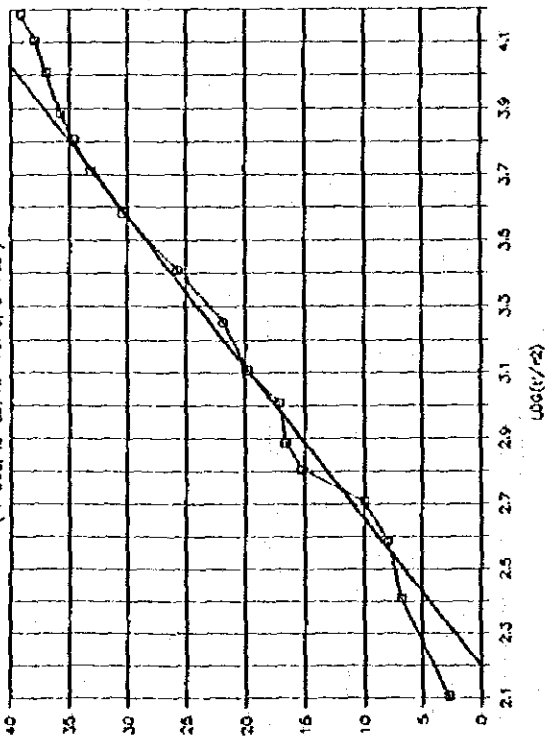


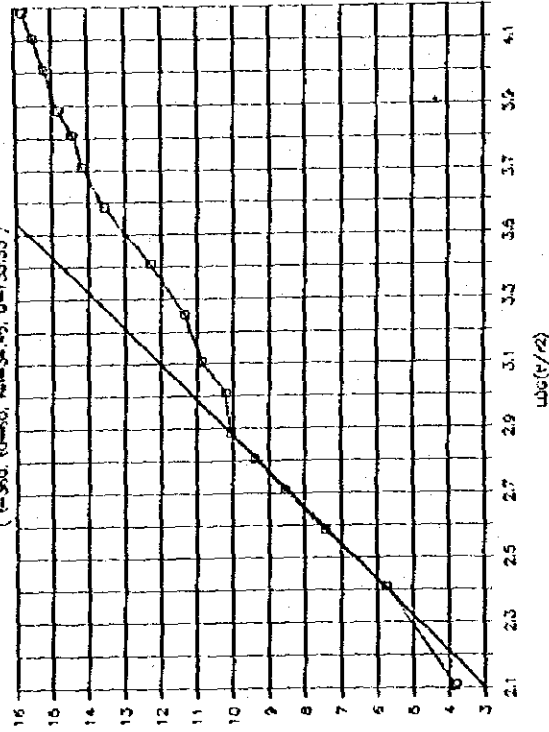
C8045

($t=360$, $10=60$, $n=19.45$, $0=1.60$)



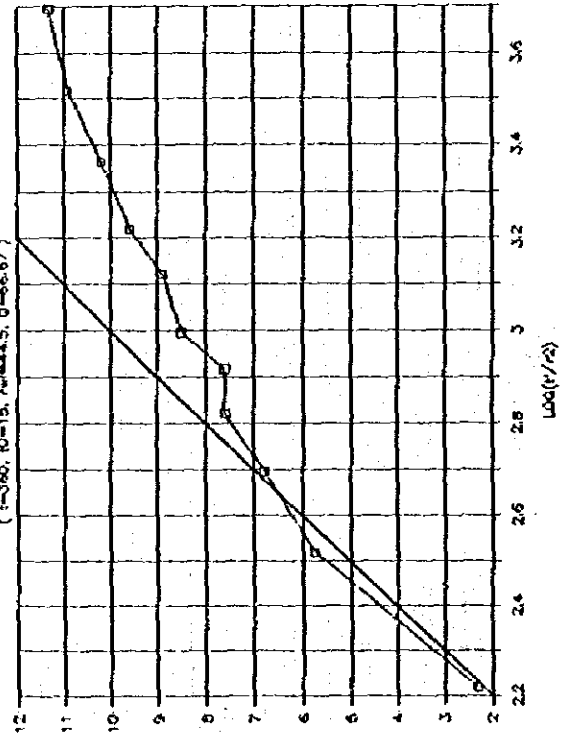
C8048

($t=360$, $10=60$, $n=34.42$, $0=1.3333$)



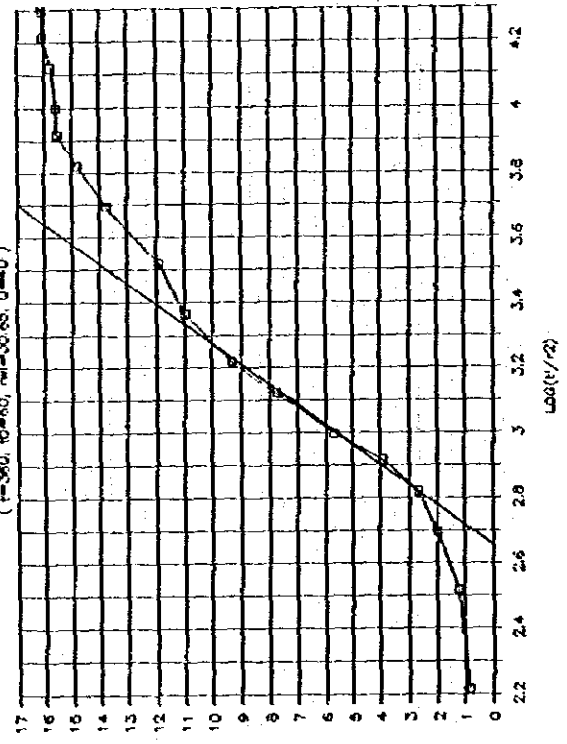
C8047

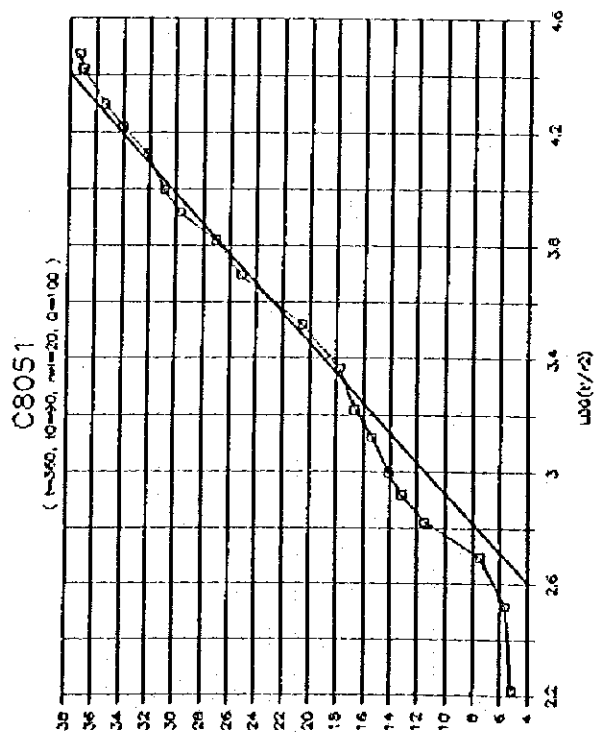
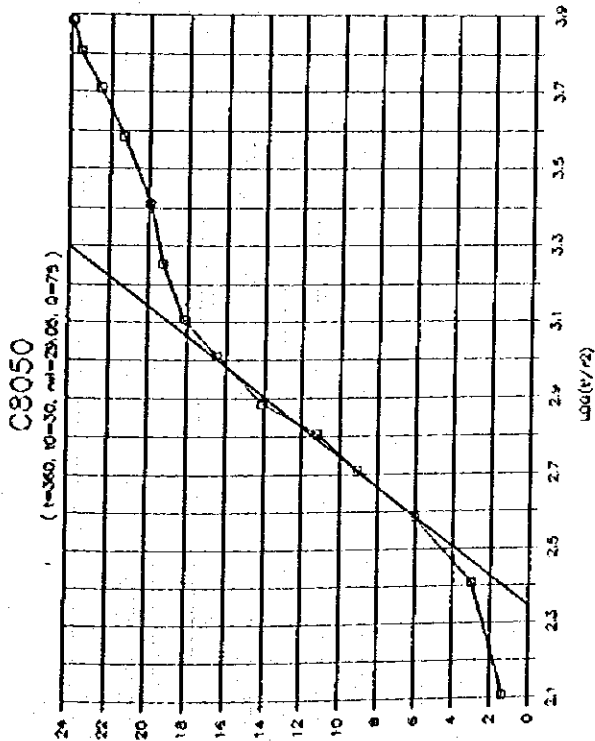
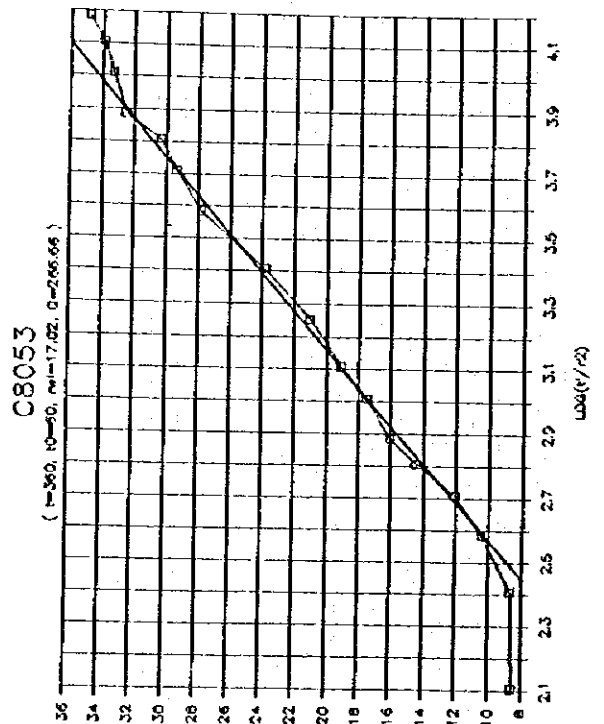
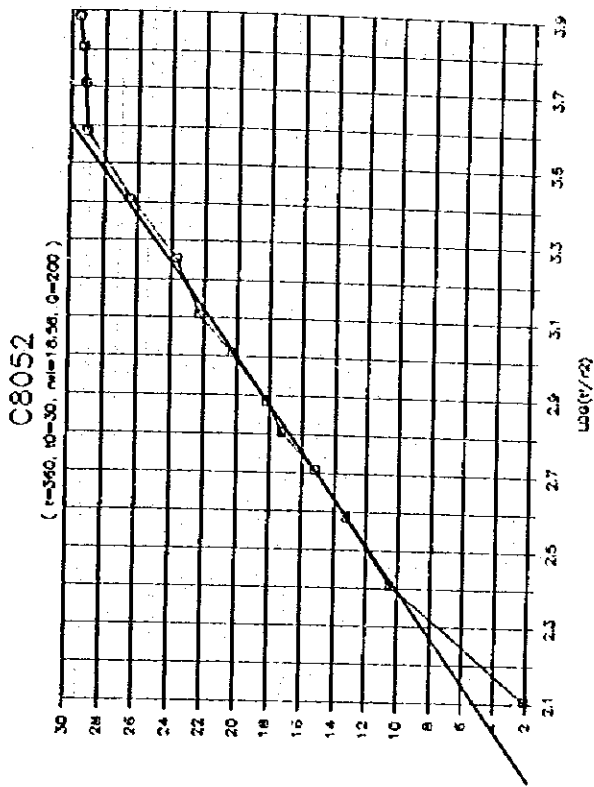
($t=360$, $10=15$, $n=14.5$, $0=66.67$)

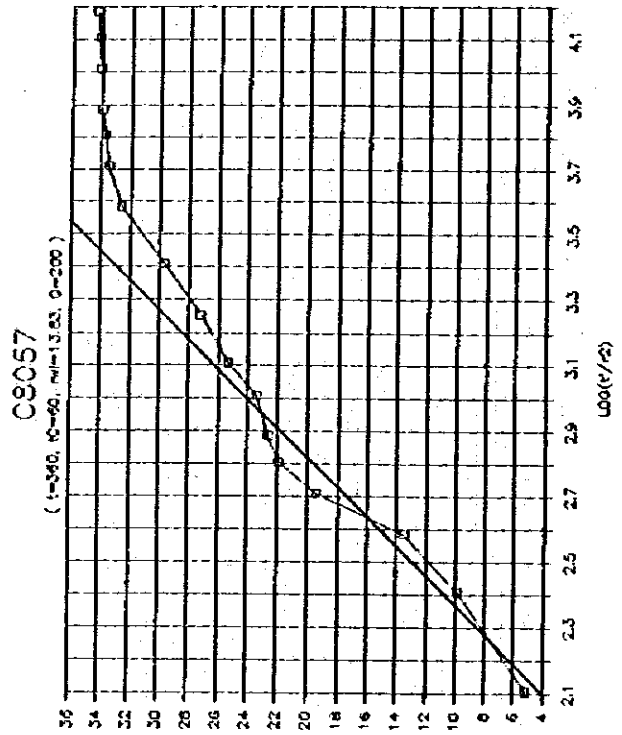
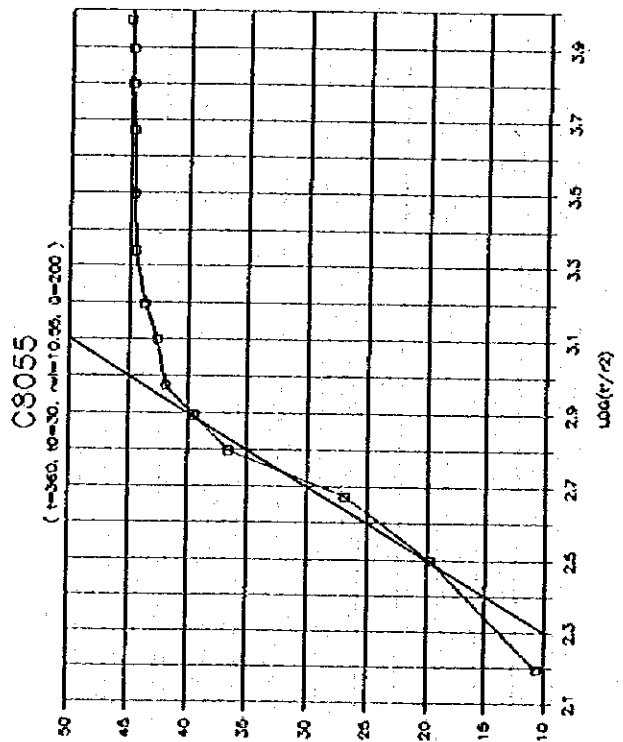
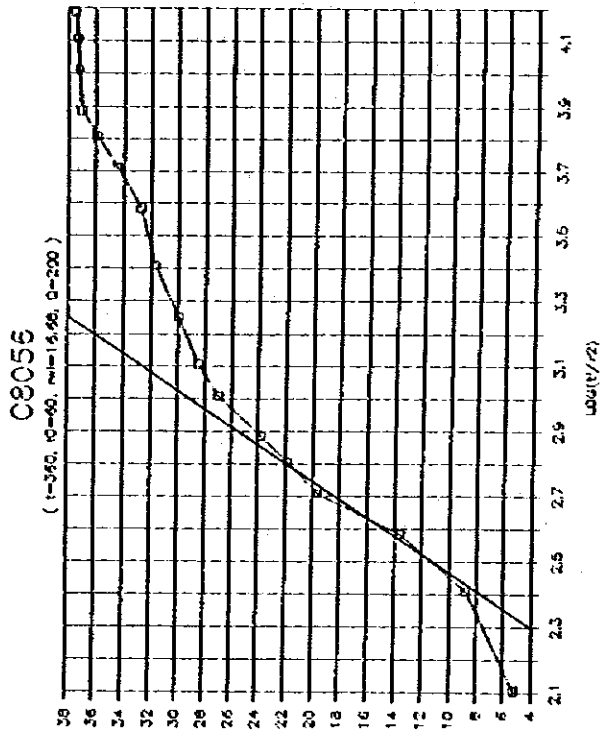
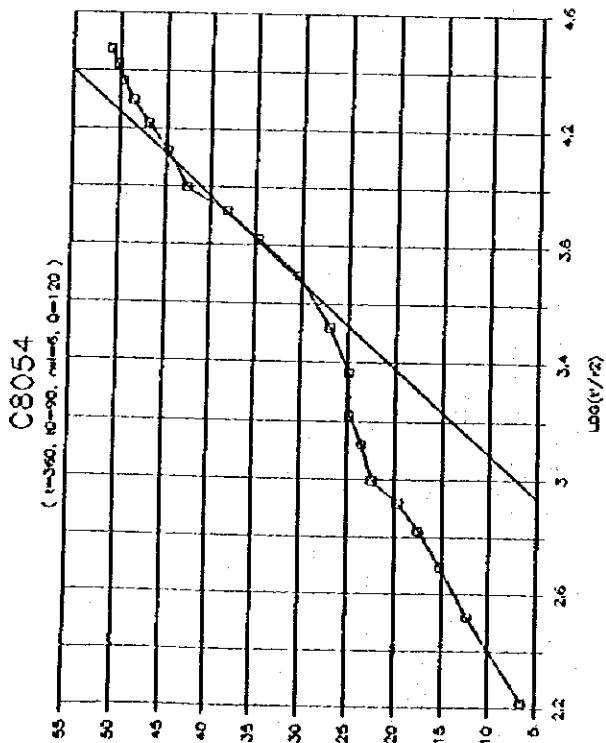


C8049

($t=360$, $10=60$, $n=30.65$, $0=0$)

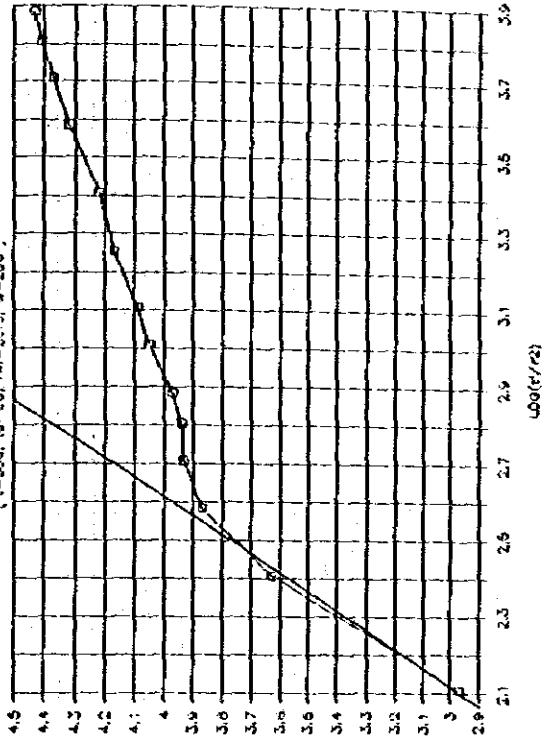






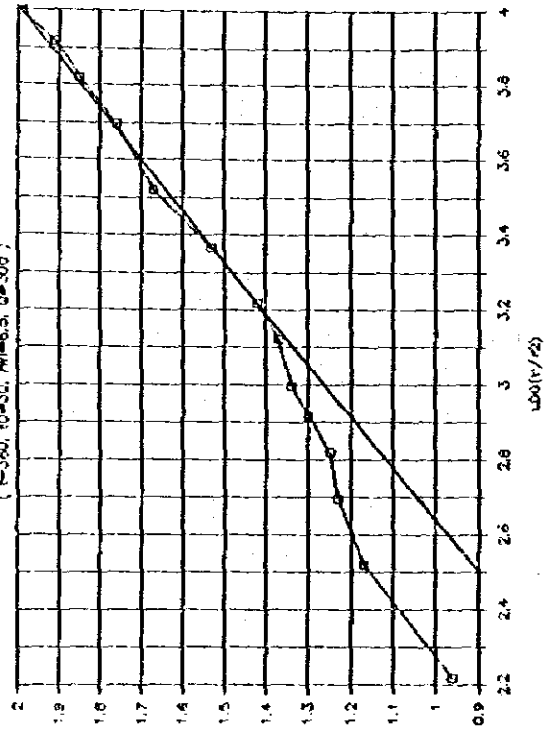
C8060

($t=360, \rho=30, m=27.5, \sigma=200$)



