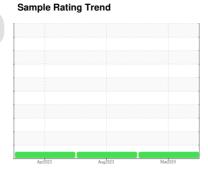


OIL ANALYSIS REPORT



Machine Id
97064
Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (10 GAL)





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

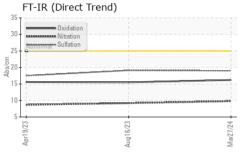
Fluid Condition

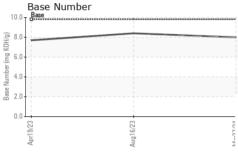
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

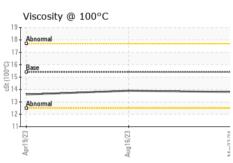
Sample Date Client Info 27 Mar 2024 16 Aug 2023 19 Apr 2023 10 Apr 2023	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 153630 131720 121037	Sample Number		Client Info		SBP0006322	SBP0001877	SBP0001887
Oil Age mls Client Info 10388 10685 10000 Oil Changed Client Info N/A Changed Change	Sample Date		Client Info		27 Mar 2024	16 Aug 2023	19 Apr 2023
Cilient Info	Machine Age	mls	Client Info		153630	131720	121037
Cilient Info		mls	Client Info		10388	10685	10000
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2	•				N/A		
Fuel	-						
Fuel		J	method	limit/base	current	history1	history2
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 22 26 25 Chromium ppm ASTM D5185m >20 <1 <1 1 Nickel ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 5 7 6 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 <1 2 3 Tin ppm ASTM D5185m >15 <1 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 </td <td>Fuel</td> <td></td> <td>WC Method</td> <td>>5</td> <th><1.0</th> <td></td> <td></td>	Fuel		WC Method	>5	<1.0		
WEAR METALS			WC Method			NFG	
Iron	Glycol			7 0.2			
Iron	WEAR METALS		method	limit/base	current	historv1	historv2
Chromium ppm ASTM D5185m >20 <1 <1 1 Nickel ppm ASTM D5185m >2 0 0 <1 Titanium ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 5 7 6 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td></td> <td>nnm</td> <td></td> <td></td> <th></th> <td></td> <td></td>		nnm					
Nickel							
Titanium							
Silver							
Aluminum							
Lead							
Copper ppm ASTM D5185m >330 <1 2 3 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>25	5	7	6
Tin	Lead	ppm	ASTM D5185m	>40	0	0	0
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 0 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 63 60 60 Manganese ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	<1	2	3
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 0 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 63 60 60 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 0 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 0 <1 <1 <1 <1 Calcium ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 63 60 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1072 991 1025 Calcium ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 63 60 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1072 991 1025 Calcium ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D7844 >3 0.5	Boron	ppm	ASTM D5185m	0	2	0	3
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1072 991 1025 Calcium ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7815	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 1072 991 1025 Calcium ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <th>63</th> <td>60</td> <td>60</td>	Molybdenum	ppm	ASTM D5185m	60	63	60	60
Calcium ppm ASTM D5185m 1070 1136 1130 1223 Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm "ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base curr	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414	Magnesium	ppm	ASTM D5185m	1010	1072	991	1025
Phosphorus ppm ASTM D5185m 1150 1171 1012 1075 Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	1136	1130	1223
Zinc ppm ASTM D5185m 1270 1397 1267 1339 Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D741	Phosphorus		ASTM D5185m	1150		1012	1075
Sulfur ppm ASTM D5185m 2060 3786 3519 3536 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6			ASTM D5185m	1270	1397		1339
Silicon ppm ASTM D5185m >25 5 6 5 Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	Sulfur						
Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 5 6 5 Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	Silicon	ppm	ASTM D5185m	>25	5	6	5
Potassium ppm ASTM D5185m >20 4 9 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	Sodium						
Soot % % *ASTM D7844 >3 0.5 0.6 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	Potassium			>20			
Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6		%	*ASTM D7844	>3	0.5	0.6	0.4
Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.1 17.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6	Soot %	, -					
Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 15.6		Abs/cm	*ASTM D7624	>2()	9.8	9.2	8.7
	Soot % Nitration Sulfation						
	Nitration Sulfation	Abs/.1mm	*ASTM D7415	>30	19.0	19.1	17.5
	Nitration Sulfation FLUID DEGRADA	Abs/.1mm	*ASTM D7415 method	>30 limit/base	19.0 current	19.1 history1	17.5 history2



OIL ANALYSIS REPORT



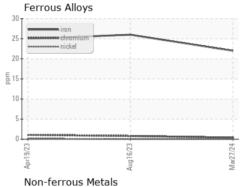


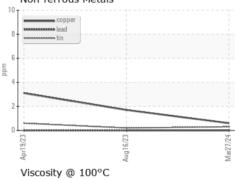


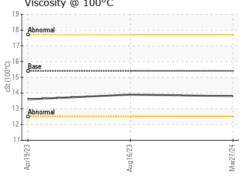
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

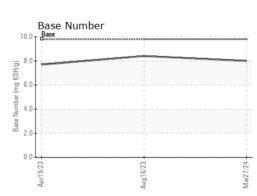
FLUID PROPERTIES		method			riistory i	HISTORYZ	
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.9	13.6	

GRAPHS













Certificate 12367

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : SBP0006322 Lab Number : 06149374

 $\textbf{Unique Number} \quad : 10979452$ Test Package : FLEET

Received : 15 Apr 2024 Tested

: 16 Apr 2024 Diagnosed : 16 Apr 2024 - Wes Davis

US Contact: Service Manager

Sapp Bros. Fleet - Filley Location

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)

Report Id: SBTFIL [WUSCAR] 06149374 (Generated: 04/16/2024 15:39:08) Rev: 1

Submitted By: KEVIN MEYER

T:

F: