

OIL ANALYSIS REPORT

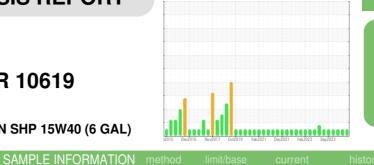
Sample Rating Trend

NORMAL



(MP7991) Machine Id FREIGHTLINER 10619 Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (6 GAL)





DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Area

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

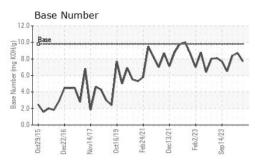
Fluid Condition

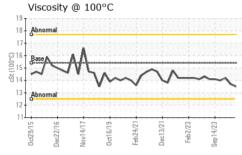
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0109604	GFL0109581	GFL0087457
Sample Date		Client Info		01 Apr 2024	07 Feb 2024	10 Oct 2023
Machine Age	hrs	Client Info		10523	10183	9564
Oil Age	hrs	Client Info		1053	719	100
Oil Changed		Client Info		Changed	Not Changd	Not Changd
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	>90	42	16	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	1	1
Lead	ppm	ASTM D5185m	>40	3	1	0
Copper	ppm	ASTM D5185m	>330	47	24	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	biotonut	history2
ADDITIVES		methou	iiiiii/base	current	history1	TIIStOTYZ
Boron	ppm	ASTM D5185m	0	6	8	3
	ppm ppm					
Boron		ASTM D5185m	0	6	8	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	6 0	8 <1	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 68	8 <1 59	3 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 68 <1	8 <1 59 <1	3 0 59 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	6 0 68 <1 975	8 <1 59 <1 843	3 0 59 0 892
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	6 0 68 <1 975 1189	8 <1 59 <1 843 1075	3 0 59 0 892 1062
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	6 0 68 <1 975 1189 1035	8 <1 59 <1 843 1075 957	3 0 59 0 892 1062 957
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	6 0 68 <1 975 1189 1035 1316	8 <1 59 <1 843 1075 957 1133	3 0 59 0 892 1062 957 1197
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	6 0 68 <1 975 1189 1035 1316 3091	8 <1 59 <1 843 1075 957 1133 3027	3 0 59 0 892 1062 957 1197 2947
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	0 0 60 1010 1070 1150 1270 2060	6 0 68 <1 975 1189 1035 1316 3091 current	8 <1 59 <1 843 1075 957 1133 3027 history1	3 0 59 0 892 1062 957 1197 2947 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	6 0 68 <1 975 1189 1035 1316 3091 current 14	8 <1 59 <1 843 1075 957 1133 3027 history1 11	3 0 59 0 892 1062 957 1197 2947 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 ASTM D5185m method ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	6 0 68 <1 975 1189 1035 1316 3091 current 14 10	8 <1 59 <1 843 1075 957 1133 3027 history1 11 <1	3 0 59 0 892 1062 957 1197 2947 history2 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 imit/base >25	6 0 68 <1 975 1189 1035 1316 3091 current 14 10 7	8 <1 59 <1 843 1075 957 1133 3027 history1 11 11 <1 5	3 0 59 0 892 1062 957 1197 2947 history2 3 < 1 2947
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	6 0 68 <1 975 1189 1035 1316 3091 current 14 10 7 current	8 <1 59 <1 843 1075 957 1133 3027 history1 11 11 <1 5 history1	3 0 59 0 892 1062 957 1197 2947 history2 3 <1 <1 <1 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	6 0 68 <1 975 1189 1035 1316 3091 <i>current</i> 14 10 7 <i>current</i> 1.4	8 <1 59 <1 843 1075 957 1133 3027 history1 11 <1 5 <i>history1</i> 0.6	3 0 59 0 892 1062 957 1197 2947 history2 3 <1 <1 <1 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 imit/base >20 imit/base >20	6 0 68 <1 975 1189 1035 1316 3091 <i>current</i> 14 10 7 <i>current</i> 1.4 10.3	8 <1 59 <1 843 1075 957 1133 3027 history1 11 <1 5 history1 0.6 7.0	3 0 59 0 892 1062 957 1197 2947 history2 3 <1 <1 <1 history2 0.3 5.0
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 imit/base >6 >20 20	6 0 68 <1 975 1189 1035 1316 3091 <u>current</u> 14 10 7 <u>current</u> 1.4 10.3 21.4	8 <1 59 <1 843 1075 957 1133 3027 history1 11 <1 5 <u>history1</u> 0.6 7.0 19.2	3 0 59 0 892 1062 957 1197 2947 history2 3 <1 <1 <1 history2 0.3 5.0 17.3

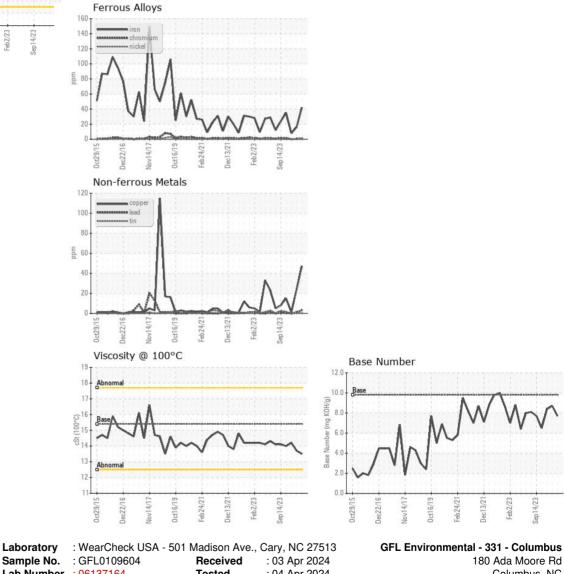


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	13.5	13.7	14.2
GRAPHS						



Sample No. 180 Ada Moore Rd Lab Number : 06137164 Tested : 04 Apr 2024 Columbus, NC Unique Number : 10956629 Diagnosed : 04 Apr 2024 - Wes Davis US 28722 Test Package : FLEET Contact: Matt Segars Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. matt.segars@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (800)207-6618 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (252)617-2494

Feb2/23 Sep14/23