

OIL ANALYSIS REPORT

Sample Rating Trend



FREIGHTLINER 476734 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- 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.

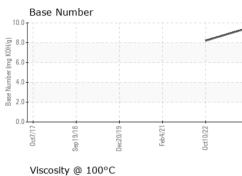
Fluid Condition

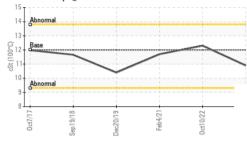
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		PCA0099105	PCA0075139	PCA0032797	
Sample Date		Client Info		31 Aug 2023	10 Oct 2022	04 Feb 2021	
Machine Age	mls	Client Info		0	367589	257324	
Oil Age	mls	Client Info		20000 0		0	
Oil Changed		Client Info		Changed	N/A	N/A	
Sample Status				_		NORMAL	
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	>90	10	54	48	
Chromium	ppm	ASTM D5185m	>20	<1	2	2	
Nickel	ppm	ASTM D5185m	>2	0	<1	<1	
Titanium	ppm	ASTM D5185m	>2	0	<1	<1	
Silver	ppm	ASTM D5185m	>2	0	0	<1	
Aluminum	ppm	ASTM D5185m	>20	0	4	6	
Lead	ppm	ASTM D5185m	>40	1	2	2	
Copper	ppm	ASTM D5185m	>330	2	4	3	
Tin	ppm	ASTM D5185m	>15	<1	<1	<1	
Antimony	ppm	ASTM D5185m				0	
Vanadium	ppm	ASTM D5185m		0	<1	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current 26	history1 2	history2 7	
	ppm ppm	ASTM D5185m					
Boron		ASTM D5185m	2	26	2	7	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	26 0	2 0	7 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	26 0 62	2 0 67	7 0 63 <1 982	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	26 0 62 1	2 0 67 1	7 0 63 <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	26 0 62 1 933	2 0 67 1 1014	7 0 63 <1 982	
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	26 0 62 1 933 1114	2 0 67 1 1014 1257	7 0 63 <1 982 1152 1019 1259	
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 0 950 1050 995	26 0 62 1 933 1114 1040	2 0 67 1 1014 1257 1067	7 0 63 <1 982 1152 1019	
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 0 950 1050 995 1180	26 0 62 1 933 1114 1040 1244	2 0 67 1 1014 1257 1067 1373	7 0 63 <1 982 1152 1019 1259	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	26 0 62 1 933 1114 1040 1244 3684	2 0 67 1 1014 1257 1067 1373 3316	7 0 63 <1 982 1152 1019 1259 2587	
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	2 0 50 950 1050 995 1180 2600	26 0 62 1 933 1114 1040 1244 3684 current	2 0 67 1 1014 1257 1067 1373 3316 history1	7 0 63 <1 982 1152 1019 1259 2587 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 >25	26 0 62 1 933 1114 1040 1244 3684 <u>current</u> 4	2 0 67 1 1014 1257 1067 1373 3316 history1 7	7 0 63 <1 982 1152 1019 1259 2587 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 >25	26 0 62 1 933 1114 1040 1244 3684 <u>current</u> 4 4	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2	
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 0 950 1050 995 1180 2600 imit/base >25 >20	26 0 62 1 933 1114 1040 1244 3684 current 4 4 2	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2 2 <1	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2 2 2 2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 20 Imit/base >6	26 0 62 1 933 1114 1040 1244 3684 <u>current</u> 4 4 2 2	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2 <1 7	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2 2 2 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 ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >6	26 0 62 1 933 1114 1040 1244 3684 <i>current</i> 4 2 <i>current</i> 0	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2 <1 7 2 <1 history1 1.1	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2 2 8 history2 1.1	
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 >25 >20 imit/base >20	26 0 62 1 933 1114 1040 1244 3684 <i>current</i> 4 2 <i>current</i> 0 8.1	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2 <1 2 <1 history1 1.1 1.4	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2 2 history2 1.1 1.5.2	
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 20 imit/base >20 >20 30	26 0 62 1 933 1114 1040 1244 3684 <i>current</i> 4 4 2 <i>current</i> 0 8.1 21.7	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2 <1 7 2 <1 history1 1.1 1.1 1.4 28.8	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2 2 history2 1.1 15.2 27.5	
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	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 25 20 225 20 220 20 20 20 30 30 20 30 20 20 20 20 20 20 20 20 20 20 20 20 20	26 0 62 1 933 1114 1040 1244 3684 <i>current</i> 4 4 2 <i>current</i> 0 8.1 21.7	2 0 67 1 1014 1257 1067 1373 3316 history1 7 2 <1 7 2 <1 1.1 1.1 15.4 28.8 history1	7 0 63 <1 982 1152 1019 1259 2587 history2 4 2 2 history2 1.1 15.2 27.5 history2	



