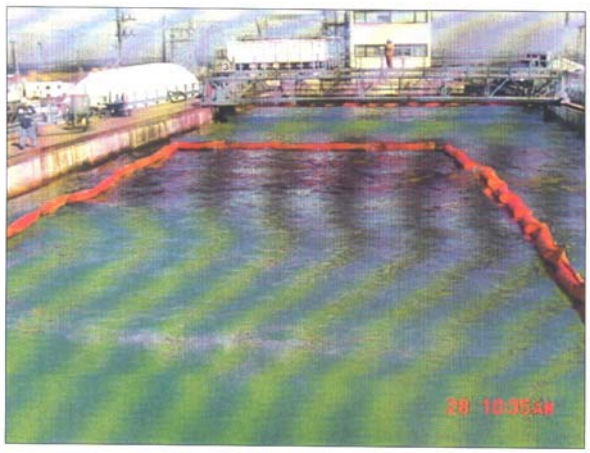
TO-401 MMS-EXXONMOBIL DISPERSANT EVALUATION



4-15 MARCH 2002

DAILY TEST LOG **DATE** 2/27/02 **PAGE** 1 **OF** ____

T.# 401

TEST#	1	2
File Name		
Time of Day	9:33 am	2:20 pm
Type	CONTROL - OIL ONLY	DISPERSANT ≈ 1:50 DOR
Oil Drum Initial(inches)	13 3/8"	5 3/4
Oil Drum Final(inches)	28 5/8"	19 3/4
Oil Pump Time(sec)	36 sec	35 sec.
Bridge Speed	1.0	1.0
Test Duration(sec)	1hr - (22.39 min)	1hr
Test Oil	Hibernia (1.7)	Hibernia / Fresh.
Oil Dist. Total(gal)	25.0 (764 gal/inch)	24.4 gal.
Nominal Oil Coverage (mm)	1mm x 20' x 60'	1mm x 20' x 60'
Volume Recovered Oil (gallons)	4 gallons.	None -
Dispersant Type	None	950c / 65°F
Dispersant Initial	"	7 1/2" Depth (1.5 lb/inch)
Dispersant Final	"	6"
Dispersant Elapsed Time	"	~~51~~ 41 sec.
COMMENTS Spray bar nozzles.	OIL TEMP 37° immediately after Distribution WAVES STARTED immediately after DISTRIBUTION - 3'-3' Lowered from 35 - they broke waves over boom. LOST a little oil over boom.	Dist Oil Temp 33° STARTED AT 3:24 pm - there were no breakers INCREASED TO 35 cpm Observed - by Dan Spear WIND - blew dispersant away from oil - OIL Totally dispersed IN ≈ ~~10~~ 5 min Maybe ≈ 1 gal on surface TEST ENDED AT 2:55 pm.

DAILY TEST LOG **DATE** 2/28/02 **PAGE** 2 **OF** ____
T.# 401

TEST#	3	4
File Name		
Time of Day	10:19 Bridge stopped	1:43 pm Bridge stops.
Type	Disperse weathered oil	Fresh - ANS
Oil Drum Initial(inches)	12 7/8"	5 1/4"
Oil Drum Final(inches)	28 3/8	17 3/4
Oil Pump Time(sec)	35.8	30.1
Bridge Speed	1.0	1.0.
Test Duration(sec)	1 hr.	1 hr.
Test Oil	Hibernia / 7.5% weathered	ANS Fresh
Oil Dist. Total(gal)	26.4	21.3
Nominal Oil Coverage (mm)	1mm X 20' X 60'	1mm x 20' x 60'
Volume Recovered Oil (gallons)	5 gallons / samples	~~5 gal~~ / 2 1/2" in 5 gal pail samples
Dispersant Type	9500	9500
Dispersant Initial	6 5/8" 1.5 hr/cm	6 5/8"
Dispersant Final	5 1/16"	5 1/4"
Dispersant Elapsed Time	/ volume = 5.95 ltr.	50 sec
COMMENTS	Oil Temp in Drum 47°F water Temp 32 1/2°F waves Down 11:21 WINDS from West waves @ 35 → increased to 37.	Oil Temp in Drum 53°F water Temp 31°F @ 98% (visual) Dispersed after cut 1:55 pm → waves @ 35 cpm - 3"

DAILY TEST LOG DATE 3/1/02 PAGE 3 OF ____
T.# 401

TEST#	5	6 7
File Name		
Time of Day	9:01 am Bridge stops.	1:14 pm. Bridge stops
Type	Dispersant/oil.	Dispersant on oil
Oil Drum Initial(inches)	14 1/2" / 53°F in	16 1/4"
Oil Drum Final(inches)	~~5 1/2~~" 26 1/2" Drum	28 1/2"
Oil Pump Time(sec)	30 sec	30. sec.
Bridge Speed	1.0	1.0.
Test Duration(sec)	1hr	1hr.
Test Oil	Hibernia 9% weathered	Hibernia fresh/heated
Oil Dist. Total(gal)	20.4	20.4
Nominal Oil Coverage (mm)	1mm X20' X60'	1mm X20' X60'
Volume Recovered Oil (gallons)	3 1/4" in 5gal pail X1.42 l/in = 4.6 l	1" in A 5gal PAIL
Dispersant Type	9500.	9500.
Dispersant Initial	10" / 62°F	9 1/2"
Dispersant Final	5 1/2"	5 3/16
Dispersant Elapsed Time	45 sec.	41 sec / 42 psi
COMMENTS	Nozzles - changed TO 4008 waves - 3"-35. at 9:00 am - Majority ESTIMATE - 90% Appeared Dispersed.	water temp - 29°F oil Temp 97°F in Drum Some dispersion apparent at 1:22 pm AT 1:28 pm ≃ 40→50% Dispersion waves 3"-35 cpm.

1-6 was 5 gal pail in open water - No dispersant - To document if there is natural dispersion with 3"-35 cpm waves.

DAILY TEST LOG **DATE** 3/4/02 **PAGE** 4 **OF** ____
T.# 2/01

TEST#	8	9 (3/5/02)
File Name		
Time of Day	Bridge stopped at 1:26 pm	Bridge stopped 9:34am
Type	Dispersant on oil 10% weathered ANS	Fresh ANS - Dispersant
Oil Drum Initial(inches)	10 1/2"	4 7/8"
Oil Drum Final(inches)	24 3/8	17 3/4
Oil Pump Time(sec)	30sec	30 sec.
Bridge Speed Kt.	1.0	1Kt
Test Duration(sec)	1hr.	1hr
Test Oil	10% weathered ANS.	ANS fresh
Oil Dist. Total(gal)	23.6	21.9
Nominal Oil Coverage (mm)	1mm x 20'x60'	1mm x 20'x60'
Volume Recovered Oil (gallons)	≃ 1 qt 1" in Pail	1" in pail
Dispersant Type	9527	9527.
Dispersant Initial	8 9/16"	~~9 5/8"~~ 9 1/16" 1.3 Kt
Dispersant Final	7 3/4"	7 5/8"
Dispersant Elapsed Time	38 sec.	49 sec.
COMMENTS	Nozzles 80 psi → Oil Temp 41°F in Drum Winds - ~~westerly~~ out of west	2.2

DAILY TEST LOG **DATE** 3/5/02 **PAGE** 5 **OF** ____

T.# 401

TEST#	10	11
		3/6/02
File Name		
Time of Day	Bridge stopped at 1:33pm	Bridge stopped at 8:45am
Type	20% weathered ANS	Fresh ANS/Dispersant
Oil Drum Initial(inches)	11"	27/8"
Oil Drum Final(inches)	24 5/8"	15 7/8"
Oil Pump Time(sec)	30 sec	30sec
Bridge Speed	1Kt.	1Kt.
Test Duration(sec)	1hr.	1hr.
Test Oil	ANS weathered 20%	Fresh ANS,
Oil Dist. Total(gal)	23.2	22.1
Nominal Oil Coverage (mm)	1mm x 20' x 60'	1mm x 20' x 60'
Volume Recovered Oil (gallons)	≈ 500mL (Sample Jar)	4" in 5gal pail
Dispersant Type	9527 — 65°F 50psi	9500
Dispersant Initial	9 1/2"	7 15/16"
Dispersant Final	8 5/16	~~5~~ 7 7/16"
Dispersant Elapsed Time	49.5	~~47.5~~ sec 42 sec
COMMENTS	OIL Temp IN Drum 55°F	Nozzle - 80010 OIL - 50°F IN DRUM - WAVES STARTED WHEN Bridge STARTED moving

DAILY TEST LOG **DATE** 3/6/02 **PAGE** 6 **OF** ____
T.# 4101

TEST#	12	
File Name		
Time of Day	Bridge stopped at 12:50 pm	
Type	Disperse - ANS.	
Oil Drum Initial(inches)	18"	
Oil Drum Final(inches)	31 1/2"	
Oil Pump Time(sec)	30sec.	
Bridge Speed	1Kt	
Test Duration(sec)	1hr.	
Test Oil	ANS 20% weathered	
Oil Dist. Total(gal)		
Nominal Oil Coverage (mm)	1mm x 20'x40'	
Volume Recovered Oil (gallons)	3 1/2" in 5 gal pail	
Dispersant Type	9500	
Dispersant Initial	7"	
Dispersant Final	5 11/16"	
Dispersant Elapsed Time	47.5	
COMMENTS	Drum oil Temp. 115°F	

(COLD WATER DISPERSANT TEST
263T-401 2/27/02 Wed.

BRIDGE OPERATOR LOG: W.O. 401 **Page** 1 **of** 3

TEST #	Chesnott Computer File Name	Tow Speed (kts)	Date	Time	Wave Generator / Beach Set-up: Stroke Setting	Cycles/ min	Beaches (U/D)	Air Temp (deg F)	Water Temp (deg F)	Wind Speed/Dir (mph/deg)	Notes
1		1	2/27/02	9:31 AM 9:39 AM	3	35	U	39°f	34.9°f	8/266°	1 WAVG
2		1	2/27/02	2:15 PM 2:31 PM	3	35CPM 2:27 32	U	43°f	35.7°f	9/261	AIR WATER WIND/US
3		1	2/28/02	10:15 AM 10:23 AM	3	35 ~~32~~	U	36	32.5°f	16/280°	AVG

Hi BERNIA FROM NO DISPERSANT START PUMP MAKE SURE WAVES STOP PUMP CONTROL TEST 1 HR

9:50 AM Snowing 15 MIN – 37 AIR 37.6 WATER 8/266°; 30 MIN – 36 32.9 8/266°; 45 MIN – 35 32.9 8/260°; 1 HR – 35 32.2 8/260 Cloudy

10:26 AM BRINGING WATER DOWN, AFTER 1 HR OF WAVES – BRING WAVES DOWN & COLLECT ANY OIL ON SURFACE.. TO COMPLETE TEST

2:21 PM WAVES UP 1 MINUTE 2:22 PM DAMP OFF 2:31 PM .33 MIN. WAVES 2:55 PM WAVES DAMPEST ON SUNNY / Breezy 15 MIN 42 36.2 9/261° 30 MIN 43 36.5 9/261

45 MIN. 45 MIN. AIR WATER WIND/US

8:45 AM 35CPM 11:02 37CPM 10:37 AM

Hi BERNIA WEATHERED OIL w/DISPERSANT 9500 START PUMP 10:37 BRING WATER UP STOP PUMP 10:19 AM 37CPM 10:57 AM 11:01 35CPM 11:19 AM WAVES DOWN (1 hr.) 15 MIN INTO WAVES 38 32.6 16/280° 30 MIN 38 32.7 16/280° 45 MIN. INTO WAVES 39 32.8 16/280° 1 hr. INTO WAVES 38 32.9 16/276°

COLD WATER DISPERSANT TEST
2/28/02 THURS.

