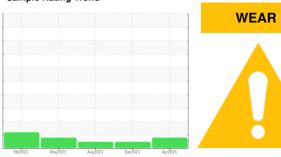


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 98053 393 Component

Diesel Engine

PETRO CANADA DURON UHP 5W40 (--- GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

The aluminum level has decreased, but is still abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

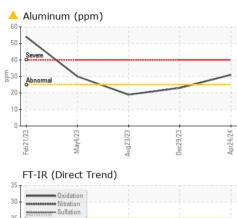
Fluid Condition

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

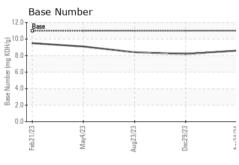
Cample Date	AL)		Feb 2023	May2023	Aug2023 Dec2023	Apr2024	
Client Info 24 Apr 2024 29 Dec 2023 23 Aug 2023 20 Aug 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mis	Sample Number		Client Info		SBP0005884	SBP0005538	SBP0004657
Dil Age	Sample Date		Client Info		24 Apr 2024	29 Dec 2023	23 Aug 2023
Client Info	Machine Age	mls	Client Info		267765	261648	254100
ABNORMAL NORMAL NORMAL NORMAL	Oil Age	mls	Client Info		6117	7548	6303
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Changed	Changed	Changed
Vicine	Sample Status				ABNORMAL	NORMAL	NORMAL
Water Gilycol WC Method WC Method >0.2.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >10.0 40 49 36 Chromium ppm ASTM D5185m >2.0 <1	CONTAMINATION	١	method	limit/base	current	history1	history2
WEAR METALS	-uel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >100 40 49 36 Chromium ppm ASTM D5185m >20 <1	Nater		WC Method	>0.2	NEG	NEG	NEG
Post	Glycol		WC Method		NEG	NEG	NEG
Chromium Dpm ASTM D5185m >20	WEAR METALS		method	limit/base	current	history1	history2
Sirickel	ron	ppm	ASTM D5185m	>100	40	49	
Description	Chromium	ppm	ASTM D5185m	>20	<1	1	1
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	<1
Aluminum ppm ASTM D5185m >25 ▲ 31 23 19 Lead ppm ASTM D5185m >40 0 2 <1 Copper ppm ASTM D5185m >330 1 <1 In ppm ASTM D5185m >15 0 <1 <1 Cadmium ppm ASTM D5185m >15 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 65 34 29 34 Barium ppm ASTM D5185m 65 60 60 60 62 Manganese ppm ASTM D5185m 0 10 1123 11778 11379 Calcium ppm ASTM D5185m 1160 1123 11778 11379 Calcium ppm ASTM D5185m 820 867 839 836 Phosphorus ppm ASTM D5185m 1260 1235 1329 1377 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Zinc ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Sidicon ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Scott % % "ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/.1mm "ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm "ASTM D7414 >25 19.6 20.8 19.1	Γitanium	ppm	ASTM D5185m	>2	0	0	0
December December	Silver	ppm	ASTM D5185m	>2			0
Copper	Aluminum	ppm	ASTM D5185m	>25		23	
STIN Description Popm ASTM D5185m >15 0 0 0 0 0 0 0 0 0	_ead	ppm	ASTM D5185m	>40	0		
Anadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 65 34 29 34 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 65 60 60 62 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1160 1123 1178 1137 Calcium ppm ASTM D5185m 820 867 839 836 Phosphorus ppm ASTM D5185m 1260 1235 1329 1377 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Sulfur ppm ASTM D5185m >25 5 5	Copper	ppm		>330	1	<1	
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 65 34 29 34 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1		ppm		>15			
ADDITIVES	Vanadium	ppm					
Soron ppm ASTM D5185m 65 34 29 34	Cadmium	ppm	ASTM D5185m		0	0	0
Sarium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 65 60 60 62 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1160 1123 1178 1137 Calcium ppm ASTM D5185m 1160 1016 1048 1077 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Sulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Goldium ppm ASTM D5185m >25 5 5 4 Godium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 >3 0.5 0.7 0.6 INFRA-RED method limit/base	Boron	ppm	ASTM D5185m	65	34	29	34
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1160 1123 1178 1137 Calcium ppm ASTM D5185m 120 867 839 836 Phosphorus ppm ASTM D5185m 1160 1016 1048 1077 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Sulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Godium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1160 1123 1178 1137 Calcium ppm ASTM D5185m 820 867 839 836 Phosphorus ppm ASTM D5185m 1160 1016 1048 1077 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Sulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/.1mm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM	Molybdenum	ppm	ASTM D5185m	65		60	62
Calcium ppm ASTM D5185m 820 867 839 836 Phosphorus ppm ASTM D5185m 1160 1016 1048 1077 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Gulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Golium ppm ASTM D5185m >25 5 5 4 Golium ppm ASTM D5185m 5 3 3 3 Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Gulfation Abs/.1mm *ASTM D7415	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1160 1016 1048 1077 Zinc ppm ASTM D5185m 1260 1235 1329 1377 Sulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Godium ppm ASTM D5185m 5 3 3 3 Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method lim	Magnesium	ppm	ASTM D5185m	1160	1123	1178	1137
Zinc ppm ASTM D5185m 1260 1235 1329 1377 Sulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m 5 3 3 3 Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm <td< td=""><td>Calcium</td><td>ppm</td><td>ASTM D5185m</td><td>820</td><td>867</td><td>839</td><td>836</td></td<>	Calcium	ppm	ASTM D5185m	820	867	839	836
Sulfur ppm ASTM D5185m 3000 3770 3456 3594 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m 5 3 3 Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	Phosphorus	ppm	ASTM D5185m	1160	1016	1048	1077
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m 5 3 3 Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	Zinc	ppm	ASTM D5185m	1260	1235	1329	1377
Solition ppm ASTM D5185m >25 5 5 4	Sulfur	ppm	ASTM D5185m	3000	3770	3456	3594
Sodium ppm ASTM D5185m 5 3 3 Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 6 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	Silicon	ppm	ASTM D5185m	>25	5	5	4
INFRA-RED	Sodium	ppm	ASTM D5185m		5	3	3
Soot % % *ASTM D7844 >3 0.5 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	Potassium	ppm	ASTM D5185m	>20	3	6	6
Nitration Abs/cm *ASTM D7624 >20 10.2 11.1 10.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	Soot %	%	*ASTM D7844	>3	0.5	0.7	0.6
FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 19.6 20.8 19.1	Nitration	Abs/cm	*ASTM D7624	>20	10.2	11.1	10.1
Dxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.0	22.0	20.7
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 11.0 8.6 8.2 8.4	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.6	20.8	19.1
	Base Number (BN)	mg KOH/g	ASTM D2896	11.0	8.6	8.2	8.4

