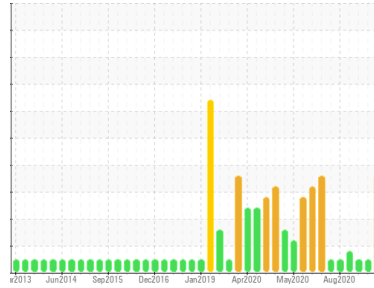


PROBLEM SUMMARY

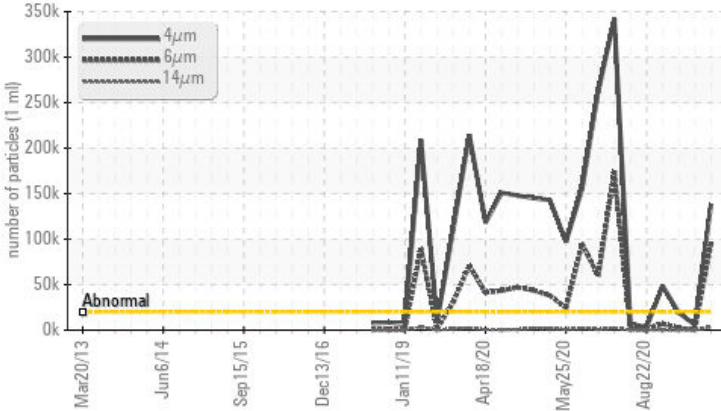
Sample Rating Trend



Area
Fwd Machinery Space [75001803]
Machine Id
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)
Component
Gearbox
Fluid
PETRO CANADA PREMIUM R&O 220 (98 LTR)

COMPONENT CONDITION SUMMARY

Particle Trend



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 you service the filters on this component. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	NORMAL	NORMAL
Particles >4µm	ASTM D7647	>20000	▲ 138204	5964	19072
Particles >6µm	ASTM D7647	>5000	● 94136	413	2369
Particles >14µm	ASTM D7647	>640	▲ 3463	11	72
Oil Cleanliness	ISO 4406 (c)	>21/19/16	● 24/24/19	20/16/11	21/18/13

Customer Id: TERHAM
Sample No.: PC
Lab Number: 02545170
Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
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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 Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
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 Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

25 Oct 2021 Diag: Bill Quesnel

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. 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



13 Nov 2020 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. 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



17 Sep 2020 Diag: Kevin Marson

ISO



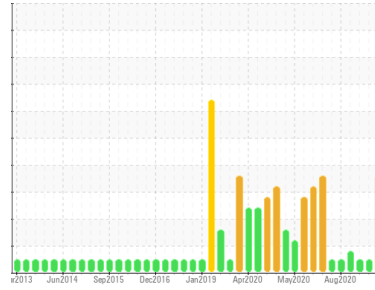
We recommend you service the filters on this component. We recommend an early resample to monitor this condition. All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are notably high. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report





Area
Fwd Machinery Space [75001803]
Machine Id
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)
Component
Gearbox
Fluid
PETRO CANADA PREMIUM R&O 220 (98 LTR)



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 you service the filters on this component. Resample in 30-45 days to monitor this situation.

Wear
All component wear rates are normal.

Contamination
Particles >6µm are severely high. Oil Cleanliness are severely high. Particles >14µm are abnormally high. Particles >4µm are abnormally high.

Fluid Condition
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	PC	PC0040402	PC0035711
Sample Date	Client Info	30 Jan 2023	25 Oct 2021	13 Nov 2020
Machine Age	hrs	0	0	0
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		SEVERE	NORMAL	NORMAL

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	1	0	0
Iron	ppm ASTM D5185(m) >150	2	1	1
Chromium	ppm ASTM D5185(m) >10	0	0	0
Nickel	ppm ASTM D5185(m) >10	<1	0	<1
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	0	<1
Aluminum	ppm ASTM D5185(m) >5	0	0	<1
Lead	ppm ASTM D5185(m) >65	1	<1	<1
Copper	ppm ASTM D5185(m) >80	0	<1	<1
Tin	ppm ASTM D5185(m) >8	0	0	0
Antimony	ppm ASTM D5185(m) >5	<1	0	0
Vanadium	ppm ASTM D5185(m)	0	0	0
Beryllium	ppm ASTM D5185(m)	0	0	0
Cadmium	ppm ASTM D5185(m)	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	2	2	1
Barium	ppm ASTM D5185(m)	0	0	0
Molybdenum	ppm ASTM D5185(m)	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	0
Magnesium	ppm ASTM D5185(m) 0	0	0	0
Calcium	ppm ASTM D5185(m)	0	1	<1
Phosphorus	ppm ASTM D5185(m) 0	19	8	9
Zinc	ppm ASTM D5185(m)	2	1	<1
Sulfur	ppm ASTM D5185(m) 500	1780	6476	7307
Lithium	ppm ASTM D5185(m)	<1	<1	<1

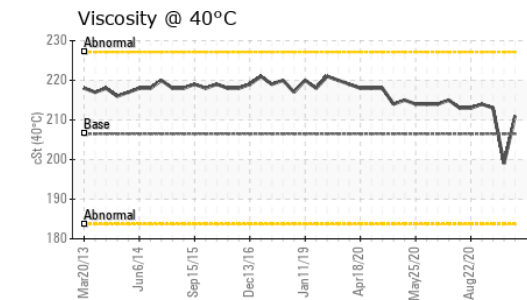
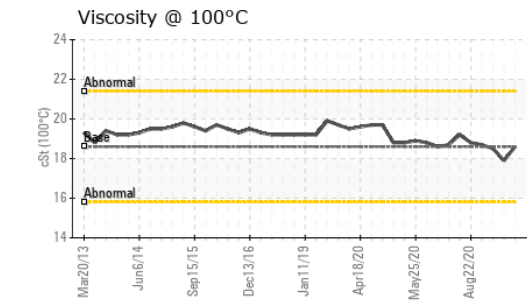
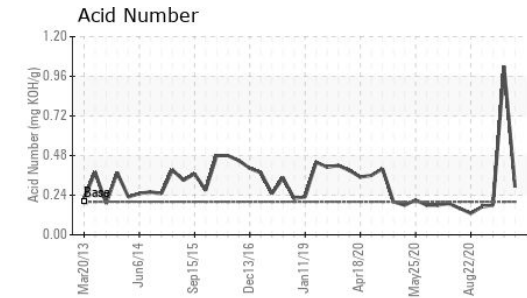
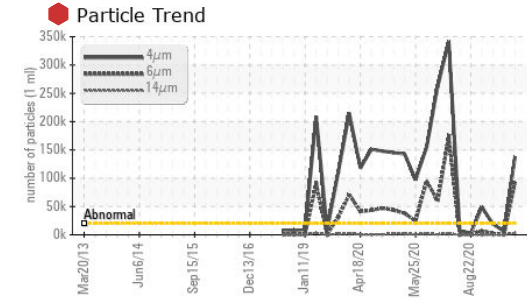
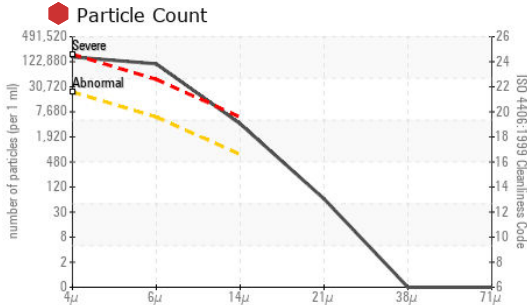
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >20	1	<1	3
Sodium	ppm ASTM D5185(m)	0	<1	<1
Potassium	ppm ASTM D5185(m) >20	0	<1	<1

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	▲ 138204	5964	19072
Particles >6µm	ASTM D7647 >5000	● 94136	413	2369
Particles >14µm	ASTM D7647 >640	▲ 3463	11	72
Particles >21µm	ASTM D7647 >160	55	3	12
Particles >38µm	ASTM D7647 >40	0	0	0
Particles >71µm	ASTM D7647 >10	0	0	0
Oil Cleanliness	ISO 4406 (c) >21/19/16	● 24/24/19	20/16/11	21/18/13

OIL ANALYSIS REPORT



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02545170
Unique Number : 5542175
Test Package : MAR 2 (Additional Tests: KV100, PrtCount, TAN Man, VI)

Received : 14 Mar 2023
Diagnosed : 16 Mar 2023
Diagnostician : Kevin Marson

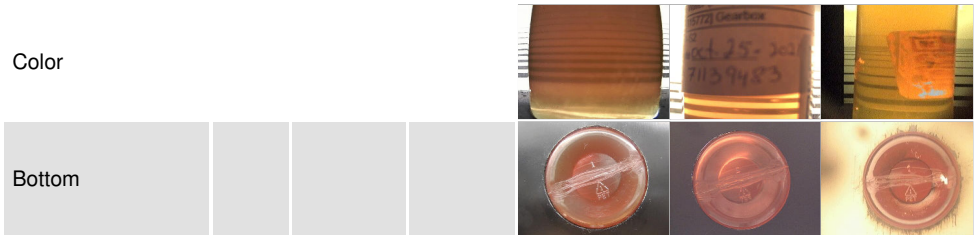
To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.20	0.29	1.02	0.18

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*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	206.5	211	199	213
Visc @ 100°C	cSt	ASTM D7279(m)	18.6	18.6	17.9	18.5
Viscosity Index (VI)	Scale	ASTM D2270*	96	97	97	96

SAMPLE IMAGES



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