BRIDGE OPERATOR LOG: ~~W.O.~~ T 401 — 263T-401 — **Page** 2 **of** 3

TEST #	Chemsit Computer File Name	Tow Speed (kts)	Date	Time	Wave Generator / Beach Set-up: Stroke Setting	Cycles/min	Beaches (U/D)	Air Temp (deg F)	Water Temp (deg F)	Wind Speed/Dir (mph/deg) AVG	Notes
4		1	2/28/02	1:41 PM 1:49 PM	3	35	U	MIN 43	33.0	15/278	
ANS FRESH W/9500	START WAVES 1:42 PM	1:44 STARTED WAVES	1:45 START WAVES	1:45 PM DATA OFF	1:49 PM WAVES OFF 2:16 PM			15: 43 30: 43 45: 43 1hr: 44	33.2 33.3 33.3 33.4	15/278° 13/269 13/269 13/269	
								°F	°F	AVG	
3/1/02 5		1	3/1/02	8:59 AM 9:07 AM	3	35	U	MIN 35	31.3	7/250°	
8:59 START	START WAVES 9:01	9:02 START DATA	9:03 START DATA	9:03 AM DATA OFF	10:07 AM WAVES OFF			15: 37 30: 37 45: 37 1hr: 39	30.2 30.5 30.6 30.8	8/254° 8/254° 8/254° 8/254° AVG.	9% HIGH RAIN WEATHERED
NOTE: 10:20 AM Fix 6											RAN SPECIAL TEST DOWN NEAR WAVE FLAPS AT 2:37 PM 11:46 PM NO DATA TAKEN AT REQUEST (DONE) 43° 19° 8/251° AVG water
7.6		1	3/1/02	1:12 PM 1:21 PM	3	35	U	MIN 47	32.0	11/242°	
1:14 PM Established	1:14 START WAVES	1:15 START DATA	1:16 START WAVES	1:18 PM DATA OFF WAVES ON	2:19 PM WAVES OFF Fix 6 TEST			15: 48 30: 49 45: 48 1hr: 50	32.8 33.2 33.1 33.1	11/242° 11/242° 11/242° 12/243°	Fresh 1hr Average Heated
3/4/02 8		1	3/4/02	1:24 PM 1:32 PM	3	35	U	MIN 39	32.0	12/282° AVG	
1:25 PM START Fix 6	1:25 PM START WAVES	1:26 AM DATA OFF	1:26 AM DATA OFF	1:32 PM WAVES OFF	2:38 PM			15: 40 30: 41 45: 41 1hr: 40	33.8 34.6 35.2 35.6	12/282° 12/282° 12/283° 12/283°	ANS WEATHERED 10% Likely
3/5/02 9		1	3/5/02	9:32 AM 9:40 AM	3	35	U	MIN 26	31.2	10/262 AVG	
9:34 AM	9:35 START WAVES	9:36 START DATA	9:36 START DATA	9:40 AM DATA OFF	10:36 WAVES OFF End of TEST			15: 29 30: 29 45: 28 1hr: 29	31.1 31.3 31.4 31.4	12/262° 8/264° 8/264° 8/264°	ANS FRESH W/9527

COLD WATER DISPERSANT TEST
3/5/02 TEST

BRIDGE OPERATOR LOG: ~~W.O.~~ 401 T 36 ST-401

TEST #	Ohmsett Computer File Name	Tow Speed (kts)	Date	Time	Wave Generator / Beach Set-up: Stroke Setting	Cycles/ min	Beaches (U/D)	Air Temp (deg F)	Water Temp (deg F)	Wind Speed/Dir (mph/deg)	Notes
3/5/02 10		1	3/5/02	1:31 PM 1:34 PM	3	35	U MW	35	32.2	14/262° AVG	
								15: 35 30: 35 45: 37 1hr: 36	31.9 31.9 31.9 32.0	14/262° 14/262° 12/262° 12/262°	20% weathered ANS 4/95-27 DISP
3/6/02 11		1	3/6/02	8:43 AM 8:50 AM	3	35	U MW	44	31.7	8/216 AVG	STARTED WINDS when DISP STARTED RUN
								15: 45 30: 46 45: 47 1hr: 48	31.7 31.7 31.8 31.8	8/216° 10/206° 10/206° 10/206°	FRESH ANS W/19500 DISP
3/6/02 12		1	3/6/02	12:48 PM 12:56 PM	3	35	U MW	60	33.4	12/223°	STARTED WINDS when DISP STARTED RUN
								15: 61 30: 62 45: 62 1hr: 62	33.5 33.5 33.5 33.5	12/223° 14/224° 14/224° 14/224°	20% weathered ANS

2/21/02 DATA File setup INF
For 401 Dispersant Test (cold water)
263T-401

Block No.	Block Name	Dev	Ch	Block Function	Scale Factor	Offset	Itar	Stg	duration	Rate	Start State	Trigger Block	File Name (first)
1	Time			Time			1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
2	OilTnkLvl MAIN	1	6	Analog Input	17.7165	0.0000	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
3	BRDSPD	1	0	Analog Input	1.0108	0.0687	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
4	WHSON	1	7	Analog Input	157.4803	-393.7008	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
5	WtrTmp	1	5	Analog Input	100.8500	0.8500	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
6	WVCPM	1	8	Analog Input	10.0130	-0.0030	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
7	WinSpd	1	2	Analog Input	10.0000	0.0000	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
8	WinDir	1	3	Analog Input	100.0000	0.0000	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
9	AirTmp	1	4	Analog Input	100.0000	-50.0000	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
10	Marker	1	9	Analog Input	1.0000	0.0000	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
11	Load Cell1	1	10	Analog Input	1000.0000	-1000.0000	1	1	3600.0000	10.0000	ON		
12	Load Cell2	1	11	Analog Input	1000.0000	-1000.0000	1	1	3600.0000	10.0000	ON		
13	OilTkl1 PORT	1	12	Analog Input	-46.7100	243.5100	1	1	3600.0000	10.0000	ON		c:\nbpro\program\02_401\401
14		0	0	Analog Input	1.0000	0.0000	1	1	3600.0000	10.0000	ON		
15		0	0	Analog Input	1.0000	0.0000	1	1	3600.0000	10.0000	ON		
16		0	0	Analog Input	1.0000	0.0000	1	1	3600.0000	10.0000	ON		
17		0	0	Analog Input	1.0000	0.0000	1	1	3600.0000	10.0000	ON		

2/21/02 [illegible]

SAMPLE DATA FILE FOR 263T-401
COLD WATER DISPERSANT TEST

Dispersant 2002 401
Data file 401_xxx.prn
Time is 08:44:17.97.
Date is 2-21-2002.

Time Sec	BrdSpd Kts	OilTnkLv Inches (MAIN TANK)	WHSON Inches	WVCPM Cpm	Marker Volts	WinSpd Mph	WinDir Deg	AirTmp DegF	WtrTmp Deg F	OilLvl1 inches (PORT)
0	0.363	48.271	122.911	1.953	0.2	6.54	205.75	57.09	40.43	79.99
0.1	0.49	46.876	122.719	1.54	0.2	6.52	204.96	53.3	40	80.09
0.2	0.492	46.865	122.791	1.439	0.2	6.5	204.53	54.31	40.37	79.97
0.3	0.493	46.887	122.815	1.314	0.2	6.5	204.65	52.63	40.49	80.06
0.4	0.495	46.854	122.647	1.213	0.19	6.49	205.57	59.38	40.43	79.97
0.5	0.491	46.865	122.695	1.137	0.2	6.5	205.66	51.53	40.4	79.97
0.6	0.494	46.876	122.767	1.073	0.2	6.5	205.57	54.28	40.49	79.99
0.7	0.492	46.881	122.839	0.987	0.2	6.49	204.38	54.4	40.52	79.95
0.8	0.492	46.887	122.935	0.941	0.19	6.48	204.68	53.24	40.46	79.77
0.9	0.488	46.854	123.031	0.898	0.19	6.55	204.77	59.22	40.34	79.74
1	0.49	46.876	122.983	0.856	0.2	6.12	207.4	53.09	40.43	79.75
1.1	0.49	46.881	123.08	0.816	0.2	6.1	207.37	53.42	40.61	79.72
1.2	0.49	46.87	122.959	0.779	0.19	6.1	207.73	52.81	40.37	79.57
1.3	0.488	46.87	122.863	0.752	0.19	6.09	208.47	51.93	40.43	79.68
1.4	0.489	46.87	122.935	0.727	0.2	6.15	207.76	52.81	40.58	79.58
1.5	0.488	46.881	122.863	0.697	0.19	6.12	207.7	53.33	40.49	79.68
1.6	0.486	46.876	122.743	0.694	0.2	6.08	207.73	52.66	40.31	79.85
1.7	0.472	46.887	122.743	0.758	0.2	6.12	207.92	52.45	40.43	79.82
1.8	0.473	46.903	122.863	0.73	0.2	6.12	208.8	52.94	40.61	79.97
1.9	0.489	46.881	122.767	0.614	0.2	6.09	207.7	52.69	40.49	79.98
2	0.487	46.892	122.815	0.605	0.2	6.28	221.77	54.49	40.49	80.04
2.1	0.484	46.87	122.839	0.608	0.19	6.31	220.86	52.51	40.55	79.98
2.2	0.47	46.887	122.959	0.688	0.2	6.28	221.65	56.14	40.15	80.02
2.3	0.473	46.859	122.791	0.66	0.2	6.28	220.86	53.58	40.49	79.88

LABORATORY NOTES:

DETERMINATIONS OF CRUDE OIL WATER CONTENT

To determine the water and gross suspended solids content of sample oils, the Ohmsett Facility employs the ASTM recommended procedure of dewatering with toluene followed by centrifugation. Split sample aliquots of 50 ml each are used so the combined measurement can be read directly as percent volume in the 100 ml graduated centrifuge tubes. This method works well with light to medium weight refined petroleum products. However, agitation of crude oil samples with toluene in centrifuge tubes tends to form interfacial emulsions or rag layers that make it difficult to read volumes directly. To affect water content determinations in crude oils, the Karl-Fisher potentiometric titration is often used. In our experience, this method works well with fresh crude oils, but does not work well with post-test recovered crude oils. These recovered crude oil samples typically contain greater amounts of water than the fresh samples. This water is often not well distributed throughout the sample. The Karl-Fisher titration apparatus at Ohmsett uses a small volume of sample. Therefore, it is difficult to obtain a representative sample of recovered crude oils for a Karl-Fisher determination of water content. To circumvent these problems with the present testing program a simple volumetric comparison procedure was employed. In this procedure, an identical translucent polyethylene sample bottle was placed at eye level next to the bottle containing the sample in question. Water was introduced into the empty bottle until it matched the level of the oil/water interface that had clearly developed in the sample. This water was then measured in a graduated cylinder to determine the volume. Then the oil layer in the sample was titrated as per the Karl-Fisher method. The sum of the two determinations gives the total water content in the sample.