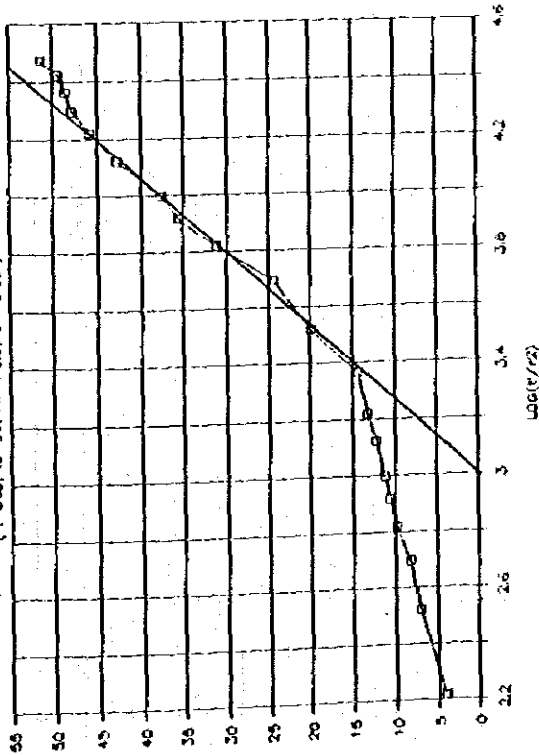
C8061

($t=360, \rho=30, m=6.5, \sigma=300$)



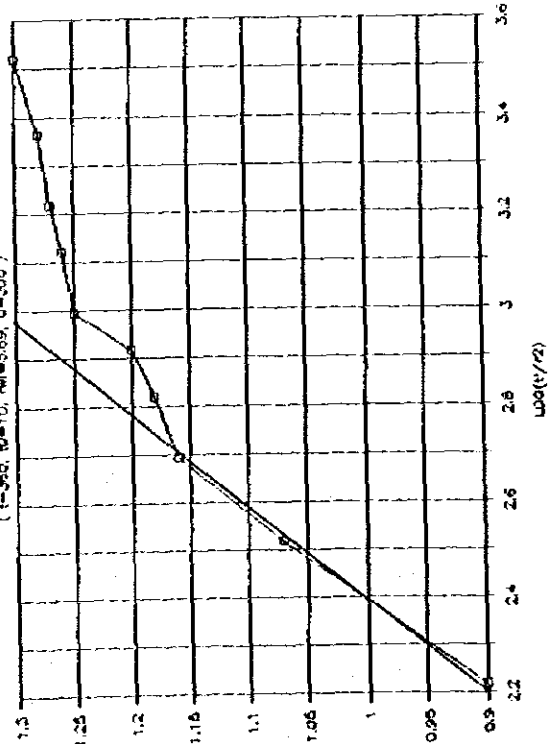
C8058

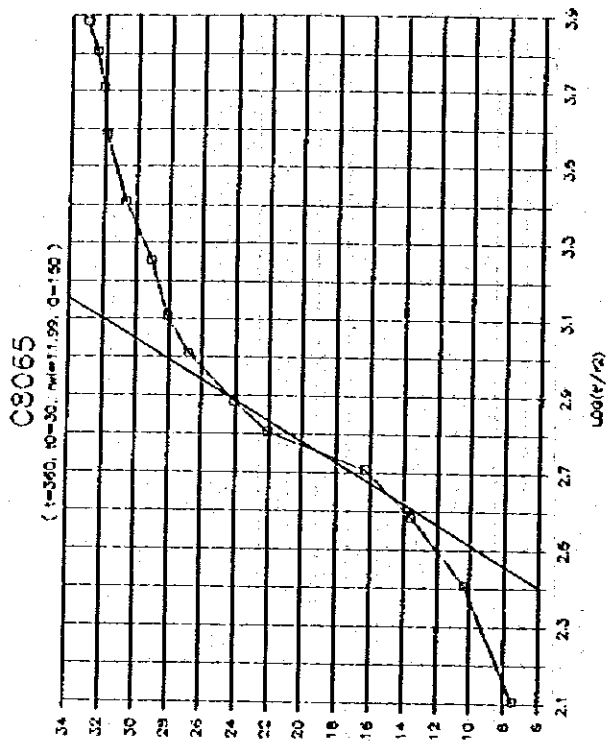
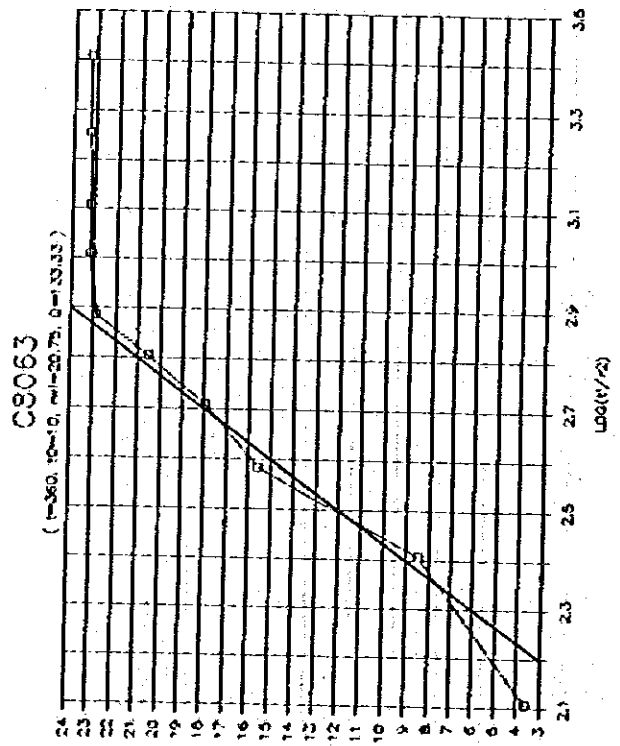
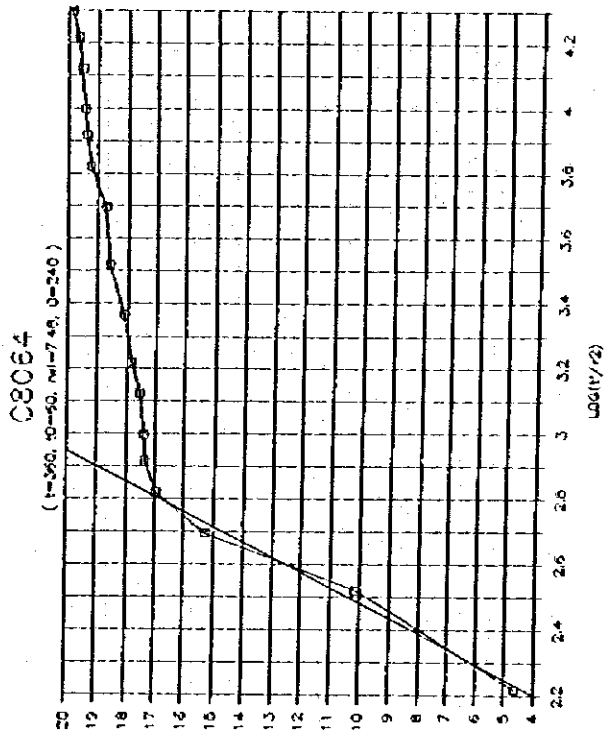
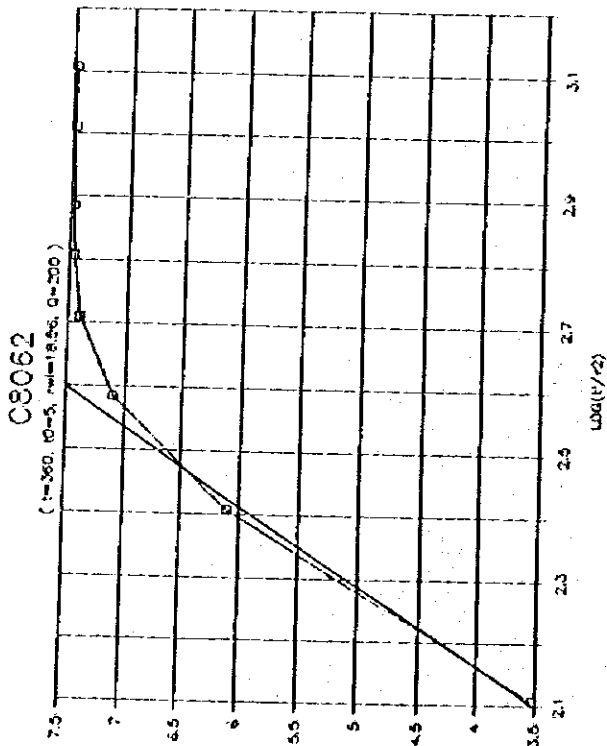
($t=360, \rho=90, m=15.5, \sigma=70.50$)

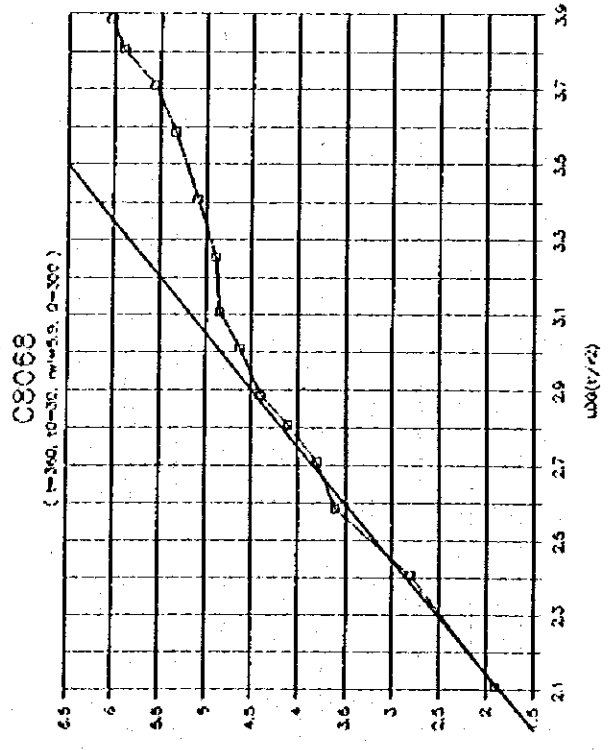
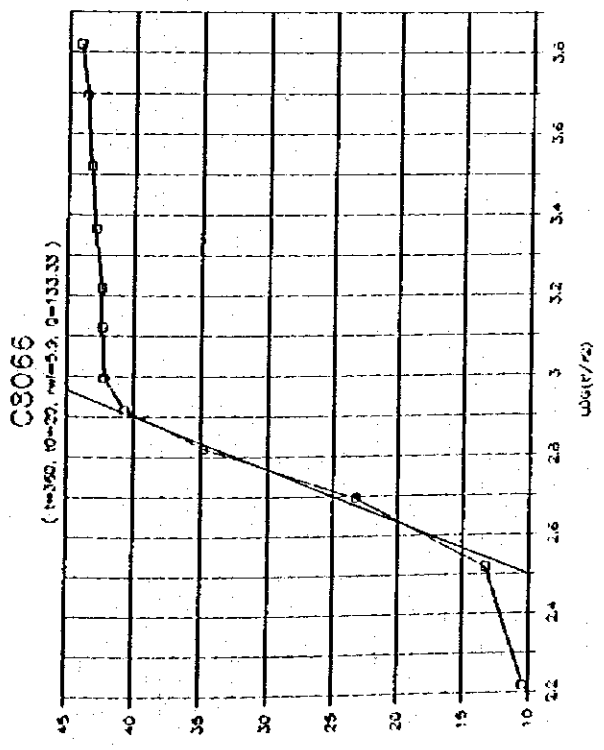
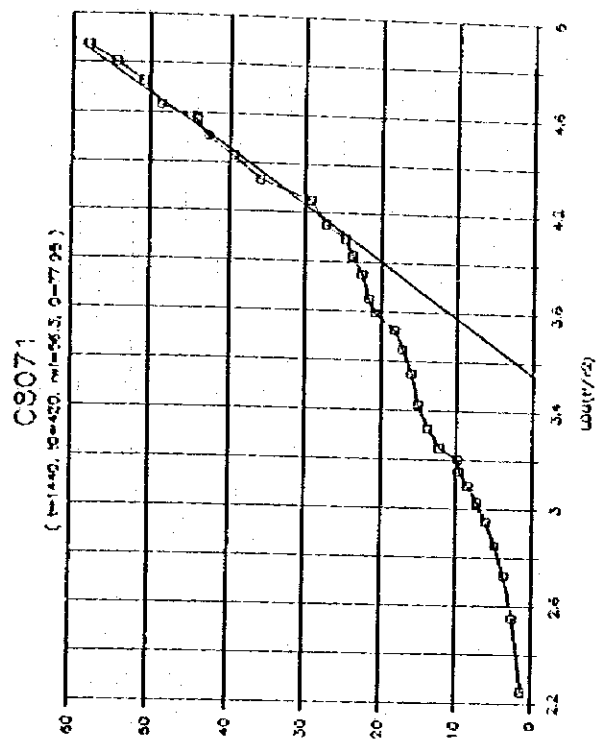


C8059

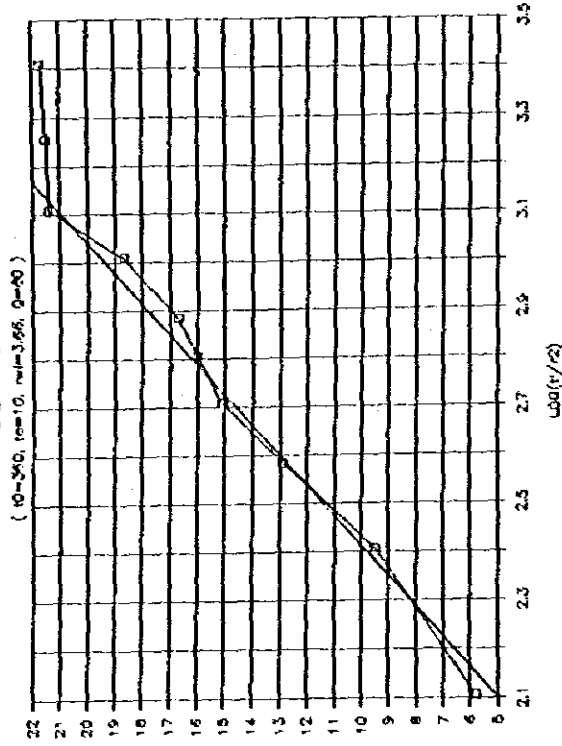
($t=360, \rho=10, m=3.69, \sigma=300$)



