

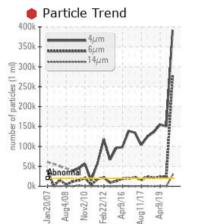
PROBLEM SUMMARY

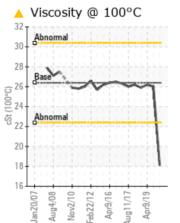
Area 1623 Machine Id 1623-5231-6003 - MOBILE RECLAIM HOPPER 2 Component

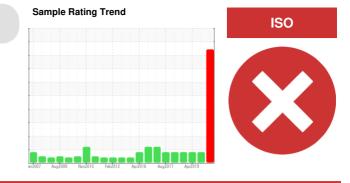
Gearbox

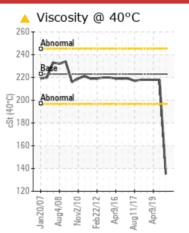
PETRO CANADA ENDURATEX SYNTHETIC EP 220 (200 LTR)

COMPONENT CONDITION SUMMARY

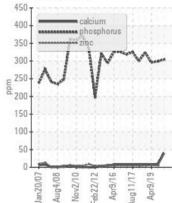








Additives



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

PROBLEMATIC	າເວາ	RESULI	3			
Sample Status				SEVERE	ABNORMAL	ABNORMAL
Particles >4µm		ASTM D7647	>20000	9391404	▲ 150528	▲ 154607
Particles >6µm		ASTM D7647	>5000	e 276104	<u> </u>	🔺 23567
Particles >14µm		ASTM D7647	>640	e 28430	151	352
Particles >21µm		ASTM D7647	>160	93546	15	52
Oil Cleanliness		ISO 4406 (c)	>21/19/16	e 26/25/22	<u> </u>	▲ 24/22/16
Visc @ 40°C	cSt	ASTM D7279(m)	223	<u> </u>	218	218
Visc @ 100°C	cSt	ASTM D7279(m)	26.39	<u> </u>	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 <u>Kevin.Marson@wearcheck.com</u>

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com

RECOMMENDE	DACTIONS			
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

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.

09 Apr 2019 Diag: Wes Davis



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.

10 Sep 2018 Diag: Wes Davis

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







OIL ANALYSIS REPORT

Area **1623** Machine Id **1623-5231-6003 - MOBILE RECLAIM HOPPER 2** Component Gearbox

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

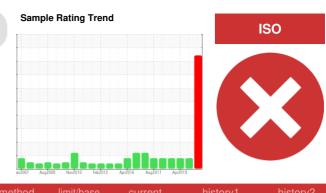
All component wear rates are normal.

