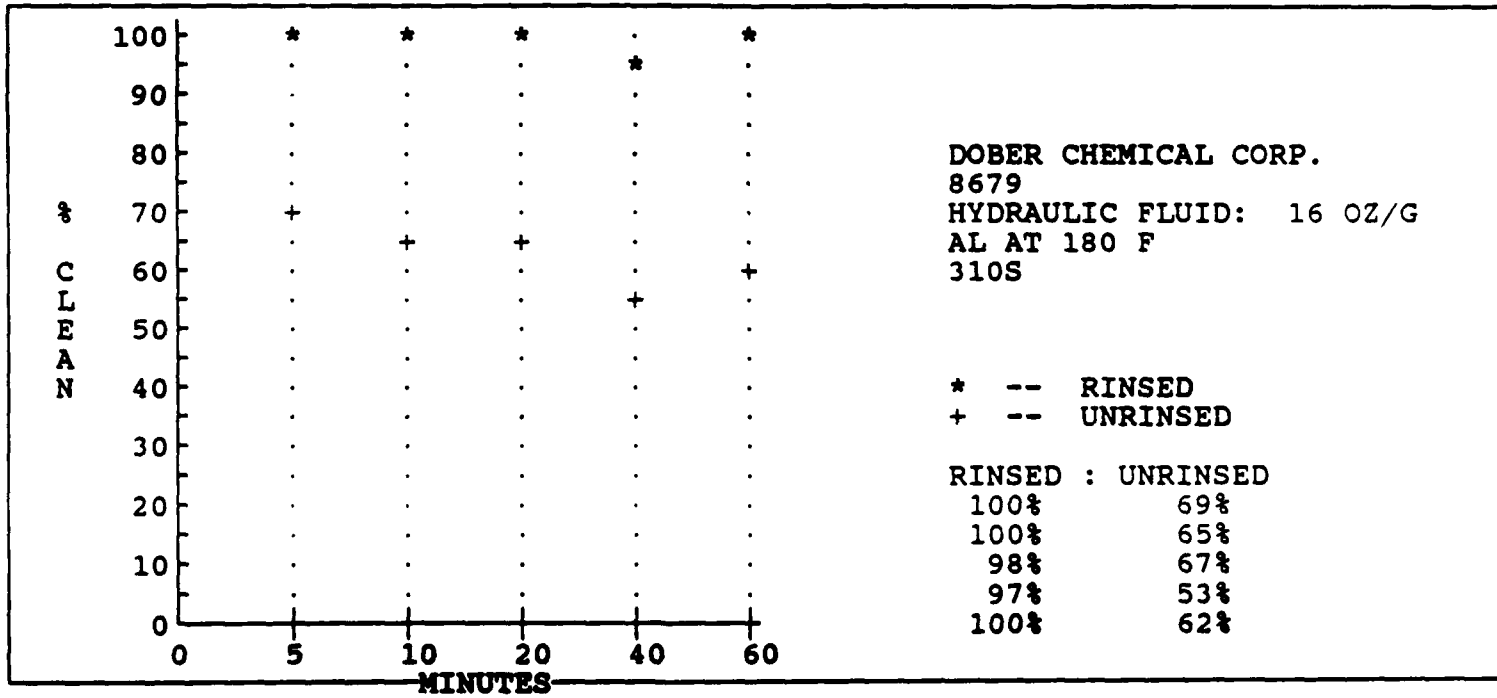
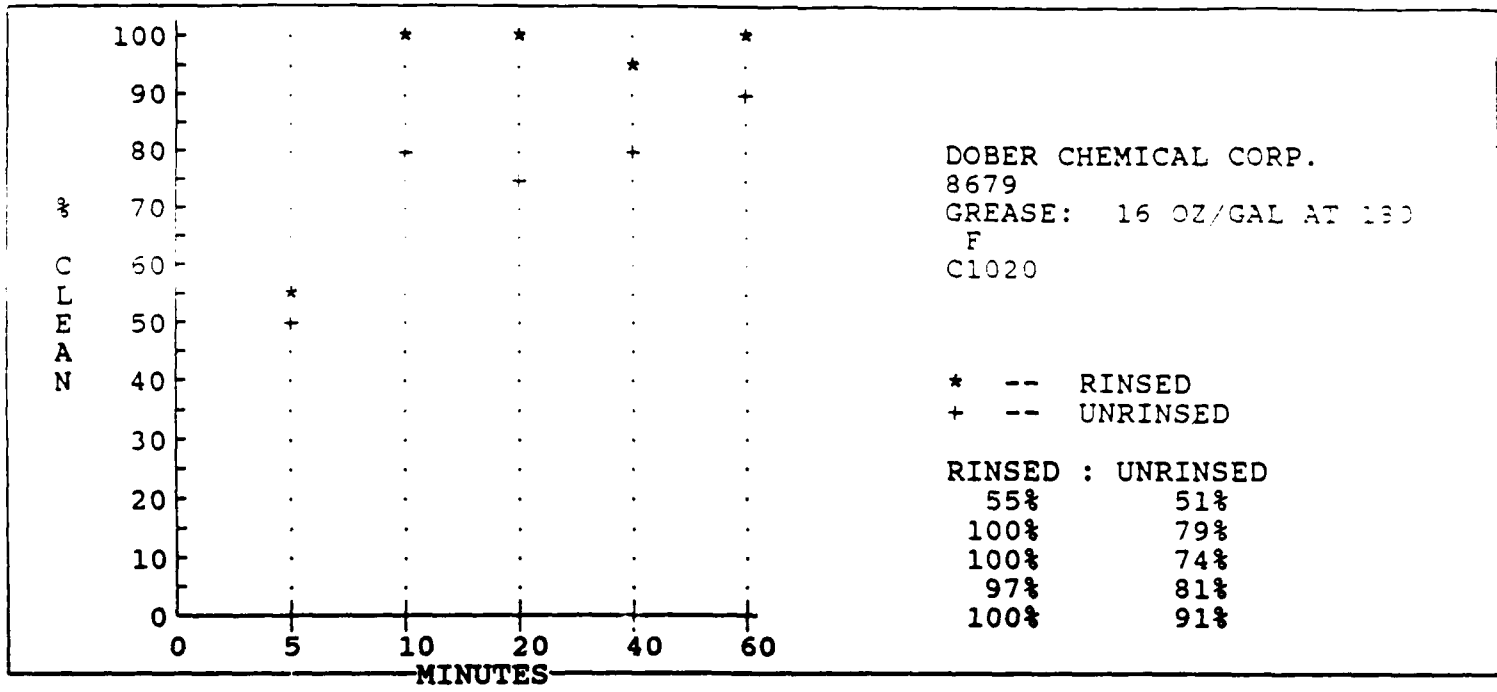
PHENOL 06/15/88 ATP - -19 E-8		254*	
		241	.	.	.	.	.	0- 254
		229	.	.	.	.	.	1- 187
		216	.	.	.	.	.	2- 107
		203	.	.	.	.	.	3- 32
BRULIN		191	*	.	.	.	.	4- 20
711 SC		178	.	.	.	.	.	5- 16
		165	.	.	.	.	.	6- 50
		152	.	.	.	.	.
CABOT CHEMICAL CORP.		140	.	.	.	.	.	DRY
X-166		127	.	.	.	.	.	WEIGHT
		114	.	.	.	.	.	0.0764
CALLA CHEMICAL CORP		102	.	*	.	.	.		
CALLA 301-A		89	.	.	.	.	.
		76	.	.	.	.	.
CALLA CHEMICAL CORP		64	.	.	.	.	.
CALLA 800		51	.	.	.	.	*
		38	.	.	*	.	.		
DOBER CHEMICAL CORP.		25	.	.	.	*	.		
4190		13	.	.	.	.	*
		0	.	.	.	.	.
DATE - 06/15/88	COD vs TIME	0	1	2	3	4	5	6	

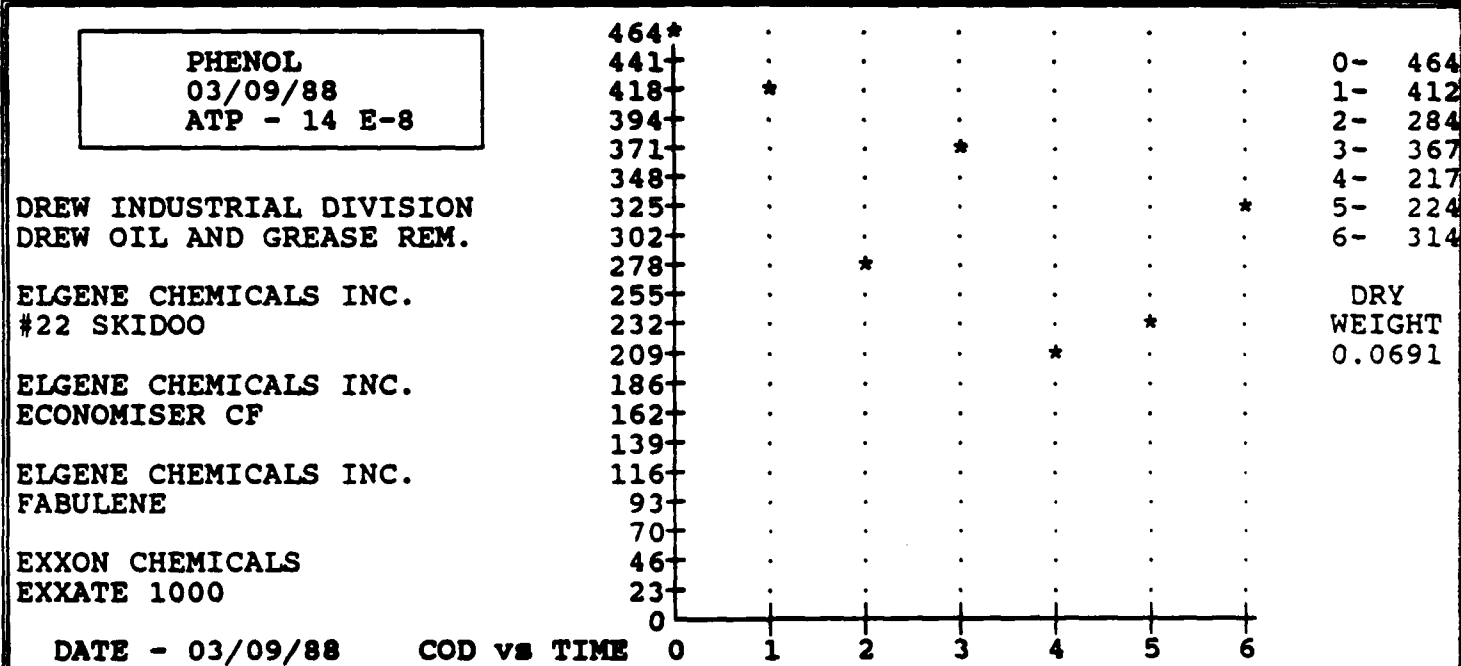
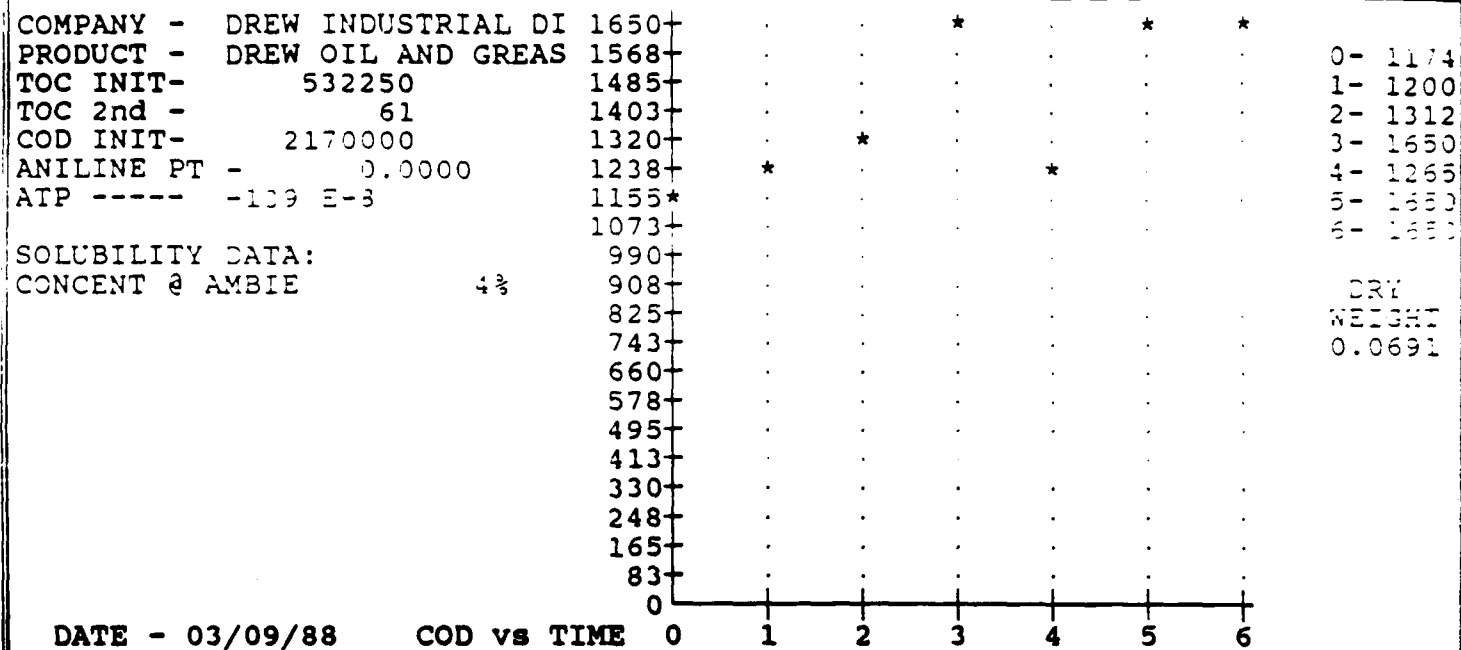


