



Machine Id
BIOFLO AWS 46

Component
Hydraulic System

Fluid
PETRO CANADA TURBOFLO R&O 46 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Confirm the source of the lubricant being utilized for top-up/fill. 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.

Contamination

There is a moderate amount of particulates (2 to 100 microns in size) present in the oil.

Fluid Condition

The viscosity of the oil is higher than normal, possibly indicating the addition of a heavier grade of oil. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2

Sample Number	Client Info		PC	---	---
Sample Date	Client Info		15 Feb 2024	---	---
Machine Age	hrs	Client Info	0	---	---
Oil Age	hrs	Client Info	0	---	---
Oil Changed	Client Info		N/A	---	---
Sample Status			ABNORMAL	---	---

CONTAMINATION method limit/base current history1 history2

Water	WC Method	>0.05	NEG	---	---
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WEAR METALS method limit/base current history1 history2

Iron	ppm	ASTM D5185(m)	>20	0	---	---
Chromium	ppm	ASTM D5185(m)	>20	0	---	---
Nickel	ppm	ASTM D5185(m)	>20	0	---	---
Titanium	ppm	ASTM D5185(m)		0	---	---
Silver	ppm	ASTM D5185(m)		0	---	---
Aluminum	ppm	ASTM D5185(m)	>20	<1	---	---
Lead	ppm	ASTM D5185(m)	>20	0	---	---
Copper	ppm	ASTM D5185(m)	>20	0	---	---
Tin	ppm	ASTM D5185(m)	>20	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	<1	---	---
Phosphorus	ppm	ASTM D5185(m)	3	▲ 147	---	---
Zinc	ppm	ASTM D5185(m)	0	2	---	---
Sulfur	ppm	ASTM D5185(m)		▲ 1307	---	---
Lithium	ppm	ASTM D5185(m)		<1	---	---

CONTAMINANTS method limit/base current history1 history2

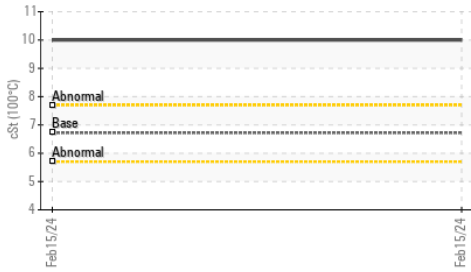
Silicon	ppm	ASTM D5185(m)	>15	<1	---	---
Sodium	ppm	ASTM D5185(m)		0	---	---
Potassium	ppm	ASTM D5185(m)	>20	<1	---	---

FLUID CLEANLINESS method limit/base current history1 history2

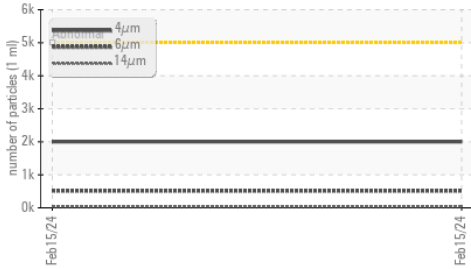
Particles >4µm	ASTM D7647	>5000	2000	---	---
Particles >6µm	ASTM D7647	>1300	515	---	---
Particles >14µm	ASTM D7647	>160	39	---	---
Particles >21µm	ASTM D7647	>40	18	---	---
Particles >38µm	ASTM D7647	>10	8	---	---
Particles >71µm	ASTM D7647	>3	▲ 7	---	---
Oil Cleanliness	ISO 4406 (c)	>19/17/14	18/16/12	---	---

OIL ANALYSIS REPORT

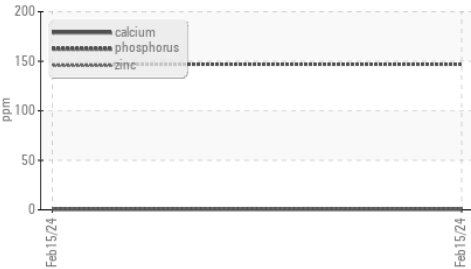
▲ Viscosity @ 100°C



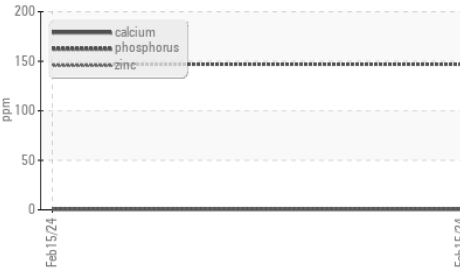
▲ Particle Trend



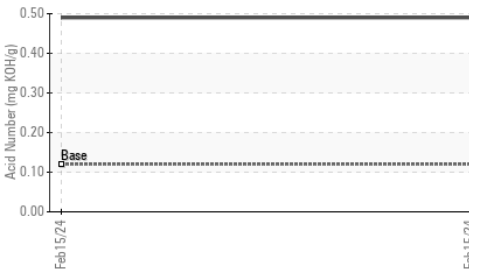
▲ Additives



▲ Additives



Acid Number



FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN) mg KOH/g	ASTM D974*	0.12	0.49	---	---

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*	>0.05	NEG	---	---
Free Water	scalar Visual*		NEG	---	---

FLUID PROPERTIES

method	limit/base	current	history1	history2	
Visc @ 40°C	cSt ASTM D7279(m)	44.4	45.0	---	---
Visc @ 100°C	cSt ASTM D7279(m)	6.72	▲ 10.0	---	---
Viscosity Index (VI)	Scale ASTM D2270*	104	▲ 217	---	---

SAMPLE IMAGES

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

GRAPHS

Ferrous Alloys



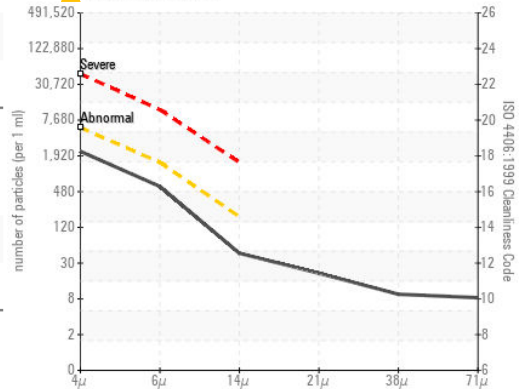
Non-ferrous Metals



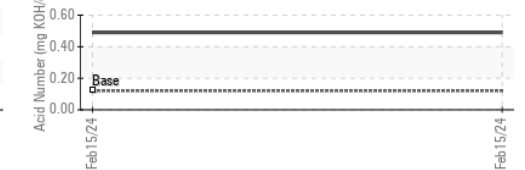
Viscosity @ 40°C



▲ Particle Count



Acid Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Petro-Canada Technical/Behshad Sabah**
Sample No. : PC **Received** : 16 Feb 2024
Lab Number : 02616227 **Tested** : 20 Feb 2024
Unique Number : 5733337 **Diagnosed** : 20 Feb 2024 - Kevin Marson
Test Package : IND 2 (Additional Tests: KV100, VI)

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.

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