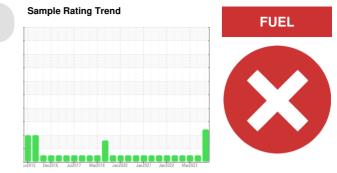


PROBLEM SUMMARY

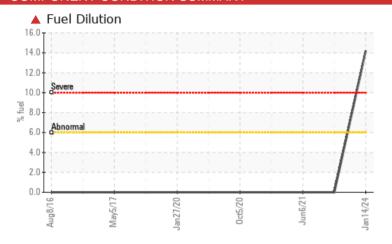
Area **FLEET** 26331

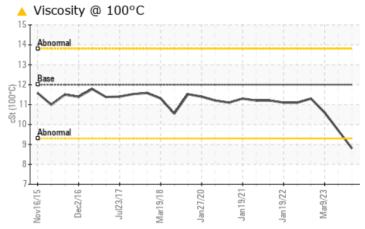
Component **Diesel Engine**

PETRO CANADA DURON SHP 10W30 (13 QTS)



COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS									
Sample Status				SEVERE	NORMAL	NORMAL			
Fuel	%	ASTM D3524	>6.0	14.2	<1.0	<1.0			
Visc @ 100°C	cSt	ASTM D445	12.00	8.8	9.7	10.6			

Customer Id: PERGEODE Sample No.: PCA0116188 Lab Number: 06118061 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS Action Status Date Done By Description Resample --- ? We recommend an early resample to monitor this condition.

We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

17 Sep 2023 Diag: Wes Davis

NORMAL

Check Fuel/injector

System



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



09 Mar 2023 Diag: Angela Borella

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

25 Oct 2022 Diag: Don Baldridge

NORMAL



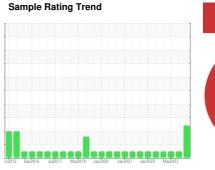
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Si







FLEET Machine Id 26331 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (13 QTS)

DIAGNOSIS

▲ Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

▲ Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

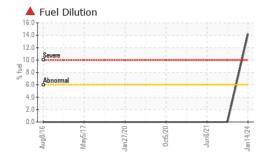
▲ Fluid Condition

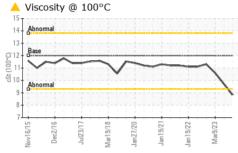
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

