MOB I

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
Locomotives
Machine Id
2003
Component
Railway diesel
Fluid
RAILWAY ENGINE OIL SAE 40 (243 GAL)

RECOMMENDATION

Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MOB 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. this testkit includes BN to determine the suitability of the oil for continued use.

WEAR

Component wear rates appear to be normal (unconfirmed).

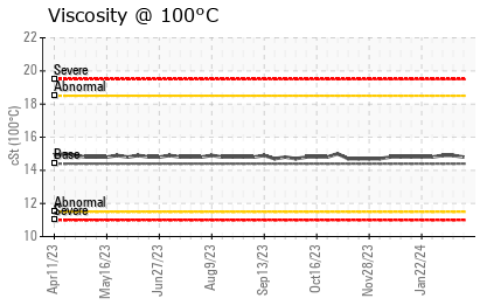
CONTAMINATION

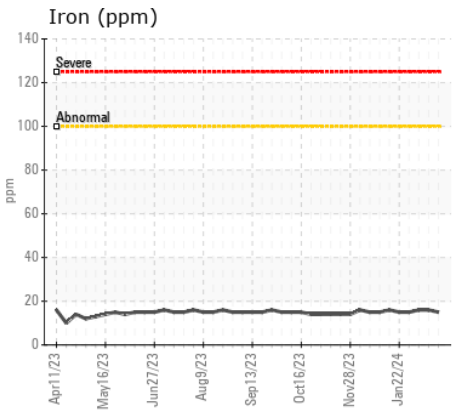
There is no indication of any contamination in the oil.

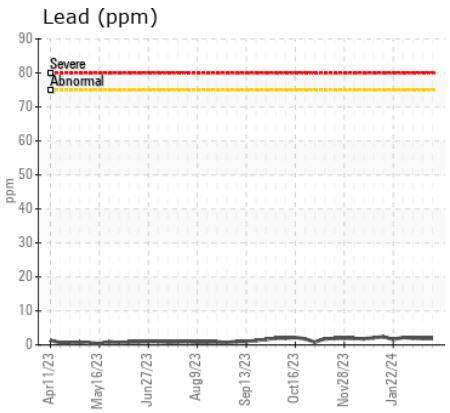
FLUID CONDITION

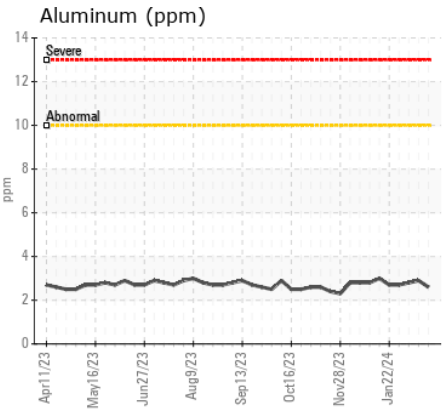
The condition of the oil is acceptable for the time in service (unconfirmed).

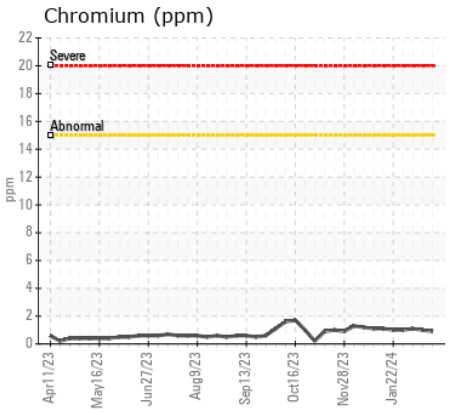
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0875039	WC0875036	WC0875034
Sample Date		Client Info		22 Feb 2024	15 Feb 2024	06 Feb 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185(m)	>100	15	16	16
Chromium	ppm	ASTM D5185(m)	>15	<1	1	1
Nickel	ppm	ASTM D5185(m)	>5	0	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	3	3	3
Lead	ppm	ASTM D5185(m)	>75	2	2	2
Copper	ppm	ASTM D5185(m)	>90	8	8	8
Tin	ppm	ASTM D5185(m)	>30	<1	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	VLITE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---
Silicon	ppm	ASTM D5185(m)	>17	4	4	4
Potassium	ppm	ASTM D5185(m)	>20	2	2	1
Fuel		WC Method	>4	<1.0	<1.0	<1.0
Water		WC Method	>0.20	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*		0.2	0.2	0.2
Nitration	Abs/cm	ASTM D7624*	>20	12.0	11.9	12.2
Sulfation	Abs/.1mm	ASTM D7415*	>30	14.7	14.7	15.2
Silt	scalar	Visual*	NONE	NONE	---	---
Debris	scalar	Visual*	NONE	NONE	---	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---	---
Appearance	scalar	Visual*	NORML	NORML	---	---
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.20	NEG	NEG	NEG
Sodium	ppm	ASTM D5185(m)		3	3	3
Boron	ppm	ASTM D5185(m)	10	<1	<1	<1
Barium	ppm	ASTM D5185(m)	10	0	0	0
Molybdenum	ppm	ASTM D5185(m)	25	0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)	20	16	16	16
Calcium	ppm	ASTM D5185(m)	4500	4657	4613	4625
Phosphorus	ppm	ASTM D5185(m)	10	2	2	1
Zinc	ppm	ASTM D5185(m)	10	3	3	3
Sulfur	ppm	ASTM D5185(m)	5000	3238	3205	3208
Oxidation	Abs/.1mm	ASTM D7414*	>25	9.5	9.7	9.9
Visc @ 100°C	cSt	ASTM D7279(m)	14.4	14.8	14.9	14.9

