

OIL ANALYSIS REPORT





Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- QTS)

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

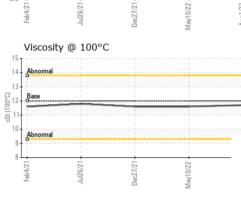
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0100082	PCA0071344	PCA0063065
Sample Date		Client Info		01 Aug 2023	10 May 2022	27 Dec 2021
Machine Age	mls	Client Info		202739	0	74430
Oil Age	mls	Client Info		74430	0	74430
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>100	25	29	35
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	5	8	11
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	2	3	3
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current 1	history1 3	history2 6
	ppm ppm					
Boron Barium Molybdenum		ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	1 0 63	3 0 61	6 0 64
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	1 0 63 <1	3 0 61 <1	6 0 64 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	1 0 63 <1 984	3 0 61 <1 975	6 0 64 <1 1017
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	1 0 63 <1 984 1212	3 0 61 <1 975 1176	6 0 64 <1 1017 1138
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	1 0 63 <1 984 1212 1026	3 0 61 <1 975 1176 1015	6 0 64 <1 1017 1138 1072
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	1 0 63 <1 984 1212 1026 1303	3 0 61 <1 975 1176 1015 1225	6 0 64 <1 1017 1138 1072 1324
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	2 0 50 0 950 1050 995	1 0 63 <1 984 1212 1026	3 0 61 <1 975 1176 1015	6 0 64 <1 1017 1138 1072
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	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	1 0 63 <1 984 1212 1026 1303 3148 current	3 0 61 <1 975 1176 1015 1225 2433 history1	6 0 64 <1 1017 1138 1072 1324 2571 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 method	2 0 50 950 1050 995 1180 2600	1 0 63 <1 984 1212 1026 1303 3148 current 11	3 0 61 <1 975 1176 1015 1225 2433 history1 8	6 0 64 <1 1017 1138 1072 1324 2571 history2 9
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 method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base	1 0 63 <1 984 1212 1026 1303 3148 <u>current</u> 11 2	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2
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 method	2 0 50 950 1050 995 1180 2600 limit/base	1 0 63 <1 984 1212 1026 1303 3148 current 11	3 0 61 <1 975 1176 1015 1225 2433 history1 8	6 0 64 <1 1017 1138 1072 1324 2571 history2 9
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 -20 limit/base	1 0 63 <1 984 1212 1026 1303 3148 current 11 2 11 2 11 2	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 12 12 history1	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 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 ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	1 0 63 <1 984 1212 1026 1303 3148 <i>current</i> 11 2 11 2 11 <i>current</i> 0.8	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 1 12 history1 0.8	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 history2 0.8
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	1 0 63 <1 984 1212 1026 1303 3148 <u>current</u> 11 2 11 2 11 0.8 9.4	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 12 history1 0.8 9.3	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 history2 0.8 9.7
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	1 0 63 <1 984 1212 1026 1303 3148 <i>current</i> 11 2 11 2 11 <i>current</i> 0.8	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 1 12 history1 0.8	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 history2 0.8
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	1 0 63 <1 984 1212 1026 1303 3148 <u>current</u> 11 2 11 2 11 0.8 9.4	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 12 history1 0.8 9.3	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 history2 0.8 9.7
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	1 0 63 <1 984 1212 1026 1303 3148 current 11 2 11 2 11 current 0.8 9.4 21.5	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 12 <u>history1</u> 0.8 9.3 22.9	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 history2 0.8 9.7 21.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 2600 255 20 220 20 3 20 20 3 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	1 0 63 <1 984 1212 1026 1303 3148 <i>current</i> 11 2 11 2 11 <i>current</i> 0.8 9.4 21.5 <i>current</i>	3 0 61 <1 975 1176 1015 1225 2433 history1 8 1 12 history1 0.8 9.3 22.9 history1	6 0 64 <1 1017 1138 1072 1324 2571 history2 9 2 22 22 history2 0.8 9.7 21.5 history2



1.0 0.0

OIL ANALYSIS REPORT



	VISUAL		method	limit/base	e c	urrent	history1	history2		
	White Metal	scalar	*Visual	NONE	NO	NE	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NO	NE	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NO	NE	NONE	NONE		
	Silt	scalar	*Visual	NONE	NO	NE	NONE	NONE		
	Debris	scalar	*Visual	NONE	NO		NONE	NONE		
	Sand/Dirt	scalar	*Visual	NONE	NO	NE	NONE	NONE		
May10/22 Aug1/23	Appearance	scalar	*Visual	NORML	NO	RML	NORML	NORML		
May	Odor	scalar	*Visual	NORML		RML	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NE		NEG	NEG		
	Free Water	scalar	*Visual		NE	G	NEG	NEG		
	FLUID PROPE	ERTIES	method	limit/base	e c	urrent	history1	history2		
	Visc @ 100°C	cSt	ASTM D445	12.00	11.	7	11.6	11.6		
	GRAPHS									
	Ferrous Alloys									
May10/22 +	40 - iron 25									
May	35 nickel		<hr/>							
1				_						
	E ²⁵ - 20-									
	15									
	10									
	Feb4/21 Jul26/21	Dec27/21	May10/22	Aug1/23 -						
			May	Aul						
	Non-ferrous Meta	ls								
	10 copper									
	8 - sessesses lead									
	6									
	udd									
	4									
	2	-								
			and the second							
	2 2 2	21 		Transferrence						
	Feb4/21 Jul26/21	Dec27/21	May10/22	Aug1/23						
	Viscosity @ 100°	_	×	-						
	¹⁵	-			Base	Number				
	14 Abnormal				7.0-		/			
	13			H/g)	6.0-					
100	Base			tg Kol	6.0 - 5.0 - 4.0 - 3.0 -					
	Base			per (rr	4.0					
c	10			Num	3.0					
	Abnormal			Base	2.0-					
	9				1.0					
	6/21 6/21 8/21	7/21-	1/22	/23	47	3/21-	-12/	/22 +		
	Feb4/21 Jul26/21	Dec27/21	May10/22	Aug1/23 -	Feb 4/21	Jul26/21	Dec27/2	May10/22 Aug1/23		
Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 275									
Sample No. Lab Number	: PCA0100082 : 05918352	Received Diagnose		Aug 2023 Aug 2023				COLUMBIA, SC		
Unique Number	: 10590266		iagnostician : Wes Davis			US 29210				
Test Package	: FLEET	-				C		GE EDWARDS		
sample report, o	contact Customer Serv	vice at 1-8	00-237-136	9. - // - // -			gedwards	@nwwhite.com		



 Certificate 12367
 Test Package
 : FLEET
 CC

 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)

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