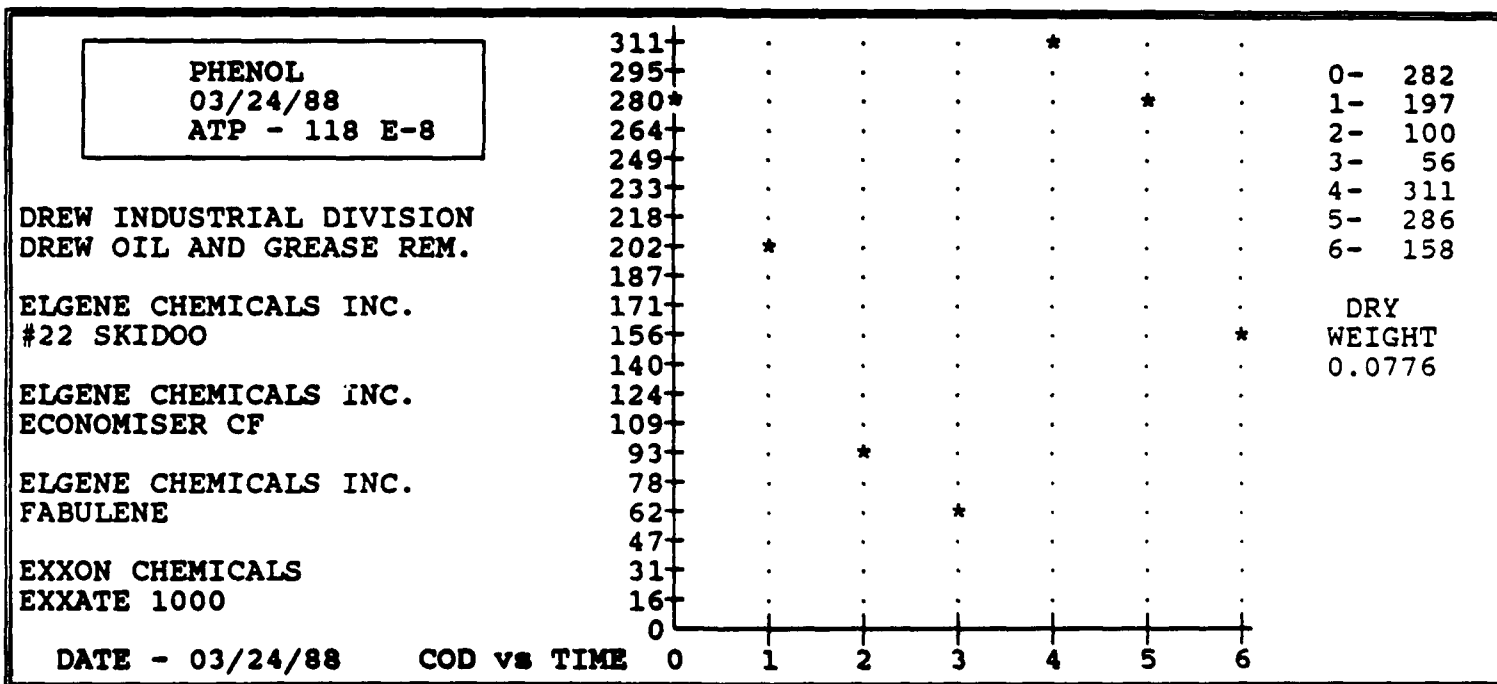
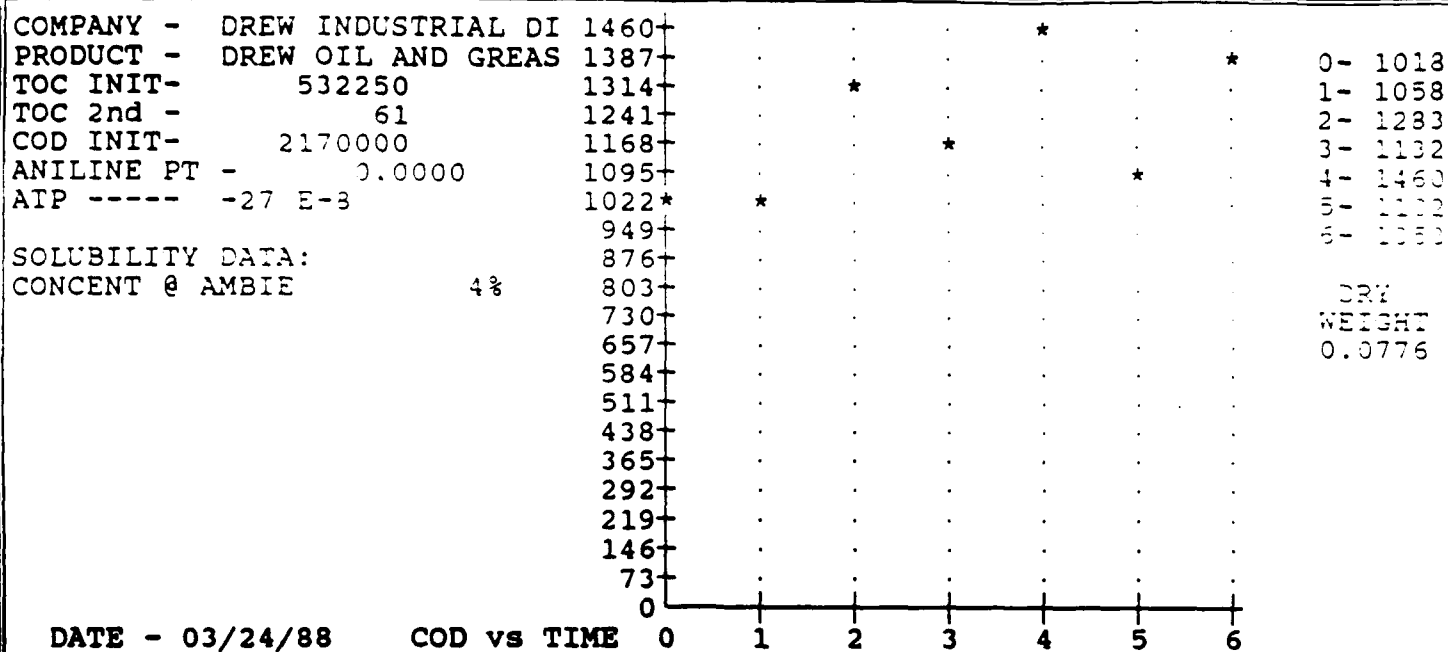


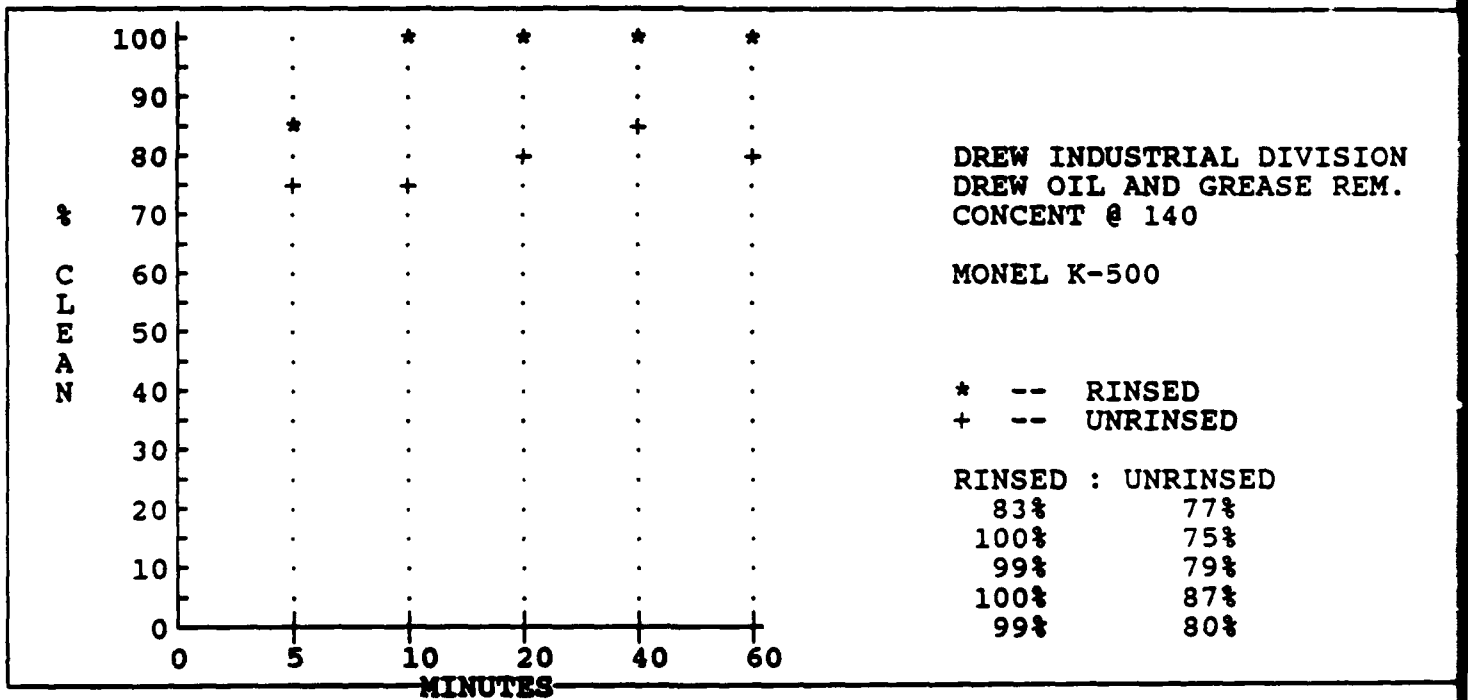
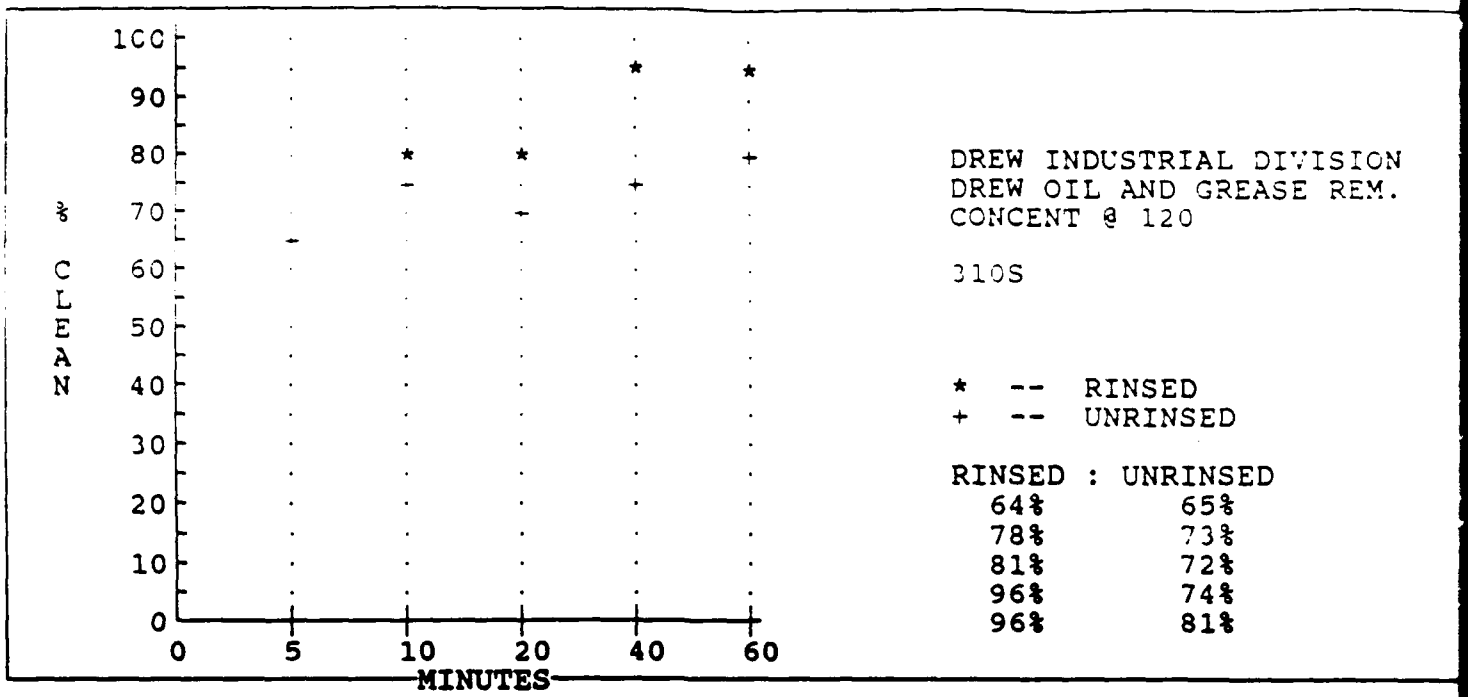






