

OIL ANALYSIS REPORT

Sample Rating Trend



FREIGHTLINER 177

Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- GAL)

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 INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0097587	PCA0097487	
Sample Date		Client Info		24 Aug 2023	24 May 2023	
Machine Age	mls	Client Info		306000	261000	
Oil Age	mls	Client Info		22000	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
-	0		11 11 11			
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	13	20	
Chromium	ppm	ASTM D5185m	>5	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	<1	
Titanium	ppm	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>30	0	4	
Lead	ppm	ASTM D5185m	>30	0	0	
Copper	ppm	ASTM D5185m	>150	2	2	
Tin	ppm	ASTM D5185m	>5	<1	<1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 2	history2
	ppm ppm					
Boron		ASTM D5185m	2	<1	2	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	<1 0	2 2	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	<1 0 64	2 2 68	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	<1 0 64 <1	2 2 68 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	<1 0 64 <1 976	2 2 68 <1 943	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	<1 0 64 <1 976 1044	2 2 68 <1 943 1240	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	<1 0 64 <1 976 1044 1025	2 2 68 <1 943 1240 1144	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	<1 0 64 <1 976 1044 1025 1278	2 2 68 <1 943 1240 1144 1363	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	<1 0 64 <1 976 1044 1025 1278 3222	2 2 68 <1 943 1240 1144 1363 3503	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	<1 0 64 <1 976 1044 1025 1278 3222 current	2 2 68 <1 943 1240 1144 1363 3503 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	2 0 50 950 1050 995 1180 2600 limit/base >20	<1 0 64 <1 976 1044 1025 1278 3222 current 4	2 2 68 <1 943 1240 1144 1363 3503 history1 4	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >20	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >20	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0 3	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0 5	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >20 imit/base >3	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0 3 3	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0 5 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >20 imit/base >3	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0 3 2 current 0.7	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0 5 history1 0.7	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >20 <i>limit/base</i> >3 >20	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0 3 current 0.7 8.6	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0 5 history1 0.7 8.5	 history2 history2
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	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >20 imit/base >3 >20 >30	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0 3 current 0.7 8.6 19.7 current	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0 5 history1 0.7 8.5 21.0	 history2 history2 history2
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	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 2600 20 20 20 20 20 3 20 20 3 20 3	<1 0 64 <1 976 1044 1025 1278 3222 current 4 0 3 2 current 0.7 8.6 19.7	2 2 68 <1 943 1240 1144 1363 3503 history1 4 0 5 history1 0.7 8.5 21.0 history1	 history2 history2 history2 history2

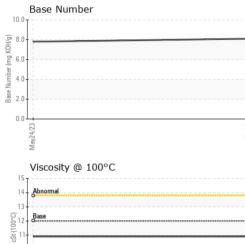


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8. May24/23

Abnormal

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	
Aug24/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
Aug		scalar	*Visual	NORML	NORML	NORML	
)°C	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	12.00	10.9	10.9	
	GRAPHS						
	Ferrous Alloys						
	15-						
	Eto						
	<u>E</u> 10-						
	5						
	May24/23			Aug24/23			
	Non-ferrous Meta	ls					
	10 copper 1						
	8 - Beautine lead						
	u d						
	4						
	2						
	0	**************	**********	⁴ /23			
	May24/23			Aug24/23			
	Viscosity @ 100°C	2			Base Number		
	15			9.0			
	14 - Abnormal			8.0			
	13			B/HOD 6.0			
	G 12 - Base 0000 ₩ 53 11 -			(0,7.0 HOX bu back wathout wat	+		
	रतुं 11-			² 4.0			
	10 - Abnormal			2 3.0 8 2 0	•		
	9-			1.0			
	84			0.0			
	May24/23			Aug24/23	May24/23		Aug24/23
	M			Aı	Z		Aı
Laboratory	: WearCheck USA -				5		REPAIR LLC
Sample No. Lab Number		Received Diagnos		Oct 2023 Oct 2023			W ROUTE 30
TESTING LABORATORY Unique Number		Diagnos		s Davis		P	US 60544
Certificate L2367 Test Package	: FLEET	-				Contact: JOSH	UA HUBBARD
To discuss this sample report,							varepairllc.com
* - Denotes test methods that Statements of conformity to spe					JCGM 106:2012		(815)306-0330 F:
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