

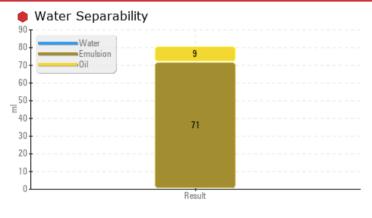
PROBLEM SUMMARY

Area [02437560] Machine Id A6 - Governor Oil Sump Component

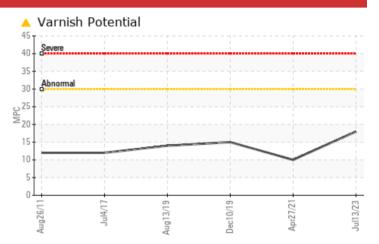
Governor System

PETRO CANADA TURBOFLO R&O 46 (6080 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 an early resample to monitor this condition. No other corrective action is recommended at this time.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	ABNORMAL	
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	<u> </u>	10	1 5	
Separability	oil/h2o/em	ASTM D1401*	41/39/0	9/0/71 (30)	41/39/0 (20)	41/39/0 (20)	
Foam Tendency	1/11/111	ASTM D892*	10	450/30/430	460/30/285	460/30/10	

Customer Id: CHUCHU Sample No.: WC0669290 Lab Number: 02579996 Test Package: AOM 3



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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
Resample			?	We recommend an early resample to monitor this condition.
Check Fluid Source			?	Confirm the source of the lubricant being utilized for top-up/fill.
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



27 Apr 2021 Diag: Bill Quesnel



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 an early resample to monitor this condition.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. MPC (Membrane Patch Colorimetry) test indicates acceptable levels of varnish present. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. Water Separability results (ASTM D1401) indicate good water shedding properties. The system and fluid cleanliness is acceptable. Foaming Tendency stage I (ASTM D892) result is abnormal indicating a tendency for oil foaming. The Air Release Value (ASTM D3427) indicates that the oil has good deaeration properties. Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. The Rotating Pressure Vessel Oxidation Test (RPVOT – ASTM D2272) result indicates suitable amounts of anti-oxidant(s) present in the oil. The AN level is accentable for this fluid.



10 Dec 2019 Diag: Bill Quesnel



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. No other corrective action is recommended at this time.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. Particles >4µm are abnormally high. MPC Varnish Potential contamination levels are marginally high. MPC (Membrane Patch Colorimetry) test indicates a light concentration of varnish present. The water content is negligible. Water Separability results (ASTM D1401) indicate good water shedding properties. Foaming Tendency stage I (ASTM D892) result is abnormal indicating a tendency for oil foaming. The Air Release Value (ASTM D3427) indicates that the oil has good deaeration properties. Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. The Rotating Pressure Vessel Oxidation Test (RPVOT – ASTM D2272) result indicates suitable amounts of anti-oxidant(s) present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.



13 Aug 2019 Diag: Bill Quesnel



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.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. Particles >4µm are abnormally high. MPC (Membrane Patch Colorimetry) test indicates acceptable levels of vanish present. The water content is negligible. Water Separability results (ASTM D1401) indicate good water shedding properties. Foaming Tendency stage I (ASTM D892) result is abnormal indicating a tendency for oil foaming. The Air Release Value (ASTM D3427) indicates that the oil has good deaeration properties. Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates suitable amounts of anti-oxidants present in the oil. The RN level is acceptable provided that the contaminant(s) can be reduced to acceptable levels.





OIL ANALYSIS REPORT

Area [02437560] Machine Id A6 - Governor Oil Sump

Governor System

PETRO CANADA TURBOFLO R&O 46 (6080 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 an early resample to monitor this condition. No other corrective action is recommended at this time.

Wear

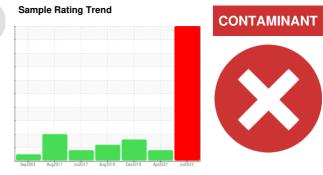
All component wear rates are normal. The directreading & analytical ferrographic results are normal indicating no abnormal wear in the system.

Contaminants

MPC (Membrane Patch Colorimetry) test indicates a light concentration of varnish present. Water Separability results (ASTM D1401) are poor and indicate that the oil will form emulsions with water. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible.

Oil Condition

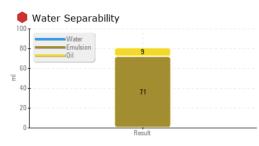
Foaming Tendency stage I (ASTM D892) result is abnormal indicating a tendency for oil foaming. Rust Prevention test (ASTM D665) indicates the oil retains good anti-corrosion properties. The AN level is acceptable for this fluid.

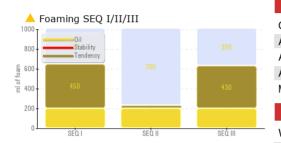


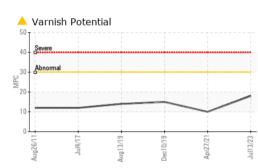
SAMPLE INFORM	/IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0669290	WC0575663	WC0308158
Sample Date		Client Info		13 Jul 2023	27 Apr 2021	10 Dec 2019
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	ABNORMAL	ABNORMAL
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	7
Iron	ppm	ASTM D5185(m)	>50	2	1	1
Chromium	ppm	ASTM D5185(m)	>10	0	0	<1
Nickel	ppm	ASTM D5185(m)	>10	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>3	<1	0	0
Lead	ppm	ASTM D5185(m)	>75	0	<1	<1
Copper	ppm	ASTM D5185(m)	>15	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>55	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
oddiniani	ppiii	7101111 20100(11)		v	Ū	0
ADDITIVES	ppm	method	limit/base	current	history1	history2
	ppm		limit/base	-		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base	current 0	history1 <1	history2 <1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	limit/base	current 0 0	history1 <1 0	history2 <1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	Current 0 0 0	history1 <1 0 0	history2 <1 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		Current 0 0 0 0 0	history1 <1 0 0 0	history2 <1 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		Current 0 0 0 0 0 <1	history1 <1 0 0 0 <1	history2 <1 0 0 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 3	Current 0 0 0 0 <1 <1 <1	history1 <1 0 0 0 <1 <1 <1	history2 <1 0 0 0 0 0 0 0 0 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 3	Current 0 0 0 0 <1 <1 <1 3	history1 <1 0 0 0 <1 <1 <1 3	history2 <1 0 0 0 0 0 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 3	Current 0 0 0 0 <1 <1 3 2	<1 0 0 0 0 <1 <1 <1 <1 3 1	<1 0 0 0 0 0 0 0 0 2 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 3	Current 0 0 0 0 <1 <1 3 2 171	<1 0 0 0 0 <1 <1 <1 3 1 184	<1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 11 2 <1 179
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 3 0	Current 0 0 0 <1 <1 <1 3 2 171 <1	<1 0 0 0 0 1 3 1 184 <1	<1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 179 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 3 0 limit/base	Current 0 0 0 0 0 1 <1 3 2 171 <1 current	history1 <1 0 0 0 <1 <1 3 1 184 <1 history1	<1 0 179 <1 179 <1 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 3 0 limit/base	Current 0 0 0 0 0 1 <1 3 2 171 <1 Current 0	history1 <1 0 0 0 <1 3 1 184 <1 history1 <1	<1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 179 <1 179 <1 history2 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 3 0 limit/base >8	Current 0 0 0 0 0 1 <1 3 2 1711 <1 Current 0 0	<1 0 0 0 0 0 <1 3 1 184 <1 history1 <1 <1 <1 1 1 <1 <1 <1 <1 <1	<1 0 0 0 0 0 0 <1 2 <1 179 <1 history2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 3 0 limit/base >8 >20	Current 0 0 0 0 0 <1 <1 2 171 <1 Current 0 0 0 0 0 0 0 0 0 0 0 0	<1 0 0 0 0 <1 3 1 184 <1 history1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<1 0 0 0 0 0 0 <1 2 <1 179 <1 history2 0 0 <1 179 <1 10 11 12 0 0 0 0 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 3 0 limit/base >8 >20 >0.1	Current 0 0 0 0 <1 <1 3 2 171 <1 0	history1 <1 0 0 0 <1 3 1 184 <1 history1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 0.001	<1 0 0 0 0 0 0 0 0 0 0 0 0 179 <1 179 <1 history2 0 0 0 0 0 0 0 0.0000
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5180(m) ASTM D5180(m) ASTM D5180(m) ASTM D5180(m) ASTM D5180(m) ASTM D6304* ASTM D6304*	0 3 0 limit/base >8 >20 >20 >0.1 >1000	Current 0 0 0 0 (1 <1 3 2 171 <1 Current 0 0 0 0 0 0 0 15.2	<1 0 0 0 0 <1 3 1 184 <1 history1 <1 0 <1 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 0.001 3.1	<1 0 0 0 0 0 0 <1 2 <1 179 <1 history2 0 0 0 0 0 0 2 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D6304* ASTM D6304*	0 3 0 limit/base >8 >20 >20 >0.1 >1000	Current 0 0 0 0 0 <1 3 2 171 <1 0 0 0 0 0 0 0 0 0 15.2	<1 0 0 0 <1 3 1 184 <1 history1 <1 0.001 3.1 history1	<1 0 0 0 0 0 0 0 0 0 0 0 0 0 <1 179 <1 history2 0 0 0 0 0 2.3

