



PROBLEM SUMMARY

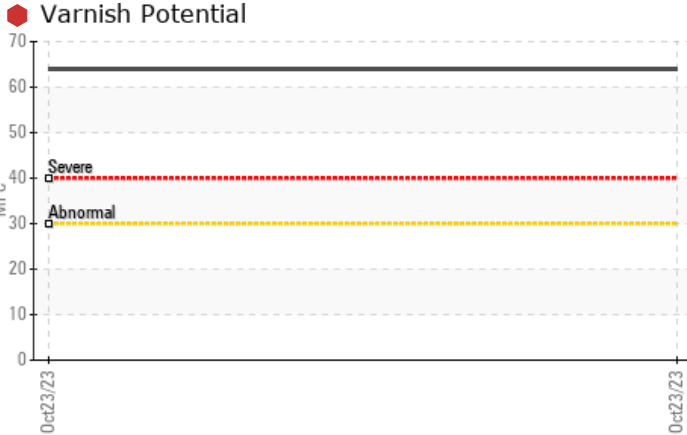
Sample Rating Trend

INSOLUBLES

Area
GAS COMPRESSION [02591388]
 Machine Id
36-T-1690A (36-K-1680A)
 Component
Turbine
 Fluid
MOBIL DTE 846 (--- LTR)



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We recommend that you perform vacuum distillation and/or air drying to attempt to remove any residual water and/or entrained gases from this oil that may be contributing to abnormal foaming and/or poor water separability. We recommend that you use electrostatic filtration to remove insolubles from the oil and to reduce the levels of varnish in the system. Alternatively draining a percentage of the oil and topping up with fresh oil (sweetening the oil) may provide a reduction in the varnish potential level. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	---	---
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	64	---	---
Foam Tendency	I/II/III	ASTM D892*	20	530/50/520	---	---

Customer Id: MAKMOU
 Sample No.: WC0814808
 Lab Number: 02591451
 Test Package: AOM 3



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To discuss the diagnosis or test data:
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 Gloria Gonzalez +1 (289)291-4643 x4643
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RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	We recommend an early resample to monitor this condition.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Filter Fluid	---	---	?	We recommend that you use electrostatic filtration to remove insolubles from the oil and to reduce the levels of varnish in the system. Alternatively draining a percentage of the oil and topping up with fresh oil (sweetening the oil) may provide a reduction in the varnish potential level.

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT

Sample Rating Trend

INSOLUBLES



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GAS COMPRESSION [02591388]
 Machine Id
36-T-1690A (36-K-1680A)
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Turbine
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MOBIL DTE 846 (--- LTR)



DIAGNOSIS

Recommendation

We recommend that you perform vacuum distillation and/or air drying to attempt to remove any residual water and/or entrained gases from this oil that may be contributing to abnormal foaming and/or poor water separability. We recommend that you use electrostatic filtration to remove insolubles from the oil and to reduce the levels of varnish in the system. Alternatively draining a percentage of the oil and topping up with fresh oil (sweetening the oil) may provide a reduction in the varnish potential level. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

MPC (Membrane Patch Colorimetry) test indicates a high concentration of varnish present. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible.

Oil Condition

Foaming Tendency (ASTM D892) results are abnormal indicating a tendency for oil foaming. Rust Prevention test (ASTM D665) indicates the oil retains good anti-corrosion properties. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	WC0814808	---	---
Sample Date	Client Info	23 Oct 2023	---	---
Machine Age	hrs Client Info	0	---	---
Oil Age	hrs Client Info	0	---	---
Oil Changed	Client Info	N/A	---	---
Sample Status		SEVERE	---	---

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	---	---
Iron	ppm ASTM D5185(m) >15	0	---	---
Chromium	ppm ASTM D5185(m) >4	0	---	---
Nickel	ppm ASTM D5185(m) >2	0	---	---
Titanium	ppm ASTM D5185(m)	0	---	---
Silver	ppm ASTM D5185(m)	<1	---	---
Aluminum	ppm ASTM D5185(m) >10	0	---	---
Lead	ppm ASTM D5185(m)	<1	---	---
Copper	ppm ASTM D5185(m) >5	<1	---	---
Tin	ppm ASTM D5185(m) >5	0	---	---
Antimony	ppm ASTM D5185(m)	0	---	---
Vanadium	ppm ASTM D5185(m)	0	---	---
Beryllium	ppm ASTM D5185(m)	0	---	---
Cadmium	ppm ASTM D5185(m)	0	---	---

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	<1	---	---
Barium	ppm ASTM D5185(m)	0	---	---
Molybdenum	ppm ASTM D5185(m)	0	---	---
Manganese	ppm ASTM D5185(m)	0	---	---
Magnesium	ppm ASTM D5185(m)	0	---	---
Calcium	ppm ASTM D5185(m)	0	---	---
Phosphorus	ppm ASTM D5185(m)	1179	---	---
Zinc	ppm ASTM D5185(m)	<1	---	---
Sulfur	ppm ASTM D5185(m)	39	---	---
Lithium	ppm ASTM D5185(m)	<1	---	---

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >15	<1	---	---
Sodium	ppm ASTM D5185(m)	0	---	---
Potassium	ppm ASTM D5185(m) >20	0	---	---
Water	% ASTM D6304* >0.03	0.002	---	---
ppm Water	ppm ASTM D6304* >300	20.4	---	---

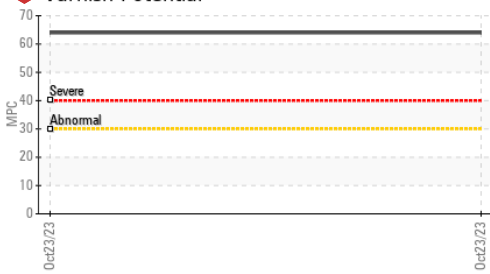
INFRA-RED

method	limit/base	current	history1	history2
Soot %	% ASTM D7844*	0	---	---
Nitration	Abs/cm ASTM D7624*	2.9	---	---
Sulfation	Abs/.1mm ASTM D7415*	15.1	---	---

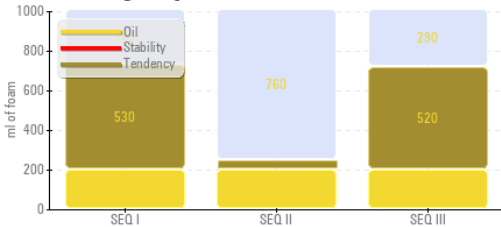


OIL ANALYSIS REPORT

Varnish Potential



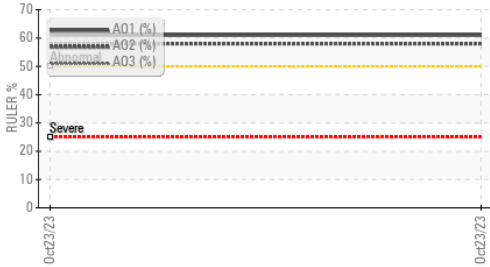
Foaming SEQ I/II/III



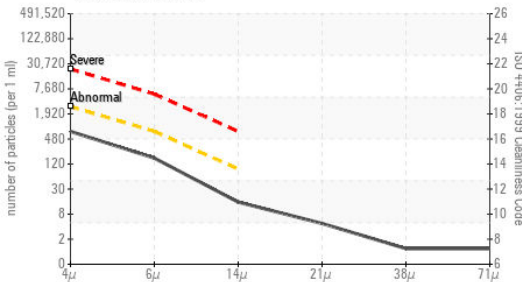
RPVOT



Remaining Life (RULER)



Particle Count



ISO 17025:2017
Accredited
Laboratory

**Laboratory
Sample No.
Lab Number
Unique Number
Test Package**

To discuss this sample report, cc
Test denoted (*) outside scope o

Validity of results and interpretation are based on the sample and information as supplied.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	641	---	---
Particles >6µm	ASTM D7647	>640	147	---	---
Particles >14µm	ASTM D7647	>80	13	---	---
Particles >21µm	ASTM D7647	>20	4	---	---
Particles >38µm	ASTM D7647	>4	1	---	---
Particles >71µm	ASTM D7647	>3	1	---	---
Oil Cleanliness	ISO 4406 (c)	>18/16/13	17/14/11	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	ASTM D7414*	4.5	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.20	---	---
Anti-Oxidant 1	%	ASTM D6971*	61	---	---
Anti-Oxidant 2	%	ASTM D6971*	58	---	---
MPC Varnish Potential	Scale	ASTM D7843(m)*	64	---	---

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	---
Yellow Metal	scalar	Visual*	NONE	NONE	---
Precipitate	scalar	Visual*	NONE	NONE	---
Silt	scalar	Visual*	NONE	NONE	---
Debris	scalar	Visual*	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	---
Emulsified Water	scalar	Visual*	>0.03	NEG	---
Free Water	scalar	Visual*		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	42.4	40.3	---
Visc @ 100°C	cSt	ASTM D7279(m)	6.2	7.1	---
Viscosity Index (VI)	Scale	ASTM D2270*	106	138	---
Separability	oil/h ₂ o/em	ASTM D1401*	40/40/0	41/39/0 (10)	---
Air Release Time	min	ASTM D3427*	2	6.20	---
Foam Tendency	I/II/III	ASTM D892*	20	530/50/520	---
Foam Stability	I/II/III	ASTM D892*	0	0/0/0	---
ASTM Color	scalar	ASTM D1500*		<7.5	---
Rust Prevention	PASS/FAIL	ASTM D665*	PASS	PASS	---
Oxidation Test (RPVOT)	minutes	ASTM D2272*	1100	909	---

