

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 828055-101266

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 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

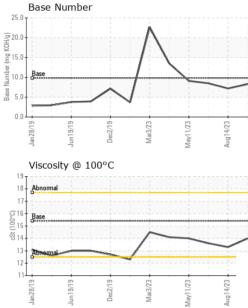
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090999	GFL0074724	GFL0082663
Sample Date		Client Info		30 Aug 2023	14 Aug 2023	19 Jul 2023
Machine Age	hrs	Client Info		11299	10511	10511
Oil Age	hrs	Client Info		0	219359	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT		method	limit/base	current	history1	history2
Fuel			>5	<1.0	<1.0	<1.0
Glycol		WC Method	20	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	19	43	12
Chromium	ppm	ASTM D5185m	>20	<1	2	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	12	3
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	1	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base		الاستعاما والم	history2
ADDITIVE5		methou	iiiiii/base	current	history1	TIIStOLYZ
Boron	ppm	ASTM D5185m	0	8	3	15
	ppm ppm					
Boron		ASTM D5185m	0	8	3	15
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0	3 0	15 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 69	3 0 64	15 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 69 <1	3 0 64 1	15 0 59 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 69 <1 918	3 0 64 1 970	15 0 59 <1 896
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	8 0 69 <1 918 1009	3 0 64 1 970 1085	15 0 59 <1 896 1176
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	8 0 69 <1 918 1009 996	3 0 64 1 970 1085 970	15 0 59 <1 896 1176 1036
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	8 0 69 <1 918 1009 996 1204	3 0 64 1 970 1085 970 1222	15 0 59 <1 896 1176 1036 1274
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	0 0 60 0 1010 1070 1150 1270 2060	8 0 69 <1 918 1009 996 1204 3528	3 0 64 1 970 1085 970 1222 3169	15 0 59 <1 896 1176 1036 1274 3664
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	0 0 60 0 1010 1070 1150 1270 2060	8 0 69 <1 918 1009 996 1204 3528 current	3 0 64 1 970 1085 970 1222 3169 history1	15 0 59 <1 896 1176 1036 1274 3664 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	8 0 69 <1 918 1009 996 1204 3528 current 8	3 0 64 1 970 1085 970 1222 3169 history1 8	15 0 59 <1 896 1176 1036 1274 3664 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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	8 0 69 <1 918 1009 996 1204 3528 <u>current</u> 8 44	3 0 64 1 970 1085 970 1222 3169 history1 8 7	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5
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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	8 0 69 <1 918 1009 996 1204 3528 <u>current</u> 8 44	3 0 64 1 970 1085 970 1222 3169 history1 8 7 22	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5 1
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 >20 limit/base >3	8 0 69 <1 918 1009 996 1204 3528 <u>current</u> 8 44 14 14 0.3	3 0 64 1 970 1085 970 1222 3169 history1 8 7 22 history1 1	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >3	8 0 69 <1 918 1009 996 1204 3528 current 8 44 14 14 current	3 0 64 1 970 1085 970 1222 3169 history1 8 7 22 history1	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5 1 1 history2 0.8
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	8 0 69 <1 918 1009 996 1204 3528 <u>current</u> 8 44 14 14 0.3 7.0	3 0 64 1 970 1085 970 1222 3169 history1 8 7 22 history1 1 8.9	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5 1 1 history2 0.8 8.3
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 D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 33 20 330 20 330	8 0 69 <1 918 1009 996 1204 3528 <i>current</i> 8 44 14 0.3 7.0 18.2 <i>current</i>	3 0 64 1 970 1085 970 1222 3169 history1 8 7 22 history1 1 8.9 19.8 history1	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5 1 1 history2 0.8 8.3 19.7 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 >20 >30	8 0 69 <1 918 1009 996 1204 3528 <u>current</u> 8 44 14 14 0.3 7.0 18.2	3 0 64 1 970 1085 970 1222 3169 history1 8 7 22 history1 1 8.9 19.8	15 0 59 <1 896 1176 1036 1274 3664 history2 3 5 1 1 history2 0.8 8.3 19.7



