

OIL ANALYSIS REPORT

Sample Rating Trend

COOL CHEMICALS

Machine Id 4501 Component

Front Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (

DIAGNOSIS

Recommendation

Check for low coolant level. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Water treatment chemicals present, indicating slow coolant leak. Test for glycol is negative. There is no indication of any contamination in the oil.

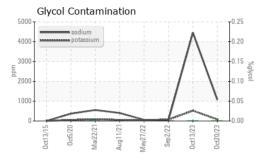
Fluid Condition

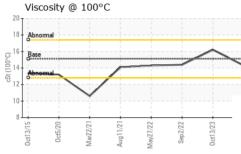
The condition of the oil is acceptable for the time in service (see recommendation).

(40 LTR)		Oct2015 (oct2020 Mar2021 Aug20	21 May2022 Sep2022 Oct2023	8 Oct2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0094396	GFL0094400	GFL0055412
Sample Date		Client Info		20 Oct 2023	13 Oct 2023	02 Sep 2022
Machine Age	hrs	Client Info		17366	17366	17366
Oil Age	hrs	Client Info		17366	17366	17366
Oil Changed		Client Info		N/A	N/A	Changed
Sample Status				ATTENTION	ABNORMAL	NORMAL
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>50	11	46	7
Chromium	ppm	ASTM D5185(m)	>4	<1	3	<1
Nickel	ppm	ASTM D5185(m)	>2	0	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	<1
Silver	ppm	ASTM D5185(m)	>3	<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>9	3	<u>13</u>	1
Lead	ppm	ASTM D5185(m)	>30	4	24	<1
Copper	ppm	ASTM D5185(m)	>35	1	4	1
Tin	ppm	ASTM D5185(m)	>4	0	1	0
Antimony	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
					,	
Boron	ppm	ASTM D5185(m)	50	37	10	12
Boron Barium	ppm ppm	ASTM D5185(m) ASTM D5185(m)	50 5	37 <1		
	• • • • • • • • • • • • • • • • • • • •	. ,		-	10	12
Barium	ppm	ASTM D5185(m)	5	<1	10 <1	12
Barium Molybdenum	ppm	ASTM D5185(m) ASTM D5185(m)	5 50	<1 60	10 <1 133	12 0 53
Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 50 0	<1 60 0	10 <1 133 <1	12 0 53 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 50 0 560	<1 60 0 535	10 <1 133 <1 507	12 0 53 <1 515
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 50 0 560 1510	<1 60 0 535 1458	10 <1 133 <1 507 1481	12 0 53 <1 515 1485
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 50 0 560 1510 780	<1 60 0 535 1458 727	10 <1 133 <1 507 1481 654	12 0 53 <1 515 1485 677
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870	<1 60 0 535 1458 727 851	10 <1 133 <1 507 1481 654 906	12 0 53 <1 515 1485 677 844
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870	<1 60 0 535 1458 727 851 2045	10 <1 133 <1 507 1481 654 906 2341	12 0 53 <1 515 1485 677 844 1988
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870 2040	<1 60 0 535 1458 727 851 2045 <1	10 <1 133 <1 507 1481 654 906 2341 <1 history1	12 0 53 <1 515 1485 677 844 1988 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870 2040	<1 60 0 535 1458 727 851 2045 <1 current 6	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22	12 0 53 <1 515 1485 677 844 1988 <1 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870 2040 limit/base >+100	<1 60 0 535 1458 727 851 2045 <1 current 6 1075	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22	12 0 53 <1 515 1485 677 844 1988 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870 2040	<1 60 0 535 1458 727 851 2045 <1 current 6	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22	12 0 53 <1 515 1485 677 844 1988 <1 history2 11 55
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) MASTM D5185(m) MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 50 0 560 1510 780 870 2040 limit/base >+100	<1 60 0 535 1458 727 851 2045 <1 current 6 ▲ 1075 80	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22 4458 521	12 0 53 <1 515 1485 677 844 1988 <1 history2 11 55 71
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870 2040 limit/base >+100 >20	<1 60 0 535 1458 727 851 2045 <1 current 6 ▲ 1075 80 0.0 current	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22 4458 521 0.0 history1	12 0 53 <1 515 1485 677 844 1988 <1 history2 11 55 71 0.0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185(m) ASTM D7922* method ASTM D7844*	5 50 0 560 1510 780 870 2040 limit/base >+100 >20	<1 60 0 535 1458 727 851 2045 <1 current 6 ▲ 1075 80 0.0 current 0	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22 4458 521 0.0 history1 0	12 0 53 <1 515 1485 677 844 1988 <1 history2 11 55 71 0.0 history2 0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	5 50 0 560 1510 780 870 2040 limit/base >+100 >20	<1 60 0 535 1458 727 851 2045 <1 current 6 ▲ 1075 80 0.0 current	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22 4458 521 0.0 history1	12 0 53 <1 515 1485 677 844 1988 <1 history2 11 55 71 0.0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7822* method ASTM D7922* method ASTM D7844* ASTM D7624* ASTM D7615*	5 50 0 560 1510 780 870 2040 limit/base	<1 60 0 535 1458 727 851 2045 <1 current 6 ▲ 1075 80 0.0 current 0 9.4	10 <1 133 <1 507 1481 654 906 2341 <1 history1 22 4458 521 0.0 history1 0 21.9	12 0 53 <1 515 1485 677 844 1988 <1 history2 11 55 71 0.0 history2 0 10.9



OIL ANALYSIS REPORT

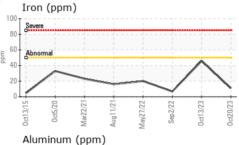


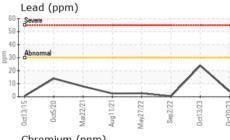


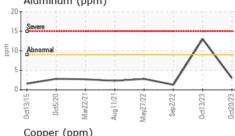
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE		
Yellow Metal	scalar	Visual*	NONE	NONE		
Precipitate	scalar	Visual*	NONE	NONE		
Silt	scalar	Visual*	NONE	NONE		
Debris	scalar	Visual*	NONE	VLITE		
Sand/Dirt	scalar	Visual*	NONE	NONE		
Appearance	scalar	Visual*	NORML	NORML		
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2

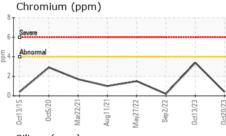
FLUID PROP	EKIIE2	method	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D7279(m)	15.1	14.3	16.2	14.4

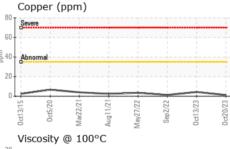
GRAPHS

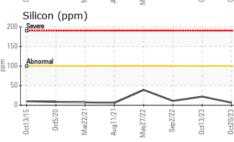


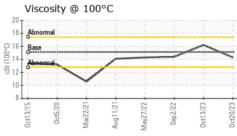


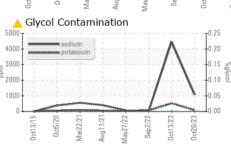














CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB 1 (Additional Tests: Glycol, Visual)

: GFL0094396 : 02590971 : 5668050

Validity of results and interpretation are based on the sample and information as supplied.

Received Diagnosed

: 23 Oct 2023 : 23 Oct 2023 Diagnostician : Kevin Marson

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 222 - Sandhill SANDHILL DISPOSAL & RECYCLING DIVIS, 19 COMMERCE ROAD ORANGEVILLE, ON

CA L9W 3X5 Contact: GLENN COOK gcook@gflenv.com T: (519)940-4167

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.