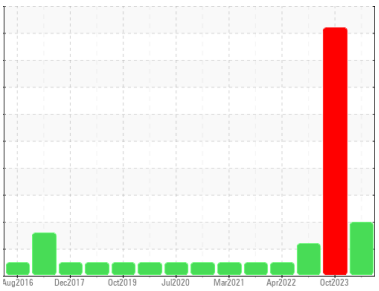
PROBLEM SUMMARY

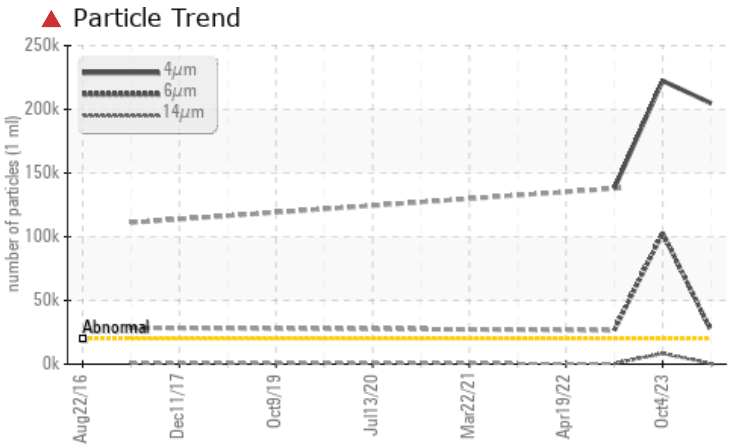
Sample Rating Trend



ISO

Machine Id
402 CRANE MAIN HOIST TROLLEY
Component
Gearbox
Fluid
SHELL OMALA S4 GX 220 (460 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

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.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	SEVERE	ABNORMAL
Particles >4µm		ASTM D7647	>20000	▲ **204806**	▲ 222437	▲ 137851
Particles >6µm		ASTM D7647	>5000	▲ **26248**	▲ 102973	▲ 26673
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **25/22/16**	▲ 25/24/20	▲ 24/22/16

Customer Id: INCOCCSMR
Sample No.: WC0863483
Lab Number: 02626732
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	---	---	?	Resample in 30-45 days to monitor this situation.
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 Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

ISO

04 Oct 2023 Diag: Kevin Marson

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.All component wear rates are normal. 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 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

ISO

11 Oct 2022 Diag: Kevin Marson

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 and oil cleanliness are abnormally high. 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

NORMAL

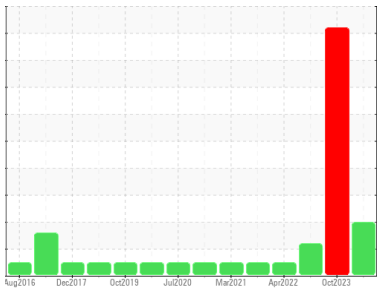
19 Apr 2022 Diag: Wes Davis

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
402 CRANE MAIN HOIST TROLLEY
Component
Gearbox
Fluid
SHELL OMALA S4 GX 220 (460 LTR)

DIAGNOSIS

▲ Recommendation
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.

Wear
All component wear rates are normal.

▲ Contamination
There is a high 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		**WC0863483**	WC0811779	WC0698322
Sample Date		Client Info		**25 Mar 2024**	04 Oct 2023	11 Oct 2022
Machine Age	yrs	Client Info		**0**	0	0
Oil Age	yrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	N/A	Not Changd
Sample Status				**SEVERE**	SEVERE	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

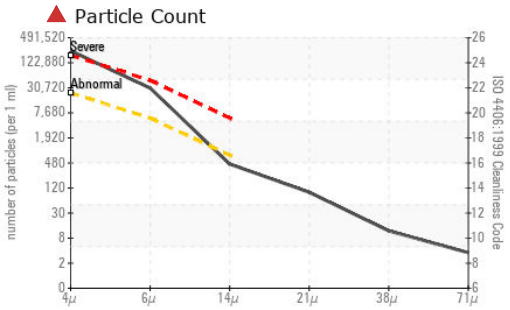
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>200	**19**	15	13
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**<1**	0	<1
Silver	ppm	ASTM D5185(m)		**0**	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	**0**	<1	0
Lead	ppm	ASTM D5185(m)	>100	**0**	0	<1
Copper	ppm	ASTM D5185(m)	>200	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)	>25	**0**	0	0
Antimony	ppm	ASTM D5185(m)	>5	**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

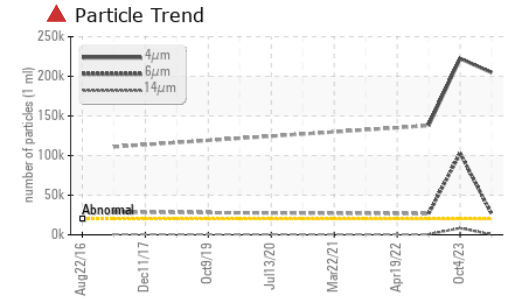
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**15**	14	14
Barium	ppm	ASTM D5185(m)		**<1**	<1	<1
Molybdenum	ppm	ASTM D5185(m)		**3**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)		**6**	4	5
Phosphorus	ppm	ASTM D5185(m)		**393**	406	460
Zinc	ppm	ASTM D5185(m)		**5**	8	6
Sulfur	ppm	ASTM D5185(m)		**4972**	5015	5209
Lithium	ppm	ASTM D5185(m)		**1**	<1	1

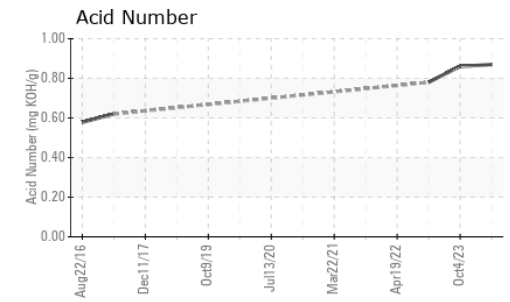
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**18**	24	24
Sodium	ppm	ASTM D5185(m)		**2**	3	2
Potassium	ppm	ASTM D5185(m)	>20	**3**	4	4

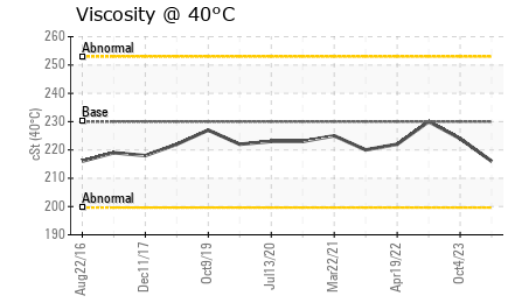
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **204806**	▲ 222437	▲ 137851
Particles >6µm		ASTM D7647	>5000	▲ **26248**	▲ 102973	▲ 26673
Particles >14µm		ASTM D7647	>640	**398**	▲ 8378	564
Particles >21µm		ASTM D7647	>160	**84**	▲ 1314	103
Particles >38µm		ASTM D7647	>40	**10**	33	3
Particles >71µm		ASTM D7647	>10	**3**	1	1
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **25/22/16**	▲ 25/24/20	▲ 24/22/16

OIL ANALYSIS REPORT





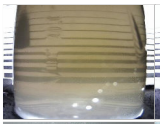
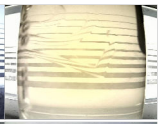
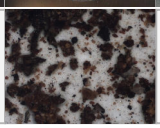




FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.87**	0.86	0.78

VISUAL		method	limit/base	current	history1	history2
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	**NONE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**VLITE**	▲ MODER	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 PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	230	**216**	224	230

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

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0863483 **Received** : 04 Apr 2024
Lab Number : 02626732 **Tested** : 05 Apr 2024
Unique Number : 5759864 **Diagnosed** : 05 Apr 2024 - Wes Davis
Test Package : IND 2 (Additional Tests: TAN Man)

Vale - Copper Cliff Smelter
COPPER CLIFF SMELTER WAREHOUSE, 155 BALSAM ST.
COPPER CLIFF, ON
CA P0M 1N0
Contact: Andy Kozachanko
andrew.kozachanko@vale.com
T: (705)682-6687
F: (705)682-6939

ISO 17025:2017 Accredited Laboratory

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.