

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (11 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Hours are currently 17023. Hours for last oil change was 16095.)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

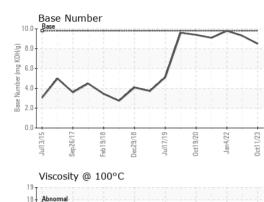
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

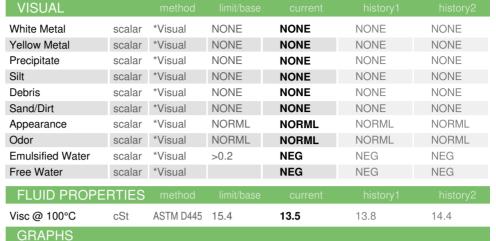
SAMPLE INFORMATION method imit/base current history1 history2 Sample Number Client Info 11 Oct 2023 18 Jul 2023 04 Jan 2022 Machine Age hrs Client Info 17023 16095 524 Oil Age hrs Client Info 17023 16095 524 Oil Age hrs Client Info Changed Not Changed Changed ContAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 Vickel ppm ASTM 05/65 >20 <1 <1 0 <1 Nickel ppm ASTM 05/65 >3 0 <1 0 <1 Nickel ppm ASTM 05/65 >3 0 <1 0 <1 Aluminum ppm ASTM 05/65 >3 0 <	GAL)		Jul2015 Sep	2017 Feb2018 Dec201	18 Jul2019 Oct2020 Jan20	22 Oct2023	
Sample Date Client Info 11 Oct 2023 18 Jul 2023 04 Jan 2022 Machine Age hrs Client Info 17023 16095 14182 Oil Age hrs Client Info 17023 16095 524 Oil Changed Client Info Changed Not Changed Not MAL NORMAL Sample Status Imit bod Imit bods current History1 History2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method Sample Status Nore MAL NoreMAL NoreMAL Iron ppm ASTM 05165m >100 21 10 24 Chromium ppm ASTM 05165m >30 0 <1 1 Irtanium ppm ASTM 05165m >30 0 <1 1 Irtanium ppm ASTM 05165m >30 0 <1 1 Irtanium ppm ASTM 05165m 33 0 <1 1	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
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Oll Changed Sample StatusClient InfoChanged NORMALNot Changed NORMALChanged NORMALChanged NORMALCONTAMINATIONmethodlimil/basecurrenthistory1history2FuelWC Method>5<1.0<1.0<1.0GlycolWC Method>5<1.0<1.0<1.0WEAR METALSmethodimil/basecurrenthistory1history2IronppmASTM 05185m>100210.0<1<1NickelppmASTM 05185m>20<1<1<1<1NickelppmASTM 05185m>20<1<1<1<1NickelppmASTM 05185m>20<74<5<1AluminumppmASTM 05185m>20<74<5<1CopperppmASTM 05185m>3302<1<1<1CadadiumppmASTM 05185m>3302<1<1<1AdadiumppmASTM 05185m<10<1<1<1AdadiumppmASTM 05185m<10<1<1<1AdadiumppmASTM 05185m<10<1<1<1AdadiumppmASTM 05185m<10<1<1<1AdadiumppmASTM 05185m<1<1<1<1<1AdadiumppmASTM 05185m<1<1<1<1<1<	Machine Age	hrs	Client Info		17023	16095	14182
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Fuel WC Method >5 <1.0	Sample Status				NORMAL	NORMAL	NORMAL
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Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >4 <1	Iron	ppm	ASTM D5185m	>100	21	10	24
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >3 0 0 <1	Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Aluminum ppm ASTM D5185m >20 7 4 5 Lead ppm ASTM D5185m >40 <1 0 1 Copper ppm ASTM D5185m >330 2 <1 1 Tin ppm ASTM D5185m >15 <1 0 <1 Antimony ppm ASTM D5185m <1 0 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 6 14 9 Boron ppm ASTM D5185m 0 6 6 62 Marganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 821 918 926 Calcium ppm ASTM D5185m 1070 1095 1188 1102 Phosphorus ppm ASTM D5185m 2060 2691	Titanium	ppm	ASTM D5185m		<1	0	<1
Lead ppm ASTM D5185m >40 <1	Silver	ppm	ASTM D5185m	>3	0	0	
Copper ppm ASTM D5185m >330 2 <1	Aluminum	ppm	ASTM D5185m	>20	7	4	5
Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	<1	0	1
Antimony ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>330	2	<1	1
Vanadium ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>15	<1	0	<1
Cadmium ppm ASTM D5185m <1	Antimony	ppm	ASTM D5185m				<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 14 9 Barium ppm ASTM D5185m 0 4 <1 0 Molybdenum ppm ASTM D5185m 60 65 66 62 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 821 918 926 Calcium ppm ASTM D5185m 1010 821 918 926 Calcium ppm ASTM D5185m 1070 1095 1188 1102 Phosphorus ppm ASTM D5185m 1270 1100 1257 1267 Sulfur ppm ASTM D5185m 2060 2691 3716 2976 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m <	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron ppm ASTM D5185m 0 6 14 9 Barium ppm ASTM D5185m 0 4 <1 0 Molybdenum ppm ASTM D5185m 60 65 66 62 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 821 918 926 Calcium ppm ASTM D5185m 1010 821 918 926 Calcium ppm ASTM D5185m 1070 1095 1188 1102 Phosphorus ppm ASTM D5185m 1270 1100 1257 1267 Sulfur ppm ASTM D5185m 2060 2691 3716 2976 CONTAMINANTS method Imit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1 0 1 INFERA-RED method Imit/base	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 4 <1	ADDITIVES		method	limit/base	current	history1	history2