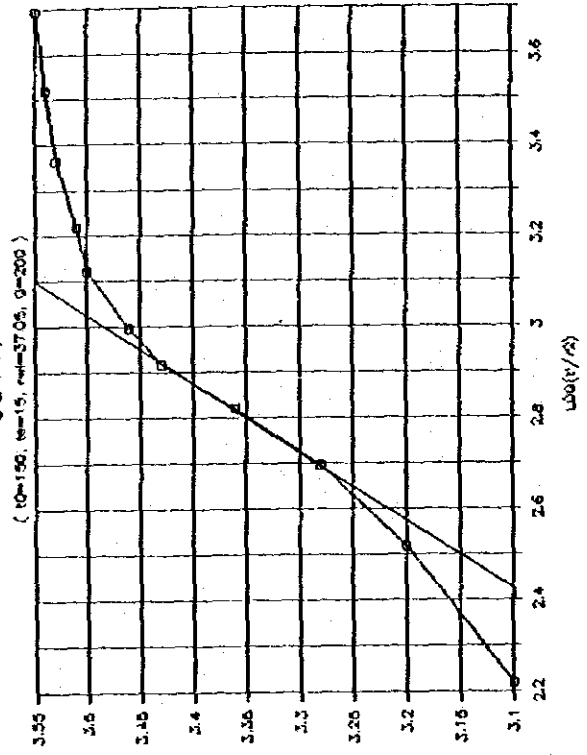




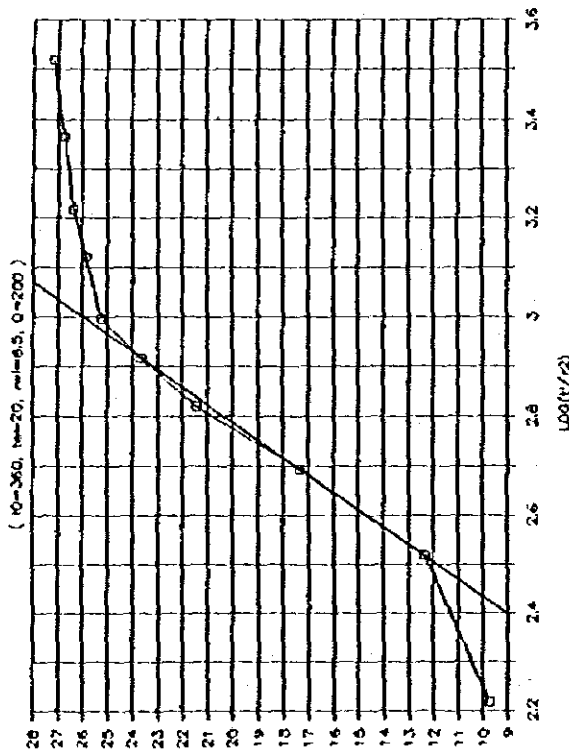
C8116



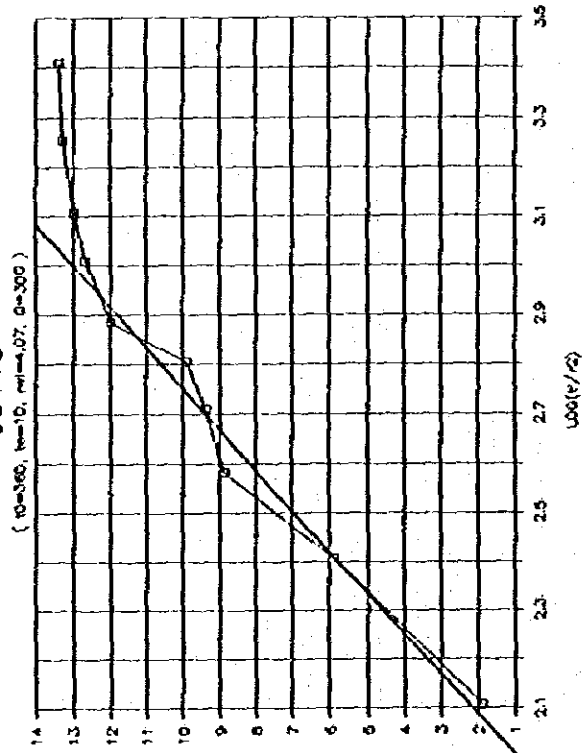
C8117



C8114

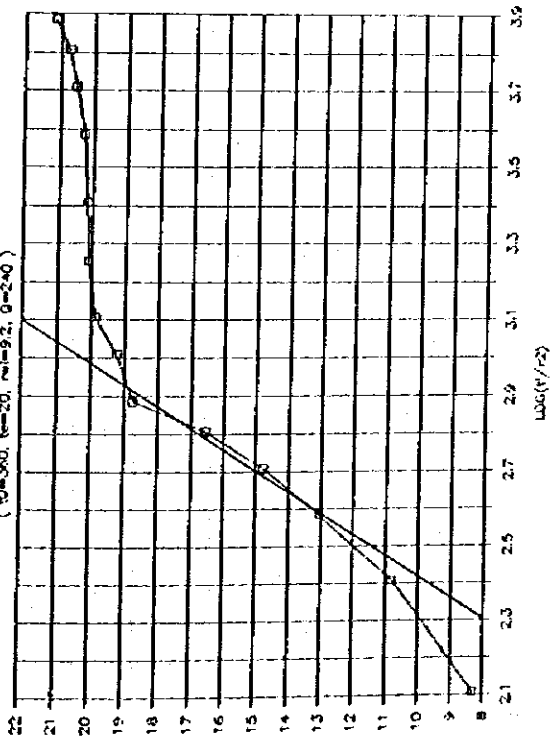


C8115



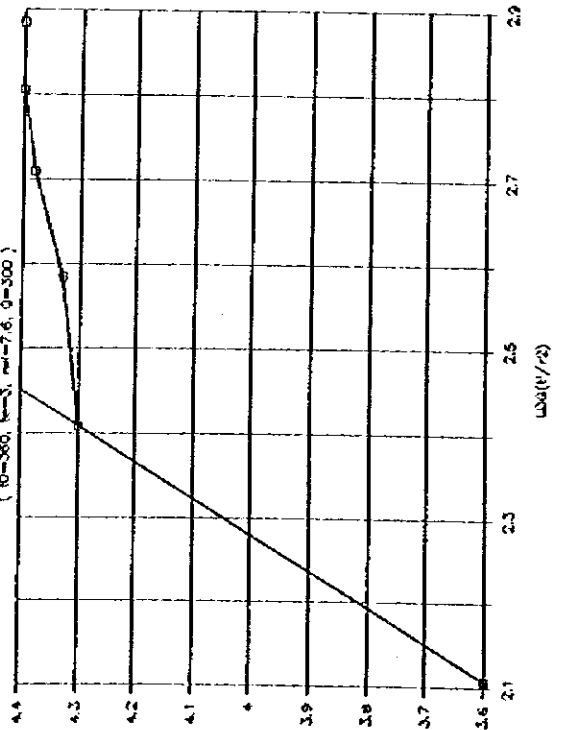
C8118

($10=360$, $n=20$, $m=9.2$, $Q=240$)



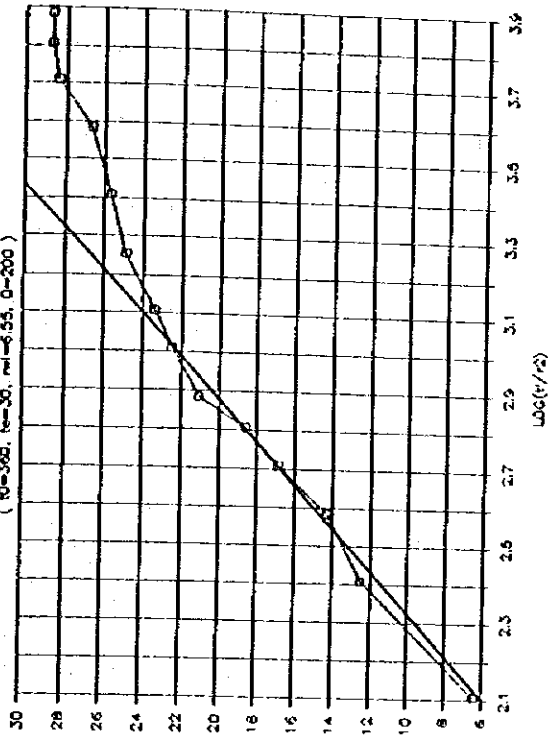
C8119

($10=360$, $n=3$, $m=7.6$, $Q=300$)



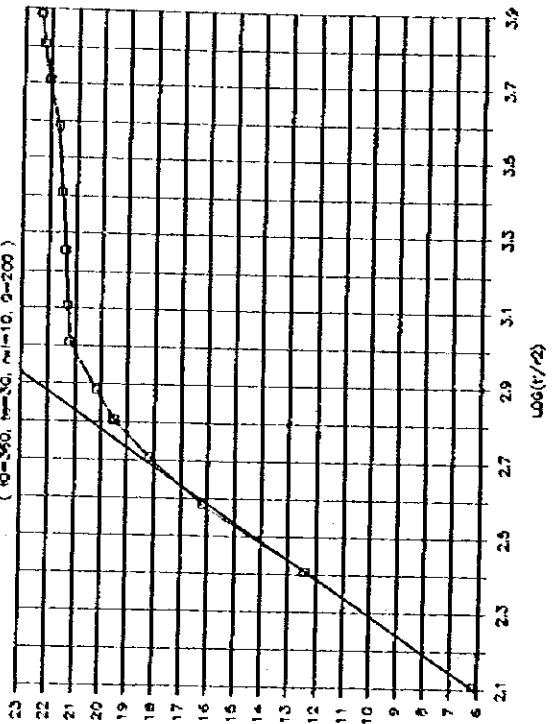
C8120

($10=360$, $n=30$, $m=6.55$, $Q=200$)



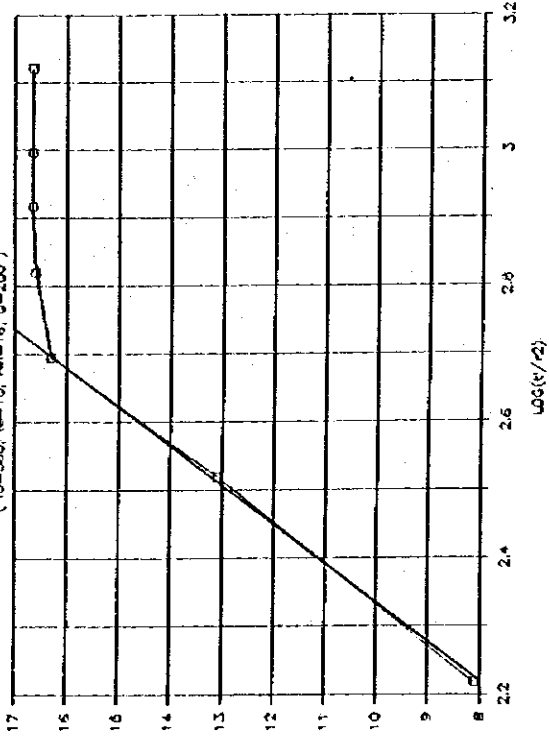
C8121

($10=360$, $n=30$, $m=10$, $Q=200$)



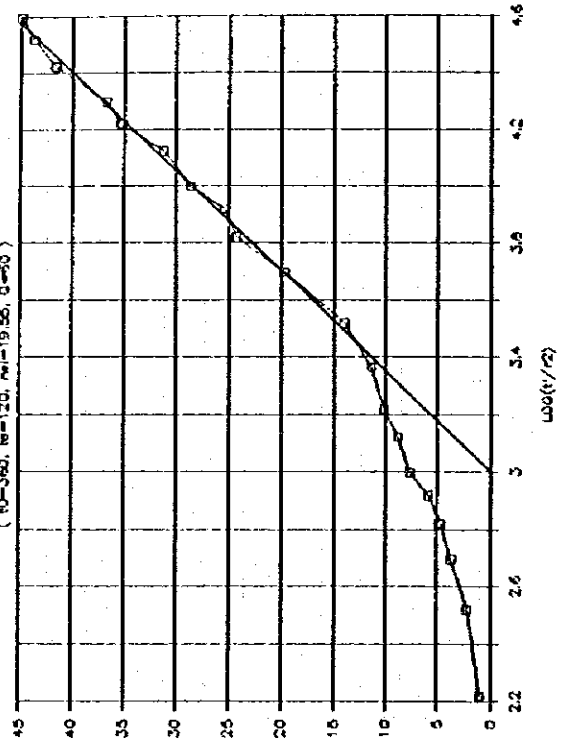
C8134

($10=360$, $N=10$, $n=16$, $Q=200$)



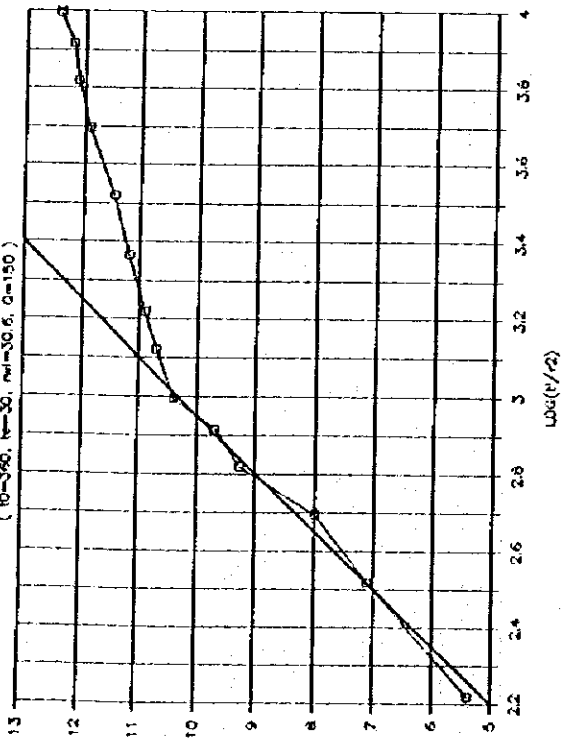
C8135

($10=360$, $N=120$, $n=19$, $Q=50$)



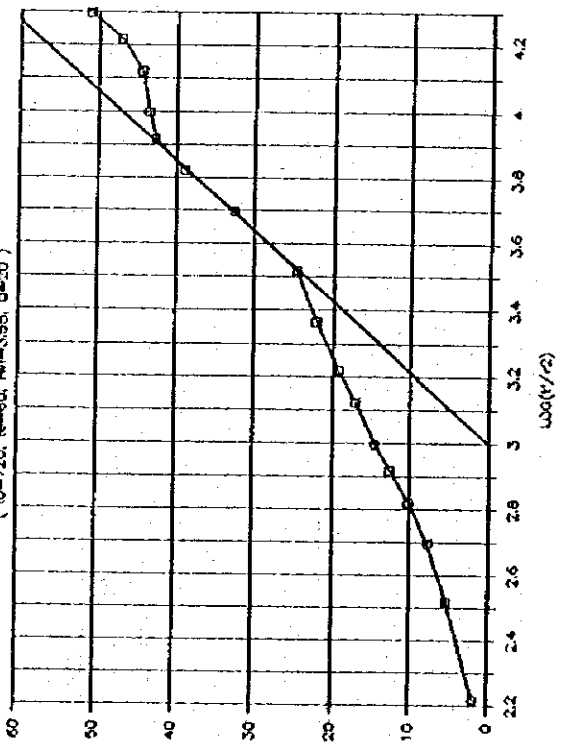
C8122

($10=360$, $N=30$, $n=30$, $Q=150$)



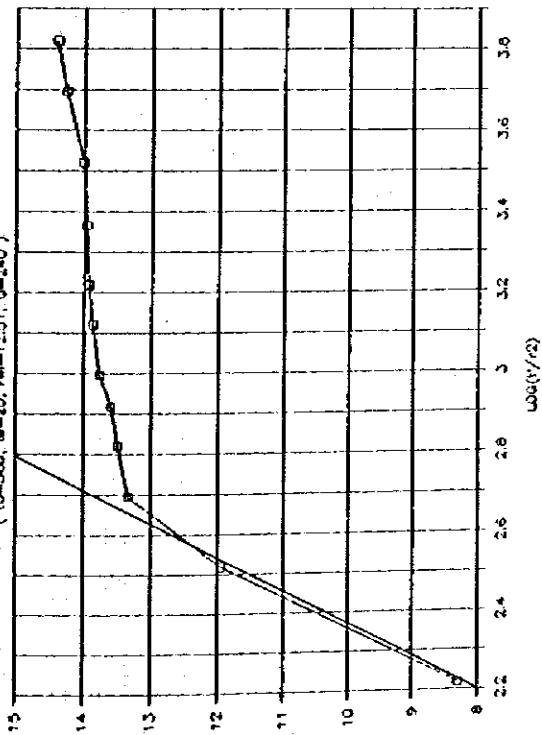
C8125

($10=720$, $N=60$, $n=35$, $Q=20$)



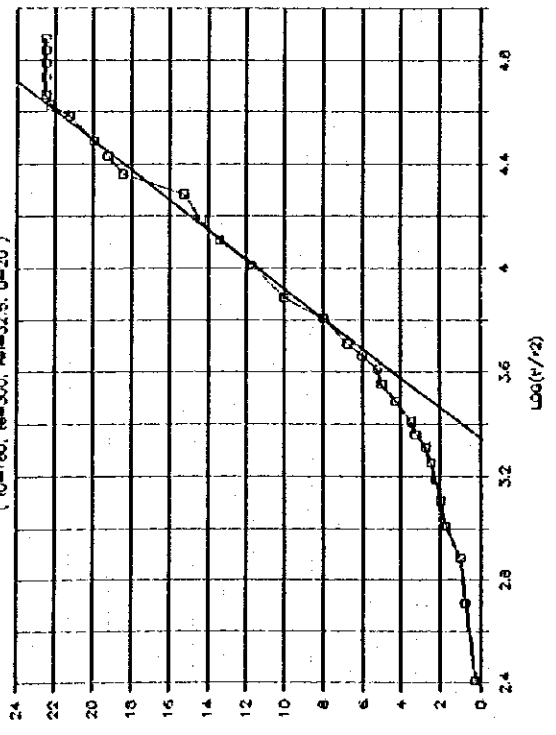
C8138

($10=360$, $h=20$, $n=12.51$, $Q=240$)



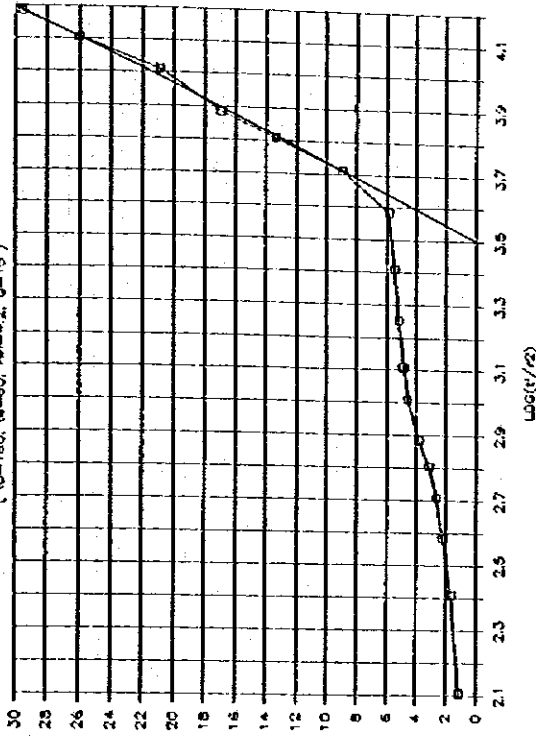
C8243

($10=180$, $h=300$, $n=32.5$, $Q=20$)



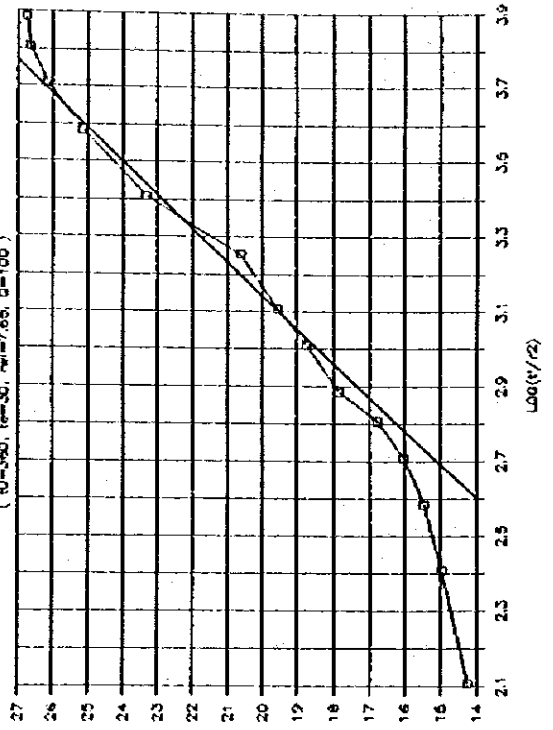
C8247

($10=180$, $h=60$, $n=4.2$, $Q=15$)



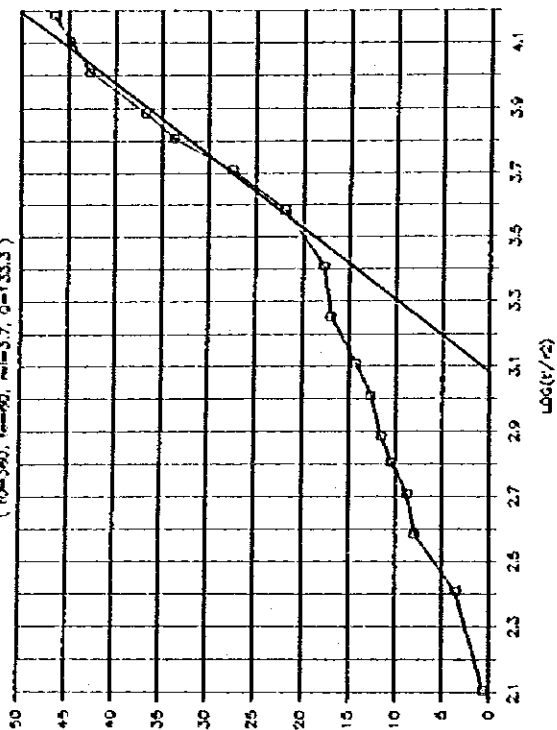
C8248

($10=360$, $h=30$, $n=7.66$, $Q=100$)



