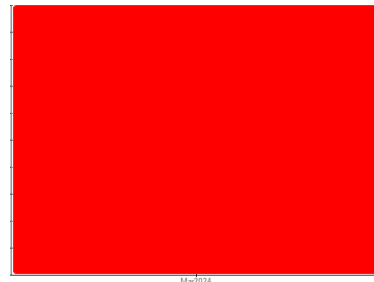




PROBLEM SUMMARY

Sample Rating Trend



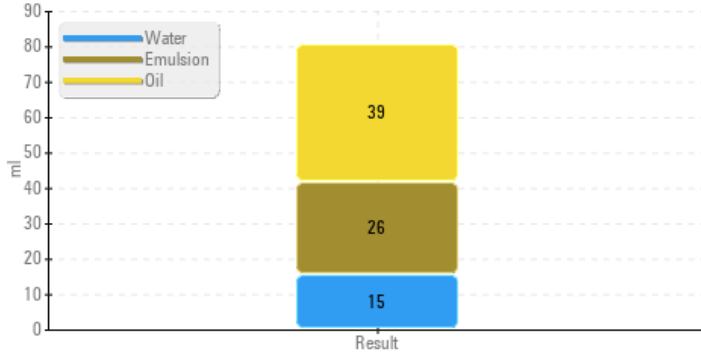
CONTAMINANT



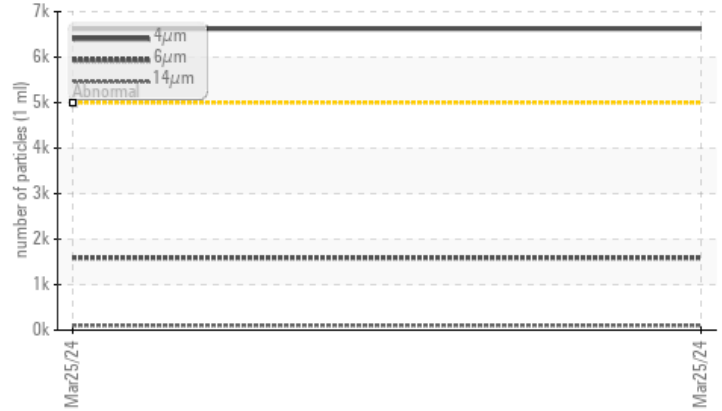
Machine Id
UNIT 3 BOILER FEED PUMP TURBINE
Component
Pump
Fluid
ESSO TERESSO ISO 32 (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Water Separability



● Particle Trend



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 you service the filters on this component. 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	oil/h2o/em	ASTM D1401*	40/40/0	SEVERE	---	---
Separability				▲ 39/15/26 (30)	---	---

Customer Id: OPGBAT
 Sample No.: WC
 Lab Number: 02625196
 Test Package: AOM 3



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1
 (289)291-4641 x4641
Bill.Quesnel@wearcheck.com

To change component or sample information:
 Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

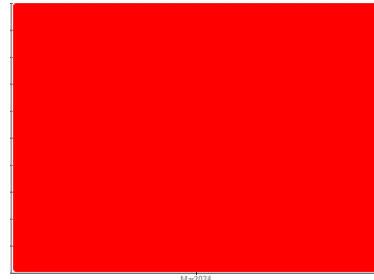
Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Filter Fluid	---	---	?	We recommend that you 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.

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT

Sample Rating Trend



CONTAMINANT



Machine Id
UNIT 3 BOILER FEED PUMP TURBINE
 Component
Pump
 Fluid
ESSO TERESSO ISO 32 (--- GAL)

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 you service the filters on this component. 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

There is a light amount of silt (particulates < 14 microns in size) present in the oil. Water Separability results (ASTM D1401) are poor and indicate that the oil will form emulsions with water. The water content is negligible.

