

PROBLEM SUMMARY

Sample Rating Trend

ISO

A

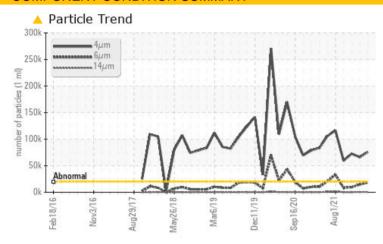
Cranes

Crane - Aft - Slewing Gearbox N°2 (S/N Sample Tag MA-04001-S8)

Gearbox

PETRO CANADA GEARLUBE TOS 80W90 (8 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS								
Sample Status			ATTENTION	NORMAL	NORMAL			
Particles >14μm	ASTM D7647	>640	△ 674	567	167			
Oil Cleanliness	ISO 4406 (c)	>21/19/16	23/21/17	23/21/16	23/20/15			

Customer Id: TERHAM Sample No.: PC0039820 Lab Number: 02576421 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.

HISTORICAL DIAGNOSIS

16 May 2023 Diag: Kevin Marson





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.



29 Nov 2021 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.



20 Sep 2021 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.





OIL ANALYSIS REPORT

ISO

Cranes

Crane - Aft - Slewing Gearbox N°2 (S/N Sample Tag MA-04001-S8)

Gearbox

PETRO CANADA GEARLUBE TOS 80W90 (8 LTR)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

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

Fluid Condition

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



Sample Number		Client Info		PC0039820	PC	PC0039837
Sample Date		Client Info		16 Aug 2023	16 May 2023	29 Nov 2021
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				ATTENTION	NORMAL	NORMAL
WEAR METAL	S	method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>150	9	7	8
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	2	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		<1	0	<1
Aluminum	ppm	ASTM D5185(m)	>5	<1	<1	0
Lead	ppm	ASTM D5185(m)	>65	0	0	<1
Copper	ppm	ASTM D5185(m)	>80	2	2	2
Tin	ppm	ASTM D5185(m)	>8	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	<1	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
4.0.0.10.70.70.0			12 24 0			
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	240	current 215	history1 236	history2 226
	ppm ppm					
Boron		ASTM D5185(m)	240	215	236	226
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	240	215 2	236	226
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	240	215 2 0	236 1 0	226 2 0
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	240 1 0.0	215 2 0 <1	236 1 0 <1	226 2 0 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	240 1 0.0	215 2 0 <1 1	236 1 0 <1 <1	226 2 0 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	240 1 0.0 2 6	215 2 0 <1 1 23	236 1 0 <1 <1 27	226 2 0 <1 <1 25
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000	215 2 0 <1 1 23 1036	236 1 0 <1 <1 27 1087	226 2 0 <1 <1 25 998
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3	215 2 0 <1 1 23 1036 224	236 1 0 <1 <1 27 1087 244	226 2 0 <1 <1 25 998 164
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3	215 2 0 <1 1 23 1036 224 21601	236 1 0 <1 <1 27 1087 244 24528	226 2 0 <1 <1 25 998 164 22499
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1 000 3 19400	215 2 0 <1 1 23 1036 224 21601 <1	236 1 0 <1 <1 27 1087 244 24528 <1 history1 3	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3 19400	215 2 0 <1 1 23 1036 224 21601 <1 current	236 1 0 <1 <1 27 1087 244 24528 <1 history1	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3 19400	215 2 0 <1 1 23 1036 224 21601 <1 current 3	236 1 0 <1 <1 27 1087 244 24528 <1 history1 3	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3 19400 limit/base >20	215 2 0 <1 1 23 1036 224 21601 <1 current 3 <1	236 1 0 <1 <1 27 1087 244 24528 <1 history1 3 <1	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANL Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3 19400 limit/base >20 limit/base >200 >20000	215 2 0 <1 1 1 23 1036 224 21601 <1 current 3 <1 <1	236 1 0 <1 <1 <1 27 1087 244 24528 <1 history1 3 <1 0 history1 65983	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3 1 <1 history2 72672
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANL Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	240 1 0.0 2 6 1000 3 19400 limit/base >20 limit/base	215 2 0 <1 1 23 1036 224 21601 <1 current 3 <1 current 	236 1 0 <1 <1 27 1087 244 24528 <1 history1 3 <1 0 history1	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3 1 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANL Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647	240 1 0.0 2 6 1000 3 19400 limit/base >20	215 2 0 <1 1 1 23 1036 224 21601 <1 current 3 <1 <1 current 75779 18330 674	236 1 0 <1 <1 <1 27 1087 244 24528 <1 history1 3 <1 0 history1 65983 14665 567	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3 1 <1 history2 72672 9593 167
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANL Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	240 1 0.0 2 6 1000 3 19400 limit/base >20	215 2 0 <1 1 1 23 1036 224 21601 <1 current 3 <1 <1 current 75779 18330	236 1 0 <1 <1 <1 27 1087 244 24528 <1 history1 3 <1 0 history1 65983 14665	226 2 0 <1 <1 <1 25 998 164 22499 <1 history2 3 1 <1 history2 72672 9593

ASTM D7647 >10

ISO 4406 (c) >21/19/16 **A 23/21/17**

10

Particles >71µm

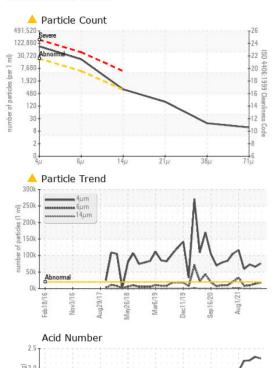
Oil Cleanliness

23/21/16

23/20/15



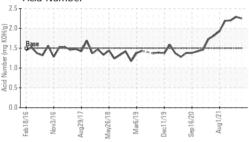
OIL ANALYSIS REPORT



FLUID DEGRAD	OITAC	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.5	2.25	2.29	2.20
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	VLITE	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 PROPE	RTIES	method	limit/base	current	history1	history2

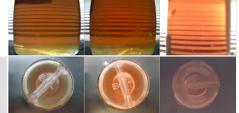
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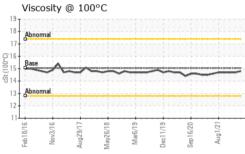
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	140.3	138	139	139
Visc @ 100°C	cSt	ASTM D7279(m)	15.05	14.8	14.7	14.7
Viscosity Index (VI)	Scale	ASTM D2270*	109	107	105	105
SAMPLE IMAG	ES	method	limit/base	current	history1	history2

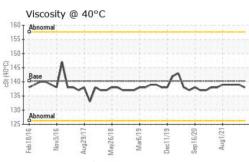


Color











CALA ISO 17025:2017 Accredited

Laboratory Sample No. Lab Number **Unique Number**

: PC0039820 : 02576421 : 5629481

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

: 23 Aug 2023 Diagnostician : Kevin Marson

: 17 Aug 2023

Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN MAN, 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.

Suncor - Terra Nova Projects Scotia Centre, 235 Water Strret St. John's, NL

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