



# OIL ANALYSIS REPORT

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

Area

**Locomotives**

Machine Id

**2002**

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0891390</b>	WC0891369	WC0891360
Sample Date		Client Info		<b>16 Apr 2024</b>	08 Apr 2024	01 Apr 2024
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 Changed</b>	Not Changed	Not Changed
Filter Changed		Client Info		<b>Not Changed</b>	Not Changed	Not Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

Component wear rates appear to be normal (unconfirmed).

Iron	ppm	ASTM D5185(m)	>100	<b>15</b>	15	15
Chromium	ppm	ASTM D5185(m)	>15	<b>3</b>	3	3
Nickel	ppm	ASTM D5185(m)	>5	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m)	>10	<b>2</b>	2	2
Lead	ppm	ASTM D5185(m)	>75	<b>2</b>	3	3
Copper	ppm	ASTM D5185(m)	>90	<b>12</b>	14	12
Tin	ppm	ASTM D5185(m)	>30	<b>5</b>	5	5
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0

## CONTAMINATION

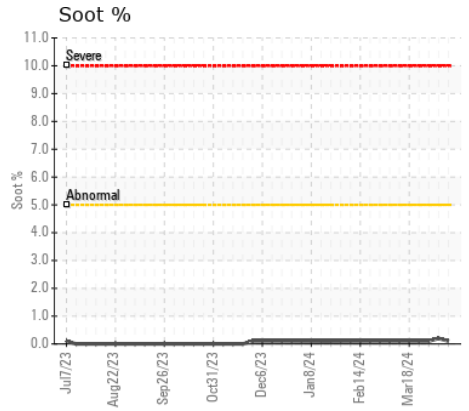
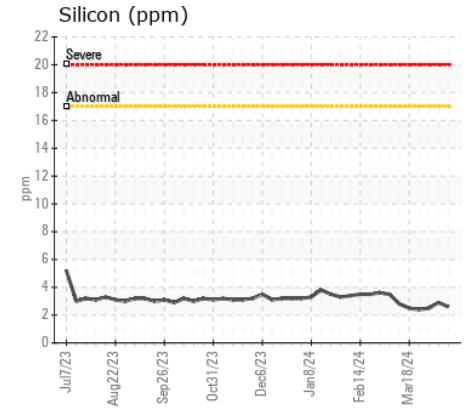
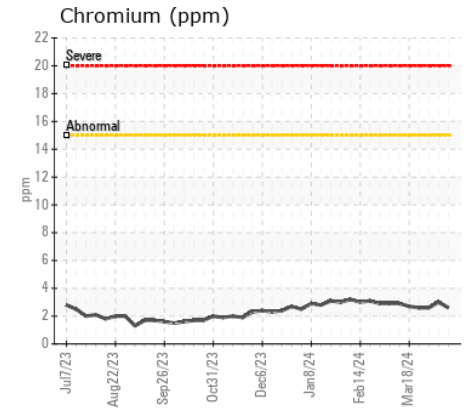
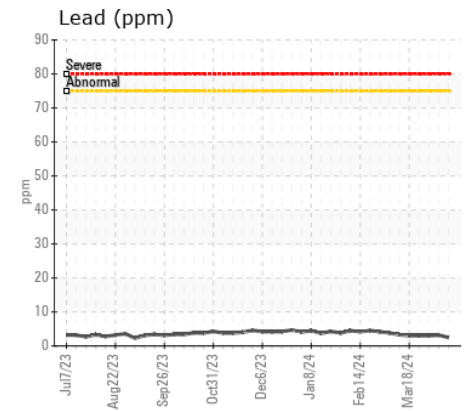
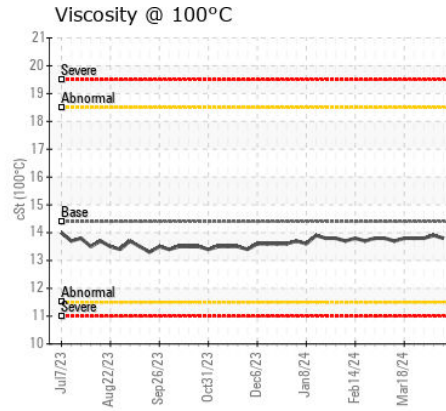
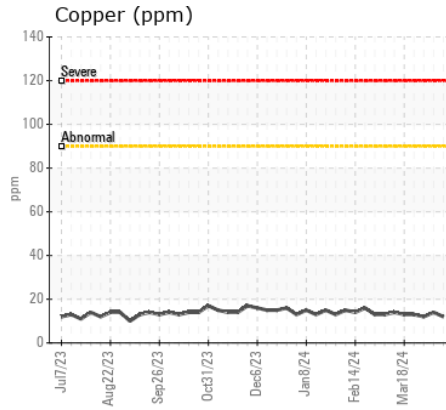
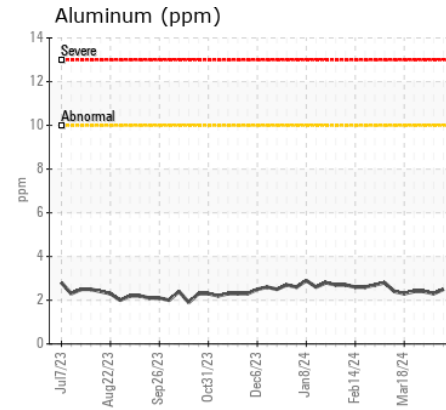
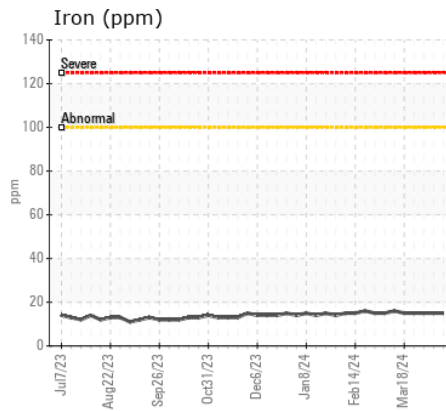
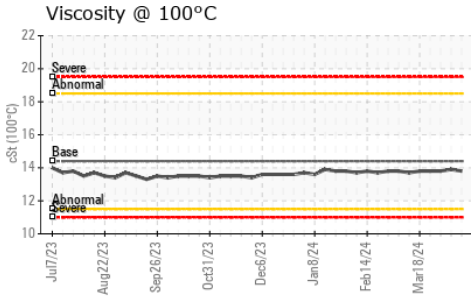
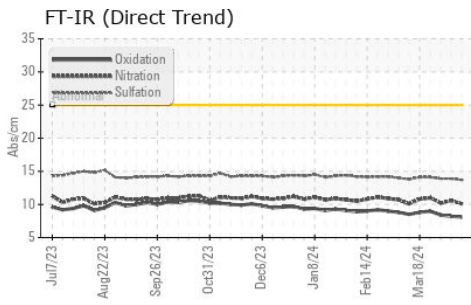
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185(m)	>17	<b>3</b>	3	2
Potassium	ppm	ASTM D5185(m)	>20	<b>1</b>	1	<1
Fuel		WC Method	>4	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.20	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	ASTM D7844*		<b>0.1</b>	0.2	0.1
Nitration	Abs/cm	ASTM D7624*	>20	<b>10.1</b>	10.6	10.2
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>13.7</b>	13.9	13.9
Emulsified Water	scalar	Visual*	>0.20	<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>3</b>	3	3
Boron	ppm	ASTM D5185(m)	10	<b>&lt;1</b>	<1	<1
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>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185(m)	20	<b>16</b>	21	16
Calcium	ppm	ASTM D5185(m)	4500	<b>4416</b>	4460	4552
Phosphorus	ppm	ASTM D5185(m)	10	<b>3</b>	7	3
Zinc	ppm	ASTM D5185(m)	10	<b>3</b>	8	4
Sulfur	ppm	ASTM D5185(m)	5000	<b>2762</b>	2786	2862
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>8.1</b>	8.2	8.4
Visc @ 100°C	cSt	ASTM D7279(m)	14.4	<b>13.8</b>	13.9	13.8



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0891390  
**Lab Number** : 02632545  
**Unique Number** : 5773698  
**Test Package** : MOB 1

**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:

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.