

# **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id 514046 PETERBILT 567 Component

Diesel Engine

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

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

Fluid

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

## Fluid Condition

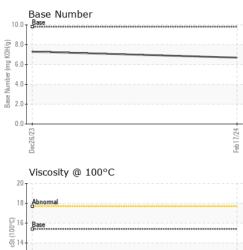
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103991	GFL0066574	
Sample Date		Client Info		17 Feb 2024	26 Dec 2023	
Machine Age	hrs	Client Info		0	0	
Oil Age	hrs	Client Info		0	0	
Oil Changed		Client Info		N/A	N/A	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	0.5	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	24	
Chromium	ppm	ASTM D5185m	>20	0	0	
Nickel	ppm	ASTM D5185m	>4	<1	<1	
Titanium	ppm	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	<1	<1	
Aluminum	ppm	ASTM D5185m	>20	4	6	
Lead	ppm	ASTM D5185m	>40	1	0	
Copper	ppm	ASTM D5185m	>330	4	9	
Tin	ppm	ASTM D5185m	>15	<1	1	
Vanadium	ppm	ASTM D5185m		<1	<1	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 16	history1 84	history2
	ppm ppm					
Boron		ASTM D5185m	0	16	84	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	16 0	84 <1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	16 0 51	84 <1 3	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	16 0 51 <1	84 <1 3 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	16 0 51 <1 249	84 <1 3 1 705	
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	16 0 51 <1 249 2652	84 <1 3 1 705 1243	   
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	16 0 51 <1 249 2652 1108	84 <1 3 1 705 1243 736	   
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	16 0 51 <1 249 2652 1108 1514	84 <1 3 1 705 1243 736 836	
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	16 0 51 <1 249 2652 1108 1514 3859	84 <1 3 1 705 1243 736 836 3024	
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	16 0 51 <1 249 2652 1108 1514 3859 current	84 <1 3 1 705 1243 736 836 3024 history1	     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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	16 0 51 <1 249 2652 1108 1514 3859 current 12	84 <1 3 1 705 1243 736 836 3024 history1 ▲ 26	     history2
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	0 0 60 1010 1070 1150 1270 2060 limit/base >25	16 0 51 <1 249 2652 1108 1514 3859 <u>current</u> 12 <1	84 <1 3 1 705 1243 736 836 3024 history1 ▲ 26 3	     history2
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 <b>limit/base</b> >25	16 0 51 <1 249 2652 1108 1514 3859 current 12 <1 14	84 <1 3 1 705 1243 736 836 3024 bistory1 ▲ 26 3 20 bistory1 0.1	     history2
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <b>limit/base</b> >20	16 0 51 <1 249 2652 1108 1514 3859 current 12 <1 14 current	84 <1 3 1 705 1243 736 836 3024 bistory1 26 3 20 bistory1	     history2    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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	16 0 51 <1 249 2652 1108 1514 3859 <u>current</u> 12 <1 14	84 <1 3 1 705 1243 736 836 3024 bistory1 ▲ 26 3 20 bistory1 0.1	     history2  history2  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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	16 0 51 <1 249 2652 1108 1514 3859 <i>current</i> 12 <1 14 <i>current</i> 0.1 8.2	84 <1 3 1 705 1243 736 836 3024 history1 ▲ 26 3 20 history1 0.1 8.5	history2 history2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >3 >20	16 0 51 <1 249 2652 1108 1514 3859 <u>current</u> 12 <1 14 <u>current</u> 0.1 8.2 18.0	84 <1 3 1 705 1243 736 836 3024 3024   ▶ 26 3 20   ▶ 1243   0.1   8.5   18.6	    history2  history2  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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 33 220 330	16 0 51 <1 249 2652 1108 1514 3859 Current 12 <1 14 Current 0.1 8.2 18.0 Current	84 <1 3 1 705 1243 736 836 3024 1243 736 836 3024   26 3 20 1   ▲   26 3 20   1   1   8.5 18.6   18.5   18.6	    history2  history2  history2  history2



Abnormal 12 10 Dec26/23

# **OIL ANALYSIS REPORT**



	VISUAL		method	limit/base	current		history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Feb 17/24	Appearance	scalar	*Visual	NORML	NORML	NORML	
Feb	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	12.8	11.3	
	GRAPHS						
	Ferrous Alloys						
	25 iron						
N.C. F.	20						
C. M.	20 mickel						
	15 - E						
	읍 10-						
	5 -						
	0						
	Dec26/23			Feb17/24			
	Dec2			Feb 1			
	Non-ferrous Metal	s					
	10						
	copper 8+						
	copper						
	8- 6-						
	copper	<u> </u>					
	8- 6-	<u> </u>		/			
	8- 6-	<u> </u>					
	8 6 4						
	8 6 4 2 0						
	8 - Copper lead			Feb17/24			
	Red 2 Viscosity @ 100°C				Base Numbe	۰r	
	Viscosity @ 100°C			Feb17/24	Base Numbe	۲	
	Red 2 Viscosity @ 100°C			Feb17/24	.0 T Base	:r	
	Viscosity @ 100°C			Feb17/24	.0 T Base	:r	
	Viscosity @ 100°C			Feb17/24	.0 - Base	۲	
	Viscosity @ 100°C			Feb17/24	.0 - Base .0	۲ <b>۲</b>	
	8         Copper           6         Image: Copper           6         Image: Copper           7         Image: Copper           10         Copper           10         Copper           11         Image: Copper           12         Image: Copper           13         Abnormal           14         Image: Copper           13         Abnormal			Feb17/24	.0 - Base .0	۲ <b>۲</b>	
	8         Copper           6         Image: Copper           6         Image: Copper           1         Image: Cop			ber (mg K0H/g) 01	.0 Base	۲ <b>۲</b>	
	8         Copper           6         Image: Copper           6         Image: Copper           7         Image: Copper           10         Image: Copper           10         Image: Copper           10         Image: Copper           10         Image: Copper           11         Image: Copper           12         Image: Copper           11         Image: Copper			10 Base Number (mg KOH(g) 6 7 8 8 7 8 8 8 9 9 9 9 9 9 8 9 9 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	0 - Base	۲ <b>۲</b>	
	8         6         6           4         2         0         5           0         5         7         7           0         5         7         7           10         100°C         100°C         100°C           10         11         10         100°C           11         13         4         4           12         11         4         4			10 Base Number (ng KOH(g) 9 0 0	0 Base	PT	
	8         Copper           6         Image: Copper           6         Image: Copper           7         Image: Copper           10         Image: Copper           10         Image: Copper           10         Image: Copper           10         Image: Copper           11         Image: Copper           12         Image: Copper           11         Image: Copper			10 Base Number (mg KOH(g) 6 7 8 8 7 8 8 8 9 9 9 9 9 9 8 9 9 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	0 - Base	۲ <b>۲</b>	
Attificate L2367 trificate L2367 trifi	Viscosity @ 100°C Viscosity @ 100°C	1 Madiso Recei Teste Diagr	on Ave., Cary ived : 29 id : 29 nosed : 02	10 (0)HOX B0 (0)HOX	GFL En	vironmental - 980 - 1820 Candle Contac	Northside Hauli Ridge Park Houston, 1 US 770 t: Edwin Colli ns@gflenv.cc

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Contact/Location: Edwin Collins - GFL980