

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 4670M Component Diesel Engine Fluid

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

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 INFOR	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0108791	GFL0105639	GFL0101443	
Sample Date	ample Date Clie			04 Jan 2024	14 Dec 2023	04 Dec 2023	
Machine Age	hrs	Client Info		17253	17080	16983	
Oil Age	hrs	Client Info	17080 16		16983	16983	
Oil Changed		Client Info		Changed	Not Changd	Changed	
Sample Status				NORMAL	NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Fuel		WC Method	>5	<1.0	<1.0	0.0	
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	>80	14	6	9	
Chromium	ppm	ASTM D5185m		<1	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	<1	0	
Titanium	ppm	ASTM D5185m	>3	0	0	0	
Silver	ppm	ASTM D5185m		0 2	2	1	
Aluminum Lead	ppm	ASTM D5185m	>30	2	0	0	
	ppm	ASTM D5185m		-			
Copper	ppm	ASTM D5185m		<1 0	<1 <1	<1 0	
Tin Vanadium	ppm	ASTM D5185m	>5	0	<1	0	
vanadium	ppm	ASTM D5185m		U	0	0	
Codmium	0.00	ACTM DE10Em		0	0	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2	
	ppm ppm		limit/base 0		-	-	
ADDITIVES Boron Barium		method		current	history1	history2	
ADDITIVES Boron	ppm ppm ppm	method ASTM D5185m	0 0 60	current 0	history1 2	history2 <1	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 0 0	history1 2 0 53 <1	history2 <1 2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	Current 0 0 62 0 987	history1 2 0 53 <1 896	history2 <1 2 56	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	Current 0 0 62 0 987 1113	history1 2 0 53 <1 896 996	history2 <1 2 56 0 848 1034	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 0 0 62 0 987 1113 1037	history1 2 0 53 <1 896 996 987	history2 <1 2 56 0 848 1034 891	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 0 0 62 0 987 1113 1037 1288	history1 2 0 53 <1 896 996 987 1240	history2 <1 2 56 0 848 1034 891 1125	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 0 0 62 0 987 1113 1037	history1 2 0 53 <1 896 996 987 1240 3013	history2 <1 2 56 0 848 1034 891 1125 3125	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 0 62 0 987 1113 1037 1288 3013 Current	history1 2 0 53 <1 896 996 987 1240 3013 history1	history2 <1 2 56 0 848 1034 891 1125	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 0 0 62 0 987 1113 1037 1288 3013 current 5	history1 2 0 53 <1 896 996 987 1240 3013 history1 4	<1 2 56 0 848 1034 891 1125 3125 history2 4	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	Current 0 62 0 987 1113 1037 1288 3013 Current	history1 2 0 53 <1 896 996 987 1240 3013 history1	history2 <1 2 56 0 848 1034 891 1125 3125 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 0 0 62 0 987 1113 1037 1288 3013 current 5	history1 2 0 53 <1 896 996 987 1240 3013 history1 4	<1 2 56 0 848 1034 891 1125 3125 history2 4	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 0 0 62 0 987 1113 1037 1288 3013 current 5 4	history1 2 0 53 <1 896 996 987 1240 3013 history1 4 3 2 history1	<1 2 56 0 848 1034 891 1125 3125 history2 4 2 history2	
ADDITIVES 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 TS ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	current 0 62 0 987 1113 1037 1288 3013 current 5 4 2 current 0.5	history1 2 0 53 <1 896 996 987 1240 3013 history1 4 3 2 history1 0.4	<1 2 56 0 848 1034 891 1125 3125 history2 4 2 history2 0	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 220	current 0 62 0 987 1113 1037 1288 3013 current 5 4 2 current	history1 2 0 53 <1 896 996 987 1240 3013 history1 4 3 2 history1	<1 2 56 0 848 1034 891 1125 3125 history2 4 2 history2	
ADDITIVES 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 TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 20 limit/base	current 0 62 0 987 1113 1037 1288 3013 current 5 4 2 current 0.5	history1 2 0 53 <1 896 996 987 1240 3013 history1 4 3 2 history1 0.4	<1 2 56 0 848 1034 891 1125 3125 history2 4 2 history2 0	
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	current 0 0 62 0 987 1113 1037 1288 3013 current 5 4 2 current 0.5 10.3	history1 2 0 53 <1 896 996 987 1240 3013 history1 4 3 2 history1 0.4 8.2	history2 <1 2 56 0 848 1034 891 1125 3125 history2 4 2 history2 0.4 8.4	
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 20 20 320 320 33 220 330	Current 0 62 0 987 1113 1037 1288 3013 current 5 4 2 current 0.5 10.3 19.8	history1 2 0 53 <1 896 996 987 1240 3013 history1 4 3 2 history1 0.4 8.2 18.9	<1 2 56 0 848 1034 891 1125 3125 history2 4 2 history2 0.4 8.4 19.2	

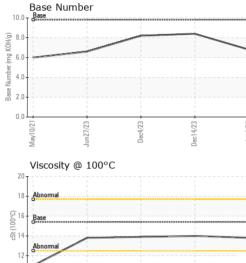


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OIL ANALYSIS REPORT

VISUAL



TESTING LASS	Laboratory Sample No. Lab Number Unique Number Test Package	: 06055787	Recievec Diagnose Diagnost	l : 09 . ed : 10 . ician : We	Jan 2024 Jan 2024 s Davis	3 GFL Envi	GFL Environmental - 415 - Michigan East 6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514		
		Abnormal Abnormal Abnormal 12 11 10 12 10 12 10 12 10 12 10 12 10 10 10 10 10 10 10 10 10 10	Dec4/23	Dec14/23	(0)HOX 6.1 (0)HOX 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1)-	Dec4/23	Dec14/23 +	
	Ę	18 - Abnormal 17-			10.1 (B/HOX Br. 6.1				
		≤ ⊰ Viscosity @ 100°C		<u> </u>		Base Number			
		May10/21	Dec4/23	Dec14/23	Jan4/24				
		2							
		8 - 6 -							
		Non-ferrous Meta	ls	 I I					
		May10/21	Dec4/23	Dec14/23	Jan4/24				
		10			/				
Dec4/23	Dec14/23	40 - chromium 30 - gickel							
23	23 -	Ferrous Alloys							
		Visc @ 100°C GRAPHS	cSt	ASTM D445	15.4	13.8	14.0	13.9	
		FLUID PROPE		method	limit/base	current	history1	history	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
		Odor Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.2	NORML NEG	NORML NEG	NORML NEG	
Dec4/23	Dec14/23 Jan4/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
~		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
· · · · · · · · · · · · · · · · · · ·	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE		
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)