

OIL ANALYSIS REPORT

Sample Rating Trend



FREIGHTLINER 481907 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (24 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.

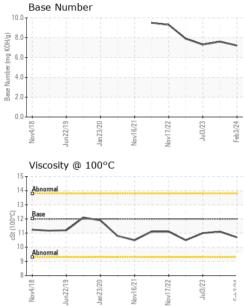
Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0117071	PCA0106282	PCA0101318
Sample Date		Client Info		03 Feb 2024	13 Oct 2023	03 Jul 2023
Machine Age	mls	Client Info		0	211357	191182
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	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
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	27	25	29
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>30	8	7	3
Lead	ppm	ASTM D5185m	>30	<1	0	0
Copper	ppm	ASTM D5185m	>150	2	2	2
Tin	ppm	ASTM D5185m	>5	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 2	history2 5
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	<1	2	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	<1 0	2 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	<1 0 62	2 0 60	5 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	<1 0 62 <1	2 0 60 <1	5 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995	<1 0 62 <1 941	2 0 60 <1 925 1023 1047	5 0 63 <1 836 1098 982
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 62 <1 941 1123	2 0 60 <1 925 1023 1047 1227	5 0 63 <1 836 1098 982 1172
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 50 950 1050 995	<1 0 62 <1 941 1123 1065	2 0 60 <1 925 1023 1047	5 0 63 <1 836 1098 982
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	<1 0 62 <1 941 1123 1065 1241	2 0 60 <1 925 1023 1047 1227	5 0 63 <1 836 1098 982 1172
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 62 <1 941 1123 1065 1241 3057	2 0 60 <1 925 1023 1047 1227 2823	5 0 63 <1 836 1098 982 1172 2976
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	<1 0 62 <1 941 1123 1065 1241 3057 current	2 0 60 <1 925 1023 1047 1227 2823 history1	5 0 63 <1 836 1098 982 1172 2976 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base	<1 0 62 <1 941 1123 1065 1241 3057 current 4	2 0 60 <1 925 1023 1047 1227 2823 history1 4	5 0 63 <1 836 1098 982 1172 2976 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 method ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base	<1 0 62 <1 941 1123 1065 1241 3057 current 4 <	2 0 60 <1 925 1023 1047 1227 2823 history1 4 <1	5 0 63 <1 836 1098 982 1172 2976 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 0 950 1050 995 1180 2600 limit/base >20	<1 0 62 <1 941 1123 1065 1241 3057 current 4 <1 4	2 0 60 <1 925 1023 1047 1227 2823 history1 4 < 2823	5 0 63 <1 836 1098 982 1172 2976 history2 4 0 4
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 Imit/base >3	<1 0 62 <1 941 1123 1065 1241 3057 current 4 <1 4 current	2 0 60 <1 925 1023 1047 1227 2823 history1 4 <1 9 history1	5 0 63 <1 836 1098 982 1172 2976 history2 4 0 4 0 4 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 >20 limit/base >20	<1 0 62 <1 941 1123 1065 1241 3057 <i>current</i> 4 <1 4 <i>current</i>	2 0 60 <1 925 1023 1047 1227 2823 history1 4 <1 9 history1 0.6	5 0 63 <1 836 1098 982 1172 2976 history2 4 0 4 0 4 bistory2 0.5
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 imit/base >20 imit/base >20	<1 0 62 <1 941 1123 1065 1241 3057 <i>current</i> 4 <1 4 <i>current</i> 0.6 11.0	2 0 60 <1 925 1023 1047 1227 2823 history1 4 <1 9 history1 0.6 10.9	5 0 63 <1 836 1098 982 1172 2976 history2 4 0 4 0 4 0 4 0 4 0 5 10.7
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 >20 imit/base >3 >20	<1 0 62 <1 941 1123 1065 1241 3057 <i>current</i> 4 <1 4 <i>current</i> 0.6 11.0 20.1	2 0 60 <1 925 1023 1047 1227 2823 history1 4 <1 9 <u>history1</u> 0.6 10.9 19.6	5 0 63 <1 836 1098 982 1172 2976 history2 4 0 4 0 4 history2 0.5 10.7 19.6
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	ASTM D5185m ASTM D7844 *ASTM D7624	2 0 50 0 950 1050 995 1180 2600 imit/base >20 imit/base >3 >20 >30 >30	<1 0 62 <1 941 1123 1065 1241 3057 Current 4 <1 4 <1 4 0.6 11.0 20.1 Current	2 0 60 <1 925 1023 1047 1227 2823 history1 4 <1 9 history1 0.6 10.9 19.6 history1	5 0 63 <1 836 1098 982 1172 2976 history2 4 0 4 0 4 0 4 0 5 10.7 19.6 history2



OIL ANALYSIS REPORT



Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report, * - Denotes test methods that		o. : PC/ er : 060 per : 108	: WearCheck USA - 501 : PCA0117071 : 06086995 : 10874440 : MOB 1 (Additional Tes ; contact Customer Service are outside of the ISO 170			ce at 1-800-237-1369.			Contact: MIKE LONGETTE mlongette@millertransgroup.con T					
		10-	Jun22/19	Jan 23/20	Nov16/21	Nov17/22	Feb3/24	4.0 2.0 0.0 8L/FAON	Jun22/19 +	Jan23/20	Nov16/21	Nov17/22	Jul3/23	Feh3/74
		(J-001) 12- 753	Abnormal Base				Base Number (mg KOH/g)	8.0 - 6.0 -					\smile	-
		16 T	Viscosity @	0 100°C	2			Ва ^{10.0} т :	se Numb	er				
			Nov4/18	Jan 23/20	Nov16/21	Nov17/22 Jul3/23	Feb3/24	Nov4/18	Jun22/19	Jan23/20	Nov16/21+	Nov17/22 + -	Jul3/23 -	Eeh3/24
		200 - 50 - 50 -	Abnormal					20 - Ab	normal					
		250-	Severe					40 30	ere					
			Copper (p		Na	No	LL.	Sil	icon (ppr		No	No	,	Ľ
		10	Nov4/18	Jan 23/20 + -)	Nov16/21	Nov17/22	Feb3/24	2 0 81/4/18	Jun22/19	Jan23/20	Nov16/21+	Nov17/22	Jul3/23 -	Eah 3/74
		40 - 팀 30 - 20 -	Abnormal				-	8 - Ab	normal					
		50-	Severe					12 10 Sev	ere					
			Aluminum	,	Ň	Nc	Li.	Ch	_∃ romium	,		Nc	~	L
			Jun22/19	Jan 23/20 -	Nov16/21	Vov17/22	Feb3/24	0 Nov4/18	Jun22/19	Jan 23/20	Nov16/21	Vov17/22	Jul3/23	Each 2 /2 d
		ة. 50 -	/		\sim	~~~		40 20	normal					
Nov16/21-	Jul3/23	100-	Abnormal					60 - Sev	ere					
		150 T	Iron (ppm)				Le: 80	ad (ppm)				
\checkmark	\sim		GRAPHS	5										
			isc @ 100°		cSt	ASTM D445			0.7		11.1		11.0	<u>, </u>
			FLUID P	ROPF			limit/bas		current		history	1	histor	rv2
			mulsified W ree Water	/ater	scalar scalar	*Visual *Visual	>0.2		ieg Ieg		NEG NEG		NEG NEG	
Nov16/21 Nov17/22	Jul 1	0	dor		scalar	*Visual	NORML	N	IORML		NORML		NORM	IL
6/21-	Jul3/23		ppearance		scalar	*Visual	NORML		IORML		NORML		NORM	
			ebris and/Dirt		scalar scalar	*Visual *Visual	NONE NONE		IONE IONE		NONE NONE		NONE	
		Si			scalar	*Visual	NONE		IONE		NONE		NONE	
			recipitate		scalar	*Visual	NONE		IONE		NONE		NONE	
	-		ellow Meta		scalar	*Visual	NONE		IONE		NONE		NONE	
		W	/hite Metal		scalar	method *Visual	limit/bas NONE		current		history NONE		histo NONE	

Contact/Location: MIKE LONGETTE - MILRUT