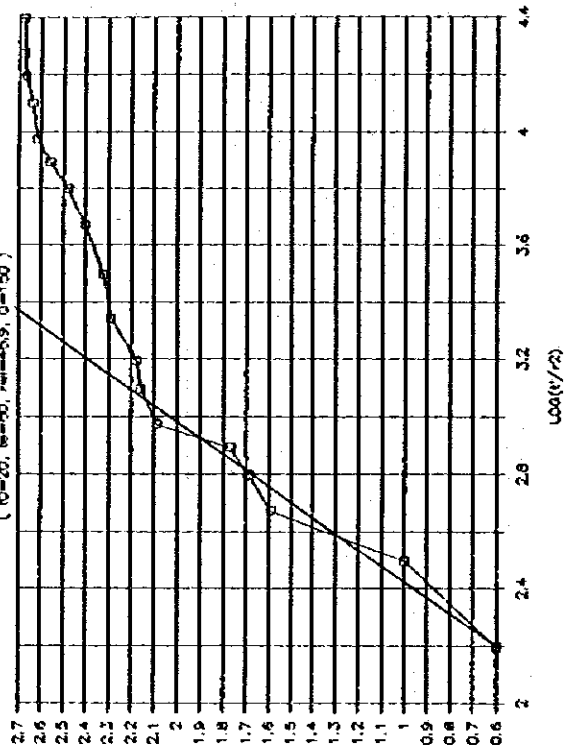
C8261

($10=360$, $N=90$, $m=3.7$, $Q=1.33,3$)



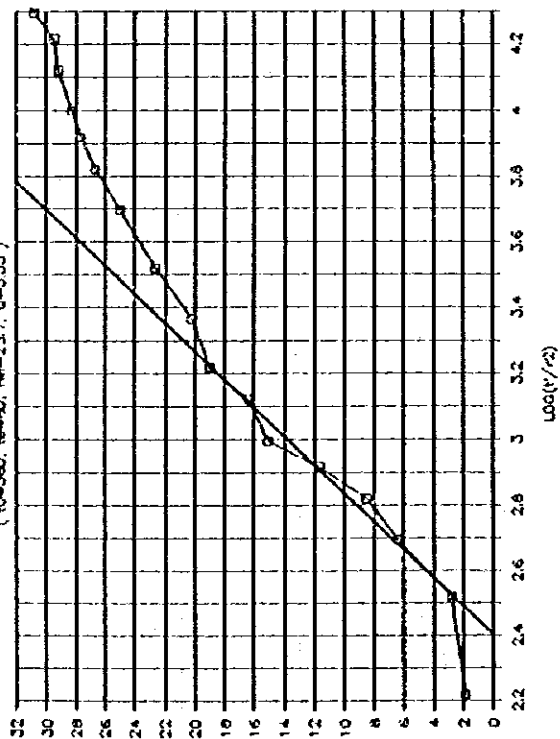
C8262

($10=20$, $N=90$, $m=5.9$, $Q=1.50$)



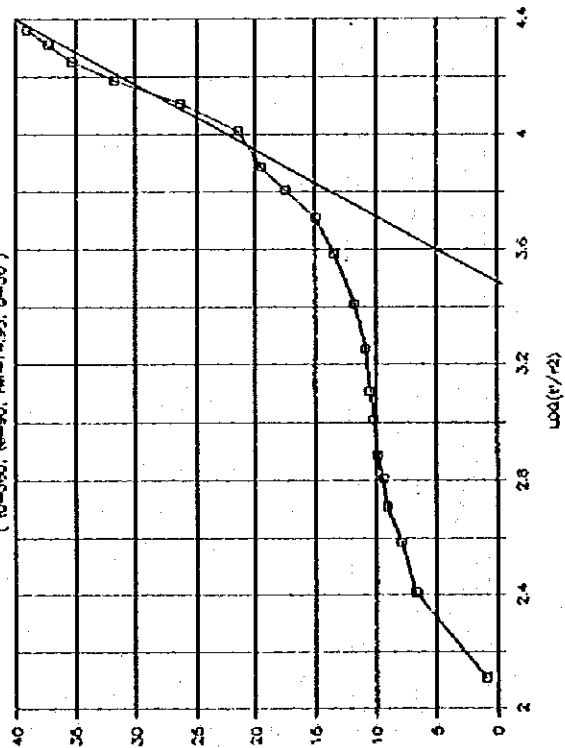
C8256

($10=360$, $N=90$, $m=25.7$, $Q=3.33$)



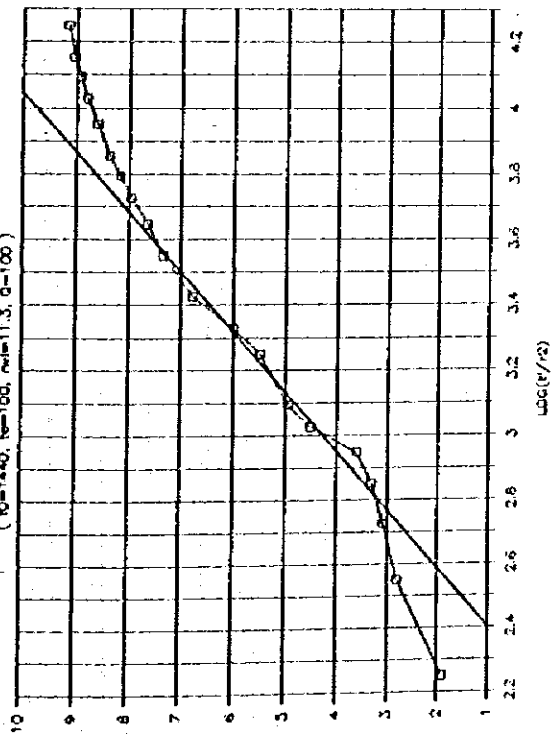
C8258

($10=360$, $N=90$, $m=14.90$, $Q=3.0$)



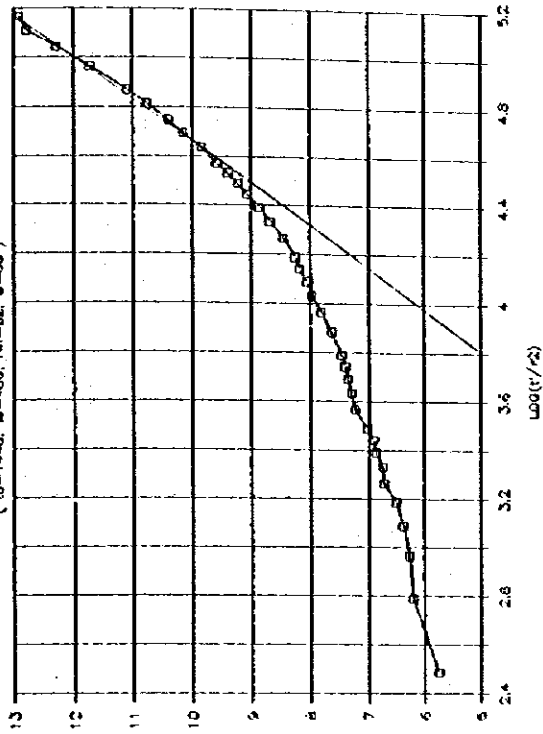
C8296

($10=1440$, $h=100$, $n=11.3$, $Q=100$)



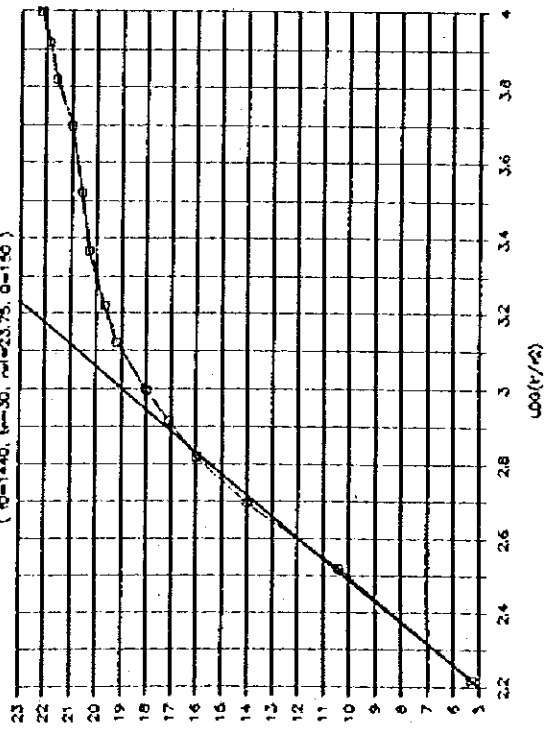
C8430

($10=1440$, $h=400$, $n=32$, $Q=50$)



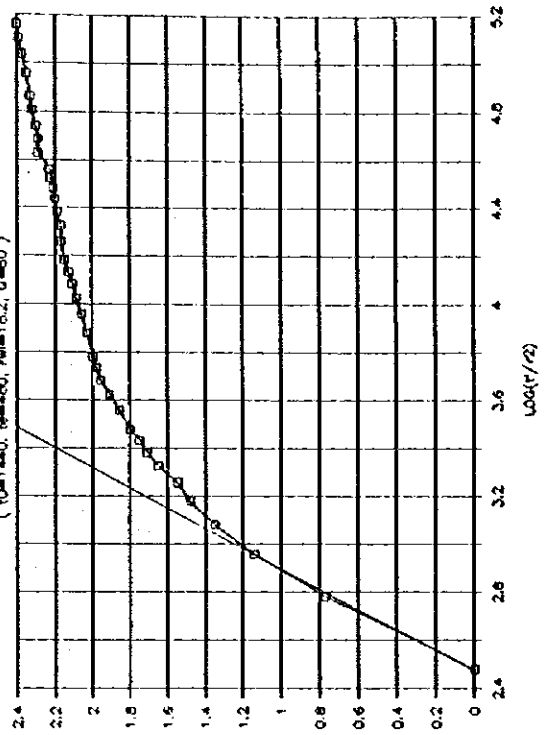
C8245

($10=1440$, $h=30$, $n=23.75$, $Q=150$)



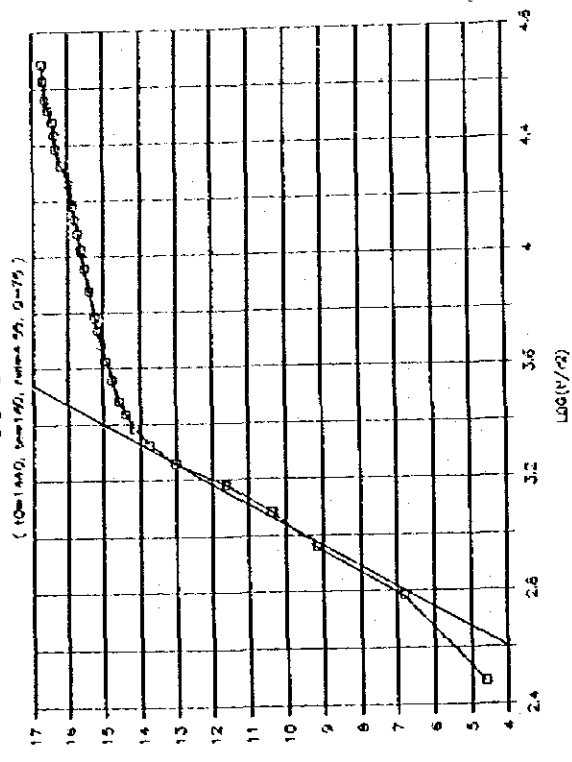
C8433

($10=1440$, $h=400$, $n=16.2$, $Q=80$)

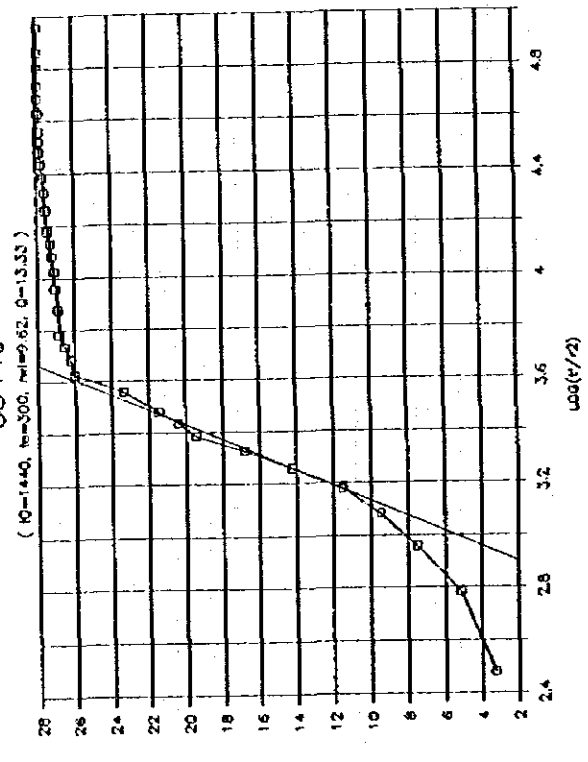


24.1×3
 51×17
 9×14
 0.9

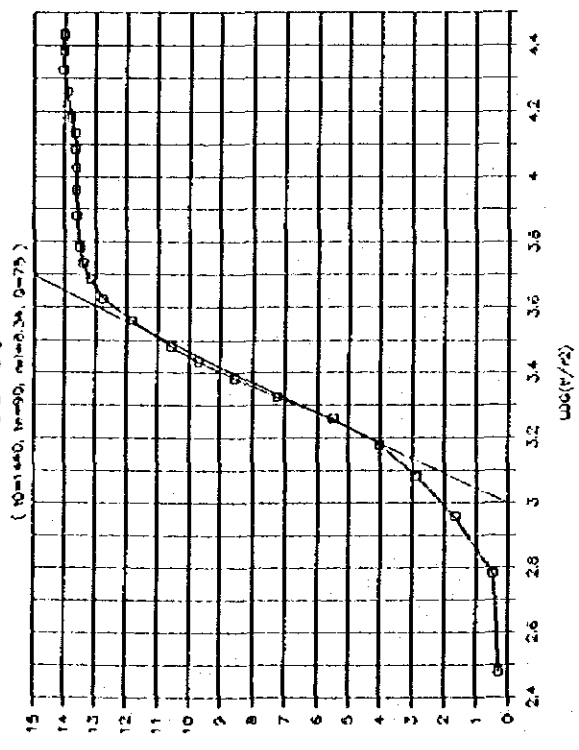
C8437



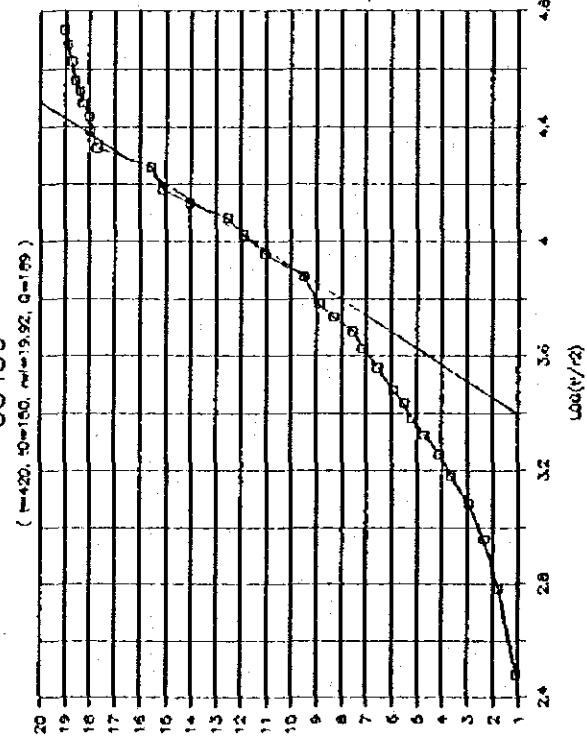
C8440



C8435

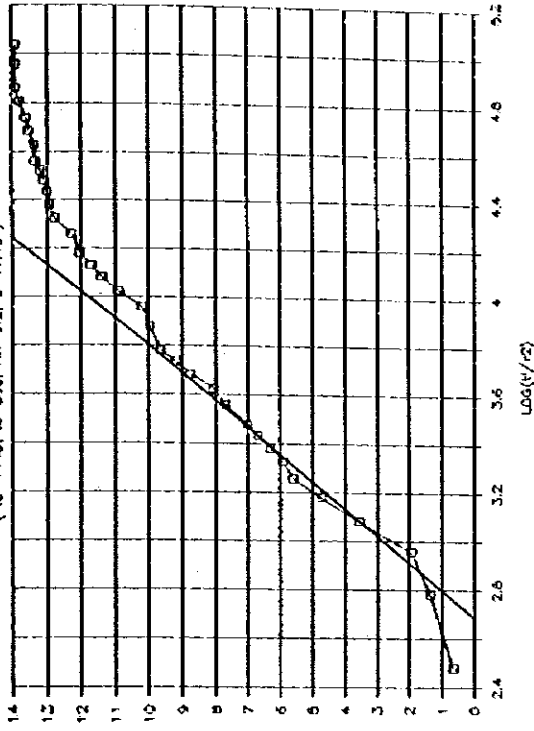


C8436



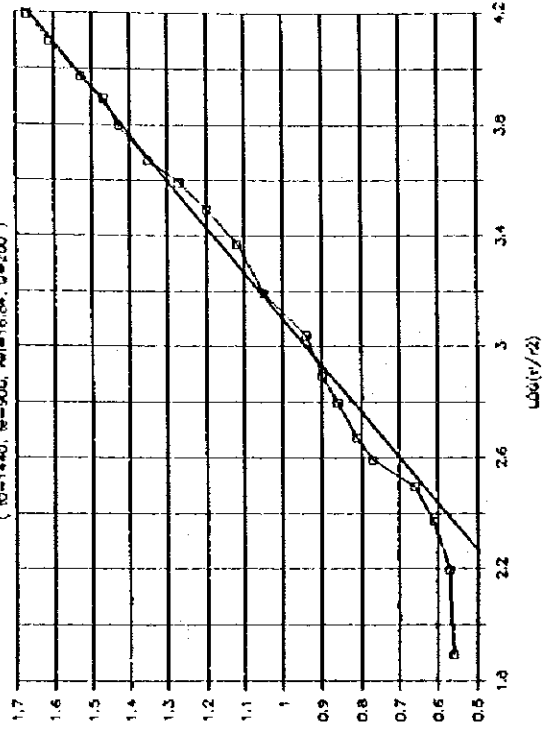
C8446

(10^{-1440} , $n=350$, $m=9.2$, $Q=17.13$)



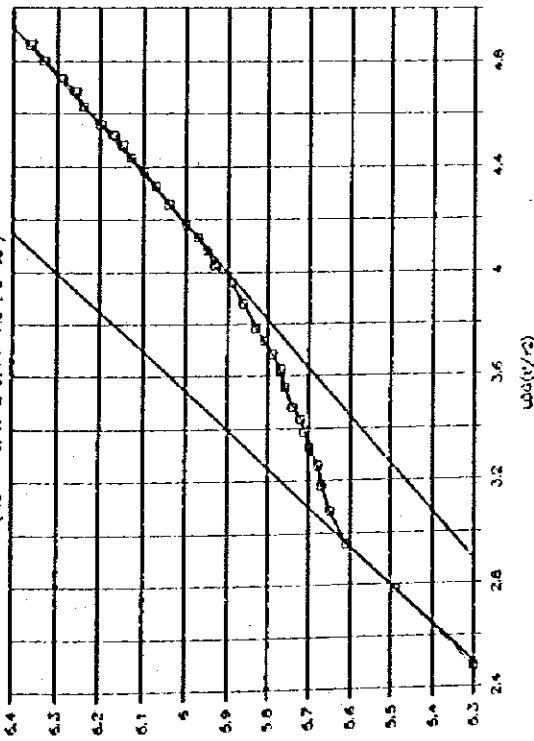
C8449

(10^{-1440} , $n=900$, $m=16.04$, $Q=200$)