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 INFORM	MATION	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 Changd	N/A	N/A
Sample Status				SEVERE	ABNORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>200	76	8	8
Chromium	ppm	ASTM D5185(m)		<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)		3	<1	0
Tin	ppm	ASTM D5185(m)	>25	0	0	0
Antimony	ppm	ASTM D5185(m)		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	1 1	mathad	limit/booo			history 0
		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	33	30	23	23
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	33	30 15	23 <1	23 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33	30 15 0	23 <1 <1	23 0 <1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5	30 15 0 <1	23 <1 <1 <1	23 0 <1 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5	30 15 0 <1 2	23 <1 <1 <1 0	23 0 <1 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 5	30 15 0 <1 2 40	23 <1 <1 <1 0 7	23 0 <1 <1 <1 <1 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 5 437	30 15 0 <1 2 40 304	23 <1 <1 <1 0 7 299	23 0 <1 <1 <1 <1 8 296
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 5 437 5	30 15 0 <1 2 40 304 38	23 <1 <1 <1 0 7 299 5	23 0 <1 <1 <1 <1 8 296 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 5 437	30 15 0 <1 2 40 304 38 6874	23 <1 <1 0 7 299 5 6342	23 0 <1 <1 <1 8 296 6 6 6135
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 5 437 5	30 15 0 <1 2 40 304 38	23 <1 <1 <1 0 7 299 5	23 0 <1 <1 <1 <1 8 296 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 5 437 5	30 15 0 <1 2 40 304 38 6874	23 <1 <1 0 7 299 5 6342	23 0 <1 <1 <1 8 296 6 6 6135
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 437 5 5000	30 15 0 <1 2 40 304 38 6874 5	23 <1 <1 0 7 299 5 6342 5	23 0 <1 <1 <1 8 296 6 6 6135 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	33 5 5 5 437 5 5000 imit/base	30 15 0 <1 2 40 304 38 6874 5 Current	23 <1 <1 0 7 299 5 6342 5 8 4 42 5	23 0 <1 <1 <1 8 296 6 6135 4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	33 5 5 5 437 5 5000 imit/base	30 15 0 <1 2 40 304 38 6874 5 Current 6	23 <1 <1 0 7 299 5 6342 5 <u>history1</u> 5	23 0 <1 <1 <1 8 296 6 6135 4 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m)	33 5 5 5 437 5 5000 imit/base >50	30 15 0 <1 2 40 304 38 6874 5 Current 6 11	23 <1 <1 0 7 299 5 6342 5 6 342 5 history1 5 <	23 0 <1 <1 <1 8 296 6 6 6135 4 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m)	33 5 5 4 437 5 5000 imit/base >50	30 15 0 <1 2 40 304 38 6874 5 current 6 11 2	23 <1 <1 0 7 299 5 6342 5 bistory1 5 < 1 <1	23 0 <1 <1 <1 8 296 6 6135 4 history2 4 0 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m)	33 5 5 4 37 5 5 5000 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30 15 0 <1 2 40 304 38 6874 5 Current 6 11 2 2 Current	23 <1 <1 0 7 299 5 6342 5 bistory1 5 <1 <1 <1	23 0 <1 <1 <1 8 296 6 6135 4 history2 4 0 0 0
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 TS ppm ppm	ASTM D5185(m) ASTM D5185(m)	33 5 5 4 37 5 5000 Imit/base >50 20 Imit/base >20000	30 15 0 <1 2 40 304 38 6874 5 Current 6 11 2 2 Current 2 38 6874 5 5	23 <1 <1 0 7 299 5 6342 5 6342 5 × history1 5 <1 <1 × 1 ×	23 0 <1 <1 <1 8 296 6 6 6135 4 history2 4 0 0 0 history2
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 TS ppm ppm	ASTM D5185(m) ASTM D5185(m)	33 5 5 4 37 5 5000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 15 0 <1 2 40 304 38 6874 5 Current 6 11 2 Current 4 391404 276104	23 <1 <1 0 7 299 5 6342 5 6342 5 × history1 5 <1 <1 × 150528 ▲ 150528	23 0 <1 <1 <1 8 296 6 6135 4 4 history2 4 0 0 0 history2 4 154607 ▲ 154607
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 TS ppm ppm	ASTM D5185(m) ASTM D76477 ASTM D7647	33 5 5 4 37 5 5000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 15 0 <1 2 40 304 38 6874 5 Current 6 11 2 Current 4 391404 276104 28430	23 <1 <1 0 7 299 5 6342 5 6342 5 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	23 0 <1 <1 <1 8 296 6 6135 4 6 6135 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANL Particles >4μm Particles >14μm Particles >21μm	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	33 5 5 4 4 5 5 5 000 5 000 5 5 0 2 0 0 0 0 0 0 0 0	30 15 0 <1 2 40 304 38 6874 5 Current 6 11 2 Current 6 391404 276104 28430 3546	23 <1 <1 <1 0 7 299 5 6342 5 6342 5 × history1 × 1 5 × 1 ×	23 0 <1 <1 <1 8 296 6 6135 4 4 history2 4 0 0 0 history2 ∧ 154607 ∧ 154607 ∧ 23567 352
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm Particles >14µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	33 5 5 4 4 5 5 5 000 5 000 5 5 0 2 0 0 0 0 0 0 0 0	30 15 0 <1 2 40 304 38 6874 5 Current 6 11 2 Current 4 391404 276104 28430 3546 52	23 <1 <1 0 7 299 5 6342 5 6342 5 × 15 × 10 × 150528 ↓ 150528 ↓ 150528 ↓ 151 15 0	23 0 <1 <1 <1 8 296 6 6135 4 4 history2 4 0 0 0 history2 ▲ 154607 ▲ 23567 352 52 0

Contact/Location: Robert Feltham - INCVOS



Particle Count

491,520 122,88

7,68

1.92

480

120

30

OIL ANALYSIS REPORT

.24

20

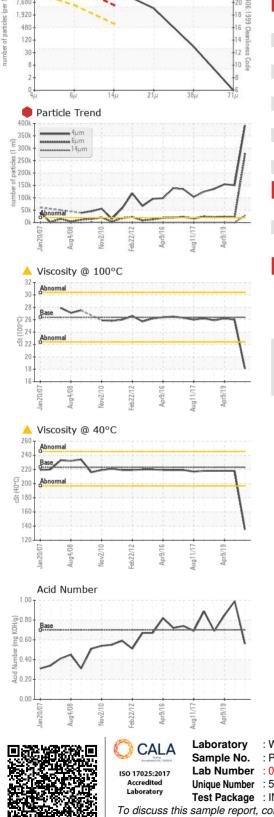
18

16

14

12

FLUID DEGRAD	DATION	method	limit/base	current	history1	history
Acid Number (AN)	mg KOH/g	ASTM D974*	0.7	0.56	0.99	0.848
VISUAL		method	limit/base	current	history1	history
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 PROPE	RTIES	method	limit/base	current	history1	history
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 IMAG	iES	method	limit/base	current	history1	history
Color					2000	sile H #2
Bottom						G



: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vale - Voisey's Bay : PC0077260 Received : 15 Feb 2024 Voisey's Bay Mine Site, P.O. Box 7001, Stn. C Happy Valley Lab Number : 02616090 Tested : 16 Feb 2024 Goose Bay, NL Unique Number : 5733200 Diagnosed : 16 Feb 2024 - Kevin Marson CA A0P 1C0 Test Package : IND 2 (Additional Tests: KV100, PrtCount, TAN Man, VI) Contact: Robert Feltham To discuss this sample report, contact Customer Service at 1-800-268-2131. robert.feltham@vale.com Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: Validity of results and interpretation are based on the sample and information as supplied. F: x: