

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (36 QTS)

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.

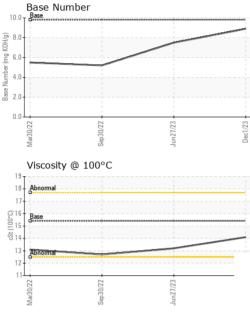
Fluid Condition

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		GFL0104389	GFL0084887	GFL0052104
Sample Date		Client Info		01 Dec 2023	27 Jun 2023	30 Sep 2022
Machine Age	hrs	Client Info		26997	1500	1500
Oil Age	hrs	Client Info		26997	1500	1500
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
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	3	10	7
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	13	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	5
Lead	ppm	ASTM D5185m	>40	<1	1	0
Copper	ppm	ASTM D5185m	>330	3	<1	1
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	nnm	ASTM D5185m			0	0
Oddinium	ppm	ASTIVI DSTOSIII		<1	0	0
ADDITIVES	ppm	method	limit/base	<1 current	0 history1	history2
	ppm		limit/base			-
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 127	history1 <1	history2 2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 127 0	history1 <1 0	history2 2 <1
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 127 0 40	history1 <1 0 58	history2 2 <1 59
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 127 0 40 0	history1 <1 0 58 <1	history2 2 <1 59 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 127 0 40 0 718	history1 <1 0 58 <1 944	history2 2 <1 59 0 873
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 1070	Current 127 0 40 0 718 1473	history1 <1 0 58 <1 944 1064	history2 2 <1 59 0 873 1069
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 127 0 40 0 718 1473 729	history1 <1 0 58 <1 944 1064 1008	history2 2 <1 59 0 873 1069 998
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 127 0 40 0 718 1473 729 835	history1 <1 0 58 <1 944 1064 1008 1226	history2 2 <1 59 0 873 1069 998 1202
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 127 0 40 0 718 1473 729 835 3529	<1 0 58 <1 944 1064 1008 1226 3569	history2 2 <1 59 0 873 1069 998 1202 3120
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	0 0 60 1010 1070 1150 1270 2060	Current 127 0 40 0 718 1473 729 835 3529 Current	history1 <1 0 58 <1 944 1064 1008 1226 3569 history1	history2 2 <1 59 0 873 1069 998 1202 3120 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base	current 127 0 40 0 718 1473 729 835 3529 current 15	<1 0 58 <1 944 1064 1008 1226 3569 history1 3	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2
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 1010 1070 1150 1270 2060 kimit/base	current 127 0 40 0 718 1473 729 835 3529 current 15 0	<1 0 58 <1 944 1064 1008 1226 3569 history1 3 4 4 history1	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2 5 12 bistory2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium 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 limit/base >25	127 0 40 0 718 1473 729 835 3529 current 15 0 4	<1 0 58 <1 944 1064 1008 1226 3569 history1 3 4 4 0.3	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2 5 12 bistory2 0 0.6
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 Imit/base >25	current 127 0 40 0 718 1473 729 835 3529 current 15 0 4 current	<1 0 58 <1 944 1064 1008 1226 3569 history1 3 4 4 history1	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2 5 12 bistory2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur 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 limit/base >25 >20 limit/base	current 127 0 40 0 718 1473 729 835 3529 current 15 0 4 current 0.1	<1 0 58 <1 944 1064 1008 1226 3569 history1 3 4 4 0.3	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2 5 12 bistory2 0 0.6
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	current 127 0 40 0 718 1473 729 835 3529 current 15 0 4 0.1 5.9	<1 0 58 <1 944 1064 1008 1226 3569 history1 3 4 0.3 10.0	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2 5 12 history2 0 0.6 11.6
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 >25 imit/base >4 >20	current 127 0 40 0 718 1473 729 835 3529 current 15 0 4 current 0.1 5.9 17.9	<1 0 58 <1 944 1064 1008 1226 3569 history1 3 4 0.3 10.0 20.3	history2 2 <1 59 0 873 1069 998 1202 3120 history2 2 5 12 history2 0.6 11.6 24.6



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VISUAL		method	limit/base	current	history1	history2
Vhite Metal	scalar	*Visual	NONE	NONE	NONE	NONE
ellow 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
ppearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
mulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
ree Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
/isc @ 100°C	cSt	ASTM D445	15.4	14.1	13.2	12.7
GRAPHS						
iron chromium nickel						
chromium	/					
chromium	_	$\overline{\ }$				
chromium						
************************		21/2/unf	Deci/23			
nickel	ls	Lutitza				
2200Etev Non-ferrous Meta	ls	Jun21/23				
chromium nickel 220082mW Non-ferrous Meta	ls	22/JZunf				
CZ2002 Topper Icad	ls	22/Z2uh				
CZCO022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC0022000 CZC002000 CZC002000 CZC002000 CZC002000 CZC002000 CZC002000 CZC002000 CZC002000 CZC002000 CZC002000 CZC00200 CZC0000 CZC0000 CZC0000 CZC0000 CZC0000 CZC0000 CZC0000 CZC0000 CZC0000000 CZC00000 CZC00000 CZC00000 CZC00000 CZC00000 CZC00000 CZC00000 CZC00000 CZC000000 CZC000000 CZC000000 CZC000000 CZC000000 CZC0000000000	ls	Jun21/23				
CZ2005/264 Non-ferrous Meta	ls	ezizzunr				
COOPER Non-ferrous Meta	ls	~	Dec1/23			
CZ2005/264 Non-ferrous Meta	ls	21/2ml				
COOPER Non-ferrous Meta		~	Dec1/23	Base Number		

(mg KOH/g)

umber

Dec1/23 -

: 07 Dec 2023

: 11 Dec 2023

6 (

4 (Base

2 (

0.0

Mar30/77

Sep30/22



Unique Number : 10777168 Diagnostician : Jonathan Hester 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)

Sep30/22

Jun27/23 -

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

Received

Diagnosed

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53 14

12 11-

Laboratory

Sample No.

Lab Number

Al

Mar30/22

: GFL0104389

: 06027377

GFL Environmental - 410 - Michigan West 39000 Van Born Rd Wayne, MI US 48184 Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340 F:

Jun27/23 -

Dec1/23 -