SEDIMENT	method	limit/base	current	history1	history2
Pentane Insolubles	%	ASTM D893(m)*	0.026	---	---
Toluene Insolubles	%	ASTM D893(m)*	0.024	---	---

SAMPLE IMAGES

method	limit/base	current	history1	history2
Color			no image	no image
Bottom			no image	no image
MPC			no image	no image

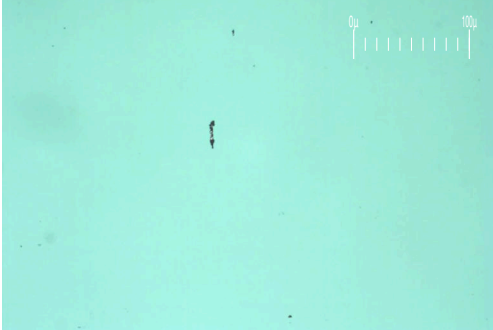
F: (709)364-3501



FERROGRAPHY REPORT

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GAS COMPRESSION [02591388]
 Machine Id
36-T-1690A (36-K-1680A)
 Component
Turbine
 Fluid
MOBIL DTE 846 (--- LTR)

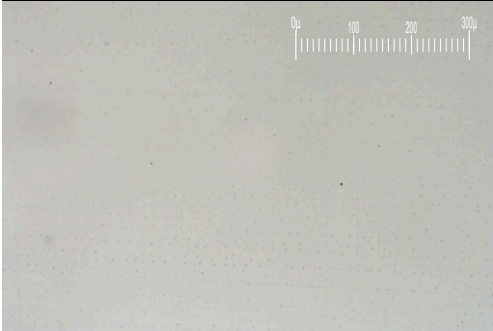
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

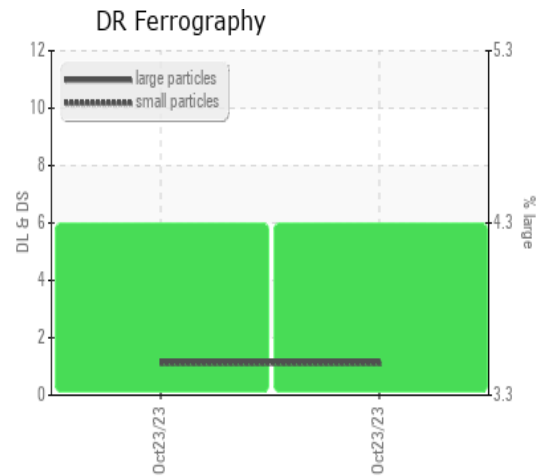


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		1.2	---	---
Small Particles		DR-Ferr*		1.1	---	---
Total Particles		DR-Ferr*	>---	2.3	---	---
Large Particles Percentage	%	DR-Ferr*		4.3	---	---
Severity Index		DR-Ferr*		0	---	---

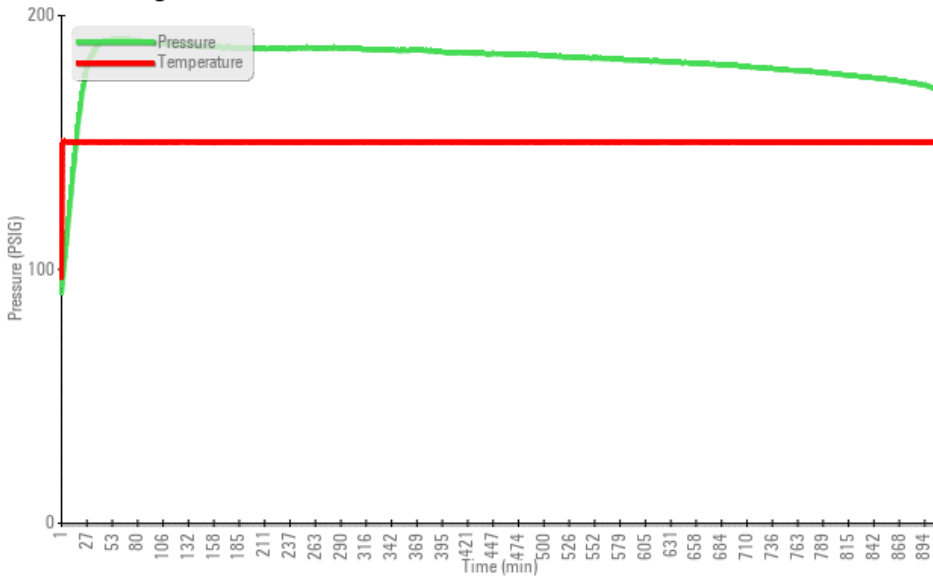
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		1		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*		1		
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*				

