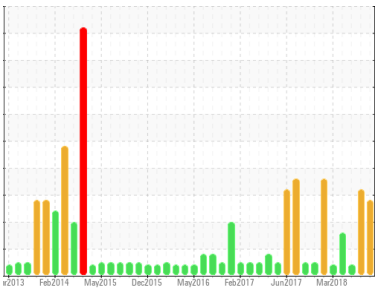
PROBLEM SUMMARY

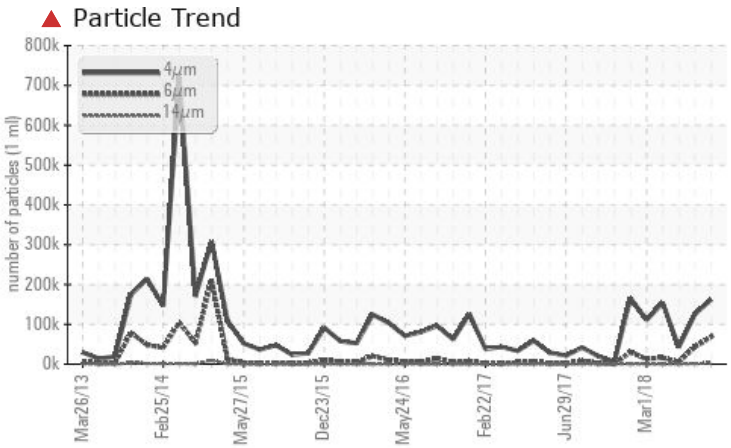
Area
1 White Oil/029 #2HTU/P Pump/401A 2 Stage HTU Charge
Machine Id
N/A 29GP401A
Component
Gearbox
Fluid
PETRO CANADA ENDURATEX SYNTHETIC EP 220 (50 LTR)

Sample Rating Trend



ISO

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check all areas where contaminants 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. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	ATTENTION
Particles >6µm		ASTM D7647	>5000	▲ **68496**	▲ 43153	● 5626
Particles >14µm		ASTM D7647	>640	▲ **2566**	● 1276	370
Particles >21µm		ASTM D7647	>160	▲ **563**	● 253	141
Oil Cleanliness		ISO 4406 (c)	>--/19/16	▲ **25/23/19**	▲ 24/23/17	● 23/20/16

Customer Id: PETMIS
Sample No.: WC22130190
Lab Number: 02273719
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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	MISSED	Jun 01 2020	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	MISSED	Jun 01 2020	?	Resample in 30-45 days to monitor this situation.
Check Breathers	MISSED	Jun 01 2020	?	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	MISSED	Jun 01 2020	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	MISSED	Jun 01 2020	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

ISO

19 Dec 2018 Diag: Bill Quesnel

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. 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 advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Resample in 30-45 days to monitor this situation. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of laboratory tests is based on sample, as received from client. Source of sample and sampling technique cannot be verified.All component wear rates are normal. Particles >6µm are severely high. Particles >6µm are severely high.. Particles >14µm are notably high. Particles >21µm are notably high. Moderate concentration of visible dirt/debris present in the oil. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. 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

ISO

23 Aug 2018 Diag: Wes Davis

We recommend you service the filters on this component. Resample at the next service interval to monitor.All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

ADDITIVES

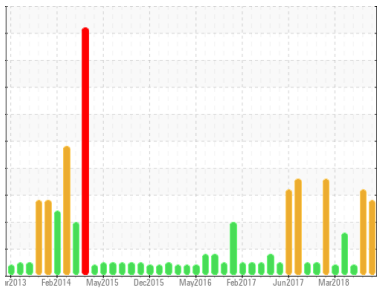
28 May 2018 Diag: Kevin Marson

We recommend that you change the oil. 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 >6µm are abnormally high. The water content is negligible. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. The white residue present in the sample is oil additive precipitate. 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



ISO

Area
1 White Oil/029 #2HTU/P Pump/401A 2 Stage HTU Charge
Machine Id
N/A 29GP401A
Component
Gearbox
Fluid
PETRO CANADA ENDURATEX SYNTHETIC EP 220 (50 LTR)

DIAGNOSIS

Recommendation
We advise that you check all areas where contaminants 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. Resample in 30-45 days to monitor this situation.

Wear
All component wear rates are normal.

Contamination
Particles >6µm are severely high. Particles >14µm are abnormally high. Particles >21µm are abnormally high. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition
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		**WC22130190**	WC22129695	WC22129277
Sample Date		Client Info		**17 Mar 2019**	19 Dec 2018	23 Aug 2018
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**	SEVERE	ATTENTION

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>200	**25**	7	15
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>15	**<1**	<1	0
Titanium	ppm	ASTM D5185(m)		**<1**	<1	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	**<1**	0	<1
Lead	ppm	ASTM D5185(m)	>100	**0**	<1	<1
Copper	ppm	ASTM D5185(m)	>200	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)	>25	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**<1**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	<1
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	<1

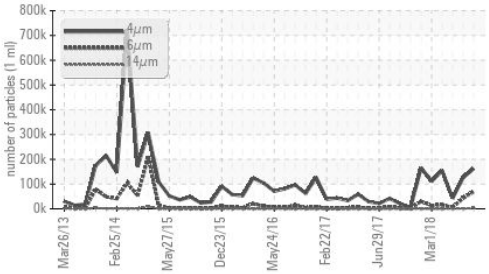
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	33	**25**	29	10
Barium	ppm	ASTM D5185(m)	5	**0**	0	<1
Molybdenum	ppm	ASTM D5185(m)		**<1**	0	<1
Manganese	ppm	ASTM D5185(m)		**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	5	**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)	5	**<1**	<1	2
Phosphorus	ppm	ASTM D5185(m)	437	**402**	402	403
Zinc	ppm	ASTM D5185(m)	5	**1**	1	4
Sulfur	ppm	ASTM D5185(m)	5000	**4837**	4967	5132
Lithium	ppm	ASTM D5185(m)		**0**	0	0

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**1**	<1	<1
Sodium	ppm	ASTM D5185(m)		**<1**	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	<1

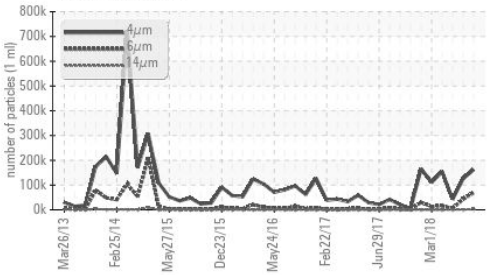
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**162272**	125605	42571
Particles >6µm		ASTM D7647	>5000	▲ **68496**	▲ 43153	● 5626
Particles >14µm		ASTM D7647	>640	▲ **2566**	● 1276	370
Particles >21µm		ASTM D7647	>160	▲ **563**	● 253	141
Particles >38µm		ASTM D7647	>40	**10**	5	9
Particles >71µm		ASTM D7647	>10	**0**	1	1
Oil Cleanliness		ISO 4406 (c)	>--/19/16	▲ **25/23/19**	▲ 24/23/17	● 23/20/16

OIL ANALYSIS REPORT

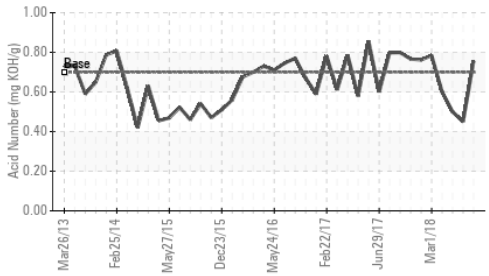
Particle Trend



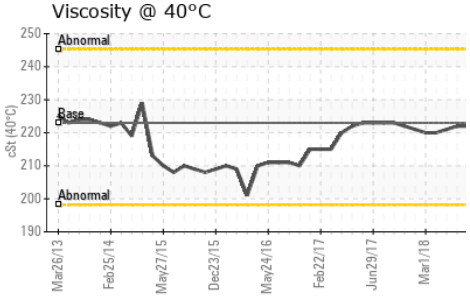
Particle Trend



Acid Number



Viscosity @ 40°C

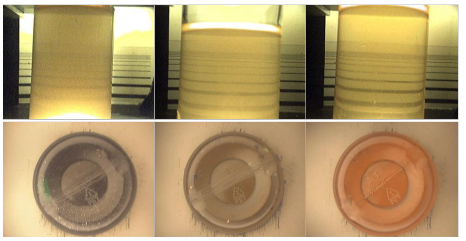


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.7	**0.755**	0.45	0.50

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**LTMOD**	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	**VLITE**	▲ MODER	VLITE
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	.5%
Free Water	scalar	Visual*		**NEG**	NEG	.2%

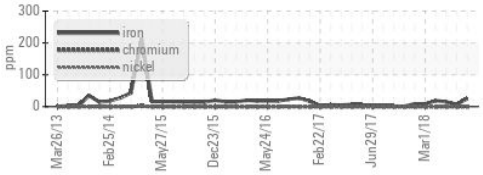
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	223	**222**	222	221

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

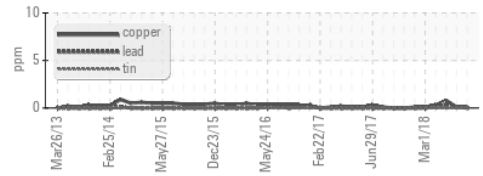


GRAPHS

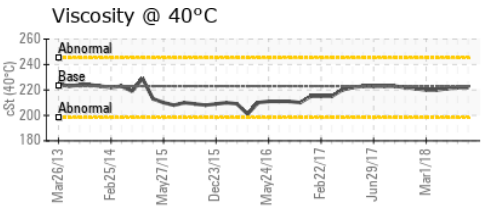
Ferrous Alloys



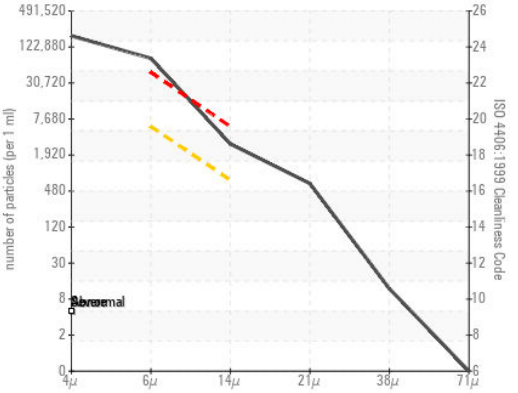
Non-ferrous Metals



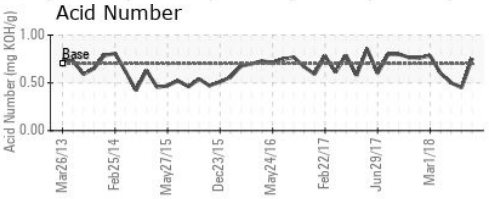
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC22130190 **Received** : 18 Mar 2019
Lab Number : 02273719 **Tested** : 19 Mar 2019
Unique Number : 4836955 **Diagnosed** : 19 Mar 2019 - Wes Davis
Test Package : IND 2 (Additional Tests: TAN Man)

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.

Petro Canada Lubricants Inc.
385 Southdown Road
Mississauga, ON
CA L5J 2Y3
Contact: Kyle Blezard
kyle.blezard@HFSinclair.com
T: (905)403-6768
F: (905)822-6025