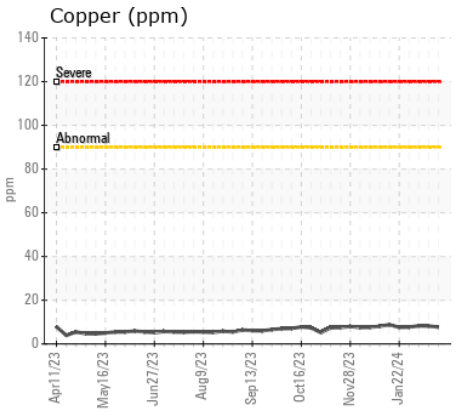


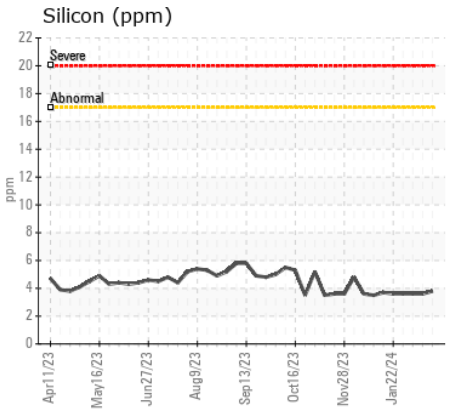


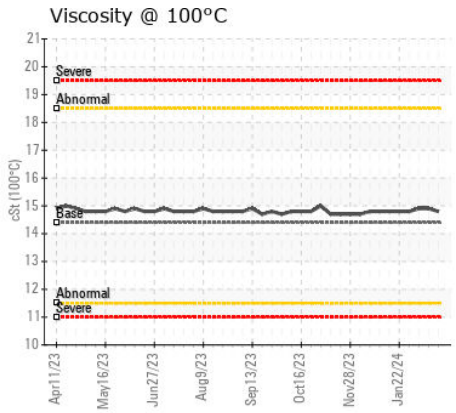


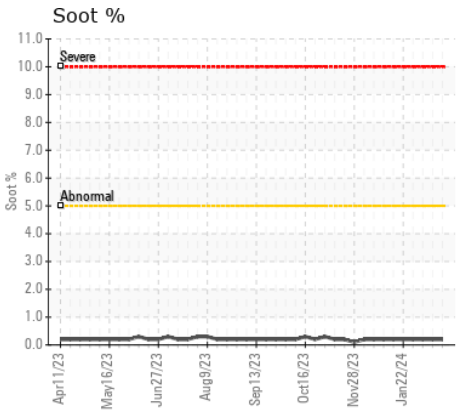












ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0875039
Lab Number : 02620498
Unique Number : 5737608
Test Package : MOB 1 (Additional Tests: Visual)

Received : 07 Mar 2024
Tested : 07 Mar 2024
Diagnosed : 07 Mar 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 - Transportation (Mobile Equipment)
Transportation Department, (Services - Mobile Equipment)
COPPER CLIFF, ON
CA P0M 1N0
Contact: Richard Rochon
richard.rochon@vale.com
T: (705)682-6014
F: