

OIL ANALYSIS REPORT

Sample Rating Trend

.





Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 10W30 (35 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.

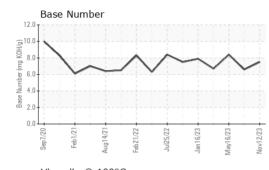
Fluid Condition

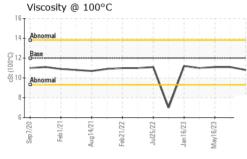
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0112388	PCA0104348	PCA0099328
Sample Date		Client Info		12 Nov 2023	21 Aug 2023	16 May 2023
Machine Age	mls	Client Info		349248	328089	0
Oil Age	mls	Client Info		21159	41907	20000
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<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	>100	25	34	18
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m		<1	<1	0
Titanium	ppm	ASTM D5185m		1	1	2
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	3	2
Lead	ppm	ASTM D5185m		- <1	2	<1
Copper	ppm	ASTM D5185m		6	8	5
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m	10	<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
	1-1-					
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES	ppm		limit/base		history1	history2
Boron	ppm	ASTM D5185m	2	0	<1	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	0 0	<1 0	<1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	0 0 61	<1 0 60	<1 0 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	0 0 61 <1	<1 0 60 <1	<1 0 56 <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	0 0 61 <1 947	<1 0 60 <1 900	<1 0 56 <1 923
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	0 0 61 <1 947 1047	<1 0 60 <1 900 1103	<1 0 56 <1 923 1091
Boron Barium Molybdenum Manganese Magnesium	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	0 0 61 <1 947 1047 1057	<1 0 60 <1 900 1103 987	<1 0 56 <1 923 1091 1020
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	0 0 61 <1 947 1047	<1 0 60 <1 900 1103	<1 0 56 <1 923 1091
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	0 0 61 <1 947 1047 1057 1244	<1 0 60 <1 900 1103 987 1230	<1 0 56 <1 923 1091 1020 1240
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 0 950 1050 995 1180 2600	0 0 61 <1 947 1047 1057 1244 3053	<1 0 60 <1 900 1103 987 1230 2905	<1 0 56 <1 923 1091 1020 1240 3051
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	0 0 61 <1 947 1047 1057 1244 3053 current	<1 0 60 <1 900 1103 987 1230 2905 history1	<1 0 56 <1 923 1091 1020 1240 3051 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 >25	0 0 61 <1 947 1047 1057 1244 3053 current 5	<1 0 60 <1 900 1103 987 1230 2905 history1 4	<1 0 56 <1 923 1091 1020 1240 3051 history2 3
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 method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	0 0 61 <1 947 1047 1057 1244 3053 <u>current</u> 5 <	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 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 imit/base >25	0 0 61 <1 947 1047 1057 1244 3053 <u>current</u> 5 <1 3	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1 4	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20	0 0 61 <1 947 1047 1057 1244 3053 current 5 <1 3 current	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1 4 1 4 history1	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 2 0 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 limit/base >25 >20 limit/base >3	0 0 61 <1 947 1047 1057 1244 3053 <i>current</i> 5 <1 3 <i>current</i>	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1 4 1 4 1 4 1 0.6	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 2 0 history2 0.4
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>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	0 0 61 <1 947 1047 1057 1244 3053 <i>current</i> 5 <1 3 <i>current</i> 0.4 8.3	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1 4 1 4 history1 0.6 10.5	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 2 0 history2 0.4 8.6
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 imit/base >25 imit/base >3 >20	0 0 61 <1 947 1047 1057 1244 3053 current 5 <1 3 current 0.4 8.3 18.9	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1 4 1 4 history1 0.6 10.5 21.3	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 2 0 history2 0.4 8.6 18.5
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 imit/base >25 20 >20 >30 >30 imit/base	0 0 61 <1 947 1047 1057 1244 3053 <i>current</i> 5 <1 3 <i>current</i> 0.4 8.3 18.9	<1 0 60 <1 900 1103 987 1230 2905 history1 4 1 4 1 4 history1 0.6 10.5 21.3 history1	<1 0 56 <1 923 1091 1020 1240 3051 history2 3 2 0 history2 0.4 8.6 18.5 history2

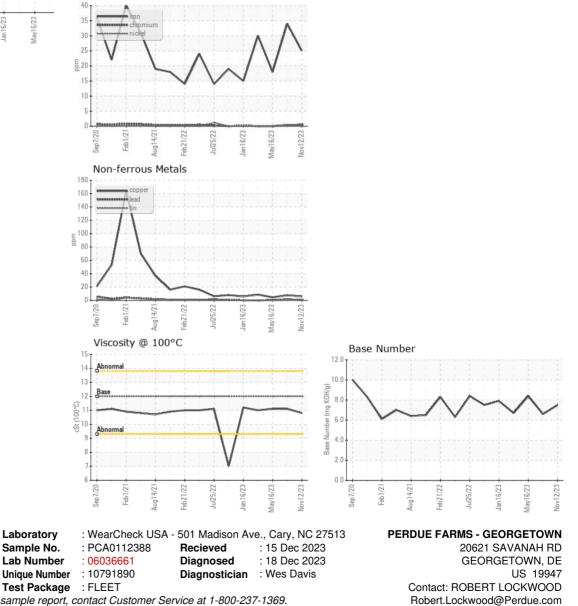


OIL ANALYSIS REPORT





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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	10.8	11.1	11.1
GRAPHS						
Ferrous Alloys						





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)

Т:

F: