

# **OIL ANALYSIS REPORT**

Sample Rating Trend





## 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.

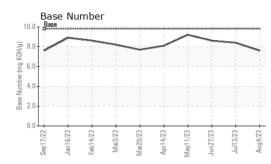
### Fluid Condition

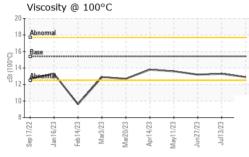
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0087821	GFL0070602	GFL0081159
Sample Date		Client Info		04 Aug 2023	13 Jul 2023	27 Jun 2023
Machine Age	hrs	Client Info		1858	1703	9477
Oil Age	hrs	Client Info		600	200	1166
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>110	29	22	26
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m		15	14	17
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m		4	3	5
Tin	ppm	ASTM D5185m	>4	۔ <1	0	<1
Vanadium	ppm	ASTM D5185m	~ 1	<1	0	0
Cadmium	ppm	ASTM D5185m				
				0	0	()
	ppm		line it /le e e e	0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 2	history1 0	history2 5
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 2 0	history1 0 0	history2 5 2
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 58	history1 0 0 53	history2 5 2 73
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 58 <1	history1 0 0 53 <1	history2 5 2 73 <1
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 2 0 58 <1 959	history1 0 0 53 <1 880	history2 5 2 73 <1 1005
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	0 0 60 0 1010 1070	current     2     0     58     <1     959     1062	history1 0 0 53 <1 880 999	history2 5 2 73 <1 1005 1243
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	0 0 60 0 1010 1070 1150	Current 2 0 58 <1 959 1062 974	history1 0 53 <1 880 999 951	history2 5 2 73 <1 1005 1243 1228
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current     2     0     58     <1     959     1062     974     1273	history1 0 53 <1 880 999 951 1219	history2 5 2 73 <1 1005 1243 1228 1402
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	0 0 60 1010 1070 1150 1270 2060	Current 2 0 58 <1 959 1062 974	history1 0 53 <1 880 999 951 1219 3382	history2 5 2 73 <1 1005 1243 1228 1402 3586
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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     2     0     58     <1     959     1062     974     1273     3459     current	history1 0 53 <1 880 999 951 1219 3382 history1	history2 5 2 73 <1 1005 1243 1228 1402 3586 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     2     0     58     <1     959     1062     974     1273     3459     current     8	history1     0     0     53     <1     880     999     951     1219     3382     history1     6	history2     5     2     73     <1     1005     1243     1228     1402     3586     history2     8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Limit/base >30	current     2     0     58     <1     959     1062     974     1273     3459     current     8     6	history1     0     0     53     <1     880     999     951     1219     3382     history1     6     4	history2     5     2     73     <1     1005     1243     1228     1402     3586     history2     8     2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Limit/base >30	current     2     0     58     <1     959     1062     974     1273     3459     current     8	history1     0     0     53     <1     880     999     951     1219     3382     history1     6	history2     5     2     73     <1     1005     1243     1228     1402     3586     history2     8
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 Limit/base >30	current     2     0     58     <1     959     1062     974     1273     3459     current     8     6	history1     0     0     53     <1     880     999     951     1219     3382     history1     6     4	history2     5     2     73     <1     1005     1243     1228     1402     3586     history2     8     2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30 -20	current     2     0     58     <1     959     1062     974     1273     3459     current     8     6     38	history1     0     0     53     <1	history2   5   2   73   <1
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 <b>limit/base</b> >30 -20	current   2   0   58   <1   959   1062   974   1273   3459   current   8   6   38   current	history1   0   0   53   <1   880   999   951   1219   3382   history1   6   4   30   history1	history2   5   2   73   <1   1005   1243   1228   1402   3586   history2   8   2   48   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 ppm <b>TS</b> ppm ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30 >20 <b>limit/base</b>	current   2   0   58   <1   959   1062   974   1273   3459   current   8   6   38   current   0.4	history1     0     0     53     <1     880     999     951     1219     3382     history1     6     4     30     history1     0.4	history2   5   2   73   <1   1005   1243   1228   1402   3586   history2   8   2   48   history2   0.3
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	0 0 0 1010 1070 1150 1270 2060 limit/base >30 20 limit/base >33 >20	current   2   0   58   <1   959   1062   974   1273   3459   current   8   6   38   current   0.4   8.9	history1     0     0     53     <1	history2   5   2   73   <1
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 <b>imit/base</b> >30 <b>imit/base</b> >3 20	current   2   0   58   <1   959   1062   974   1273   3459   current   8   6   38   current   0.4   8.9   18.8	history1     0     0     53     <1	history2   5   2   73   <1



# **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
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	12.9	13.3	13.2
GRAPHS						

Ferrous Alloys 70 60 50 40 30 20 10 n Sep17/22 Jan 16/23 Apr14/23 Feb14/23 Mar3/23 Aav11/73 un27/23 ua4/23 Mar20/23 Non-ferrous Metals 160 140 120 100 Md 80 60 40 20 0 Sep17/22. Vug4/23 Mar3/23 Jan 16/23 Feb14/23 Mar20/23 av11/2 pr14/7 Viscosity @ 100°C Base Number 20 10.0 18 8. (mg KOH/g) 16 cSt (100°C) 6 ( umber 4 ( 12 Base 10 0.0 8 Sep17/22. Aug4/23 -Aug4/23 -Mar3/23 Apr14/23 May11/23 Jul13/23 Sep17/22 Jan 16/23 Mar3/23 May11/23 Jul13/23 Jan 16/23 Feb14/23 Mar20/23 Feb14/23 Mar20/23 Apr14/23 Jun27/23 GFL Environmental - 166 - Phenix City Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0087821 Received : 10 Aug 2023 18 Old Brickyard Rd Lab Number : 05920551 Diagnosed : 10 Aug 2023 Phenix City, AL Unique Number : 10592465 Diagnostician : Wes Davis US 36869 Test Package : FLEET Contact: DEAN PEACE JR To discuss this sample report, contact Customer Service at 1-800-237-1369. dean.peace@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Certificate L2367

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