In our experience with this simple method, the most significant introduction of error would be from inconsistencies or deformation of the 500 ml polyethylene sample bottles; determination of a clearly defined oil/water interface in the sample bottle; and, parallax error in lining-up the water level in the surrogate bottle with the oil/water interface level in the sample bottle. Problems with accuracy and precision in volumes measured in the graduated cylinder and with the Karl-Fisher titration should be insignificant by comparison. With regard to sample bottle inconsistencies, once any deformation of the bottle had been restored variation in volumes through the center of the bottle as determined with ten bottles was no more than ±4 % in the 300/500 ml range. Oil/water interface rag layers were minimal or nonexistent, and parallax caused by viewing up or down by 20-30 ° resulted in variations of no more than ±3% in the 300/500 ml range. Therefore, an estimate of water volumes within ±10 % can be determined with this method.

VISCOSITY MEASUREMENT OF CRUDE OILS

Please note that during viscosity and shear measurements as a function of shear rate at constant temperature, the Haake Model VT-550 viscometer began to malfunction. This problem was noted for recovered crude oil samples from Test 8 and Test 9. The problem was caused by a malfunction of the mechanical drive to the sample spindle. This of course produced inaccurate results in the named samples. Additionally, recovered crude oil samples from Tests 11 and 12 contained over 40 % by volume water. Therefore, viscosity measurements for these samples would not be valid. Accordingly, viscosity measurements for recovered crude oil samples from Tests 10, 11, and 12 were not performed. The problem with the viscometer is presently being addressed, and viscosity reruns of the samples from Test 8 and 9, and a viscosity run of the sample from Test 10 can be provided at a later date upon request.

Task Order 401 : Dispersant Effectiveness Tests in Cold Water/ Ice Conditions

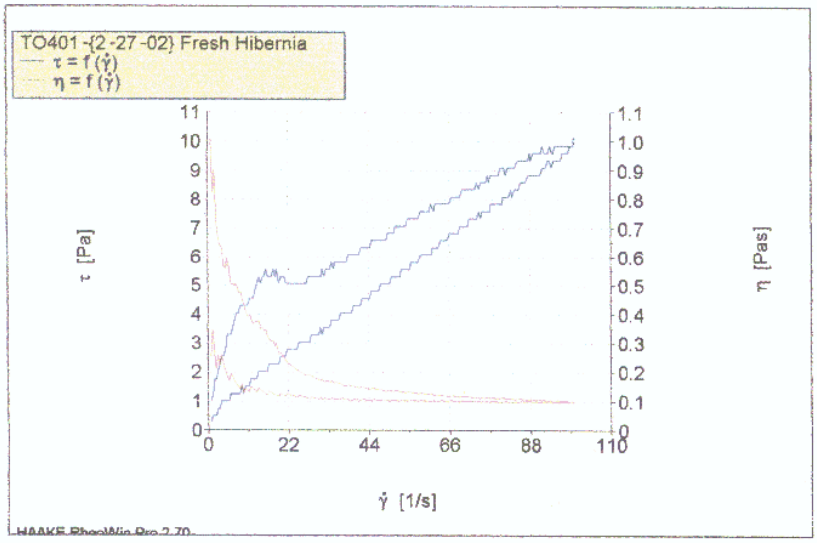
Date	Smpl ID	Smp#	%H2O	Density @ 25C	
Pre-Test Oils: Water Content Determined by KF Titration					
02/27/02	Fresh Hibernia	01	0.63	0.854	
02/28/02	Hibernia 7.5% Weathered, B4T#3	02	0.14	0.867	
02/28/02	Fresh ANS B4T#4	03	0.00	0.874	
03/01/02	Hibernia 9.0% Weathered, B4T#5	04	0.11	0.876	
03/04/02	ANS 10% Weathered, B4T#8	05	0.04	0.903	
03/04/02	ANS 10% Weathered, B4T#8	05 REP	Viscometry only		
03/05/02	Fresh ANS B4T#9	06	0.00	0.873	
03/05/02	ANS 20% Weathered, B4T#10	07	0.12	0.922	
03/06/02	ANS 20% Weathered, B4T#12	08	0.22	0.924	
Recovered Oils: Water Content Determined by Gross Water/Oil Ratio + KF Titration					
02/27/02	Hibernia Control after 1 hr, T#1	09	30.00	0.931	
02/27/02	Smp 09 DUP, Hibernia Control	10	26.00	0.926	
02/28/02	Hibernia 7.5% W after 1 hr, T#3	11	17.00	0.916	
02/28/02	ANS after 1 hr, T#4	12	40.00	0.949	
03/01/02	Hibernia, T#5	13	27.00	0.926	
03/01/02	Fresh Hot Hibernia, T#7	14	27.00	0.95	
03/04/02	ANS 10%W, T#8	15	32.00	0.948	Viscometry data not valid
03/05/02	Fresh Hibernia, T#9	16	27.00	0.958	Viscometry data not valid
03/05/02	T#10	17	27.00	0.955	No viscometry data
03/06/02	Fresh ANS, After T#11	18	43.00	1.002	No viscometry data
03/06/02	ANS 20%W, After T#12	19	43.00	0.932	No viscometry data

Tank Water : TPH Determined by IR Spectrophotometry

Date	Smpl ID	IR Smp#	TPH (ppm)
02/27/02	Pre Test #1	101	5.0
03/04/02	Mid Test	102	5.2
03/07/02	Post Test	105	9.1

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Curneff	**Temperature device**	DC30		
Date/Time	05.04.2002 / 10:45:20 AM	**Sensor**	SV 1	**Gap**	1.000 mm
Substance	TO401- Dispersant Effectiveness Tests	**A-factor**	25300.000 Pa/Nm		
Sample no	01	**M-factor**	8.499 1/s/(rad/s)		
Description	Fresh Hibernia {2/27/02}				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 60.00 s, #200, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY = 0.854 g/cc
WATER CONTENT = 0.63%

Filename: C:\Program Files\RheoWin\Data\TO401-{2-27-02} Fresh Hibernia.rwd (Mod)

Job: C:\Program Files\RheoWin\Jobs\Flow Curve 1C; Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	1050	0	1.003	1.01	1.290	1.01
1-4	1068	18.48	2.490	0.71	1.270	1.77
1-7	1086	36.51	4.003	0.63	1.230	2.53
1-10	1104	54.60	5.516	0.60	1.270	3.29
1-13	1123	73.56	7.029	0.50	1.260	3.54
1-16	1141	91.09	8.541	0.47	1.270	4.05
1-19	1158	108.9	9.969	0.43	1.310	4.30
1-22	1177	127.2	11.48	0.40	1.290	4.55
1-25	1194	144.8	12.90	0.37	1.330	4.81
1-28	1214	164.0	14.51	0.35	1.280	5.06
1-31	1231	181.8	16.02	0.35	1.280	5.57
1-34	1249	199.7	17.45	0.30	1.320	5.31
1-37	1267	217.6	18.96	0.29	1.300	5.57
1-40	1285	235.4	20.38	0.26	1.290	5.31
1-43	1303	253.7	21.99	0.23	1.290	5.06
1-46	1322	272.1	23.41	0.22	1.240	5.06
1-49	1340	290.4	24.92	0.20	1.260	5.06
1-52	1358	308.5	26.43	0.19	1.270	5.06
1-55	1376	326.8	27.94	0.19	1.310	5.31
1-58	1394	344.7	29.46	0.18	1.300	5.31
1-61	1412	362.4	30.89	0.17	1.250	5.31
1-64	1430	380.2	32.30	0.17	1.260	5.57
1-67	1449	399.5	33.91	0.17	1.280	5.82
1-70	1467	417.1	35.42	0.16	1.270	5.82
1-73	1484	434.2	36.84	0.16	1.250	5.82

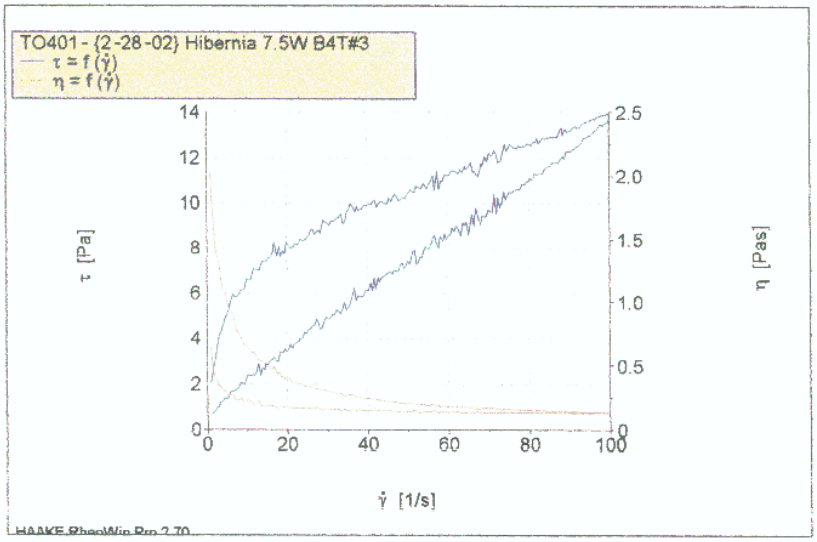
Evaluation

Red Vis Pa·S

Blue Shear Pa

Company	MAR, Inc. OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	12.04.2002 / 10:50:38 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401- Dispersant Effectiveness Tests	**A-factor**	6570.000 Pa/Nm		
Sample no	02	**M-factor**	22.350 1/s/(rad/s)		
Description	Hibernia 7% Weathered Test#3 {2/28/02} MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 60.00 s, #60, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.867 g/cc
WATER CONTENT = 0.14 %

Filename: C:\Program Files\RheoWin\Data\TO401- {2-28-02} Hibernia 7.5W B4T#3.rwd (Mod)

