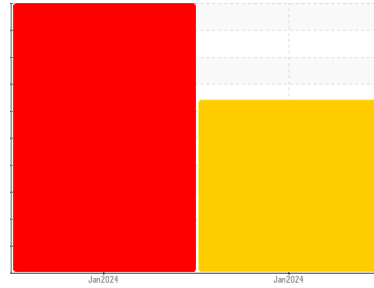


PROBLEM SUMMARY

Sample Rating Trend

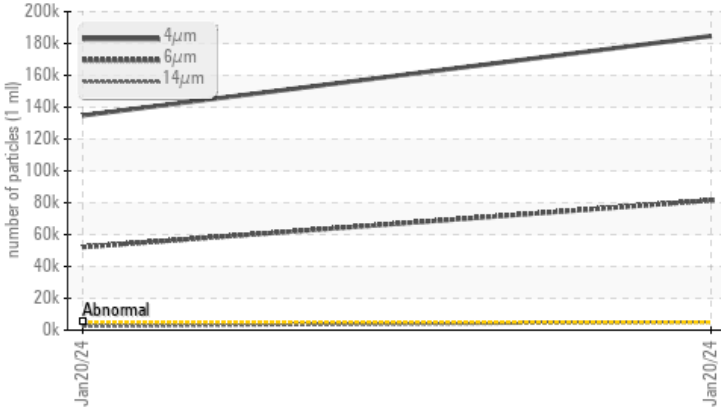
ISO

Area
[450255637]
 Machine Id
PB-04002-HA HOISTING PUMP MID CRANE
 Component
Hydraulic System
 Fluid
{not provided} (--- GAL)



COMPONENT CONDITION SUMMARY

Particle Trend



RECOMMENDATION

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of results is based on the sample as received from the customer. The condition of the sample and the method of sampling cannot be verified.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	SEVERE	---
Particles >4µm	ASTM D7647	>5000	🔴 134809	🔴 184686	---
Particles >6µm	ASTM D7647	>1300	🔴 52180	🔴 81511	---
Particles >14µm	ASTM D7647	>160	🔴 2452	🔴 5074	---
Particles >21µm	ASTM D7647	>40	🟡 297	🔴 820	---
Oil Cleanliness	ISO 4406 (c)	>19/17/14	🔴 24/23/18	🔴 25/24/20	---
Debris	scalar Visual*	NONE	🟡 VLITE	NONE	---

Customer Id: TERHAM
 Sample No.: PC0081064
 Lab Number: 02614508
 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	---	---	?	<small>Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of results is based on the sample as received from the customer. The condition of the sample and the method of sampling cannot be verified.</small>
Information Required	---	---	?	Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with 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.
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

ISO



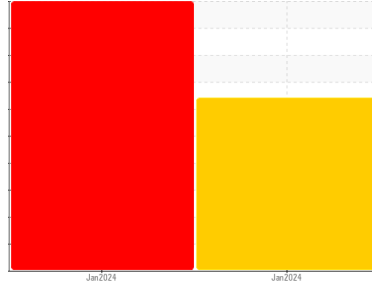
20 Jan 2024 Diag: Kevin Marson

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. 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 advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. There is a moderate concentration of water present in the oil. Viscosity of sample indicates oil is within ATF 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



Area
[450255637]
Machine Id
PB-04002-HA HOISTING PUMP MID CRANE
Component
Hydraulic System
Fluid
{not provided} (--- GAL)



DIAGNOSIS

Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of results is based on the sample as received from the customer. The condition of the sample and the method of sampling cannot be verified.

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. Light concentration of visible dirt/debris present in the oil. The water content is negligible.

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	PC0081064	PC0081068	---
Sample Date	Client Info	20 Jan 2024	20 Jan 2024	---
Machine Age	hrs	Client Info	0	---
Oil Age	hrs	Client Info	0	---
Oil Changed	Client Info	N/A	N/A	---
Sample Status		SEVERE	SEVERE	---

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m) >20	1	5	---
Chromium	ppm	ASTM D5185(m) >10	0	0	---
Nickel	ppm	ASTM D5185(m) >10	<1	<1	---
Titanium	ppm	ASTM D5185(m)	0	0	---
Silver	ppm	ASTM D5185(m)	0	0	---
Aluminum	ppm	ASTM D5185(m) >10	<1	<1	---
Lead	ppm	ASTM D5185(m) >20	<1	<1	---
Copper	ppm	ASTM D5185(m) >20	1	1	---
Tin	ppm	ASTM D5185(m) >10	0	0	---
Antimony	ppm	ASTM D5185(m)	0	0	---
Vanadium	ppm	ASTM D5185(m)	0	0	---
Beryllium	ppm	ASTM D5185(m)	0	0	---
Cadmium	ppm	ASTM D5185(m)	0	0	---

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	91	82	---
Barium	ppm	ASTM D5185(m)	2	2	---
Molybdenum	ppm	ASTM D5185(m)	0	0	---
Manganese	ppm	ASTM D5185(m)	0	0	---
Magnesium	ppm	ASTM D5185(m)	2	2	---
Calcium	ppm	ASTM D5185(m)	67	67	---
Phosphorus	ppm	ASTM D5185(m)	239	240	---
Zinc	ppm	ASTM D5185(m)	68	108	---
Sulfur	ppm	ASTM D5185(m)	770	771	---
Lithium	ppm	ASTM D5185(m)	<1	<1	---

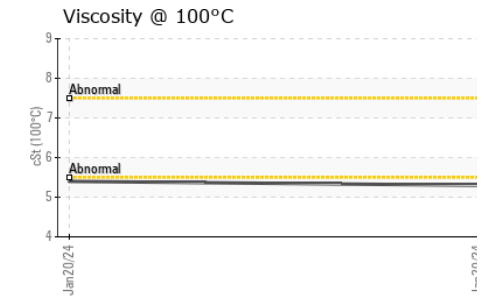
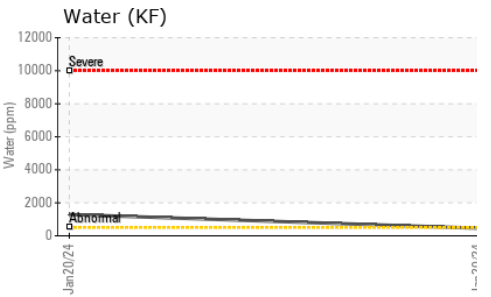
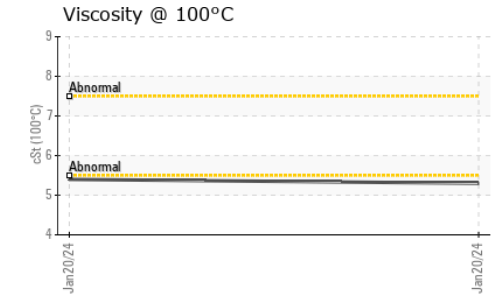
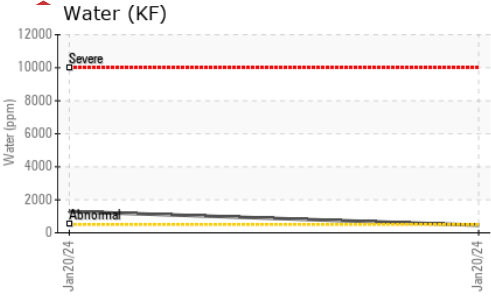
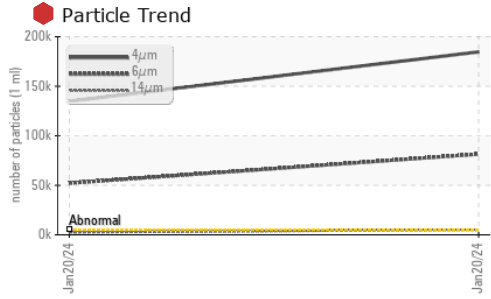
CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >15	2	2	---
Sodium	ppm	ASTM D5185(m)	4	8	---
Potassium	ppm	ASTM D5185(m) >20	1	1	---
Water	%	ASTM D6304* >0.05	0.045	▲ 0.129	---
ppm Water	ppm	ASTM D6304* >500	459	▲ 1294	---

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >5000	134809	184686	---
Particles >6µm	ASTM D7647 >1300	52180	81511	---
Particles >14µm	ASTM D7647 >160	2452	5074	---
Particles >21µm	ASTM D7647 >40	297	820	---
Particles >38µm	ASTM D7647 >10	3	13	---
Particles >71µm	ASTM D7647 >3	1	1	---
Oil Cleanliness	ISO 4406 (c) >19/17/14	24/23/18	25/24/20	---

OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.76	0.77	---

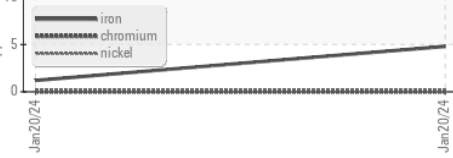
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	---
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	---
Precipitate	scalar	Visual*	NONE	NONE	NONE	---
Silt	scalar	Visual*	NONE	NONE	NONE	---
Debris	scalar	Visual*	NONE	▲ VLITE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	VLITE	---
Appearance	scalar	Visual*	NORML	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	NORML	---
Emulsified Water	scalar	Visual*	>0.05	.2%	▲ .5%	---
Free Water	scalar	Visual*		NEG	NEG	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)		25.8	▲ 25.8	---
Visc @ 100°C	cSt	ASTM D7279(m)		5.3	▲ 5.4	---
Viscosity Index (VI)	Scale	ASTM D2270*		143	150	---

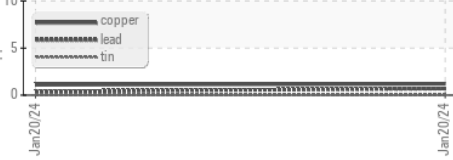
SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						no image
Bottom						no image

GRAPHS

Ferrous Alloys



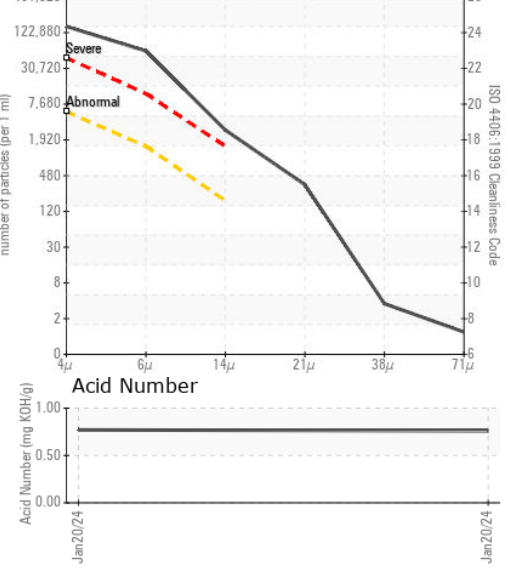
Non-ferrous Metals



Viscosity @ 40°C



Particle Count



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0081064 **Received** : 09 Feb 2024
Lab Number : **02614508** **Tested** : 13 Feb 2024
Unique Number : 5723603 **Diagnosed** : 13 Feb 2024 - Kevin Marson
Test Package : IND 2 (Additional Tests: KF, KV100, VI)

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshhynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

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.