

OIL ANALYSIS REPORT

Sample Rating Trend



FREIGHTLINER 8449 Component

Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (46 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

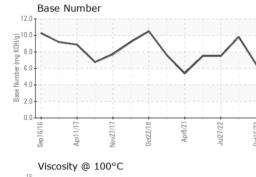
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

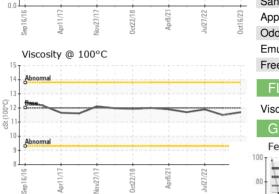
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0088640	PCA0051874	PCA0051915
Sample Date		Client Info		16 Oct 2023	03 Oct 2022	27 Jul 2022
Machine Age	mls	Client Info		686704	657985	644810
Oil Age	mls	Client Info		29763	13175	37802
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	32	6	23
Chromium	ppm	ASTM D5185m	>6	<1	<1	1
Nickel	ppm	ASTM D5185m	>3	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>50	8	1	11
Lead	ppm	ASTM D5185m	>10	0	0	<1
Copper	ppm	ASTM D5185m	>50	5	1	6
Tin	ppm	ASTM D5185m	>6	0	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
	pp			-		
ADDITIVES	ppm	method	limit/base	current	history1	history2
	ppm		limit/base 2	-		history2 3
ADDITIVES		method ASTM D5185m		current	history1	
ADDITIVES Boron	ppm	method ASTM D5185m	2	current 0	history1 0	3
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	2 0 50	current O O	history1 0 0	3 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 0 0 65	history1 0 0 58	3 0 66
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 0 0 65 0	history1 0 0 58 <1	3 0 66 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	Current 0 0 65 0 1018	history1 0 0 58 <1 908	3 0 66 <1 898
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	current 0 0 65 0 1018 1129	history1 0 0 58 <1 908 1084	3 0 66 <1 898 1144
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	Current 0 0 65 0 1018 1129 1028	history1 0 0 58 <1 908 1084 960	3 0 66 <1 898 1144 1041
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180	Current 0 0 65 0 1018 1129 1028 1291	history1 0 58 <1 908 1084 960 1223	3 0 66 <1 898 1144 1041 1281
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 0 0 65 0 1018 1129 1028 1291 2899	history1 0 0 58 <1 908 1084 960 1223 3335	3 0 66 <1 898 1144 1041 1281 2692
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 0 0 65 0 1018 1129 1028 1291 2899 Current	history1 0 0 58 <1 908 1084 960 1223 3335 history1	3 0 66 <1 898 1144 1041 1281 2692 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >50	current 0 0 65 0 1018 1129 1028 1291 2899 current 9	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3	3 0 66 <1 898 1144 1041 1281 2692 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >50	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >50	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1 2	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1 0	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >50 >20 Imit/base	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1 2 current	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1 0 history1 0 history1	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3 3 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >50 >20 limit/base >3	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1 2 current 0.7	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1 0 history1 0 history1 0.2	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3 3 3 history2 0.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >50 >20 <i>imit/base</i> >3 >20	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1 2 current 0.7 10.2	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1 0 history1 0 6.9	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3 3 history2 0.6 10.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >20 imit/base >3 >20 >30	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1 2 current 0.7 10.2 22.9	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1 0 history1 0 0.2 6.9 20.2	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3 3 3 history2 0.6 10.4 23.3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	method ASTM D5185m ASTM D7185M ASTM D7624 *ASTM D7415 method	2 0 0 50 0 950 1050 995 1180 2600 2600 20 50 20 20 20 20 20 20 20 33 20 20 20 20 20 20 20 20 20 20 20 20 20	current 0 0 65 0 1018 1129 1028 1291 2899 current 9 1 2 current 0.7 10.2 22.9 current	history1 0 0 58 <1 908 1084 960 1223 3335 history1 3 <1 0 history1 0 history1 0.2 6.9 20.2 history1	3 0 66 <1 898 1144 1041 1281 2692 history2 4 3 3 history2 0.6 10.4 23.3 history2

Contact/Location: FRANK DIETZ - MIDFAR



OIL ANALYSIS REPORT





ppm

20

Sep16/16

Sep16/16

14

13

10 Abnorma

8

Laboratory

Sample No.

Lab Number

Sep16/16

cSt (100°C)

Apr1 Viscosity @ 100°C

Apr11/17.

: PCA0088640

: 06056288

Nov27/17

Apr11/1

Non-ferrous Metals

NECON

Jct22/18

0ct22/18

nr8/71

Apr8/21.

0ct22/18

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Recieved

Diagnosed

VISUAL		method	limit/base	current	history1	history2
VISUAL		method	iiiiii/base	Current	Thistory I	THSTOLYZ
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	11.7	11.5	11.9
GRAPHS						
Ferrous Alloys						
^{DO} T						
80 - iron hitting chromium nickel						
60-						
40						
			1			

0ct16/23

0ct16/23 -

: 10 Jan 2024

: 11 Jan 2024

Jul27/22

12.0

10.

8 (

6.0 4.0

2 (0.0

Sep16/16

Base Number (mg KOH/g)

Base Number

Unique Number : 10822237 Diagnostician : Wes Davis Test Package : FLEET Certificate L2367 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)



Contact/Location: FRANK DIETZ - MIDFAR

F: x:

T: (763)225-6382