

# **OIL ANALYSIS REPORT**

### Sample Rating Trend





#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (42 mls)

## 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.

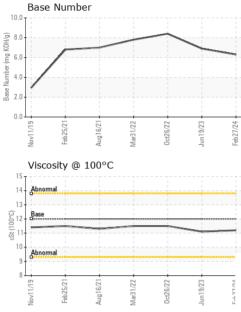
# Fluid Condition

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

SAMPLE INFORI	MAT <u>IO</u> N	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0113149	PCA0097004	PCA0080953
Sample Date		Client Info		27 Feb 2024	19 Jun 2023	26 Oct 2022
Machine Age	mls	Client Info		227246	201546	174402
Oil Age	mls	Client Info		25700	27144	174402
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	26	36	27
Chromium	ppm	ASTM D5185m	>4	<1	1	1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	3	<1	2
Lead	ppm	ASTM D5185m	>45	<1	0	1
Copper	ppm	ASTM D5185m	>85	21	58	12
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 3	history1 7	history2 45
	ppm ppm					
Boron		ASTM D5185m	2	3	7	45
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	3 0	7 0	45 1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	3 0 66	7 0 70	45 1 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	3 0 66 <1	7 0 70 1	45 1 63 4
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	3 0 66 <1 923	7 0 70 1 893	45 1 63 4 415
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	3 0 66 <1 923 1131	7 0 70 1 893 1225	45 1 63 4 415 1738
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	3 0 66 <1 923 1131 1016	7 0 70 1 893 1225 917	45 1 63 4 415 1738 1027
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	3 0 66 <1 923 1131 1016 1202	7 0 70 1 893 1225 917 1178	45 1 63 4 415 1738 1027 1250
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	3 0 66 <1 923 1131 1016 1202 2760	7 0 70 1 893 1225 917 1178 2896	45 1 63 4 415 1738 1027 1250 3315
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	3 0 66 <1 923 1131 1016 1202 2760 current	7 0 70 1 893 1225 917 1178 2896 history1	45 1 63 4 415 1738 1027 1250 3315 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >30	3 0 66 <1 923 1131 1016 1202 2760 current 10	7 0 70 1 893 1225 917 1178 2896 history1 8	45 1 63 4 415 1738 1027 1250 3315 history2 15
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >30	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1	7 0 70 1 893 1225 917 1178 2896 history1 8 3	45 1 63 4 415 1738 1027 1250 3315 history2 15 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >30	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1 4	7 0 70 1 893 1225 917 1178 2896 history1 8 3 2	45 1 63 4 415 1738 1027 1250 3315 history2 15 2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >30 >20 <b>Imit/base</b> >33	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1 4 current	7 0 70 1 893 1225 917 1178 2896 history1 8 3 2 2 history1	45 1 63 4 415 1738 1027 1250 3315 history2 15 2 4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >30 >20 <b>Imit/base</b> >33	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1 4 current 0.9	7 0 70 1 893 1225 917 1178 2896 history1 8 3 2 2 history1 1	45 1 63 4 415 1738 1027 1250 3315 history2 15 2 4 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >30 <i>limit/base</i> >20	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1 4 current 0.9 9.3	7 0 70 1 893 1225 917 1178 2896 history1 8 3 2 2 history1 1 1 1 0.0	45 1 63 4 415 1738 1027 1250 3315 history2 15 2 4 history2 0.3 11.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >30 <b>imit/base</b> >3 20 <b>imit/base</b>	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1 4 current 0.9 9.3 21.3	7 0 70 1 893 1225 917 1178 2896 history1 8 3 2 2 history1 1 1 10.0 21.7	45 1 63 4 415 1738 1027 1250 3315 history2 15 2 4 history2 0.3 11.1 23.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	2 0 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >30 >20 >30 >20 >30 >30 >30	3 0 66 <1 923 1131 1016 1202 2760 current 10 <1 4 current 0.9 9.3 21.3 current	7 0 70 1 893 1225 917 1178 2896 history1 8 3 2 2 history1 1 1 0.0 21.7 history1	45 1 63 4 415 1738 1027 1250 3315 history2 15 2 4 history2 0.3 11.1 23.9 history2



# **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	history1	history
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 PROPE	RTIES	method	limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	12.00	11.2	11.1	11.5
GRAPHS						
Ferrous Alloys						
iron						
chromium	$\sim$					
- nickel						
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-	1/22	6/22	7/24			
-	lar31/22	oci26/22	eb27/24			
Nov11/19 Feb25/21 Aug16/21	Mar31/22	0ct26/22	Feb21/24			
Nov11/19 Feb25/21 Aug16/21		Jun 19/23	Feb27/24			
-		0ct26/22	Feb27/24			
EUTING EU		0er26/22	Feb27/24			
BI/11/00N Non-ferrous Metals		0ct26/22	Feb27/24			
BI/11/00N Non-ferrous Metals		0ct28/22	Feb21/24			
Non-ferrous Metals		0ct26/22	Feb27/24			
Non-ferrous Metals		0ct26/22	Feb27/74			
BUTINAN BUTINAN Non-ferrous Metals		0ct26/22	Feb21/24			
Non-ferrous Metals		0ct26/22	Feb27/24			
Non-ferrous Metals		0ct26/22	Feb27124			
BUTINAN BUTINAN Non-ferrous Metals		0ct26/22	Feb21/24			
BUTITION BUTITION Non-ferrous Metals		0ct26/22	Feb27/24			
Non-ferrous Metals		0ct26/22	Feb27124			
Non-ferrous Metals		0ct26/22	Feb27/24			
BUTING	S					
BUTING	S					
BUTING	S					
Non-ferrous Metals		0ct26/22 0ct26/20 0ct	Feb21/24 Feb21/24			
BUTING	S			Dago Number		
Mov11/19 Feb25/21 Aug16/21 Aug16/21	S		Feb21/24	Base Numbe	r	
RUTINON Non-ferrous Metals	S		Feb21/24	T :	r	
BI/II/now Non-ferrous Metals	S		0.6 0.8	Ī	r	
BUILINGN Non-ferrous Metals EULINGN Non-ferrous Metals EULINGN Uscosity @ 100°C	S		0.6 0.8	Ī	r	
IZISZQBJ BL/II/NOW Non-ferrous Metals Copper IZISZQBJ BL/II/NOW Viscosity @ 100°C	S		0.6 0.8	Ī	r	
IZISZQBJ BL/II/NOW Non-ferrous Metals Copper IZISZQBJ BL/II/NOW Viscosity @ 100°C	S		0.6 0.8	Ī	r	
IZISZQBJ BL/II/NOW Non-ferrous Metals Copper IZISZQBJ BL/II/NOW Viscosity @ 100°C	S		0.6 0.8	Ī	r	
IZISZQBJ BL/II/NOW Non-ferrous Metals Copper IZISZQBJ BL/II/NOW Viscosity @ 100°C	S		0.6 0.8	Ī	r	
BUTINON Non-ferrous Metals EUTINON Viscosity @ 100°C	S		0.6 0.8	Ī	r	
BI/II/00N Non-ferrous Metals Read BI/II/00N Viscosity @ 100°C	S		0.6 0.8	Ī	r	
Building and a set of the set of	S		9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	$\square$	r	
BI/II/00N Non-ferrous Metals Read BI/II/00N Viscosity @ 100°C	S		0.6 0.8	$\square$	r	
Base Abnormal	S		9.0 8.0 8.0 9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	/		
Base Abnormal	S	0ct28/22 0ct28/22 Juni 19/23	9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	/		23
Building and a set of the set of	S		9.0 8.0 8.0 9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	/	Aug 16/21 +	Jun19/23



Unique Number : 10916014 Diagnosed : 08 Mar 2024 - Wes Davis Test Package : FLEET Contact: James Threatt Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jthreatt@nwwhite.com \* - 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)

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

Received

Tested

:08 Mar 2024

:08 Mar 2024

Sample No. : PCA0113149

Lab Number : 06112517

Laboratory

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