

OIL ANALYSIS REPORT

Area (78J6TV) 727102-361673

Diesel Engine

PETRO CANADA DURON SHP 15W40 (8 GAL)

Sample Rating Trend

NORMAL



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

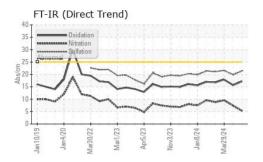
Fluid Condition

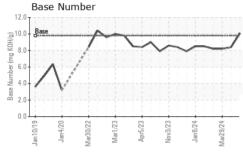
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

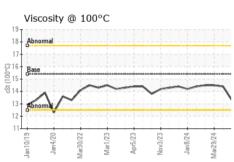
Sample Number Client Info GFL0112265 GFL0065430 GFL0112189 Sample Date Client Info S1 May 2024 12 Apr 2024 29 Mar 2024 Machine Age hrs Client Info G00 150 600 150 600 150 600 Client Info Changed Not Changed NORMAL NORMAL	CAMPLE INFORM	4 A TIONI	mathad	limit/bass	Olive ont	historyt	hiotom/2
Sample Date		IATION		limit/base	current	history1	history2
Machine Age hrs Client Info 19465 14109 14276 Oil Age hrs Client Info 600 150 600 Oil Changed Client Info Changed Not Changed Changed Changed Sample Status Moral Image: Changed NorMAL NorMAL NorMAL NorMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG WEAR METALS method limit/base current history2 Iron ppm ASTM D5185m >75 8 8 22 Chromium ppm ASTM D5185m >5 3 <1 <1 history2 Iron ppm ASTM D5185m >4 0 0 0 0 0 Iron ppm ASTM D5185m >2 0 0 0	•						
Oil Age hrs Client Info 600 150 600 Oil Changed Sample Status Client Info Changed North Ch					•		
Oil Changed Sample Status Client Info Changed NORMAL Not Changed NORMAL Changed NORMAL NORMAL Changed NORMAL Changed NORMAL Changed NORMAL NOR							
CONTAMINATION	•	hrs					
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0	-		Client Info			Ü	
Fuel WC Method So.2 NEG NEG NEG NEG	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 8 8 22 Chromium ppm ASTM D5185m >4 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >25 0 0 0 Silver ppm ASTM D5185m >25 0 0 0 Copper ppm ASTM D5185m >4 0 <1 0 Copper ppm ASTM D5185m 0 0 0 0 <	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 3 <1	WEAR METALS	3	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	8	8	22
Titanium	Chromium	ppm	ASTM D5185m	>5	3	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum ppm ASTM D5185m >15 2 <1	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >25 0 0 0 Copper ppm ASTM D5185m >100 0 0 0 Tin ppm ASTM D5185m >4 0 <1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >100 0 0 0 Tin ppm ASTM D5185m >4 0 <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 68 1 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 <1 <1 Marganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 527 1016 971 Calcium ppm ASTM D5185m 1070 1654 1093 1089 Phosphorus ppm ASTM D5185m	Aluminum	ppm	ASTM D5185m	>15	2	<1	2
Tin ppm ASTM D5185m >4 0 <1	Lead	ppm	ASTM D5185m	>25	0	0	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 68 1 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 44 62 66 Mangaese ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>100	0	0	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 68 1 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 44 62 66 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 527 1016 971 Calcium ppm ASTM D5185m 1070 1654 1093 1089 Phosphorus ppm ASTM D5185m 1270 928 1313 1268 Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1 <th>Tin</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>4</th> <th>0</th> <th><1</th> <th>0</th>	Tin	ppm	ASTM D5185m	>4	0	<1	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 68 1 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 44 62 66 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 527 1016 971 Calcium ppm ASTM D5185m 1070 1654 1093 1089 Phosphorus ppm ASTM D5185m 1270 928 1313 1268 Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m 20 <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 44 62 66 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 44 62 66 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	68	1	2
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 527 1016 971 Calcium ppm ASTM D5185m 1070 1654 1093 1089 Phosphorus ppm ASTM D5185m 1150 802 1156 1074 Zinc ppm ASTM D5185m 1270 928 1313 1268 Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1 4 16 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >6 0.5 0.4 0.7 Nitration Abs/cm *ASTM D7415 >30 21.4 <th>Molybdenum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>60</th> <th>44</th> <th>62</th> <th>66</th>	Molybdenum	ppm	ASTM D5185m	60	44	62	66
Calcium ppm ASTM D5185m 1070 1654 1093 1089 Phosphorus ppm ASTM D5185m 1150 802 1156 1074 Zinc ppm ASTM D5185m 1270 928 1313 1268 Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1 4 16 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.4 0.7 Nitration Abs/.1mm *ASTM D7624 >20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 802 1156 1074 Zinc ppm ASTM D5185m 1270 928 1313 1268 Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1 4 16 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.4 0.7 Nitration Abs/cm *ASTM D7624 >20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION method	Magnesium	ppm	ASTM D5185m	1010	527	1016	971
Zinc ppm ASTM D5185m 1270 928 1313 1268 Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	1070	1654	1093	1089
Sulfur ppm ASTM D5185m 2060 2949 3619 3335 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1 4 16 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.4 0.7 Nitration Abs/cm *ASTM D7624 >20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	Phosphorus	ppm	ASTM D5185m	1150	802	1156	1074
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1 4 16 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.4 0.7 Nitration Abs/cm *ASTM D7624 >20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	Zinc	ppm	ASTM D5185m	1270	928	1313	1268
Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1	Sulfur	ppm	ASTM D5185m	2060	2949	3619	3335
Sodium ppm ASTM D5185m 2 9 29 Potassium ppm ASTM D5185m >20 <1	CONTAMINAN	ΓS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1	Silicon	ppm	ASTM D5185m	>25	3	4	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.4 0.7 Nitration Abs/cm *ASTM D7624 >20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	Sodium	ppm	ASTM D5185m		2	9	29
Soot % % *ASTM D7844 > 6 0.5 0.4 0.7 Nitration Abs/cm *ASTM D7624 > 20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 > 30 21.4 19.9 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 17.2 15.7 17.9	Potassium	ppm	ASTM D5185m	>20	<1	4	16
Nitration Abs/cm *ASTM D7624 >20 5.3 7.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	Soot %	%	*ASTM D7844	>6	0.5	0.4	0.7
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	Nitration	Abs/cm	*ASTM D7624	>20	5.3	7.4	9.6
Oxidation Abs/.1mm *ASTM D7414 >25 17.2 15.7 17.9	Sulfation	Abs/.1mm	*ASTM D7415	>30		19.9	21.6
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.2	15.7	17.9
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	10.1	8.4	8.2



