



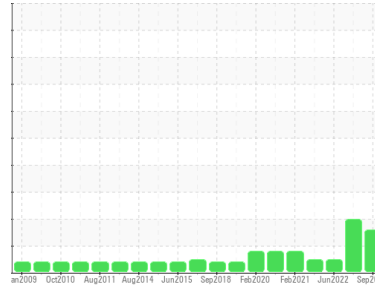
# PROBLEM SUMMARY

Sample Rating Trend

DIRT

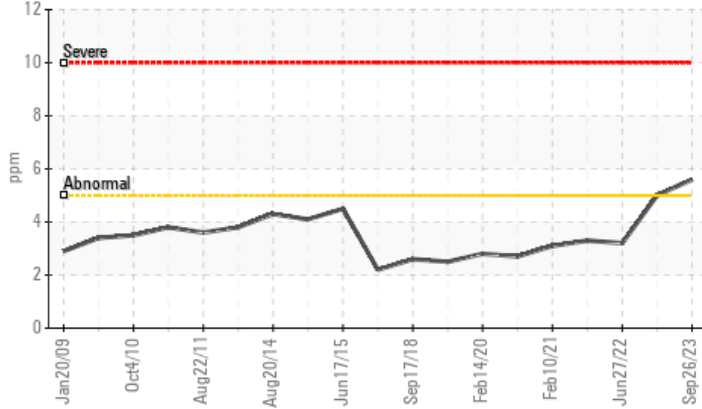


Area  
**BRUCE A/4/71310**  
 Machine Id  
**4-71310-P1-PM Up Brg Filler**  
 Component  
**Upper Bearing**  
 Fluid  
**PETRO CANADA TURBOFLO XL68 (--- GAL)**



## COMPONENT CONDITION SUMMARY

### ▲ Silicon (ppm)



## RECOMMENDATION

We advise that you check all areas where dirt can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. The fluid was specified as PETRO CANADA TURBOFLO XL68, however, a fluid match indicates that this fluid is ISO 68 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

## PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ABNORMAL	NORMAL
Silicon	ppm	ASTM D5185(m)	>5	▲ 6	▲ 5	3

Customer Id: BRUTIV  
 Sample No.: WC0815688  
 Lab Number: 02587170  
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Kevin Marson +1 (289)291-4644 x4644  
[Kevin.Marson@wearcheck.com](mailto:Kevin.Marson@wearcheck.com)

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

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	The fluid was specified as PETRO CANADA TURBOFLO XL68, however, a fluid match indicates that this fluid is ISO 68 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Dirt Access	---	---	?	We advise that you check all areas where dirt can enter the system.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

## HISTORICAL DIAGNOSIS



### 16 Jan 2023 Diag: Kevin Marson

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. The fluid was specified as PETRO CANADA TURBOFLO XL68, however, a fluid match indicates that this fluid is ISO 68 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. Elemental level of silicon (Si) above normal indicating ingress of seal material. The water content is negligible. Additive levels indicate the addition of a different brand, or type of 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.

view report



### 27 Jun 2022 Diag: Kevin Marson

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 10 Aug 2021 Diag: Kevin Marson

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

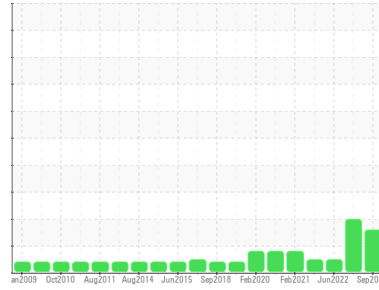
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



**DIRT**



Area  
**BRUCE A/4/71310**  
 Machine Id  
**4-71310-P1-PM Up Brg Filler**  
 Component  
**Upper Bearing**  
 Fluid  
**PETRO CANADA TURBOFLO XL68 (--- GAL)**

## DIAGNOSIS

### Recommendation

We advise that you check all areas where dirt can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. The fluid was specified as PETRO CANADA TURBOFLO XL68, however, a fluid match indicates that this fluid is ISO 68 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. 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 concentration of dirt present in the oil. The water content is negligible.