OIL ANALYSIS REPORT





		: 05957467 r : 10658680	Received Diagnosed Diagnostic Tests: TBN ice at 1-800	:21 \$ I :22 \$ ian :We))- <i>237-136</i> \$	Cary, NC 27513 11 Sep 2023 12 Sep 2023 Ves Davis 369.		3 MILLER TRUCK LEASING #116 1197 NORTH MAIN ROAD VINELAND, NJ US 08360 Contact: GARY PRICE gprice@millertransgroup.com T: (856)696-4848				
		Sep 19/19 Bee20/19	Feb4/21	0ct10/22 +	Base Nur	4.0	Sep19/18	Dec20/19	Feb4/21.	0ct10/22 +	Aug31/23
		14 Abnormal		-	r (mg KO	6.0					
		16			10.0		enumber				
		کے Viscosity @ 100°C		Oct1	Aug3		e Number	Dec2	Fei	0ct1	Aug3
		0ct1/17 Sep19/18	Feb4/21.	0ct10/22	Aug31/23	0ct7/17	Sep19/18 -	Dec20/19 -	Feb4/21 -	0ct10/22 -	Aug31/23
		100-				20 - Abno	rmal				
		300 - E 200 -				60					
		Copper (ppm)					Silicon (ppm)				
		0ct7/17 Sep 19/18 Dec20/19	Feb4/21	0ct10/22	Aug31/23	0ct7/17	Sep 19/18	Dec20/19	Feb4/21	0ct10/22	Aug31/23
			21	22				6	21	22	23
		20 Abnormal				30 20 - Abno 10 -	rmal		1	1	
		40 - Severe				40 - Sever	e				
		Aluminum (ppm)		·		⁵⁰ T	omium (pj	pm)			
		0ct7/17 Sep 19/18 Dec20/19	Feb4/21	0ct10/22	Aug31/23	0ct7/17	Sep19/18	Dec20/19	Feb4/21	0ct10/22	Aug31/23
			21	2		20		6	21	2	
ے ۲	0	E 150 - Abnormal			E.	40 - Abno	rmal				
Leccu/13 - Feb4/21 -	0ct10/22 -	200 - Severe				80 - Sever	e				
		Iron (ppm)			1	Lea	d (ppm)		,		
		GRAPHS			12.00			12.0			
		FLUID PROPE Visc @ 100°C		Method ASTM D445	limit/base) 10	current	histo 12.3	ory1	histor 11.7	ry2
		Free Water		Visual			EG	NEG		NEG	
	4	Emulsified Water	scalar *	Visual	>0.2	N	EG	NEG		NEG	
Feb4/21	0ct10/22 Aug31/23	Appearance Odor		Visual Visual	NORML NORML		ORML ORML	NORN		NORM	
		Sand/Dirt	scalar *	Visual	NONE		ONE	NONE		NONE	
		Silt Debris		Visual Visual	NONE NONE		ONE	NONE		NONE NONE	
		Precipitate		Visual	NONE		ONE ONE	NONE		NONE	
		Yellow Metal		Visual	NONE		ONE	NONE		NONE	
	The second se	White Metal	scalar *	Visual	NONE	N	ONE	NONE	_	NONE	

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: (856)696-5629