OIL ANALYSIS REPORT



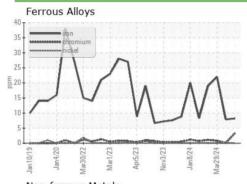


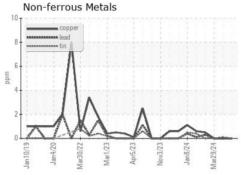


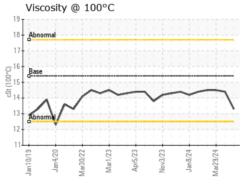
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

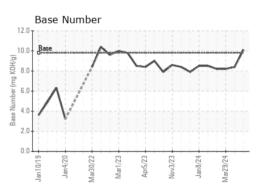
FLUID PROPE	:RHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	14.4	14.5

GRAPHS













Certificate 12367

Laboratory Sample No.

Lab Number : 06198912 Unique Number : 11061035

Test Package : FLEET

: GFL0112265

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 04 Jun 2024 **Tested** Diagnosed

: 05 Jun 2024 : 06 Jun 2024 - Don Baldridge

GFL Environmental - 829 - Wilco Hauling 5054 Highway HH Hartville, MO

US 65667 Contact: James Jones james.jones@gflenv.com T: (417)349-5006

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)

Report Id: GFL829 [WUSCAR] 06198912 (Generated: 06/06/2024 09:28:23) Rev: 1