

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 225098

Component Diesel Engine Fluid PETRO CANADA 15W40 (--- GAL)

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

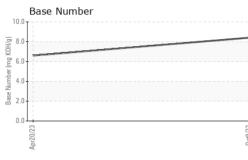
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085653	GFL0079523	
Sample Date		Client Info		09 Oct 2023	20 Apr 2023	
Machine Age	hrs	Client Info		5121	5071	
Oil Age	hrs	Client Info		5121	5071	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT		method	limit/base	current	history1	history2
			>2.0		<1.0	
Fuel		WC Method	>2.0	<1.0 NEG		
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	7	18	
Chromium	ppm	ASTM D5185m	>20	<1	0	
Nickel	ppm	ASTM D5185m	>4	<1	0	
Titanium	ppm	ASTM D5185m		<1	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	4	5	
Lead	ppm	ASTM D5185m	>40	<1	0	
Copper	ppm	ASTM D5185m	>330	2	6	
Tin	ppm	ASTM D5185m	>15	<1	<1	
Vanadium	ppm	ASTM D5185m		<1	<1	
Cadmium	ppm	ASTM D5185m		<1	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 417	history1 488	history2
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	417	488	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	417 4	488 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	417 4 106	488 0 87	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	417 4 106 <1	488 0 87 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	417 4 106 <1 548	488 0 87 <1 430	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	417 4 106 <1 548 1394	488 0 87 <1 430 1713	
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	limit/base	417 4 106 <1 548 1394 671	488 0 87 <1 430 1713 1017	
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	limit/base	417 4 106 <1 548 1394 671 771	488 0 87 <1 430 1713 1017 1284	
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	limit/base	417 4 106 <1 548 1394 671 771 2273	488 0 87 <1 430 1713 1017 1284 3864	
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	limit/base	417 4 106 <1 548 1394 671 771 2273 current	488 0 87 <1 430 1713 1017 1284 3864 history1	
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	limit/base >25	417 4 106 <1 548 1394 671 771 2273 current 6	488 0 87 <1 430 1713 1017 1284 3864 history1 7	 history2
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	limit/base >25	417 4 106 <1 548 1394 671 771 2273 current 6 2	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3	 history2
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	limit/base >25 >20	417 4 106 <1 548 1394 671 771 2273 current 6 2 1	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3 1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	417 4 106 <1 548 1394 671 771 2273 current 6 2 1 1 current 0.1	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3 1 1 history1	 history2 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	limit/base >25 >20 limit/base >3	417 4 106 <1 548 1394 671 771 2273 current 6 2 1 1	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3 1 7 3 1 history1 0.1	 history2 history2 history2
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	limit/base >25 >20 limit/base >3 >20	417 4 106 <1 548 1394 671 771 2273 current 6 2 1 current 0.1 5.0	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3 6 1 history1 0.1 7.3	history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	limit/base >25 >20 limit/base >3 >20 >30 >30	417 4 106 <1 548 1394 671 771 2273 current 6 2 1 current 0.1 5.0 21.2 current	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3 1 7 3 1 0.1 7.3 19.8 history1	 history2 history2 history2
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	Imit/base >25 >20 Imit/base >3 >20 >30	417 4 106 <1 548 1394 671 771 2273 current 6 2 1 current 0.1 5.0 21.2	488 0 87 <1 430 1713 1017 1284 3864 history1 7 3 1 1 history1 0.1 7.3 19.8	 history2 history2 history2 history2

