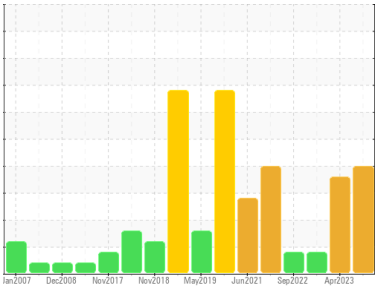
PROBLEM SUMMARY

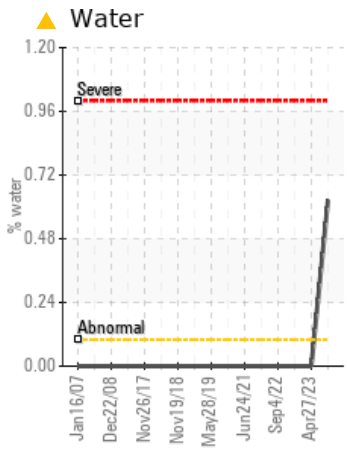
Sample Rating Trend

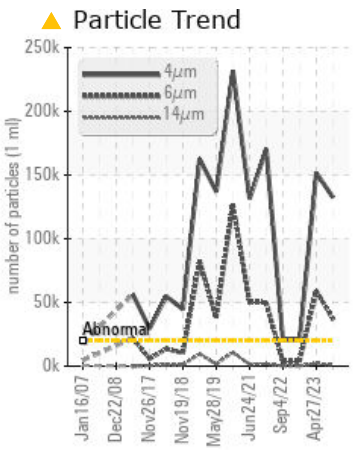


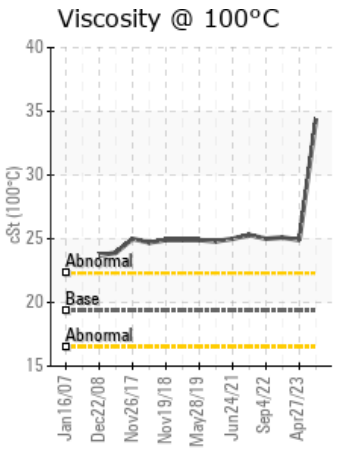
WATER

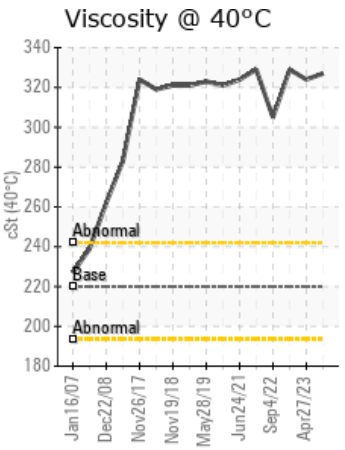
Area
1440
Machine Id
1440-5512-4003 - COPPER REGRIND MILL
Component
Drive End Gear Reducer
Fluid
PETRO CANADA ENDURATEX EP 220 (55 GAL)

COMPONENT CONDITION SUMMARY









RECOMMENDATION

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. 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 use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	SEVERE	ATTENTION
Water	%	ASTM D6304*	>0.1	▲ **0.625**	---	---
ppm Water	ppm	ASTM D6304*	>1000	▲ **6251.1**	---	---
Particles >4µm		ASTM D7647	>20000	▲ **132472**	▲ 151640	▲ 20782
Particles >6µm		ASTM D7647	>5000	▲ **37071**	⬢ 59069	3617
Particles >14µm		ASTM D7647	>640	▲ **1016**	▲ 2205	137
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/22/17**	⬢ 24/23/18	▲ 22/19/14
Appearance	scalar	Visual*	NORML	▲ **MILKY**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	▲ **.2%**	NEG	NEG

Customer Id: INCVOS
Sample No.: PC0040489
Lab Number: 02567633
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 recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
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 Water Access	---	---	?	We advise that you check for the source of water entry.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
Filter Fluid	---	---	?	We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil.

HISTORICAL DIAGNOSIS

27 Apr 2023 Diag: Kevin Marson

ISO

Check seals and/or filters for points of contaminant entry. 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 recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Viscosity of sample indicates oil is within ISO 320 range, advise investigate. 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

16 Jan 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. Viscosity of sample indicates oil is within ISO 320 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

04 Sep 2022 Diag: Kevin Marson

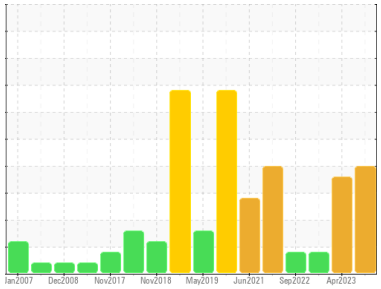
ISO

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. Viscosity of sample indicates oil is within ISO 320 range, advise investigate. 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



WATER

Area
1440
Machine Id
1440-5512-4003 - COPPER REGRIND MILL
Component
Drive End Gear Reducer
Fluid
PETRO CANADA ENDURATEX EP 220 (55 GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. 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 use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. 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. There is a moderate concentration of water present in the oil.

Fluid Condition

Viscosity of sample indicates oil is within ISO 320 range, advise investigate. 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	history 1	history 2
Sample Number		Client Info		**PC0040489**	PC0057684	PC0058643
Sample Date		Client Info		**20 Jun 2023**	27 Apr 2023	16 Jan 2023
Machine Age	yrs	Client Info		**0**	0	0
Oil Age	yrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	SEVERE	ATTENTION

WEAR METALS		method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185(m)	>150	**39**	3	75
Chromium	ppm	ASTM D5185(m)	>10	**<1**	0	<1
Nickel	ppm	ASTM D5185(m)	>10	**<1**	0	2
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	**<1**	0	0
Lead	ppm	ASTM D5185(m)	>100	**0**	0	0
Copper	ppm	ASTM D5185(m)	>50	**2**	<1	3
Tin	ppm	ASTM D5185(m)	>10	**0**	0	0
Antimony	ppm	ASTM D5185(m)	>5	**0**	0	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

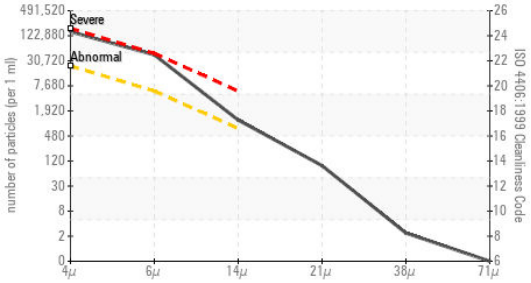
ADDITIVES		method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185(m)	60	**52**	61	29
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)	0	**<1**	0	<1
Magnesium	ppm	ASTM D5185(m)	0	**<1**	0	<1
Calcium	ppm	ASTM D5185(m)	0	**4**	0	5
Phosphorus	ppm	ASTM D5185(m)	270	**259**	269	253
Zinc	ppm	ASTM D5185(m)	0	**6**	2	13
Sulfur	ppm	ASTM D5185(m)	11200	**5811**	5645	5769
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185(m)	>50	**8**	7	5
Sodium	ppm	ASTM D5185(m)		**1**	0	<1
Potassium	ppm	ASTM D5185(m)	>20	**2**	<1	<1
Water	%	ASTM D6304*	>0.1	▲ **0.625**	---	---
ppm Water	ppm	ASTM D6304*	>1000	▲ **6251.1**	---	---

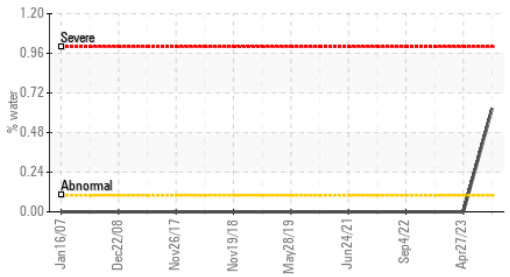
FLUID CLEANLINESS		method	limit/base	current	history 1	history 2
Particles >4µm		ASTM D7647	>20000	▲ **132472**	▲ 151640	▲ 20782
Particles >6µm		ASTM D7647	>5000	▲ **37071**	⬢ 59069	3617
Particles >14µm		ASTM D7647	>640	▲ **1016**	▲ 2205	137
Particles >21µm		ASTM D7647	>160	**82**	171	24
Particles >38µm		ASTM D7647	>40	**2**	2	0
Particles >71µm		ASTM D7647	>10	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/22/17**	⬢ 24/23/18	▲ 22/19/14

OIL ANALYSIS REPORT

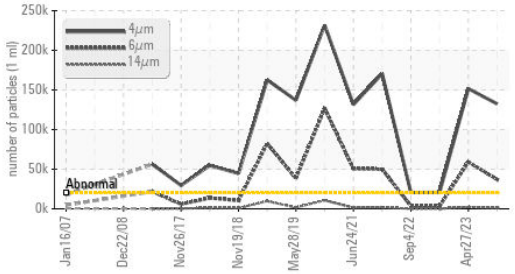
Particle Count



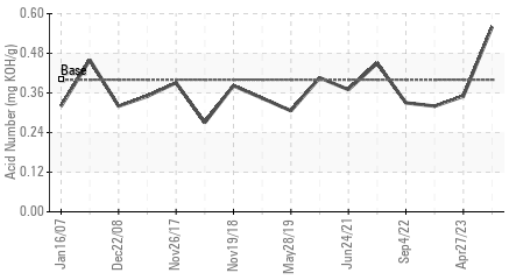
Water



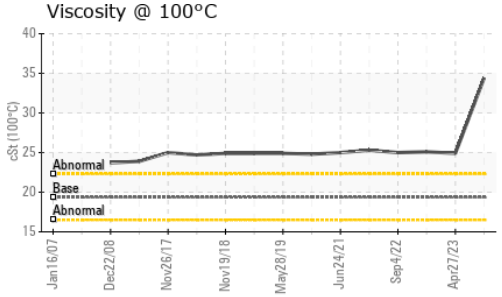
Particle Trend



Acid Number



Viscosity @ 100°C



FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.40	**0.56**	0.35	0.32

VISUAL		method	limit/base	current	history 1	history 2
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	▲ **MILKY**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	▲ **.2%**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D7279(m)	220	**327**	324	329
Visc @ 100°C	cSt	ASTM D7279(m)	19.35	**34.4**	24.9	25.1
Viscosity Index (VI)	Scale	ASTM D2270*	99	**148**	98	98

SAMPLE IMAGES	method	limit/base	current	history 1	history 2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0040489 **Received** : 30 Jun 2023
Lab Number : 02567633 **Diagnosed** : 05 Jul 2023
Unique Number : 5604679 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: KF, KV100, 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.

Vale - Voisey`s Bay
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Goose Bay, NL
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