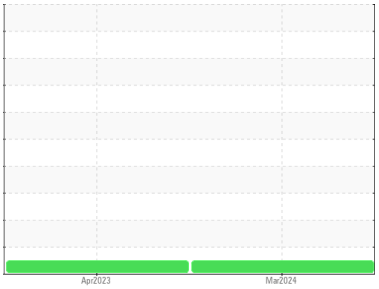
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
23-KC-2 SOUTHSIDE BRIDGE
Component
South Gearbox
Fluid
SHELL OMALA S2 GX 220 (--- GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. 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 no indication of any contamination in the oil.

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0820691**	WC0718841	---
Sample Date		Client Info		**12 Mar 2024**	04 Apr 2023	---
Machine Age	hrs	Client Info		**0**	0	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**N/A**	Not Changd	---
Sample Status				**NORMAL**	NORMAL	---

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

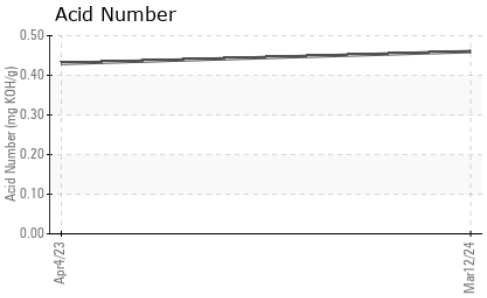
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	---
Iron	ppm	ASTM D5185(m)	>200	**5**	21	---
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	---
Nickel	ppm	ASTM D5185(m)	>15	**0**	0	---
Titanium	ppm	ASTM D5185(m)		**0**	0	---
Silver	ppm	ASTM D5185(m)		**0**	0	---
Aluminum	ppm	ASTM D5185(m)	>25	**0**	<1	---
Lead	ppm	ASTM D5185(m)	>100	**66**	35	---
Copper	ppm	ASTM D5185(m)	>200	**11**	8	---
Tin	ppm	ASTM D5185(m)	>25	**0**	<1	---
Antimony	ppm	ASTM D5185(m)	>5	**0**	<1	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**0**	0	---

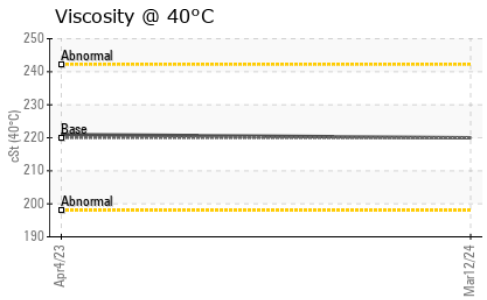
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	6.2	**<1**	<1	---
Barium	ppm	ASTM D5185(m)	0.0	**0**	0	---
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	---
Manganese	ppm	ASTM D5185(m)		**0**	<1	---
Magnesium	ppm	ASTM D5185(m)	0	**<1**	0	---
Calcium	ppm	ASTM D5185(m)	0.0	**1**	0	---
Phosphorus	ppm	ASTM D5185(m)	290	**256**	309	---
Zinc	ppm	ASTM D5185(m)	3.8	**12**	11	---
Sulfur	ppm	ASTM D5185(m)	8167	**8507**	8565	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**<1**	1	---
Sodium	ppm	ASTM D5185(m)		**2**	1	---
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.46**	0.43	---

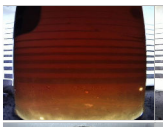
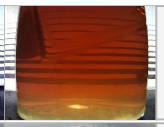
OIL ANALYSIS REPORT



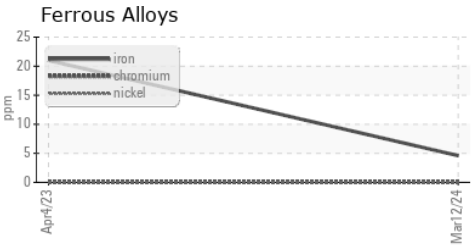


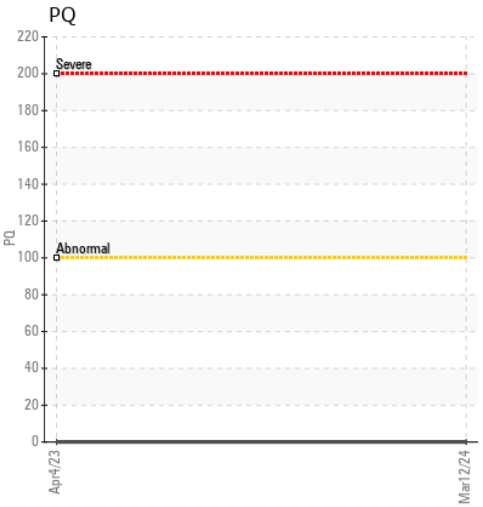
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	---
Silt	scalar	Visual*	NONE	**NONE**	NONE	---
Debris	scalar	Visual*	NONE	**VLITE**	NONE	---
Sand/Dirt	scalar	Visual*	NONE	**VLITE**	NONE	---
Appearance	scalar	Visual*	NORML	**NORML**	NORML	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	---
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	---
Free Water	scalar	Visual*		**NEG**	NEG	---

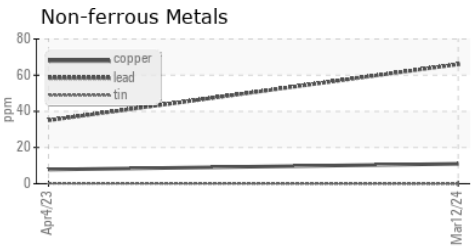
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	220	**220**	221	---

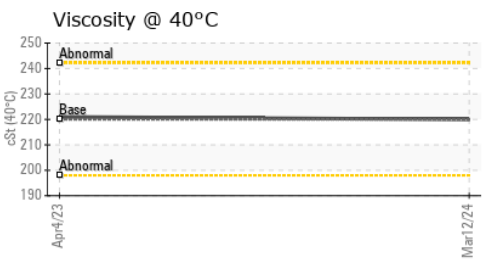
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*

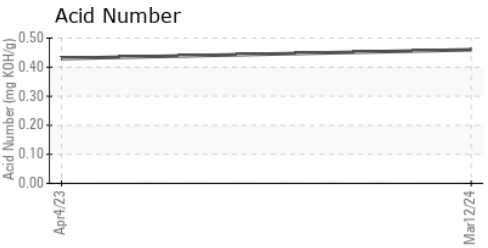
GRAPHS











ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0820691
Lab Number : 02625794
Unique Number : 5750913
Test Package : IND 2 (Additional Tests: TAN Man)

Received : 01 Apr 2024
Tested : 02 Apr 2024
Diagnosed : 02 Apr 2024 - Wes Davis

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 - Copper Cliff Smelter
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