▲ Oil Condition

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		WC	---	---
Sample Date	Client Info		25 Mar 2024	---	---
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) >90	1	---	---
Chromium	ppm	ASTM D5185(m) >5	0	---	---
Nickel	ppm	ASTM D5185(m) >5	0	---	---
Titanium	ppm	ASTM D5185(m) >3	0	---	---
Silver	ppm	ASTM D5185(m) >3	0	---	---
Aluminum	ppm	ASTM D5185(m) >7	0	---	---
Lead	ppm	ASTM D5185(m) >12	0	---	---
Copper	ppm	ASTM D5185(m) >30	0	---	---
Tin	ppm	ASTM D5185(m) >9	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)	0	---	---
Barium	ppm	ASTM D5185(m)	0	---	---
Molybdenum	ppm	ASTM D5185(m)	0	---	---
Manganese	ppm	ASTM D5185(m)	0	---	---
Magnesium	ppm	ASTM D5185(m)	<1	---	---
Calcium	ppm	ASTM D5185(m)	0	---	---
Phosphorus	ppm	ASTM D5185(m)	3	---	---
Zinc	ppm	ASTM D5185(m)	<1	---	---
Sulfur	ppm	ASTM D5185(m)	1142	---	---
Lithium	ppm	ASTM D5185(m)	<1	---	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >60	0	---	---
Sodium	ppm	ASTM D5185(m)	0	---	---
Potassium	ppm	ASTM D5185(m) >20	<1	---	---
Water	%	ASTM D6304* >.1	0.003	---	---
ppm Water	ppm	ASTM D6304* >1000	33	---	---

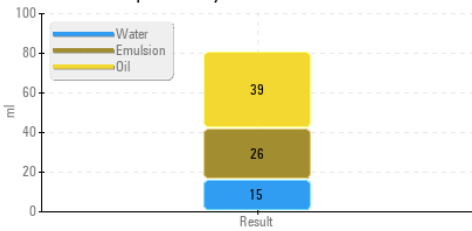
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	0	---	---
Nitration	Abs/cm	ASTM D7624*	2.3	---	---
Sulfation	Abs/.1mm	ASTM D7415*	11.7	---	---

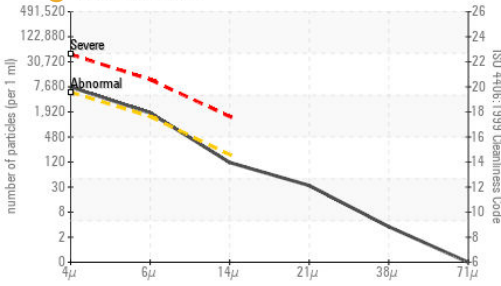


OIL ANALYSIS REPORT

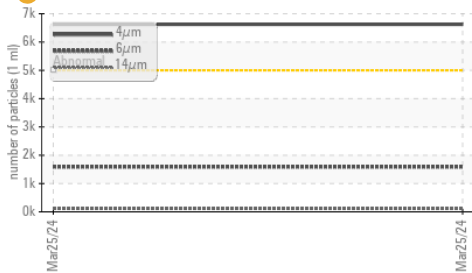
Water Separability



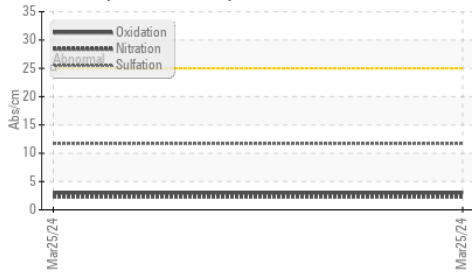
Particle Count



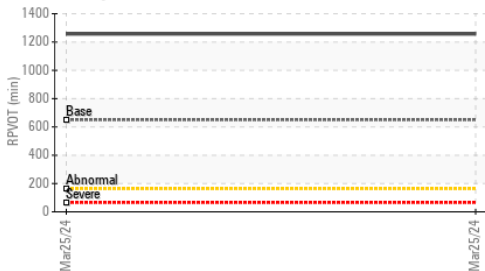
Particle Trend



FT-IR (Direct Trend)



RPVOT



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	6623	---	---
Particles >6µm	ASTM D7647	>1300	1591	---	---
Particles >14µm	ASTM D7647	>160	103	---	---
Particles >21µm	ASTM D7647	>40	29	---	---
Particles >38µm	ASTM D7647	>10	3	---	---
Particles >71µm	ASTM D7647	>3	0	---	---
Oil Cleanliness	ISO 4406 (c)	>19/17/14	20/18/14	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	ASTM D7414*	3.0	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.08	---	---
MPC Varnish Potential	Scale	ASTM D7843(m)*	5	---	---

