

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



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.

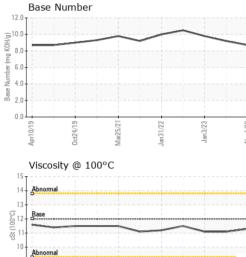
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0108119	PCA0092243	PCA0088212
Sample Date		Client Info		01 Nov 2023	30 Mar 2023	03 Jan 2023
Machine Age	mls	Client Info		875000	712702	855906
Oil Age	mls	Client Info		25000	2500	855906
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<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	>100	3	6	9
Chromium	ppm	ASTM D5185m	>20	0	0	1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	0	0
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	<1	1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	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 6	history1 10	history2 8
	ppm ppm					
Boron		ASTM D5185m	2	6	10	8
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	6 0	10 0	8
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	6 0 59	10 0 66	8 1 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	6 0 59 0	10 0 66 <1	8 1 60 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	6 0 59 0 873	10 0 66 <1 917	8 1 60 0 885
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	6 0 59 0 873 997	10 0 66 <1 917 1045	8 1 60 0 885 1126
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	6 0 59 0 873 997 921	10 0 66 <1 917 1045 952	8 1 60 0 885 1126 1023
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	6 0 59 0 873 997 921 1178	10 0 66 <1 917 1045 952 1214	8 1 60 0 885 1126 1023 1189
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	6 0 59 0 873 997 921 1178 2908	10 0 66 <1 917 1045 952 1214 3415	8 1 60 0 885 1126 1023 1189 2968
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	6 0 59 0 873 997 921 1178 2908 current	10 0 66 <1 917 1045 952 1214 3415 history1	8 1 60 0 885 1126 1023 1189 2968 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	6 0 59 0 873 997 921 1178 2908 current 3	10 0 66 <1 917 1045 952 1214 3415 history1 4	8 1 60 0 885 1126 1023 1189 2968 history2 6
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	2 0 50 950 1050 995 1180 2600 limit/base >25	6 0 59 0 873 997 921 1178 2908 current 3 2	10 0 66 <1 917 1045 952 1214 3415 history1 4 4	8 1 60 0 885 1126 1023 1189 2968 history2 6 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	6 0 59 0 873 997 921 1178 2908 current 3 2 2 <1	10 0 66 <1 917 1045 952 1214 3415 history1 4 4 4	8 1 60 0 885 1126 1023 1189 2968 history2 6 2 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 >25 >20 Imit/base >3	6 0 59 0 873 997 921 1178 2908 current 3 2 2 <1 current	10 0 66 <1 917 1045 952 1214 3415 history1 4 4 4 4 4 history1	8 1 60 0 885 1126 1023 1189 2968 history2 6 2 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 Imit/base >25 >20 Imit/base >3	6 0 59 0 873 997 921 1178 2908 <u>current</u> 3 2 <1 2 <1 <u>current</u> 0.2	10 0 66 <1 917 1045 952 1214 3415 history1 4 4 4 4 4 4 10 0.2	8 1 60 0 885 1126 1023 1189 2968 history2 6 2 4 history2 0.2
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>limit/base</i> >25 >20 <i>limit/base</i>	6 0 59 0 873 997 921 1178 2908 <u>current</u> 3 2 2 <1 2 <1 0.2 6.4	10 0 66 <1 917 1045 952 1214 3415 history1 4 4 4 4 4 5 0.2 7.4	8 1 60 0 885 1126 1023 1189 2968 history2 6 2 4 history2 0.2 7.7
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 D7844 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	6 0 59 0 873 997 921 1178 2908 <u>current</u> 3 2 <1 2 <1 0.2 6.4 18.2	10 0 66 <1 917 1045 952 1214 3415 history1 4 4 4 4 4 5 history1 0.2 7.4 18.2	8 1 60 0 885 1126 1023 1189 2968 history2 6 2 4 history2 0.2 7.7 17.6
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 2600 25 20 220 20 20 20 20 20 20 20 20 20 20 20	6 0 59 0 873 997 921 1178 2908 current 3 2 2 3 2 1 current 0.2 6.4 18.2 current	10 0 66 <1 917 1045 952 1214 3415 history1 4 4 4 4 4 5 0.2 7.4 18.2 history1	8 1 60 0 885 1126 1023 1189 2968 history2 6 2 4 history2 0.2 7.7 17.6 history2



Oct24/19

Apr10/19

OIL ANALYSIS REPORT



Mar25/21

Jan31/22

	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
/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jan3/23 Nov1/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
~	Visc @ 100°C	cSt	ASTM D445	12.00	11.3	11.1	11.1
	GRAPHS						
	Ferrous Alloys						
	40 ar	1 1 1	٨				
Jan 3/23	35 chromium	1 1 1	1				
- Š	30 - 25 -	1001	1				
E	20-		11				
8	15-						
	10						
	5						
			Statute and a statute of the statute				
		Mar25/21- Jan31/22 -	Jan3/23 -	Nov1/23			
	Apr1	Mar25/2 Jan31/22	Jan	Nov			
	Non-ferrous Meta	als					
	10 T 2	1					
	8 - copper						
	tin						
	6		\wedge				
100			/				
	-		/ \				
	2	\sim	···· { ···				
	O CONTRACTOR OF	and the second s	and a second				
		Mar25/21	Jan3/23	Vov1/23			
	pr10 ct24	Mar25/2 Jan31/22	ang	2			
	< 0	2 7	,	No			
	∝	- 7	~	Ng	Dear No. 1		
		- 7	· · · · · · · · · · · · · · · · · · ·	2 12.0	Base Number		
	Viscosity @ 100°	- 7		- 12.0) 		
	Viscosity @ 100°	- 7	2	12.0) 	~	
Ę.	Viscosity @ 100°	- 7	2	12.0			/
	Viscosity @ 100°	- 7		12.0			
1,2,2,0,0,1,2,2,2,0,0,0,0,0,0,0,0,0,0,0,	Viscosity @ 100°	- 7		12.0			\sim
1.000017.592	Viscosity @ 100°	- 7		12.0 (0)HOX 8.0 (0)HOX			
10-000 J 7-50	Viscosity @ 100°	- 7	~	12.0			
(J=001) +894	Viscosity @ 100°	c		12.0 (B)HOX 8.0 (B)HOX 80.0 (B)HOX 80.0 (B		2	
1,2-100 L 1 - 85-0	Viscosity @ 100°	c		12.0 (0)HOX Bul bul squmN see 2.0		dar25/21	Jan3/23
	Viscosity @ 100°	Maz25/21	E2/Enel	12.0 (0)HOX 000 8.0 HOX 000 10 6.0 Base Manual 4.0 EECI/NON	Apr10/13	12/2/15/me/	
Laboratory	Viscosity @ 100°	C	ECCUP son Ave., Ca	12.0 (0)H0X Bul 10.0 H0X Bul 10.0 Bul 10 Bul 10.0 Bul 10.0 Bul 10.0 Bul 10.0 Bul 10.0 Bul 10.0 Bul 10	Apr10/13	PERDUE FAI	RMS - DILLON
Laboratory Sample No.	Viscosity @ 100°	C C 501 Madia Received	son Ave., Ca	12.0 (0)H0X 60.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	Apr10/13	PERDUE FAI	RMS - DILLON HWY 9 WEST
Laboratory Sample No. Lab Number	Viscosity @ 100°	C C 501 Madia Received Diagnos	son Ave., Ca d : 08 f ed : 09 f	ry, NC 27513 Nov 2023 Nov 2023	Apr10/13	PERDUE FAI	RMS - DILLON HWY 9 WEST DILLON, SC
Laboratory Sample No.	Viscosity @ 100°	C C 501 Madia Received	son Ave., Ca d : 08 f ed : 09 f	12.0 (0)H0X 60.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	Apr10/13	PERDUE FAI 2047	RMS - DILLON HWY 9 WEST

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367

T: (843)841-8069

F: (843)841-8070