

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 10W30 (10 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

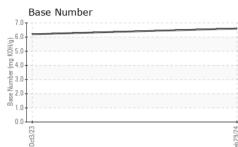
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

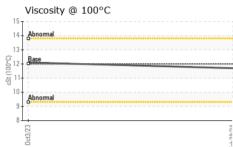
SAMPLE INFORMATION method limit/base ourrent history1 history2 Sample Date Client Info 29 Feb 2024 00 Oct 2023 Machine Age mis Client Info 74484 56529 Oil Age mis Client Info 17955 27513 Oil Changed Client Info 17955 27513 Sample Status Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 Water WC Method >0.2 NEG NEG Water WC Method >0.2 NEG NetG Water WC Method >0.0 31 38 Itanium ppm ASTM05165m<>40 0 0 Nickel ppm ASTM05165m<>33 0 0 Aurinum ppm ASTM05165m >330 0				0ct2023	Feb2024			
Sample Date Client Info 29 Feb 2024 03 Oct 2023	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
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Oil Age mis Client Info 17955 27513 Oil Changed Client Info Changed Changed Sample Status Imit/base current NoRMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 Water WC Method >0.2 NEG NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >20 0 <1.0 Nickel ppm ASTM D5185m >20 0 < Aluminum ppm ASTM D5185m >40 0 0 Aluminum ppm ASTM D5185m >30 0 14 Vanadium ppm ASTM D5185m >10 0 Vanadium pp	Sample Date		Client Info		29 Feb 2024	03 Oct 2023		
Oil Changed Client Info Changed NORMAL Changed NORMAL ···· Sample Status Image Image Current NISCAPAL ···· CONTAMINATION method limit/base current NISCAPAL ···· Fuel WC Method >5. <1.0 <1.0 ···· Water WC Method >5. <1.0 <1.0 ···· Glycol WC Method >0. < <td>···· ···· ···· VEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 <1</td> ···· Nickel ppm ASTM D5185m >20 0 0 ···· Silver ppm ASTM D5185m >20 0 0 ···· Copper ppm ASTM D5185m >20 6 15 ···· Copper ppm ASTM D5185m >30 0 ···· ····	···· ···· ···· VEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 <1	Machine Age	mls	Client Info		74484	56529	
Sample Status NORMAL NORMAL NORMAL	Oil Age	mls	Client Info		17955	27513		
Sample Status NORMAL NORMAL NORMAL	Oil Changed		Client Info		Changed	Changed		
Fuel WC Method >5 <1.0	-				-	NORMAL		
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5165m >20 0 <1 Nickel ppm ASTM D5165m >20 0 <1 Nickel ppm ASTM D5165m >20 6 15 Silver ppm ASTM D5165m >20 6 15 Lead ppm ASTM D5165m >20 6 0 Copper ppm ASTM D5165m >20 6 0 Vanadium ppm ASTM D5165m >20 6 0 Vanadium ppm ASTM D5165m 0 0 0 ADDITVES method limit/base current history1 history2	CONTAMINAT	ION	method	limit/base	current	history1	history2	
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Iron ppm ASTM D5185m >100 31 38	Glycol				NEG	NEG		
Iron ppm ASTM D5185m >100 31 38	WEAR METAL	S	method	limit/base	current	history1	history2	
Chromium ppm ASTM D5185m >20 0 <1			ASTM D5185m	>100	31	38		
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Boron ppm ASTM D5185m 2 <1	Cadmium	ppm	ASTM D5185m		0	0		
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Calcium ppm ASTM D5185m 1050 1107 1202 Phosphorus ppm ASTM D5185m 995 1102 1035 Zinc ppm ASTM D5185m 1180 1316 1333 Sulfur ppm ASTM D5185m 2600 2701 2894 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 11 Sodium ppm ASTM D5185m >25 15 11 Sodium ppm ASTM D5185m >20 12 50 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/.m *ASTM D7624 >20 11.3 11.4 Sulfation Abs/.im *A	Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	<1 1	<1 0		
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Zinc ppm ASTM D5185m 1180 1316 1333 Sulfur ppm ASTM D5185m 2600 2701 2894 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 11 Sodium ppm ASTM D5185m >25 15 11 Sodium ppm ASTM D5185m >20 12 50 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 11.3 11.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	<1 1 64 0	<1 0 63 <1		
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Sodium ppm ASTM D5185m <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	<1 1 64 0 1021 1107 1102 1316	<1 0 63 <1 1041 1202 1035 1333		
Sodium ppm ASTM D5185m <1	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 1 64 0 1021 1107 1102 1316 2701	<1 0 63 <1 1041 1202 1035 1333 2894		
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Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 11.3 11.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.9 19.4	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	<1 1 64 0 1021 1107 1102 1316 2701 current 15	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11	 history2	
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Nitration Abs/cm *ASTM D7624 >20 11.3 11.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.9 19.4	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	<1 1 64 0 1021 1107 1102 1316 2701 Current 15 <11 12	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 1 50	 history2 	
Sulfation Abs/.1mm *ASTM D7415 >30 22.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.9 19.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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 >25 -20 limit/base	<1 1 64 0 1021 107 1107 1102 1316 2701 current 15 <1 12 current	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 50 history1	 history2 history2	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.9 19.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	<1 1 64 0 1021 1107 1102 1316 2701	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 1 50 history1 0.5	 history2 history2	
Oxidation Abs/.1mm *ASTM D7414 >25 18.9 19.4	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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 i mit/base >25 >20 i mit/base >3 >20	<1 1 64 0 1021 1107 1102 1316 2701 Current 15 <11 12 Current 0.5 11.3	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 50 history1 0.5 11.4	 history2 history2	
	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 50 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	<1 1 64 0 1021 1107 1102 1316 2701 Current 15 <11 12 Current 0.5 11.3 22.1	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 50 history1 0.5 11.4 22.8	 history2 history2 history2	
Base Number (BN) mg K0H/g ASIM D2896 6.6 6.2	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 D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 2600 255 20 220 20 20 33 20 30 20 30 20 30	<1 1 64 0 1021 1107 1102 1316 2701 Current 15 <11 12 Current 0.5 11.3 22.1 Current	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 1 50 history1 0.5 11.4 22.8 history1	 history2 history2 history2 history2	
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	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 255 20 220 20 20 33 20 30 20 30 20 30	<1 1 64 0 1021 1107 1102 1316 2701 Current 15 <11 12 Current 0.5 11.3 22.1 Current 18.9	<1 0 63 <1 1041 1202 1035 1333 2894 history1 11 1 50 history1 0.5 11.4 22.8 history1 19.4	 history2 history2 history2 history2 history2	



