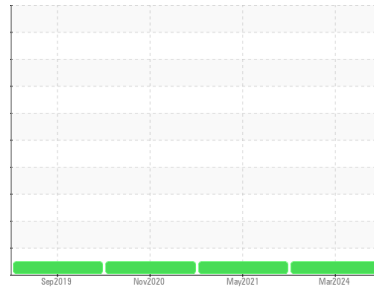




# OIL ANALYSIS REPORT

## Sample Rating Trend



**NORMAL**



Machine Id

**EX-018**

Component

**Diesel Engine**

Fluid

**CITGO CITGUARD 600 15W40 (--- GAL)**

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>WC0909403</b>	WC0355608	WC0475621
Sample Date	Client Info			<b>20 Mar 2024</b>	21 May 2021	05 Nov 2020
Machine Age	mls	Client Info		<b>2949</b>	1993	1737
Oil Age	mls	Client Info		<b>500</b>	0	250
Oil Changed	Client Info			<b>Changed</b>	N/A	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>5		<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method	>0.2		<b>NEG</b>	NEG	NEG
Glycol	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>29</b>	15	19
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>20	<b>3</b>	0	0
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>330	<b>1</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	<1
Antimony	ppm	ASTM D5185m		<b>---</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	13	<b>2</b>	27	22
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	57	<b>64</b>	56	47
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	825	<b>1005</b>	819	788
Calcium	ppm	ASTM D5185m	1100	<b>1317</b>	1124	1216
Phosphorus	ppm	ASTM D5185m	933	<b>1154</b>	955	941
Zinc	ppm	ASTM D5185m	1089	<b>1360</b>	1082	1051
Sulfur	ppm	ASTM D5185m	2769	<b>3928</b>	2660	2546

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	<b>5</b>	4	3
Sodium	ppm	ASTM D5185m		<b>3</b>	2	1
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1

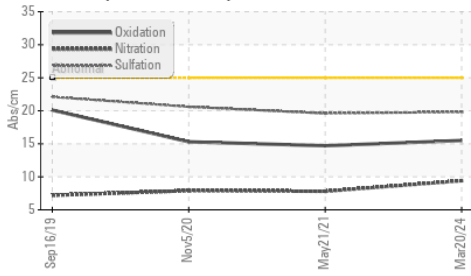
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>1</b>	0.7	0.8
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.4</b>	7.8	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.8</b>	19.6	20.6

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.5</b>	14.7	15.3
Base Number (BN)	mg KOH/g	ASTM D2896	11.0	<b>9.2</b>	9.26	9.8

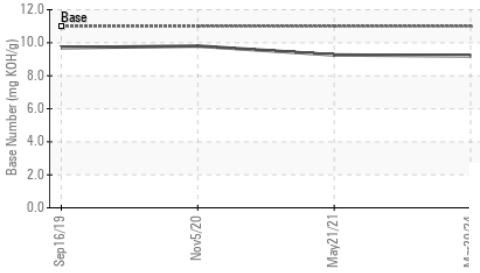


# OIL ANALYSIS REPORT

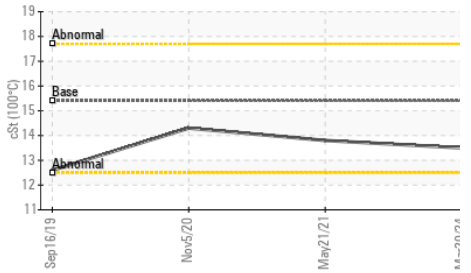
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

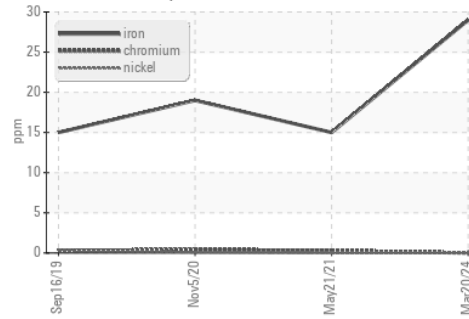


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

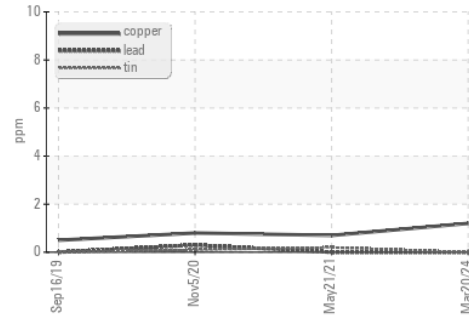
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.8

## GRAPHS

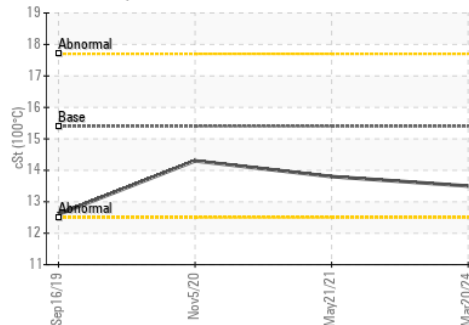
Ferrous Alloys



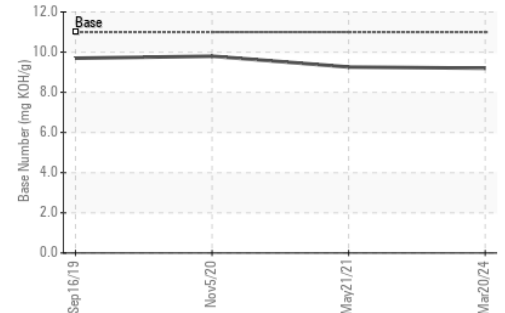
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0909403      **Received** : 12 Apr 2024  
**Lab Number** : 06146965      **Tested** : 15 Apr 2024  
**Unique Number** : 10977043      **Diagnosed** : 15 Apr 2024 - Wes Davis  
**Test Package** : FLEET

**E.C. PACE CO.**  
 1811 HOLLINS RD.  
 ROANOKE, VA  
 US 24012  
 Contact: EDDIE SECO  
 ESECO@ECPACE.COM  
 T: (276)266-5849  
 F: (540)343-6909

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)