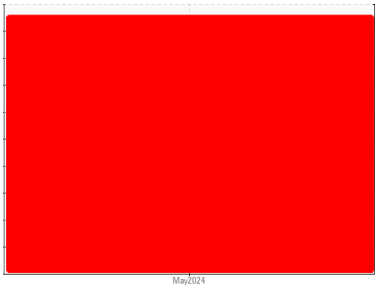
PROBLEM SUMMARY

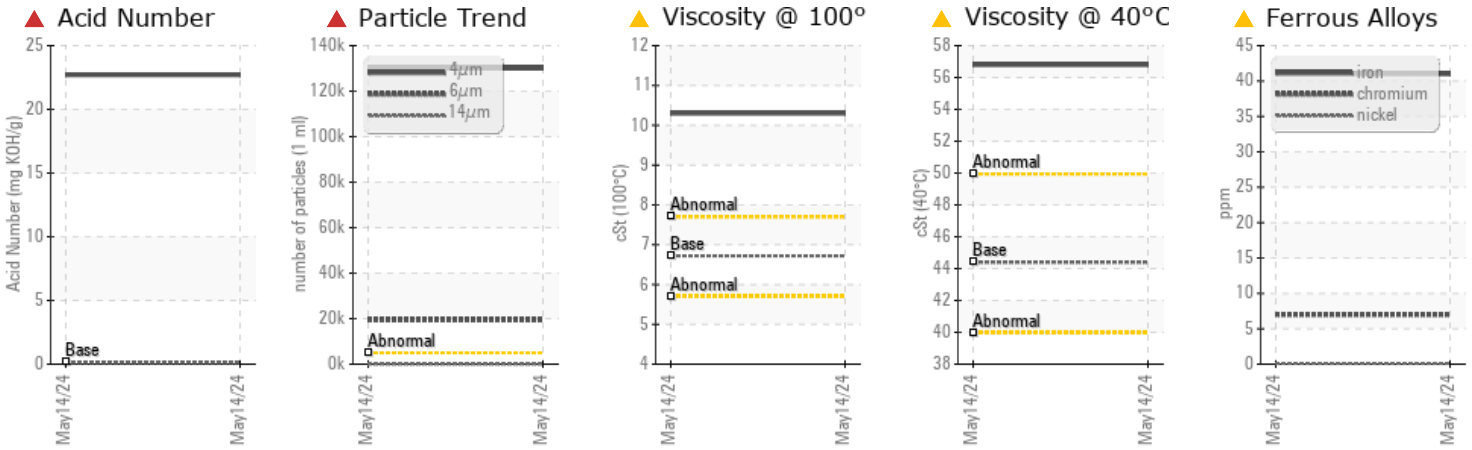
Sample Rating Trend



DEGRADATION

Machine Id
SKPR P-12
Component
Hydraulic System
Fluid
PETRO CANADA TURBOFLO R&O 46 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

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. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	---	---
Iron	ppm	ASTM D5185(m)	>20	▲ **41**	---	---
Particles >4µm		ASTM D7647	>5000	▲ **130017**	---	---
Particles >6µm		ASTM D7647	>1300	▲ **19424**	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **24/21/14**	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.12	▲ **22.7**	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	44.4	▲ **56.8**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	6.72	▲ **10.3**	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	104	▲ **172**	---	---
PrtFilter					*no image*	*no image*

Customer Id: PCA_129713
Sample No.: PC
Lab Number: 02635707
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

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

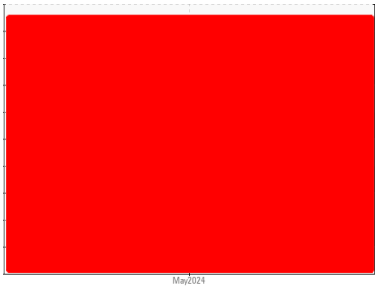
RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
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 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.

HISTORICAL DIAGNOSIS

OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Machine Id
SKPR P-12
Component
Hydraulic System
Fluid
PETRO CANADA TURBOFLO R&O 46 (--- GAL)

DIAGNOSIS

Recommendation

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. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

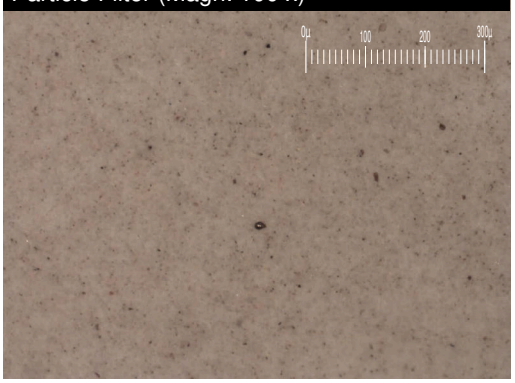
Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition

The oil viscosity is higher than normal. The high AN level of the oil indicates the presence of oxi-polymerized products. The AN level is much higher than the recommended limit. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Particle Filter (Magn: 100 x)



SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC**	---	---
Sample Date		Client Info		**14 May 2024**	---	---
Machine Age	hrs	Client Info		**0**	---	---
Oil Age	hrs	Client Info		**0**	---	---
Oil Changed		Client Info		**N/A**	---	---
Sample Status				**SEVERE**	---	---

