

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 4512M Component Diesel Engine Fluid DETEO CANADA DUPON SHP 15W40

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.

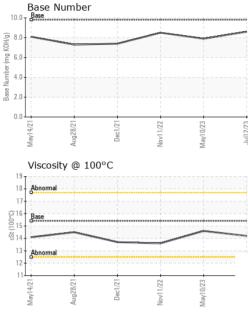
Fluid Condition

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		GFL0086699	GFL0081431	GFL0057389
Sample Date		Client Info		12 Jul 2023	10 May 2023	11 Nov 2022
Machine Age	hrs	Client Info		9779	9351	8097
Oil Age	hrs	Client Info		9351	8097	6312
Oil Changed		Client Info		Changed	Changed	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	33	52	23
Chromium	ppm	ASTM D5185m		2	3	1
Nickel	ppm	ASTM D5185m	>2	2 <1	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	2
Aluminum	ppm	ASTM D5185m		5	6	6
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m		2	2	2
Tin	ppm	ASTM D5185m	>15	- <1	<1	<1
Antimony	ppm	ASTM D5185m	>15			
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	<1
Gadman	ppm			•	0	
		method	limit/hase	current	history1	history2
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	1	2	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 2	2 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 2 60	2 0 57	2 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 2 60 <1	2 0 57 <1	2 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	1 2 60 <1 865	2 0 57 <1 920	2 0 59 <1 897
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	1 2 60 <1 865 1067	2 0 57 <1 920 1033	2 0 59 <1 897 1038
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	1 2 60 <1 865 1067 981	2 0 57 <1 920 1033 972	2 0 59 <1 897 1038 978
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	1 2 60 <1 865 1067 981 1237	2 0 57 <1 920 1033 972 1235	2 0 59 <1 897 1038 978 1226
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	1 2 60 <1 865 1067 981	2 0 57 <1 920 1033 972 1235 3272	2 0 59 <1 897 1038 978 1226 3445
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	1 2 60 <1 865 1067 981 1237	2 0 57 <1 920 1033 972 1235	2 0 59 <1 897 1038 978 1226
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	1 2 60 <1 865 1067 981 1237 3003	2 0 57 <1 920 1033 972 1235 3272	2 0 59 <1 897 1038 978 1226 3445
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 1010 1070 1150 1270 2060	1 2 60 <1 865 1067 981 1237 3003 current 6 7	2 0 57 <1 920 1033 972 1235 3272 history1	2 0 59 <1 897 1038 978 1226 3445 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 method	0 0 60 1010 1070 1150 1270 2060	1 2 60 <1 865 1067 981 1237 3003 current 6	2 0 57 <1 920 1033 972 1235 3272 history1 6	2 0 59 <1 897 1038 978 1226 3445 history2 6
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base	1 2 60 <1 865 1067 981 1237 3003 current 6 7	2 0 57 <1 920 1033 972 1235 3272 history1 6 8	2 0 59 <1 897 1038 978 1226 3445 history2 6 6
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 0 1010 1070 1150 1270 2060 imit/base >25	1 2 60 <1 865 1067 981 1237 3003 <u>current</u> 6 7 3	2 0 57 <1 920 1033 972 1235 3272 history1 6 8 7	2 0 59 <1 897 1038 978 1226 3445 history2 6 6 6 4
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	1 2 60 <1 865 1067 981 1237 3003 current 6 7 3 current	2 0 57 <1 920 1033 972 1235 3272 history1 6 8 7 7 history1	2 0 59 <1 897 1038 978 1226 3445 history2 6 6 6 4 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 limit/base >25 >20 limit/base	1 2 60 <1 865 1067 981 1237 3003 current 6 7 3 current 1.7	2 0 57 <1 920 1033 972 1235 3272 history1 6 8 7 7 history1 3.1	2 0 59 <1 897 1038 978 1226 3445 history2 6 6 6 4 history2 1
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 20 1imit/base >20	1 2 60 <1 865 1067 981 1237 3003 current 6 7 3 current 1.7 11.1	2 0 57 <1 920 1033 972 1235 3272 history1 6 8 7 history1 3.1 15.2	2 0 59 <1 897 1038 978 1226 3445 history2 6 6 6 6 4 history2 1 11.4
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 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	1 2 60 <1 865 1067 981 1237 3003 Current 6 7 3 Current 1.7 11.1 23.5 Current	2 0 57 <1 920 1033 972 1235 3272 history1 6 8 7 history1 3.1 15.2 29.0 history1	2 0 59 <1 897 1038 978 1226 3445 history2 6 6 6 6 4 4 history2 1 1 11.4 22.9 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >6 >20 20	1 2 60 <1 865 1067 981 1237 3003 <u>current</u> 6 7 3 <u>current</u> 1.7 11.1 23.5	2 0 57 <1 920 1033 972 1235 3272 history1 6 8 7 6 8 7 7 history1 3.1 15.2 29.0	2 0 59 <1 897 1038 978 1226 3445 history2 6 6 6 4 history2 1 1 11.4 22.9



OIL ANALYSIS REPORT



00000-	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
Jul12/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jult	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	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.6	13.6
-	GRAPHS						
	Ferrous Alloys						
_	50 iron		~				
	40						
	§ 30-	\mathbf{i}					
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	May14/21 Aug28/21	Nov11/22	May10/23	Jul12/23			
		2	Ma	٦٢			
	Non-ferrous Meta	15					
	copper						
	8 - management tin						
	6						
	E d d						
	2						
	0	111111 hansa and a same					
		4 64	2				
	May14/21 Jug28/21	lov11/	lay10/	Jul12/2			
	≥	2	May10/23	Jul12/23	Base Number		
	Viscosity @ 100°C		May10/		Base Number		
	Viscosity @ 100°C		May10/	10.0	Base Number		
	Viscosity @ 100°C		01/eW	10.0	Base Number		
10.00	Viscosity @ 100°C		01/veW	10.0	Base Number		~~
100001700	Viscosity @ 100°C		May10	10.0	Base		
	Viscosity @ 100°C		01/eW	10.0 (0,HO) 8.0 (0,HO) 8.0 (0,HO) 100 (0,HO)	Base		
	Viscosity @ 100°C		01/eW	0.0 8.0 HOX وال	Base		
NUPOLI 10-	Viscosity @ 100°C			10.0 (6)HOX BL 10.0 (6)HOX BL 10.0 (10.0 (10.0 (10.0 (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0) (10.0	Asse		
NATURA I 102	Viscosity @ 100°C		May10/23	10.0 (CHO) 6.0 uu aquun eeg 2.0	Base	Deci/21-	May10/23



Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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)

Diagnosed

Diagnostician : Wes Davis

: 17 Jul 2023

: 05898342

Lab Number

Unique Number : 10559698

Sterling Heights, MI

Contact: Frank Wolak

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F: