

OIL ANALYSIS REPORT

Area METAL STOCK INC Machine Id FREIGHTLINER 565151 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (42 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

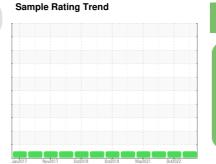
Metal levels are typical for a new component breaking in.

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.



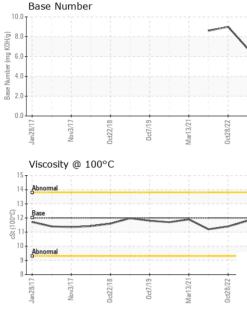


NORMAL

SAMPLE INFORM	NATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0105312	PCA0076742	PCA0067639
Sample Date		Client Info		11 Sep 2023	28 Oct 2022	09 Feb 2022
Machine Age	mls	Client Info		9123	10354	243652
Oil Age	mls	Client Info		9123	10354	6000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>65	43	23	19
Chromium	ppm	ASTM D5185m	>5	2	1	1
Nickel	ppm	ASTM D5185m	>3	<1	0	0
Titanium	ppm	ASTM D5185m	>5	5	2	<1
Silver	ppm	ASTM D5185m	>2	0	2	0
Aluminum	ppm	ASTM D5185m	>35	15	10	8
Lead	ppm	ASTM D5185m	>10	0	0	0
Copper	ppm	ASTM D5185m	>180	6	4	2
Tin	ppm	ASTM D5185m	>8	<1	<1	<1
Antimony	ppm	ASTM D5185m	>35			
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history1 25	history2 13
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	5	25 0 57	13
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	5 0	25 0	13 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	5 0 64 <1 934	25 0 57 <1 771	13 0 59 <1 854
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	5 0 64 <1	25 0 57 <1 771 1126	13 0 59 <1 854 1208
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995	5 0 64 <1 934 1237 1061	25 0 57 <1 771 1126 928	13 0 59 <1 854 1208 995
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180	5 0 64 <1 934 1237 1061 1319	25 0 57 <1 771 1126 928 1135	13 0 59 <1 854 1208 995 1221
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	2 0 50 950 1050 995	5 0 64 <1 934 1237 1061	25 0 57 <1 771 1126 928	13 0 59 <1 854 1208 995 1221 2648
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	5 0 64 <1 934 1237 1061 1319	25 0 57 <1 771 1126 928 1135	13 0 59 <1 854 1208 995 1221
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	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	5 0 64 <1 934 1237 1061 1319 3499 current 6	25 0 57 <1 771 1126 928 1135 3738 history1 4	13 0 59 <1 854 1208 995 1221 2648 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	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 imit/base >15	5 0 64 <1 934 1237 1061 1319 3499 current	25 0 57 <1 771 1126 928 1135 3738 history1	13 0 59 <1 854 1208 995 1221 2648 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	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	5 0 64 <1 934 1237 1061 1319 3499 current 6	25 0 57 <1 771 1126 928 1135 3738 history1 4	13 0 59 <1 854 1208 995 1221 2648 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >15	5 0 64 <1 934 1237 1061 1319 3499 current 6 2	25 0 57 <1 771 1126 928 1135 3738 history1 4 <	13 0 59 <1 854 1208 995 1221 2648 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >15 >20	5 0 64 <1 934 1237 1061 1319 3499 <u>current</u> 6 2 2 14	25 0 57 <1 771 1126 928 1135 3738 history1 4 <1 10 history1 0.6	13 0 59 <1 854 1208 995 1221 2648 history2 4 0 8 <u>history2</u> 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >20 imit/base	5 0 64 <1 934 1237 1061 1319 3499 current 6 2 14 current	25 0 57 <1 771 1126 928 1135 3738 history1 4 <1 10 history1	13 0 59 <1 854 1208 995 1221 2648 history2 4 0 8 <i>h</i> istory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >20 limit/base >3	5 0 64 <1 934 1237 1061 1319 3499 current 6 2 14 current 0.9	25 0 57 <1 771 1126 928 1135 3738 history1 4 <1 10 history1 0.6	13 0 59 <1 854 1208 995 1221 2648 history2 4 0 8 <u>history2</u> 0.6
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >15 >20 imit/base >3 >20	5 0 64 <1 934 1237 1061 1319 3499 <u>current</u> 6 2 14 6 2 14 0.9 9.2	25 0 57 <1 771 1126 928 1135 3738 history1 4 <1 10 history1 0.6 8.1	13 0 59 <1 854 1208 995 1221 2648 history2 4 0 8 <u>history2</u> 0.6 8.4
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >20 imit/base >3 >20 >30	5 0 64 <1 934 1237 1061 1319 3499 current 6 2 14 6 2 14 0.9 9.2 20.5	25 0 57 <1 771 1126 928 1135 3738 history1 4 <1 10 history1 0.6 8.1 19.2	13 0 59 <1 854 1208 995 1221 2648 history2 4 0 8 <u>history2</u> 0.6 8.4 19.4



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Certificate L2367

Laboratory

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