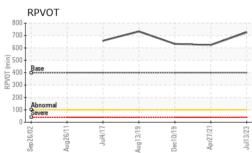


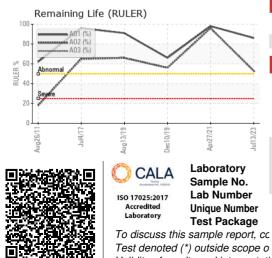
OIL ANALYSIS REPORT











FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	12146	5097	▲ 59897
Particles >6µm		ASTM D7647		948	397	3516
Particles >14µm		ASTM D7647	>640	34	29	64
Particles >21µm		ASTM D7647	>160	9	9	21
Particles >38µm		ASTM D7647	>40	1	1	0
Particles >71µm		ASTM D7647		0	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	21/17/12	20/16/12	2 3/19/13
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		2.5	2.4	2.5
Acid Number (AN)	mg KOH/g	ASTM D974*	0.12	0.07	0.09	0.107
Anti-Oxidant 1	%	ASTM D6971*	<25	86	98	66
Anti-Oxidant 2	%	ASTM D6971*	<25	53	96	56
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	1 8	10	1 5
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	0.		4.4.4	45 4	45.4	46.0
	cSt	ASTM D7279(m)	44.4	45.1	40.4	
-	cSt cSt	ASTM D7279(m) ASTM D7279(m)		45.1 6.8	6.7	6.7
Visc @ 100°C						
Visc @ 100°C Viscosity Index (VI)	cSt	ASTM D7279(m)	6.72	6.8	6.7	6.7 97
Visc @ 100°C Viscosity Index (VI) Separability	cSt Scale	ASTM D7279(m) ASTM D2270*	6.72 104	6.8 104	6.7 99	6.7 97
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time	cSt Scale oil/h2o/em	ASTM D7279(m) ASTM D2270* ASTM D1401*	6.72 104 41/39/0	6.8 104 ● 9/0/71 (30)	6.7 99 41/39/0 (20)	6.7 97 41/39/0 (20)
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency	cSt Scale oil/h2o/em min	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427*	6.72 104 41/39/0 3.5	6.8 104 9/0/71 (30) 5.10	6.7 99 41/39/0 (20) 5.90	6.7 97 41/39/0 (20) 6.20
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability	cSt Scale oil/h2o/em min I/II/III	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892*	6.72 104 41/39/0 3.5 10	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability	cSt Scale oil/h2o/em min I/II/III I/II/III	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892*	6.72 104 41/39/0 3.5 10 0	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color Rust Prevention	cSt Scale oil/h2o/em min I/11/111 I/11/111 scalar PASS/FAIL	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892* ASTM D1500*	6.72 104 41/39/0 3.5 10 0 0.5	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color	cSt Scale oil/h2o/em min I/11/111 I/11/111 scalar PASS/FAIL	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892* ASTM D1500* ASTM D665*	6.72 104 41/39/0 3.5 10 0 0.5 PASS	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5 PASS	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5 PASS	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0 PASS
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color Rust Prevention Oxidation Test (RPVOT) SEDIMENT Pentane Insolubles	cSt Scale oil/h2o/em min I/11/111 I/11/111 scalar PASS/FAIL	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892* ASTM D1500* ASTM D1500* ASTM D665* ASTM D2272*	6.72 104 41/39/0 3.5 10 0 0.5 PASS 400	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5 PASS 725	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5 PASS 623	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0 PASS 632
