

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (10 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

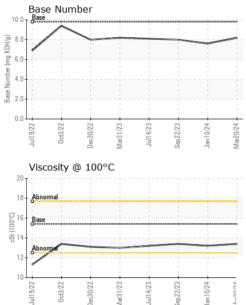
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI		method	limit/base	current	history1	history2
			- min base		,	
Sample Number		Client Info		GFL0095359	GFL0095369	GFL0076942
Sample Date	la v -	Client Info		20 Mar 2024	10 Jan 2024	22 Sep 2023
Machine Age	hrs	Client Info		4012	3715	3137
Oil Age	hrs	Client Info		302 Ohannad	578	400
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	>110	7	12	5
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	5	2
Lead	ppm	ASTM D5185m	>45	<1	0	0
Copper	ppm	ASTM D5185m	>85	<1	1	0
Tin	ppm	ASTM D5185m	>4	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	0 history1	0 history2
			limit/base			
ADDITIVES	ppm ppm ppm	method		current	history1	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m	0	current 4	history1 4	history2 8
ADDITIVES Boron	ppm	method ASTM D5185m ASTM D5185m	0	current 4 <1	history1 4 0	history2 8 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 4 <1 60	history1 4 0 61	history2 8 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 4 <1 60 <1	history1 4 0 61 <1	history2 8 0 60 <1
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	current 4 <1 60 <1 935	history1 4 0 61 <1 958	history2 8 0 60 <1 1030
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 4 <1 60 <1 935 1095	history1 4 0 61 <1 958 1142	history2 8 0 60 <1 1030 1199
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 4 <1 60 <1 935 1095 1028	history1 4 0 61 <1 958 1142 1049	history2 8 0 60 <1 1030 1199 1100
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	current 4 <1 60 <1 935 1095 1028 1207	history1 4 0 61 <1 958 1142 1049 1240	history2 8 0 60 <1 1030 1199 1100 1353
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 4 <1 60 <1 935 1095 1028 1207 3085	history1 4 0 61 <1 958 1142 1049 1240 3065	history2 8 0 60 <1 1030 1199 1100 1353 3660
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 4 <1 60 <1 935 1095 1028 1207 3085 Current	history1 4 0 61 <1 958 1142 1049 1240 3065 history1	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2
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 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	current 4 <1 60 <1 935 1095 1028 1207 3085 current 4	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3
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	current 4 <1 60 <1 935 1095 1028 1207 3085 current 4 <1	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1
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 0 1010 1070 1150 1270 2060 Imit/base >30 >20	Current 4 <1 60 <1 935 1095 1028 1207 3085 Current 4 <1 4 Current	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 1 3 history2
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 limit/base >30 limit/base >20	current 4 <1 60 <1 935 1095 1028 1207 3085 current 4 <1 4 <1 4 <1 4 <1 4 <1 4 <21 4 <21 0.2	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1 0.4	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 history2 0 0.3
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 Imit/base >30 >20	Current 4 <1 60 <1 935 1095 1028 1207 3085 Current 4 <1 4 Current	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 1 3 history2
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 Imit/base >30 20 Imit/base >3 >20	4 <1 60 <1 935 1095 1028 1207 3085 current 4 <1 4 <1 4 <1 4 current 0.2 6.7 18.1	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1 0.4 8.0 19.2	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 history2 0.3 6.8 18.2
ADDITIVES 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	method ASTM D5185m ASTM D76185m *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	4 <1 60 <1 935 1095 1028 1207 3085 current 4 <1 4 <1 4 <1 4 <1 4 <1 4 <1 4 <1 4 <1 4 <1 4 <1 <1 4 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <th>history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1 0.4 8.0 19.2 history1</th> <th>history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 history2 0.3 6.8 18.2 history2</th>	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1 0.4 8.0 19.2 history1	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 history2 0.3 6.8 18.2 history2
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 Imit/base >30 20 Imit/base >3 >20	4 <1 60 <1 935 1095 1028 1207 3085 current 4 <1 4 <1 4 <1 4 current 0.2 6.7 18.1	history1 4 0 61 <1 958 1142 1049 1240 3065 history1 4 1 5 history1 0.4 8.0 19.2	history2 8 0 60 <1 1030 1199 1100 1353 3660 history2 3 1 3 history2 0.3 6.8 18.2



OIL ANALYSIS REPORT

VISUAL



Dec30/22

			10.0	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	
/23	/23 -	/24 -	/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Jul14/23	Sep 22/23	Jan 10/24	Mar20/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
		2		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
				Free Water		*Visual	>0.2	NEG	NEG	NEG	
					scalar			NEG	NEG		
				FLUID PROPE	RTIES	method	limit/base	current	history1	history2	
				Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.2	13.4	
		_		GRAPHS							
				Ferrous Alloys							
3	53		10	70 iron							
Jul14/23	Sep22/23	Jan10/24	6,06	60 - new nickel							
7	Se	la	A.A.	50							
				E ⁴⁰ ₃₀							
				^a 30							
				20							
				10-		\sim					
				0							
				Jul19/22	Mar31/23 . Jul14/23 .	Sep22/23	0/24				
				Jul1 0cd Dec3	Mar3 Jul1	Sep22/23 Jan10/24	Mar20/24				
				Non-ferrous Meta	ls						
				20 copper							
				sessesses lead							
				15 tin							
				E.							
				<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>							
				5							
				5 5 0	723	/23 /24	24				
				Jul19/22 0ct3/22 Dec30/22	Mar31/23 Jul14/23	Sep 22/23 Jan 10/24	Mar20/24				
				Viscosity @ 100°C	-		~	Daca Number			
				19 18 Abnormal			10.0	Base Number			
				18 Abnormal			⇒ 8.0	\square			
				16			IB/HO	/			
				0 15 Base			¥ 6.0				
				0015 15 14							
				13 Abnormal			6.0 6.0 8 Base Mumber (mg 4.0				
				12			<u>2.0</u>	-			
				11-							
					23 -	23 -	0.0	22	23	24 -	
				Jul19/22 Oct3/22 Dec30/22	Mar31/23 Jul14/23	Sep22/23 Jan 10/24	Mar20/24	Jul19/22 - 0ct3/22 - Dec30/22 -	Mar31/23 Jul14/23	Sep 22/23 Jan 10/24	
				~ _	2 7	r N	2	· ā	2 7	S T	
d		borato		: WearCheck USA - 50	1 Madiso			GFL Env	vironmental - 93		
	Sa	mple N	lo.	: GFL0095359	Recei	Received : 29 Mar 2024			1372 State Highway 3		
				: 06133876		Tested : 01 Apr 2024			MOSINEE, W		
		ίσιμο Μιτη	iber	: 10953341	Diagr	Diagnosed : 01 Apr 2024 - Wes Davis			US 5445		
					-		•		~	ata ati Khili K	
tificate L2367	Tes	st Pack	age	: FLEET contact Customer Serv	vice at 1 C		-		Co	ntact: Kirk Kos	

Submitted By: see also GFL927, GFL930 - Kirk Koss