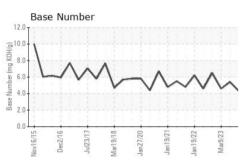
SAMPLE INFORMATION method imit/base current history1 history2	7/2015 Doc2016 Jul2017 Mar2018 Jan2020 Jan2021 Jan2022 Mar2023						
Sample Date Client Info 14 Jan 2024 17 Sep 2023 09 Mar 2023 Machine Age mis Client Info 574772 0 533554 Oil Age mis Client Info 42000 20000 20575 Oil Changed Client Info Changed Not Changed Changed Changed Sample Status Image: Client Info Changed Not Changed NoRMAL CONTAMINATION method Imitibase current Instory1 history2 WEAR METALS method Imitibase current history1 history2 Iron ppm ASTM D5185m >10.0 40 35 34 Chromium ppm ASTM D5185m >20 <1 <1 0 WEAR METALS method Imitibase current history1 history2 Iron ppm ASTM D5185m >20 <1 <1 0 Iron ppm ASTM D5185m >2 <1 1 <1	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 574772 0 533554 Oil Age mls Client Info 42000 20000 20575 Oil Changed Client Info Changed Not Changed	Sample Number		Client Info		PCA0116188	PCA0106397	PCA0094427
Oil Age mls Client Info 42000 20000 20575 Oil Changed Client Info Changed Not Changed Changed Not Changed Changed Sample Status SEVERE NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history2 Water WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 40 35 34 Chromium ppm ASTM D5185m >20 <1 <1 <1 Iron ppm ASTM D5185m >20 <1 <1 <1 Silver ppm ASTM D5185m >2 <1 1 <1 <1 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >2 <1 1 <1 <1	Sample Date		Client Info		14 Jan 2024	17 Sep 2023	09 Mar 2023
Oil Changed Sample Status Client Info Changed SEVERE Not Changed NORMAL Change NoRMAL Changed NoRMAL Change NoRMAL Change NoRMANAL Change NoRMANAL Change NoRMANAL	Machine Age	mls	Client Info		574772	0	533554
Sample Status Method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 40 35 34 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >22 <1 0 0 Jistory ppm ASTM D5185m >22 <1 0 0 Aluminum ppm ASTM D5185m >25 5 3 4 Lead ppm ASTM D5185m >330 5 2 1 Cadmium ppm ASTM D5185m >330 5 2 1 <	Oil Age	mls	Client Info		42000	20000	20575
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 40 35 34 Chromium ppm ASTM D5185m >20 <1	Oil Changed		Client Info		Changed	Not Changd	Changed
Water Glycol WC Method (Slycol) NEG (Slycol) NEG (NEG (NEG (NEG (NEG (NEG (NEG (NEG (Sample Status				SEVERE	NORMAL	NORMAL
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 40 35 34 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 40 35 34 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >2 <1 1 <1 Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >2 <1 0 0 Lead ppm ASTM D5185m >40 2 <1 2 Copper ppm ASTM D5185m >330 5 2 1 Vanadium ppm ASTM D5185m >15 1 <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1 <1 5 5 Barium ppm ASTM	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 <1 1 <1 Titanium ppm ASTM D5185m 3 4 28 Silver ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>100	40	35	34
Titanium ppm ASTM D5185m 3 4 28 Silver ppm ASTM D5185m >2 <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >25 5 3 4 Lead ppm ASTM D5185m >40 2 <1 2 Copper ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 1 <1 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 3 0 Molybdenum ppm ASTM D5185m 0 1 <1 <1 <1 <th< td=""><td>Nickel</td><td>ppm</td><td>ASTM D5185m</td><td>>2</td><th><1</th><td>1</td><td><1</td></th<>	Nickel	ppm	ASTM D5185m	>2	<1	1	<1
Aluminum ppm ASTM D5185m >2.25 5 3 4 Lead ppm ASTM D5185m >40 2 <1	Titanium	ppm	ASTM D5185m		3	4	28
Lead ppm ASTM D5185m >40 2 <1 2 Copper ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 1 <1 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1 <1 5 Barium ppm ASTM D5185m 0 0 3 0 Molybdenum ppm ASTM D5185m 0 42 53 36 Manganese ppm ASTM D5185m 0 1 <1 <1 <1 Magnesium ppm ASTM D5185m 0 695 820 709 Calcium ppm ASTM D5185m 995 827 915 898 <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>2</td> <th><1</th> <td>0</td> <td>0</td>	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 1 <1	Aluminum	ppm	ASTM D5185m	>25	5	3	4
Tin ppm ASTM D5185m >15 1 <1 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1	Lead	ppm	ASTM D5185m	>40	2	<1	2
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1 <1 5 Barium ppm ASTM D5185m 0 0 3 0 Molybdenum ppm ASTM D5185m 50 42 53 36 Manganese ppm ASTM D5185m 0 1 <1 <1 <1 Magnesium ppm ASTM D5185m 950 695 820 709 Calcium ppm ASTM D5185m 950 883 1078 1291 Phosphorus ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>330</td> <th>5</th> <td>2</td> <td>1</td>	Copper	ppm	ASTM D5185m	>330	5	2	1
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1	Tin	ppm	ASTM D5185m	>15	1	<1	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 <1	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 2 <1 <1 5 Barium ppm ASTM D5185m 0 0 3 0 Molybdenum ppm ASTM D5185m 50 42 53 36 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 950 695 820 709 Calcium ppm ASTM D5185m 950 695 820 709 Calcium ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 920 1118 1162 Sulfur ppm ASTM D5185m >2600 2589 3013 3183 CONTAMINANTS method limit/base curre	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 0 3 0 Molybdenum ppm ASTM D5185m 50 42 53 36 Manganese ppm ASTM D5185m 0 1 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 42 53 36 Manganese ppm ASTM D5185m 0 1 <1 <1 <1 Magnesium ppm ASTM D5185m 950 695 820 709 Calcium ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 2 Fuel %	Boron	ppm	ASTM D5185m	2	<1	<1	5
Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 950 695 820 709 Calcium ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D5185m >20 14.2 <1.0	Barium	ppm	ASTM D5185m	0	0	3	0
Magnesium ppm ASTM D5185m 950 695 820 709 Calcium ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D5185m >20 3 3 2 Fuel % ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0	Molybdenum	ppm	ASTM D5185m	50	42	53	36
Calcium ppm ASTM D5185m 1050 883 1078 1291 Phosphorus ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 14.2 <1.0	Manganese	ppm	ASTM D5185m	0	1	<1	<1
Phosphorus ppm ASTM D5185m 995 827 915 898 Zinc ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 14.2 <1.0	Magnesium	ppm		950	695	820	709
Zinc ppm ASTM D5185m 1180 920 1118 1162 Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 14.2 <1.0	Calcium	ppm	ASTM D5185m	1050	883	1078	1291
Sulfur ppm ASTM D5185m 2600 2589 3013 3183 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 14.2 <1.0	Phosphorus	ppm	ASTM D5185m	995	827	915	898
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m >20 3 8 17 Potassium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 ▲ 14.2 <1.0	Zinc	ppm	ASTM D5185m	1180	920	1118	1162
Silicon ppm ASTM D5185m >25 4 5 6 Sodium ppm ASTM D5185m 13 8 17 Potassium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 14.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Sulfur	ppm	ASTM D5185m	2600	2589	3013	3183
Sodium ppm ASTM D5185m 13 8 17 Potassium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 ▲ 14.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 3 2 Fuel % ASTM D3524 >6.0 ▲ 14.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Silicon	ppm	ASTM D5185m	>25	4	5	6
Fuel % ASTM D3524 >6.0 ▲ 14.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Sodium	ppm	ASTM D5185m		13	8	17
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Potassium	ppm	ASTM D5185m	>20	3	3	2
Soot % % *ASTM D7844 >3 0.6 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Fuel	%	ASTM D3524	>6.0	14.2	<1.0	<1.0
Nitration Abs/cm *ASTM D7624 >20 12.4 10.3 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.6 19.4 25.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Soot %	%	*ASTM D7844	>3	0.6	0.5	0.5
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.8 16.4 21.9	Nitration	Abs/cm	*ASTM D7624	>20	12.4	10.3	11.3
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	19.4	25.4
	FLUID DEGRA	OITAC	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	20.8	16.4	21.9
	Base Number (BN)	mg KOH/g	ASTM D2896		4.3	5.4	4.6