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color Rust Prevention Oxidation Test (RPVOT) SEDIMENT	cSt Scale oil/h2o/em min I/11/111 I/11/111 scalar PASS/FAIL minutes	ASTM D7279(m) ASTM D2270° ASTM D1401° ASTM D3427° ASTM D892° ASTM D892° ASTM D1500° ASTM D665° ASTM D2272°	6.72 104 41/39/0 3.5 10 0 0.5 PASS 400	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5 PASS 725 Current	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5 PASS 623 ★ history1	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0 PASS 632 history2
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color Rust Prevention Oxidation Test (RPVOT) SEDIMENT Pentane Insolubles	CSt Scale oil/h2o/em min I/II/III I/II/III scalar PASS/FAIL minutes	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892* ASTM D1500* ASTM D665* ASTM D2272* method ASTM D893(m)*	6.72 104 41/39/0 3.5 10 0 0.5 PASS 400	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5 PASS 725 Current 0.036	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5 PASS 623 ▲ history1 0.157	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0 PASS 632 ► history2 0.066
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color Rust Prevention Oxidation Test (RPVOT) SEDIMENT Pentane Insolubles Toluene Insolubles SAMPLE IMAGES	CSt Scale oil/h2o/em min I/II/III I/II/III scalar PASS/FAIL minutes	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892* ASTM D1500* ASTM D1500* ASTM D265* ASTM D2272* method ASTM D893(m)*	6.72 104 41/39/0 3.5 10 0 0.5 PASS 400 Iimit/base	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5 PASS 725 Current 0.036 0.090	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5 PASS 623 ▲ history1 0.157 0.087	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0 PASS 632 ► history2 0.066 0.016
Visc @ 100°C Viscosity Index (VI) Separability Air Release Time Foam Tendency Foam Stability ASTM Color Rust Prevention Oxidation Test (RPVOT) SEDIMENT Pentane Insolubles Toluene Insolubles SAMPLE IMAGES	CSt Scale oil/h2o/em min I/II/III I/II/III scalar PASS/FAIL minutes	ASTM D7279(m) ASTM D2270* ASTM D1401* ASTM D3427* ASTM D892* ASTM D892* ASTM D1500* ASTM D1500* ASTM D265* ASTM D2272* method ASTM D893(m)*	6.72 104 41/39/0 3.5 10 0 0.5 PASS 400 Iimit/base	6.8 104 ● 9/0/71 (30) 5.10 ▲ 450/30/430 0/0/0 L1.5 PASS 725 Current 0.036 0.090	6.7 99 41/39/0 (20) 5.90 ▲ 460/30/285 0/0/0 <1.5 PASS 623 ▲ history1 0.157 0.087	6.7 97 41/39/0 (20) 6.20 ▲ 460/30/10 0/0/0 1.0 PASS 632 ► history2 0.066 0.016
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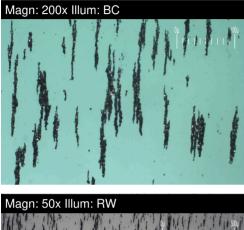
9) : . . Validity of results and interpretation are based on the sample and information as supplied.