OIL ANALYSIS REPORT

VISUAL



	VISUAL		methoa	iimit/base	current	nistory i	nistory2
	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
\sim	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
53	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Aug14/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
a a							
	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	14.0	13.3	13.6
\sim	GRAPHS						
	Ferrous Alloys						
23	iron	٨					
Aug14/23	100 - nickel	Λ					
A	80-	1					
E	60-						
	40	1	/				
	20-	1	1				
	0	and the second second second		Children			
		3/23 -	1/23	C7/F			
	Jan28/19 Jun19/19 Dec2/19	Mar3/23	May11/23	Bou			
	Non-ferrous Meta	ls		d2			
	⁸⁰ T						
	70 - copper	Λ					
	60 tin	1					
	50	$I \rightarrow \dots$					
	ڦِ 40 -						
	30	· · · · · ·					
	20-	1					
	10						
	Jan 28/19 Jun 19/19	Mar3/23	May11/23	C7/L			
	Jan2 Jun1	Mar	May11/23	Bny			
	Viscosity @ 100°	2			Raco Numb	-	
	¹⁹			25.0	Base Number		
	18 - Abnormal					٨	
	17			⊋ ^{20.0}	+		
ć	D ¹⁶ Base			9110			
	ала Вазе 15 - Вазе			9 2 15.0		$ \rangle$	
	Base 15 3 14	~		OX 15.0	Base	$ \rangle$	
	3 14	1		0) Gu 15.0 Gu 15.0 Jaquun 10.0 ese	Base	\bigwedge	
	3 14 13 Abrema	\int		(b)HON Base Number (mg KOH)(d) Base S.0	Base	\downarrow	<u> </u>
	3 14- 13 - Abnormal	\int		a.u	Base		~
	3 14 13 12 11		123	0.0			123
	3 14- 13 - Abnormal	Mai3/23	C 11/23	0.0	Base 61/61/un	Dec2/19	May11/23 4ug14/23
ć	6 1/2 mg 12 11 12 11 12 11 12 11 10 10 10 10 10 10 10 10 10		May11/23	0.0	Jan 28/19		May11/23
aboratory	3 14 12 11 6 1/87 un 22 11 6 1/87 un 3 2 2 11 6 1/87 un 3 2 3 2 4 6 1/87 un 3 2 3 2 4 5 2 5 2 6 1/87 un 4 5 2 5 2 6 1/87 un 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2	501 Madis	son Ave., Ca	ry, NC 27513	Jan 28/19	rironmental - 814 - L	Little Rock Hauling
aboratory	3 14 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 10 10 10 10 10 10 10 10 10 10 10 10 1	501 Madis Received	son Ave., Ca I : 12 S	ry, NC 27513 Sep 2023	Jan 28/19	rironmental - 814 - L 40	Little Rock Hauling 005 Hwy 161 N
aboratory Sample No. Lab Number	3 14 12 12 12 12 12 12 12 12 12 12	501 Madis Received Diagnose	son Ave., Ca I : 12 S ed : 13 S	ry, NC 27513 Sep 2023 Sep 2023	Jan 28/19	rironmental - 814 - L 40	Little Rock Haulin 205 Hwy 161 N LIttle Rock, AF
aboratory Sample No. Jnique Number	: WearCheck USA - : GFL0090999 : 05947789 : 10643748	501 Madis Received	son Ave., Ca I : 12 S ed : 13 S	ry, NC 27513 Sep 2023	Jan 28/19	rironmental - 814 - L 4(Little Rock Haulin 005 Hwy 161 N Little Rock, AF US 7211
aboratory Sample No. ab Number Inique Number Test Package	3 14 12 12 12 12 12 12 12 12 12 12	501 Madis Received Diagnose Diagnost	son Ave., Ca I : 12 S ed : 13 S ician : Wes	ry, NC 27513 Sep 2023 Sep 2023 S Davis	Jan 28/19	rironmental - 814 - L 4(Little Rock Hauling

To discuss this sample r * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367