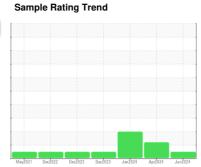


## **OIL ANALYSIS REPORT**









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

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

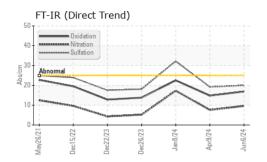
### **Fluid Condition**

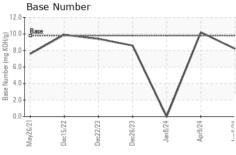
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

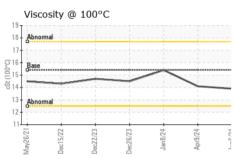
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   20198   19706   19215   19342   1	Sample Number		Client Info		GFL0122361	GFL0117669	GFL0108810
Oil Age         hrs         Client Info         20198         19342         19342         19342 Changed Changed Changed Changed Changed Changed Sample Status         NORMAL         ABNORMAL         A	Sample Date		Client Info		06 Jun 2024	09 Apr 2024	08 Jan 2024
Coli   Changed   Client Info   Changed   Not Changed   ABNORMAL   ABNORMAL	Machine Age	hrs	Client Info		20198	19706	19215
NORMAL   ABNORMAL   ABNORMAL   ABNORMAL   ABNORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2   Mage   NEG	Oil Age	hrs	Client Info		20198	19342	19342
Fuel	Oil Changed		Client Info		Changed	Not Changd	Changed
Fuel WC Method S3.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1	Sample Status				NORMAL	ABNORMAL	ABNORMAL
Water Glycol         WC Method         >0.2         NEG         A	CONTAMINATION	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Description	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         <1	WEAR METALS	5	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	16	8	63
Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         <1         0         0           Aluminum         ppm         ASTM D5185m         >20         3         3         4           Lead         ppm         ASTM D5185m         >40         0         0         <1           Copper         ppm         ASTM D5185m         >330         <1         0         21           Tin         ppm         ASTM D5185m         15         <1         <1         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0 <td>Chromium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;20</td> <th>&lt;1</th> <td>&lt;1</td> <td>&lt;1</td>	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Silver	Titanium		ASTM D5185m	>2	0	0	0
Aluminum	Silver		ASTM D5185m	>2	<1		0
Lead         ppm         ASTM D5185m         >40         0         0         <1           Copper         ppm         ASTM D5185m         >330         <1         0         21           Tin         ppm         ASTM D5185m         >15         <1         <1         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         17         <1           Barium         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0         0           Manganese         ppm         ASTM D5185m         0         <1         0         0         0           Calcium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1270	Aluminum		ASTM D5185m	>20	3	3	4
Tin	Lead				0		<1
Tin	Copper		ASTM D5185m	>330	<1	0	21
Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         17         <1           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         56         64         53           Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base	Tin		ASTM D5185m	>15	<1	<1	0
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         17         <1	Vanadium		ASTM D5185m				0
Boron ppm ASTM D5185m 0 2 17 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 64 53 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 968 936 870 Calcium ppm ASTM D5185m 1070 1064 1043 978 Phosphorus ppm ASTM D5185m 1150 1077 1035 866 Zinc ppm ASTM D5185m 1270 1306 1282 1207 Sulfur ppm ASTM D5185m 2060 3507 3712 2293  CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 9 6 Sodium ppm ASTM D5185m >20 4 7 <1  INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >6 0.8 0.4 ▲ 5.7 Nitration Abs/cm "ASTM D7845 >20 9.6 7.6 17.3 Sulfation Abs/lmm "ASTM D7415 >30 20.0 19.2 32.2  FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/lmm "ASTM D7414 >25 16.9 14.8 22.5	Cadmium						0
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         56         64         53           Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         968         936         870           Calcium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         △         285         8           Potassium         ppm         ASTM D7844	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         56         64         53           Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         968         936         870           Calcium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         285         8           Potassium         ppm         ASTM D5185m         7         1         1           INFRA-RED         method         limit/base         current         history	Boron	ppm	ASTM D5185m	0	2	17	<1
Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         968         936         870           Calcium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         >20         4         7         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.8         0.4         5.7           Nitration         Abs/cm         *ASTM D78	Barium	ppm	ASTM D5185m	0	0	0	0
Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         968         936         870           Calcium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         >20         4         7         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.8         0.4         5.7           Nitration         Abs/cm         *ASTM D78	Molybdenum	ppm	ASTM D5185m	60	56	64	53
Calcium         ppm         ASTM D5185m         1070         1064         1043         978           Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         >20         4         7         <1	Manganese	ppm	ASTM D5185m	0	<1	0	0
Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1	Magnesium	ppm	ASTM D5185m	1010	968	936	870
Phosphorus         ppm         ASTM D5185m         1150         1077         1035         866           Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1	Calcium		ASTM D5185m	1070	1064	1043	978
Zinc         ppm         ASTM D5185m         1270         1306         1282         1207           Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1	Phosphorus		ASTM D5185m	1150	1077	1035	866
Sulfur         ppm         ASTM D5185m         2060         3507         3712         2293           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1	Zinc		ASTM D5185m	1270	1306		1207
Silicon         ppm         ASTM D5185m         >25         5         9         6           Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.8         0.4         ▲ 5.7           Nitration         Abs/cm         *ASTM D7624         >20         9.6         7.6         17.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.0         19.2         32.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         14.8         22.5	Sulfur						
Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1	CONTAMINANT	ΓS	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         7         ▲ 285         8           Potassium         ppm         ASTM D5185m         >20         4         7         <1	Silicon	ppm	ASTM D5185m	>25	5	9	6
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.8         0.4         ▲ 5.7           Nitration         Abs/cm         *ASTM D7624         >20         9.6         7.6         17.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.0         19.2         32.2           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         14.8         22.5	Sodium		ASTM D5185m		7	<u>^</u> 285	8
Soot %       %       *ASTM D7844 >6       0.8       0.4       ▲ 5.7         Nitration       Abs/cm       *ASTM D7624 >20       9.6       7.6       17.3         Sulfation       Abs/.1mm       *ASTM D7415 >30       20.0       19.2       32.2         FLUID DEGRADATION method limit/base current history1       history2         Oxidation       Abs/.1mm       *ASTM D7414 >25       16.9       14.8       22.5	Potassium	ppm	ASTM D5185m	>20	4	7	<1
Nitration         Abs/cm         *ASTM D7624         >20         9.6         7.6         17.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.0         19.2         32.2           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         14.8         22.5	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.0         19.2         32.2           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         14.8         22.5	Soot %	%	*ASTM D7844	>6	0.8	0.4	<b>△</b> 5.7
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 16.9 14.8 22.5	Nitration	Abs/cm	*ASTM D7624	>20	9.6	7.6	17.3
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.9</b> 14.8 22.5	Sulfation		*ASTM D7415	>30			
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	14.8	22.5
	Base Number (BN)	mg KOH/g			8.2		



### **OIL ANALYSIS REPORT**



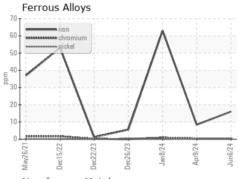


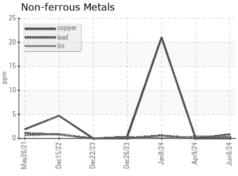


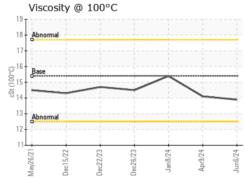
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

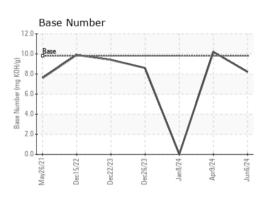
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.1	15.4

### **GRAPHS**













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0122361 Lab Number : 06215363 Unique Number : 11088227 Test Package : FLEET

Received : 20 Jun 2024 **Tested** Diagnosed

: 21 Jun 2024 : 21 Jun 2024 - Wes Davis

GFL Environmental - 415 - Michigan East 6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak

fwolak@gflenv.com T: (586)825-9514

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)