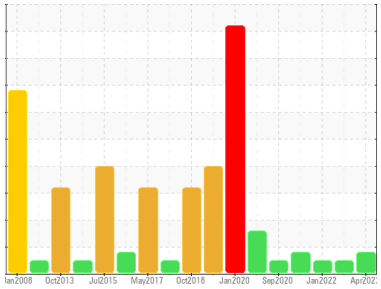
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
Grinding
Machine Id
Mill,Ball,33-BM-6 (S/N 10567084)
Component
Feed Trunnion Bearing
Fluid
SHELL OMALA S2 GX 320 (--- GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. 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

Lead ppm levels are abnormal. Bearing wear is indicated.

Contamination

The water content is negligible. There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0665402**	WC0664291	WC0642091
Sample Date		Client Info		**10 Apr 2023**	07 Sep 2022	20 Jan 2022
Machine Age	yrs	Client Info		**0**	0	0
Oil Age	yrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	NORMAL	NORMAL

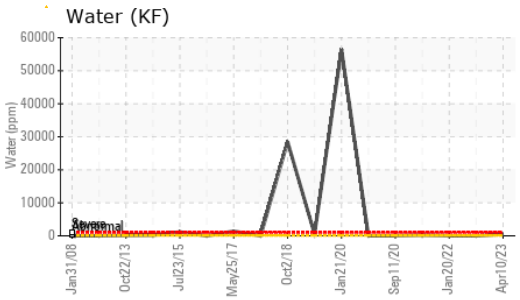
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>500	**37**	9	5
Chromium	ppm	ASTM D5185(m)	>10	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>10	**2**	<1	<1
Titanium	ppm	ASTM D5185(m)		**<1**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>15	**5**	<1	<1
Lead	ppm	ASTM D5185(m)	>100	▲ **165**	23	44
Copper	ppm	ASTM D5185(m)	>120	**6**	<1	1
Tin	ppm	ASTM D5185(m)	>125	**12**	3	4
Antimony	ppm	ASTM D5185(m)		**17**	2	4
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

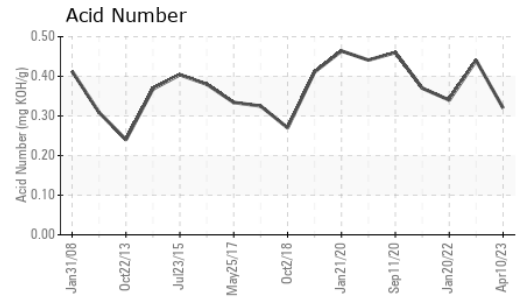
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	6.2	**<1**	<1	1
Barium	ppm	ASTM D5185(m)	0.0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**<1**	<1	0
Magnesium	ppm	ASTM D5185(m)	0	**6**	<1	1
Calcium	ppm	ASTM D5185(m)	0.0	**24**	4	3
Phosphorus	ppm	ASTM D5185(m)	290	**254**	285	282
Zinc	ppm	ASTM D5185(m)	3.8	**10**	7	12
Sulfur	ppm	ASTM D5185(m)	8167	**7416**	7481	7676
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

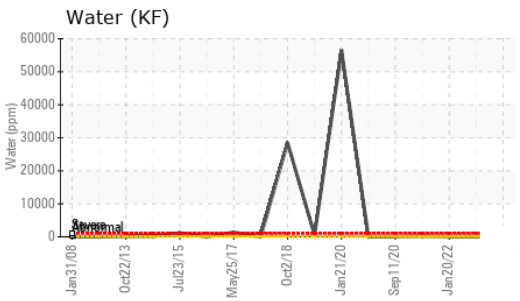
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**13**	<1	2
Sodium	ppm	ASTM D5185(m)		**8**	1	<1
Potassium	ppm	ASTM D5185(m)	>20	**3**	<1	<1
Water	%	ASTM D6304*	>2	**0.046**	---	---
ppm Water	ppm	ASTM D6304*		**469.7**	---	---

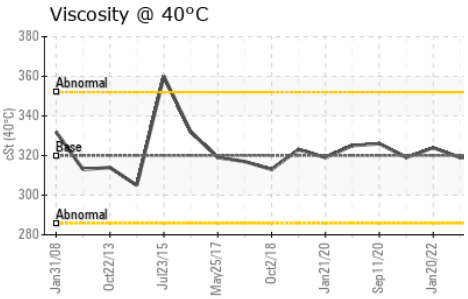
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.32**	0.44	0.34

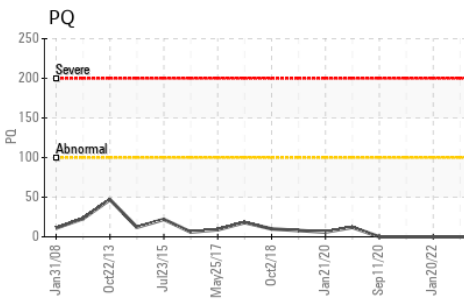
OIL ANALYSIS REPORT









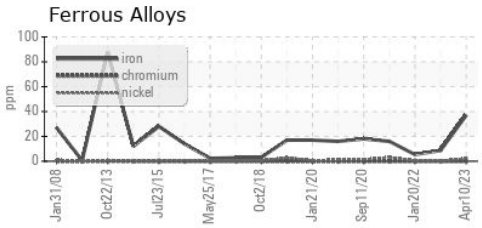


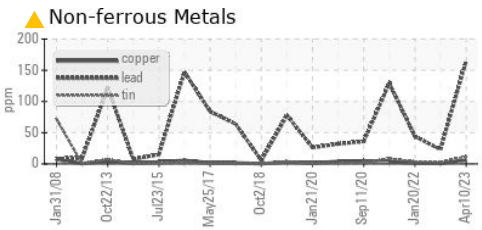
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	VLITE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>2	**.2%**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

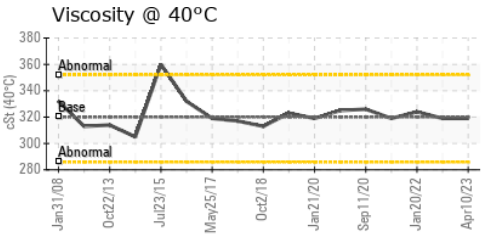
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	320	**319**	319	324

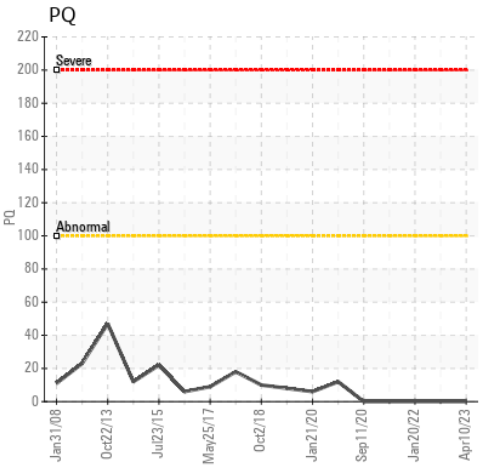
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

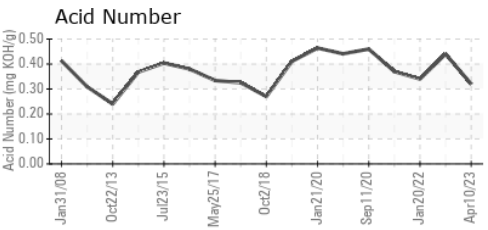
GRAPHS











ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0665402 **Recieved** : 20 Apr 2023
Lab Number : 02552601 **Diagnosed** : 21 Apr 2023
Unique Number : 5565616 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: KF)

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: Sean Chaumont

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