### Fluid Condition

Additive levels indicate the addition of a different brand, or type of 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.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>WC0815688</b>	WC0719039	WC0696824
Sample Date	Client Info	<b>26 Sep 2023</b>	16 Jan 2023	27 Jun 2022
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	NORMAL

## WEAR METALS

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

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<1	1
Barium	ppm	ASTM D5185(m)	<1	0
Molybdenum	ppm	ASTM D5185(m)	0	0
Manganese	ppm	ASTM D5185(m)	0	0
Magnesium	ppm	ASTM D5185(m)	0	0
Calcium	ppm	ASTM D5185(m)	1	0
Phosphorus	ppm	ASTM D5185(m)	5	4
Zinc	ppm	ASTM D5185(m) 0	1	<1
Sulfur	ppm	ASTM D5185(m)	<b>624</b>	▲ 640
Lithium	ppm	ASTM D5185(m)	<1	<1

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >5	▲ 6	▲ 5
Sodium	ppm	ASTM D5185(m) >5	<1	0
Potassium	ppm	ASTM D5185(m) >20	0	0
Water	%	ASTM D6304* >0.005	<b>0.00</b>	0.00
ppm Water	ppm	ASTM D6304* >50	<b>0.00</b>	0.00

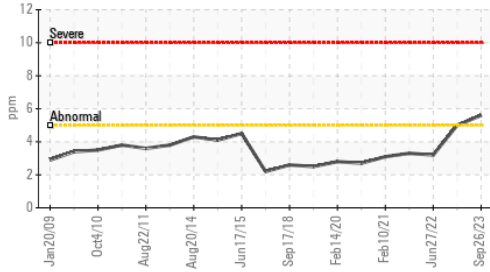
## FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	<b>740</b>	1105
Particles >6µm	ASTM D7647	>1300	<b>153</b>	161
Particles >14µm	ASTM D7647	>320	<b>11</b>	13
Particles >21µm	ASTM D7647	>80	<b>2</b>	4
Particles >38µm	ASTM D7647	>20	<b>0</b>	0
Particles >71µm	ASTM D7647	>4	<b>0</b>	0
Oil Cleanliness	ISO 4406 (c)	>19/17/15	<b>17/14/11</b>	17/15/11

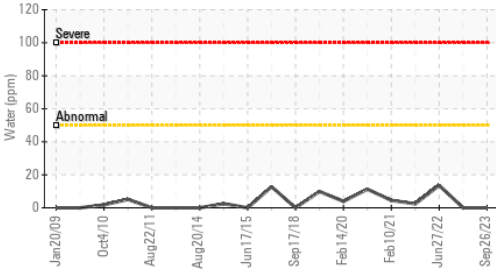


# OIL ANALYSIS REPORT

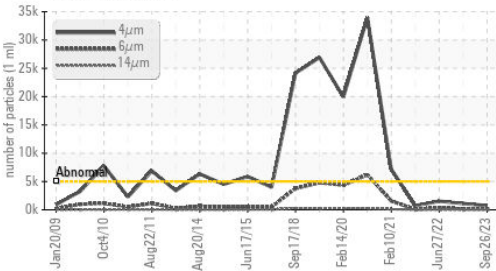
▲ Silicon (ppm)



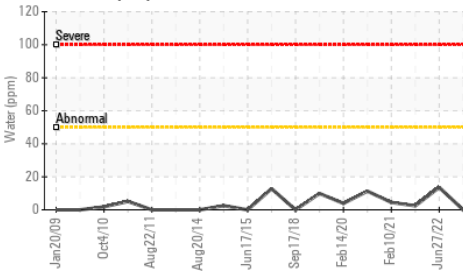
Water (KF)



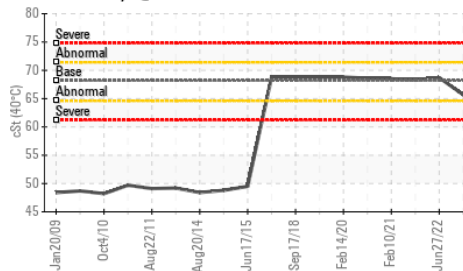
Particle Trend



Water (KF)



Viscosity @ 40°C



FLUID DEGRADATION	method	limit/base	current	history1	history2
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Acid Number (AN)	mg KOH/g	ASTM D974*	0.04	<b>0.08</b>	0.08	0.11
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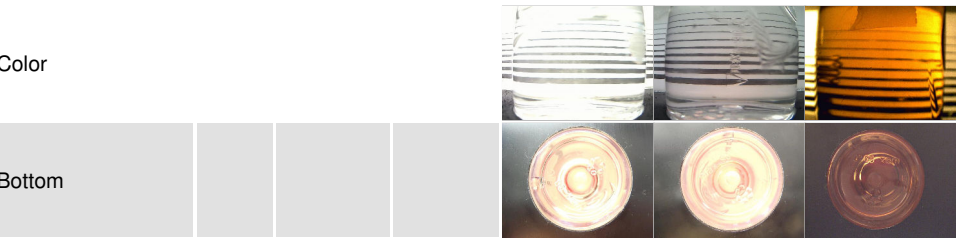
VISUAL	method	limit/base	current	history1	history2
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White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.005	<b>NEG</b>	NEG	NEG
Free Water	scalar	Visual*		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
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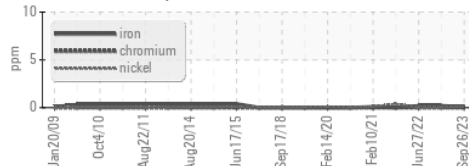
Visc @ 40°C	cSt	ASTM D7279(m)	68.17	<b>65.8</b>	65.7	68.7
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SAMPLE IMAGES	method	limit/base	current	history1	history2
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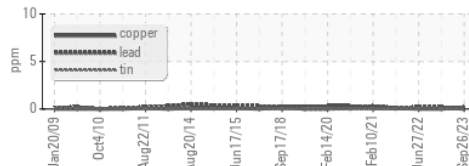


### GRAPHS

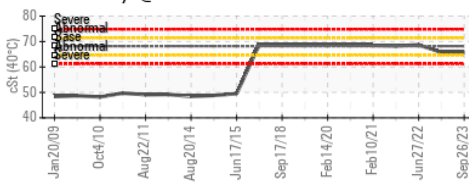
Ferrous Alloys



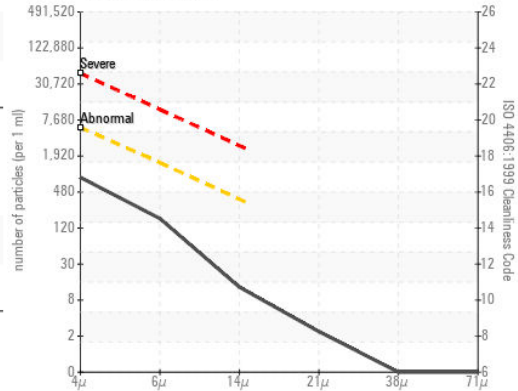
Non-ferrous Metals



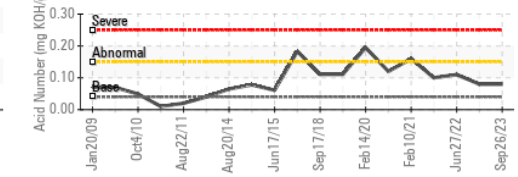
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory Sample No.**

**Lab Number**

**Unique Number**

**Test Package**

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

: WC0815688

: **02587170**

: 5656236

: IND 2 ( Additional Tests: TAN Man )

**Received**

: 05 Oct 2023

**Diagnosed**

: 06 Oct 2023

**Diagnostician**

: Kevin Marson

**Bruce Power - Bruce A PdM**

P.O.Box 1540, 177 Tie Road, RM-222 U2 Column 2N11 615'

Tiverton, ON

CA N0G 2T0

Contact: Pierre Adouki

pierre.adouki@brucepower.com

T: (519)361-2673

F:

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.