

OIL ANALYSIS REPORT

Sample Rating Trend



FREIGHTLINER 682869 Component

Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (40 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.

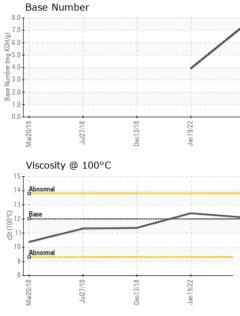
Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0095749	PCA0054798	PCAM132820
Sample Date		Client Info		12 Jul 2023	19 Jan 2022	13 Dec 2018
Machine Age	mls	Client Info		234725	169748	10414
Oil Age	mls	Client Info		234725	15000	10414
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>200	23	58	32
Chromium	ppm	ASTM D5185m	>20	1	3	5
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		5	3	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>30	13	25	43
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm		>30	8	20	92
Tin	ppm	ASTM D5185m	>15	1	2	5
Antimony	ppm	ASTM D5185m			0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base			· · · ·
	ppm ppm			current 4 0	history1 5 0	history2 8 0
Boron Barium	ppm	ASTM D5185m	2	4	5	8
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	2 0	4 0	5 0	8
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	4 0 59	5 0 57	8 0 56
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	4 0 59 <1	5 0 57 1	8 0 56 1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	4 0 59 <1 958	5 0 57 1 1021	8 0 56 1 872
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	4 0 59 <1 958 1245	5 0 57 1 1021 1239	8 0 56 1 872 1167
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	4 0 59 <1 958 1245 1036	5 0 57 1 1021 1239 1031	8 0 56 1 872 1167 881
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	4 0 59 <1 958 1245 1036 1260	5 0 57 1 1021 1239 1031 1327	8 0 56 1 872 1167 881 1031
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 0 950 1050 995 1180 2600	4 0 59 <1 958 1245 1036 1260 3522	5 0 57 1 1021 1239 1031 1327 2339	8 0 56 1 872 1167 881 1031 1900
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	4 0 59 <1 958 1245 1036 1260 3522 current	5 0 57 1 1021 1239 1031 1327 2339 history1	8 0 56 1 872 1167 881 1031 1900 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 0 950 1050 995 1180 2600 limit/base >30	4 0 59 <1 958 1245 1036 1260 3522 current 7	5 0 57 1 1021 1239 1031 1327 2339 history1 6	8 0 56 1 872 1167 881 1031 1900 history2 3
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 0 950 1050 995 1180 2600 limit/base >30	4 0 59 <1 958 1245 1036 1260 3522 current 7 4	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4	8 0 56 1 872 1167 881 1031 1900 history2 3 5
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 >30	4 0 59 <1 958 1245 1036 1260 3522 current 7 4 5	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4 22	8 0 56 1 872 1167 881 1031 1900 history2 3 5 5 90
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 >30 >20 Imit/base >3	4 0 59 <1 958 1245 1036 1260 3522 current 7 4 5 5 current	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4 22 history1	8 0 56 1 872 1167 881 1031 1900 history2 3 5 5 90 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 limit/base >30 20 limit/base >33	4 0 59 <1 958 1245 1036 1260 3522 current 7 4 5 5 current 1	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4 22 history1 2.4	8 0 56 1 872 1167 881 1031 1900 history2 3 5 5 90 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 50 950 1050 995 1180 2600 <i>imit/base</i> >30 220 <i>imit/base</i> >3 >20	4 0 59 <1 958 1245 1036 1260 3522 current 7 4 5 current 1 9.3	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4 22 history1 2.4 15.9	8 0 56 1 872 1167 881 1031 1900 history2 3 5 5 90 history2 0.7 8.7
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 imit/base >30 20 imit/base >3 >20 >3	4 0 59 <1 958 1245 1036 1260 3522 current 7 4 5 5 current 1 9.3 21.0	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4 22 history1 2.4 15.9 31.8	8 0 56 1 872 1167 881 1031 1900 history2 3 5 ▲ 90 history2 0.7 8.7 21.2
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	2 0 0 50 0 950 1050 995 1180 2600 imit/base >30 >20 >30 >20 >30 >30 >30	4 0 59 <1 958 1245 1036 1260 3522 <i>current</i> 7 4 5 <i>current</i> 1 9.3 21.0	5 0 57 1 1021 1239 1031 1327 2339 history1 6 4 22 history1 2.4 15.9 31.8 history1	 8 0 56 1 872 1167 881 1031 1900 history2 3 5 90 history2 0.7 8.7 21.2 history2



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		VISUAL		method	limit/base	current	history1	history2
	/	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
3/18	Jan 19/22 -		scalar	*Visual	NORML	NORML	NORML	NORML
Dec13/18	Jan 19/22	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	12.1	12.4	11.37
		GRAPHS						
		Iron (ppm)			80	Lead (ppm)		
0		Servera				Saura .		
Dec13/18	Jan 19/22	300 - Severe			60			
ā	č	a 200 - Abnormal	1		튭.40	Abnormal		
		100 -				-		
		0			0			
		Mar20/18 Jul27/18	Dec13/18	Jan 19/22	Jul12/23	Mar20/18 Jul27/18	Dec13/18	Jan 19/22
		2	Dec	Jan	Jul	2		Jan
		Aluminum (ppm)			50	Chromium (p	om)	
		50 Severe			40	Severe		
		and a second sec			E 20	Abnormal		
		10			10	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		
		0			0			
		Mar20/18 Jui27/18	Dec13/18	Jan 19/22	Jul12/23	Mar20/18 Jul27/18	Dec13/18	Jan 19/22
		-	Dec	Jan	лĻ	<u> </u>	Dec	Jan
		Copper (ppm)			50	Silicon (ppm)		
					40	0 overeite		
		300		1				
		툡 200			E 20			
		100 - Severe		 	10			
		0	1	+	0			-
		Mar20/18 Jul27/18	Dec13/18	Jan 19/22	Jul12/23	Mar20/18 Jul27/18	Dec13/18	Jan 19/22
		≝ [⊰] Viscosity @ 100°(Jar	٦Ľ	ੂ ਤ Base Number	Dei	
		¹⁶			8.0 P			
		14- Abnormal			(B)HOY 6.0 Buy Jack 4.0 9 2.0 8 8 8 8			/
		(2-00 112 - Base 12 - Base			<u>الے</u> a 4.0			/
		⁷ 3 10 Abnormal		1	J.0		1	
		8			⁸⁸ 			
		0/18	3/18 -	9/22			3/18	9/22 -
		Mar20/18 Jul27/18	Dec13/18	Jan 19/22	Jul12/23	Mar20/18 Jul27/18	Dec13/18	Jan 19/22
٩	Laboratory Sample No.	: WearCheck USA - : PCA0095749 : 05903020	501 Madi Received Diagnos	d : 20 .	ry, NC 27513 Jul 2023 Jul 2023	3 M I		LEASING #11 ENNETT ROA ADELPHIA, P.
ING LABORATORY	Lab Number Unique Numbe Test Packag	er : 10564376	Diagnost Tests: TE	tician :Dor BN)	n Baldridge		Contact:	US 1911 ROSTY VITE transgroup.cor

Contact/Location: ROSTY VITER - MILPHINE