OIL ANALYSIS REPORT



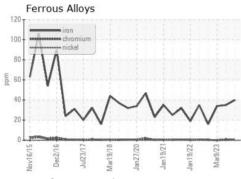


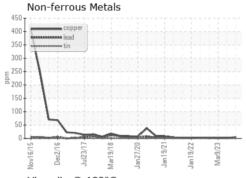


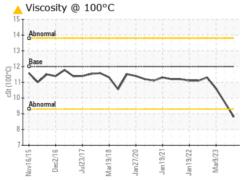
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

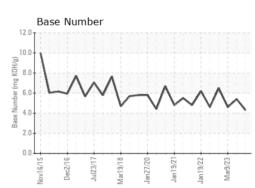
FLUID PROPI	ERHES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	▲ 8.8	9.7	10.6

GRAPHS













Report Id: PERGEODE [WUSCAR] 06118061 (Generated: 03/18/2024 12:49:42) Rev: 1

Laboratory Sample No. Lab Number : 06118061 Unique Number: 10926894

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0116188

Received **Tested**

Diagnosed Test Package: FLEET (Additional Tests: FuelDilution, PercentFuel)

: 14 Mar 2024 : 18 Mar 2024

: 18 Mar 2024 - Wes Davis

GEORGETOWN, DE US 19947 Contact: ROBERT LOCKWOOD Robert.Lockwood@Perdue.com

PERDUE FARMS - GEORGETOWN

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)

20621 SAVANAH RD

T:

F: