

OIL ANALYSIS REPORT

Sample Rating Trend



Area (**P81101**) Machine Id 219009

Diesel Engine Fluic

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.

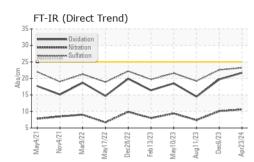
Fluid Condition

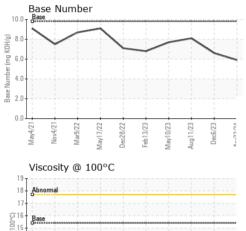
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

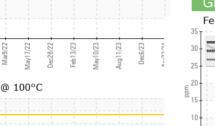
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114633	GFL0092560	GFL0071927
Sample Date		Client Info		23 Apr 2024	06 Dec 2023	11 Aug 2023
Machine Age	hrs	Client Info		7794	7115	6659
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	28	22	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	5	5
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	0	2	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 3	history1 3	history2 2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	3	3	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	3 0	3 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 62	3 0 61	2 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 62 <1	3 0 61 <1	2 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 0 62 <1 921	3 0 61 <1 959	2 0 63 <1 999
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	3 0 62 <1 921 1198	3 0 61 <1 959 1145	2 0 63 <1 999 1255
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	0 0 60 0 1010 1070 1150	3 0 62 <1 921 1198 1103	3 0 61 <1 959 1145 1071	2 0 63 <1 999 1255 1088
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	0 0 60 0 1010 1070 1150 1270	3 0 62 <1 921 1198 1103 1313	3 0 61 <1 959 1145 1071 1318	2 0 63 <1 999 1255 1088 1378
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	0 0 60 0 1010 1070 1150 1270 2060	3 0 62 <1 921 1198 1103 1313 3197	3 0 61 <1 959 1145 1071 1318 2859	2 0 63 <1 999 1255 1088 1378 4030
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	0 0 60 1010 1070 1150 1270 2060	3 0 62 <1 921 1198 1103 1313 3197 current	3 0 61 <1 959 1145 1071 1318 2859 history1	2 0 63 <1 999 1255 1088 1378 4030
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	0 0 60 1010 1070 1150 1270 2060	3 0 62 <1 921 1198 1103 1313 3197 current 6	3 0 61 <1 959 1145 1071 1318 2859 history1 7	2 0 63 <1 999 1255 1088 1378 4030 history2 2
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	3 0 62 <1 921 1198 1103 1313 3197 current 6 3	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5	2 0 63 <1 999 1255 1088 1378 4030 history2 2 5
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 imit/base >25	3 0 62 <1 921 1198 1103 1313 3197 current 6 3 5	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5 6	2 0 63 <1 999 1255 1088 1378 4030 history2 2 2 5 5 21
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	3 0 62 <1 921 1198 1103 1313 3197 current 6 3 5 5	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5 6 Kistory1	2 0 63 <1 999 1255 1088 1378 4030 history2 2 5 21 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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	3 0 62 <1 921 1198 1103 1313 3197 current 6 3 5 5 current 0.6	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5 6 history1 0.6	2 0 63 <1 999 1255 1088 1378 4030 history2 2 5 21 history2 0.6
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	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	3 0 62 <1 921 1198 1103 1313 3197 current 6 3 5 current 0.6 10.6	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5 6 history1 0.6 10.1	2 0 63 <1 999 1255 1088 1378 4030 history2 2 2 2 5 21 history2 0.6 7.4
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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	3 0 62 <1 921 1198 1103 1313 3197 current 6 3 5 current 0.6 10.6 23.2	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5 6 <u>history1</u> 0.6 10.1 22.6	2 0 63 <1 999 1255 1088 1378 4030 history2 2 5 21 history2 0.6 7.4 19.2
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 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	3 0 62 <1 921 1198 1103 1313 3197 current 6 3 5 current 0.6 10.6 23.2 current	3 0 61 <1 959 1145 1071 1318 2859 history1 7 5 6 history1 0.6 10.1 22.6 history1	2 0 63 <1 999 1255 1088 1378 4030 history2 2 2 5 21 history2 0.6 7.4 19.2 history2

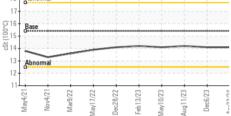


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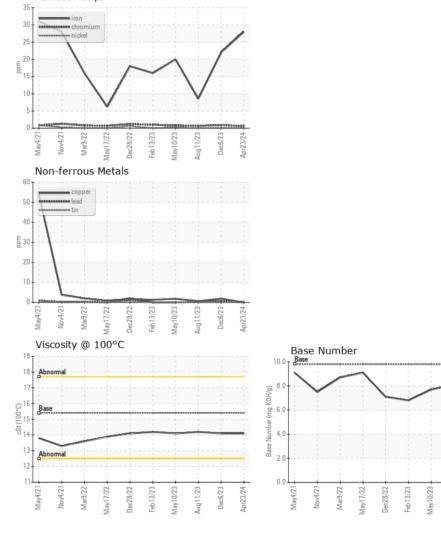






VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.1	14.2
GRAPHS						

Ferrous Alloys



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 885 - Orlando : GFL0114633 Sample No. Received : 25 Apr 2024 1263 W Landstreet Rd Lab Number : 06160168 Tested : 26 Apr 2024 Orlando, FL Unique Number : 10995591 Diagnosed : 26 Apr 2024 - Wes Davis US 32824 Test Package : FLEET Contact: Brian Bou Diaz Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bboudiaz@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: TIMOTHY MOURER

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