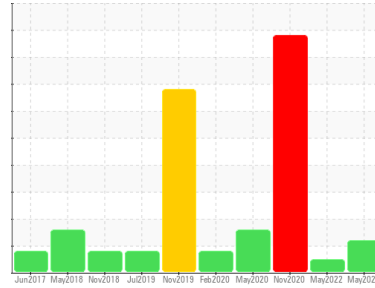




PROBLEM SUMMARY

Sample Rating Trend



ISO



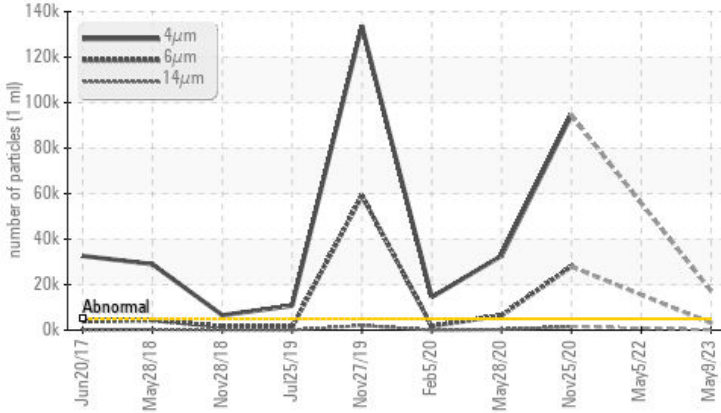
Machine Id 23-BC-2 VOITH COUPLING

Component
Hydraulic System

Fluid
SHELL TELLUS S2 MX 32 (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	NORMAL	SEVERE
Particles >4µm	ASTM D7647	>5000	▲ 17295	---	● 94492
Particles >6µm	ASTM D7647	>1300	▲ 3149	---	● 27953
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 21/19/14	---	● 24/22/18

Customer Id: INCOCLARA
 Sample No.: WC0718812
 Lab Number: 02559793
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

HISTORICAL DIAGNOSIS

05 May 2022 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MOB 2 test kits, this testkit includes Particle Count to determine the ISO cleanliness of the fluid. All component wear rates are normal. There is no indication of any contamination in the component (unconfirmed). The condition of the oil is acceptable for the time in service.

view report



ISO



25 Nov 2020 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. 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. Light concentration of visible metal present. Cylinder wear is indicated. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. Particles >38µm are abnormally high. Particles >71µm are abnormally high. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report



ISO



28 May 2020 Diag: Wes Davis

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. Particles >21µm are notably high. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

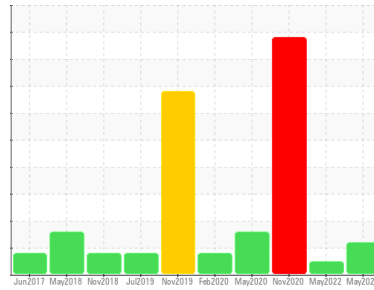
view report





OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Machine Id 23-BC-2 VOITH COUPLING

Component
Hydraulic System
Fluid

SHELL TELLUS S2 MX 32 (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. 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 moderate amount of silt (particulates < 14 microns in size) present in the oil.

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		WC0718812	WC0532583	WC0506605
Sample Date	Client Info		09 May 2023	05 May 2022	25 Nov 2020
Machine Age	mths	Client Info	0	0	8
Oil Age	mths	Client Info	0	0	8
Oil Changed	Client Info		Not Changed	Not Changed	Not Changed
Sample Status			ABNORMAL	NORMAL	SEVERE

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>20	6	5	3
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>20	<1	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	<1
Aluminum	ppm	ASTM D5185(m)	>20	2	1	<1
Lead	ppm	ASTM D5185(m)	>20	<1	<1	0
Copper	ppm	ASTM D5185(m)	>20	3	2	2
Tin	ppm	ASTM D5185(m)	>20	0	0	<1
Antimony	ppm	ASTM D5185(m)		0	0	0
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	history1	history2	
Boron	ppm	ASTM D5185(m)		0	<1	<1
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		0	0	<1
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)		9	0	<1
Calcium	ppm	ASTM D5185(m)		33	38	38
Phosphorus	ppm	ASTM D5185(m)		307	297	280
Zinc	ppm	ASTM D5185(m)		320	337	344
Sulfur	ppm	ASTM D5185(m)		654	642	671
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

