IND II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
10574142
Component
Gearbox
Fluid
SHELL MORLINA OIL 150 (--- GAL)

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

PQ levels are severe. The very high ferrous density (PQ) index indicates that severe wear is occurring.

CONTAMINATION

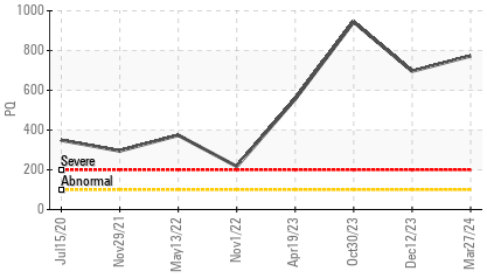
The sample contained a visible layer of foreign fluid contaminant, the origin and/or type of fluid is unknown.

FLUID CONDITION

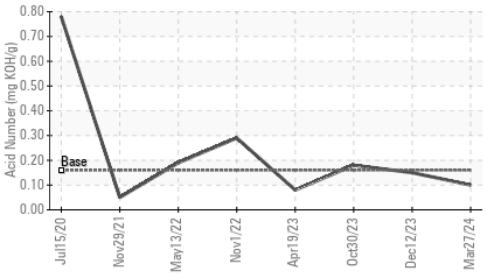
The viscosity of the oil is higher than normal, possibly indicating the addition of a heavier grade of oil. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		**WC0884184**	WC0811767	WC0718785
Sample Date		Client Info		**27 Mar 2024**	12 Dec 2023	30 Oct 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Filter Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Filter Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	SEVERE	MARGINAL
PQ		ASTM D8184*		▲ **773**	▲ 696	▲ 944
Iron	ppm	ASTM D5185(m)	>200	**14**	8	47
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>15	**0**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	**0**	<1	0
Lead	ppm	ASTM D5185(m)	>100	**0**	<1	<1
Copper	ppm	ASTM D5185(m)	>200	**2**	13	5
Tin	ppm	ASTM D5185(m)	>25	**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
White Metal	scalar	Visual*	NONE	**VLITE**	NONE	VLITE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>50	**2**	3	25
Potassium	ppm	ASTM D5185(m)	>20	**2**	<1	10
Water		WC Method	>0.2	**NEG**	NEG	NEG
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	▲ **LAYRD**	▲ LAYRD	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Sodium	ppm	ASTM D5185(m)		**0**	0	1
Boron	ppm	ASTM D5185(m)		**<1**	<1	<1
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**0**	<1	0
Calcium	ppm	ASTM D5185(m)		**0**	<1	6
Phosphorus	ppm	ASTM D5185(m)		**37**	42	54
Zinc	ppm	ASTM D5185(m)		**4**	8	17
Sulfur	ppm	ASTM D5185(m)		**175**	364	227
Acid Number (AN)	mg KOH/g	ASTM D974*	0.16	**0.10**	0.15	0.18
Visc @ 40°C	cSt	ASTM D7279(m)	152	**176**	▲ 356	160

