

OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

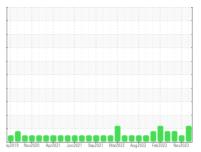


(YA163862) Machine Id 12009

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (8 GAL)





DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter 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

Sodium and/or potassium levels are high.

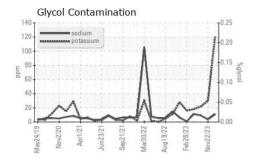
Fluid Condition

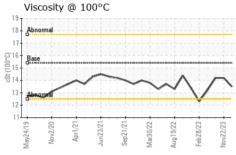
The BN result indicates that there is suitable alkalinity remaining in the oil.

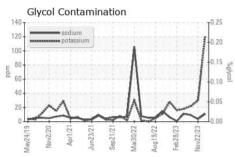
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
		Client Info	III III DAGO	GFL0099831	GFL0099814	GFL0066839
Sample Number						
Sample Date	laa	Client Info		10 Feb 2024	22 Nov 2023	04 Jul 2023
Machine Age	hrs	Client Info		15812	15305	78395
Oil Age	hrs	Client Info		200	78395	78395
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				ABNORMAL	NORMAL	MARGINAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	▲ 4.1
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	39	17	25
Chromium	ppm	ASTM D5185m	>20	2	<1	1
Nickel	ppm	ASTM D5185m	>2	1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m		13	6	8
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m		2	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m	>10	<1	0	0
Cadmium		ASTM D5185m		<1	0	0
	ppm			~ 1		
Λ			limit/hooo		hiotomit	hintory
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		0	4	4	3
	ppm		0		•	3
Boron		ASTM D5185m	0	4	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 0	4 0	3
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 81	4 0 62	3 0 59
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 81 1	4 0 62 0	3 0 59
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 81 1 1313	4 0 62 0 949	3 0 59 1 949
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 81 1 1313 1417	4 0 62 0 949 1113	3 0 59 1 949 1013
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	4 0 81 1 1313 1417 1498	4 0 62 0 949 1113 1067	3 0 59 1 949 1013 983
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	4 0 81 1 1313 1417 1498	4 0 62 0 949 1113 1067 1272	3 0 59 1 949 1013 983 1222
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	4 0 81 1 1313 1417 1498 1666 5184	4 0 62 0 949 1113 1067 1272 3314	3 0 59 1 949 1013 983 1222 3552
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	4 0 81 1 1313 1417 1498 1666 5184	4 0 62 0 949 1113 1067 1272 3314 history1	3 0 59 1 949 1013 983 1222 3552 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	4 0 81 1 1313 1417 1498 1666 5184 current	4 0 62 0 949 1113 1067 1272 3314 history1	3 0 59 1 949 1013 983 1222 3552 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Iimit/base >25	4 0 81 1 1313 1417 1498 1666 5184 current 13	4 0 62 0 949 1113 1067 1272 3314 history1 6 4	3 0 59 1 949 1013 983 1222 3552 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Iimit/base >25	4 0 81 1 1313 1417 1498 1666 5184 current 13 11	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30	3 0 59 1 949 1013 983 1222 3552 history2 9 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m Method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	4 0 81 1 1313 1417 1498 1666 5184 current 13 11 11 NEG	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30 NEG	3 0 59 1 949 1013 983 1222 3552 history2 9 9 22 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	4 0 81 1 1313 1417 1498 1666 5184 current 13 11 ▲ 121 NEG current 0.8	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30 NEG history1 0.4	3 0 59 1 949 1013 983 1222 3552 history2 9 9 22 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	4 0 81 1 1313 1417 1498 1666 5184	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30 NEG history1 0.4 8.3	3 0 59 1 949 1013 983 1222 3552 history2 9 9 22 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	4 0 81 1 1313 1417 1498 1666 5184 current 13 11 ▲ 121 NEG current 0.8 10.7 20.2	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30 NEG history1 0.4 8.3 19.5	3 0 59 1 949 1013 983 1222 3552 history2 9 9 22 NEG history2 0.6 13.8 24.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	4 0 81 1 1313 1417 1498 1666 5184	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30 NEG history1 0.4 8.3 19.5 history1	3 0 59 1 949 1013 983 1222 3552 history2 9 9 22 NEG history2 0.6 13.8 24.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >25	4 0 81 1 1313 1417 1498 1666 5184 current 13 11 ▲ 121 NEG current 0.8 10.7 20.2	4 0 62 0 949 1113 1067 1272 3314 history1 6 4 30 NEG history1 0.4 8.3 19.5	3 0 59 1 949 1013 983 1222 3552 history2 9 9 22 NEG history2 0.6 13.8 24.0



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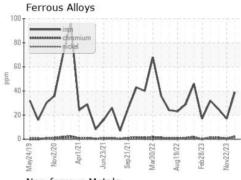


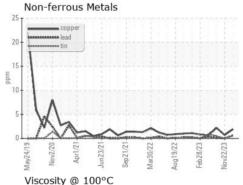


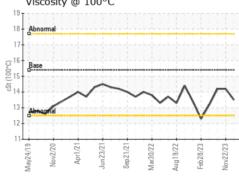
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

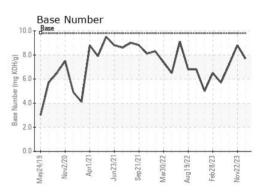
FLUID PROPERTIES		method	iiiiii/base	current	riistory i	riistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	14.2	14.2

GRAPHS













Laboratory Sample No. Lab Number : 06088542

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0099831

Received **Tested** Unique Number : 10875987

: 14 Feb 2024 : 19 Feb 2024 Diagnosed

: 19 Feb 2024 - Jonathan Hester

GFL Environmental - 018 - Fayetteville 4621 Marracco Drive Hope Mills, NC

US 28348

Contact: Robert Carter robert.carter@gflenv.com T: (910)596-1170

Test Package: FLEET (Additional Tests: Glycol)

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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