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

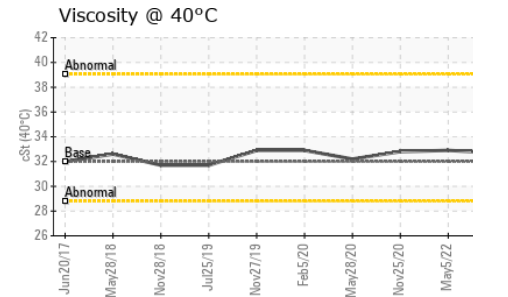
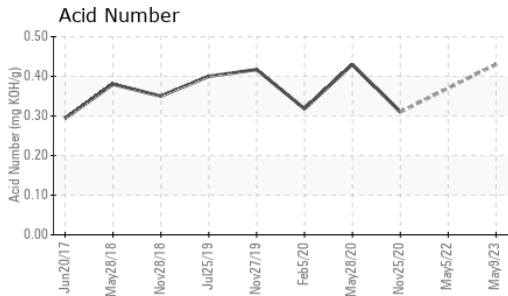
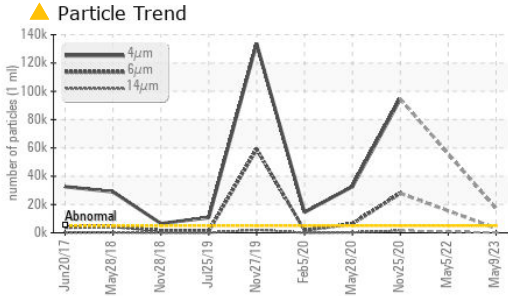
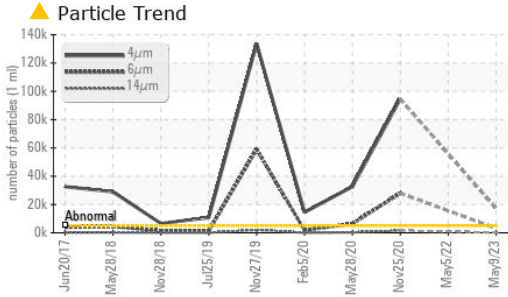
FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 17295	---	● 94492
Particles >6µm	ASTM D7647	>1300	▲ 3149	---	● 27953
Particles >14µm	ASTM D7647	>160	98	---	● 1495
Particles >21µm	ASTM D7647	>40	19	---	● 366
Particles >38µm	ASTM D7647	>10	0	---	▲ 38
Particles >71µm	ASTM D7647	>3	0	---	▲ 7
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 21/19/14	---	● 24/22/18

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.43	---	0.31

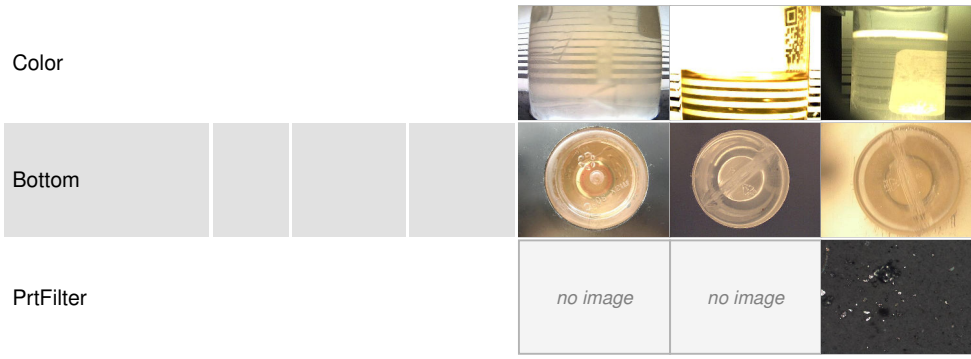
OIL ANALYSIS REPORT



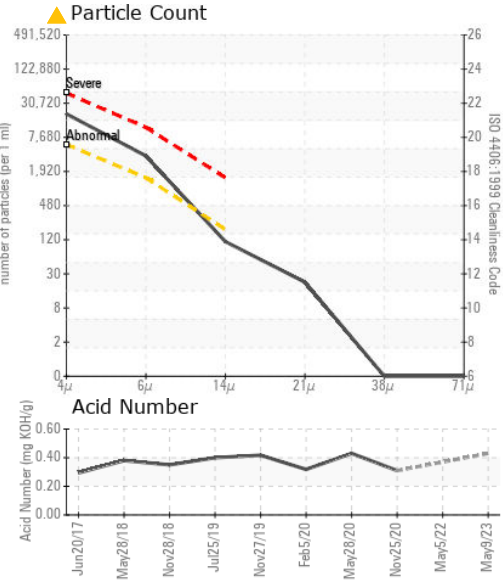
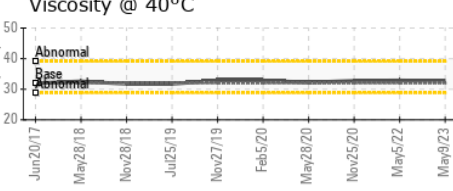
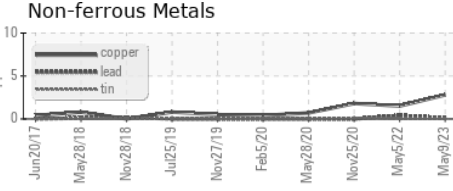
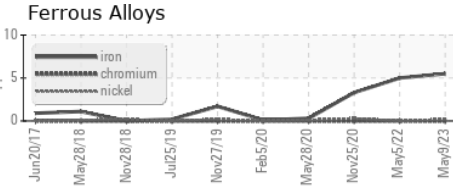
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE ▲ LIGHT
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE VLITE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	32.0	32.7	32.9 32.8

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0718812 **Received** : 26 May 2023
Lab Number : 02559793 **Diagnosed** : 29 May 2023
Unique Number : 5580833 **Diagnostician** : Wes Davis
Test Package : IND 2

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

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.