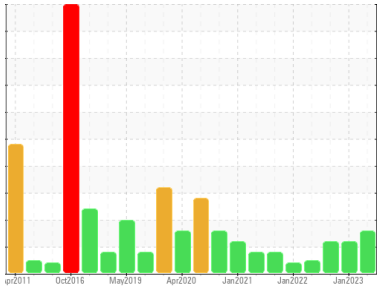
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
36-HU-2 #2 FILTER HYD
Component
Hydraulic System
Fluid
SHELL TELLUS S2 MX 46 (--- 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. 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.

Wear

Chromium and iron ppm levels are abnormal. Ring wear is indicated. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

Contamination

There is no indication of any contamination in the component(unconfirmed).

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history 1	history 2
Sample Number		Client Info		**WC0532579**	WC0664305	WC0665423
Sample Date		Client Info		**19 Apr 2023**	11 Jan 2023	12 Oct 2022
Machine Age	mths	Client Info		**0**	0	0
Oil Age	mths	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ATTENTION

WEAR METALS		method	limit/base	current	history 1	history 2
PQ		ASTM D8184*		**0**	---	---
Iron	ppm	ASTM D5185(m)	>20	▲ **20**	15	12
Chromium	ppm	ASTM D5185(m)	>10	▲ **14**	10	8
Nickel	ppm	ASTM D5185(m)	>10	**<1**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)	>10	**<1**	1	<1
Copper	ppm	ASTM D5185(m)	>75	**5**	4	3
Tin	ppm	ASTM D5185(m)	>10	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	<1	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

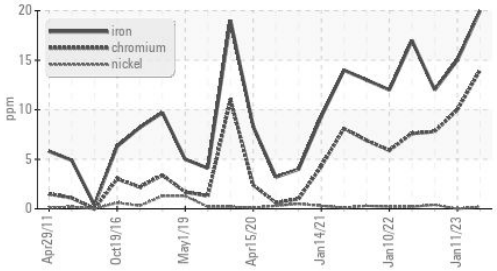
ADDITIVES		method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185(m)	0	**0**	<1	<1
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	70	**57**	55	53
Calcium	ppm	ASTM D5185(m)	10	**6**	9	11
Phosphorus	ppm	ASTM D5185(m)	300	**314**	303	306
Zinc	ppm	ASTM D5185(m)	325	**328**	310	323
Sulfur	ppm	ASTM D5185(m)	665	**675**	644	667
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

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

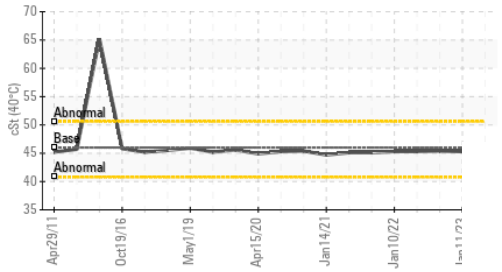
VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

OIL ANALYSIS REPORT

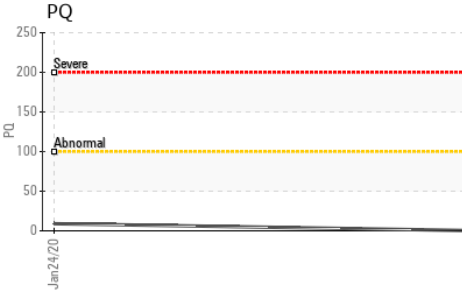
Ferrous Alloys



Viscosity @ 40°C

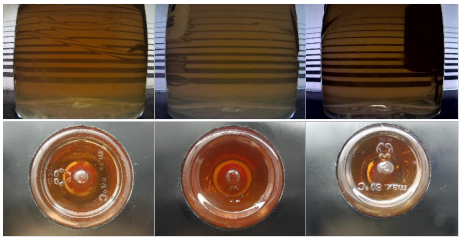


PQ



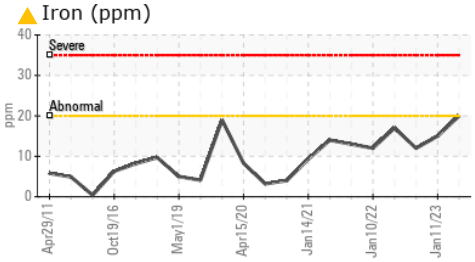
FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D7279(m)	46.0	**45.5**	45.3	45.4

SAMPLE IMAGES	method	limit/base	current	history 1	history 2
Color					
Bottom					

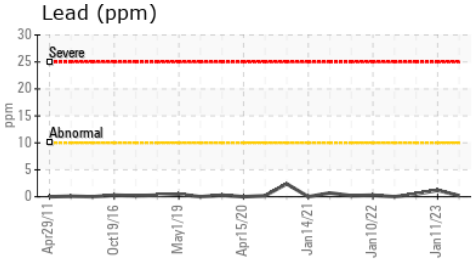


GRAPHS

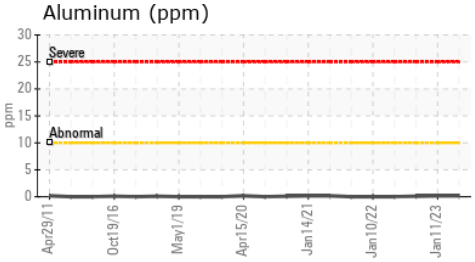
Iron (ppm)



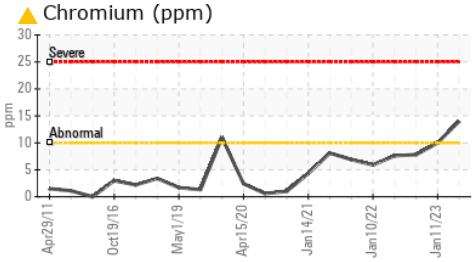
Lead (ppm)



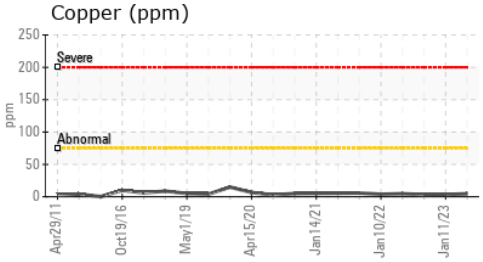
Aluminum (ppm)



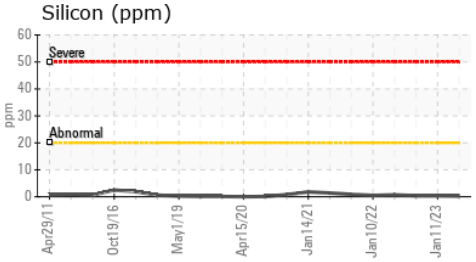
Chromium (ppm)



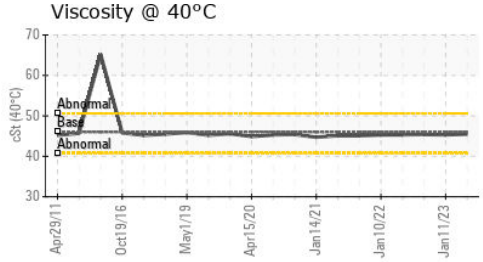
Copper (ppm)



Silicon (ppm)



Viscosity @ 40°C



PQ

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0532579 **Received** : 26 May 2023
Lab Number : 02559792 **Diagnosed** : 29 May 2023
Unique Number : 5580832 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: PQ)

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: Chris Tuttle
chris.tuttle@vale.com
T:
F: (705)682-6273