OIL ANALYSIS REPORT

VISUAL





	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
1	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
24	Appearance	scalar	*Visual	NORML	NORML	NORML	
Feb29/24							
ιĒ.	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE		method	limit/base	current	history1	history
	Visc @ 100°C	cSt	ASTM D445	12.00	11.7	12.1	
	GRAPHS						
	Ferrous Alloys						
V	35						
10CTro	30 - nickel						
Ĺ	25 -						
	Ē 20 -						
	15-						
	10-						
	5-						
	0						
	0ct3/23			9/24			
	Oct			Feb29/24			
	Non-ferrous Meta	ls					
	14T						
	12 - copper						
	10-						
	8						
	0						
	4-						
	2-						
	0		*****	4			
	0ct3/23			Feb 29/24			
		_		Fet			
	Viscosity @ 100°(0			Base Numbe	er	
	15			7.0			
	15						
	15 14 Abnormal			6.0			
	15 14 Abnomal 13			6.0			
	15 14 Abnomal 13			6.0			
	15 14 Abnormal 13 Base			6.0			
	15 14 Abnormal 13 5 12 5 12 5 11 10			6.0			
	15 14 13 60 12 8 8 8 8 9 11			6.0- (0)HOX 5.0- (0)HOX 5.0- (
	15 14 Abnormal 13 13 13 14 13 13 13 13 14 13 13 13 13 14 13 13 14 13 13 14 13 13 14 13 14 14 15 15 16 16 16 16 16 16 16 16 16 16			6.0- (0)HOX 0 (0)HOX			
	Abnormal 13 14 13 12 8 8 8 4 13 12 12 4 8 8 8 8 8 8 8 8 8 8 8 8 8			6.0 (D)HOX bu) 4.0- Jag 3.0 2.0- 1.0- 1.0- 0.0	23		
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