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	---	---
Yellow Metal	scalar	Visual*	NONE	---	---
Precipitate	scalar	Visual*	NONE	---	---
Silt	scalar	Visual*	NONE	---	---
Debris	scalar	Visual*	NONE	---	---
Sand/Dirt	scalar	Visual*	NONE	---	---
Appearance	scalar	Visual*	NORML	---	---
Odor	scalar	Visual*	NORML	---	---
Emulsified Water	scalar	Visual*	>.1	---	---
Free Water	scalar	Visual*	NEG	---	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	32	33.0	---
Visc @ 100°C	cSt	ASTM D7279(m)	5.13	5.6	---
Viscosity Index (VI)	Scale	ASTM D2270*	82	107	---
Separability	oil/h2o/em	ASTM D1401*	40/40/0	39/15/26 (30)	---
Air Release Time	min	ASTM D3427*	3.60	---	---
Foam Tendency	I/II/III	ASTM D892*	450/40/420	---	---
Foam Stability	I/II/III	ASTM D892*	0/0/0	---	---
ASTM Color	scalar	ASTM D1500*	<2.5	---	---
Rust Prevention	PASS/FAIL	ASTM D665*	PASS	---	---
Oxidation Test (RPVOT)	minutes	ASTM D2272*	650	1257	---

SEDIMENT	method	limit/base	current	history1	history2
Pentane Insolubles	%	ASTM D893(m)*	0.064	---	---
Toluene Insolubles	%	ASTM D893(m)*	0.065	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color				no image	no image
Bottom				no image	no image
				no image	no image



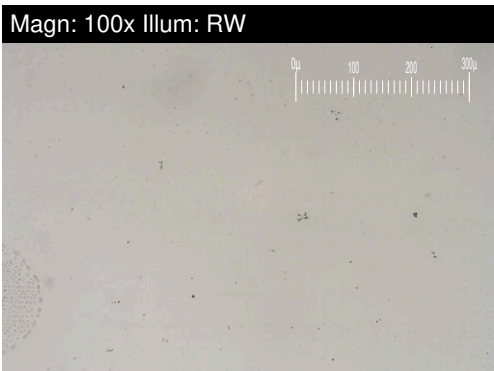
Laboratory : \\\
Sample No. : \\\ MPC
Lab Number : (\
Unique Number : (\
Test Package : AOM 3 (Additional Tests: Tollnsol)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

Contact: Abbas Eskandari
 abbas.eskandari@opg.com
 T: (613)352-3525
 F:

FERROGRAPHY REPORT

Machine Id
UNIT 3 BOILER FEED PUMP TURBINE
 Component
Pump
 Fluid
ESSO TERESSO ISO 32 (--- GAL)

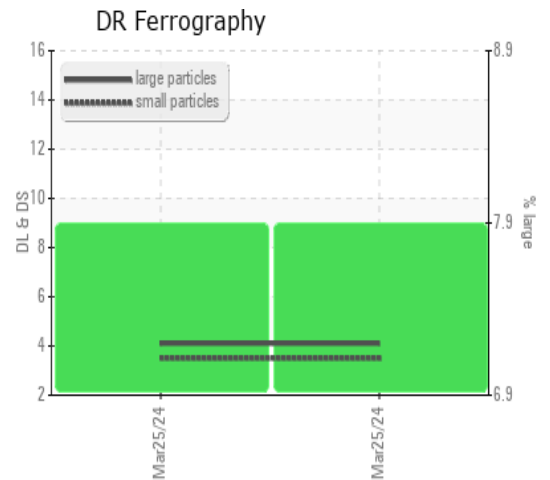


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		4.1	---	---
Small Particles		DR-Ferr*		3.5	---	---
Total Particles		DR-Ferr*	>---	7.6	---	---
Large Particles Percentage	%	DR-Ferr*		7.9	---	---
Severity Index		DR-Ferr*		2	---	---

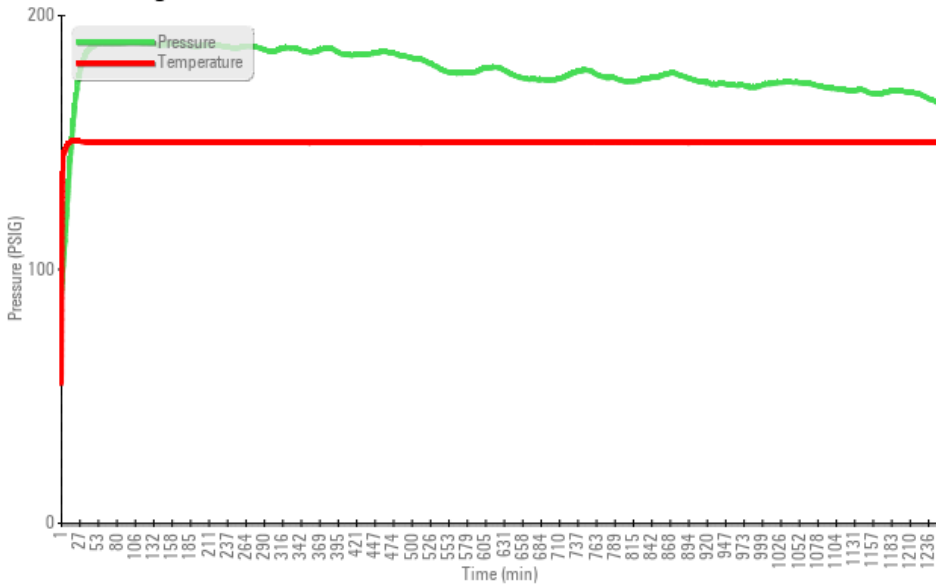
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*		1		
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		2		
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*		2		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*				