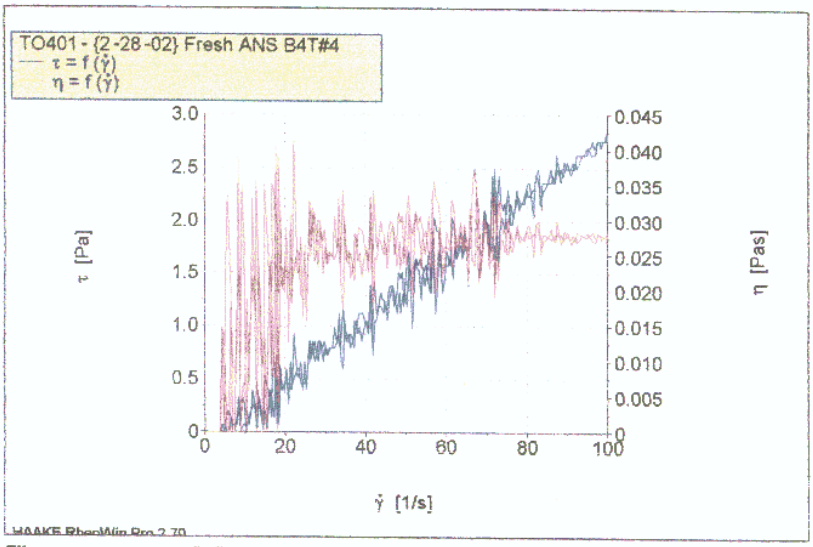
Job: C:\WINDOWS\DESKTOP\FLOWCU-1.RWJ

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	2523	0	1.006	2.03	1.230	2.04
1-4	2542	18.23	2.481	1.38	1.280	3.42
1-7	2560	36.43	4.001	1.10	1.290	4.40
1-10	2579	55.25	5.610	0.95	1.310	5.32
1-13	2597	73.25	7.018	0.83	1.250	5.85
1-16	2614	91.05	8.426	0.73	1.320	6.11
1-19	2632	109.1	10.06	0.66	1.270	6.64
1-22	2651	127.3	11.47	0.61	1.290	6.96
1-25	2669	145.6	13.10	0.54	1.330	7.03
1-28	2686	162.8	14.51	0.51	1.280	7.42
1-31	2705	181.4	15.91	0.48	1.320	7.62
1-34	2723	199.9	17.54	0.43	1.300	7.62
1-37	2741	218.0	18.95	0.42	1.370	7.88
1-40	2760	236.3	20.61	0.39	1.280	8.08
1-43	2777	253.3	21.99	0.37	1.300	8.21
1-46	2795	271.5	23.40	0.36	1.290	8.41
1-49	2813	289.6	24.81	0.34	1.320	8.48
1-52	2831	307.8	26.44	0.34	1.320	8.87
1-55	2849	326.0	27.85	0.32	1.340	8.80
1-58	2867	344.1	29.48	0.31	1.290	9.13
1-61	2886	362.3	30.89	0.30	1.290	9.20
1-64	2903	380.2	32.30	0.29	1.320	9.33
1-67	2922	398.7	33.93	0.27	1.310	9.07
1-70	2941	417.3	35.34	0.28	1.270	9.72
1-73	2959	435.3	36.99	0.26	1.310	9.59

Evaluation

Company	MAR, Inc. OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	12.04.2002 / 15:31:45 PM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401- Dispersant Effectiveness Tests in C	**A-factor**	6570.000 Pa/Nm		
Sample no	03	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #4 {2/28/02} Fresh ANS-MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 60.00 s, #60, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.874 g/cc
WATER CONTENT = 0.00%

Filename: C:\Program Files\RheoWin\Data\TO401 - {2-28-02} Fresh ANS B4 T#4.rwd (Mod)

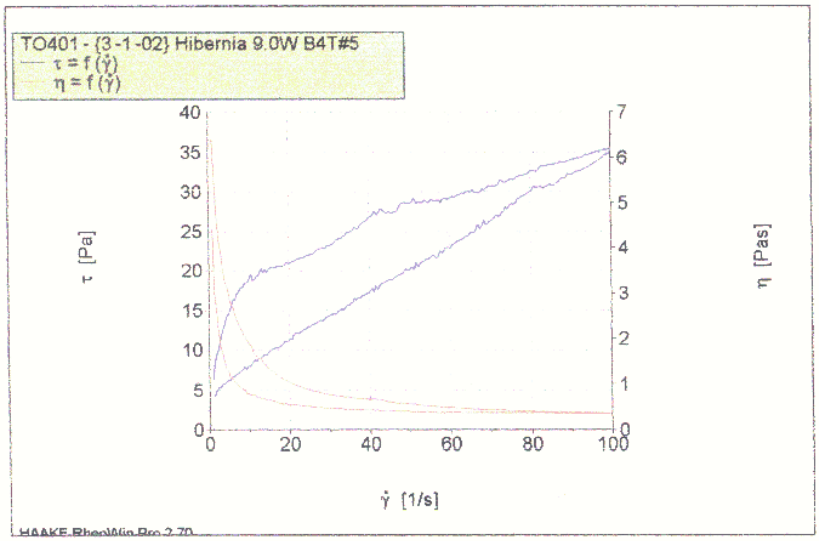
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	1551	0	1.006	0	1.380	0
1-4	1569	18.40	2.526	0	1.380	0
1-7	1587	36.54	4.001	0	1.320	0
1-10	1605	54.69	5.610	0	1.300	0
1-13	1623	72.55	7.018	0	1.300	0
1-16	1642	91.53	8.649	0.0228	1.300	0.20
1-19	1660	109.4	10.06	0.00653	1.290	0.0657
1-22	1678	127.1	11.47	0.0172	1.300	0.20
1-25	1696	145.3	12.87	0.0357	1.290	0.46
1-28	1714	163.3	14.51	0	1.270	0
1-31	1732	181.7	15.91	0.0248	1.270	0.39
1-34	1750	199.7	17.54	0.0337	1.270	0.59
1-37	1768	217.8	18.95	0.0243	1.310	0.46
1-40	1787	236.1	20.61	0.0223	1.300	0.46
1-43	1804	253.4	21.77	0.0211	1.280	0.46
1-46	1822	271.7	23.40	0.0253	1.300	0.59
1-49	1841	290.0	24.81	0.0185	1.310	0.46
1-52	1859	308.1	26.44	0.0248	1.300	0.66
1-55	1877	326.1	27.85	0.0260	1.280	0.72
1-58	1895	344.1	29.48	0.0223	1.310	0.66
1-61	1913	362.4	30.89	0.0255	1.300	0.79
1-64	1931	380.5	32.30	0.0244	1.310	0.79
1-67	1949	398.8	33.93	0.0194	1.300	0.66
1-70	1967	416.4	35.34	0.0242	1.300	0.85
1-73	1986	435.2	36.99	0.0231	1.290	0.85

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cumeff	**Temperature device**	DC30		
Date/Time	15.04.2002 / 9:15:59 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	04	**M-factor**	22.350 1/s/(rad/s)		
Description	Hibernia 9% Weathered B4T#5 {3/1/02} MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @ 25C = 0.876 G/CC
WATER CONTENT = 0.11%

Filename: C:\Program Files\RheoWin\Data\TO401 - {3-1-02} Hibernia 9.0W B4T#5.rwd (Mod)

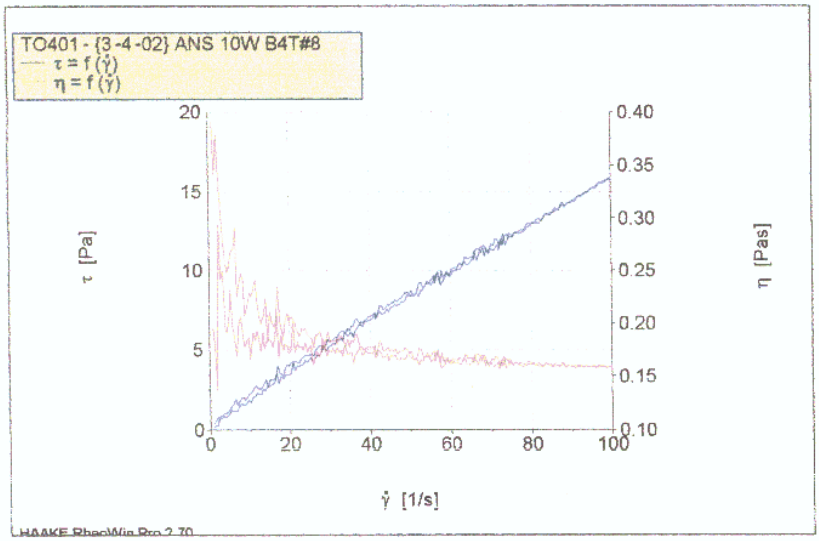
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3395	0	1.006	6.40	1.390	6.44
1-4	3413	18.20	2.526	4.08	1.400	10.3
1-7	3433	37.39	4.090	3.24	1.350	13.3
1-10	3450	54.36	5.386	2.78	1.350	15.0
1-13	3468	72.57	7.018	2.43	1.320	17.1
1-16	3487	91.59	8.649	2.08	1.360	18.0
1-19	3504	109.1	10.06	1.87	1.340	18.8
1-22	3523	127.9	11.47	1.66	1.360	19.0
1-25	3540	145.3	13.10	1.55	1.300	20.3
1-28	3559	163.4	14.51	1.36	1.360	19.8
1-31	3577	181.7	15.91	1.29	1.330	20.5
1-34	3595	200.1	17.54	1.17	1.360	20.6
1-37	3613	218.2	18.95	1.10	1.350	20.8
1-40	3630	235.3	20.36	1.03	1.340	21.0
1-43	3649	253.4	21.99	0.98	1.360	21.5
1-46	3667	271.6	23.40	0.92	1.350	21.6
1-49	3685	289.8	24.81	0.88	1.340	21.9
1-52	3703	307.8	26.44	0.84	1.350	22.3
1-55	3721	326.1	27.85	0.82	1.360	22.9
1-58	3739	344.1	29.48	0.79	1.350	23.2
1-61	3757	362.1	30.89	0.76	1.380	23.5
1-64	3776	380.6	32.30	0.74	1.360	24.0
1-67	3794	398.8	33.93	0.72	1.330	24.5
1-70	3812	416.9	35.34	0.71	1.310	25.0
1-73	3830	434.8	36.99	0.69	1.380	25.4

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cumeff	**Temperature device**	DC30		
Date/Time	16.04.2002 / 10:39:24 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	05	**M-factor**	22.350 1/s/(rad/s)		
Description	B4T#8 {3/4/02} ANS 10%Weathered MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.903 g/cc
WATER CONTENT = 0.04%

Filename: C:\Program Files\RheoWin\Data\TO401- {3-4-02} ANS 10W B4 T#8.rwd (Mod)

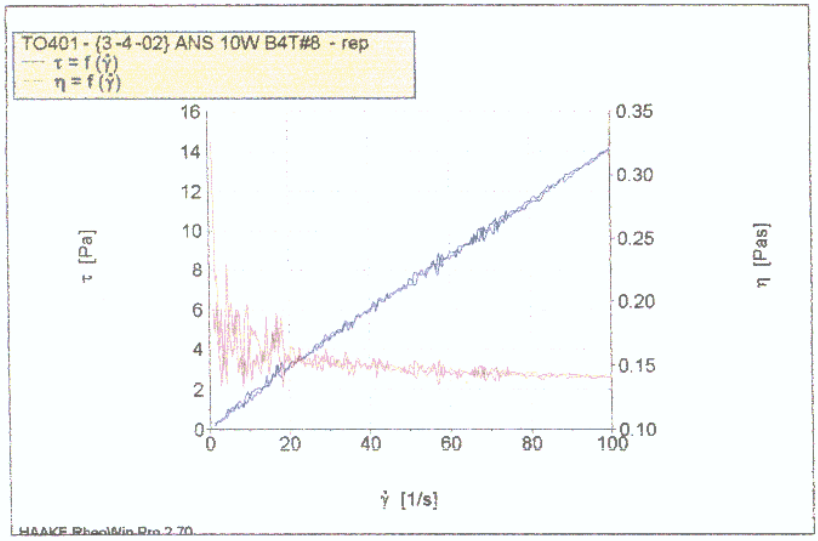
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	56.86	0	1.006	0.39	1.360	0.39
1-4	75.37	18.51	2.526	0.34	1.410	0.85
1-7	94.16	37.30	4.068	0.26	1.380	1.05
1-10	111.8	54.99	5.610	0.27	1.380	1.51
1-13	129.4	72.53	7.018	0.22	1.350	1.58
1-16	147.4	90.50	8.426	0.24	1.370	2.04
1-19	165.6	108.7	10.06	0.23	1.380	2.30
1-22	184.0	127.1	11.47	0.24	1.380	2.76
1-25	202.2	145.3	12.87	0.20	1.370	2.56
1-28	220.4	163.5	14.51	0.18	1.340	2.63
1-31	238.6	181.8	15.91	0.20	1.330	3.15
1-34	257.1	200.2	17.54	0.20	1.390	3.55
1-37	274.1	217.2	18.95	0.20	1.360	3.88
1-40	292.4	235.6	20.36	0.21	1.380	4.20
1-43	310.6	253.7	21.99	0.19	1.370	4.20
1-46	329.0	272.1	23.40	0.19	1.380	4.53
1-49	347.4	290.5	25.05	0.19	1.370	4.66
1-52	365.6	308.7	26.44	0.19	1.350	4.99
1-55	382.6	325.8	27.85	0.19	1.390	5.26
1-58	401.0	344.1	29.48	0.19	1.390	5.65
1-61	419.3	362.5	30.89	0.18	1.410	5.65
1-64	437.5	380.6	32.30	0.19	1.350	6.04
1-67	455.5	398.6	33.93	0.18	1.390	6.04
1-70	473.1	416.2	35.34	0.18	1.390	6.50
1-73	491.0	434.2	36.74	0.19	1.440	6.96

Evaluation

Company		**Measure device**	VT550		
Operator		**Temperature device**	DC30		
Date/Time	15.04.2002 / 15:12:27 PM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in lc	**A-factor**	6570.000 Pa/Nm		
Sample no	05 REP	**M-factor**	22.350 1/s/(rad/s)		
Description	ANS 10% Weathered B4T#8 {3/4/02} MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C

Filename: C:\Program Files\RheoWin\Data\TO401- {3-4-02} ANS 10W B4T#8 - rep.rwd

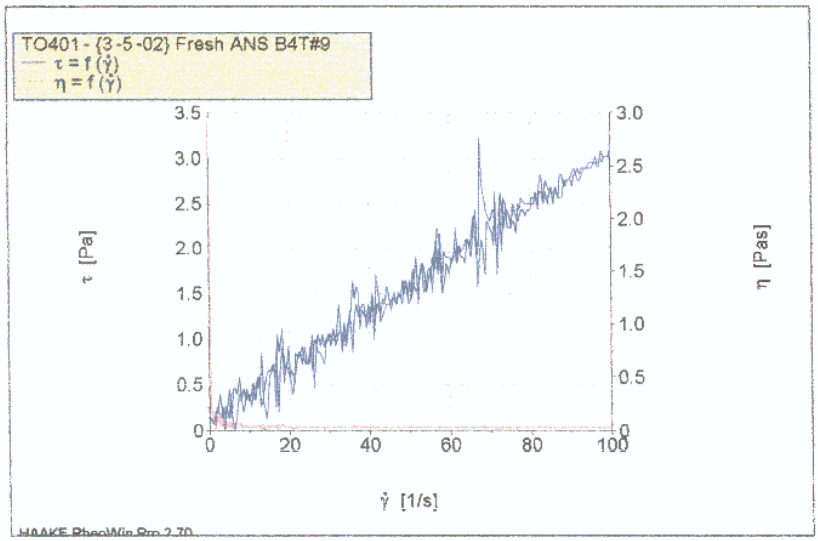
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

Evaluation

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	21.20	0	1.006	0.33	1.330	0.33
1-4	39.30	18.10	2.481	0.16	1.350	0.39
1-7	57.82	36.62	4.001	0.16	1.330	0.66
1-10	76.26	55.06	5.610	0.20	1.330	1.12
1-13	94.46	73.26	7.018	0.19	1.350	1.31
1-16	111.8	90.58	8.426	0.13	1.330	1.12
1-19	130.3	109.1	10.06	0.16	1.330	1.58
1-22	148.6	127.4	11.47	0.18	1.320	2.04
1-25	166.8	145.6	13.10	0.15	1.320	1.97
1-28	185.4	164.2	14.51	0.15	1.320	2.23
1-31	202.4	181.2	15.91	0.18	1.370	2.83
1-34	220.8	199.6	17.54	0.16	1.340	2.89
1-37	239.2	218.0	18.95	0.15	1.330	2.89
1-40	257.4	236.2	20.36	0.15	1.310	3.15
1-43	274.6	253.4	21.99	0.16	1.340	3.42
1-46	293.1	271.9	23.40	0.15	1.370	3.61
1-49	311.2	290.0	24.81	0.15	1.360	3.74
1-52	329.3	308.1	26.44	0.16	1.370	4.20
1-55	347.1	325.9	27.85	0.15	1.300	4.07
1-58	366.2	345.0	29.48	0.16	1.360	4.60
1-61	383.6	362.4	30.89	0.16	1.360	4.86
1-64	401.9	380.7	32.30	0.15	1.330	4.99
1-67	420.2	399.0	33.93	0.16	1.300	5.45
1-70	438.4	417.2	35.34	0.15	1.370	5.39
1-73	455.4	434.2	36.74	0.15	1.360	5.65

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	16.04.2002 / 12:55:30 PM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	06	**M-factor**	22.350 1/s/(rad/s)		
Description	B4T#9 {3/5/02} Fresh ANS MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.873 g/cc
WATER CONTENT = 0.00%

Filename: C:\Program Files\RheoWin\Data\TO401- {3-5-02} Fresh ANS B4T#9.rwd (Mod)

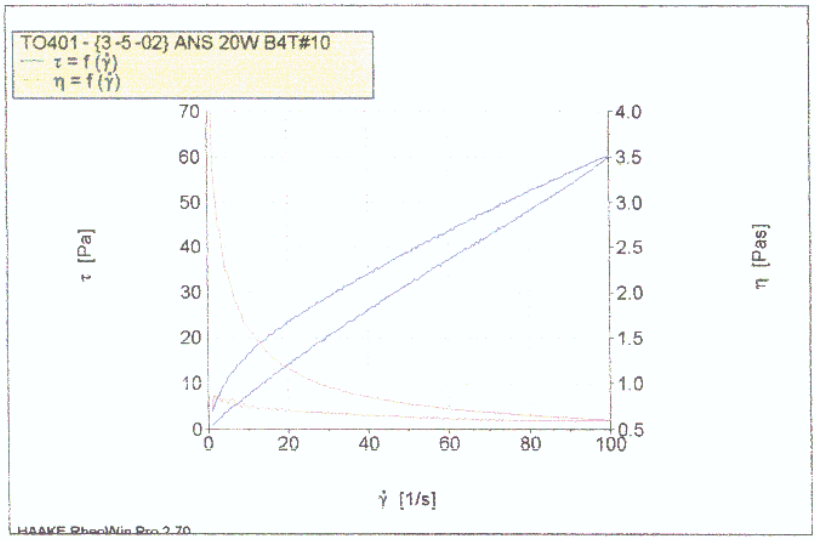
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

Evaluation

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	39.78	0	0.02235	2.94	1.360	0.0657
1-4	58.01	18.23	1.520	0.13	1.350	0.20
1-7	76.29	36.52	3.062	0.0858	1.350	0.26
1-10	94.78	55.00	4.604	0.0571	1.320	0.26
1-13	113.1	73.28	6.079	0.0757	1.350	0.46
1-16	131.2	91.44	7.733	0.0765	1.330	0.59
1-19	148.5	108.7	9.119	0.0360	1.300	0.33
1-22	166.7	126.9	10.53	0.0250	1.330	0.26
1-25	185.1	145.3	12.18	0.0485	1.340	0.59
1-28	203.4	163.7	13.57	0.0242	1.350	0.33
1-31	221.7	181.9	15.22	0.0388	1.320	0.59
1-34	239.7	200.0	16.63	0.0158	1.360	0.26
1-37	257.5	217.7	18.26	0.0612	1.350	1.12
1-40	275.0	235.2	19.67	0.0334	1.320	0.66
1-43	293.8	254.0	21.30	0.0247	1.380	0.53
1-46	312.1	272.3	22.71	0.0376	1.330	0.85
1-49	330.3	290.5	24.12	0.0300	1.340	0.72
1-52	348.5	308.7	25.75	0.0255	1.360	0.66
1-55	366.6	326.9	27.16	0.0315	1.370	0.85
1-58	383.8	344.1	28.79	0.0251	1.390	0.72
1-61	402.0	362.2	30.19	0.0348	1.350	1.05
1-64	420.2	380.4	31.60	0.0291	1.390	0.92
1-67	438.3	398.6	33.23	0.0257	1.380	0.85
1-70	456.9	417.1	34.87	0.0339	1.360	1.18
1-73	475.3	435.5	36.27	0.0344	1.310	1.25

Company	MAR. Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	16.04.2002 / 14:27:37 PM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in lc	**A-factor**	6570.000 Pa/Nm		
Sample no	07	**M-factor**	22.350 1/s/(rad/s)		
Description	B4T#10 (3/5/02) ANS 10% Weathered MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.922 g/cc
WATER CONTENT = 0.12%

Filename: C:\Program Files\RheoWin\Data\TO401-{3-5-02} ANS 20W B4T#10.rwd (Mod)