WEAR

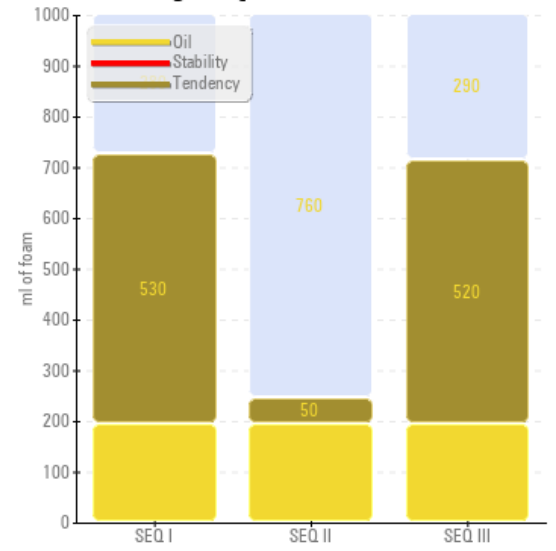
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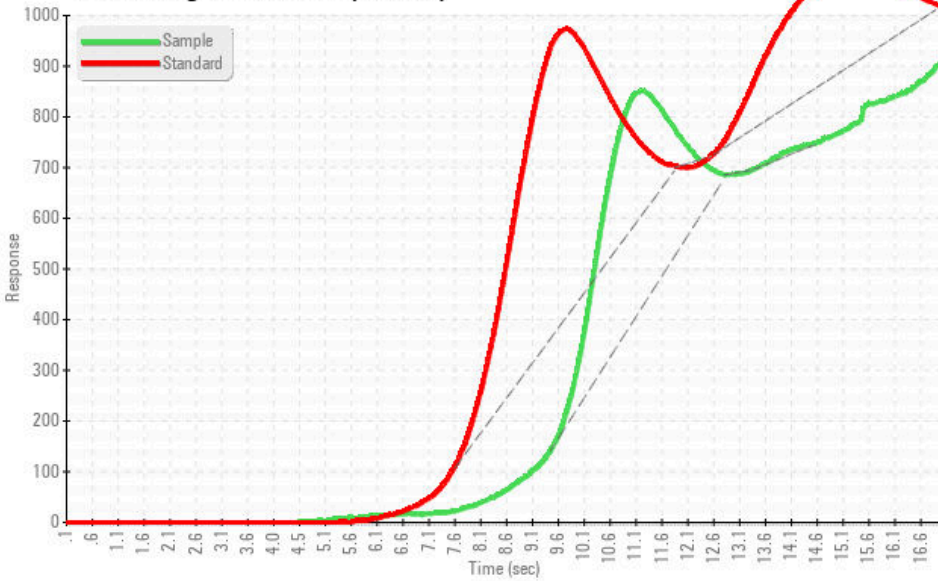
Rotating Pressure Vessel Oxidation Test



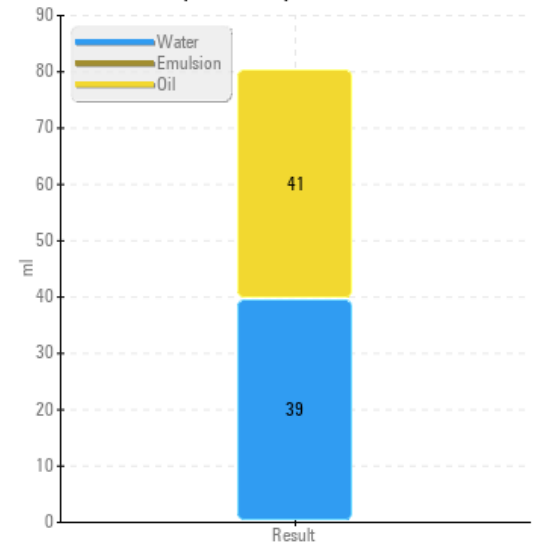
Foaming SEQ I/II/III



Remaining Useful Life (RULER)



Water Separability



MPC (Varnish Test)



Sample Color & Clarity

