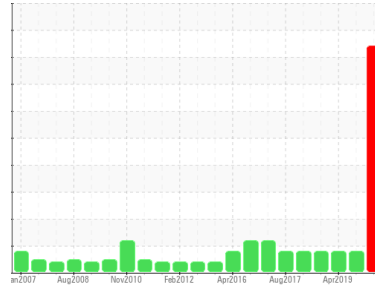
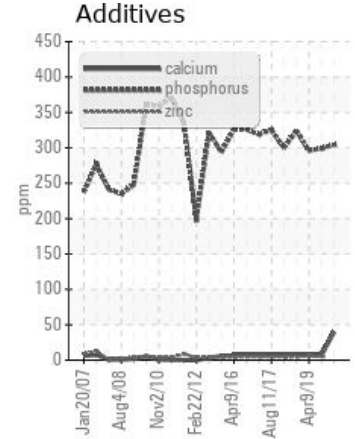
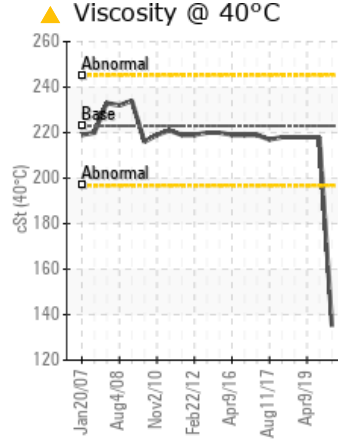
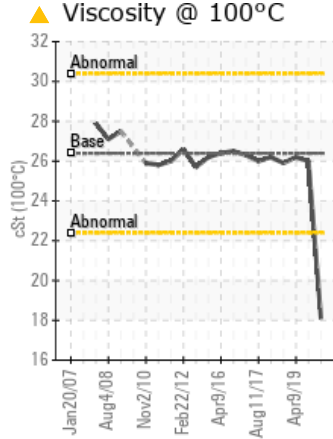
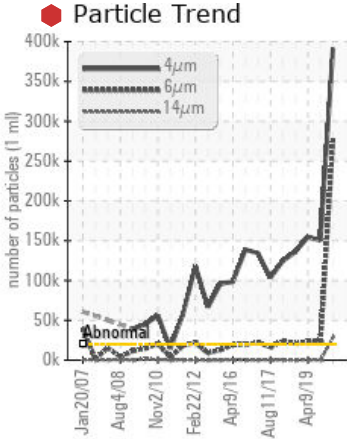


Area
1623
Machine Id
1623-5231-6003 - MOBILE RECLAIM HOPPER 2
Component
Gearbox
Fluid
PETRO CANADA ENDURATEX SYNTHETIC EP 220 (200 LTR)



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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. The fluid was specified as PETRO CANADA ENDURATEX SYNTHETIC EP 220, however, a fluid match indicates that this fluid is ISO 150 Gear Oil. Please confirm the oil type and grade on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	ABNORMAL	ABNORMAL
Particles >4µm	ASTM D7647	>20000	391404	150528	154607
Particles >6µm	ASTM D7647	>5000	276104	22843	23567
Particles >14µm	ASTM D7647	>640	28430	151	352
Particles >21µm	ASTM D7647	>160	3546	15	52
Oil Cleanliness	ISO 4406 (c)	>21/19/16	26/25/22	24/22/14	24/22/16
Visc @ 40°C	cSt ASTM D7279(m)	223	135	218	218
Visc @ 100°C	cSt ASTM D7279(m)	26.39	18.1	26.0	26.2

Customer Id: INCVOS
Sample No.: PC0077260
Lab Number: 02616090
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 Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Alert	---	---	?	The fluid was specified as PETRO CANADA ENDURATEX SYNTHETIC EP 220, however, a fluid match indicates that this fluid is ISO 150 Gear Oil. Please confirm the oil type and grade on your 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 Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