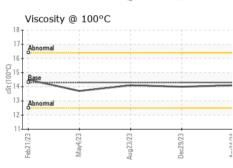


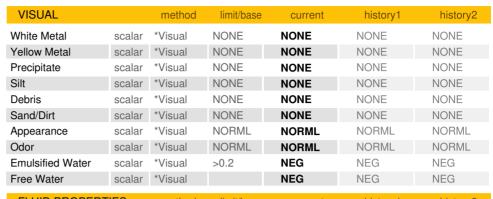
OIL ANALYSIS REPORT



FT-IF	R (Direct Tre	nd)		
30 -	Oxidation Nitration Sulfation			
25 - 2	Suration		1	
Abs/cm			HARRY WATER	
15				
10-				Name and Address of the Owner, where the Owner, which is the Owner, where the Owner, which is
5				
Feb21/23	May4/23	Aug23/23	Dec29/23	Apr24/24

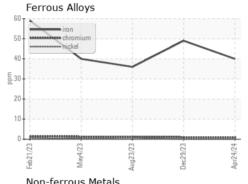




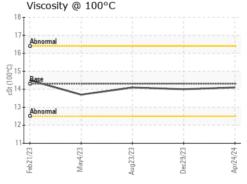


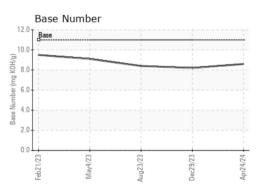
FLUID PROPER	HES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.3	14.1	14.0	14.1

GRAPHS



10	errous me	tais		
	copper			
	nnon lead			
8+				
4				
6+				
mdd				
- A				
77				
2				
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23	23	23	23	24
21/	¥	23	29/	24/
Feb21/23	May4/23	Aug23/23	Dec29/23	Apr24/24
Visco	sity @ 100	°C		
	,	_		









Laboratory Sample No.

: SBP0005884 Lab Number : 06178328 Unique Number : 11029654

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 14 May 2024

Tested : 14 May 2024

Diagnosed : 16 May 2024 - Sean Felton

US Contact: Service Manager

Sapp Bros. Fleet - North Platte Location

Test Package : FLEET Certificate 12367 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: SBTNORP [WUSCAR] 06178328 (Generated: 05/16/2024 11:58:09) Rev: 1

Submitted By: DAN VAN ZEE

T:

F: