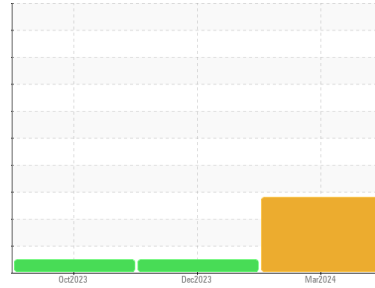


# OIL ANALYSIS REPORT

## Sample Rating Trend



**DIRT**



Machine Id  
**6323**  
 Component  
**Diesel Engine**  
 Fluid  
**RED GIANT LOCOMOTIVE EO 20W40 (--- GAL)**

### DIAGNOSIS

#### Recommendation

We advise that you check for possible coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

Sodium and/or potassium levels are high. Elemental level of silicon (Si) above normal indicating ingress of seal material.

#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>PCA0092767</b>	PCA0092709	PCA05995907
Sample Date	Client Info			<b>25 Mar 2024</b>	28 Dec 2023	10 Oct 2023
Machine Age	hrs	Client Info		<b>0</b>	0	0
Oil Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed	Client Info			<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>4		<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method	>0.20		<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>22</b>	16	20
Chromium	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>2</b>	2	4
Lead	ppm	ASTM D5185m	>75	<b>7</b>	6	10
Copper	ppm	ASTM D5185m	>90	<b>11</b>	10	15
Tin	ppm	ASTM D5185m	>30	<b>2</b>	3	4
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	<1

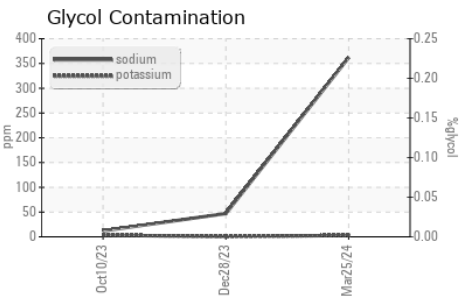
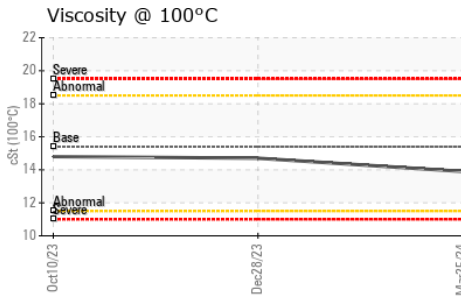
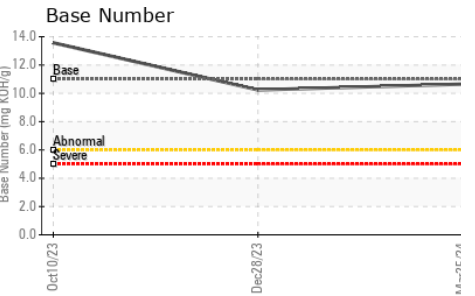
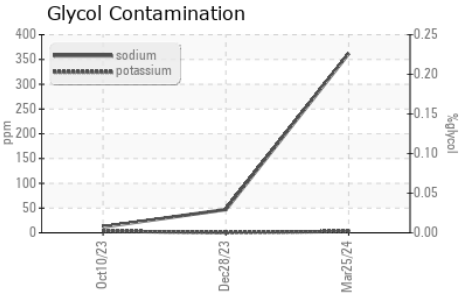
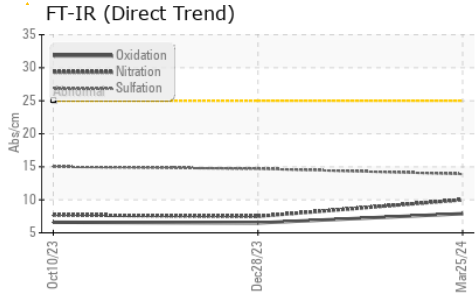
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>109</b>	47	37
Barium	ppm	ASTM D5185m		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m		<b>54</b>	42	48
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>31</b>	12	16
Calcium	ppm	ASTM D5185m		<b>3389</b>	3390	3472
Phosphorus	ppm	ASTM D5185m	0	<b>22</b>	5	10
Zinc	ppm	ASTM D5185m	0	<b>22</b>	0	6
Sulfur	ppm	ASTM D5185m	1900	<b>3422</b>	2521	2769

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>17	<b>▲ 27</b>	7	6
Sodium	ppm	ASTM D5185m		<b>▲ 362</b>	47	12
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	<1	3
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>0.8</b>	0.7	1
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.0</b>	7.5	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>13.9</b>	14.7	15.0

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>7.9</b>	6.5	6.6
Base Number (BN)	mg KOH/g	ASTM D2896	11	<b>10.65</b>	10.24	13.57

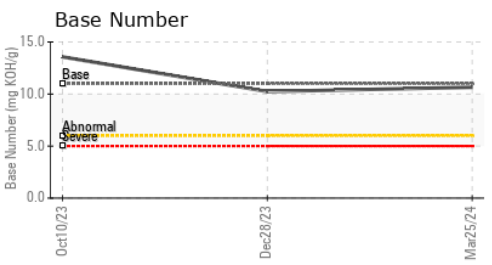
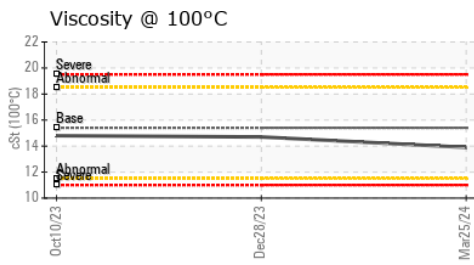
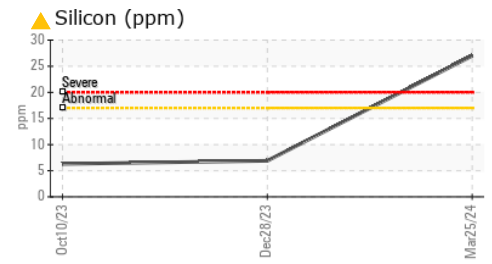
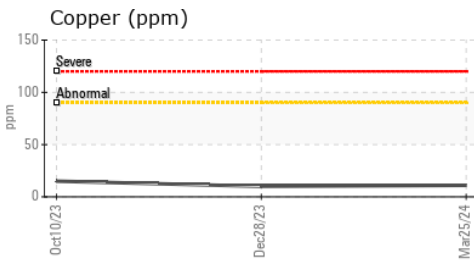
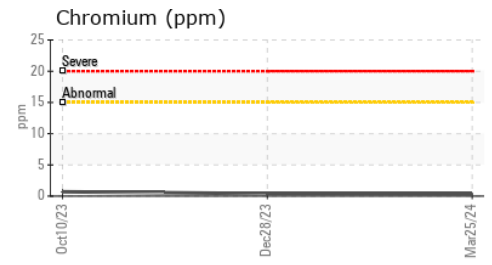
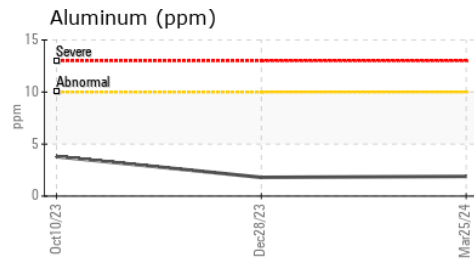
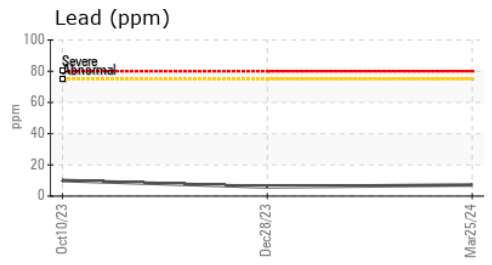
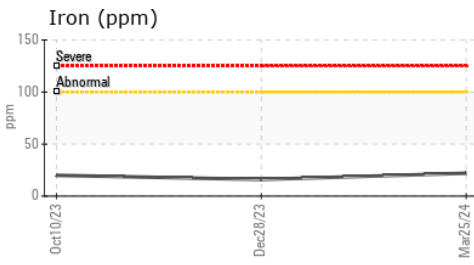
# OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.20	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.7

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0092767      **Received** : 03 Apr 2024  
**Lab Number** : 06137642      **Tested** : 08 Apr 2024  
**Unique Number** : 10957107      **Diagnosed** : 08 Apr 2024 - Jonathan Hester  
**Test Package** : MOB 2 ( Additional Tests: Glycol )

**U.S. SUGAR CORP**  
 1731 S W.C. OWEN AVENUE  
 CLEWISTON, FL  
 US 33440-3032  
 Contact: MAT RUDD  
 mrudd@ussugar.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.  
 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.  
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)