

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 774M Component Diesel Engine Fluid DETEO CANADA DUPON SHP 15W/40

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

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

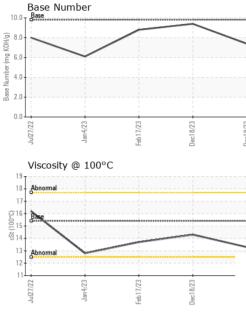
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105741	GFL0105714	GFL0072869
Sample Date		Client Info		19 Dec 2023	18 Dec 2023	17 Feb 2023
Machine Age	hrs	Client Info		8600	8595	7505
Oil Age	hrs	Client Info		8595	0	317
Oil Changed		Client Info		Changed	Not Changd	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		>90	22	4	26
Chromium	ppm	ASTM D5185m		1	<1	1
Nickel	ppm	ASTM D5185m	>2	0	<1	1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	2	4
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	<1	12	1
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	<1
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	0 history1	<1 history2
	ppm ppm		limit/base		-	
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 18	history2 8
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 0 0	history1 18 0	history2 8 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 55	history1 18 0 61	history2 8 0 57
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 55 <1	history1 18 0 61 0	history2 8 0 57 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 0 0 55 <1 894	history1 18 0 61 0 880	history2 8 0 57 <1 833
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 0 0 55 <1 894 1005	history1 18 0 61 0 880 983	history2 8 0 57 <1 833 1077
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 55 <1 894 1005 1014	history1 18 0 61 0 880 983 846	history2 8 0 57 <1 833 1077 951
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 0 55 <1 894 1005 1014 1196	history1 18 0 61 0 880 983 846 1108	history2 8 0 57 <1 833 1077 951 1155
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 0 55 <1 894 1005 1014 1196 2909	history1 18 0 61 0 880 983 846 1108 2881	history2 8 0 57 <1 833 1077 951 1155 2815
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 1010 1070 1150 1270 2060	current 0 0 55 <1 894 1005 1014 1196 2909 current	history1 18 0 61 0 880 983 846 1108 2881 history1	history2 8 0 57 <1 833 1077 951 1155 2815 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 0 0 55 <1 894 1005 1014 1196 2909 current 6	history1 18 0 61 0 880 983 846 1108 2881 history1 9	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 0 55 <1 894 1005 1014 1196 2909 current 6 5	history1 18 0 61 0 880 983 846 1108 2881 history1 9 0	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5 4
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 >25 >20	current 0 0 55 <1 894 1005 1014 1196 2909 current 6 5 <1	history1 18 0 61 0 880 983 846 1108 2881 history1 9 0 1	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5 4 1
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 ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	current 0 55 <1 894 1005 1014 1196 2909 current 6 5 <1	history1 18 0 61 0 880 983 846 1108 2881 history1 9 0 1 history1	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5 4 1 4 1 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 ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	current 0 0 55 <1 894 1005 1014 1196 2909 current 6 5 <1 current 0 0.6	history1 18 0 61 0 880 983 846 1108 2881 history1 9 0 1 history1 0.1	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5 4 1 history2 0.6
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20	current 0 0 55 <1 894 1005 1014 1196 2909 current 6 5 <1 current 0 0.6 8.6	history1 18 0 61 0 880 983 846 1108 2881 history1 9 0 1 0 1 0 1 0.1 4.5	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5 4 1 history2 0.6 8.3
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 225 20 225 20 <u>imit/base</u> >6 >20 20	0 0 55 <1 894 1005 1014 1196 2909 current 6 5 <1 0.6 8.6 20.4	history1 18 0 61 0 880 983 846 1108 2881 history1 9 0 1 history1 0.1 4.5 17.8	history2 8 0 57 <1 833 1077 951 1155 2815 history2 5 4 1 history2 0.6 8.3 19.2



OIL ANALYSIS REPORT

VISUAL



		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
Feb 17/23	Dec18/23 Dec19/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Feb	Dec	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	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.3	14.3	13.7
	\sim	GRAPHS						
		Ferrous Alloys						
Feb17/23 -	Deci 8,23 -	50 - iron						
Feb1	Deci	40-						
		Ē 30						
		20-						
		10		\bigvee				
			Hanna and Andrews					
		Jul27/22 Jan4/23	-eb17/23	Dec18/23	Dec19/23			
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		Non-ferrous Meta	ils					
		copper		$-\Lambda$				
		10 - management lead		/				
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		53 52 0	Contraction of the local division of the loc	33	53			
		Jul27/22 Jan4/23	Feb17/23	Dec18/23	Dec19/23			
		Viscosity @ 100°		ā	ā			
		¹⁹ T			10.0	Base Number		
		18 - Abnormal					/	
		17			(B/H)	\sim		
		P ¹⁶ Base			9 gr 6.0			
		(3-001) ts 14			nber (r			
					0.8 0.000 0.	1		
		13 Abnormal			ee 2.0)-		
		12-						
		11	/23	/23 -	0.0		/23 -	1/23 -
		Jul27/22 Jan4/23	Feb 17/23	Dec18/23	Dec19/23	Jul27/22 Jan4/23	Feb17/23	Dec18/23
							nonmontal (1)	
d	Laboratory	: WearCheck USA -					ronmental - 41;	5 - Michigan Ea
	Sample No.	: GFL0105741	Recieved	d :21	Dec 2023			6200 Elmridg
	Sample No. Lab Number	: GFL0105741 : <mark>06041865</mark>	Recieved Diagnose	d :21 ed :22	Dec 2023 Dec 2023	o GFL ENVI		6200 Elmridg ling Heights, N
CALEGOATORY STING LABORATORY rtificate L2367	Sample No.	: GFL0105741	Recieved	d :21 ed :22	Dec 2023		Ster	6200 Elmridg