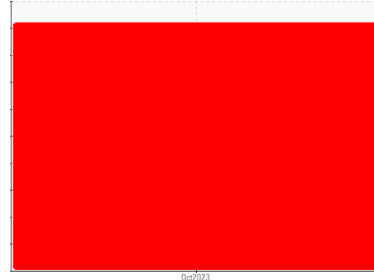




PROBLEM SUMMARY

Sample Rating Trend

ISO

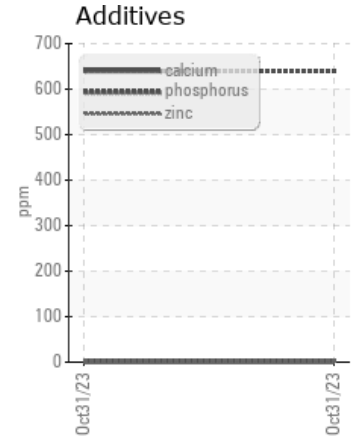
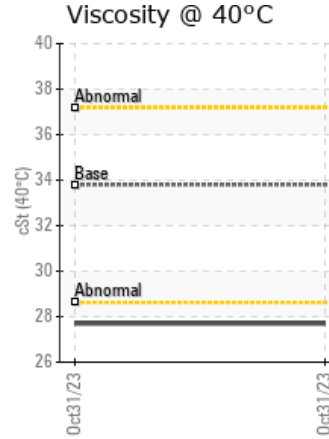
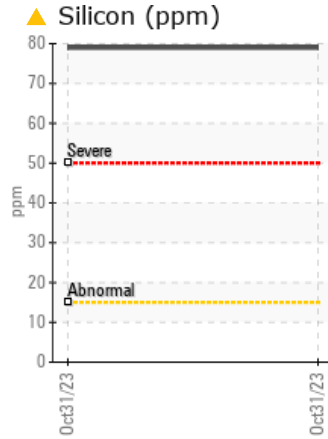
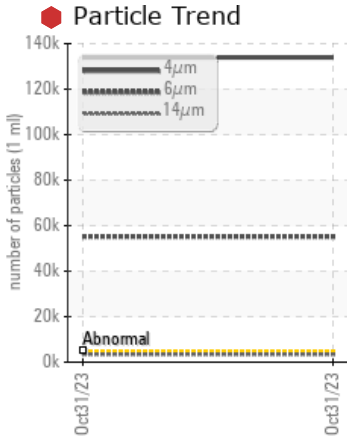


Machine Id
22-HU-1 INDEXER

Component
Hydraulic System

Fluid
SHELL TELLUS S4 VX 32 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. 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. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status	SEVERE	---	---
Silicon ppm	▲ 79	---	---
Particles >4µm	● 133921	---	---
Particles >6µm	● 55184	---	---
Particles >14µm	● 3414	---	---
Particles >21µm	● 435	---	---
Oil Cleanliness	● 24/23/19	---	---

Customer Id: INCOCLARA
 Sample No.: WC0837959
 Lab Number: 02606235
 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.
Information Required	---	---	?	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 Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
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



OIL ANALYSIS REPORT

Sample Rating Trend

ISO



Machine Id
22-HU-1 INDEXER
 Component
Hydraulic System
 Fluid
SHELL TELLUS S4 VX 32 (--- GAL)



DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. 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. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with 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. Elemental level of silicon (Si) above normal indicating ingress of seal material and/or dirt.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil. 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			WC0837959	---	---
Sample Date	Client Info			31 Oct 2023	---	---
Machine Age	hrs	Client Info		0	---	---
Oil Age	hrs	Client Info		0	---	---
Oil Changed	Client Info			N/A	---	---
Sample Status				SEVERE	---	---

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.05	NEG	---	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	6	---	---
Chromium	ppm	ASTM D5185(m)	>20	0	---	---
Nickel	ppm	ASTM D5185(m)	>20	<1	---	---
Titanium	ppm	ASTM D5185(m)		0	---	---
Silver	ppm	ASTM D5185(m)		0	---	---
Aluminum	ppm	ASTM D5185(m)	>20	<1	---	---
Lead	ppm	ASTM D5185(m)	>20	<1	---	---
Copper	ppm	ASTM D5185(m)	>20	<1	---	---
Tin	ppm	ASTM D5185(m)	>20	0	---	---
Antimony	ppm	ASTM D5185(m)		0	---	---
Vanadium	ppm	ASTM D5185(m)		0	---	---
Beryllium	ppm	ASTM D5185(m)		0	---	---
Cadmium	ppm	ASTM D5185(m)		0	---	---

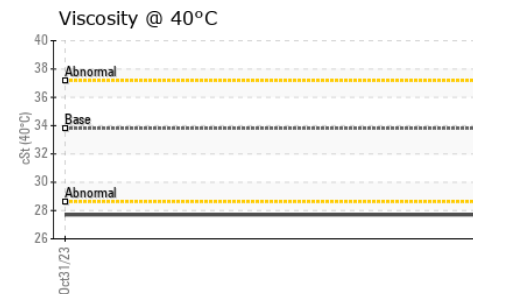
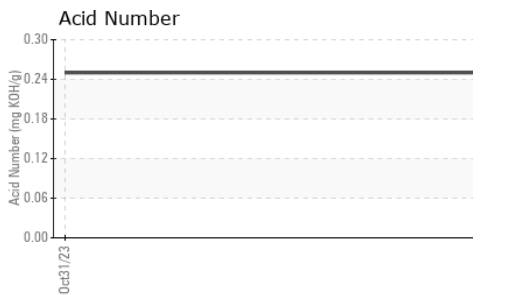
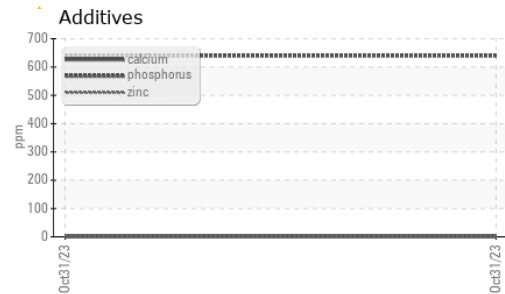
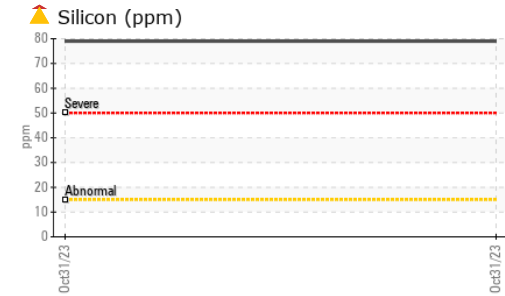
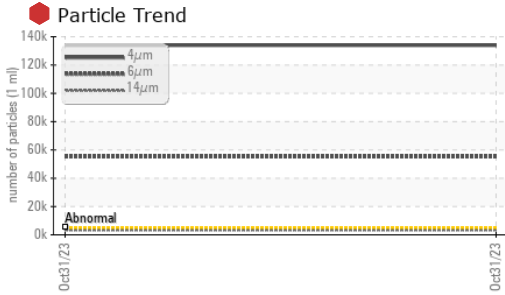
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		<1	---	---
Barium	ppm	ASTM D5185(m)		0	---	---
Molybdenum	ppm	ASTM D5185(m)		0	---	---
Manganese	ppm	ASTM D5185(m)		0	---	---
Magnesium	ppm	ASTM D5185(m)		<1	---	---
Calcium	ppm	ASTM D5185(m)		<1	---	---
Phosphorus	ppm	ASTM D5185(m)		640	---	---
Zinc	ppm	ASTM D5185(m)		2	---	---
Sulfur	ppm	ASTM D5185(m)		476	---	---
Lithium	ppm	ASTM D5185(m)		<1	---	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	▲ 79	---	---
Sodium	ppm	ASTM D5185(m)		0	---	---
Potassium	ppm	ASTM D5185(m)	>20	<1	---	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	● 133921	---	---	
Particles >6µm	ASTM D7647	>1300	● 55184	---	---	
Particles >14µm	ASTM D7647	>160	● 3414	---	---	
Particles >21µm	ASTM D7647	>40	● 435	---	---	
Particles >38µm	ASTM D7647	>10	4	---	---	
Particles >71µm	ASTM D7647	>3	1	---	---	
Oil Cleanliness	ISO 4406 (c)	>19/17/14	● 24/23/19	---	---	



OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.25	---	---

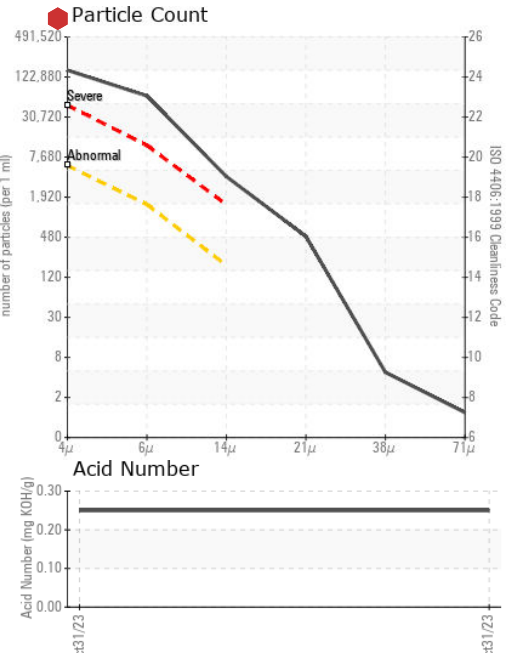
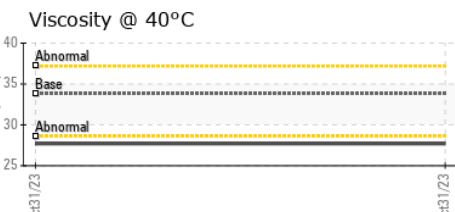
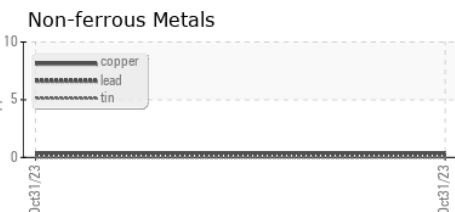
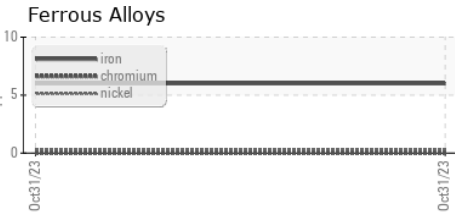
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---
Precipitate	scalar	Visual*	NONE	NONE	---	---
Silt	scalar	Visual*	NONE	NONE	---	---
Debris	scalar	Visual*	NONE	NONE	---	---
Sand/Dirt	scalar	Visual*	NONE	NONE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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	33.8	27.7	---	---

SAMPLE IMAGES

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

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0837959 **Received** : 03 Jan 2024
Lab Number : **02606235** **Diagnosed** : 04 Jan 2024
Unique Number : 5707321 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: TAN Man)

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 - Clarabelle Mill
 MTW (Mill, Tailings & Water)
 COPPER CLIFF, ON
 CA P0M 1N0
 Contact: Guy Gauthier
 guy.gauthier@vale.com
 T: (705)682-5646
 F: (705)682-6273