

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 828029-1085

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- LTR)

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.

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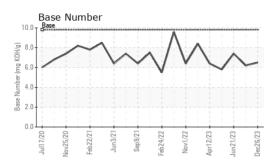


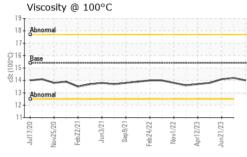
lu/2020 Nov2020 Feb2021 Jun2021 Sep2021 Feb2022 Nov2022 Apr2023 Jun2023 Dec202

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0100160	GFL0058081	GFL0070908
Sample Date		Client Info		26 Dec 2023	02 Oct 2023	21 Jun 2023
Machine Age	hrs	Client Info		11262	11919	11357
Oil Age	hrs	Client Info		450	562	241
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	6	11	7
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	2	1
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 3	history1 2	history2 6
	ppm ppm		0			
Boron		ASTM D5185m	0	3	2	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	3 0	2 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 55	2 0 64	6 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 55 0	2 0 64 <1	6 0 62 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 0 55 0 917	2 0 64 <1 951 1054 986	6 0 62 <1 985 1158 1039
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 1270	3 0 55 0 917 1068	2 0 64 <1 951 1054 986 1275	6 0 62 <1 985 1158 1039 1317
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	0 0 60 0 1010 1070 1150	3 0 55 0 917 1068 896	2 0 64 <1 951 1054 986 1275 2879	6 0 62 <1 985 1158 1039 1317 3754
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	0 0 60 1010 1070 1150 1270 2060	3 0 55 0 917 1068 896 1172	2 0 64 <1 951 1054 986 1275 2879 history1	6 0 62 <1 985 1158 1039 1317 3754 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	3 0 555 0 917 1068 896 1172 2510 current 4	2 0 64 <1 951 1054 986 1275 2879 history1 7	6 0 62 <1 985 1158 1039 1317 3754 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	3 0 555 0 917 1068 896 1172 2510 current 4 4	2 0 64 <1 951 1054 986 1275 2879 history1 7 4	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 0 555 0 917 1068 896 1172 2510 current 4	2 0 64 <1 951 1054 986 1275 2879 history1 7	6 0 62 <1 985 1158 1039 1317 3754 history2 5
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 0 555 0 917 1068 896 1172 2510 current 4 4 4 0 Current	2 0 64 <1 951 1054 986 1275 2879 history1 7 4 1 history1	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3 2 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 0 55 0 917 1068 896 1172 2510 <u>current</u> 4 4 0 <u>current</u> 0.4	2 0 64 <1 951 1054 986 1275 2879 history1 7 4 1 1 history1 0.6	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3 2 history2 0.3
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 0 555 0 917 1068 896 1172 2510 current 4 4 4 0 Current	2 0 64 <1 951 1054 986 1275 2879 history1 7 4 1 history1	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3 2 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	3 0 55 0 917 1068 896 1172 2510 <u>current</u> 4 4 0 <u>current</u> 0.4	2 0 64 <1 951 1054 986 1275 2879 history1 7 4 1 1 history1 0.6	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3 2 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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	3 0 55 0 917 1068 896 1172 2510 current 4 4 0 current 0.4 8.1	2 0 64 <1 951 1054 986 1275 2879 history1 7 4 1 1 history1 0.6 8.3	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3 2 history2 0.3 6.9
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >4 >20 >30	3 0 55 0 917 1068 896 1172 2510 current 4 4 0 current 0.4 8.1 19.1	2 0 64 <1 951 1054 986 1275 2879 history1 7 4 1 7 4 1 1 0.6 8.3 19.3	6 0 62 <1 985 1158 1039 1317 3754 history2 5 3 2 bistory2 0.3 6.9 19.4



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	15.4	14.0	14.2	14.1
GRAPHS						

Ferrous Alloys 35 30 25 20 10 0 lov25/20 Feb22/21 pr12/23 lec26/23 ch/4/73 Jul 7 Non-ferrous Metals 10 lead eh24/77 CC/1/0 or12/23 :01/D3 lec26/7 Viscosity @ 100°C Base Number 19 10.0 18 17 8. (mg KOH/g) ()-16 ()-00 () 15 () 14 6 Number (4 (Base 13 Abnorma 12 11-0.0 Dec26/23. Sep 9/21 Nov1/22 Jun21/23 Feb22/21 Sep 9/21. Nov1/22 Apr12/23 Jun3/21 Apr12/23 Nov25/20 Feb24/22 Jov25/20 Feb24/22 un21/23 Dec26/23 Feb22/21 Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 657 - Charlottesville Hauling Sample No. : GFL0100160 Recieved : 27 Dec 2023 5498 Richmond Road Lab Number : 06046054 Diagnosed : 28 Dec 2023 Troy, VA Unique Number : 10806662 Diagnostician : Wes Davis US 22974 Test Package : FLEET Contact: Brian Ulickas To discuss this sample report, contact Customer Service at 1-800-237-1369. bulickas@gflenv.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)

Submitted By: TECHNICIAN ACCOUNT

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