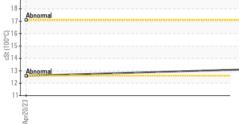


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VISUAL







	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
0ct9/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
0	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		13.1	12.6	
	GRAPHS						
	Ferrous Alloys						
	14-						
	12						
	E ¹⁰						
	1.1			/			
	6						
	4						
	2 0						
	Apr20/23			0ct9/23 .			
	Apr2			Oct			
	Non-ferrous Meta	ls					
	¹⁰ T						
	copper						
	8 - tin						
	6-						
	e de						
	шd 4		_				
	4						
		<u> </u>		/			
	4 2 0						
	4 2 0			bd3/23			
	4			Oct9/23 89 4			
	2 0 ECZODZ ^{de} Viscosity @ 100°	c		0ct8/23	Base Number	r	
	⁴ 0 ECCOD2 ⁴ Viscosity @ 100°	c		9.0	Base Number	r	
	Viscosity @ 100°	c		9.0	Base Number	r	
	Viscosity @ 100°	c		9.0	Base Number	r 	
	Viscosity @ 100°	C		9.0	Base Number	r 	
	Viscosity @ 100°	C		9.0	Base Number	r 	
	4 2 0 Viscosity @ 100° Viscosity @ 100° 19 18 17 6 6 100 15 14	c		9.0	Base Number	r	
	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ²⁰ ⁴ ⁴ ⁴ ¹⁹ ¹⁰ ²⁰ ⁴ ⁴ ⁴ ⁴ ⁴ ⁴ ⁴ ⁴	C		9.0	Base Number		
	Viscosity @ 100°	c		9.0 8.0 (0)(0)(0)(0,0 0)(0)(0,0 0)(0,0)(0,0)(0	Base Number	r 	
	Viscosity @ 100° ¹⁹ ¹⁸ ¹⁷ ¹⁹ ¹⁸ ¹⁶ ¹⁶ ¹⁶ ¹⁴ ¹³ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁵ ¹⁴ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁵ ¹⁴ ¹⁵ ¹⁵ ¹⁵ ¹⁴ ¹⁵ ¹⁵ ¹⁵ ¹⁵ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁶ ¹¹ ¹⁶ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹¹ ¹⁵ ¹¹	c		9.0 8.0 (b)HOX 6.0 bu) Jaquining 3.0 82 2.0 1.0 0.0			
	Viscosity @ 100° ¹⁹ ¹⁸ ¹⁷ ¹⁹ ¹⁸ ¹⁶ ¹⁶ ¹⁶ ¹⁴ ¹³ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁴ ¹⁵ ¹⁴ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁴ ¹⁵ ¹⁵ ¹⁴ ¹⁵ ¹⁵ ¹⁴ ¹⁵ ¹⁵ ¹⁵ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁵ ¹⁶ ¹⁶ ¹⁶ ¹¹ ¹⁶ ¹⁶ ¹⁶ ¹⁶ ¹⁶ ¹⁶ ¹⁶ ¹⁶ ¹¹ ¹⁶ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹ ¹⁶ ¹¹	c		9.0 8.0 (b)HOX 6.0 bu) Jaquining 3.0 82 2.0 1.0 0.0			
	Viscosity @ 100° ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹¹	c		9.0 8.0 (0)(0)(0)(0,0 0)(0)(0,0 0)(0,0)(0,0)(0	Base Number	r	
	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹¹ ¹¹ ¹⁰ ¹⁰ ¹¹			9.0 8.0 (0)HO3 DBJ 9.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Apr20/23		Wood Island
boratory	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁰ ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹⁰ ¹⁰ ¹⁰ ¹¹	501 Madia		9.0 8.0 (97.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Apr20/23	vironmental - 409 -	
boratory mple No.	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹¹ ¹⁰ ¹⁰ ¹¹ ¹¹ ¹⁰ ¹¹	501 Madia	:16	9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Apr20/23	vironmental - 409 -	State Hwy M
boratory	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁰ ¹⁹ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹⁹ ¹⁰ ¹⁰ ¹⁰ ¹⁰ ¹¹	501 Madia	d :16 ed :17	9.0 8.0 (97.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Apr20/23	vironmental - 409 -	

To discuss this sample report, contact Customer Service at 1-800-237-1369.

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

Certificate L2367

Submitted By: TECHNICIAN ACCOUNT

^{* -} Denotes test methods that are outside of the ISO 17025 scope of accreditation.