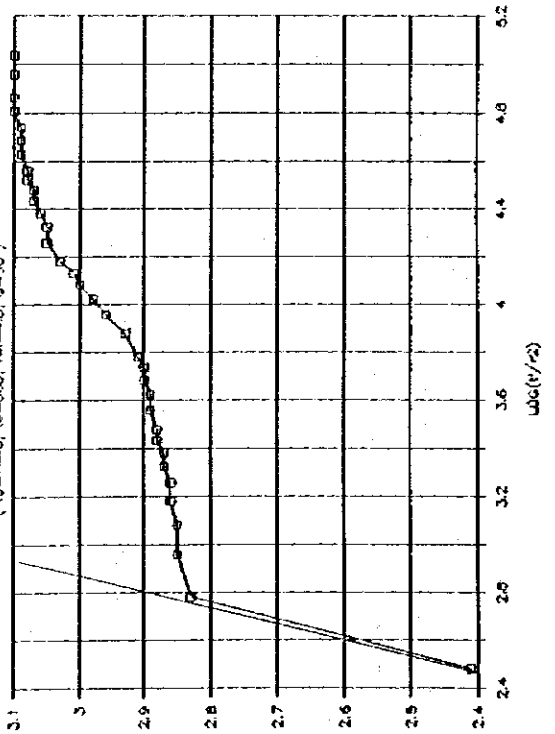
C8443

(10^{-1440} , $n=240$, $m=7.04$, $Q=60$)



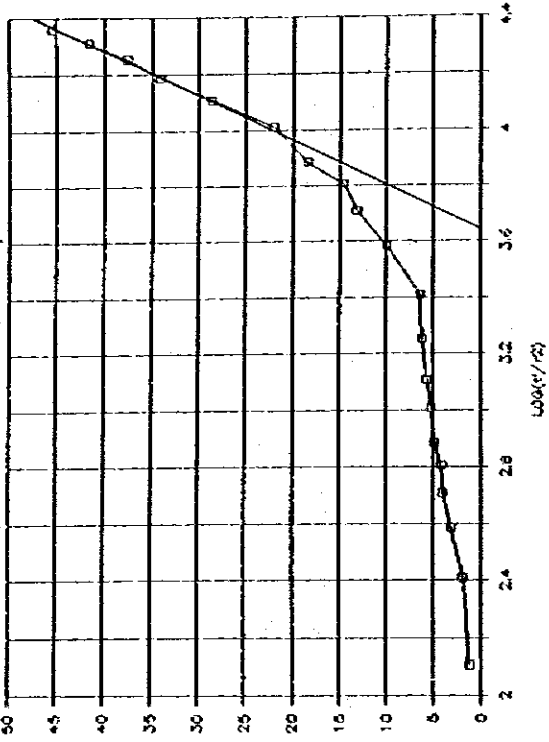
C8445

(10^{-1440} , $n=350$, $m=6$, $Q=50$)



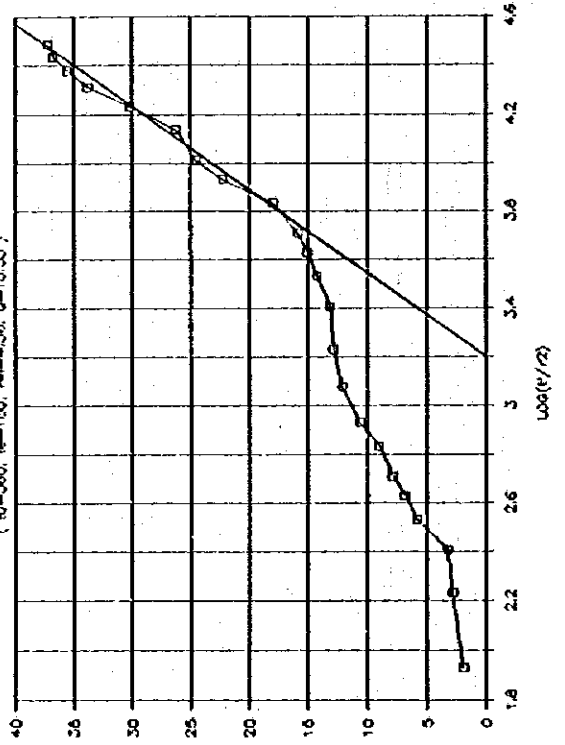
C8456

($10=350$, $t_{90}=90$, $n=12.75$, $Q=25.67$)



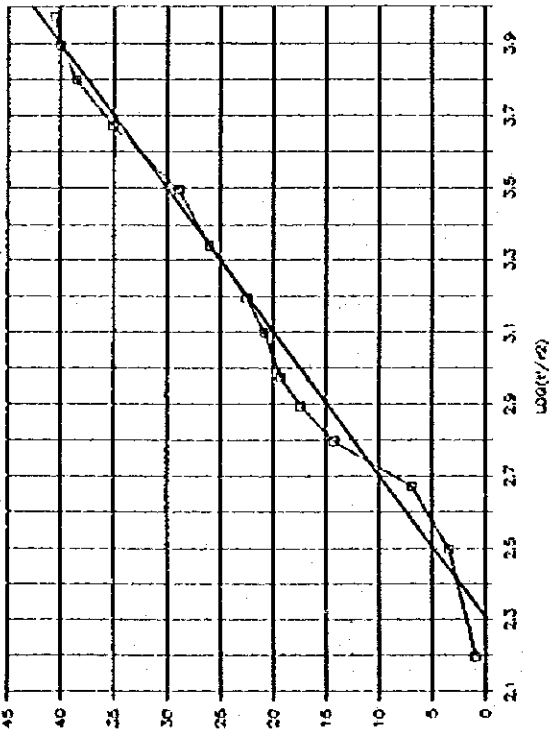
C8460

($10=360$, $t_{90}=100$, $n=14.36$, $Q=13.33$)



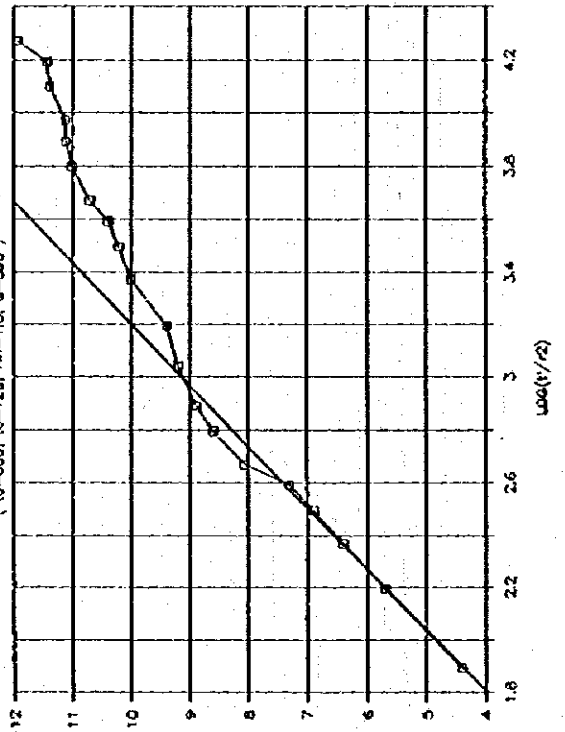
C8453

($10=940$, $t_{90}=30$, $n=11.8$, $Q=40$)



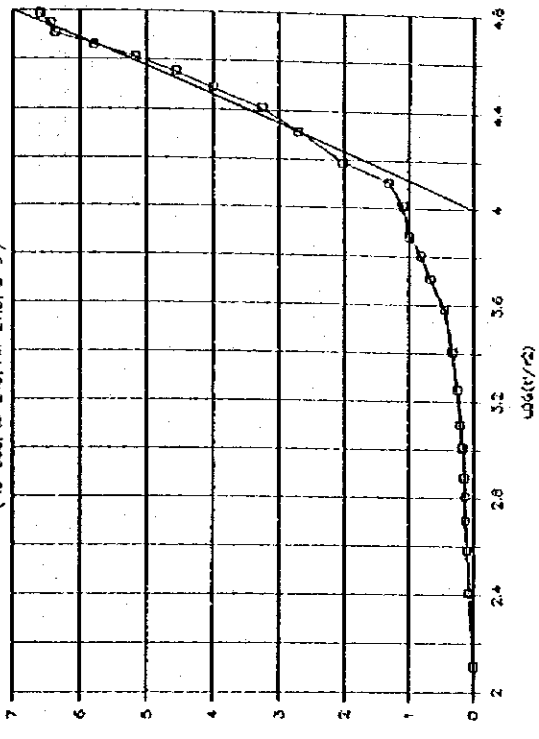
C8454

($10=600$, $t_{90}=120$, $n=11.8$, $Q=300$)



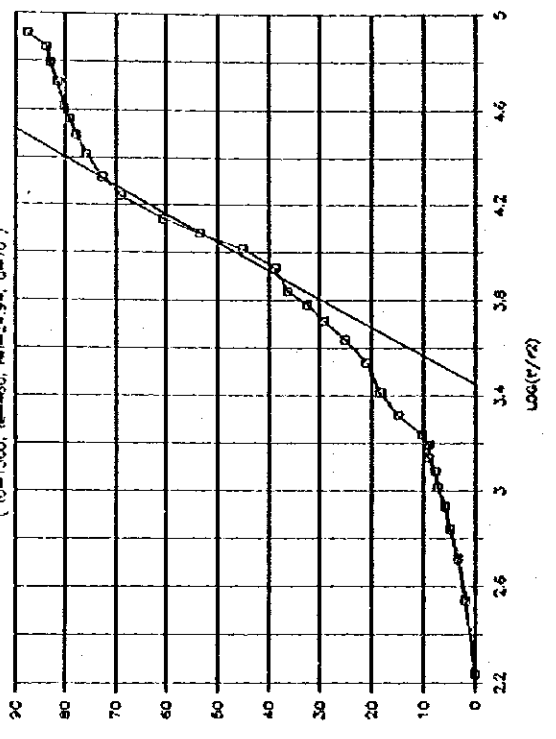
C8465

(10=360, $t_m=2.40$, $r_m=27.3$, $Q=0.5$)



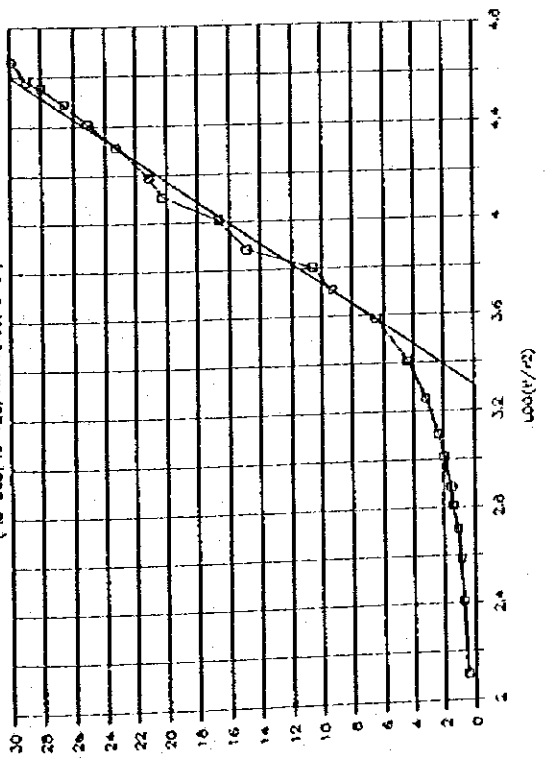
C8474

(10=1500, $t_m=4.80$, $r_m=24.94$, $Q=70$)



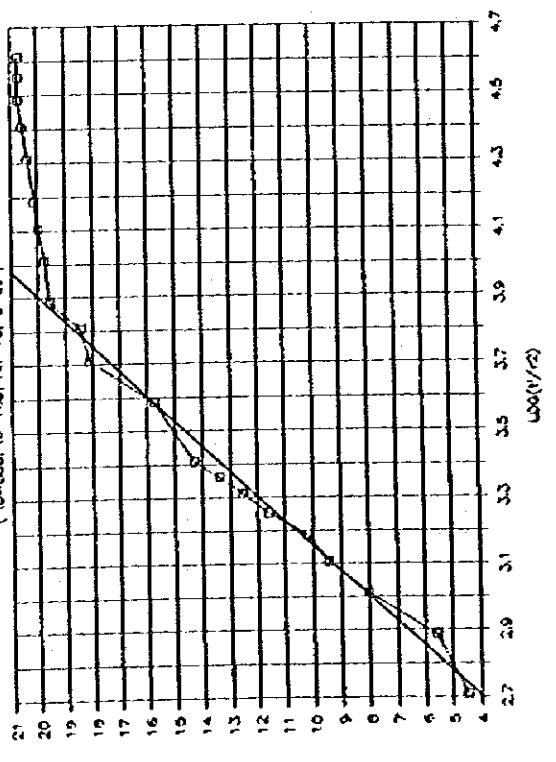
C8461

(10=360, $t_m=1.20$, $r_m=10.65$, $Q=0$)



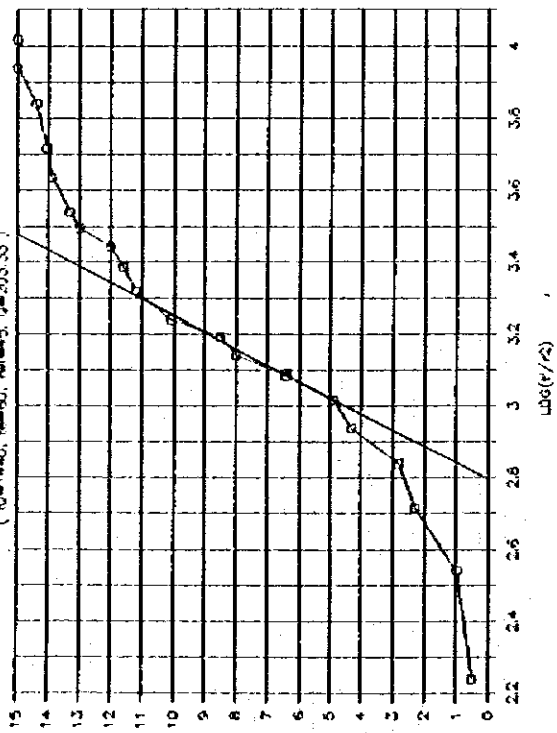
C8462

(10=360, $t_m=1.60$, $r_m=18$, $Q=20$)



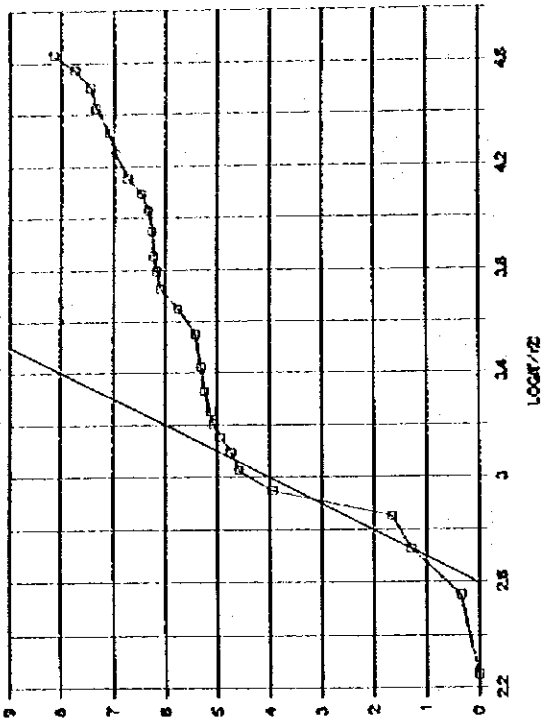
C8499

($10=1.440$, $h=60$, $m=65$, $Q=203.33$)



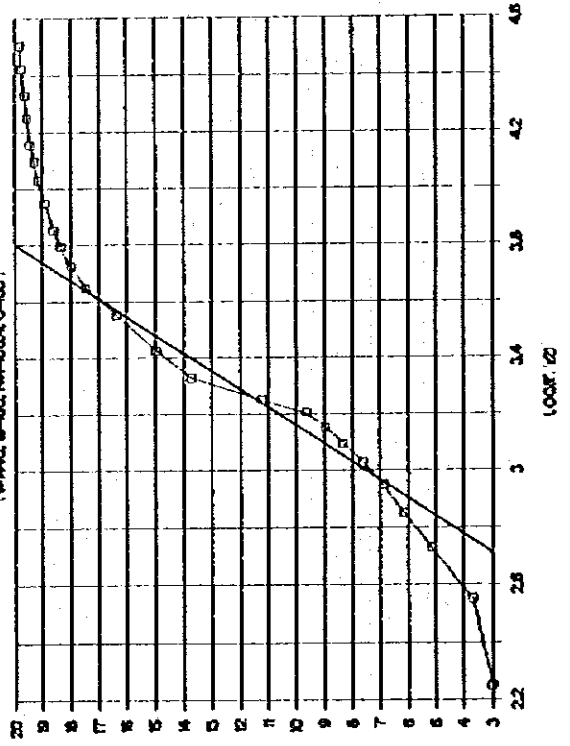
C8503

($10=1.440$, $h=240$, $m=65$, $Q=110$)



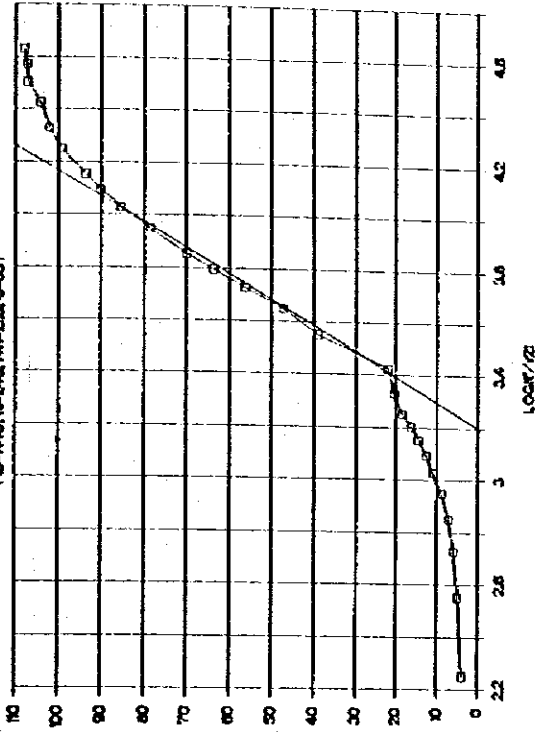
C8697

($10=1.440$, $h=180$, $m=65$, $Q=130$)



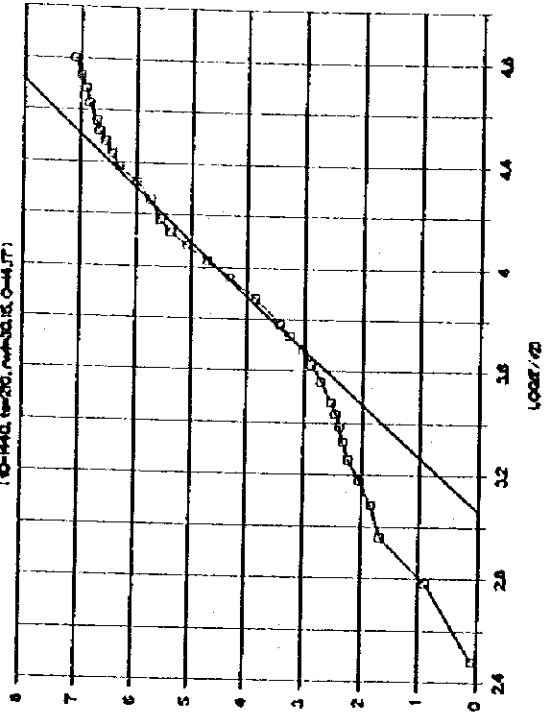
C8887

(10-H40, N=240, m=21.5, O=85)



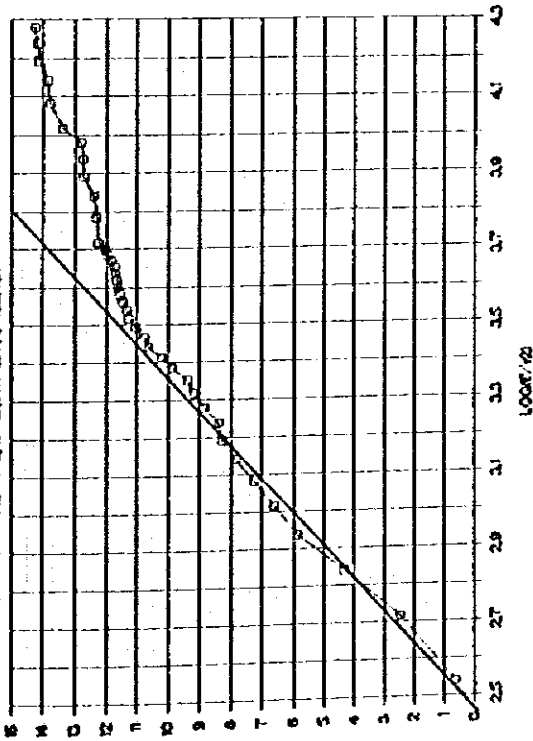
C8892

(10-H40, N=200, m=20.15, O=41.7)



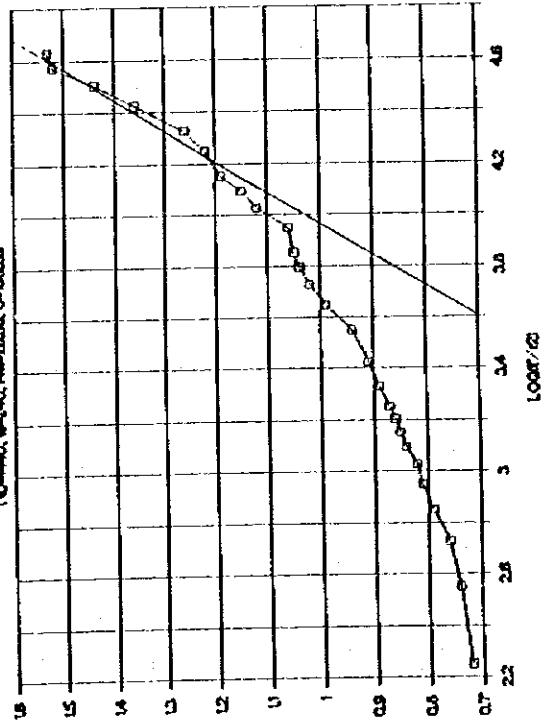
C8745

(10-H40, N=120, m=18.5, O=102.45)



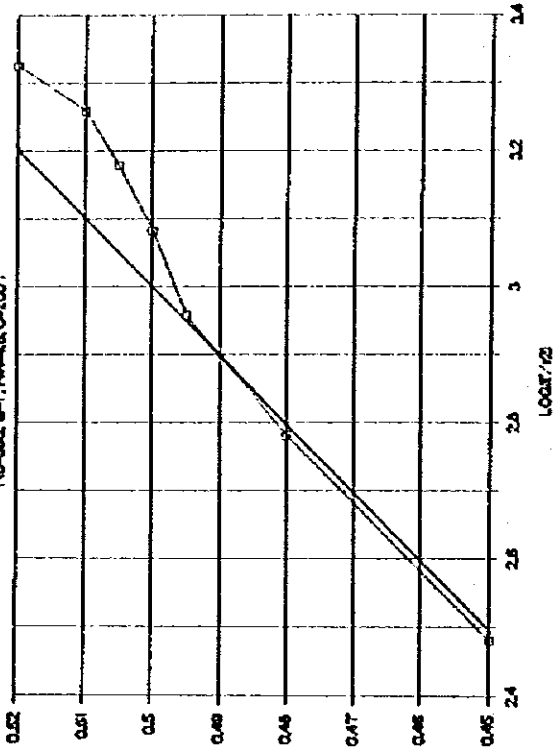
C8883

(10-H40, N=240, m=21.5, O=85.28)



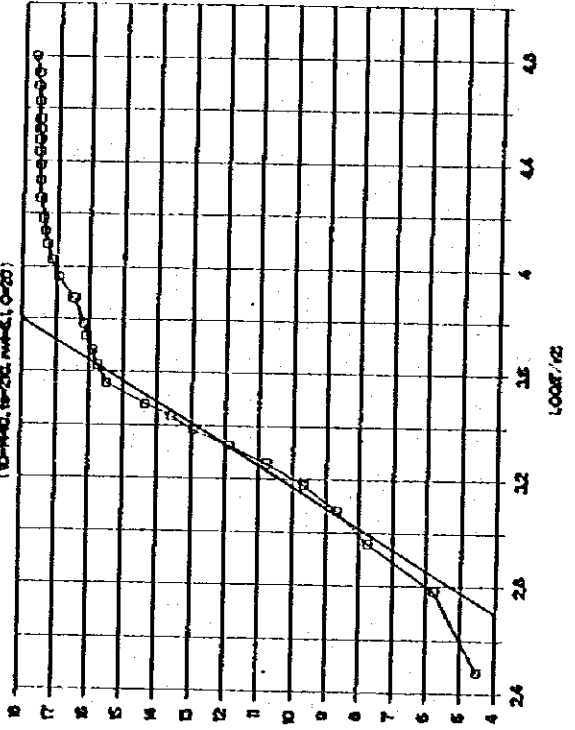
C8899

(10-360, b=7, m=1.5, O=200)



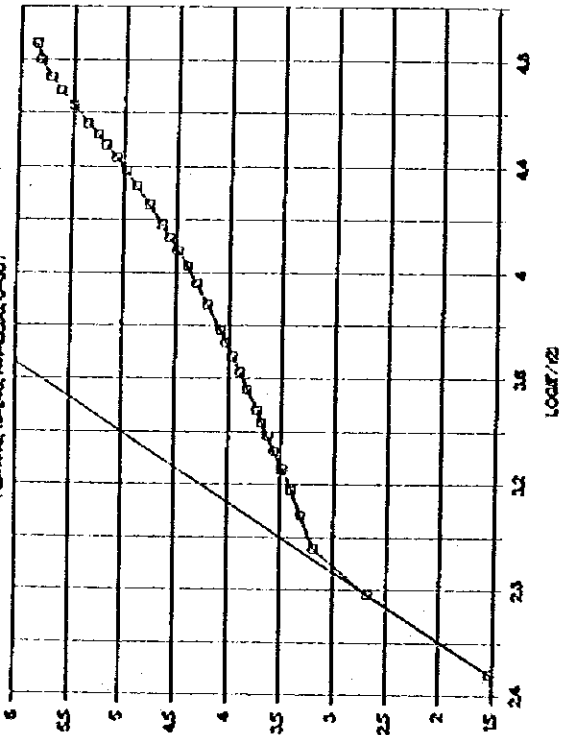
C8900

(10-110, b=22, m=6.1, O=20)



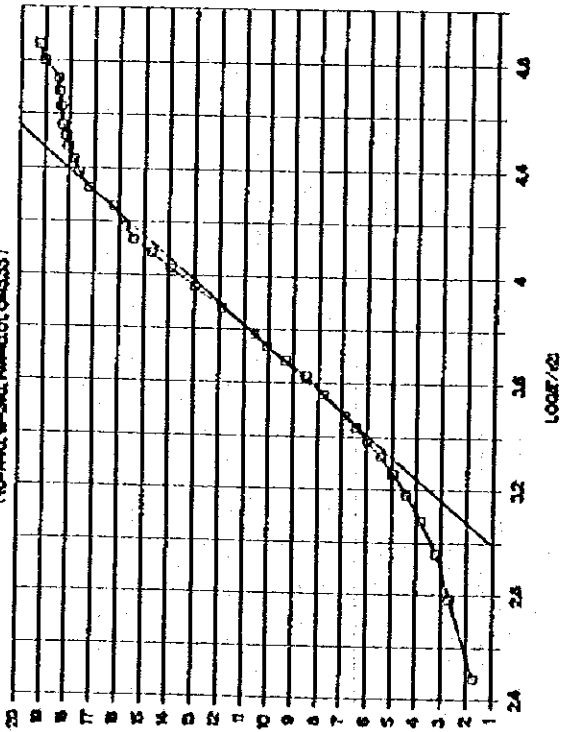
C8895

(10-140, b=240, m=2.55, O=30)



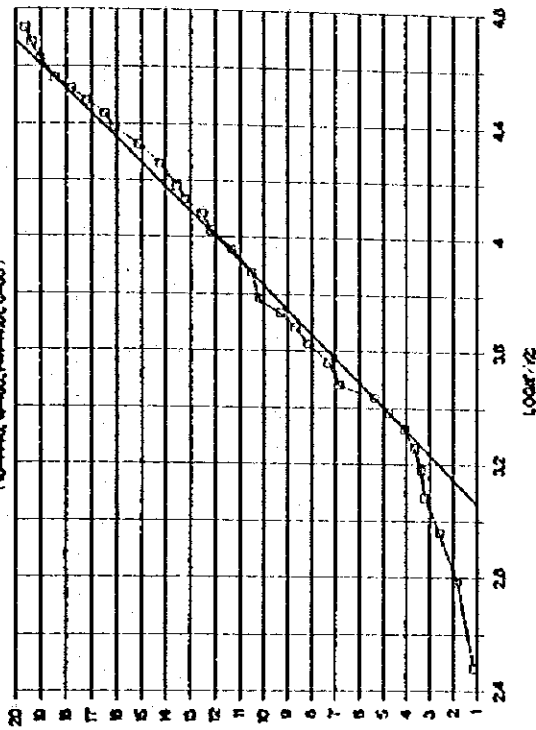
C8898

(10-110, b=240, m=2.01, O=3.55)



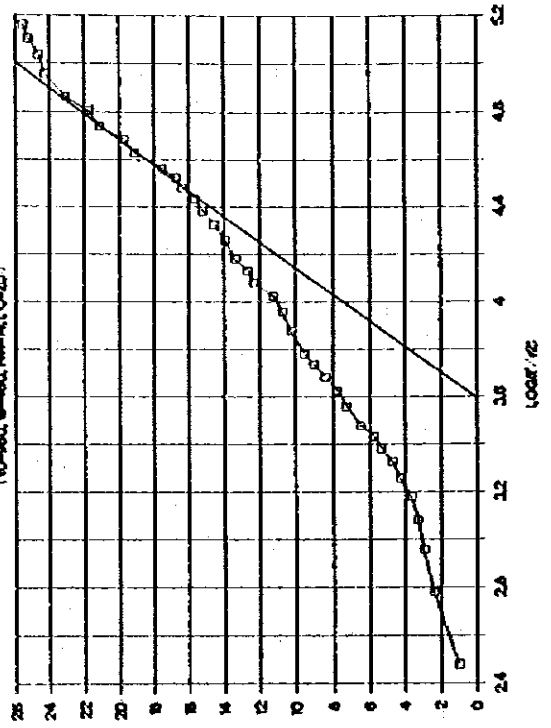
C8907

(10-440, 1-100, 1-14.5, 0-30)



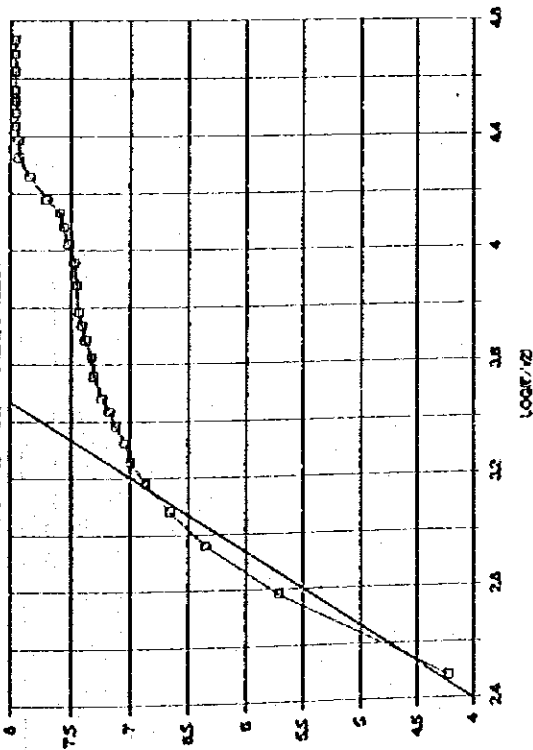
C8909

(10-860, 1-100, 1-14.1, 0-20)



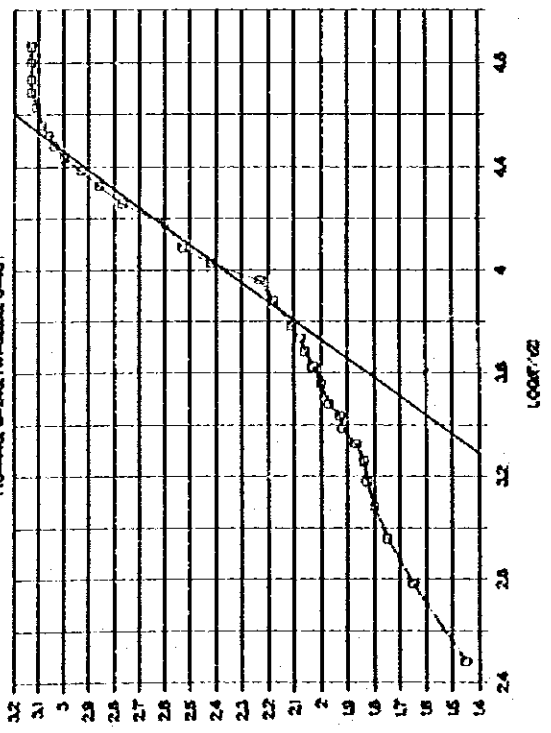
C8902

(10-440, 1-80, 1-14.5, 0-43.5)

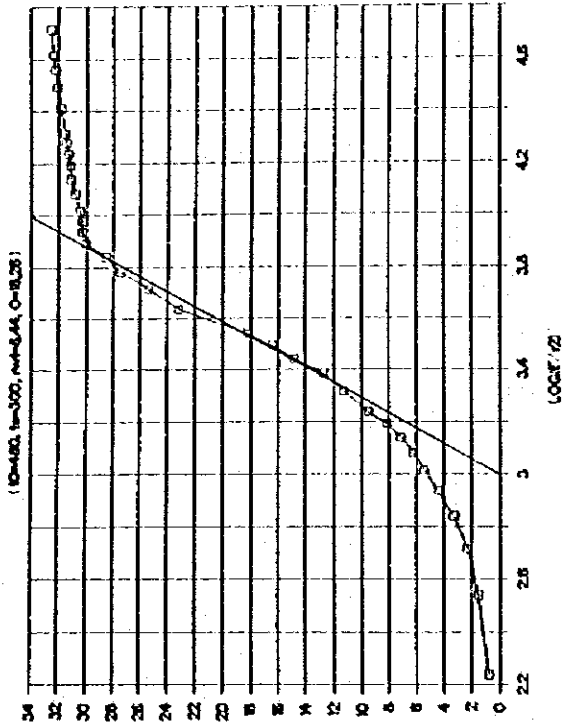


C8904

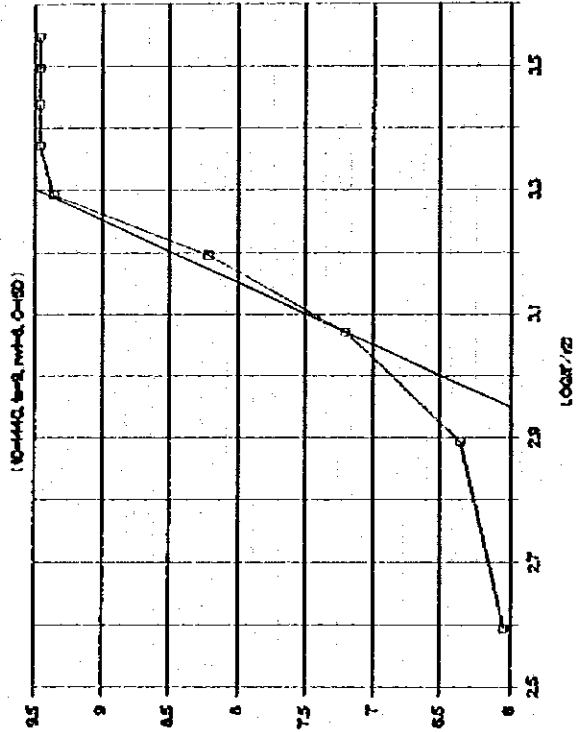
(10-440, 1-200, 1-14.5, 0-40)