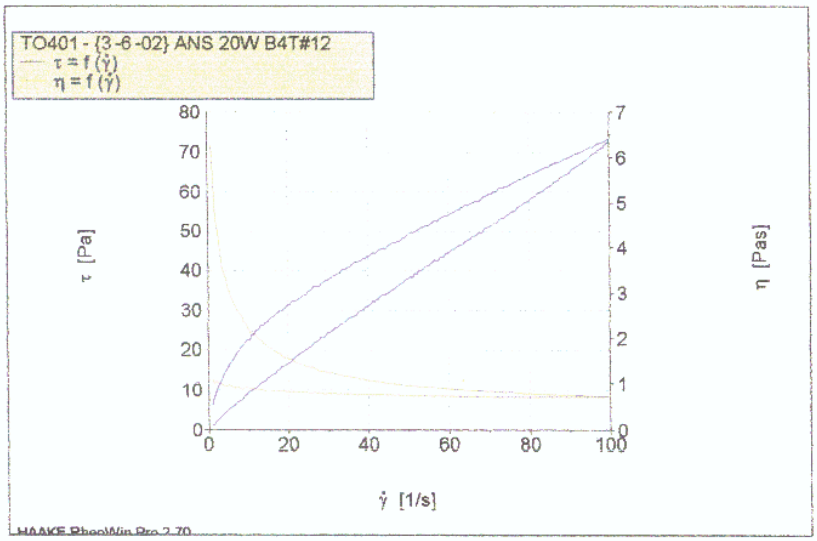
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3137	0	1.006	3.98	1.340	4.01
1-4	3156	18.87	2.548	2.73	1.390	6.96
1-7	3174	36.77	4.045	2.39	1.370	9.66
1-10	3192	54.67	5.610	2.12	1.350	11.9
1-13	3210	72.79	7.018	1.89	1.350	13.3
1-16	3228	90.90	8.426	1.75	1.350	14.8
1-19	3246	109.0	10.06	1.63	1.370	16.4
1-22	3264	127.2	11.47	1.54	1.320	17.7
1-25	3282	145.2	12.87	1.46	1.350	18.8
1-28	3301	163.5	14.51	1.35	1.300	19.6
1-31	3319	181.8	15.91	1.30	1.380	20.6
1-34	3337	199.9	17.54	1.25	1.340	21.9
1-37	3355	218.1	18.95	1.20	1.370	22.7
1-40	3374	236.3	20.61	1.15	1.340	23.7
1-43	3391	254.2	21.99	1.12	1.340	24.7
1-46	3410	272.2	23.40	1.09	1.360	25.4
1-49	3428	290.5	25.05	1.04	1.360	26.1
1-52	3446	308.6	26.44	1.02	1.380	26.9
1-55	3464	326.5	27.85	0.99	1.360	27.7
1-58	3481	344.2	29.48	0.98	1.410	28.9
1-61	3499	362.0	30.89	0.95	1.350	29.3
1-64	3518	381.2	32.54	0.94	1.370	30.5
1-67	3535	398.2	33.93	0.92	1.370	31.3
1-70	3554	416.3	35.34	0.90	1.370	31.7
1-73	3572	434.7	36.74	0.88	1.360	32.3

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	18.04.2002 / 10:51:22 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant EffectivenessTests in Ice	**A-factor**	6570.000 Pa/Nm		
Sample no	08	**M-factor**	22.350 1/s/(rad/s)		
Description	B4T#12 {3/6/02} ANS 20%W MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.924 g/cc
WATER CONTENT = 0.22%

Filename: C:\Program Files\RheoWin\Data\TO401-{3-6-02}ANS 20W B4T#12.rwd (Mod)

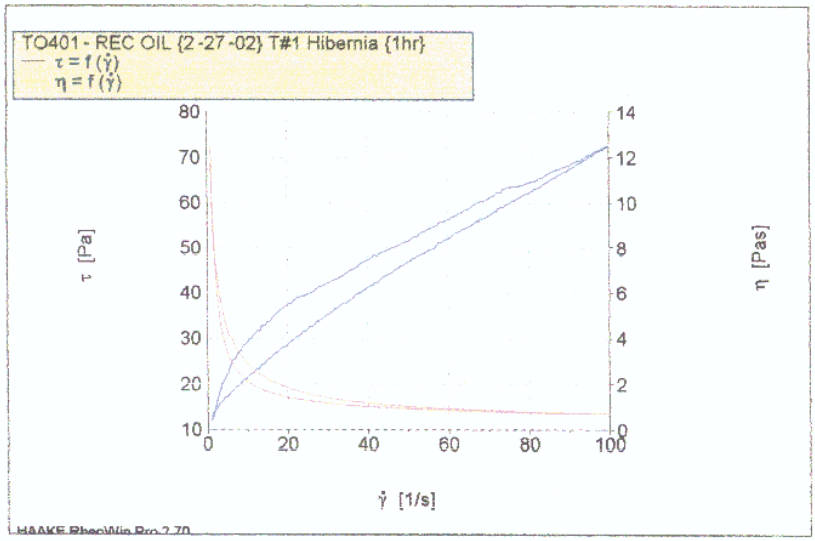
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

Evaluation

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3783	0	1.006	6.27	1.320	6.31
1-4	3802	18.71	2.548	4.31	1.320	11.0
1-7	3819	36.23	4.001	3.48	1.340	13.9
1-10	3838	54.66	5.386	3.02	1.360	16.3
1-13	3856	73.35	7.018	2.68	1.370	18.8
1-16	3875	91.49	8.426	2.48	1.350	20.9
1-19	3892	109.1	10.06	2.25	1.320	22.7
1-22	3910	126.8	11.47	2.07	1.360	23.7
1-25	3929	146.1	13.10	1.99	1.400	26.0
1-28	3946	163.2	14.28	1.88	1.340	26.8
1-31	3965	182.2	15.91	1.77	1.350	28.1
1-34	3983	199.5	17.54	1.68	1.350	29.4
1-37	4001	218.0	18.95	1.60	1.350	30.3
1-40	4018	235.3	20.36	1.54	1.360	31.3
1-43	4037	253.8	21.99	1.47	1.390	32.3
1-46	4056	272.4	23.40	1.43	1.350	33.4
1-49	4074	290.8	25.05	1.38	1.350	34.7
1-52	4091	308.1	26.44	1.36	1.370	35.9
1-55	4110	326.5	27.85	1.30	1.400	36.1
1-58	4128	345.1	29.48	1.27	1.360	37.5
1-61	4145	362.0	30.89	1.24	1.330	38.4
1-64	4163	380.2	32.30	1.22	1.340	39.3
1-67	4182	398.7	33.93	1.19	1.370	40.2
1-70	4199	416.1	35.34	1.16	1.340	40.9
1-73	4218	434.4	36.74	1.15	1.320	42.2

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Curneff	**Temperature device**	DC30		
Date/Time	18.04.2002 / 13:30:23 PM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401- Dispersant EffectivenessTests in Ice	**A-factor**	6570.000 Pa/Nm		
Sample no	09	**M-factor**	22.350 1/s/(rad/s)		
Description	REC OIL T#1 {2/27/02} Hibernia after 1 hr MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.931 g/cc
WATER CONTENT = 30.0%

Filename: C:\Program Files\RheoWin\Data\TO401- REC OIL {2-27-02} T#1 Hibernia {1hr}.rwd (Mod)

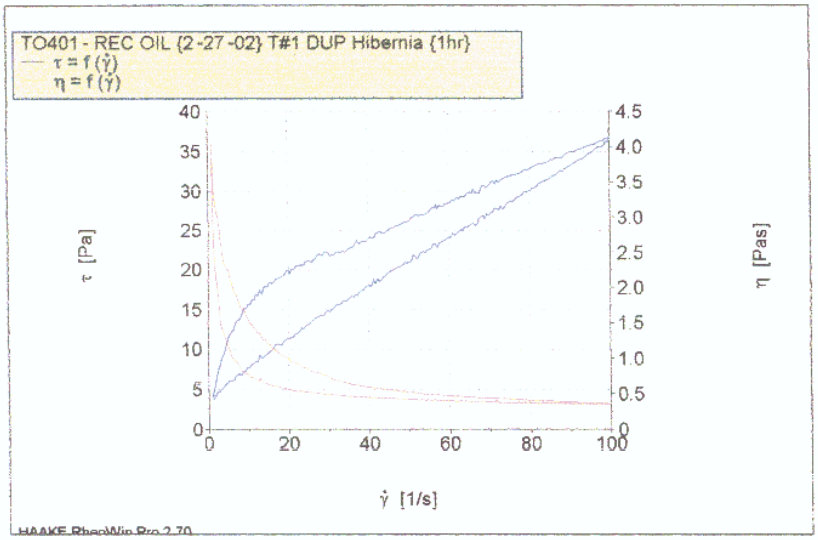
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3106	0	1.006	11.8	1.340	11.8
1-4	3124	18.38	2.526	6.63	1.370	16.8
1-7	3142	36.48	4.001	5.12	1.350	20.5
1-10	3160	54.43	5.386	4.20	1.350	22.6
1-13	3179	73.81	7.018	3.62	1.330	25.4
1-16	3197	91.44	8.426	3.24	1.330	27.3
1-19	3215	109.8	10.06	2.89	1.370	29.0
1-22	3233	127.6	11.47	2.66	1.340	30.5
1-25	3251	145.8	13.10	2.41	1.330	31.6
1-28	3269	163.7	14.51	2.26	1.330	32.8
1-31	3287	181.8	15.91	2.14	1.340	34.1
1-34	3305	199.6	17.54	2.03	1.370	35.7
1-37	3323	217.5	18.95	1.94	1.360	36.9
1-40	3341	235.2	20.36	1.85	1.280	37.7
1-43	3359	253.5	21.99	1.75	1.370	38.6
1-46	3377	271.7	23.40	1.68	1.370	39.2
1-49	3395	289.5	24.81	1.60	1.340	39.7
1-52	3414	308.6	26.44	1.52	1.350	40.3
1-55	3432	326.3	27.85	1.49	1.390	41.5
1-58	3450	344.1	29.48	1.42	1.370	41.9
1-61	3469	363.2	30.89	1.38	1.310	42.6
1-64	3486	380.2	32.30	1.33	1.360	43.0
1-67	3505	399.1	33.93	1.29	1.360	43.9
1-70	3523	417.3	35.34	1.27	1.370	44.8
1-73	3541	435.3	36.99	1.23	1.390	45.6

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	19.04.2002 / 8:42:12 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	10 (9 DUP)	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #1 REC OIL {2/27/02} Hibernia Control after 1 hr MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.926 g/cc
WATER CONTENT = 26.0%

Filename: C:\Program Files\RheoWin\Data\TO401- REC OIL {2-27-02} T#1 DUP Hibernia {1hr}.rwd (Mod)

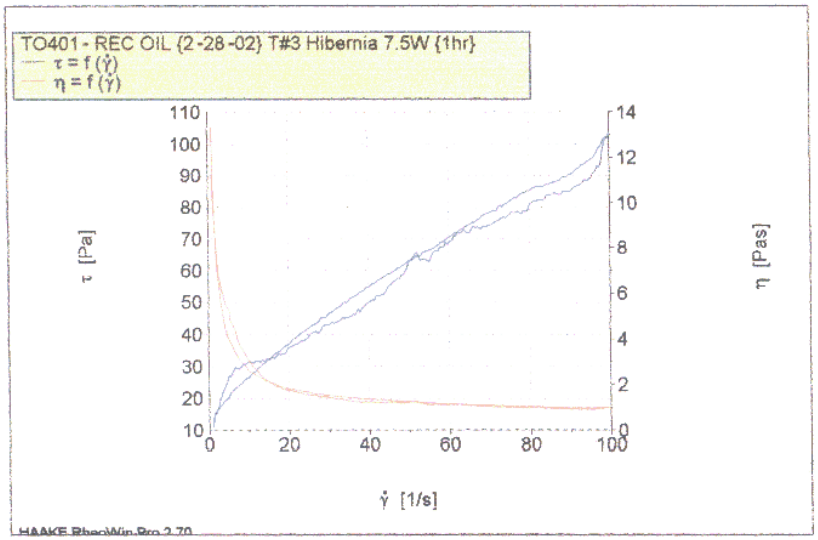
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	4531	0	1.006	4.05	1.360	4.07
1-4	4549	18.40	2.526	2.97	1.430	7.49
1-7	4569	37.70	4.090	2.33	1.340	9.53
1-10	4586	55.58	5.610	2.12	1.380	11.9
1-13	4604	73.61	7.018	1.91	1.350	13.4
1-16	4622	91.41	8.426	1.72	1.320	14.5
1-19	4640	109.5	10.06	1.56	1.310	15.7
1-22	4658	127.2	11.47	1.42	1.310	16.2
1-25	4676	145.0	12.87	1.36	1.370	17.5
1-28	4694	163.2	14.51	1.23	1.310	17.8
1-31	4712	181.2	15.91	1.14	1.350	18.2
1-34	4731	200.4	17.54	1.08	1.340	19.0
1-37	4749	218.5	18.95	1.02	1.320	19.4
1-40	4766	235.3	20.36	0.96	1.300	19.5
1-43	4784	253.4	21.99	0.94	1.330	20.6
1-46	4803	272.5	23.40	0.88	1.290	20.6
1-49	4822	290.7	25.05	0.84	1.310	21.2
1-52	4840	308.6	26.44	0.81	1.320	21.4
1-55	4858	326.9	27.85	0.79	1.330	22.0
1-58	4876	345.0	29.48	0.76	1.330	22.3
1-61	4894	363.1	30.89	0.71	1.340	21.9
1-64	4912	381.3	32.54	0.68	1.370	22.3
1-67	4930	399.2	33.93	0.66	1.330	22.3
1-70	4948	417.1	35.34	0.65	1.330	22.8
1-73	4966	435.1	36.99	0.64	1.350	23.8