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.05	**NEG**	---	---

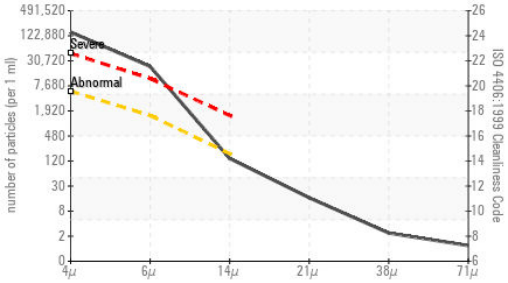
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	---	---
Iron	ppm	ASTM D5185(m)	>20	▲ **41**	---	---
Chromium	ppm	ASTM D5185(m)	>20	**7**	---	---
Nickel	ppm	ASTM D5185(m)	>20	**<1**	---	---
Titanium	ppm	ASTM D5185(m)		**<1**	---	---
Silver	ppm	ASTM D5185(m)		**0**	---	---
Aluminum	ppm	ASTM D5185(m)	>20	**<1**	---	---
Lead	ppm	ASTM D5185(m)	>20	**0**	---	---
Copper	ppm	ASTM D5185(m)	>20	**4**	---	---
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)		**1**	---	---
Barium	ppm	ASTM D5185(m)		**<1**	---	---
Molybdenum	ppm	ASTM D5185(m)		**0**	---	---
Manganese	ppm	ASTM D5185(m)		**<1**	---	---
Magnesium	ppm	ASTM D5185(m)		**3**	---	---
Calcium	ppm	ASTM D5185(m)	0	● **39**	---	---
Phosphorus	ppm	ASTM D5185(m)	3	● **78**	---	---
Zinc	ppm	ASTM D5185(m)	0	**9**	---	---
Sulfur	ppm	ASTM D5185(m)		**684**	---	---
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)		**2**	---	---
Potassium	ppm	ASTM D5185(m)	>20	**1**	---	---

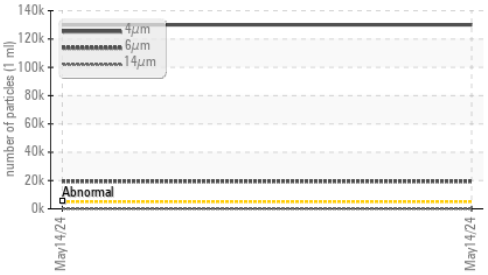
OIL ANALYSIS REPORT

Particle Count

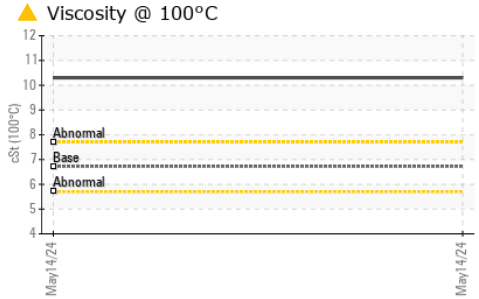


Acid Number

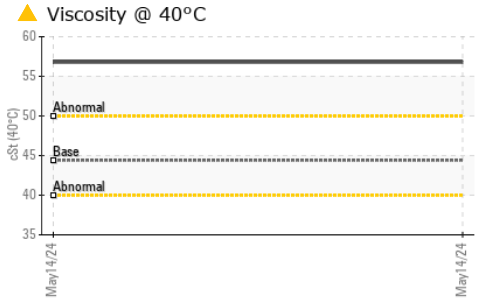
Particle Trend



Viscosity @ 100°C



Viscosity @ 40°C

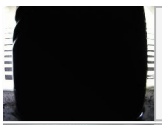
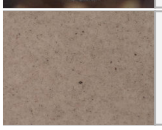


FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **130017**	---	---
Particles >6µm		ASTM D7647	>1300	▲ **19424**	---	---
Particles >14µm		ASTM D7647	>160	**122**	---	---
Particles >21µm		ASTM D7647	>40	**14**	---	---
Particles >38µm		ASTM D7647	>10	**2**	---	---
Particles >71µm		ASTM D7647	>3	**1**	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **24/21/14**	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.12	▲ **22.7**	---	---

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**VLITE**	---	---
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	▲ **56.8**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	6.72	▲ **10.3**	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	104	▲ **172**	---	---

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

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Petro-Canada Technical/Behshad Sabah**
Sample No. : PC **Received** : 15 May 2024
Lab Number : 02635707 **Tested** : 21 May 2024 Mississauga, ON
Unique Number : 5776860 **Diagnosed** : 21 May 2024 - Kevin Marson CA L5J 1K2
Test Package : IND 2 (Additional Tests: Bottom, BottomAnalysis, FilterPatch, KV100, PQ, PrtFilter, TAN M, VI) Contact: Behshad Sabah

To discuss this sample report, contact Customer Service at 1-800-268-2131. Behshad.Sabah@hfsinclair.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (905)716-2158
Validity of results and interpretation are based on the sample and information as supplied. F: (905)403-6740