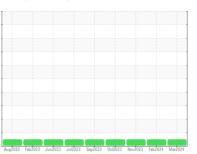


# **OIL ANALYSIS REPORT**

# Sample Rating Trend







# Mac 92 Com Die Fluie

Machine Id 928100 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

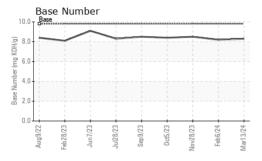
# **Fluid Condition**

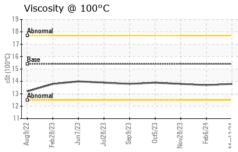
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0100957	GFL0100897	GFL0086832
Sample Date		Client Info		13 Mar 2024	06 Feb 2024	28 Nov 2023
Machine Age	mls	Client Info		365240	363102	355658
Oil Age	mls	Client Info		365240	0	355658
Oil Changed		Client Info		N/A	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	ASTM D5185m	>120	7	8	5
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	3
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1	history2
	ppm	ASTM D5185m				
Boron		ASTM D5185m	0	2	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2	4 0	3
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 66	4 0 65	3 0 59
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 66 <1	4 0 65 0	3 0 59
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 66 <1 916	4 0 65 0 931	3 0 59 0 863
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 66 <1 916 1115	4 0 65 0 931 1113	3 0 59 0 863 1056
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	2 0 66 <1 916 1115 1016	4 0 65 0 931 1113 1028	3 0 59 0 863 1056 931
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 ASTM D5185m	0 0 60 0 1010 1070 1150	2 0 66 <1 916 1115 1016	4 0 65 0 931 1113 1028 1296	3 0 59 0 863 1056 931 1113
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 66 <1 916 1115 1016 1188 3044	4 0 65 0 931 1113 1028 1296 3126	3 0 59 0 863 1056 931 1113 2758
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 66 <1 916 1115 1016 1188 3044	4 0 65 0 931 1113 1028 1296 3126 history1	3 0 59 0 863 1056 931 1113 2758
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 66 <1 916 1115 1016 1188 3044 current	4 0 65 0 931 1113 1028 1296 3126 history1	3 0 59 0 863 1056 931 1113 2758 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	2 0 66 <1 916 1115 1016 1188 3044 current 4	4 0 65 0 931 1113 1028 1296 3126 history1 4 3	3 0 59 0 863 1056 931 1113 2758 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 66 <1 916 1115 1016 1188 3044 current 4 0	4 0 65 0 931 1113 1028 1296 3126 history1 4 3	3 0 59 0 863 1056 931 1113 2758 history2 3 4
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	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 66 <1 916 1115 1016 1188 3044 current 4 0 2	4 0 65 0 931 1113 1028 1296 3126 history1 4 3 1	3 0 59 0 863 1056 931 1113 2758 history2 3 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 0 66 <1 916 1115 1016 1188 3044 current 4 0 2	4 0 65 0 931 1113 1028 1296 3126 history1 4 3 1 history1 0.7	3 0 59 0 863 1056 931 1113 2758 history2 3 4 0 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  Method  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base	2 0 66 <1 916 1115 1016 1188 3044 current 4 0 2 current 0.8 7.8	4 0 65 0 931 1113 1028 1296 3126 history1 4 3 1 history1 0.7 7.3	3 0 59 0 863 1056 931 1113 2758 history2 3 4 0 history2 0.8 7.5
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  Method  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	2 0 66 <1 916 1115 1016 1188 3044 current 4 0 2 current 0.8 7.8 18.5	4 0 65 0 931 1113 1028 1296 3126 history1 4 3 1 history1 0.7 7.3 18.3	3 0 59 0 863 1056 931 1113 2758 history2 3 4 0 history2 0.8 7.5 18.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m  METHOD  *ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  METHOD  *ASTM D7844  *ASTM D7624  *ASTM D7415  METHOD	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30 limit/base	2 0 66 <1 916 1115 1016 1188 3044 current 4 0 2 current 0.8 7.8 18.5	4 0 65 0 931 1113 1028 1296 3126 history1 4 3 1 history1 0.7 7.3 18.3 history1	3 0 59 0 863 1056 931 1113 2758 history2 3 4 0 history2 0.8 7.5 18.9



# **OIL ANALYSIS REPORT**

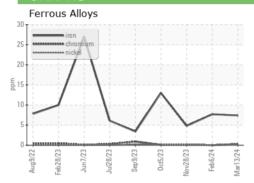




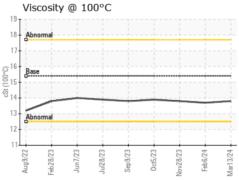
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

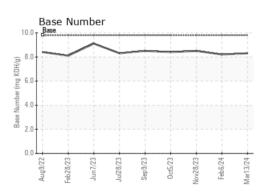
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.7	13.8

# **GRAPHS**



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Certificate L2367

Laboratory Sample No.

Lab Number : 06119292 Unique Number : 10928125 Test Package : FLEET

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0100957 Received

: 15 Mar 2024 **Tested** Diagnosed

: 15 Mar 2024

: 15 Mar 2024 - Wes Davis

GFL Environmental - 419 - Metro Saginaw 6950 N Michigan Saginaw, MI

US 48604

Contact: Jeremy Hines

jhines@gflenv.com T: (800)684-1277

\* - 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)

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