



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area

**Locomotives**

Machine Id

**2001**

Component

**Railway diesel**

Fluid

**RAILWAY ENGINE OIL SAE 40 (11 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 2 test kits, this testkit includes BN to determine the suitability of the oil for continued use.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0866406</b>	WC0866400	WC0874998
Sample Date		Client Info		<b>08 Jan 2024</b>	02 Jan 2024	27 Dec 2023
Machine Age	hrs	Client Info		<b>0</b>	0	0
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Filter Changed		Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>42	<b>15</b>	16	15
Chromium	ppm	ASTM D5185(m)	>6	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185(m)	>2	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m)	>4	<b>3</b>	3	4
Lead	ppm	ASTM D5185(m)	>30	<b>1</b>	2	1
Copper	ppm	ASTM D5185(m)	>95	<b>6</b>	7	6
Tin	ppm	ASTM D5185(m)	>10	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0

## CONTAMINATION

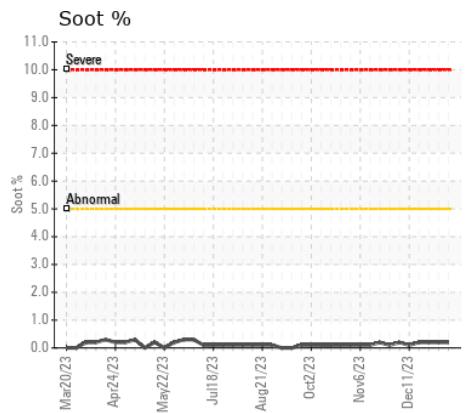
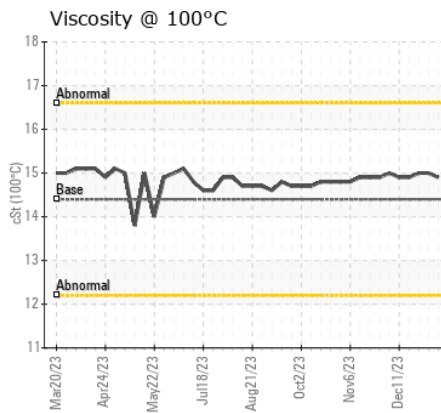
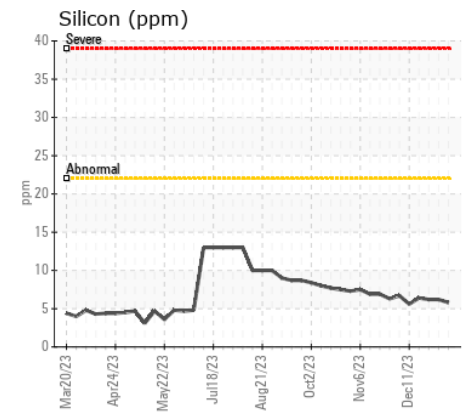
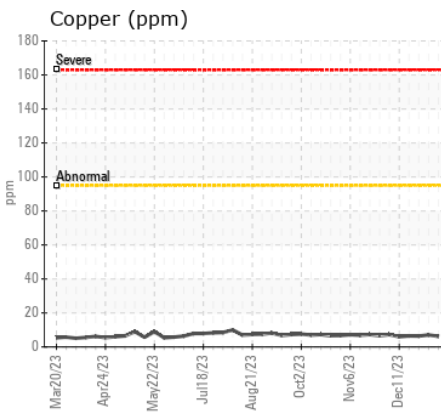
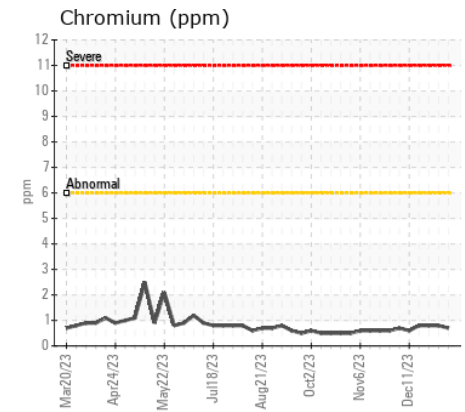
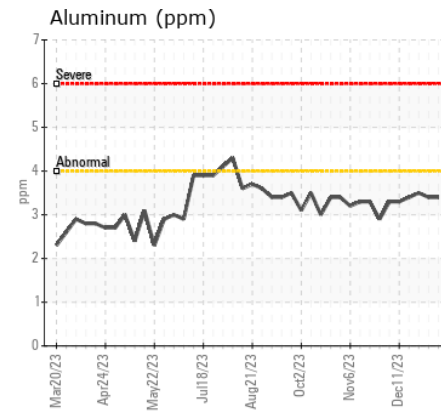
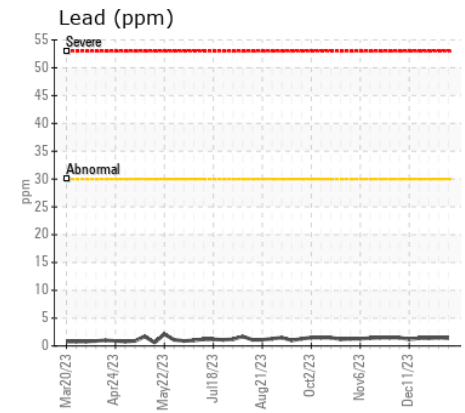
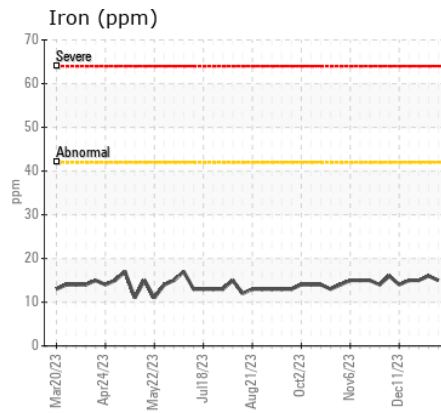
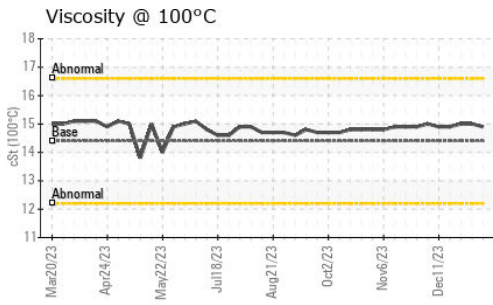
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185(m)	>22	<b>6</b>	6	6
Potassium	ppm	ASTM D5185(m)	>20	<b>3</b>	6	2
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	ASTM D7844*		<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	ASTM D7624*	>20	<b>12.0</b>	12.4	11.8
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>15.2</b>	15.3	14.9
Emulsified Water	scalar	Visual*	>0.1	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

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

Sodium	ppm	ASTM D5185(m)		<b>17</b>	19	19
Boron	ppm	ASTM D5185(m)	10	<b>3</b>	4	3
Barium	ppm	ASTM D5185(m)	10	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m)	25	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)	20	<b>16</b>	16	16
Calcium	ppm	ASTM D5185(m)	4500	<b>4699</b>	4734	4578
Phosphorus	ppm	ASTM D5185(m)	10	<b>2</b>	2	2
Zinc	ppm	ASTM D5185(m)	10	<b>3</b>	3	3
Sulfur	ppm	ASTM D5185(m)	5000	<b>3251</b>	3232	3317
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>9.7</b>	10.0	9.5
Visc @ 100°C	cSt	ASTM D7279(m)	14.4	<b>14.9</b>	15.0	15.0



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vale - Transportation (Mobile Equipment)  
**Sample No.** : WC0866406 **Received** : 19 Jan 2024  
**Lab Number** : 02609953 **Diagnosed** : 19 Jan 2024  
**Unique Number** : 5711039 **Diagnostician** : Wes Davis  
**Test Package** : MOB 1

Transportation Department, (Services - Mobile Equipment)

COPPER CLIFF, ON  
CA P0M 1N0

Contact: Richard Rochon  
richard.rochon@vale.com

T: (705)682-6014

F:

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.