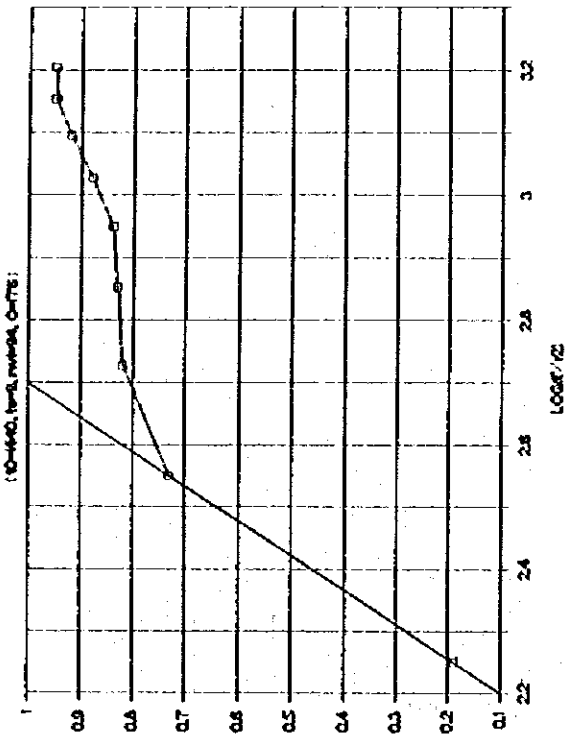
C8923



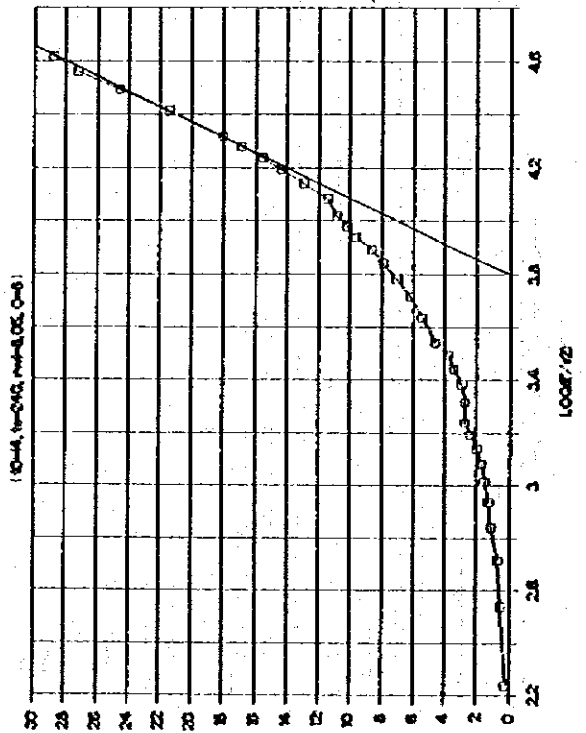
C8929



C8918

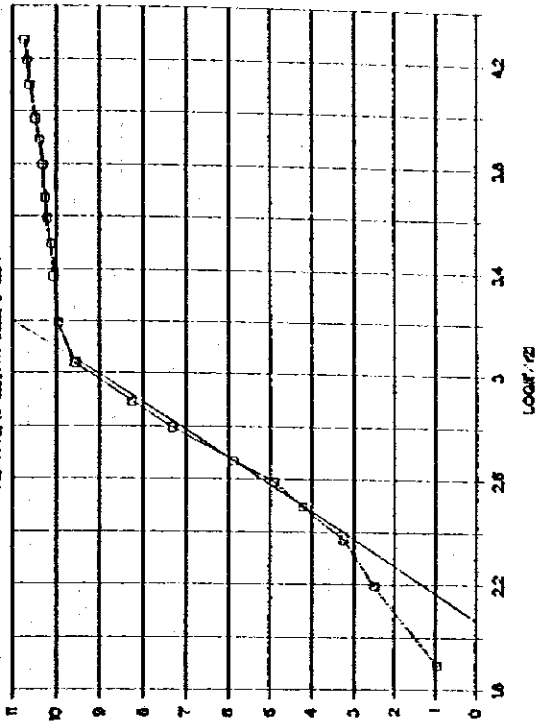


C8920



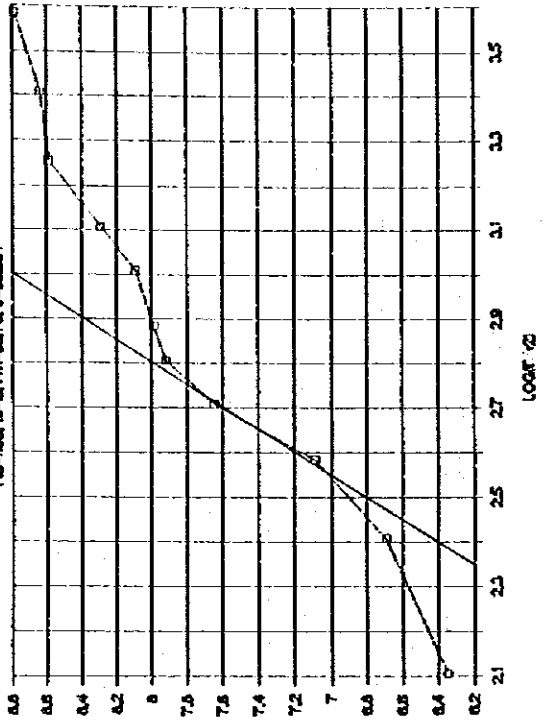
C8988

(10-1140, 10-120, 10-122, 10-124, 10-126)



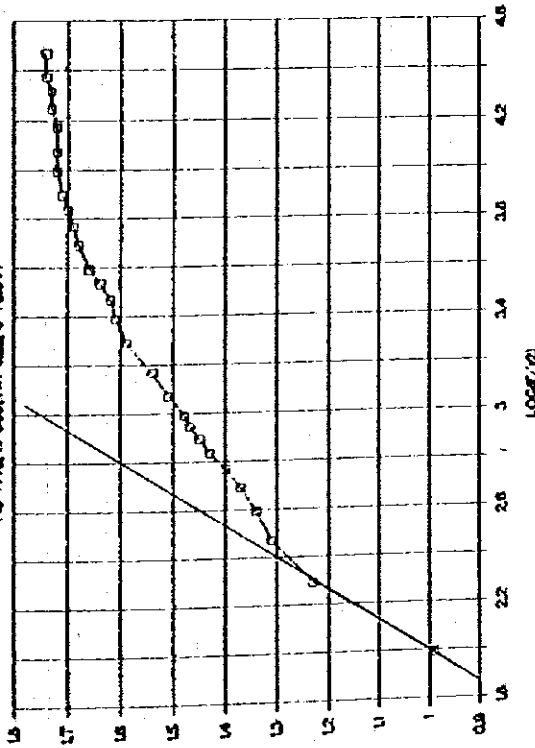
C8990

(10-1160, 10-118, 10-120, 10-122, 10-124)



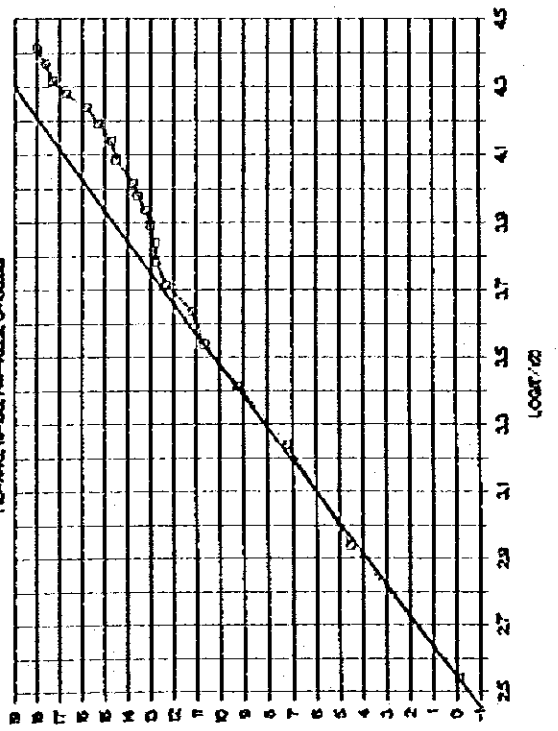
C8964

(10-1140, 10-120, 10-122, 10-124)



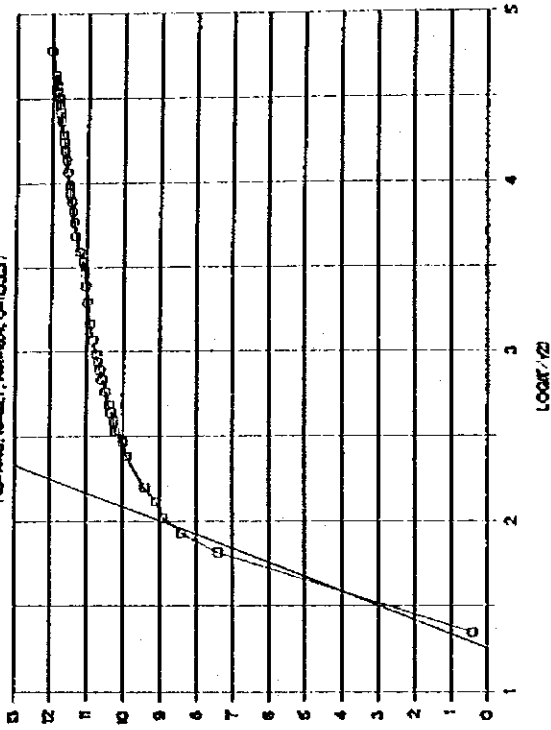
C8966

(10-1140, 10-120, 10-122, 10-124)



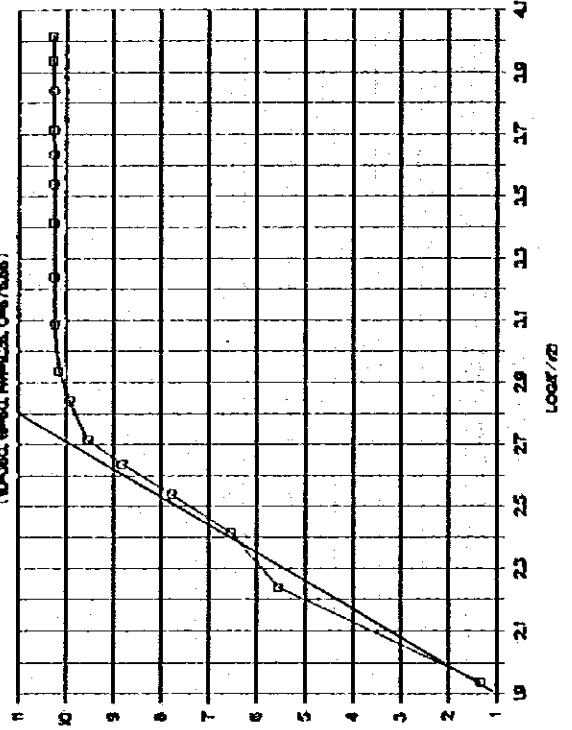
C8995

(10-1440, 1440, 1440, 1440, 1440)



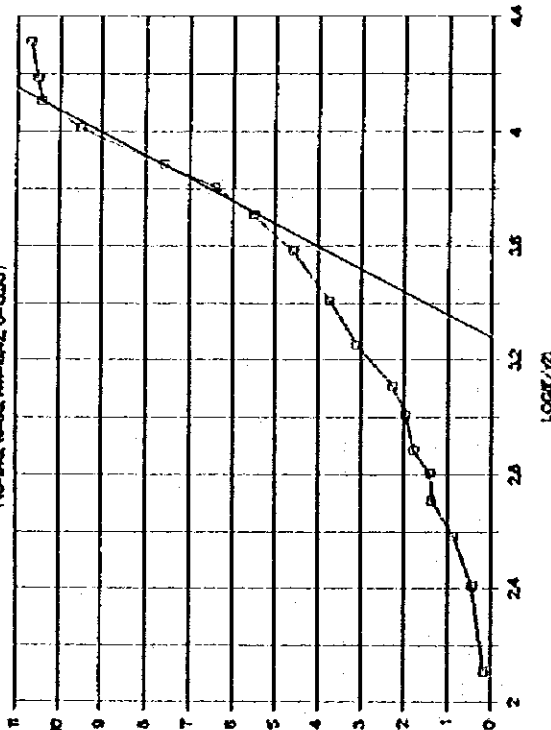
C8996

(10-280, 280, 280, 280, 280)



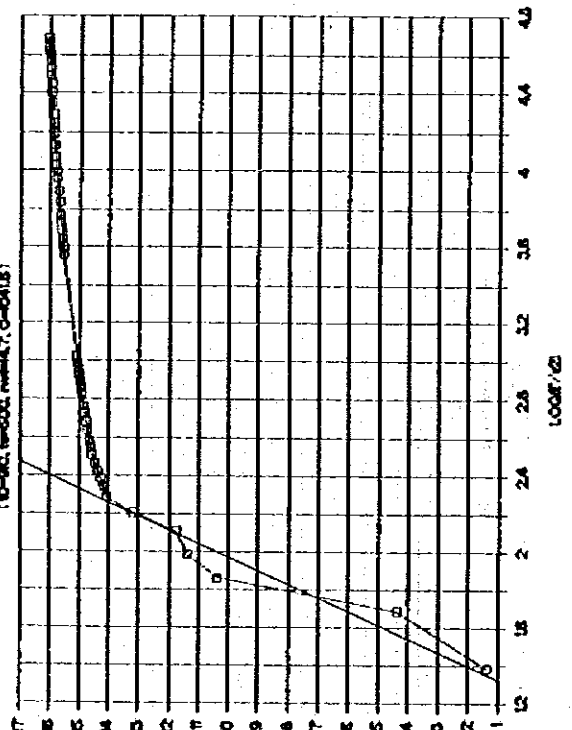
C8993

(10-240, 240, 240, 240, 240)



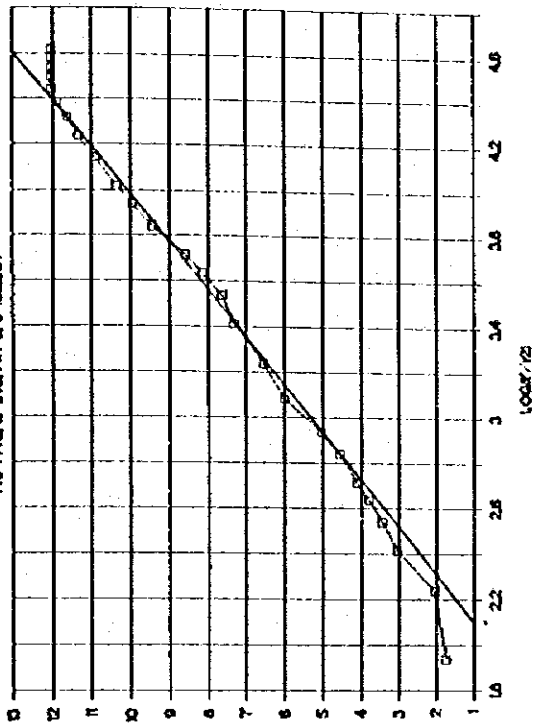
C8994

(10-280, 280, 280, 280, 280)



C8997

(10-HAZ, R=240, P=100, O=0.0333)



C8999

(10-HAZ, R=240, P=100, O=0.0333)

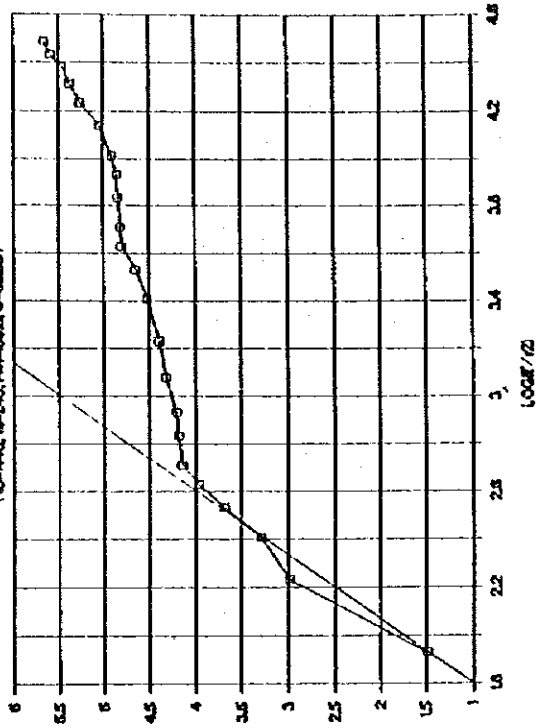


Table I-5 (1/76) Water quality data

Stream	Station	Date	Time	Temperature (°C)	Conductivity (µmhos/cm)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Total Hardness (mg/L)	pH	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Ammonia Nitrogen (mg/L)	Nitrite Nitrogen (mg/L)	Nitrate Nitrogen (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (µg/L)	Iron (µg/L)	Copper (µg/L)	Zinc (µg/L)	Lead (µg/L)	
0890	10090717	10090801		6.7	209	187	99			0.91			34	91	2.1	0.29				7.9	3.0				
7426	10090719	10090801		7.5	1000	600				1.4			48	136	0.8	0.31				0.91	0.81				
0898	10090720	10090801		7.6	200	200				0.15			198	126	0.18					0.81	0.48				
0898	10090721	10090801		7.8	200	200				0.15			198	126	0.18					0.81	0.48				
0898	10090722	10090801		8.1	3000	374	0			0.22			2020	179.2	0.48	0.48				1.28	0.08				
0898	10090723	10090801		8.1	1700	610	0			0.22			2020	179.2	0.48	0.48				1.28	0.08				
0898	10090724	10090801		7.7	600	910	0			0.18			100	140	0.18					0.4	0.08				
0898	10090725	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090726	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090727	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090728	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090729	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090730	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090731	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090732	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090733	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090734	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090735	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090736	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090737	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090738	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090739	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090740	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090741	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090742	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090743	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090744	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090745	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090746	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090747	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090748	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090749	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090750	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090751	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090752	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090753	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090754	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090755	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090756	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090757	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090758	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090759	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090760	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090761	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090762	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090763	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090764	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090765	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090766	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090767	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090768	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090769	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090770	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090771	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090772	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090773	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090774	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090775	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090776	10090801		8.1	200	200	0			0.18			100	140	0.18					0.4	0.08				
0898	10090777	10090801		8.1	200	200	0			0.18			100	140											

Table 1.5 (7/16) Water quality data

Station	Date	Temp	Turbidity	Secchi	DO	pH	Hardness	Total Solids	Total Solids	Calcium	Magnesium	Chloride	Sulfate	Fluoride	Phosphate	Potassium	Sodium	Iron	Manganese	Nitrite	Nitrate	Ammonia	Total Nitrogen	Total Phosphorus	Aluminum	Lead	Copper	Zinc	
		(°C)	(NTU)	(cm)	(mg/L)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
001A	10/12/16	20.5	1.2	15	10.5	7.8	180	120	60	40	10	50	20	0.5	0.5	10	10	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	

Table 1.5 (14/16) Water quality data

WQ ID	Station	Date	Temp	Conductivity	DO	pH	Turbidity	Chloride	Sulfate	Nitrate	Ammonia	Total Phosphorus	Dissolved Phosphorus	Iron	Manganese	Cadmium	Copper	Zinc
2122	20A	19970102	10.0	128	128	8.4	0.65	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
1851	30A	19971104	8.1	130	130	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2000	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2001	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2002	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2003	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2004	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2005	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2006	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2007	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2008	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2009	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2010	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2011	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2012	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2013	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2014	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2015	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2016	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2017	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2018	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2019	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2020	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2021	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2022	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2023	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2024	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2025	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2026	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2027	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2028	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2029	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1
2030	300	19990516	10.0	270	270	8.4	0.1	0.15	1.1	1.5	1.5	0.4	0.4	0.1	0.1	0.1	0.1	0.1

PART II : INSTRUMENT AND MAN POWER

Table II.1.1 Inventory of Instrument of groundwater surveys

	TYPE	YEAR INTRODUCED	ACQUISITION	COUNTRY OF ORIGIN	CONDITION
1	Terrameter SAS 300 B	1986	Direct purchase	Sweden	Good
2	Megger earth Resistivity	1950	Direct purchase	London	Good
3	Potential meter Resistivity	1962	-do-	-do-	Not working
4	Geometer	1975	AID	U.S.A.	-do-
5	Seismograph	1975	-do-	U.S.A.	-do-
6	OYO ES-G2 Geoelectric Potential meter	1981	-do-	Japan	-do-
7	Soil Test	1980	-do-	U.S.A	Good
8	Water finder Automatic	1939		Sweden	Good
9	Specific earth Resistance	1981	AID	Japan	Good
10	Dipper Electric	1990	Direct purchase	W.Germany	Good
11	A.C. Terrameter	1976	Direct purchase	Sweden	Not working

Table II.1.2 (1/8) Inventory of instrument for groundwater surveys by district

Instrument	210 Ktambu	220 Kiriinyaga	230 Muranga	240 Nyandarua	250 Nyeri
Altimeter 0 - 6000 m				1	1
Anti snake Bite Kit					
Battery charger with cable					
Booster SAS 2000					
Bucket G.I					
Chair camp					
Compass Prismatic				1	1
Conductivity CM-IF					
Conductivity meter 113177 S/No					
Crocodile clips					
DC Terrameter set SAS 300					
Dipper 150 m					
Dipper 200 m					
Dipper 50 m					
Dipper saba hydrometre Pspbr-gmph					
Electric Dipper 200 m & 150 m				1	1
Electric Dipper hydrometre gmph					
Electrodes					5
Electronic conductivity Meter				1	1
First aid kit					1
Gas cooker 3 Burner					
Gas cylinder 3 kg					
Gas Regulator					
Geological Hammer					
Geophysical Hammers					5
Georeels					11
Karat					
Lamp Lumo Gas					
Logging cables 200 set					1
ManualManualManualManualManualManu:					
Microscope Nikon					1
Non-polarisable electrodes					2
Pallptest conductivity Meter					
Pangae					3
PH Meter					1
Pilers and Screw Drivers					
SAS 200 logging cables					
Scientific calculator Fx-82c				1	3
Stereoscopic Microscope					
Survey umbrella					
Table camp folding					
Tape measure 100 m				1	2
Tape measure 30 m					
Tent Bush, D/I					
Terrameter SAS 300B				1	1
Test Pannel					1
Thammeter altimeter					
Total	0	0	0	5	38

Table II.1.2 (2/8) Inventory of Instrument of groundwater surveys by district

Instrument	310 Kilifi	320 Kwale	330 Lamu	340 Mombasa	350 Taita Taveta	360 Tana River
Allimeter 0 - 6000 m	1		1	1	1	
Anti snake Bite Kit				1		
Battery charger with cable				1		
Booster SAS 2000				1		
Bucket G.I						
Chair camp						
Compass Prismatic	1		1	1	1	
Conductivity CM-IF						
Conductivity meter 113177 S/No						
Crocodile clips				3		
DC Terrameter set SAS 300						
Dipper 150 m				1		
Dipper 200 m				1		
Dipper 50 m				1		
Dipper saba hydrometre Paphr-gmph	1		1	2	1	
Electric Dipper 200 m & 150 m						
Electric Dipper hydrometre gmph		1				
Electrodes				4		
Electronic conductivity Meter						
First aid kit						
Gas cooker 3 Burner						
Gas cylinder 3 kg						
Gas Regulator						
Geological Hammer				1		
Geophysical Hammers				5		
Georeels				5		
Kasai						
Lamp Lumo Gas						
Logging cables 200 set						
ManualManualManualManualManualManu:						
Microscope Nikon						
Non-polarisable electrodes						
Pallintest conductivity Meter	1	1	1	3	1	
Pangas						
PH Meter			1	1	1	
Pilers and Screw Drivers						
SAS 200 logging cables						
Scientific calculator Fx-82c				1		
Stereoscopic Microscope				1		
Survey umbrella						
Table camp folding				5		
Tape measure 100 m						
Tape measure 30 m				2		
Tent Bush, D/I				1		
Terrameter SAS 300B				2		
Test Pannel						
Thammeter altimeter						
Total	3	2	4	36	4	0

Table II.1.2 (3/8) Inventory of Instrument of groundwater surveys by district

Instrument	410 Embu	420 Isiolo	430 Kitui	440 Machakos	450 Marsabit	460 Meru
Allimeter 0 - 6000 m		1		1		
Anti snake Bite Kit						
Battery charger with cable						
Booster SAS 2000			1			
Bucket G.I	1					
Chair camp						
Compass Prismatic		1	1	1		
Conductivity CM-IF						
Conductivity meter 113177 S/No					1	
Crocodile clips	20					
DC Terrameter set SAS 300						
Dipper 150 m	1					
Dipper 200 m						
Dipper 50 m						
Dipper saba hydrometre Psphr-gmph	1	1	1		1	
Electric Dipper 200 m & 150 m						1
Electric Dipper hydrometre gmph						
Electrodes	4					
Electronic conductivity Meter				1		
First aid kit	2					
Gas cooker 3 Burner			1			
Gas cylinder 3 kg	1					
Gas Regulator						
Geological Hammer	1					
Geophysical Hammers	4					
Georeels	2					
Karal						
Lamp Lumo Gas	1					
Logging catlines 200 set						
ManualManualManualManualManualManu:						
Microscope Nikon						
Non-polarizable electrodes						
Pallintest conductivity Meter		1	1			
Pangas	6					
PH Meter			1	1		
Pliers and Screw Drivers						
SAS 200 logging cables						
Scientific calculator Fx-82c	1		1			
Stereoscopic Microscope	1					
Survey umbrella						
Table camp folding						
Tape measure 100 m	8					
Tape measure 30 m	2					
Tent Bush, D/f	1					
Terrameter SAS 300B	1		1			
Test Pannel			2			
Thammeter allimeter						
Total	56	3	7	3	2	1

Table II.1.2 (4/8) Inventory of Instrument of groundwater surveys by district

Instrument	510 Garissa	520 Mandera	530 Wajir
Altimeter 0 - 6000 m	1	1	1
Anti snake Bite Kit			
Battery charger with cable			
Booster SAS 2000	1		
Bucket G.I			
Chair camp			
Compass Prismatic	1	1	1
Conductivity CM-IF			
Conductivity meter 113177 S/No			
Crocodile clips			
DC Terrameter set SAS 300			
Dipper 150 m			
Dipper 200 m			
Dipper 50 m			
Dipper saba hydrometre Psphr-gmph	1		1
Electric Dipper 200 m & 150 m			
Electric Dipper hydrometre gmph			
Electrodes	4		
Electronic conductivity Meter	1		
First aid kit	1		
Gas cooker 3 Burner			
Gas cylinder 3 kg			
Gas Regulator			
Geological Hammer			
Geophysical Hammers			
Georeels	4		
Karat			
Lamp Lumo Gas			
Logging cables 200 set			
ManualManualManualManualManualManu:			
Microscope Nikon			
Non-potable electrodes	2		
Palltest conductivity Meter		1	
Pangas			
PH Meter	1	1	1
Pliers and Screw Drivers			
SAS 200 logging cables			
Scientific calculator Fx-82c	1		1
Stereoscopic Microscope			
Survey umbrella			
Table camp folding			
Tape measure 100 m	2		
Tape measure 30 m			
Tent Bush, D/I			
Terrameter SAS 300B	1		
Test Panel	1		
Thammeter altimeter			
Total	19	3	4

Table II.1.2 (5/8) Inventory of Instrument of groundwater surveys by district

Instrument	610 Kisii	620 Kisumu	630 Slaya	640 South Nyanza
Allimeter 0 - 6000 m		1		
Anti snake Bite Kit		1		
Battery charger with cable				
Booster SAS 2000		1		
Bucket G.I		1		
Chair camp		2		
Compass Prismatic		1		
Conductivity CM-IF				
Conductivity meter 113177 S/No				
Crocodile clips				
DC Terrameter set SAS 300				
Dipper 150 m		1		
Dipper 200 m				
Dipper 50 m				
Dipper saba hydrometre Psphr-gmph		1	1	1
Electric Dipper 200 m & 150 m				
Electric Dipper hydrometre gmph				
Electrodes				
Electronic conductivity Meter		1	1	
First aid kit		3		
Gas cooker 3 Burner		1		
Gas cylinder 3 kg				
Gas Regulator				
Geological Hammer				
Geophysical Hammers		4		
Georeels				
Kerai		1		
Lamp Lumo Gas				
Logging califes 200 set		1		
ManualManualManualManualManualManu:				
Microscope Nikon		1		
Non-polarisable electrodes				
Palintest conductivity Meter		2		
Pangas		4		
PH Meter		1		
Pliers and Screw Drivers				
SAS 200 logging cables		1		
Scientific calculator Fx-82c		1		
Stereoscopic Microscope		1		
Survey umbrella		1		
Table camp folding		2		
Tape measure 100 m				
Tape measure 30 m		9		
Tent Bush, D/I		2		
Terrameter SAS 300B		1		
Test Pannel				
Thermometer allimeter			1	
Total	0	42	2	1

Table II.1.2 (6/8) Inventory of Instrument of groundwater surveys by district

Instrument	710 Kajiado	720 Kericho	730 Laikipia	740 Nakuru	750 Narok	760 Trans Nzofa	770 Uasin Gishu
Allimeter 0 - 6000 m	1			1	1		1
Anti snake Bite Kit				1			
Battery charger with cable							
Booster SAS 2000							1
Bucket G.I				8			
Chair camp				3			
Compass Prismatic	1			1			1
Conductivity CM-IF				1			
Conductivity meter 113177 S/No							
Crocodile clips	1			6			
DC Terrameter set SAS 300				1			
Dipper 150 m							
Dipper 200 m				1			
Dipper 50 m							
Dipper saba hydrometre Paphr-gmph	1			1	1		1
Electric Dipper 200 m & 150 m				2			
Electric Dipper hydrometre gmph							
Electrodes	1			1			
Electronic conductivity Meter	1			1			
First aid kit				1			
Gas cooker 3 Burner				1			
Gas cylinder 3 kg				1			
Gas Regulator				1			
Geological Hammer				5			
Geophysical Hammers				10			
Georeels	1			2			
Karat							
Lamp Lumo Gas							
Logging cables 200 set							
ManualManualManualManualManualManu:				1			1
Microscope Nikon							
Non-pollutable electrodes				1	1		1
Pallintest conductivity Meter				2			
Pangas				1			
PH Meter							
Pliers and Screw Drivers				1			
SAS 200 logging cables				1	1		1
Scientific calculator Fx-82c	1			1			
Stereoscopic Microscope							
Survey umbrella				3			
Table camp folding				3	1		2
Tape measure 100 m				4			2
Tape measure 30 m	1			5			
Tent Bush, Off					1		1
Terrameter SAS 300B	1			2	1		1
Test Panel							
Thammeter altimeter							
Total	8	0	0	0	4	0	10

Table II.1.2 (7/8) Inventory of instrument of groundwater surveys by district

Instrument	810 Baringo	820 Elgeyo Marakwet	830 Nandi	840 Samburu	850 Turkana	860 West Pokot
Allimeter 0 - 6000 m					1	
Anti snake Bite Kit						
Battery charger with cable						
Booster SAS 2000					1	
Bucket G.I						
Chair camp						
Compass Prismatic					1	
Conductivity CM-IF						
Conductivity meter 113177 S/No						
Crocodile clips						
DC Terrameter set SAS 300						
Dipper 150 m						
Dipper 200 m						
Dipper 50 m						
Dipper saba hydrometre Paphr-gmph				1	1	
Electric Dipper 200 m & 150 m						
Electric Dipper hydrometre gmph						
Electrodes						
Electronic conductivity Meter						
First aid kit						
Gas cooker 3 Burner						
Gas cylinder 3 kg						
Gas Regulator						
Geological Hammer						
Geophysical Hammers						
Georeals					3	
Karat						
Lamp Lumo Gas						
Logging cattles 200 set						
ManualManualManualManualManualManu:						
Microscope Nikon						
Non-potamsable electrodes						
Palintest conductivity Meter				1	2	
Pangas						
PH Meter						
Pliers and Screw Drivers						
SAS 200 fogging cables						
Scientific calculator Fx-82c					1	
Stereoscopic Microscope						
Survey umbrella						
Table camp folding						
Tape measure 100 m					2	
Tape measure 30 m						
Tent Bush, D/f					1	
Terrameter SAS 300B					1	
Test Pannel						
Thammeter allimeter						
Total	0	0	0	2	11	0

Table II.1.2 (8/8) Inventory of Instrument of groundwater surveys by district

Instrument	910 Bungoma	920 Busia	930 Kakamega
Altimeter 0 - 6000 m			1
Anti snake Bite Kit			
Battery charger with cable			1
Booster SAS 2000			
Bucket G.I			1
Chair camp			
Compass Prismatic			1
Conductivity CM-IF			
Conductivity meter 113177 S/No			
Crocodile clips			
DC Terrameter set SAS 300			
Dipper 150 m			
Dipper 200 m			
Dipper 50 m			
Dipper saba hydrometre Pspbr-gmph		1	1
Electric Dipper 200 m & 150 m			
Electric Dipper hydrometre gmph			
Electrodes			
Electronic conductivity Meter			1
First aid kit			
Gas cooker 3 Burner			3
Gas cylinder 3 kg			1
Gas Regulator			1
Geological Hammer			4
Geophysical Hammers			7
Georeels			
Keral			
Lamp Lumo Gas			
Logging cables 200 set			1
ManualManualManualManualManualManu:			
Microscope Nikon			
Non-potamiable electrodes			3
Palintest conductivity Meter			
Pangaa			1
PH Meter			2
Pliers and Screw Drivers			
SAS 200 logging cables			1
Scientific calculator Fx-82c			
Stereoscopic Microscope			
Survey umbrella			
Table camp folding			2
Tape measure 100 m			4
Tape measure 30 m			
Tent Bush, D//			1
Terrameter SAS 300B			
Test Pannel			
Thammeter altimeter			
Total	0	1	35

TABLE II.2.1 Inventory of drilling rigs - percussion rigs - (Drilling Section, MOWD)

RIG NO.	MAKER & TYPE	YEAR	AQUISITION	COUNTRY OF ORIGIN	MAX DEPTH	CONDITION	RUNNING COST FIELD MAINTENANCE	NO. OF B/HOLES DRILLED	TOTAL DEPTH DRILLED (m)	MAN POWER REQUIREMENT	SUPPORTING VEHICLE (LORRY AND landrover/ PICKUP
PR1	Ruston Bucyrus	1974	Ex Army	British	300	Good	4,800 15,950	9	474	8 Officers 2 drivers	.
PR2	Ruston Bucyrus	1974	U.K. Aid	British	300	Good	4,800 18,780	3	172	.	.
PR3	Ruston Bucyrus	1974	U.K. Aid	British	300	Good	4,800 17,750	1	185 and cleaning	.	.
PR4	Ruston Bucyrus	1976	Cathari Meru Bishop Aid	British	300	Good	4,800 16,980	3	98	.	.
PR5	Ross 2000	1980	U.K. Aid	U.K	350	Good	4,800 17,520	6	33 and cleaning 4 Boreholes	.	.
PR6	Ross 2000	1980	U.K. Aid	U.K	350	Good	4,800 18,780	6	798	.	.
PR7	Ross 2000	1980	U.K. Aid	U.K	350	Good	4,800 18,240	2	336	.	.
PR8	Ruston Bucyrus	1985	U.K. Aid	U.K	300	Good	4,806 16,980	13	840	.	.
PR9	Hydromaster	1988	SIDA Aid	Australia	250	Good	4,800 19,860	17	1020	.	.
PR10	Hydromaster	1988	SIDA Aid	Australia	250	Good	at K.E.W.I	for training		Trainee	Not very necessary
PR11	Dando 800	1990	Direct purchase	Britain	300	Good	4,800 19,860	1	Under progress	8 Officers 2 drivers	Lorry and L/Rover/Pickup
PRC1	Dando 800	1985	Direct purchase	Britain	300	Good	4,800 19,860	9	890	.	.
PRS1	Rose Surveyor	1980	U.K. Aid	Britain	60	Good	2,400 8,760	33	1143	6 Officers 2 drivers	.
PRS2	Rose Surveyor	1980	U.K. Aid	Britain	60	Good	2,400 8,760	29	958	.	.
PRS3	Surveyor	1980	U.K. Aid	Holland	50	Fair	2,400 8,760	Broken-Not-Working		.	.

TABLE II.2.2 Inventory of drilling rigs - rotary rigs - (Drilling Section, MOWD)

FIG. NO.	MAKER & TYPE	YEAR	ACQUISITION	COUNTRY OF ORIGIN	MAX DEPTH	CONDITION	RUNNING COST FIELD ALLOWANCE	WORKING DAYS (1988-1990)	NUMBER OF BOREHOLES DRILLED (1988-1990)	TOTAL DEPTH DRILLED (1988-1990)	MAN-POWER REQUIREMENT OFFICERS DRIVERS	SUPPORTING VEHICLE		
RR1	Bomag 3000	1975	Grand Aid	Germany	300	Good	8640	34896	560	12	1877m	8	3	WTL, Pick-up
RR2	Bomag 3000	1975	Grand Aid	Germany	500	Good	8640	32940	360	13	565m	8	3	WTL, Pick-up
RR3	Acker	1978	Aid	American	300	Poor (Workshop)	3640	34490				8	3	Truck, Pick-up
RR4	Schrems	1981	Direct Purchase	Australia	300	Fair	8640	35840	60	2	199m	8	3	WTL, Truck
RR5 (NWCPC)	Ewbank	1980	U.K. Aid	U.K.	300	Good	8640	35010	300	10	890m	8	1	
RR6	Bomag 500	1981	Direct Purchase	Germany	450	Good	8640	32760	360	12	1490m	8	2	Pick-up
RR7 (NWCPC)	Tone 750	1983	Grand Aid	Japan	300	Good	8640	35010	420	14	1462	8	1	
RR8 (NWCPC)	Tone 750	1983	Grand Aid	Japan	300	Good	8640	34560	540	18	1502	8	1	
RR9	Bomag Unimog 90	1986	SIDA Aid	Germany	90	Good	8640		475	25	585	8	4	WTL, Truck, Pick-up
RR10	Dando	1988	Holland Aid	Britain	250	Good	8640		510	17	808		- ditto -	WTL, Truck, Pick-up
RR11	YBM YTD 65	1989	Grand Aid	Japan	300	Good	8640		380	8	972		- ditto -	WTL, Truck, Pick-up
RR12	YBM YTD 45	1989	Grand Aid	Japan	150	Good	8640		320	6	700		- ditto -	WTL, Truck, Pick-up

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Table II.3.1 Geologists in the provinces and districts

District	Number of Staff
Nairobi	13 (GS, MOWD)
Kiambu	1
Kirinyaga	-
Muranga	-
Nyandarua	1
Nyeri	2
Kiititi	1
Kwale	1
Lamu	1
Mombasa	2
Taita Taveta	1
Tana River	1
Embu	2
Isiolo	1
Kitui	1
Machakos	2
Marsabit	1
Meru	1
Garissa	1
Mandera	1
Wajir	1
Kisii	-
Nyamira	1
Kisumu	-
Siaya	1
South Nyanza	1
Baringo	1
Elgeyo Marakwet	-
Kajiado	1
Kericho	-
Lalikipia	1
Nakuru	2
Nandi	-
Narok	1
Samburu	1
Trans-Nzola	1
Turkana	1
Uasin Gishu	1
West Pokot	-
Bungoma	-
Busia	1
Kakamega	2
Total	51

As of Dec., 1991