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Maganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	4	<1	0
Magnesium ppm ASTM D5185m 1010 821 918 926 Calcium ppm ASTM D5185m 1070 1095 1188 1102 Phosphorus ppm ASTM D5185m 1150 905 1035 994 Zinc ppm ASTM D5185m 1270 1100 1257 1267 Sulfur ppm ASTM D5185m 2060 2691 3716 2976 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >20 <1 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.8 1.3 2.4 Nitration Abs/.mm *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.lmm *ASTM D	Molybdenum	ppm	ASTM D5185m	60	65	66	62
Calcium ppm ASTM D5185m 1070 1095 1188 1102 Phosphorus ppm ASTM D5185m 1150 905 1035 994 Zinc ppm ASTM D5185m 1270 1100 1257 1267 Sulfur ppm ASTM D5185m 2060 2691 3716 2976 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >20 <1 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >3 1.8 1.3 2.4 Nitration Abs/.m *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.im *ASTM D77415	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 905 1035 994 Zine ppm ASTM D5185m 1270 1100 1257 1267 Sulfur ppm ASTM D5185m 2060 2691 3716 2976 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	821	918	926
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Sulfur ppm ASTM D5185m 2060 2691 3716 2976 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >20 <1 0 1 Potassium ppm ASTM D5185m >20 <1 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >3 1.8 1.3 2.4 Nitration Abs/cm *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.1m *ASTM D7615 >30 21.9 20.2 23.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1m *ASTM D7741	Phosphorus	ppm	ASTM D5185m	1150	905	1035	994
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >25 6 3 4 Sodium ppm ASTM D5185m >20 <1 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.8 1.3 2.4 Nitration Abs/cm *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.9 20.2 23.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.1 18.1	Zinc	ppm	ASTM D5185m	1270	1100	1257	1267
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Potassium ppm ASTM D5185m >20 <1		ppm		>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.8 1.3 2.4 Nitration Abs/cm *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.Imm *ASTM D7415 >30 21.9 20.2 23.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.Imm *ASTM D7414 >25 17.2 15.1 18.1		ppm			5	2	2
Soot % % *ASTM D7844 >3 1.8 1.3 2.4 Nitration Abs/cm *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.9 20.2 23.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.1 18.1	Potassium	ppm	ASTM D5185m	>20	<1	0	1
Nitration Abs/cm *ASTM D7624 >20 11.8 8.6 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.9 20.2 23.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.1 18.1	INFRA-RED		method	limit/base			
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FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.1 18.1							
Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.1 18.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.9	20.2	23.8
	FLUID DEGRAI		method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.5 9.3 9.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.2	15.1	18.1
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.5	9.3	9.8



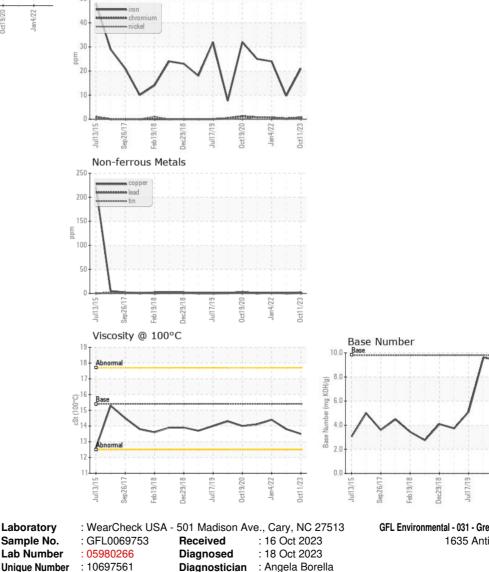
OIL ANALYSIS REPORT

Ferrous Alloys





Sap26/17 Feb 19/18 Dec29/18 Janf4/22 Janf4/22





 Certificate L2367
 Test Package
 : FLEET
 Control

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

 * - 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)

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Jan4/22

0ct19/20