



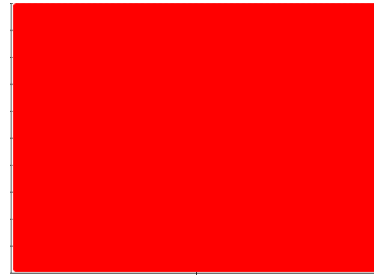
OIL ANALYSIS REPORT

Sample Rating Trend

WEAR



Machine Id
402
Component
Diesel Engine
Fluid
NOT GIVEN (--- GAL)



DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear

Piston and cylinder wear is indicated.

Contamination

There is an abnormal amount of solids and carbon present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition

The oil viscosity is higher than normal. The BN level is low.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0584565	---	---
Sample Date	Client Info		17 Aug 2023	---	---
Machine Age	mls	Client Info	309067	---	---
Oil Age	mls	Client Info	11033	---	---
Oil Changed	Client Info		Changed	---	---
Sample Status			SEVERE	---	---

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	---	---
Glycol	WC Method		NEG	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	231	---	---
Chromium	ppm	ASTM D5185m >20	6	---	---
Nickel	ppm	ASTM D5185m >4	5	---	---
Titanium	ppm	ASTM D5185m	<1	---	---
Silver	ppm	ASTM D5185m >3	0	---	---
Aluminum	ppm	ASTM D5185m >20	160	---	---
Lead	ppm	ASTM D5185m >40	5	---	---
Copper	ppm	ASTM D5185m >330	9	---	---
Tin	ppm	ASTM D5185m >15	<1	---	---
Vanadium	ppm	ASTM D5185m	0	---	---
Cadmium	ppm	ASTM D5185m	0	---	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	141	---	---
Barium	ppm	ASTM D5185m	0	---	---
Molybdenum	ppm	ASTM D5185m	94	---	---
Manganese	ppm	ASTM D5185m	2	---	---
Magnesium	ppm	ASTM D5185m	426	---	---
Calcium	ppm	ASTM D5185m	1464	---	---
Phosphorus	ppm	ASTM D5185m	1079	---	---
Zinc	ppm	ASTM D5185m	1329	---	---
Sulfur	ppm	ASTM D5185m	3605	---	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	27	---	---
Sodium	ppm	ASTM D5185m	6	---	---
Potassium	ppm	ASTM D5185m >20	11	---	---

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	6.3	---	---
Nitration	Abs/cm	*ASTM D7624 >20	25.3	---	---
Sulfation	Abs/.1mm	*ASTM D7415 >30	57.4	---	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	47.9	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	0.0	---	---

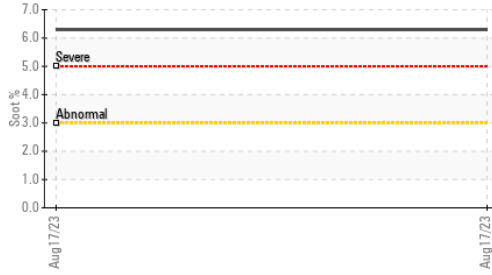


OIL ANALYSIS REPORT

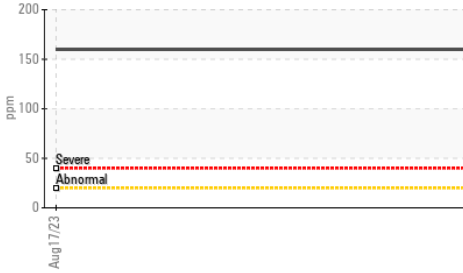
Ferrous Alloys



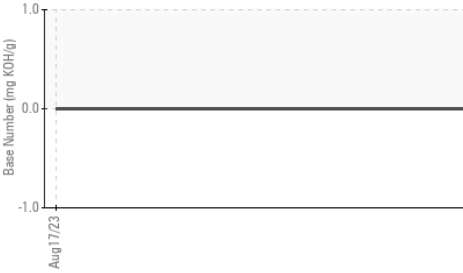
Soot %



Aluminum (ppm)



Base Number



Viscosity @ 100°C

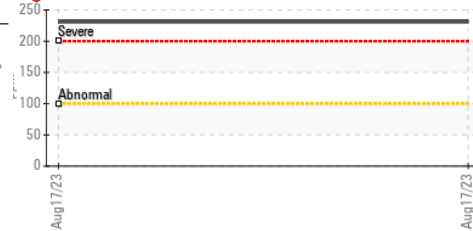


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual NONE	NONE	---	---
Yellow Metal	scalar	*Visual NONE	NONE	---	---
Precipitate	scalar	*Visual NONE	NONE	---	---
Silt	scalar	*Visual NONE	NONE	---	---
Debris	scalar	*Visual NONE	NONE	---	---
Sand/Dirt	scalar	*Visual NONE	NONE	---	---
Appearance	scalar	*Visual NORML	NORML	---	---
Odor	scalar	*Visual NORML	NORML	---	---
Emulsified Water	scalar	*Visual >0.2	NEG	---	---
Free Water	scalar	*Visual	NEG	---	---

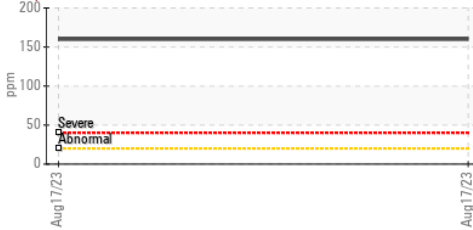
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	▲ 16.9	---	---

GRAPHS

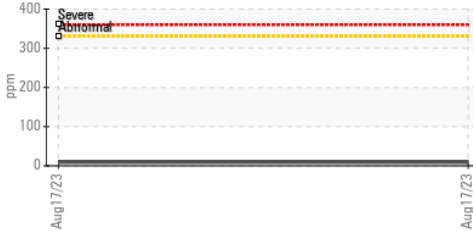
Iron (ppm)



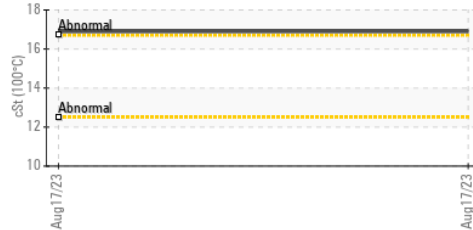
Aluminum (ppm)



Copper (ppm)



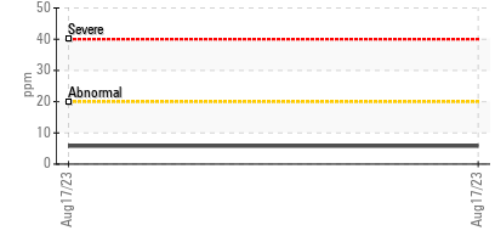
Viscosity @ 100°C



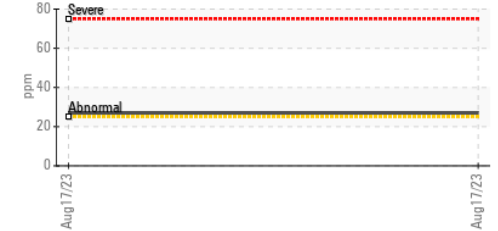
Lead (ppm)



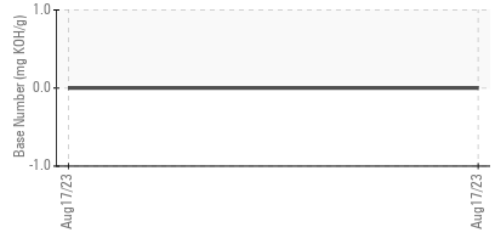
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0584565 **Received** : 21 Aug 2023
Lab Number : 05929403 **Diagnosed** : 23 Aug 2023
Unique Number : 10609350 **Diagnostician** : Jonathan Hester
Test Package : MOB1+

MIDDLESBORO COCA-COLA BOTTLING - MCCB
 1324 E CUMBERLAND AVE
 MIDDLESBORO, KY
 US 40965
 Contact: TIM GOINS
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 T: (606)248-0362
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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)