

OIL ANALYSIS REPORT

Area FLEET Machine Id **VOLVO 1926731**

Diesel Engine

PETRO CANADA DURON SHP 10W30 (---)

Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

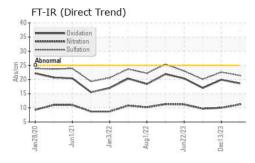
Fluid Condition

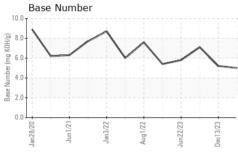
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

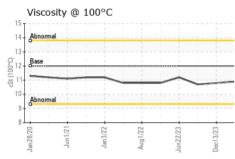
SAMPLE INFORMATION method imit/base current history1 history2							
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 409906 370578 348907 Oil Age mis Client Info 39328 44787 23116 Oil Changed Client Info Changed Changed NORMAL NORMAL Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method -6.0 <1.0	Sample Number		Client Info		PCA0124529	PCA0108199	PCA0102861
Machine Age mIs Client Info 409906 370578 348907 Oil Age mis Client Info 39328 44787 23116 Oil Changed Client Info Changed Changed NORMAL NORMAL Sample Status WC Method Imit Wase current history1 history2 Fuel WC Method 6.0 <1.0	Sample Date		Client Info		16 May 2024	13 Dec 2023	14 Sep 2023
Oil Age mls Client Info 39328 44787 23116 Oil Changed Sample Status Client Info Changed Changed Not Chan	Machine Age	mls	Client Info		-	370578	
Sample Status		mls	Client Info		39328	44787	23116
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Changed	Changed	Not Changd
Fuel					NORMAL		NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limitibase current history1 history2 Iron ppm ASTM D5185m >100 17 21 14 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	17	21	14
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum ppm ASTM D5185m >25 2 3 0 Lead ppm ASTM D5185m >40 1 <1	Titanium	ppm	ASTM D5185m		<1		-
Lead ppm ASTM D5185m >40 1 <1 0 Copper ppm ASTM D5185m >330 4 4 5 Tin ppm ASTM D5185m >15 1 1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 <1 2 2 Barium ppm ASTM D5185m 0 <1 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Calcium ppm ASTM D5185m 0 <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>2</td> <th><1</th> <td><1</td> <td><1</td>	Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Copper ppm ASTM D5185m >330 4 4 5 Tin ppm ASTM D5185m >15 1 1 <1	Aluminum	ppm	ASTM D5185m	>25	2	3	0
Tin ppm ASTM D5185m >15 1 1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 <1 2 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 50 56 59 60 Mangaesium ppm ASTM D5185m 50 56 59 60 Magnesium ppm ASTM D5185m 950 934 924 991 Calcium ppm ASTM D5185m 1050 1057 1028 1094 Phosphorus ppm ASTM D5185m 995 1085 1018 1036 Zinc ppm ASTM D5185m 2600 <td>Lead</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>40</td> <th>1</th> <td><1</td> <td>0</td>	Lead	ppm	ASTM D5185m	>40	1	<1	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 <1 2 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 50 56 59 60 Manganese ppm ASTM D5185m 950 934 924 991 Calcium ppm ASTM D5185m 950 934 924 991 Calcium ppm ASTM D5185m 950 1085 1018 1036 Zinc ppm ASTM D5185m 995 1085 1018 1036 Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th>4</th><td>4</td><td>5</td></t<>	Copper	ppm	ASTM D5185m	>330	4	4	5
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 <1	Tin	ppm	ASTM D5185m	>15	1	1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 50 56 59 60 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 56 59 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 950 934 924 991 Calcium ppm ASTM D5185m 1050 1057 1028 1094 Phosphorus ppm ASTM D5185m 1085 1018 1036 Zinc ppm ASTM D5185m 995 1085 1018 1036 Zinc ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 225 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m 20 3 4 3 INFRA-RED method limit/base current history1 <td>Boron</td> <td>ppm</td> <td></td> <td>_</td> <th>0</th> <td><1</td> <td>2</td>	Boron	ppm		_	0	<1	2
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 950 934 924 991 Calcium ppm ASTM D5185m 1050 1057 1028 1094 Phosphorus ppm ASTM D5185m 995 1085 1018 1036 Zinc ppm ASTM D5185m 1180 1247 1238 1286 Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3	Barium	ppm	ASTM D5185m	0	<1	0	0
Magnesium ppm ASTM D5185m 950 934 924 991 Calcium ppm ASTM D5185m 1050 1057 1028 1094 Phosphorus ppm ASTM D5185m 1085 1018 1036 Zinc ppm ASTM D5185m 1180 1247 1238 1286 Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D7844 >3 0.2 0.4 0.3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>50</td> <th>56</th> <td>59</td> <td>60</td>	Molybdenum	ppm	ASTM D5185m	50	56	59	60
Calcium ppm ASTM D5185m 1050 1057 1028 1094 Phosphorus ppm ASTM D5185m 995 1085 1018 1036 Zinc ppm ASTM D5185m 1180 1247 1238 1286 Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/.1mm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 995 1085 1018 1036 Zinc ppm ASTM D5185m 1180 1247 1238 1286 Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method <td< td=""><td>Magnesium</td><td>ppm</td><td></td><td>950</td><th>934</th><td>924</td><td>991</td></td<>	Magnesium	ppm		950	934	924	991
Zinc ppm ASTM D5185m 1180 1247 1238 1286 Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM	Calcium	ppm	ASTM D5185m	1050	1057	1028	1094
Sulfur ppm ASTM D5185m 2600 3153 2642 3482 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Phosphorus	ppm	ASTM D5185m	995	1085	1018	1036
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Zinc	ppm	ASTM D5185m	1180	1247	1238	1286
Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0			ASTM D5185m	2600	3153	2642	3482
Sodium ppm ASTM D5185m 9 12 9 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Silicon	ppm	ASTM D5185m	>25	4		
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Sodium	ppm	ASTM D5185m		9	12	9
Soot % % *ASTM D7844 >3 0.2 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Potassium	ppm	ASTM D5185m	>20	3	4	3
Nitration Abs/cm *ASTM D7624 >20 11.2 10.0 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.4 22.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Soot %	%	*ASTM D7844	>3	0.2	0.4	0.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Nitration	Abs/cm	*ASTM D7624	>20	11.2	10.0	9.7
Oxidation Abs/.1mm *ASTM D7414 >25 18.6 19.9 17.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.4	22.6	20.1
	FLUID DEGRAI	NOITAC	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 5.0 5.2 7.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.6	19.9	17.0
	Base Number (BN)	mg KOH/g	ASTM D2896		5.0	5.2	7.1