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	19.04.2002 / 11:09:31 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401- Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	11	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #3 REC OIL (2/28/02) Hibernia 7.5%W after 1 hr MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.916 g/cc
WATER CONTENT = 17.0%

Filename: C:\Program Files\RheoWin\Data\TO401- REC OIL (2-28-02) T#3 Hibernia 7.5W (1hr).rwd (Mod)

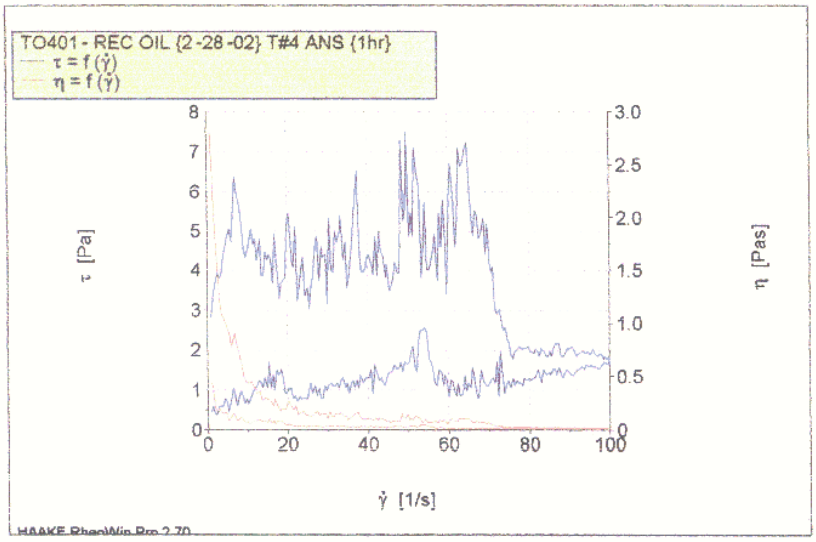
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3489	0	1.006	11.2	1.360	11.3
1-4	3507	18.17	2.481	7.04	1.370	17.5
1-7	3526	36.29	3.978	5.78	1.370	23.0
1-10	3545	55.60	5.610	4.80	1.340	26.9
1-13	3563	73.40	7.018	4.23	1.330	29.7
1-16	3581	91.63	8.649	3.54	1.360	30.6
1-19	3598	108.8	10.06	3.12	1.350	31.4
1-22	3616	127.2	11.47	2.71	1.310	31.1
1-25	3635	145.7	13.10	2.40	1.360	31.5
1-28	3653	163.5	14.51	2.23	1.340	32.4
1-31	3670	181.1	15.91	2.07	1.340	32.9
1-34	3689	200.2	17.54	1.94	1.370	34.0
1-37	3708	218.4	18.95	1.80	1.300	34.1
1-40	3726	236.4	20.61	1.76	1.380	36.3
1-43	3743	253.9	21.99	1.68	1.330	37.1
1-46	3761	271.7	23.40	1.63	1.340	38.2
1-49	3779	289.9	24.81	1.57	1.330	39.0
1-52	3798	308.4	26.44	1.55	1.350	40.9
1-55	3816	326.5	27.85	1.47	1.350	41.1
1-58	3833	344.0	29.48	1.46	1.320	43.2
1-61	3851	362.3	30.89	1.43	1.370	44.0
1-64	3869	380.0	32.30	1.37	1.340	44.1
1-67	3888	399.1	33.93	1.32	1.360	44.8
1-70	3906	416.7	35.34	1.29	1.350	45.6
1-73	3924	434.6	36.74	1.26	1.320	46.2

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	19.04.2002 / 14:00:59 PM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	12	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #4 REC OIL {2/28/02} ANS after 1 hr MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.949 g/cc
WATER CONTENT = 40.0%

Filename: C:\Program Files\RheoWin\Data\TO401- REC OIL {2-28-02} T#4 ANS {1hr}.rwd (Mod)

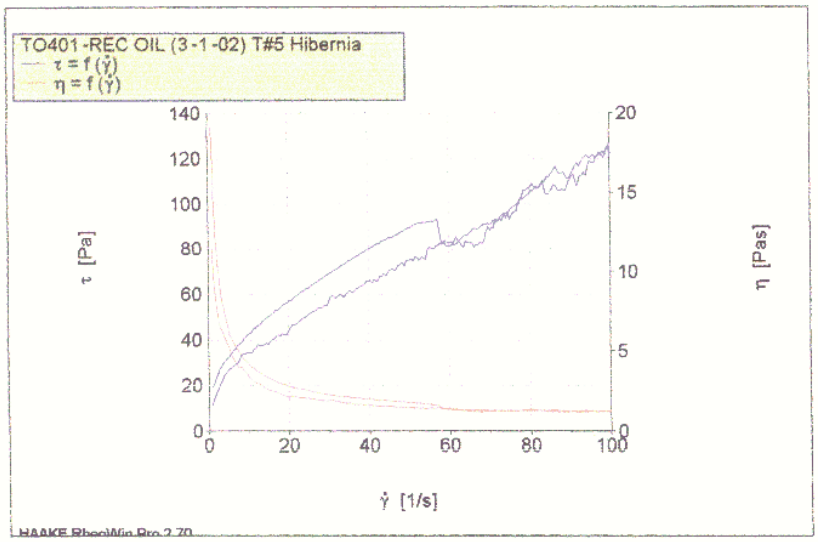
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

Evaluation

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3432	0	1.006	2.81	1.360	2.83
1-4	3450	18.69	2.548	1.55	1.370	3.94
1-7	3468	36.89	4.068	1.07	1.350	4.34
1-10	3486	54.57	5.610	0.90	1.370	5.06
1-13	3504	72.66	7.018	0.91	1.350	6.37
1-16	3523	91.58	8.649	0.60	1.340	5.19
1-19	3541	109.3	10.06	0.44	1.340	4.47
1-22	3559	127.5	11.47	0.41	1.320	4.66
1-25	3577	145.5	13.10	0.37	1.380	4.80
1-28	3595	163.1	14.51	0.31	1.350	4.47
1-31	3613	181.1	15.91	0.27	1.380	4.27
1-34	3631	199.0	17.32	0.24	1.340	4.20
1-37	3650	218.5	18.95	0.20	1.350	3.74
1-40	3668	236.1	20.36	0.27	1.360	5.45
1-43	3686	254.1	21.99	0.23	1.320	5.12
1-46	3703	271.9	23.40	0.17	1.370	4.01
1-49	3722	290.0	25.05	0.14	1.340	3.55
1-52	3739	307.9	26.44	0.14	1.370	3.81
1-55	3757	325.7	27.85	0.13	1.370	3.74
1-58	3776	344.7	29.48	0.15	1.380	4.40
1-61	3795	363.2	30.89	0.13	1.350	4.01
1-64	3811	379.9	32.30	0.15	1.370	4.73
1-67	3830	398.0	33.93	0.13	1.350	4.27
1-70	3849	417.4	35.34	0.11	1.390	3.88
1-73	3867	435.4	36.99	0.16	1.370	5.85

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	22.04.2002 / 10:15:10 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	13	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #5 REC OIL (3/01/02) Hibernia MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.926 g/cc
WATER CONTENT = 27.0%

Filename: C:\Program Files\RheoWin\Data\TO401-REC OIL (3-1-02) T#5 Hibernia.rwd (Mod)

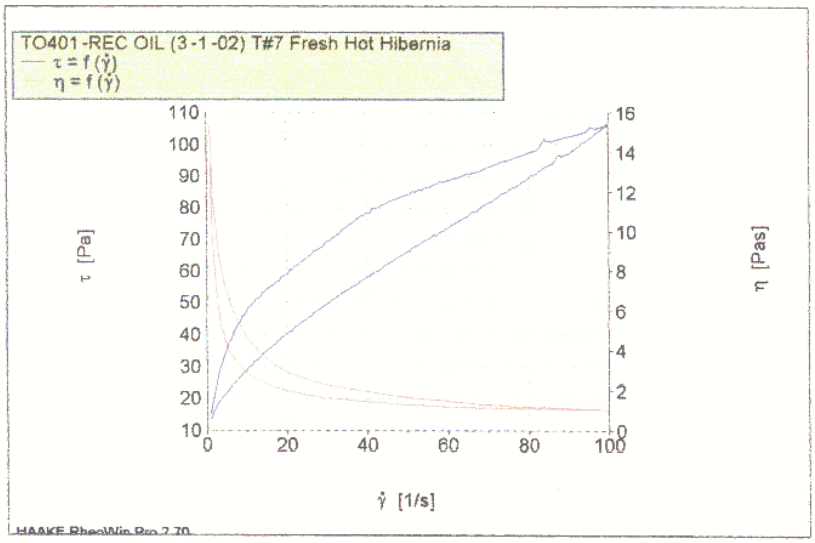
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

Evaluation

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	3177	0	1.006	11.4	1.360	11.5
1-4	3196	19.46	2.615	7.11	1.380	18.6
1-7	3213	36.24	4.001	6.06	1.370	24.2
1-10	3231	54.48	5.610	4.90	1.340	27.5
1-13	3250	73.28	7.018	4.20	1.340	29.5
1-16	3268	91.11	8.426	3.98	1.340	33.6
1-19	3286	109.2	10.06	3.44	1.320	34.6
1-22	3304	127.2	11.47	3.14	1.340	36.0
1-25	3322	144.9	12.87	2.92	1.320	37.6
1-28	3340	163.1	14.51	2.68	1.330	38.8
1-31	3359	182.2	16.16	2.50	1.360	40.4
1-34	3377	200.3	17.54	2.41	1.350	42.3
1-37	3395	218.1	18.95	2.22	1.330	42.0
1-40	3413	235.9	20.36	2.19	1.290	44.7
1-43	3431	254.0	21.99	2.14	1.330	47.0
1-46	3449	271.9	23.40	2.10	1.290	49.1
1-49	3467	289.9	24.81	2.06	1.330	51.1
1-52	3485	308.2	26.44	1.99	1.330	52.6
1-55	3503	326.3	27.85	1.94	1.320	54.1
1-58	3521	344.2	29.48	1.87	1.320	55.1
1-61	3539	362.0	30.89	1.92	1.340	59.5
1-64	3557	380.4	32.30	1.84	1.300	59.4
1-67	3575	398.2	33.93	1.74	1.330	58.9
1-70	3594	416.7	35.34	1.75	1.320	61.8
1-73	3612	435.2	36.99	1.69	1.300	62.4