21 Dec 2020 Diag: Wes Davis

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

view report



09 Apr 2019 Diag: Wes Davis

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

view report



10 Sep 2018 Diag: Wes Davis

ISO

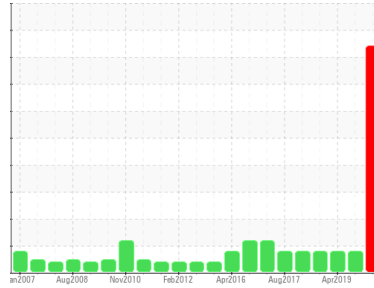


We recommend you service the filters on this component. We recommend an early resample to monitor this condition. All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. The AN level is acceptable for this fluid. The condition of the oil is suitable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

view report



Area
1623
Machine Id
1623-5231-6003 - MOBILE RECLAIM HOPPER 2
Component
Gearbox
Fluid
PETRO CANADA ENDURATEX SYNTHETIC EP 220 (200 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. The fluid was specified as PETRO CANADA ENDURATEX SYNTHETIC EP 220, however, a fluid match indicates that this fluid is ISO 150 Gear Oil. Please confirm the oil type and grade on your next sample.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates (2 to 100 microns in size) present in the oil.

Fluid Condition

Viscosity of sample indicates oil is within ISO 150 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. 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		PC0077260	PC0022902	PC411461
Sample Date	Client Info		09 Feb 2024	21 Dec 2020	09 Apr 2019
Machine Age	yrs	Client Info	0	0	0
Oil Age	yrs	Client Info	0	0	0
Oil Changed	Client Info		Not Chngd	N/A	N/A
Sample Status			SEVERE	ABNORMAL	ABNORMAL

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	76	8	8
Chromium	ppm	ASTM D5185(m)	>15	<1	0	0
Nickel	ppm	ASTM D5185(m)	>15	1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	2	<1	<1
Lead	ppm	ASTM D5185(m)	>100	<1	0	<1
Copper	ppm	ASTM D5185(m)	>200	3	<1	0
Tin	ppm	ASTM D5185(m)	>25	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	<1

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	33	30	23	23
Barium	ppm	ASTM D5185(m)	5	15	<1	0
Molybdenum	ppm	ASTM D5185(m)		0	<1	<1
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	5	2	0	<1
Calcium	ppm	ASTM D5185(m)	5	40	7	8
Phosphorus	ppm	ASTM D5185(m)	437	304	299	296
Zinc	ppm	ASTM D5185(m)	5	38	5	6
Sulfur	ppm	ASTM D5185(m)	5000	6874	6342	6135
Lithium	ppm	ASTM D5185(m)		5	5	4