OIL ANALYSIS REPORT



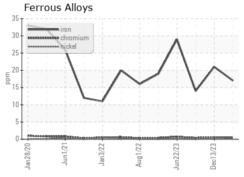


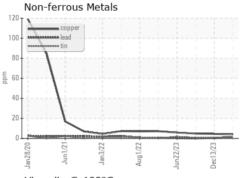


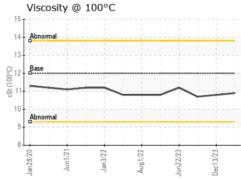
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

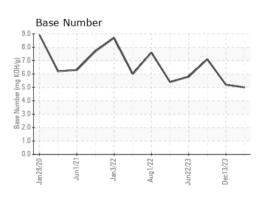
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	12.00	10.9	10.8	10.7

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06188777

: PCA0124529 Unique Number : 11045529 Test Package : FLEET

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

Received : 23 May 2024 **Tested** : 31 May 2024

Diagnosed

: 31 May 2024 - Wes Davis

US 23301 Contact: PEGGY KIMES peggy.kimes@perdue.com T: (757)787-5304

22520 LANKFORD HWY

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F: (757)787-5208

PERDUE FARMS - ACCOMAC

* - 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: PERACCPCA [WUSCAR] 06188777 (Generated: 05/31/2024 18:23:14) Rev: 1

Submitted By: RANDY PARKER