

SOOT



Machine Id
FREIGHTLINER 93
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (13 LTR)

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. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present in the oil.

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			PCA0102575	PCA0100698	---
Sample Date	Client Info			17 Aug 2023	22 Jun 2023	---
Machine Age	mls Client Info			407643	385725	---
Oil Age	mls Client Info			25431	28289	---
Oil Changed	Client Info			Changed	Changed	---
Sample Status				ABNORMAL	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.2	NEG	NEG	---
Glycol	WC Method			NEG	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	39	28	---
Chromium	ppm	ASTM D5185m	>5	3	2	---
Nickel	ppm	ASTM D5185m	>2	<1	<1	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m	>3	<1	0	---
Aluminum	ppm	ASTM D5185m	>30	6	1	---
Lead	ppm	ASTM D5185m	>30	16	13	---
Copper	ppm	ASTM D5185m	>150	2	2	---
Tin	ppm	ASTM D5185m	>5	1	1	---
Vanadium	ppm	ASTM D5185m		<1	0	---
Cadmium	ppm	ASTM D5185m		0	<1	---

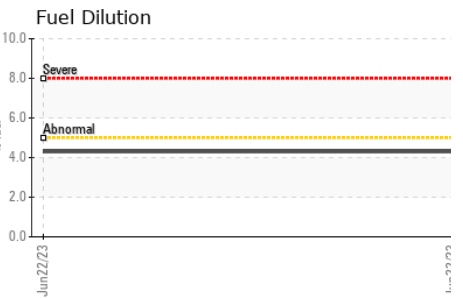
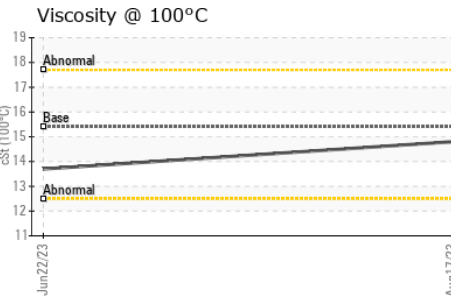
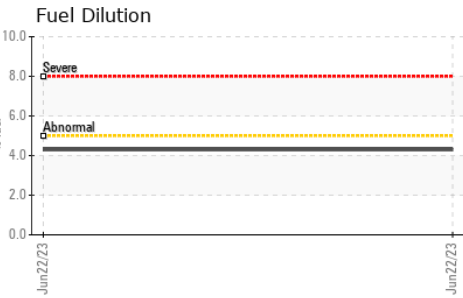
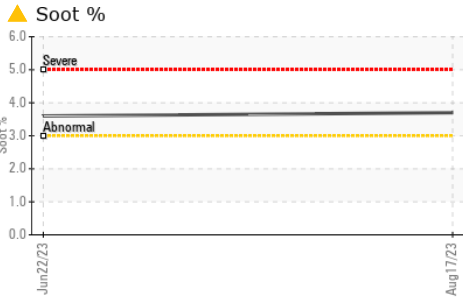
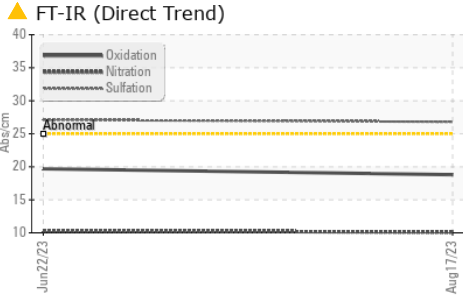
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	2	---
Barium	ppm	ASTM D5185m	0	0	<1	---
Molybdenum	ppm	ASTM D5185m	60	89	60	---
Manganese	ppm	ASTM D5185m	0	<1	<1	---
Magnesium	ppm	ASTM D5185m	1010	1390	945	---
Calcium	ppm	ASTM D5185m	1070	1632	1138	---
Phosphorus	ppm	ASTM D5185m	1150	1360	1000	---
Zinc	ppm	ASTM D5185m	1270	1800	1232	---
Sulfur	ppm	ASTM D5185m	2060	4552	3476	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	10	5	---
Sodium	ppm	ASTM D5185m		1	3	---
Potassium	ppm	ASTM D5185m	>20	6	3	---
Fuel	%	ASTM D3524	>5	<1.0	▲ 4.3	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ 3.7	▲ 3.6	---
Nitration	Abs/cm	*ASTM D7624	>20	10.1	10.3	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.8	27.1	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.8	19.7	---
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.1	4.4	---

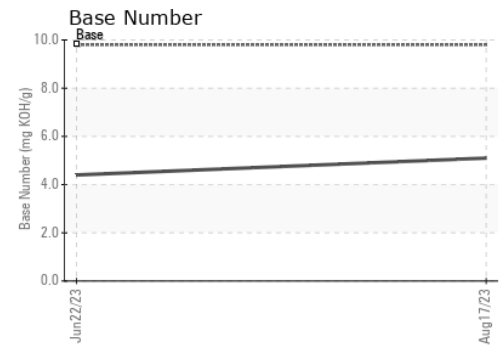
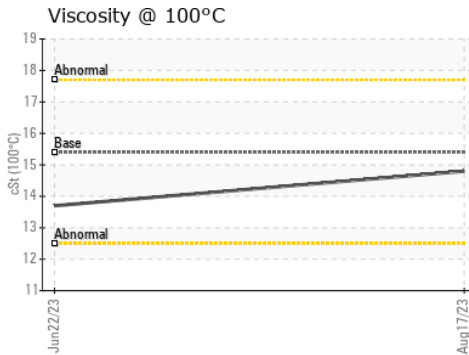
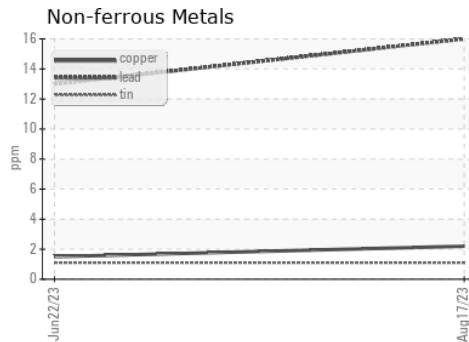
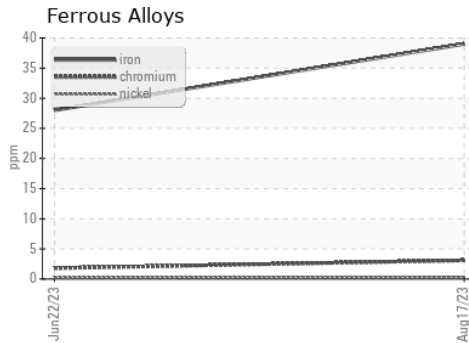
OIL ANALYSIS REPORT



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	15.4	14.8	13.7

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0102575 **Received** : 23 May 2024
Lab Number : 06188649 **Tested** : 24 May 2024
Unique Number : 11045401 **Diagnosed** : 28 May 2024 - Don Baldrige
Test Package : FLEET (Additional Tests : FuelDilution)

A Truck Repair
 9349 China Grove Church Road
 Pineville, NC
 US 28134
 Contact: Vlad Melnichuk
 shop@migway.com
 T: (980)255-3200
 F:

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)