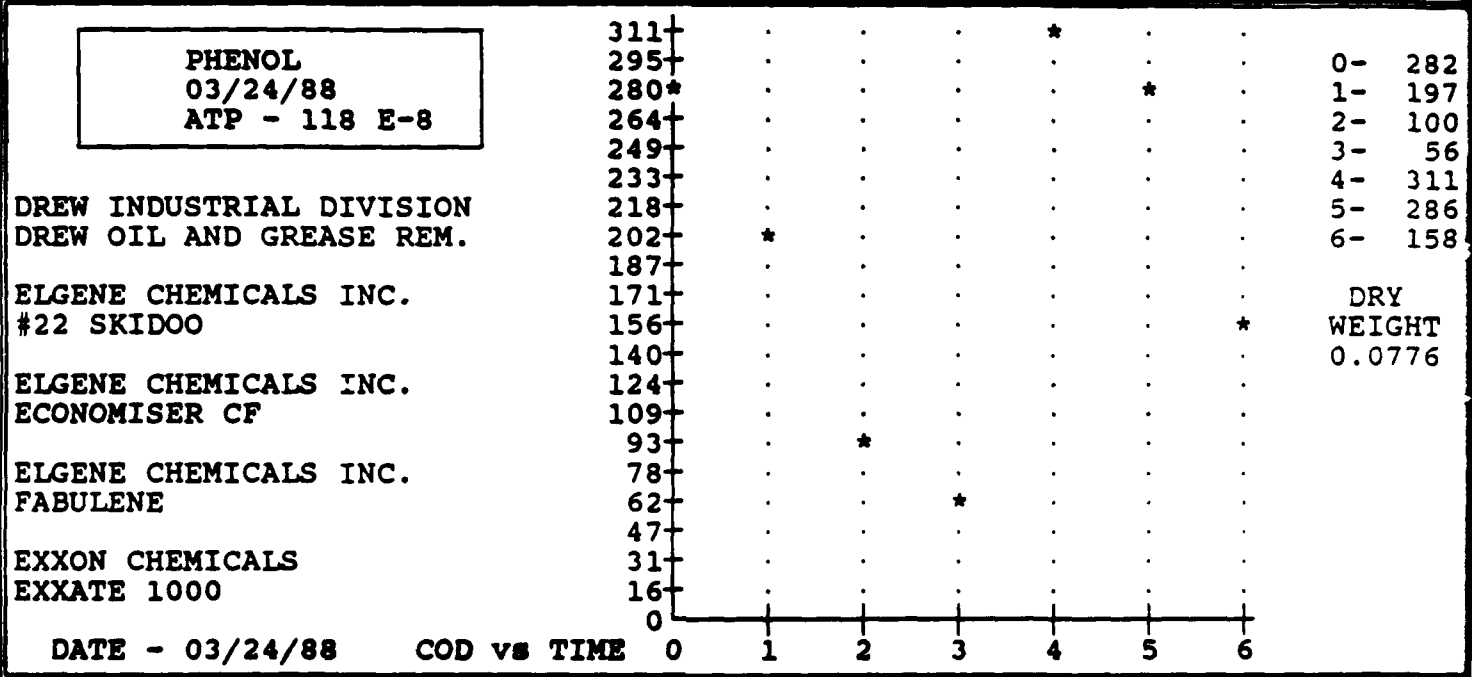
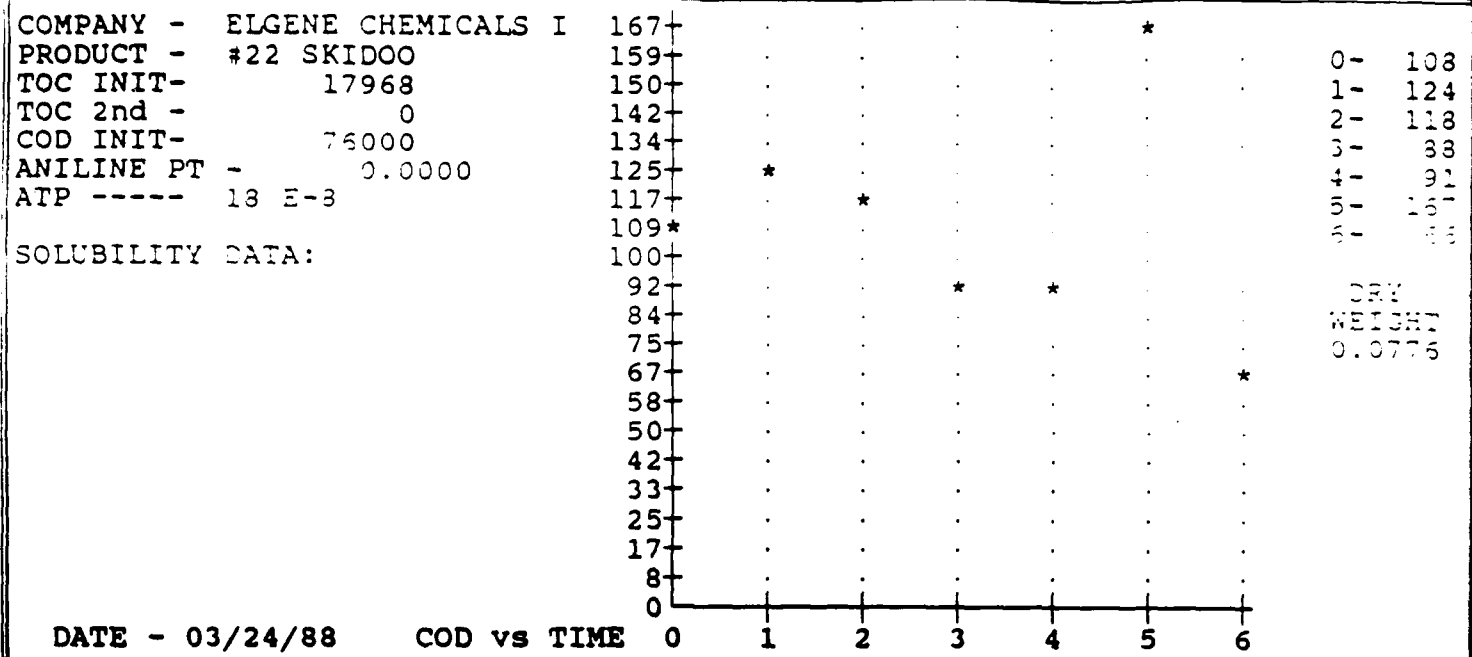


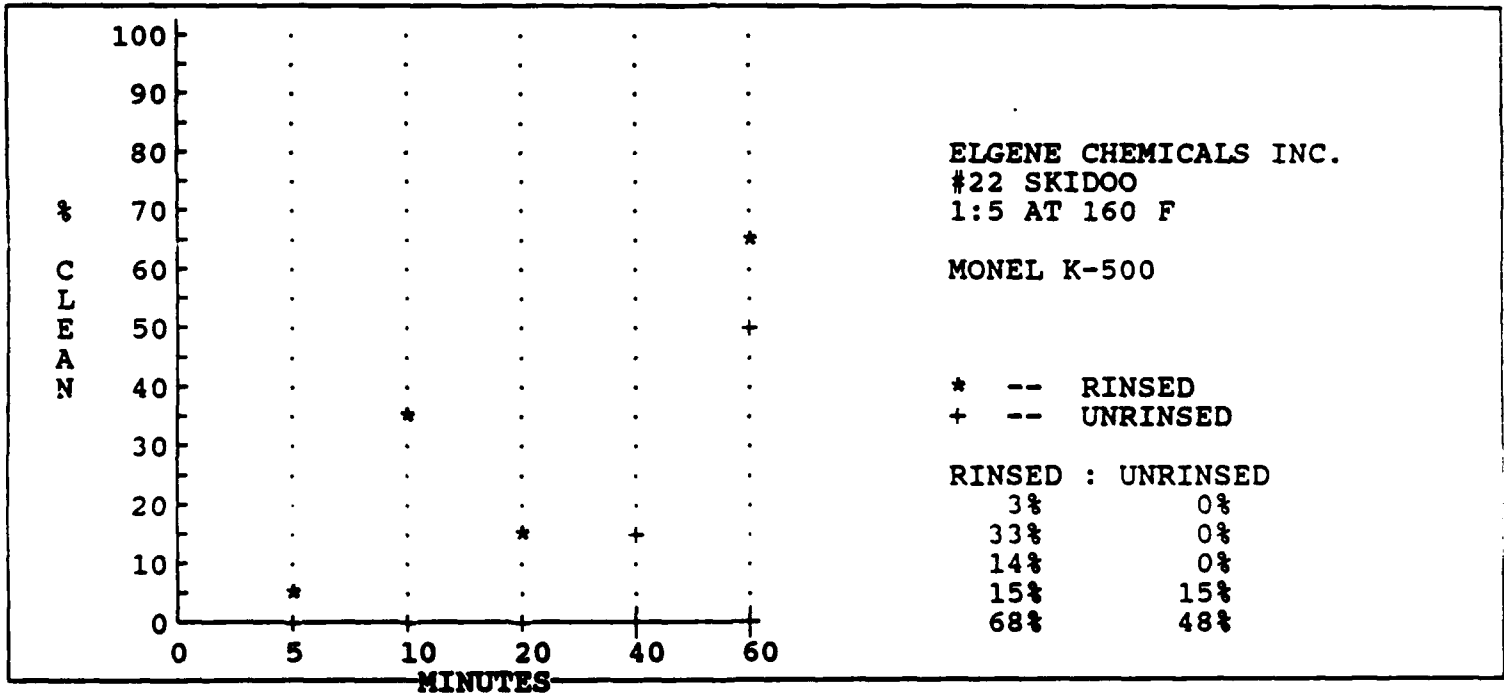
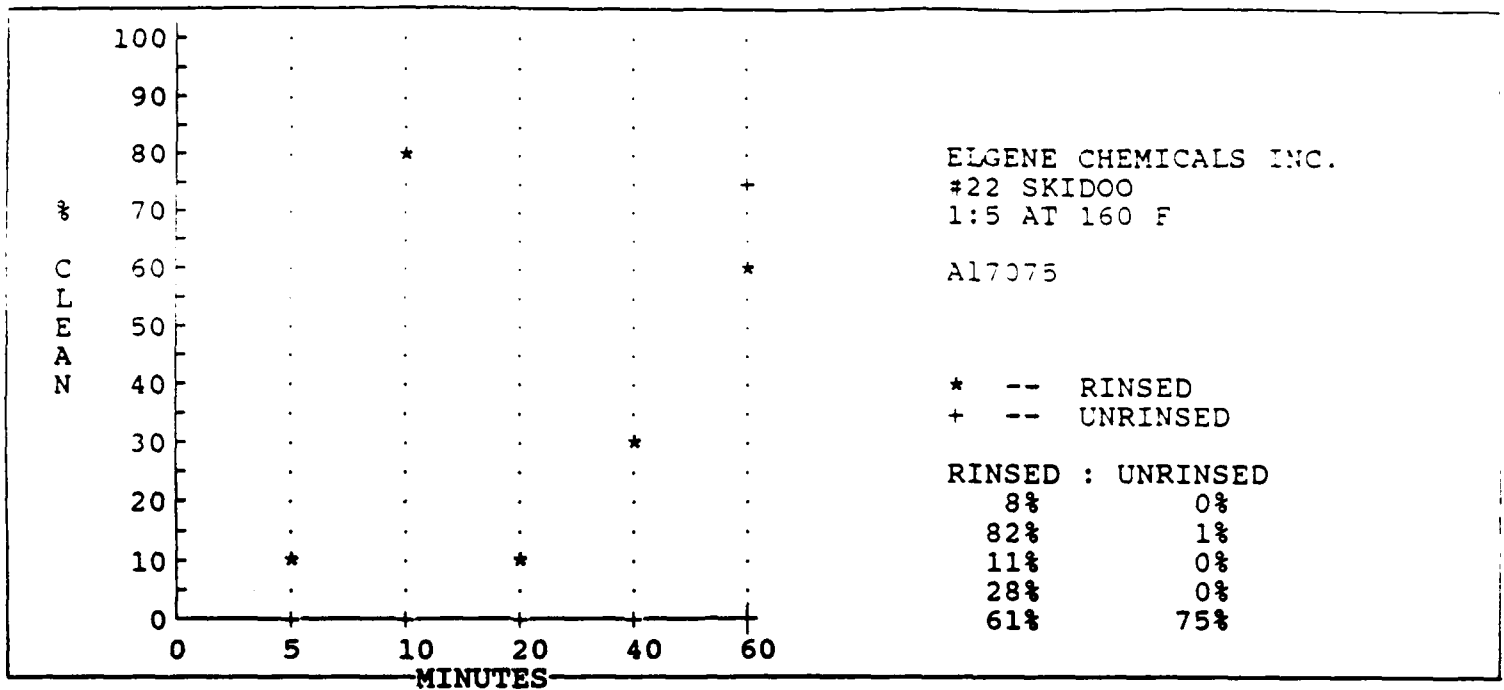


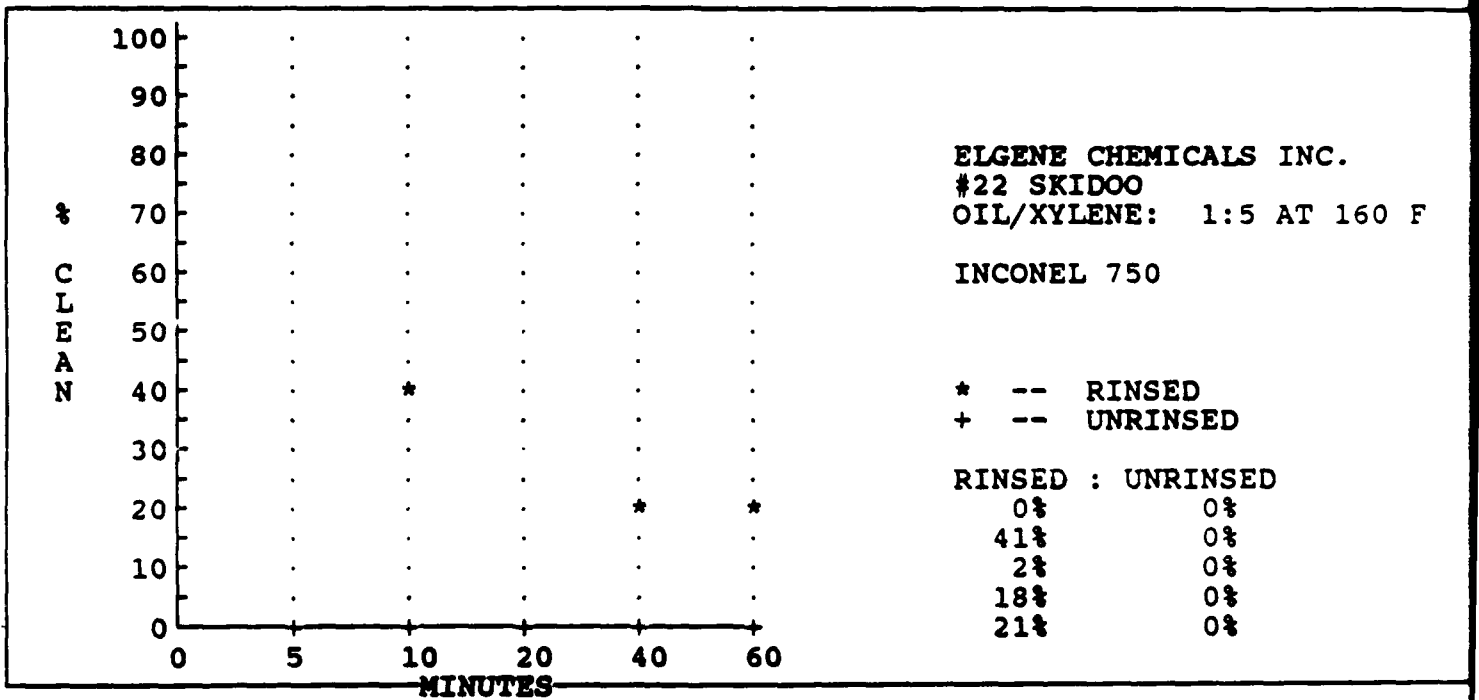
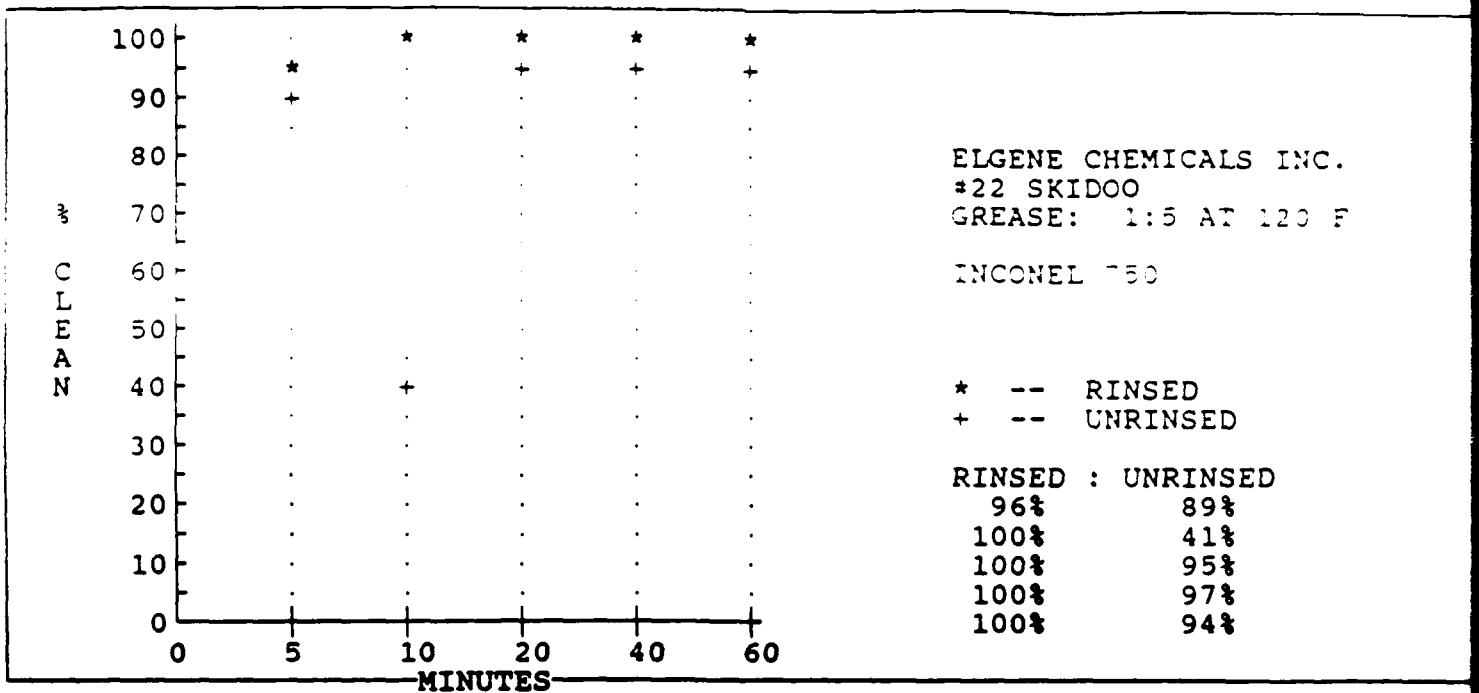


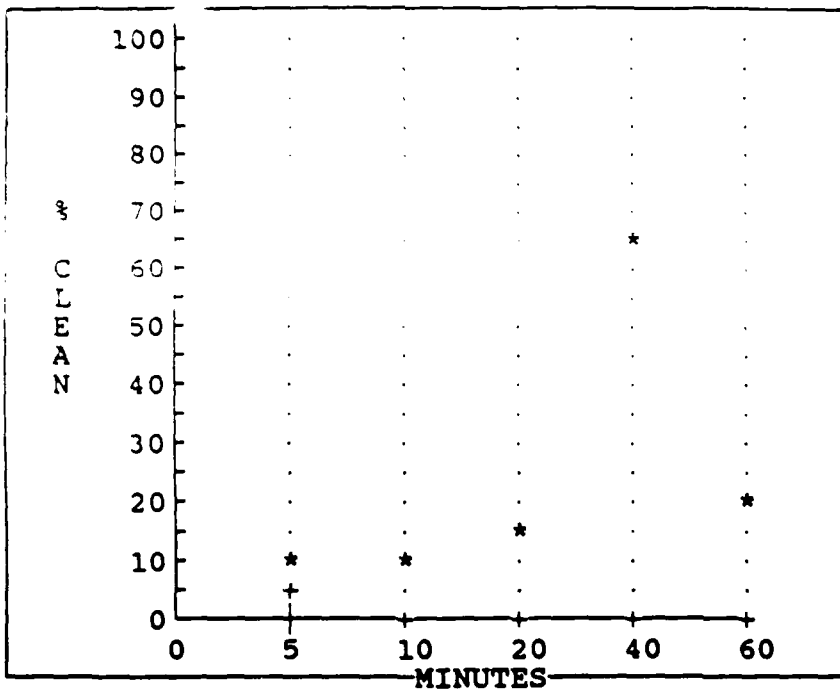
COMPANY - ELGENE CHEMICALS I	239	.	.	*	.	.	.	.	.	.
PRODUCT - #22 SKIDOO	227	.	.	.	.	.	.	.	.	0- 191
TOC INIT- 17968	215	*	.	.	.	.	.	.	.	1- 219
TOC 2nd - 0	203	.	.	.	.	.	.	.	.	2- 136
COD INIT- 76000	191*	.	.	.	.	.	.	.	.	3- 239
ANILINE PT - 0.0000	179	.	.	.	.	.	.	.	.	4- 132
ATP ----- -24 E-8	167	.	.	.	.	.	.	.	.	5- 144
	155	.	.	.	.	.	.	.	.	6- 126
SOLUBILITY DATA:	143	.	.	.	.	.	*	.	.
	131	.	*	.	*	.	.	.	.	DRY
	120	.	.	.	.	.	.	.	.	WEIGHT
	108	.	.	.	.	.	.	.	.	0.0691
	96	.	.	.	.	.	.	.	*
	84	.	.	.	.	.	.	.	.
	72	.	.	.	.	.	.	.	.
	60	.	.	.	.	.	.	.	.
	48	.	.	.	.	.	.	.	.
	36	.	.	.	.	.	.	.	.
	24	.	.	.	.	.	.	.	.
	12	.	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.	.
DATE - 03/09/88	COD vs TIME	0	1	2	3	4	5	6		

PHENOL 03/09/88 ATP - 14 E-8		464*	.	.	.	.	.	.	.	.
		441	.	.	.	.	.	.	.	.	0- 464
		418	*	.	.	.	.	.	.	.	1- 412
		394	.	.	.	.	.	.	.	.	2- 284
		371	.	.	*	.	.	.	.	.	3- 367
		348	.	.	.	.	.	.	.	.	4- 217
DREW INDUSTRIAL DIVISION		325	.	.	.	.	.	.	*	.	5- 224
DREW OIL AND GREASE REM.		302	.	.	.	.	.	.	.	.	6- 314
		278	.	*	.	.	.	.	.	.
ELGENE CHEMICALS INC.		255	.	.	.	.	.	.	.	.	DRY
#22 SKIDOO		232	.	.	.	.	.	*	.	.	WEIGHT
		209	.	.	.	*	.	.	.	.	0.0691
ELGENE CHEMICALS INC.		186	.	.	.	.	.	.	.	.
ECONOMISER CF		162	.	.	.	.	.	.	.	.
		139	.	.	.	.	.	.	.	.
ELGENE CHEMICALS INC.		116	.	.	.	.	.	.	.	.
FABULENE		93	.	.	.	.	.	.	.	.
		70	.	.	.	.	.	.	.	.
EXXON CHEMICALS		46	.	.	.	.	.	.	.	.
EXXATE 1000		23	.	.	.	.	.	.	.	.
		0	.	.	.	.	.	.	.	.
DATE - 03/09/88	COD vs TIME	0	1	2	3	4	5	6			





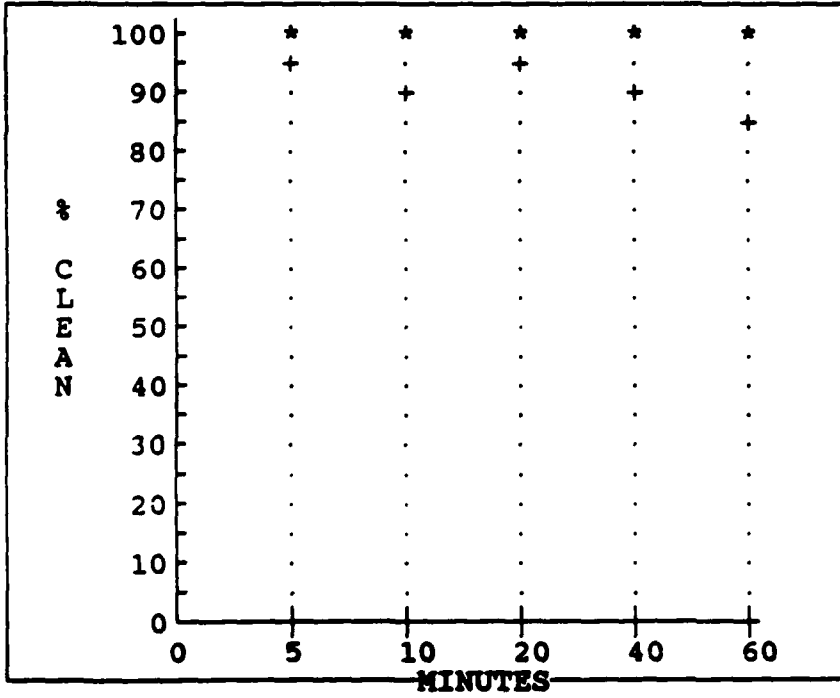




ELGENE CHEMICALS INC.
 #22 SKIDOO
 OIL/XYLENE: 1:5 AT 130 F
 INCONEL 750

* -- RINSED
 + -- UNRINSED

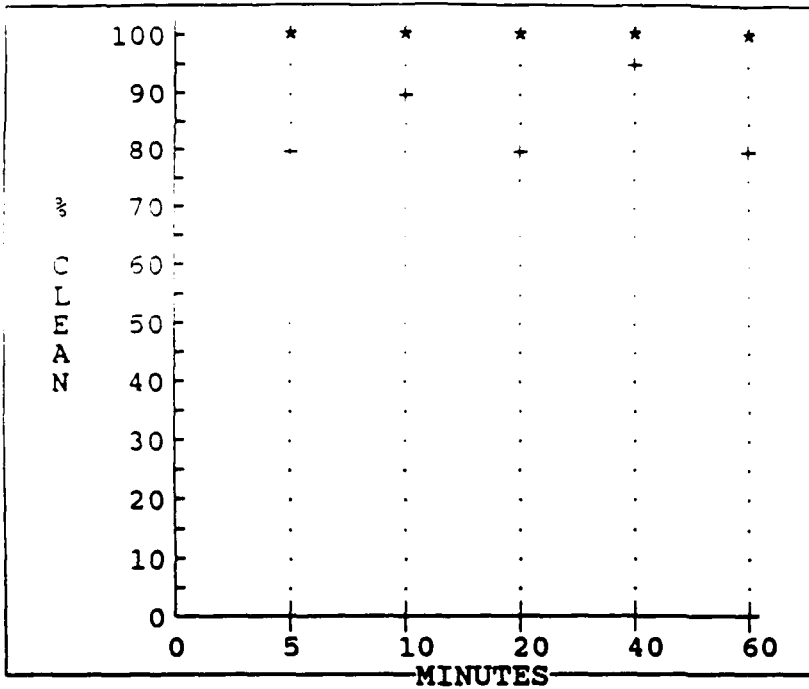
RINSED	UNRINSED
11%	6%
9%	0%
16%	0%
63%	0%
19%	0%



ELGENE CHEMICALS INC.
 #22 SKIDOO
 GREASE: 1:5 AT 160 F
 310S

* -- RINSED
 + -- UNRINSED

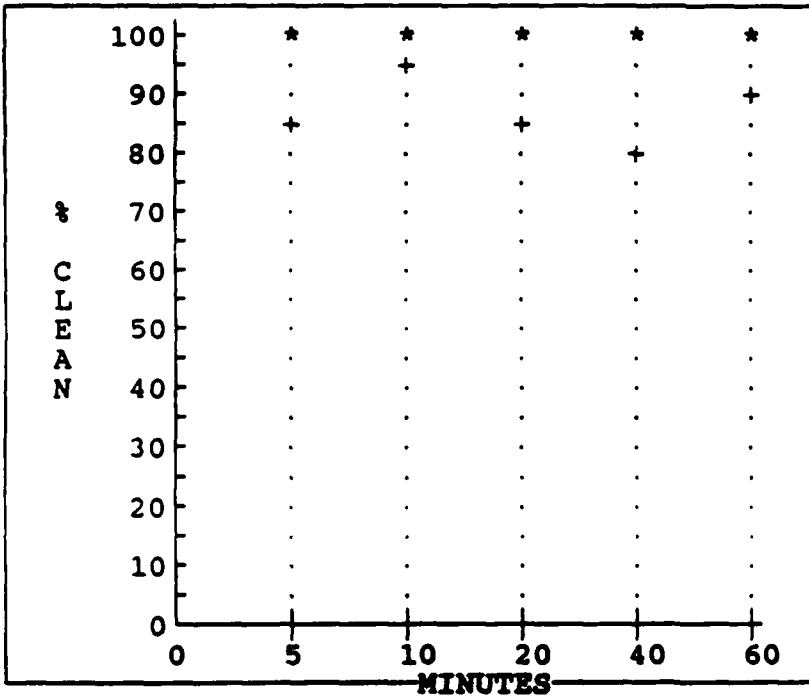
RINSED	UNRINSED
100%	93%
100%	90%
100%	95%
99%	92%
100%	86%



ELGENE CHEMICALS INC.
 #22 SKIDOO
 HYDRAULIC FLUID: 1:5 AT
 160 F
 C1020

* -- RINSED
 + -- UNRINSED

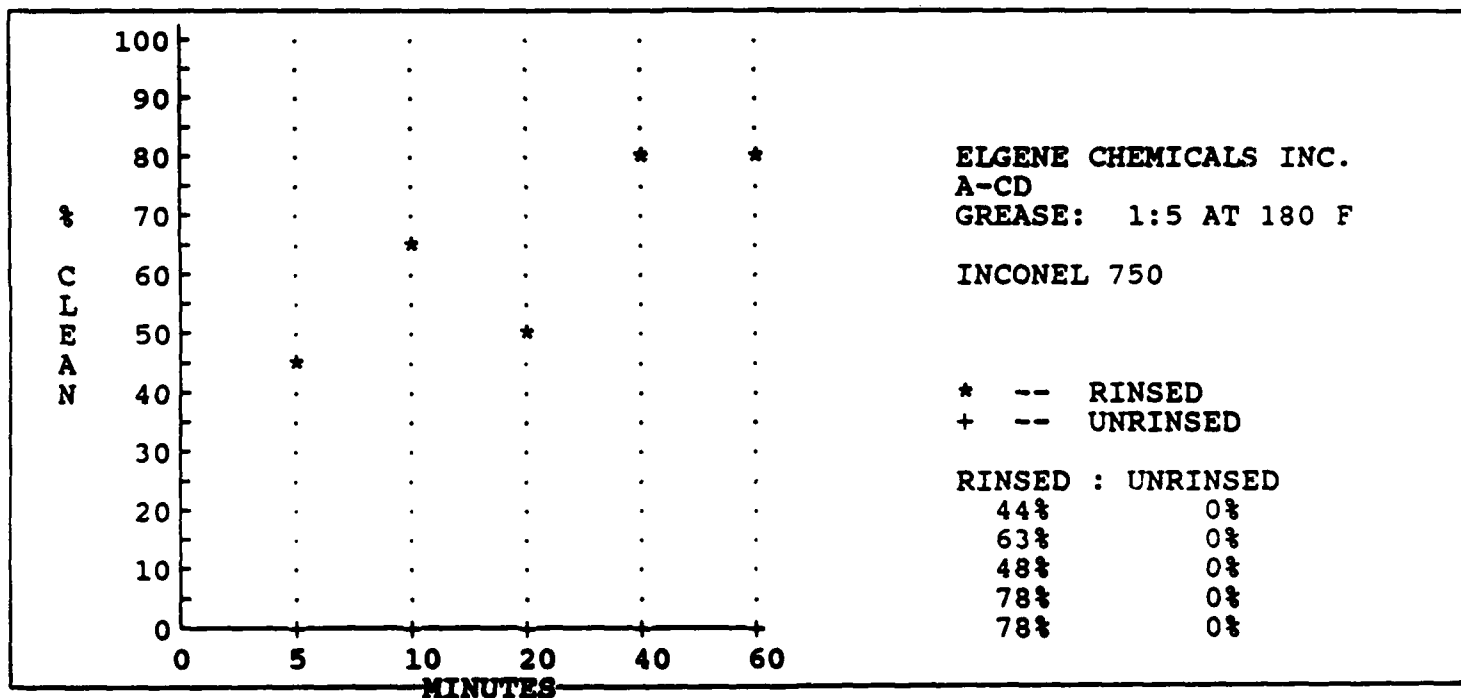
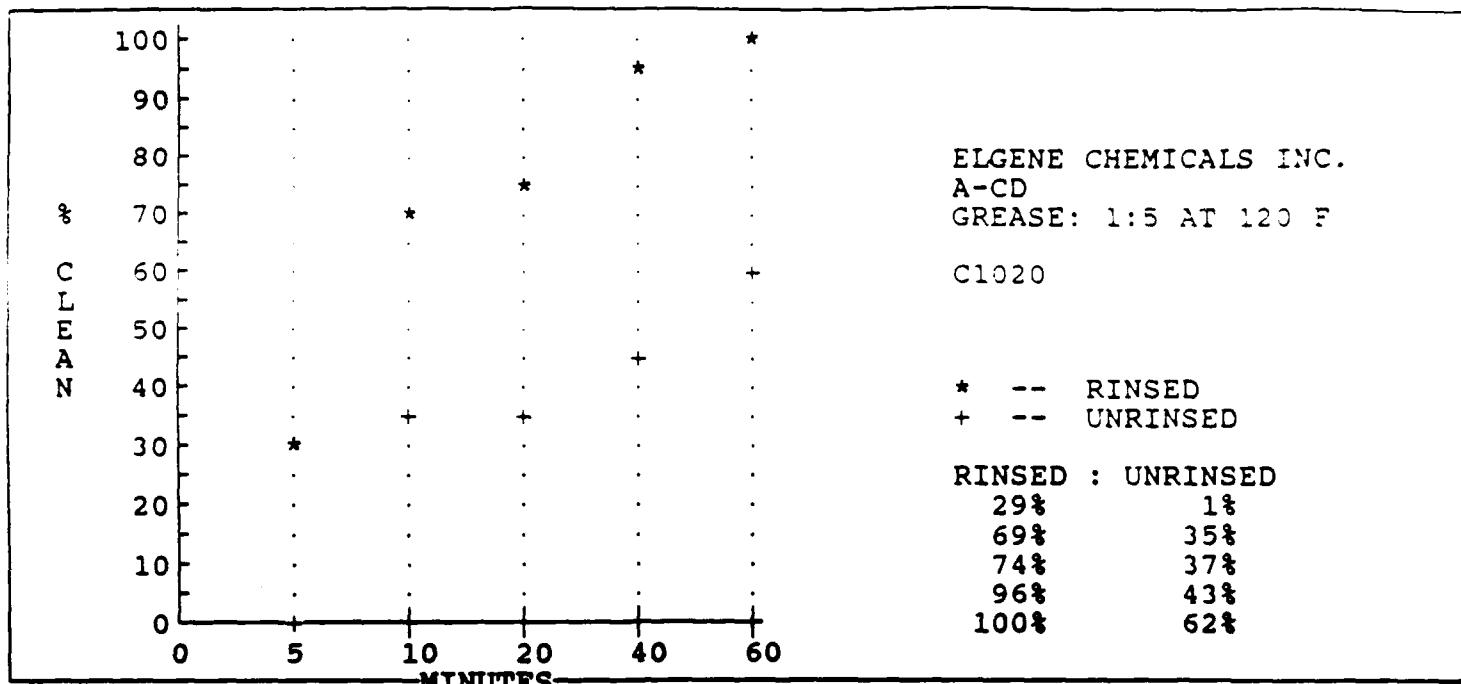
RINSED	UNRINSED
100%	79%
100%	92%
100%	80%
98%	97%
100%	82%

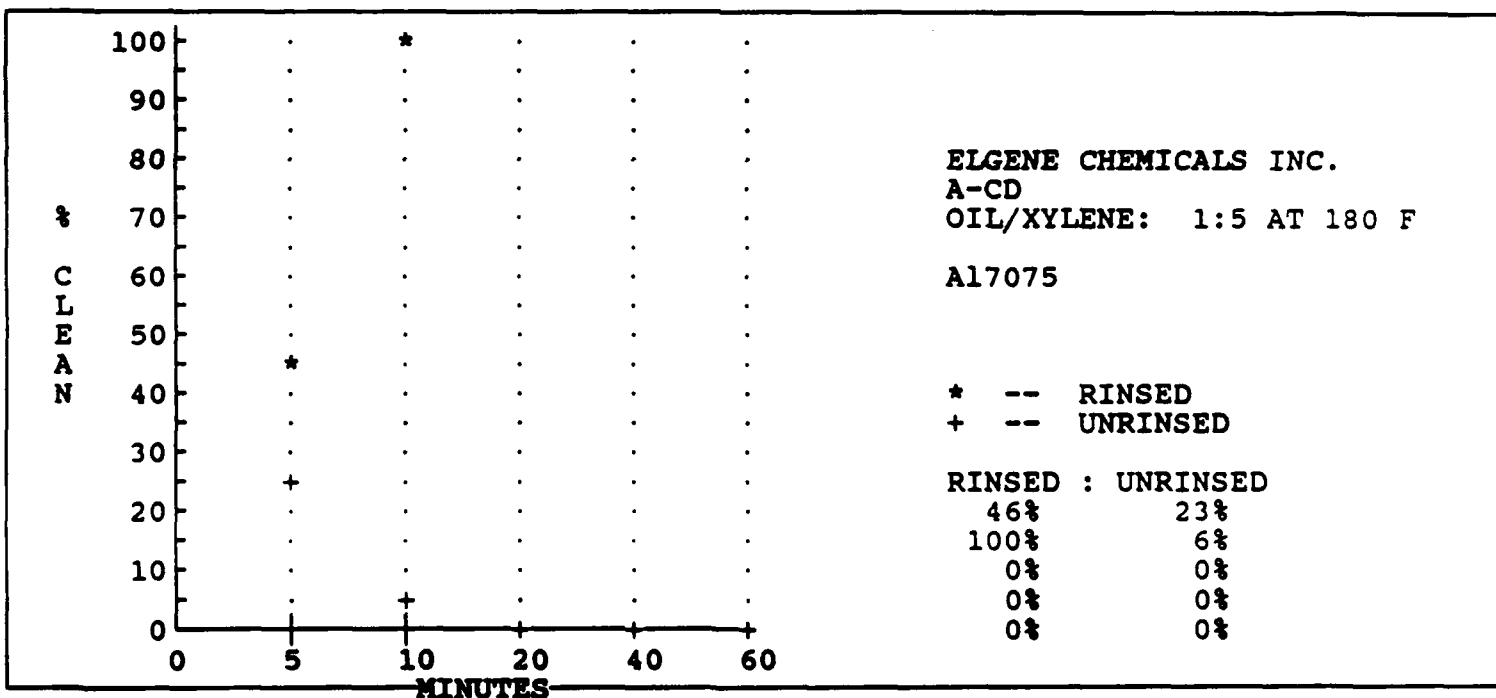
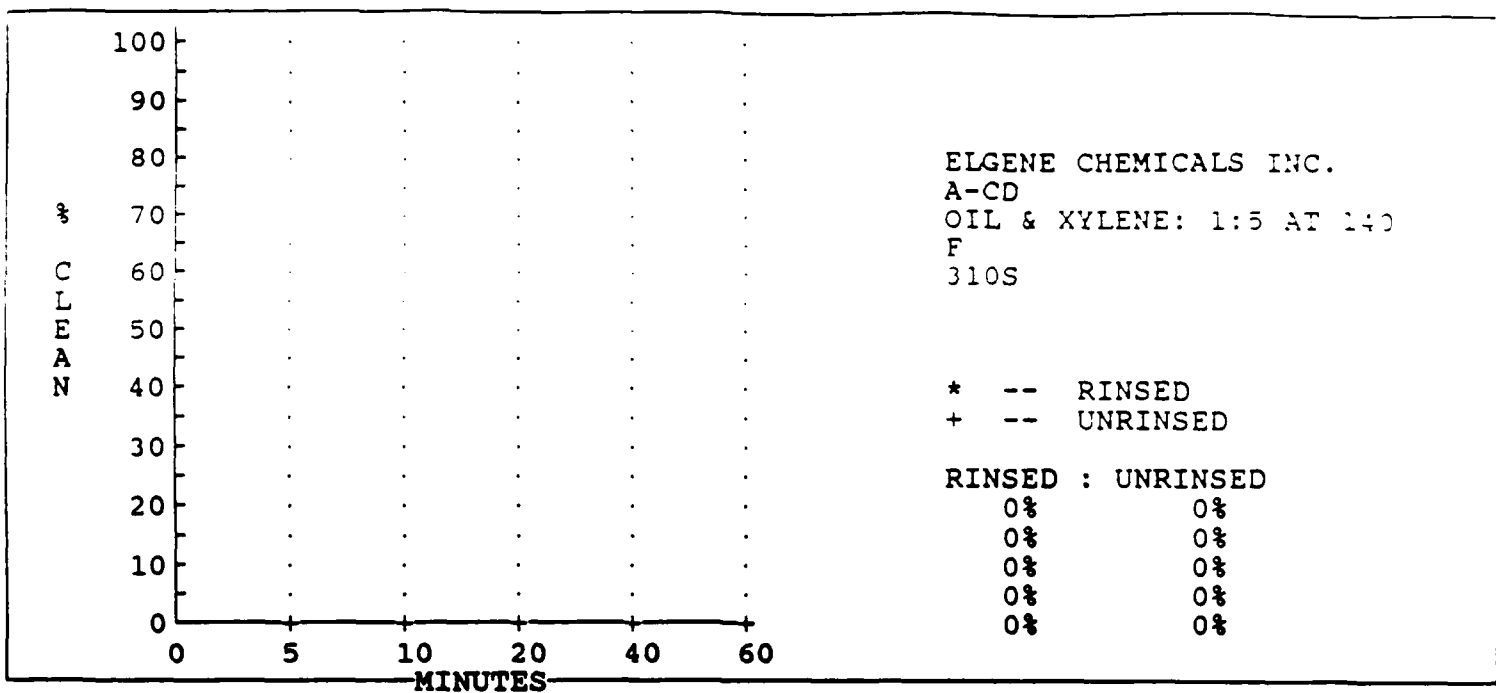


ELGENE CHEMICALS INC.
 #22 SKIDOO
 HYDRAULIC FLUID: 1:5 AT
 120 F
 310S

* -- RINSED
 + -- UNRINSED

RINSED	UNRINSED
100%	86%
100%	93%
99%	84%
100%	78%
100%	90%





COMPANY - ELGENE CHEMICALS I	753*	.	.	.	.	.	*
PRODUCT - ECONOMISER CF	715	*	.	*	.	*	.	0- 744
TOC INIT- 38597	678	.	.	.	*	.	.	1- 700
TOC 2nd - 28	640	.	*	.	.	.	.	2- 631
COD INIT- 272000	602	.	.	.	.	.	.	3- 734
ANILINE PT - 0.0000	565	.	.	.	.	.	.	4- 690
ATP ----- -134 E-3	527	.	.	.	.	.	.	5- 711
	489	.	.	.	.	.	.	6- 750
SOLUBILITY DATA:	452	.	.	.	.	.	.
CONENTR @ AMBIE 0%	414	.	.	.	.	.	.	DRY
CONCENT @ 140 0%	377	.	.	.	.	.	.	WEIGHT
	339	.	.	.	.	.	.	0.0691
	301	.	.	.	.	.	.
	264	.	.	.	.	.	.
	226	.	.	.	.	.	.
	188	.	.	.	.	.	.
	151	.	.	.	.	.	.
	113	.	.	.	.	.	.
	75	.	.	.	.	.	.
	38	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 03/09/88	COD vs TIME	0	1	2	3	4	5	6

PHENOL 03/09/88 ATP - 14 E-8		464*	
		441	.	.	.	.	.	0- 464
		418	*	.	.	.	.	1- 412
		394	.	.	.	.	.	2- 284
		371	.	.	*	.	.	3- 367	
		348	.	.	.	.	.	4- 217
DREW INDUSTRIAL DIVISION		325	.	.	.	.	*	5- 224
DREW OIL AND GREASE REM.		302	.	.	.	.	.	6- 314
		278	.	*	.	.	.		
ELGENE CHEMICALS INC.		255	.	.	.	.	.	DRY
#22 SKIDOO		232	.	.	.	.	*	WEIGHT
		209	.	.	.	*	.	0.0691	
ELGENE CHEMICALS INC.		186	.	.	.	.	.
ECONOMISER CF		162	.	.	.	.	.
		139	.	.	.	.	.
ELGENE CHEMICALS INC.		116	.	.	.	.	.
FABULENE		93	.	.	.	.	.
		70	.	.	.	.	.
EXXON CHEMICALS		46	.	.	.	.	.
EXXATE 1000		23	.	.	.	.	.
		0	.	.	.	.	.
DATE - 03/09/88	COD vs TIME	0	1	2	3	4	5	6	

COMPANY - ELGENE CHEMICALS I	594+	*	*	.	*	.	*	
PRODUCT - ECONOMISER CF	564*	.	.	*	.	*	.	
TOC INIT- 38597	535+	.	.	.	.	.	.
TOC 2nd - 28	505+	.	.	.	.	.	.
COD INIT- 272000	475+	.	.	.	.	.	.
ANILINE PT - 0.0000	446+	.	.	.	.	.	.
ATP ----- 11 E-3	416+	.	.	.	.	.	.
	386+	.	.	.	.	.	.
SOLUBILITY DATA:	356+	.	.	.	.	.	.
CONENTR @ AMBIE 0%	327+	.	.	.	.	.	.
CONCENT @ 140 0%	297+	.	.	.	.	.	.
	267+	.	.	.	.	.	.
	238+	.	.	.	.	.	.
	208+	.	.	.	.	.	.
	178+	.	.	.	.	.	.
	149+	.	.	.	.	.	.
	119+	.	.	.	.	.	.
	89+	.	.	.	.	.	.
	59+	.	.	.	.	.	.
	30+	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 03/24/88	COD vs TIME	0	1	2	3	4	5	6

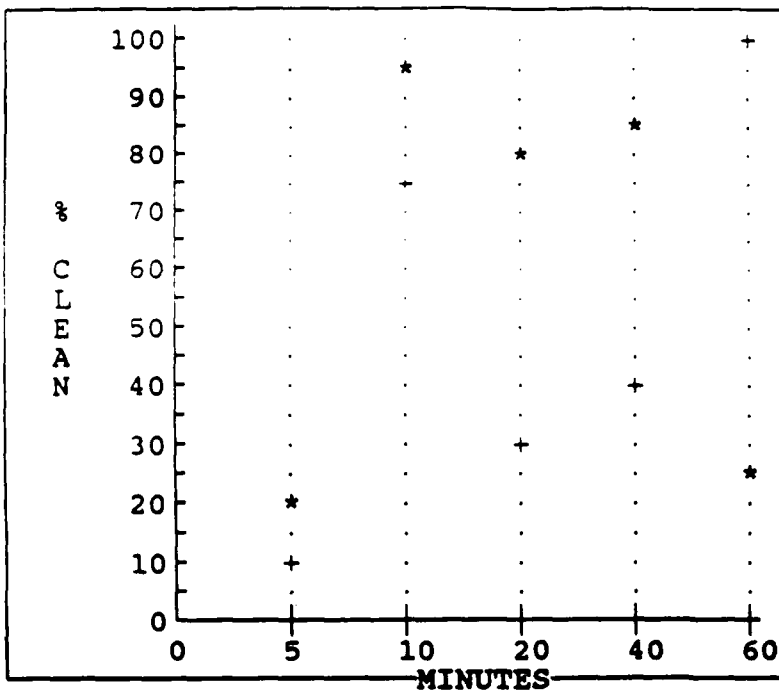
0- 552
1- 588
2- 590
3- 566
4- 594
5- 556
6- 590

DRY WEIGHT
0.0776

PHENOL	311+	.	.	.	*	.	.	
03/24/88	295+	.	.	.	.	.	.
ATP - 118 E-8	280*	.	.	.	.	*	.
	264+	.	.	.	.	.	.
	249+	.	.	.	.	.	.
	233+	.	.	.	.	.	.
DREW INDUSTRIAL DIVISION	218+	.	.	.	.	.	.
DREW OIL AND GREASE REM.	202+	*	.	.	.	.	.
	187+	.	.	.	.	.	.
ELGENE CHEMICALS INC.	171+	.	.	.	.	.	.
#22 SKIDOO	156+	.	.	.	.	.	*
	140+	.	.	.	.	.	.
ELGENE CHEMICALS INC.	124+	.	.	.	.	.	.
ECONOMISER CF	109+	.	.	.	.	.	.
	93+	.	*	.	.	.	.
ELGENE CHEMICALS INC.	78+	.	.	.	.	.	.
FABULENE	62+	.	.	*	.	.	.	
	47+	.	.	.	.	.	.
EXXON CHEMICALS	31+	.	.	.	.	.	.
EXXATE 1000	16+	.	.	.	.	.	.
	0	.	.	.	.	.	.
DATE - 03/24/88	COD vs TIME	0	1	2	3	4	5	6

0- 282
1- 197
2- 100
3- 56
4- 311
5- 286
6- 158

DRY WEIGHT
0.0776



ELGENE CHEMICALS INC.
 ECONOMISER CF
 GREASE: 8 OZ/GAL AT AMBIE
 NT
 A231B

* -- RINSED
 + -- UNRINSED

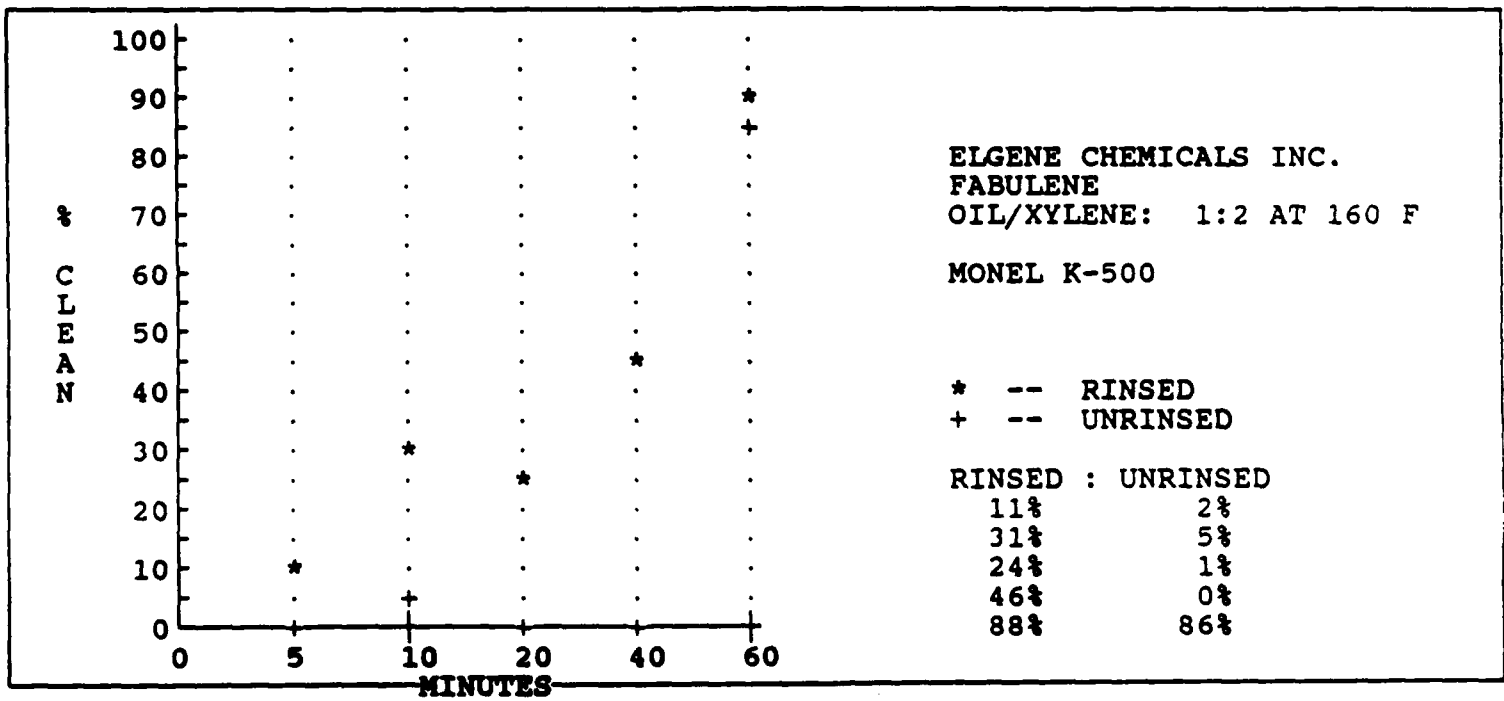
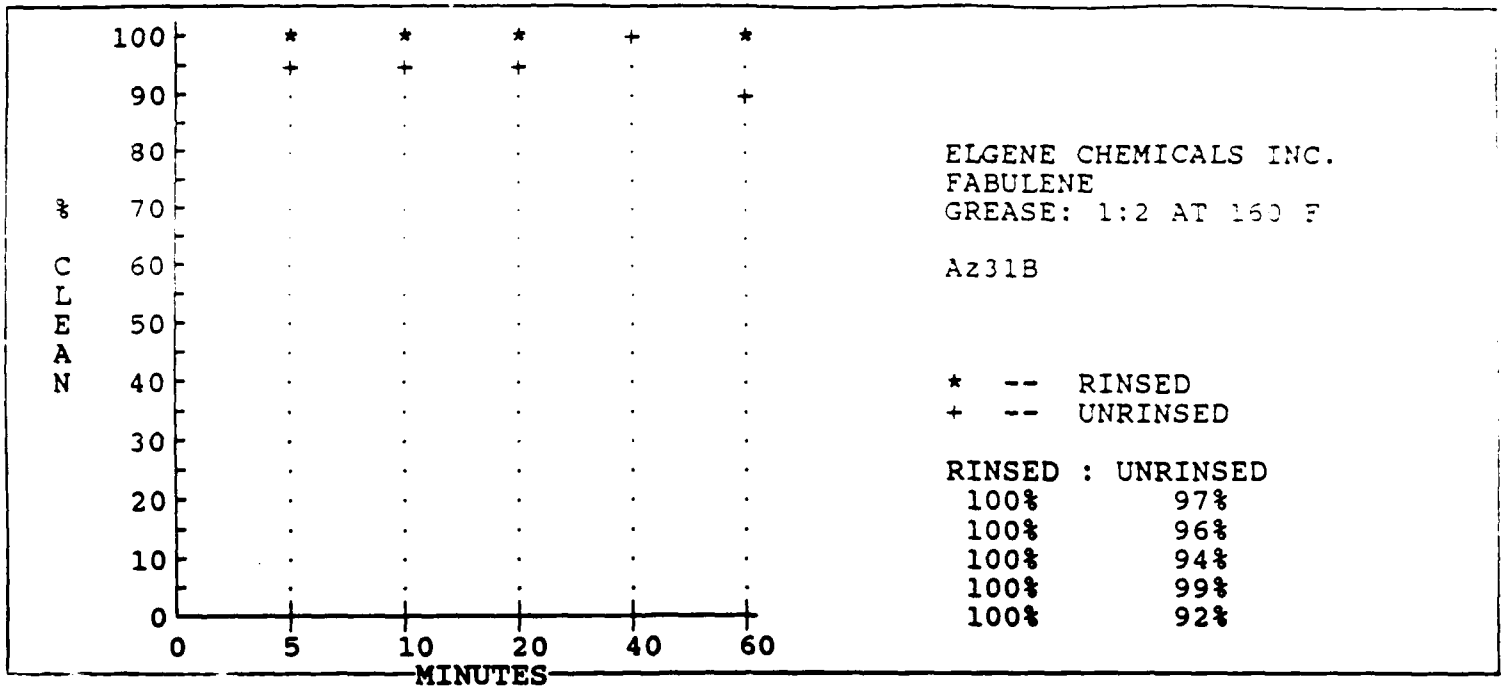
RINSED	UNRINSED
21%	10%
96%	73%
81%	31%
84%	42%
26%	100%