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	23.04.2002 / 9:17:17 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	14	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #7 REC OIL (3/1/02) Fresh Hot Hibernia MV1				

Comment



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.950 g/cc
WATER CONTENT = 21.0%

Filename: C:\Program Files\RheoWin\Data\TO401-REC OIL (3-1-02) T#7 Fresh Hot Hibernia.rwd (Mod)

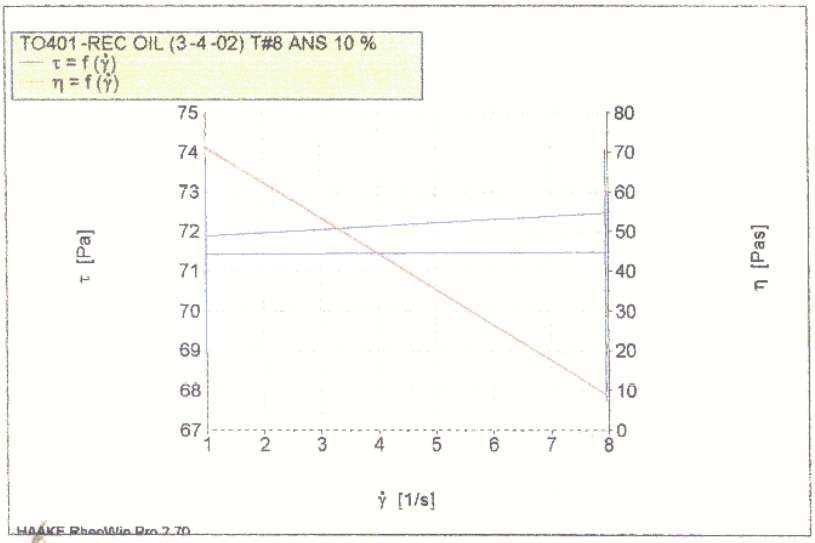
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	2621	0	1.006	15.4	1.350	15.4
1-4	2840	19.31	2.615	9.60	1.300	25.1
1-7	2859	37.71	4.090	7.74	1.300	31.7
1-10	2876	55.22	5.610	6.70	1.330	37.6
1-13	2894	73.31	7.018	5.89	1.300	41.3
1-16	2912	91.23	8.426	5.22	1.260	44.0
1-19	2930	108.9	10.06	4.70	1.260	47.2
1-22	2949	128.1	11.47	4.33	1.260	49.6
1-25	2966	144.9	12.87	4.00	1.290	51.4
1-28	2984	163.1	14.51	3.68	1.250	53.4
1-31	3003	182.2	16.16	3.42	1.300	55.3
1-34	3021	200.4	17.54	3.24	1.280	56.8
1-37	3038	217.4	18.95	3.08	1.290	58.4
1-40	3056	235.4	20.36	2.91	1.250	59.3
1-43	3075	253.7	21.99	2.80	1.290	61.6
1-46	3093	272.4	23.40	2.68	1.280	62.7
1-49	3111	290.5	25.05	2.56	1.310	64.2
1-52	3129	308.2	26.44	2.48	1.290	65.7
1-55	3147	326.2	27.85	2.41	1.300	67.1
1-58	3165	344.2	29.48	2.34	1.320	68.9
1-61	3183	362.3	30.89	2.26	1.280	69.9
1-64	3201	380.0	32.30	2.21	1.320	71.4
1-67	3220	399.1	33.93	2.16	1.310	73.2
1-70	3238	417.5	35.34	2.11	1.250	74.4
1-73	3256	434.9	36.99	2.05	1.310	75.9

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Curneff	**Temperature device**	DC30		
Date/Time	23.04.2002 / 11:34:04 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in Ic	**A-factor**	6570.000 Pa/Nm		
Sample no	15	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #8 REC OIL (3/4/02) ANS 10% MV1				

Comment Viscometer information NOT VALID.



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °
CR , prev 1/s, t 30.00 s, #30, T prev °C
CR lin, prev 1/s - 1.00 1/s, t 1200.00 s, #200, T prev °C
Notes
DENSITY @25C = 0.948 g/cc
WATER CONTENT = 32.0%
VISCOMETRY DATA IS NOT VALID FOR THIS SAMPLE.
VT550 VISCOMETER NOT PERFORMING PROPERLY.
DATA WILL FOLLOW ONCE INSTRUMENT IS CORRECTED.

Filename: C:\Program Files\RheoWin\Data\TO401-REC OIL (3-4-02) T#8 ANS 10 %.rwd (Mod)

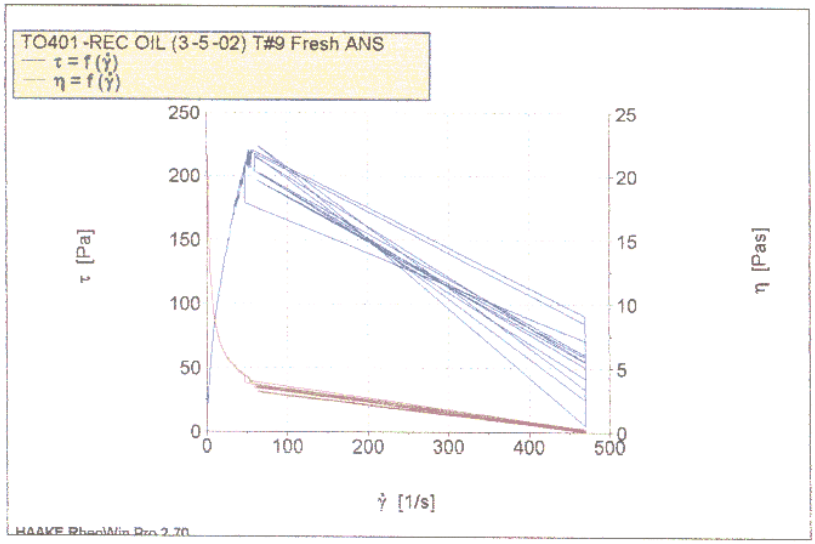
Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1-Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	1987	0	1.006	73.0	1.350	73.4
1-4	2006	19.37	1.006	73.0	1.340	73.4
1-7	2024	36.98	1.006	72.5	1.330	72.9
1-10	2042	54.78	7.957	9.17	1.320	73.0
1-13	2060	72.61	7.957	9.19	1.350	73.1
1-16	2078	90.56	7.957	9.13	1.330	72.7
1-19	2096	108.8	7.957	9.01	1.310	71.7
1-22	2114	127.2	7.957	9.03	1.310	71.9
1-25	2132	145.4	7.957	9.06	1.310	72.1
1-28	2151	163.6	7.957	9.13	1.310	72.7
1-31	2169	181.9	7.957	9.06	1.310	72.1
1-34	2187	200.2	7.957	9.01	1.310	71.7
1-37	2204	217.1	7.957	9.04	1.290	71.9
1-40	2222	235.2	7.957	9.13	1.320	72.7
1-43	2241	253.5	7.957	9.17	1.290	72.9
1-46	2259	271.6	7.957	8.97	1.290	71.4
1-49	2277	289.9	7.957	9.09	1.350	72.3
1-52	2295	308.2	7.957	9.06	1.340	72.1
1-55	2314	326.6	7.957	8.96	1.310	71.3
1-58	2332	344.8	7.957	9.08	1.320	72.3
1-61	2350	362.9	7.957	8.89	1.320	70.8
1-64	2367	380.3	7.957	8.98	1.320	71.4
1-67	2386	399.2	7.957	9.12	1.280	72.5
1-70	2404	416.5	7.957	9.03	1.330	71.9
1-73	2422	434.8	7.957	8.95	1.290	71.2

Evaluation

Company	MAR, Inc. / OHMSETT	**Measure device**	VT550		
Operator	Susan Cunneff	**Temperature device**	DC30		
Date/Time	29.04.2002 / 10:02:21 AM	**Sensor**	MV 1	**Gap**	1.000 mm
Substance	TO401 - Dispersant Effectiveness Tests in lc	**A-factor**	6570.000 Pa/Nm		
Sample no	16	**M-factor**	22.350 1/s/(rad/s)		
Description	Test #9 REC OIL (3/5/02) Fresh ANS MV1				

Comment VISCOMETRY INFORMATION NOT VALID



Element definition / Notes

CR lin, prev 1/s - 100.00 1/s, t 1200.00 s, #200, T prev °

Notes

DENSITY @25C = 0.958 g/cc
WATER CONTENT = 27.0%
VISCOMETRY DATA IS NOT VALID FOR THIS SAMPLE.
VT550 VISCOMETER NOT PERFORMING PROPERLY.
DATA WILL FOLLOW ONCE INSTRUMENT IS CORRECTED, IF REQUESTED.

Filename: C:\Program Files\RheoWin\Data\TO401-REC OIL (3-5-02) T#9 Fresh ANS.rwd (Mod)

Job: C:\PROGRAM FILES\RHEOWIN\JOBS\Flow Curve 1C; MV1 Ramp-Up 1200 s, Stay 60 S, Ramp-Down 1200 s.rwj

	t [s]	t_seg [s]	γ̇ [1/s]	η [Pas]	T [°C]	τ [Pa]
1-1	2963	0	1.006	21.6	1.370	21.7
1-4	2982	19.45	2.570	15.0	1.360	38.4
1-7	2999	36.68	4.045	12.6	1.330	51.1
1-10	3018	55.03	5.610	11.3	1.370	63.7
1-13	3035	72.46	7.018	10.2	1.330	71.3
1-16	3053	90.47	8.426	9.31	1.350	78.4
1-19	3072	109.1	10.06	8.64	1.320	86.9
1-22	3091	127.9	11.47	8.15	1.350	93.4
1-25	3108	144.8	12.87	7.70	1.330	99.1
1-28	3126	163.7	14.51	7.32	1.300	106
1-31	3144	181.6	15.91	6.97	1.340	111
1-34	3164	201.3	17.54	6.65	1.350	117
1-37	3180	217.4	18.95	6.43	1.310	122
1-40	3198	235.2	20.36	6.25	1.320	127
1-43	3216	253.5	21.99	6.16	1.320	135
1-46	3234	271.8	23.40	5.92	1.320	139
1-49	3253	290.5	25.05	5.66	1.350	142
1-52	3271	308.7	26.44	5.63	1.350	149
1-55	3289	326.3	27.85	5.44	1.300	151
1-58	3307	343.9	29.26	5.48	1.340	160
1-61	3325	362.8	30.89	5.35	1.360	165
1-64	3343	380.4	32.30	5.17	1.340	167
1-67	3362	399.2	33.93	5.01	1.360	170
1-70	3379	416.6	35.34	4.99	1.310	176
1-73	3397	434.6	36.74	4.91	1.370	181

Evaluation