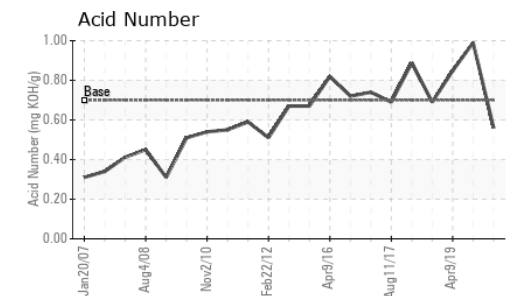
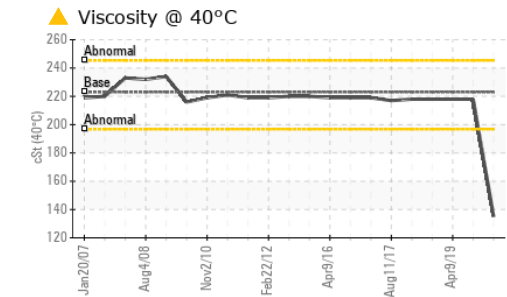
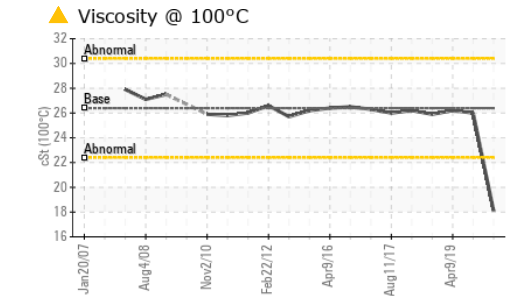
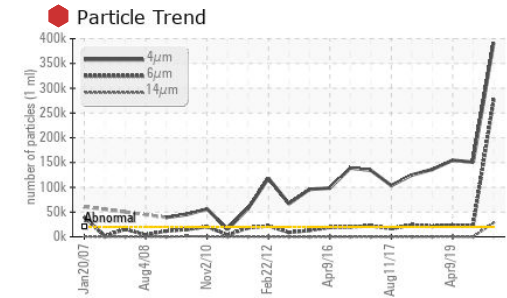
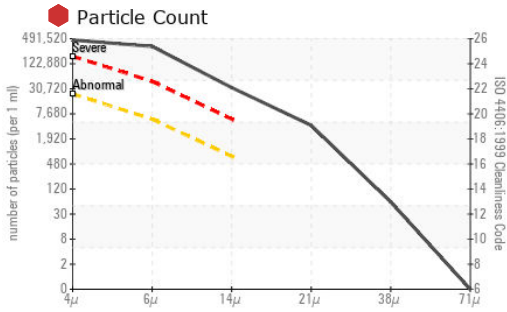
CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>50	6	5	4
Sodium	ppm	ASTM D5185(m)		11	<1	0
Potassium	ppm	ASTM D5185(m)	>20	2	<1	0

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	391404	150528	154607
Particles >6µm	ASTM D7647	>5000	276104	22843	23567
Particles >14µm	ASTM D7647	>640	28430	151	352
Particles >21µm	ASTM D7647	>160	3546	15	52
Particles >38µm	ASTM D7647	>40	52	0	0
Particles >71µm	ASTM D7647	>10	0	0	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	26/25/22	24/22/14	24/22/16

OIL ANALYSIS REPORT



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0077260
Lab Number : 02616090
Unique Number : 5733200
Test Package : IND 2 (Additional Tests: KV100, PrtCount, TAN Man, VI)

Received : 15 Feb 2024
Tested : 16 Feb 2024
Diagnosed : 16 Feb 2024 - 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.

Vale - Voisey's Bay
 Voisey's Bay Mine Site, P.O. Box 7001, Str. C Happy Valley
 Goose Bay, NL
 CA A0P 1C0
 Contact: Robert Feltham
 robert.feltham@vale.com

T:
F: x:

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN) mg KOH/g	ASTM D974*	0.7	0.56	0.99	0.848

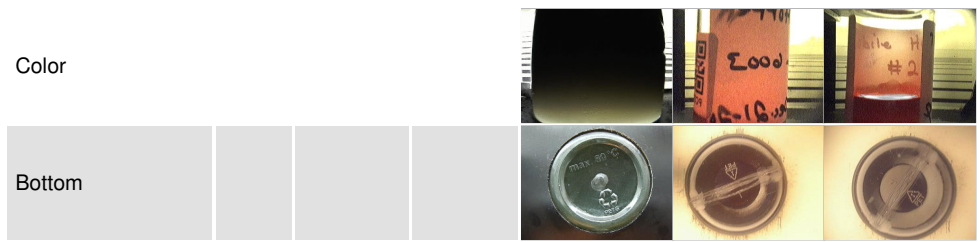
VISUAL

method	limit/base	current	history1	history2	
White Metal	scalar Visual*	NONE	VLITE	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 PROPERTIES

method	limit/base	current	history1	history2	
Visc @ 40°C	cSt ASTM D7279(m)	223	▲ 135	218	218
Visc @ 100°C	cSt ASTM D7279(m)	26.39	▲ 18.1	26.0	26.2
Viscosity Index (VI)	Scale ASTM D2270*	151	149	151	153

SAMPLE IMAGES



Color

Bottom