F: (709)925-8220

FERROGRAPHY REPORT

Area [02437560] Machine Id A6 - Governor Oil Sump

Governor System Fluid PETRO CANADA TURBOFLO R&O 46 (6080 LTR)





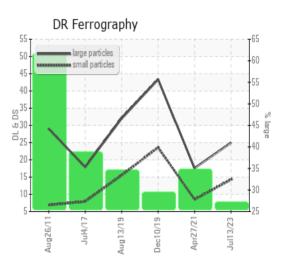
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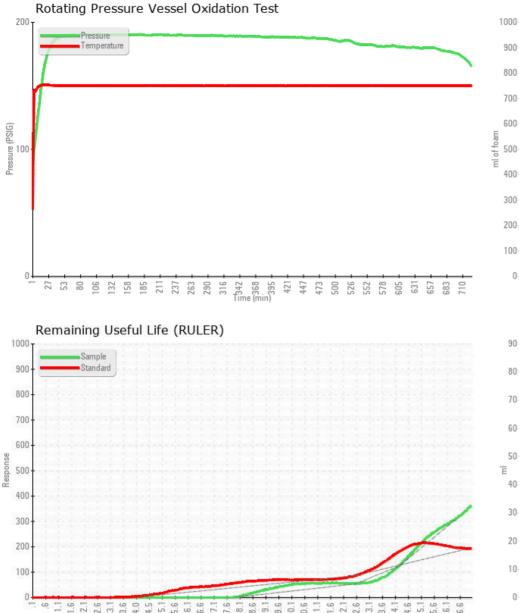


DR-FERROGRAP	PHY	method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		25.0	17.6	43.3
Small Particles		DR-Ferr*		14.3	8.5	23.6
Total Particles		DR-Ferr*	>	39.3	26.1	66.9
Large Particles Percentage	%	DR-Ferr*		27.2	34.9	29.4
Severity Index		DR-Ferr*		268	160	853
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		4	2	3
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		2	1	1
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*		1		1
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	1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1	1	1

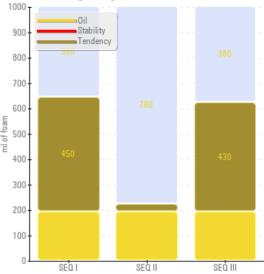
WEAR

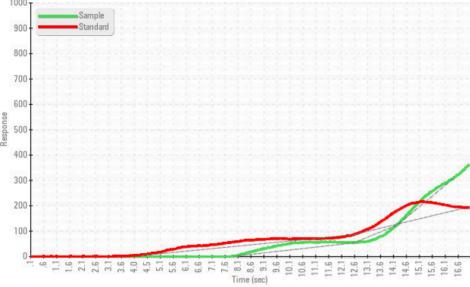
All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



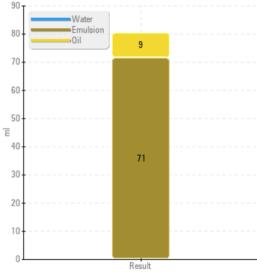


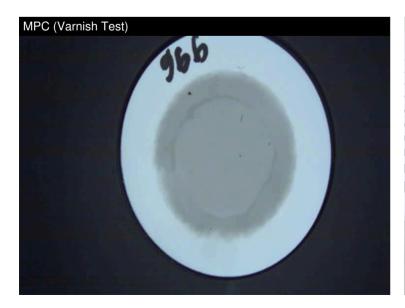
Foaming SEQ I/II/III





Water Separability





Report Id: CHUCHU [WCAMIS] 02579996 (Generated: 09/18/2023 20:25:47) Rev: 2