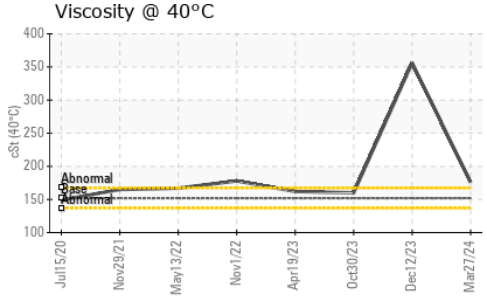
PQ



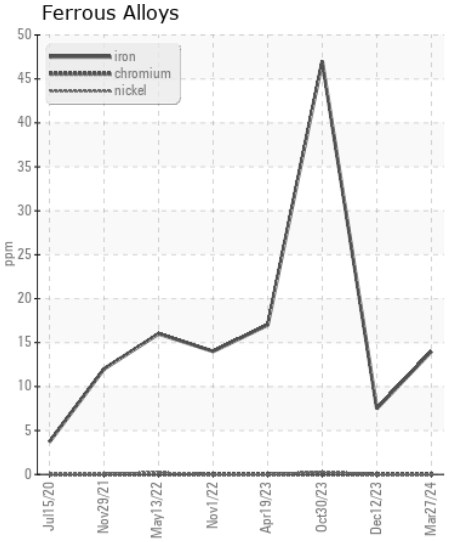
Acid Number



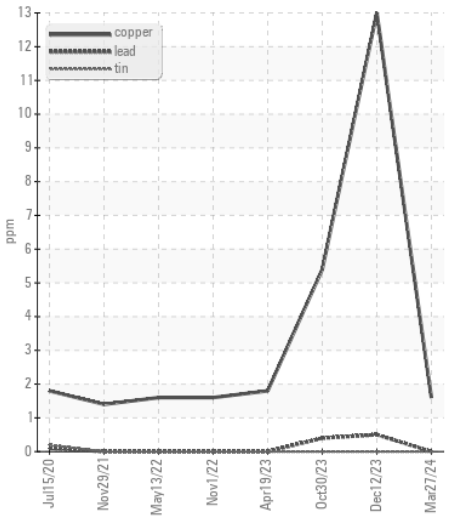
Viscosity @ 40°C



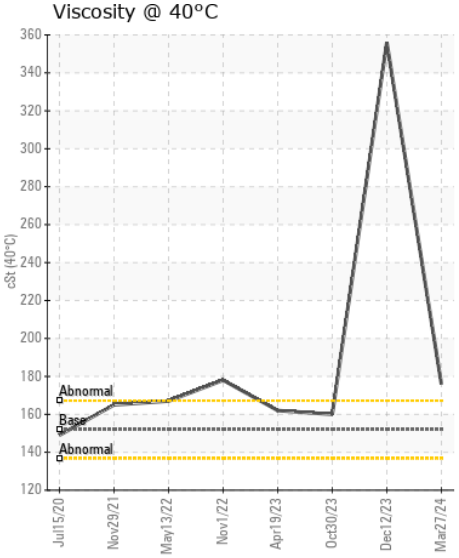
Ferrous Alloys



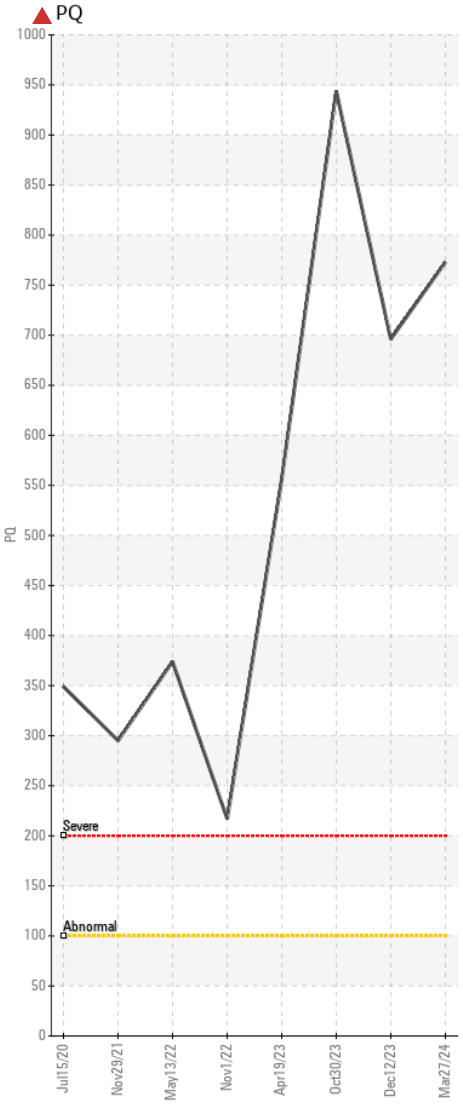
Non-ferrous Metals



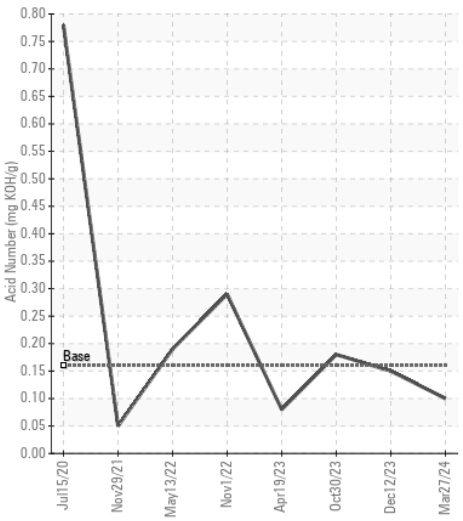
Viscosity @ 40°C



PQ



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0884184
Lab Number : 02625224
Unique Number : 5750343
Test Package : IND 2 (Additional Tests: TAN Man)

Received : 28 Mar 2024
Tested : 28 Mar 2024
Diagnosed : 01 Apr 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 - Coleman Mine
COLEMAN MINE (PLANT 10), 117 Mine Road
LEVACK, ON
CA P0M 2C0
Contact: Ryan Davies
ryan.davies@vale.com
T: (705)682-8952
F: (705)966-4114