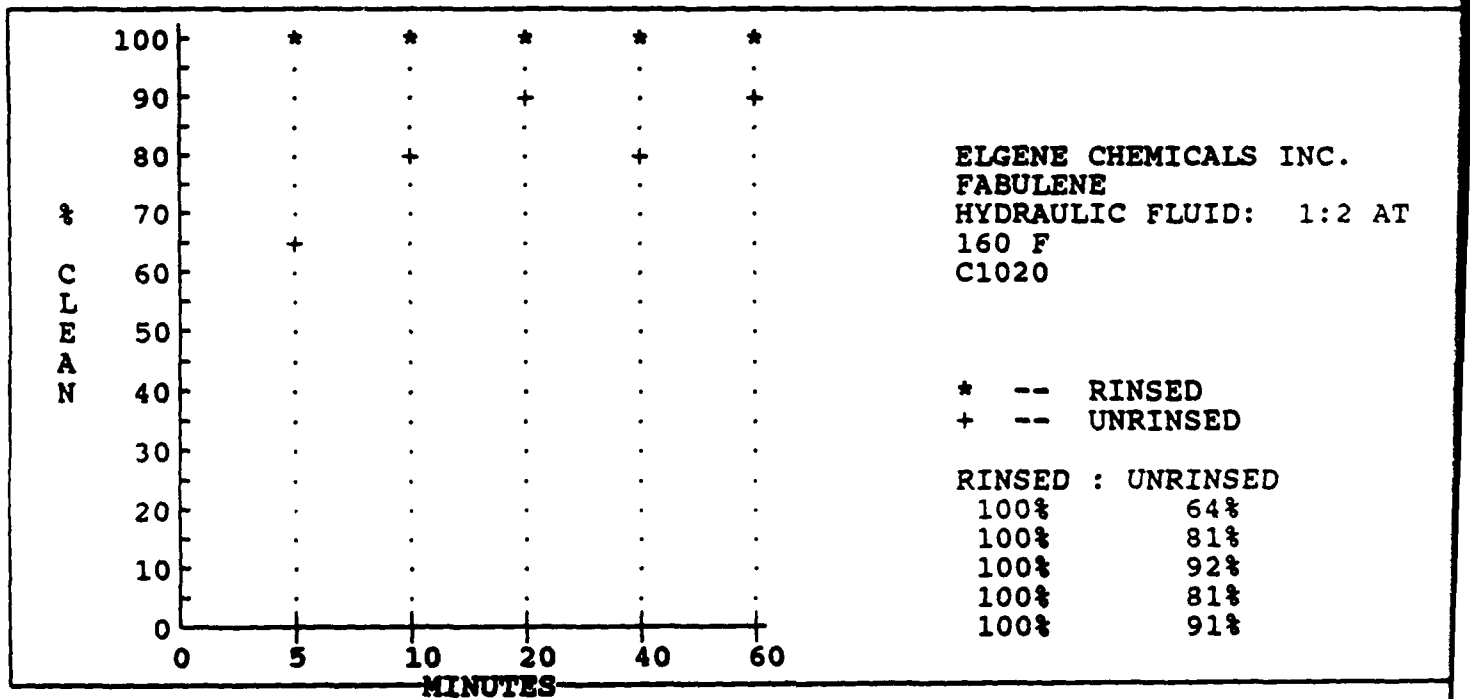
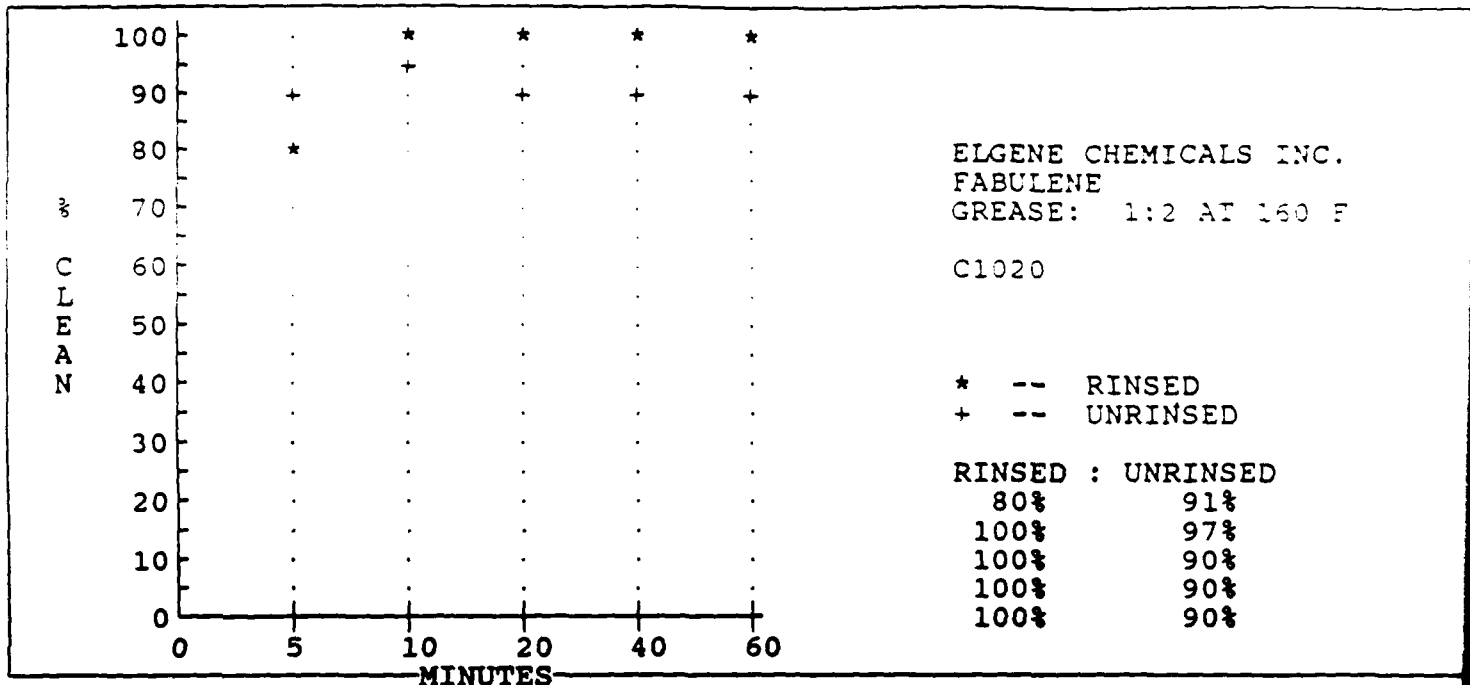
COMPANY - ELGENE CHEMICALS I	278	.	.	*	.	.	.	.	.	0-	268
PRODUCT - FABULENE	264*	.	.	.	.	.	.	.	.	1-	240
TOC INIT- 9336	250	.	.	.	.	.	.	.	.	2-	198
TOC 2nd - 0	236	*	.	.	.	.	.	.	.	3-	278
COD INIT- 305000	222	.	.	.	.	.	.	.	.	4-	146
ANILINE PT - 0.0000	209	.	.	.	.	*	*	.	.	5-	212
ATP ----- -92 E-3	195	.	*	.	.	.	.	.	.	6-	212
	181	.	.	.	.	.	.	.	.
SOLUBILITY DATA:	167	.	.	.	.	.	.	.	.
1:2 @ 160 1 1/2	153	.	.	.	*	.	.	.	.	DRY	
	139	.	.	.	.	.	.	.	.	WEIGHT	
	125	.	.	.	.	.	.	.	.	0.0691	
	111	.	.	.	.	.	.	.	.
	97	.	.	.	.	.	.	.	.
	83	.	.	.	.	.	.	.	.
	70	.	.	.	.	.	.	.	.
	56	.	.	.	.	.	.	.	.
	42	.	.	.	.	.	.	.	.
	28	.	.	.	.	.	.	.	.
	14	.	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.	.
DATE - 03/09/88	COD vs TIME	0	1	2	3	4	5	6			

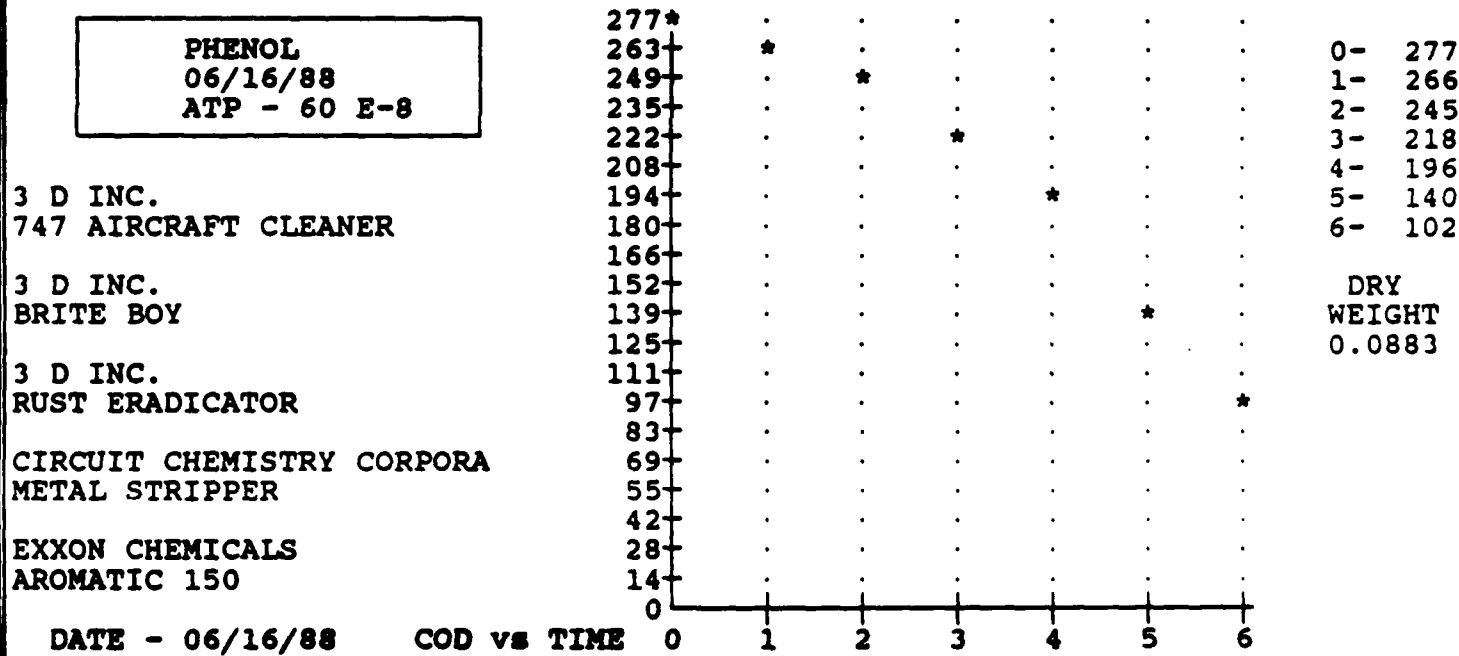
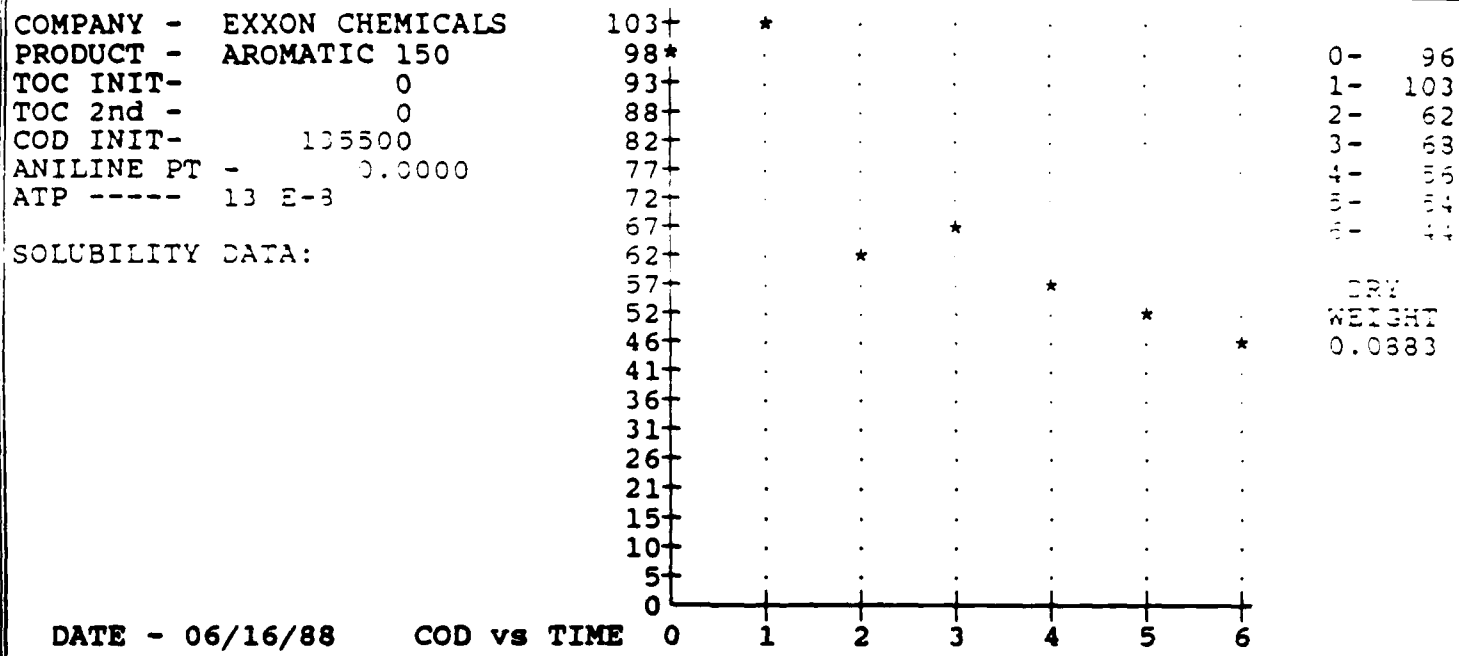
PHENOL 03/09/88 ATP - 14 E-8		464*	.	.	.	.	.	.	.	0-	464
		441	.	.	.	.	.	.	.	1-	412
		418	*	.	.	.	.	.	.	2-	284
		394	.	.	.	.	.	.	.	3-	367
		371	.	.	*	.	.	.	.	4-	217
		348	.	.	.	.	.	.	.	5-	224
DREW INDUSTRIAL DIVISION		325	.	.	.	.	.	*	.	6-	314
DREW OIL AND GREASE REM.		302	.	.	.	.	.	.	.
		278	.	*	.	.	.	.	.
ELGENE CHEMICALS INC.		255	.	.	.	.	.	.	.	DRY	
#22 SKIDOO		232	.	.	.	.	*	.	.	WEIGHT	
		209	.	.	.	*	.	.	.	0.0691	
ELGENE CHEMICALS INC.		186	.	.	.	.	.	.	.
ECONOMISER CF		162	.	.	.	.	.	.	.
		139	.	.	.	.	.	.	.
ELGENE CHEMICALS INC.		116	.	.	.	.	.	.	.
FABULENE		93	.	.	.	.	.	.	.
		70	.	.	.	.	.	.	.
EXXON CHEMICALS		46	.	.	.	.	.	.	.
EXXATE 1000		23	.	.	.	.	.	.	.
		0	.	.	.	.	.	.	.
DATE - 03/09/88	COD vs TIME	0	1	2	3	4	5	6			

