MOB I

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Machine Id
11437554
Component
Gearbox
Fluid
SHELL OMALA 220 (--- GAL)

RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

WEAR

All component wear rates are normal.

CONTAMINATION

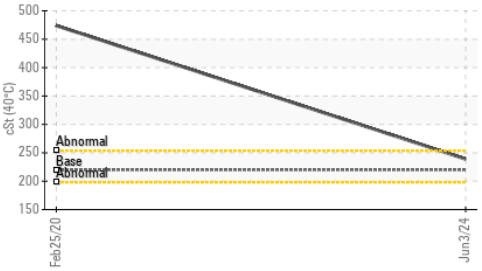
Lithium (Li) level abnormal @18ppm., indicates possible grease contamination.

FLUID CONDITION

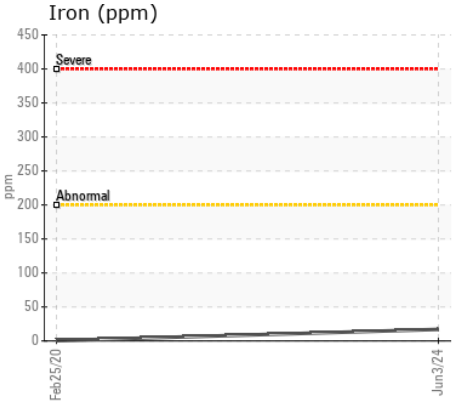
Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		**WC0304904**	WC0304982	---
Sample Date		Client Info		**03 Jun 2024**	25 Feb 2020	---
Machine Age	hrs	Client Info		**0**	0	---
Oil Age	hrs	Client Info		**0**	0	---
Filter Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**N/A**	N/A	---
Filter Changed		Client Info		**N/A**	N/A	---
Sample Status				**ABNORMAL**	ABNORMAL	---
Iron	ppm	ASTM D5185(m)	>200	**17**	<1	---
Chromium	ppm	ASTM D5185(m)	>10	**0**	0	---
Nickel	ppm	ASTM D5185(m)	>10	**0**	<1	---
Titanium	ppm	ASTM D5185(m)		**0**	0	---
Silver	ppm	ASTM D5185(m)		**0**	0	---
Aluminum	ppm	ASTM D5185(m)	>25	**<1**	0	---
Lead	ppm	ASTM D5185(m)	>50	**0**	<1	---
Copper	ppm	ASTM D5185(m)	>200	**2**	2	---
Tin	ppm	ASTM D5185(m)	>10	**0**	0	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
White Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Silicon	ppm	ASTM D5185(m)	>50	**21**	2	---
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	---
Water		WC Method	>0.2	**NEG**	NEG	---
Silt	scalar	Visual*	NONE	**NONE**	NONE	---
Debris	scalar	Visual*	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	Visual*	NONE	**VLITE**	NONE	---
Appearance	scalar	Visual*	NORML	**NORML**	▲ MILKY	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	---
Emulsified Water	scalar	Visual*	>0.2	**NEG**	▲ .2%	---
Sodium	ppm	ASTM D5185(m)		**2**	0	---
Boron	ppm	ASTM D5185(m)	4.4	**33**	14	---
Barium	ppm	ASTM D5185(m)	0.0	**6**	<1	---
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	---
Manganese	ppm	ASTM D5185(m)		**<1**	0	---
Magnesium	ppm	ASTM D5185(m)	0	**<1**	0	---
Calcium	ppm	ASTM D5185(m)	0	**11**	<1	---
Phosphorus	ppm	ASTM D5185(m)	215	**285**	429	---
Zinc	ppm	ASTM D5185(m)	0	**5**	2	---
Sulfur	ppm	ASTM D5185(m)	7039	**4732**	5380	---
Visc @ 40°C	cSt	ASTM D7279(m)	220	**239**	▲ 474	---

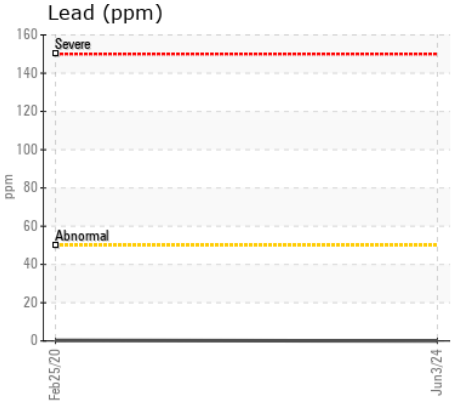
Viscosity @ 40°C



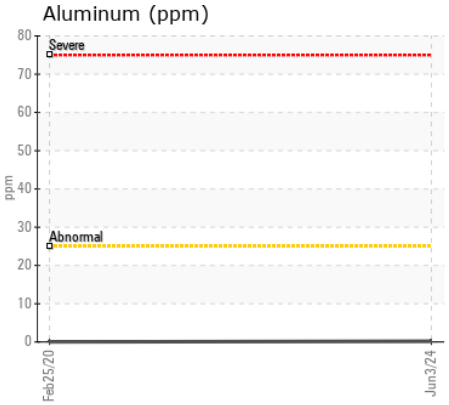
Iron (ppm)



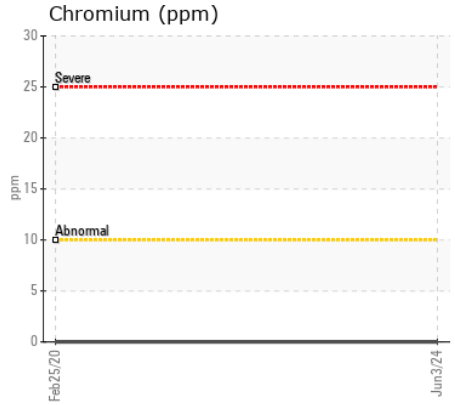
Lead (ppm)



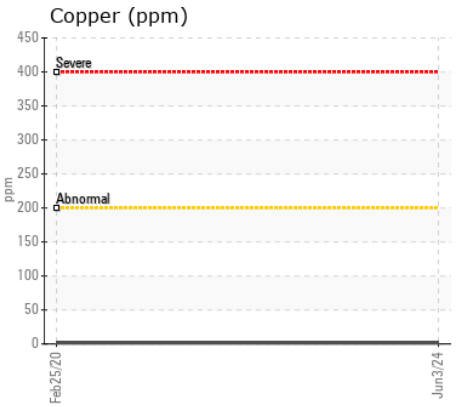
Aluminum (ppm)



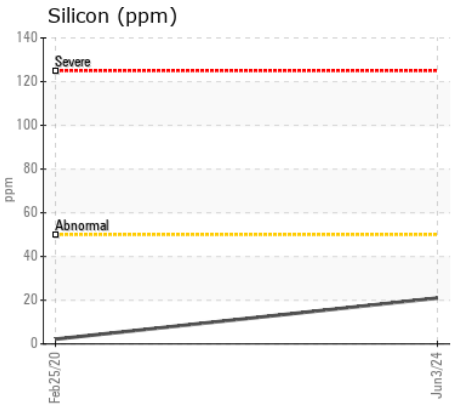
Chromium (ppm)



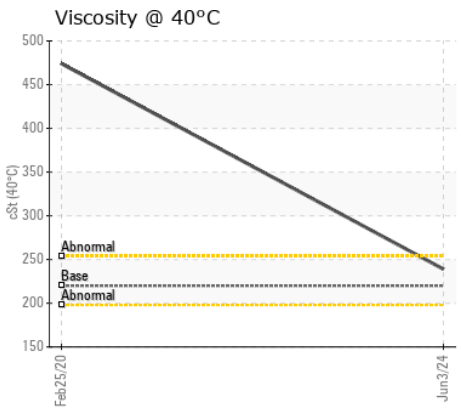
Copper (ppm)



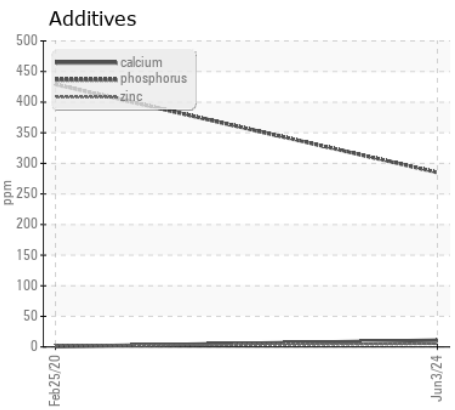
Silicon (ppm)



Viscosity @ 40°C



Additives



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0304904
Lab Number : 02641279
Unique Number : 5798818
Test Package : MOB 1

Received : 11 Jun 2024
Tested : 12 Jun 2024
Diagnosed : 12 Jun 2024 - Kevin Marson

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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