WEAR

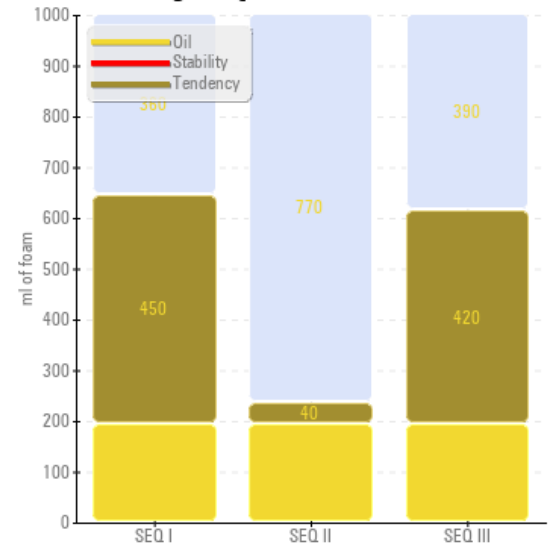
All component wear rates are normal.
 The ferrography results are normal indicating no abnormal wear in the system.



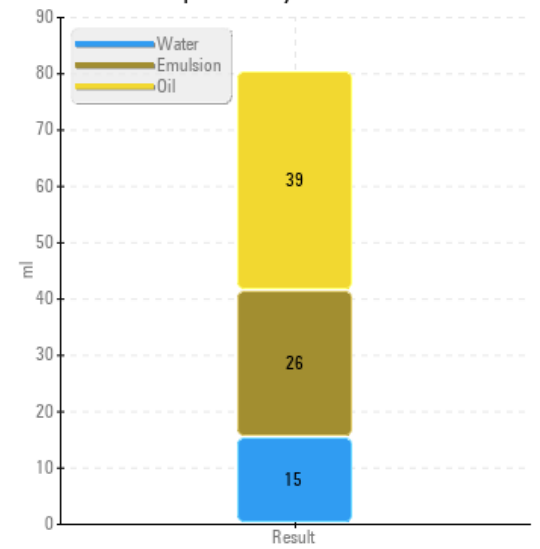
Rotating Pressure Vessel Oxidation Test



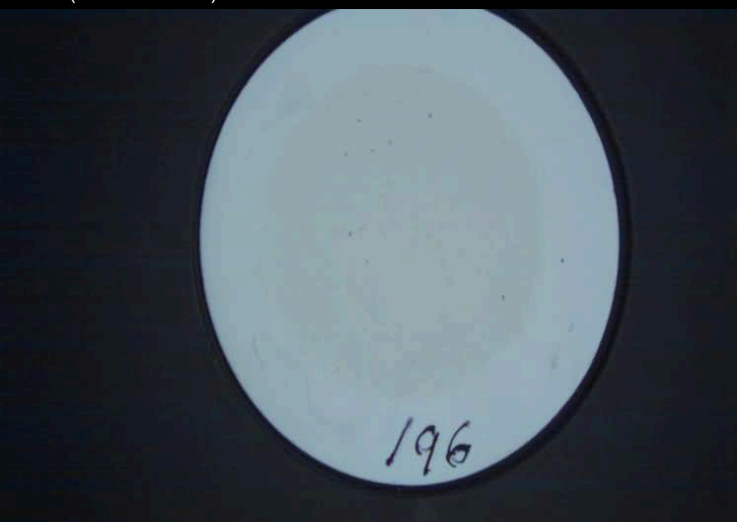
Foaming SEQ I/II/III



Water Separability



MPC (Varnish Test)



Sample Color & Clarity