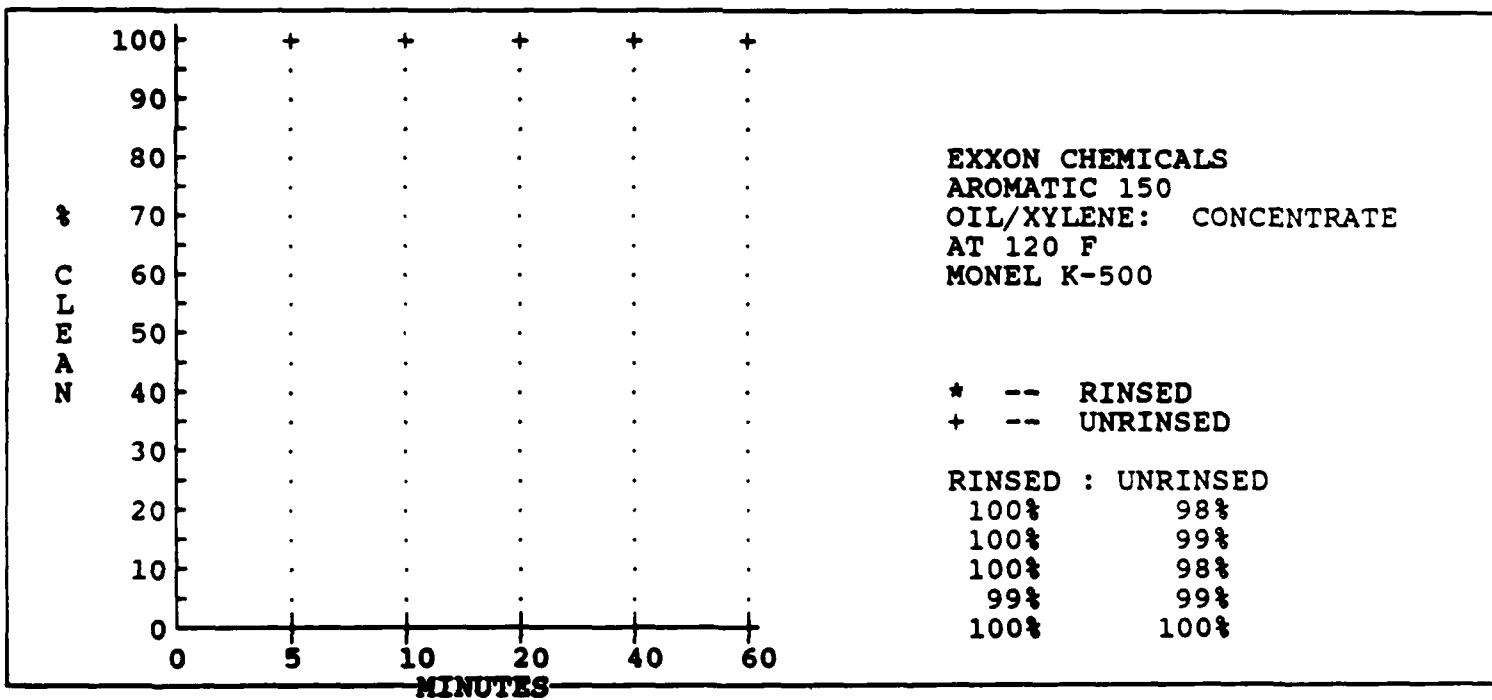
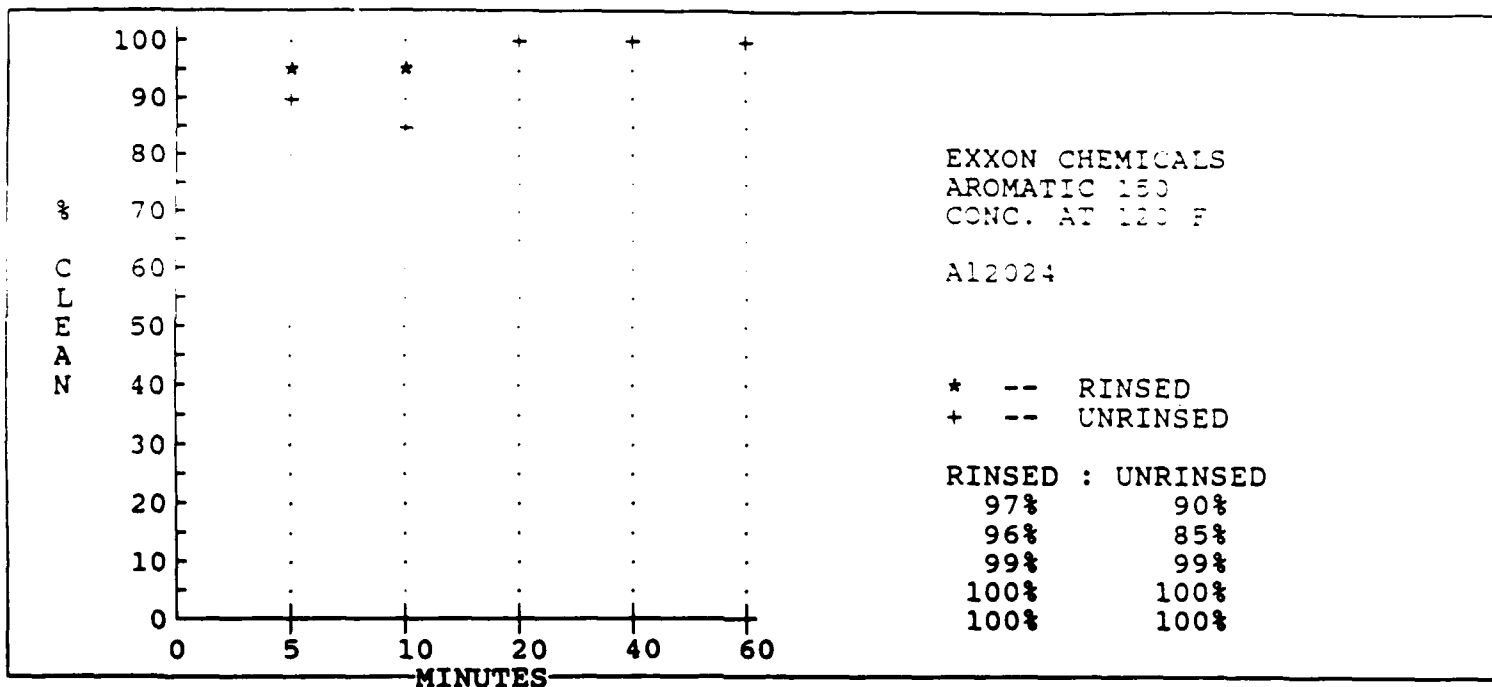
COMPANY - ELGENE CHEMICALS I	134	.	.	.	.	.	.	.	.	.
PRODUCT - FABULENE	127	*	.	.	.	.	.	.	.	0- 115
TOC INIT- 9336	121	.	.	.	.	.	.	.	.	1- 125
TOC 2nd - 0	114*	.	.	.	.	.	.	.	.	2- 134
COD INIT- 305000	107	.	.	.	.	.	.	.	.	3- 36
ANILINE PT - 0.0000	101	.	.	.	.	*	.	.	.	4- 99
ATP ----- 19 E-3	94	.	.	.	.	.	.	.	*	5- 13
	87	.	.	.	*	.	.	.	.	6- 11
SOLUBILITY DATA:	80	.	.	.	.	.	.	*	.
1:2 @ 160 1 1/2	74	.	.	.	.	.	.	.	.	DRY
	67	.	.	.	.	.	.	.	.	WEIGHT
	60	.	.	.	.	.	.	.	.	0.0776
	54	.	.	.	.	.	.	.	.
	47	.	.	.	.	.	.	.	.
	40	.	.	.	.	.	.	.	.
	34	.	.	.	.	.	.	.	.
	27	.	.	.	.	.	.	.	.
	20	.	.	.	.	.	.	.	.
	13	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.	.
DATE - 03/24/88	COD vs TIME	0	1	2	3	4	5	6		

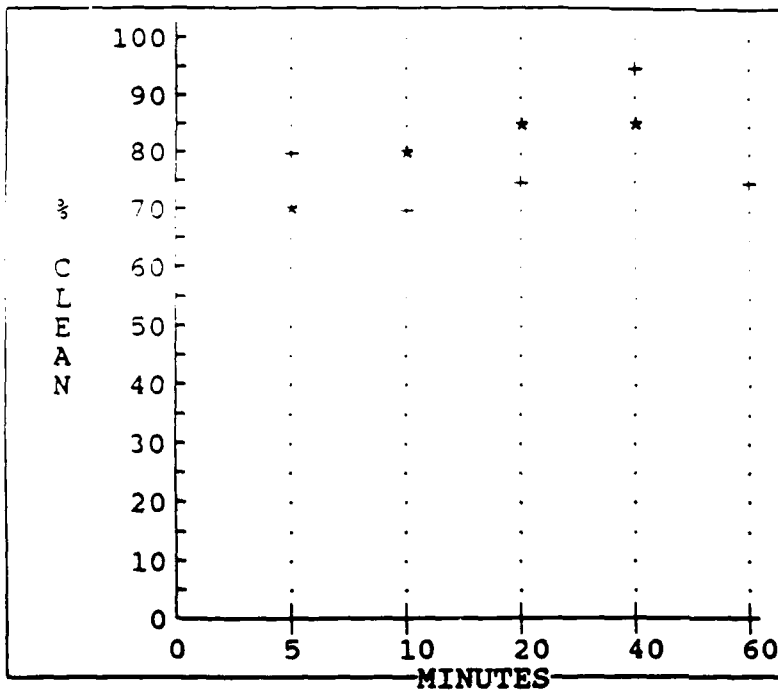
PHENOL 03/24/88 ATP - 118 E-8		311	.	.	.	*	
		295	.	.	.	.	.	.	.	0- 282
		280*	.	.	.	.	*	.	.	1- 197
		264	.	.	.	.	.	.	.	2- 100
		249	.	.	.	.	.	.	.	3- 56
		233	.	.	.	.	.	.	.	4- 311
DREW INDUSTRIAL DIVISION		218	.	.	.	.	.	.	.	5- 286
DREW OIL AND GREASE REM.		202	*	.	.	.	.	.	.	6- 158
		187	.	.	.	.	.	.	.
ELGENE CHEMICALS INC.		171	.	.	.	.	.	.	.	DRY
#22 SKIDOO		156	.	.	.	.	.	.	*	WEIGHT
		140	.	.	.	.	.	.	.	0.0776
ELGENE CHEMICALS INC.		124	.	.	.	.	.	.	.
ECONOMISER CF		109	.	.	.	.	.	.	.
		93	.	*	.	.	.	.	.
ELGENE CHEMICALS INC.		78	.	.	.	.	.	.	.
FABULENE		62	.	.	*	.	.	.	.
		47	.	.	.	.	.	.	.
EXXON CHEMICALS		31	.	.	.	.	.	.	.
EXXATE 1000		16	.	.	.	.	.	.	.
		0	.	.	.	.	.	.	.
DATE - 03/24/88	COD vs TIME	0	1	2	3	4	5	6			







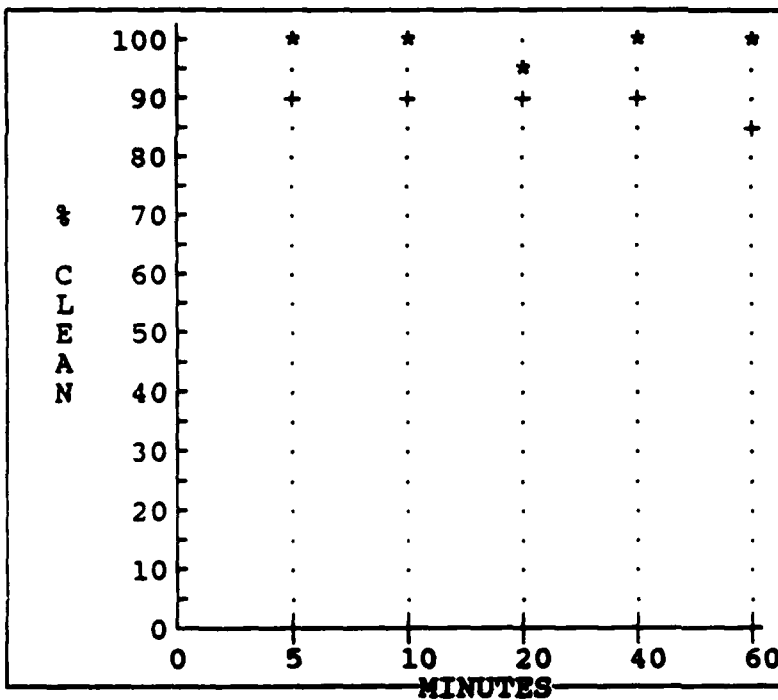




EXXON CHEMICALS
AROMATIC 150
GREASE: CONCENTRATE AT 120 F
INCONEL 750

* -- RINSED
+ -- UNRINSED

RINSED	UNRINSED
72%	79%
82%	70%
83%	73%
83%	93%
76%	74%



EXXON CHEMICALS
AROMATIC 150
HYDRAULIC FLUID: CONCENTRATE AT 120 F
AL2024

* -- RINSED
+ -- UNRINSED

RINSED	UNRINSED
99%	89%
100%	92%
95%	92%
100%	90%
99%	85%

COMPANY - EXXON CHEMICALS	157	.	*	.	.	.	.	.	.	.
PRODUCT - EXSOL D 80	149	.	.	.	.	.	.	.	.	0- 26
TOC INIT- 0	141	.	.	.	.	.	.	.	.	1- -4
TOC 2nd - 0	133	.	.	.	.	.	.	.	.	2- 157
COD INIT- 59500	126	.	.	.	.	.	.	.	.	3- 38
ANILINE PT - 0.0000	118	.	.	.	.	.	.	.	.	4- 16
ATP ----- -5 E-3	110	.	.	.	.	.	.	.	.	5- 32
	102	.	.	.	.	.	.	.	.	6- 16
* SOLUBILITY DATA:										
	94	.	.	.	.	.	.	.	.
	86	.	.	.	.	.	.	.	.
	79	.	.	.	.	.	.	.	.	DRY
	71	.	.	.	.	.	.	.	.	WEIGHT
	63	.	.	.	.	.	.	.	.	0.0778
	55	.	.	.	.	.	.	.	.
	47	.	.	.	.	.	.	.	.
	39	.	.	.	*	.	.	.	.
	31	.	.	.	.	.	.	*	.
	24*	.	.	.	.	.	.	.	*
	16	.	.	.	.	.	*	.	.
	8	.	.	.	.	.	.	.	.
	0	.	.	.	.	.	.	.	.
DATE - 06/06/88	COD vs TIME	0	*	2	3	4	5	6		

PHENOL 06/06/88 ATP - 6 E-8		288*	
		274	.	.	.	.	.	.	.	0- 288
		259	.	.	.	.	.	.	.	1- 188
		245	.	.	.	.	.	.	.	2- 206
		230	.	.	.	.	.	.	.	3- 38
		216	.	.	.	.	.	.	.	4- 126
EXXON CHEMICALS		202	.	*	.	.	.	.	.	5- 36
EXSOL D 80		187	*	.	.	.	.	.	.	6- 175
		173	.	.	.	.	.	.	*
EXXON CHEMICALS		158	.	.	.	.	.	.	.	DRY
EXXAL 20		144	.	.	.	.	.	.	.	WEIGHT
		130	.	.	.	.	*	.	.	0.0778
EXXON CHEMICALS		115	.	.	.	.	.	.	.
EXXAL L1315		101	.	.	.	.	.	.	.
		86	.	.	.	.	.	.	.
EXXON CHEMICALS		72	.	.	.	.	.	.	.
NORPAR 15		58	.	.	.	.	.	.	.
		43	.	.	.	*	.	.	.		
EXXON CHEMICALS		29	.	.	.	.	.	*	.
WS 2443 SOLVENT		14	.	.	.	.	.	.	.
		0	.	.	.	.	.	.	.
DATE - 06/06/88	COD vs TIME	0	1	2	3	4	5	6			

