

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 633227 Component Diesel Engine Fluid PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

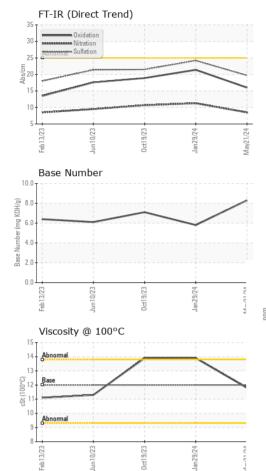
Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0126979	PCA0117057	PCA0110422
Sample Date		Client Info		21 May 2024	29 Jan 2024	19 Oct 2023
Machine Age	mls	Client Info		34934	26888	20818
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	N/A	Not Changd
Sample Status				NORMAL	ATTENTION	ATTENTION
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	>100	13	30	16
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m		2	2	1
Silver	ppm	ASTM D5185m	>3	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	7	20	18
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	2	7	5
Tin	ppm	ASTM D5185m	>15	<1	2	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current 8	history1 18	history2 24
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	8	18	24
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	8 1	18 0	24 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	8 1 58	18 0 46	24 0 42
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	8 1 58 <1	18 0 46 1	24 0 42 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	8 1 58 <1 842	18 0 46 1 629 1387 866	24 0 42 1 599 1456 1039
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	8 1 58 <1 842 1101	18 0 46 1 629 1387	24 0 42 1 599 1456
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	8 1 58 <1 842 1101 1040	18 0 46 1 629 1387 866	24 0 42 1 599 1456 1039
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	8 1 58 <1 842 1101 1040 1147	18 0 46 1 629 1387 866 1233	24 0 42 1 599 1456 1039 1180
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	8 1 58 <1 842 1101 1040 1147 2940	18 0 46 1 629 1387 866 1233 2728	24 0 42 1 599 1456 1039 1180 2898
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	8 1 58 <1 842 1101 1040 1147 2940 current	18 0 46 1 629 1387 866 1233 2728 history1	24 0 42 1 599 1456 1039 1180 2898 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	8 1 58 <1 842 1101 1040 1147 2940 current 7	18 0 46 1 629 1387 866 1233 2728 history1 11	24 0 42 1 599 1456 1039 1180 2898 history2 8
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	8 1 58 <1 842 1101 1040 1147 2940 current 7 <1	18 0 46 1 629 1387 866 1233 2728 history1 11 0	24 0 42 1 599 1456 1039 1180 2898 history2 8 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 50 950 1050 995 1180 2600 limit/base >25	8 1 58 <1 842 1101 1040 1147 2940 current 7 <1 18	18 0 46 1 629 1387 866 1233 2728 history1 11 0 63	24 0 42 1 599 1456 1039 1180 2898 history2 8 2 2 49
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 >25 >20 Imit/base >3	8 1 58 <1 842 1101 1040 1147 2940 current 7 <1 18 current	18 0 46 1 629 1387 866 1233 2728 history1 11 0 63 history1	24 0 42 1 599 1456 1039 1180 2898 history2 8 2 49 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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3	8 1 58 <1 842 1101 1040 1147 2940 current 7 <1 18 current 0.4	18 0 46 1 629 1387 866 1233 2728 history1 11 0 63 history1 0.4	24 0 42 1 599 1456 1039 1180 2898 history2 8 2 49 history2 0.3
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> >25 >20 <i>imit/base</i> >3 >20	8 1 58 <1 842 1101 1040 1147 2940 current 7 <1 18 current 0.4 8.5	18 0 46 1 629 1387 866 1233 2728 history1 11 0 63 history1 0.4 11.3	24 0 42 1 599 1456 1039 1180 2898 history2 8 2 2 49 history2 0.3 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 >25 imit/base >3 >20	8 1 58 <1 842 1101 1040 1147 2940 <u>current</u> 7 <1 18 <u>current</u> 0.4 8.5 19.7	18 0 46 1 629 1387 866 1233 2728 history1 11 0 63 history1 0.4 11.3 24.2	24 0 42 1 599 1456 1039 1180 2898 history2 8 2 49 history2 0.3 10.7 21.5
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	8 1 58 <1 842 1101 1040 1147 2940 Current 7 <1 18 Current 0.4 8.5 19.7 Current	18 0 46 1 629 1387 866 1233 2728 history1 11 0 63 history1 0.4 11.3 24.2 history1	24 0 42 1 599 1456 1039 1180 2898 history2 8 2 49 history2 0.3 10.7 21.5 history2



OIL ANALYSIS REPORT



3)	VISUAL		method	limit/base	current	t history1	history2	
	White Metal	scalar	*Visual	NONE	LIGHT	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
and a first and a first a firs	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
Contraction of the second s	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
9/23		scalar	*Visual	NORML	NORML	NORML	NORML	
0ct19/23 Jan29/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
2 7 2	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	NEG	
	FLUID PROPE		method	limit/base	current		history2	
\sim	Visc @ 100°C	cSt		12.00	11.8	13.9	13.9	
	GRAPHS							
	Iron (ppm)			100	Lead (ppn	n)		
24	Severe	1		80	Severe			
0ct19/23 Jan29/24				60				
- , ,	Abnormal			E 40	Abnormal			
	50 -			20				
	Feb 13/23 Jun 10/23	0ct19/23	Jan 29/24	May21/24	Feb 13/23	Jun 10/23 0ct 19/23	Jan 29/24	
		0c	Lai	Ma			Jai	
	Aluminum (ppm)		50	Chromium	n (ppm)			
	40 - Severe			40	Severe			
0ct19/23 - Jan29/24 -	20 - Abnormal			³⁰ 20	Abnormal			
Jan2	10			10	-			
	0							
	Feb 13/23 Jun 10/23	0ct19/23	Jan 29/24	May21/24	Feb 13/23	Jun10/23 0ct19/23	Jan 29/24	
	,	00	Jai	-		-	n n	
	Copper (ppm)				Silicon (ppm)			
	300 -							
	톱 200 -			튭.40				
	100 -	1	1		Abnormal			
					L			
	Feb13/23 Jun10/23	0ct19/23	Jan 29/24	May21/24	Feb 13/23	Jun10/23 0ct19/23	Jan 29/24	
			Jan	May			Jan	
	Viscosity @ 100°	C		10.0	Base Num	ber		
				(B/HO 8.0				
	14 Abnormal	/		6.0 6.0 9.2 Se Winnber 888 892 2.0				
	(2-001) 12 tg			ਸੂਬ 4.0			T	
	10 Abnormal			N ag 2.0				
	8			0.0	Ц			
	Feb13/23 Jun10/23	0ct19/23	Jan 29,24	May21/24	Feb 13/23	Jun 10/23 0ct19/23	Jan 29/24	
	Jun	0ct	Jan	May	음	Jun Oct	Jan	
Unique Numb	: PCA0126979 Re : 06195006 Te		adison Ave., Cary, NC 27513 Received : 30 May 2024 Tested : 31 May 2024 Diagnosed : 31 May 2024 - We : TBN)					
o discuss this sample repo - Denotes test methods th	ort, contact Customer Serv nat are outside of the ISO	/ice at 1-8 17025 sco				Contact: MIKE LONGETTE mlongette@millertransgroup.com T: ule (JCGM 106:2012) F: (201)528-7053		

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Contact/Location: MIKE LONGETTE - MILRUT

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