

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

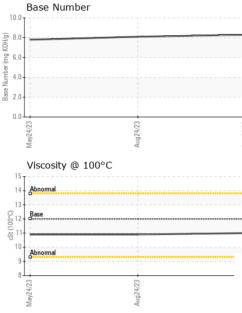
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0097543	PCA0097587	PCA0097487
Sample Date		Client Info		24 Aug 2023	24 Aug 2023	24 May 2023
Machine Age	mls	Client Info		283000	306000	261000
Oil Age	mls	Client Info		22000	22000	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	16	13	20
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm		>30	1	0	4
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m	>150	2	2	2
Tin	ppm	ASTM D5185m	>5	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
						la tata muQ
ADDITIVES		method				history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	o current	history1 <1	2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	0	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	0 0	<1 0	2 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	0 0 62	<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	0 0 62 <1	<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	0 0 62 <1 951	<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	0 0 62 <1 951 1042	<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	0 0 62 <1 951 1042 1035	<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	0 0 62 <1 951 1042 1035 1260	<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	0 0 62 <1 951 1042 1035 1260 3026	<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	0 0 62 <1 951 1042 1035 1260 3026	<1 0 64 <1 976 1044 1025 1278 3222 history1	2 2 68 <1 943 1240 1144 1363 3503 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	0 0 62 <1 951 1042 1035 1260 3026 current 4	<1 0 64 <1 976 1044 1025 1278 3222 history1 4	2 2 68 <1 943 1240 1144 1363 3503 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >20	0 0 62 <1 951 1042 1035 1260 3026 current 4 <	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >20	0 0 62 <1 951 1042 1035 1260 3026 current 4 <1 4	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0 3	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0 5
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 0 950 1050 995 1180 2600 Imit/base >20 \$20 Imit/base >3	0 0 62 <1 951 1042 1035 1260 3026 current 4 <1 4 <1 4	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0 3 history1	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0 5 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 ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >20 <i>imit/base</i> >20	0 0 62 <1 951 1042 1035 1260 3026 <i>current</i> 4 <1 4 <i>current</i>	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0 3 <u>history1</u> 0.7	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0 5 history2 0.7
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 0 950 1050 995 1180 2600 <i>imit/base</i> >20 <i>imit/base</i> >20	0 0 62 <1 951 1042 1035 1260 3026 <i>current</i> 4 <1 4 <i>current</i> 0.6 8.6	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0 3 <u>history1</u> 0.7 8.6	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0 5 <u>history2</u> 0.7 8.5
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 TS 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 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	0 0 62 <1 951 1042 1035 1260 3026 <i>current</i> 4 <1 4 <1 4 <i>current</i> 0.6 8.6 19.6	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0 3 history1 0.7 8.6 19.7 history1	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0 5 history2 0.7 8.5 21.0 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 0 950 1050 995 1180 2600 2600 20 20 20 20 20 3 20 20 3 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	0 0 62 <1 951 1042 1035 1260 3026 <u>current</u> 4 <1 4 <u>current</u> 0.6 8.6 19.6	<1 0 64 <1 976 1044 1025 1278 3222 history1 4 0 3 history1 0.7 8.6 19.7	2 2 68 <1 943 1240 1144 1363 3503 history2 4 0 5 history2 0.7 8.5 21.0



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Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 TVA REPAIR LLC
Sample No. : PCA0097543 Received : 06 Oct 2023 13915 W ROUTE 30 Lab Number : 05971952 Diagnosed : 09 Oct 2023 PLAINFIELD, IL
Unique Number : 10683902 Diagnostician : Wes Davis US 60544
Certificate 12367 Test Package : FLEET Contact: JOSHUA HUBBARD
o discuss this sample report, contact Customer Service at 1-800-237-1369. joshua@tvarepairllc.com
- Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (815)306-0330 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:
$\mathbf{r}_{accontractor} = \mathbf{r}_{accontractor} $

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