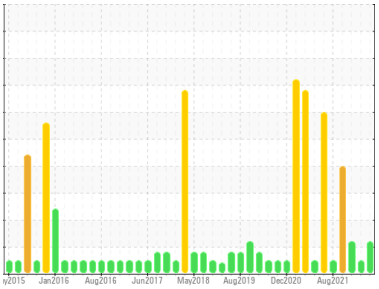
PROBLEM SUMMARY

Sample Rating Trend

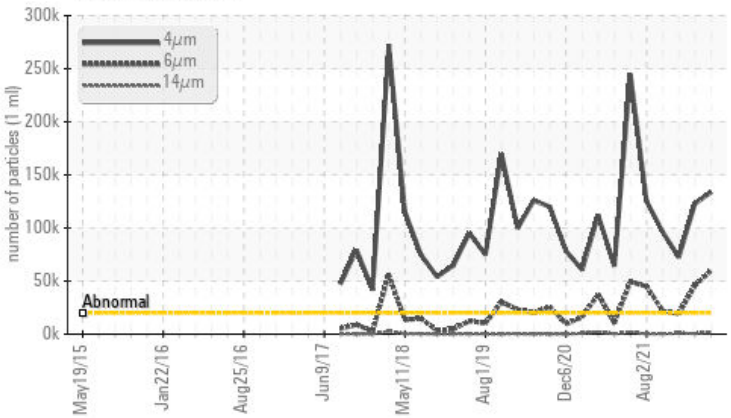


ISO

Area
Cranes
Machine Id
Crane - Mid Ship Luffing Winch Gearbox (S/N Sample Tag MA-04002-S6)
Component
Gearbox
Fluid
PETRO CANADA GEARLUBE TOS 80W90 (40 LTR)

COMPONENT CONDITION SUMMARY

Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	NORMAL	ATTENTION
Particles >14µm		ASTM D7647	>640	▲ **1747**	532	▲ 885
Particles >21µm		ASTM D7647	>160	▲ **259**	55	▲ 267
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/23/18**	24/23/16	▲ 23/21/17

Customer Id: TERHAM
Sample No.: PC0061647
Lab Number: 02582288
Test Package: MAR 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 Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

14 Jun 2023 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

02 May 2023 Diag: Kevin Marson

ISO

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 AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

05 Oct 2021 Diag: Kevin Marson

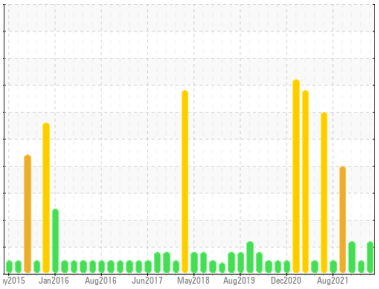
DEGRADATION

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. We recommend an early resample to monitor this condition.All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. The high AN level of the oil indicates the presence of oxi-polymerized products. The AN level is much higher than the recommended limit. The oil is no longer serviceable.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
Cranes
Machine Id
Crane - Mid Ship Luffing Winch Gearbox (S/N Sample Tag MA-04002-S6)
Component
Gearbox
Fluid
PETRO CANADA GEARLUBE TOS 80W90 (40 LTR)

DIAGNOSIS

Recommendation
We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

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

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		**PC0061647**	PC0052193	PC0040554
Sample Date		Client Info		**12 Aug 2023**	14 Jun 2023	02 May 2023
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				**ABNORMAL**	NORMAL	ATTENTION

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

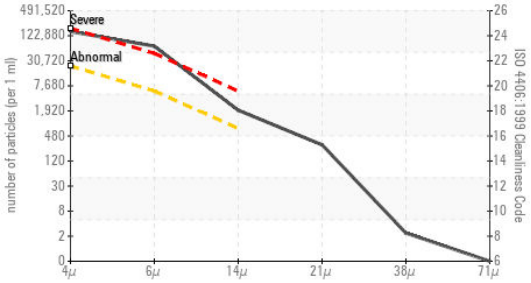
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	240	**263**	230	216
Barium	ppm	ASTM D5185(m)	1	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0.0	**0**	<1	0
Manganese	ppm	ASTM D5185(m)		**0**	0	<1
Magnesium	ppm	ASTM D5185(m)	2	**<1**	2	1
Calcium	ppm	ASTM D5185(m)	6	**3**	5	5
Phosphorus	ppm	ASTM D5185(m)	1000	**1130**	1012	993
Zinc	ppm	ASTM D5185(m)	3	**5**	16	31
Sulfur	ppm	ASTM D5185(m)	19400	**18522**	17483	17736
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**15**	4	3
Sodium	ppm	ASTM D5185(m)		**<1**	4	<1
Potassium	ppm	ASTM D5185(m)	>20	**<1**	3	<1

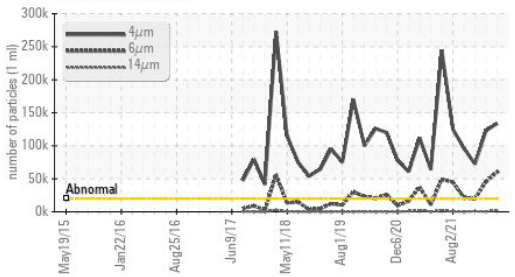
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**133780**	122773	72372
Particles >6µm		ASTM D7647	>5000	**59708**	45602	19244
Particles >14µm		ASTM D7647	>640	▲ **1747**	532	▲ 885
Particles >21µm		ASTM D7647	>160	▲ **259**	55	▲ 267
Particles >38µm		ASTM D7647	>40	**2**	4	17
Particles >71µm		ASTM D7647	>10	**0**	3	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/23/18**	24/23/16	▲ 23/21/17

OIL ANALYSIS REPORT

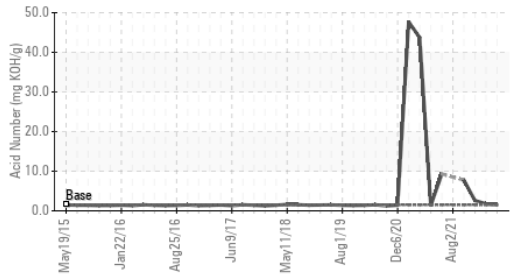
Particle Count



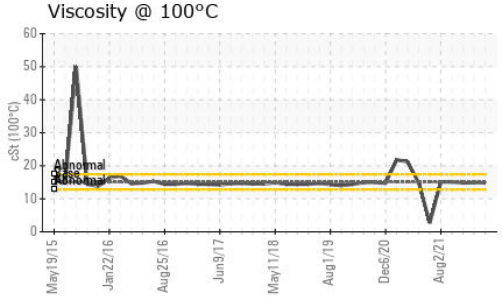
Particle Trend



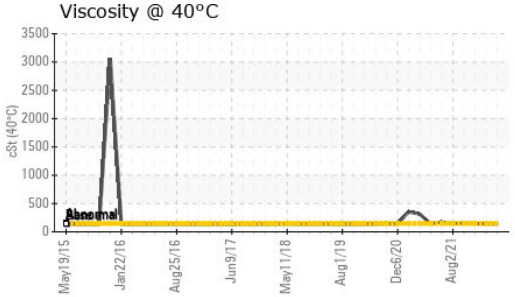
Acid Number



Viscosity @ 100°C



Viscosity @ 40°C

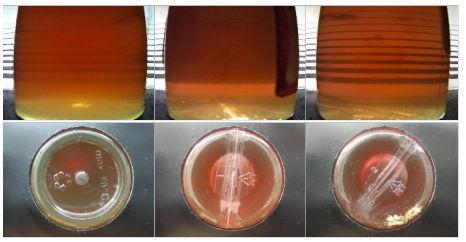


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.5	**1.55**	1.77	2.58

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	VLITE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**HAZY**	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)	140.3	**139**	143	143
Visc @ 100°C	cSt	ASTM D7279(m)	15.05	**14.8**	14.9	14.8
Viscosity Index (VI)	Scale	ASTM D2270*	109	**106**	104	103

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0061647 **Received** : 13 Sep 2023
Lab Number : 02582288 **Diagnosed** : 15 Sep 2023
Unique Number : 5643353 **Diagnostician** : Kevin Marson
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, 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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