

## **OIL ANALYSIS REPORT**

Sample Rating Trend



423031-402164 Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

DIAGNOOID
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 Number Sample Date Machine Age Oil Age Oil Changed Sample Status	hrs hrs	Client Info Client Info Client Info Client Info Client Info		GFL0093573 29 Jan 2024 44959 138 Not Changd NORMAL	GFL0077268 19 Dec 2023 44821 663 Changed ABNORMAL	GFL0093556 22 Nov 2023 44646 458 Not Changd ABNORMAL
CONTAMINATI	ON	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 METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	10	49	32
Chromium	ppm	ASTM D5185m	>20	<1	2	1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	20	3	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	3	2
Lead	ppm	ASTM D5185m	>40	<1	4	2
Copper	ppm	ASTM D5185m	>330	<1	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 30	history1 4	history2 0
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 30 0	history1 4 0	history2 0 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 30 0 45	history1 4 0 56	history2 0 0 58
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	current 30 0 45 0	history1 4 0 56 <1	history2 0 0 58 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	current 30 0 45 0 766	history1 4 0 56 <1 868	history2 0 0 58 <1 985
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070	current           30           0           45           0           766           1186	history1 4 0 56 <1 868 1003	history2 0 58 <1 985 1054
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	current           30           0           45           0           766           1186           900	history1 4 0 56 <1 868 1003 904	history2 0 58 <1 985 1054 925
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270	current           30           0           45           0           766           1186           900           1132	history1         4         0         56         <1         868         1003         904         1100	history2           0           58           <1           985           1054           925           1286
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current           30           0           45           0           766           1186           900           1132           3467	history1           4           0           56           <1           868           1003           904           1100           2640	history2           0           58           <1           985           1054           925           1286           2980
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current 30 0 45 0 766 1186 900 1132 3467 current	4         0         56         <1         868         1003         904         1100         2640         history1	history2           0           0           58           <1           985           1054           925           1286           2980           history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon	ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25	current           30           0           45           0           766           1186           900           1132           3467           current           3	history1         4         0         56         <1         868         1003         904         1100         2640         history1         11	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm	method           ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current           30           0           45           0           766           1186           900           1132           3467           current           3           0	4         0         56         <1         868         1003         904         1100         2640         history1         11         2	history2           0           0           58           <1           985           1054           925           1286           2980           history2           8           <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current           30           0           45           0           766           1186           900           1132           3467           current           3           0           3	4         0         56         <1         868         1003         904         1100         2640         history1         11         2         2	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED	ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	current         30         0         45         0         766         1186         900         1132         3467         current         3         0         3         0         3         0         3         0         3         current	4         0         56         <1         868         1003         904         1100         2640         history1         11         2         2         history1	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         1         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 20 limit/base	current           30           0           45           0           766           1186           900           1132           3467           current           3           0           3           0           3           0.9	4         0         56         <1         868         1003         904         1100         2640         history1         11         2         history1         55.2	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         1         history2         ▲         4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 limit/base >4 >20	current         30         0         45         0         766         1186         900         1132         3467         current         3         0         3         0         3         0.9         5.8	history1         4         0         56         <1         868         1003         904         1100         2640         history1         11         2         history1         5.2         13.0	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         1         history2         4         10.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm t t t t	method           ASTM D5185m           ASTM D7844           *ASTM D7624	limit/base 0 0 1010 1010 1070 1150 1270 2060 limit/base >25 	30         30         0         45         0         766         1186         900         1132         3467         current         3         0         3         0         3         0         3         0.9         5.8         18.8	4         0         56         <1         868         1003         904         1100         2640         history1         11         2         history1         5.2         13.0         29.6	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         1         history2         4         10.1         26.0
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	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 limit/base >4 >20 >30	30         30         0         45         0         766         1186         900         1132         3467         current         3         0         3         0         3         0.9         5.8         18.8         current	4         0         56         <1         868         1003         904         1100         2640         history1         11         2         history1         11         2         history1         13.0         29.6         history1	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         1         history2         4         10.1         26.0         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7415           method           *ASTM D7414	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 limit/base >20 limit/base >30	current         30         0         45         0         766         1186         900         1132         3467         current         3         0         3         0.9         5.8         18.8         current         13.2	4         0         56         <1         868         1003         904         1100         2640         history1         11         2         history1         5.2         13.0         29.6         history1         18.1	history2         0         0         58         <1         985         1054         925         1286         2980         history2         8         <1         history2            4         10.1         26.0         history2         15.7



0ct31/22

Mar8/73

Jun15/23

Sep14/23

Dec19/23

Nov22/23

# **OIL ANALYSIS REPORT**



VISUAL		method	iiiiii/base	current	motory	
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
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
/isc @ 100°C	cSt	ASTM D445	15.4	13.9	15.5	15.2
GRAPHS						
		/				
0et31/22 Mart0/23 un15/23	sep14/23 0ct7/23	lov2223 bec19/23	lan29/24			
Non-ferrous Meta	5 Sep14/23	Nov22/23	Jan 29/24			
ZZ/IEPO Non-ferrous Meta	5 Sep14/23 0cd7/23	Nov2223 Dec19/23	Jan/29/24			
Non-ferrous Meta	<b>5</b> Sep14/23 0ed7/23	Nov22/23 Dec19/23	Jan2924			
ZZIEPO Non-ferrous Meta	5 Sep14/23	Nov2223- Dec19223	Jan 29/24			
ZZ/IEPO Non-ferrous Meta	5 Sep14/23	Nov22/23 Dec19/23	Jan 29/24			
CZ/IEP30 Non-ferrous Meta	5 Sep14/23	Nov2223	Jan 292.4			
Non-ferrous Meta	3 Contraction of the september of the se	3 Nov22/23	Jan2924			
var8623 Mar8623 n15223 Mon-ferrous Meta	p14/23	w2223 Nev2223 E 19/23	Jan29/24			
0cd3122 Mae8/23 Mae8/23 Mars/22 Mars/2	Sep14/23	Nov22/23 Dec19/23	Jan29/24			
ZZ/IEPO Non-ferrous Meta	0 56914/23	Nov22/23 Dec19/23	Jan29/24	Base Number		
Non-ferrous Meta	0 3ep14/23	Nov22/23 Dec19/23	4	Base Number		
Non-ferrous Meta EZUIDO Viscosity @ 100°C	0et1/23	Nov2223 Nov2223 Dec19/23	+ 52622/mer	Base Number		
Viscosity @ 100°C	0cd1/23	Nov22/23	Pau29324	Base Number		
Viscosity @ 100°C	0cd1/23	Nov2223 Dec19/23	Jan 29/24 Jan 29/24 Mile Mile Mile Mile Mile Mile Mile Mile	Base Number		

0.0

0ct31/22 -

Mar8/23

Jun 15/23 -

Sep14/23.

Jan29/24 -

: 30 Jan 2024

: 31 Jan 2024

Dec19/23



 Certificate 12367
 Test Package
 : FLEET

 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)

Jun 15/23

Sep14/23.

0ct7/23 -

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

Recieved

Diagnosed

Nov22/23 -

Diagnostician : Wes Davis

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Laboratory Sample No.

Lab Number

Unique Number : 10855892

0ct31/22

Mar8/23

: GFL0093573

: 06073801

0ct7/23 -

Vov22/23

Jec19/23

an29/24