

WEAR NORMAL CONTAMINATION NORMAL FLUID CONDITION NORMAL

Machine Id 828002 Component Diesel Engine Fluid PETRO CANADA DURON SAE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

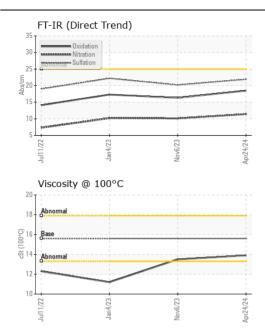
Elevated aluminum (AI) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

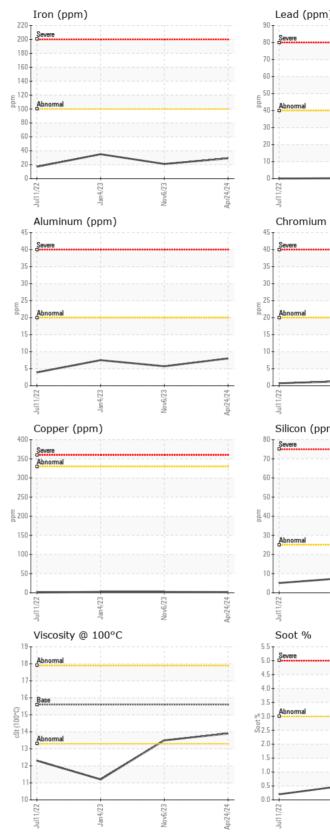
FLUID CONDITION

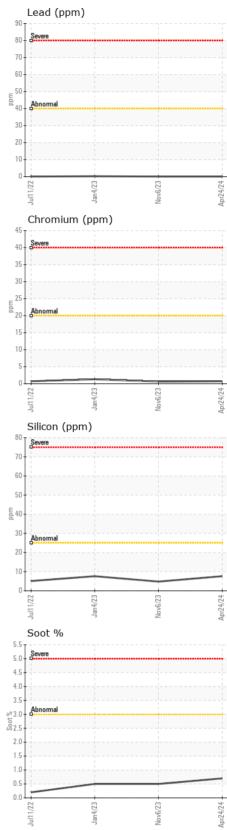
The condition of the oil is acceptable for the time in service.

TestUOMMethodLimit/AnCurrentHistory1History1History1Sample NumberClient InfoGFL0088358GFL0088358GFL0088358GFL0088358GFL0088358Sample DateClient InfoS722514787248GMachine AgehrsClient InfoS006000Filter AgehrsClient InfoS006000Oil ChangedClient InfoChangedChangedN/AN/ASample StatusClient InfoChangedChangedN/AN/ASample StatusVirtual StatusNORMALNORMALABNORMALIronppmASTMD51860>10C1-10NickelppmASTMD51860>20c1-11SilverppmASTMD51860>30C10-11SilverppmASTMD51860>30G0-11GopperppmASTMD51860>30Q-110AuminumppmASTMD51860>20858PotassiumppmASTMD51860>20968FuelWC Method>2.0S1.0-1.01.5VandaudumppmASTMD51860>20S1.0-1.01.5SoliconppmASTMD51860>20S1.0-1.01.5SultarionApmASTMD51860>20S1.0-1.01.5SultarionppmASTMD51860>20S							
Sample DateClient Info24 Apr 202406 Nov 202304 Jan 2023Machine AgehrsClient Info572514787248Oil AgehrsClient Info5006000Filter AgehrsClient Info5006000Oil ChangedClient InfoChangedN/AN/AFilter ChangedClient InfoChangedN/AN/ASample StatusClient InfoChangedN/AN/AIronppmASTM D5186(m)>100292135ChromiumppmASTM D5186(m)>440<11NickelppmASTM D5186(m)>440<1<1SilverppmASTM D5186(m)>330<10<1AluminumppmASTM D5186(m)>3302222TinppmASTM D5186(m)>3020<1<1VanadiumppmASTM D5186(m)>3302222TinppmASTM D5186(m)>20968<1VanadiumppmASTM D5186(m)>20968<1VanadiumppmASTM D5186(m)>20968<1VanadiumppmASTM D5186(m)>201.1.41.0.110.2Socion/QSitt D5186(m)>20Sitt D518NEGNEGSocion/MpASTM D5186(m)>20	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient Info5722514787248Oil AgehrsClient Info5006000Filter AgehrsClient Info5006000Oil ChangedClient InfoChangedN/AN/AFilter Changed1Client InfoChangedN/AN/ASample StatusVClient Info292135IronppmASTM 05185(m)>100292135ChromiumppmASTM 05185(m)>20<1<11NickelppmASTM 05185(m)>30<1<1SilverppmASTM 05185(m)>300<10AluminumppmASTM 05185(m)>302222TinppmASTM 05185(m)>30222YanadiumppmASTM 05185(m)>30222TinppmASTM 05185(m)>20858PotassiumppmASTM 05185(m)>20858PotassiumppmASTM 05185(m)>20968FuelWC Method>.20SNEGNEGNEGSolidonppmASTM 05185(m)>20SNEGNEGSolidonppmASTM 05185(m)>20SNEGNEGSolidonppmASTM 05185(m)>20SNEGNEGSolidonppmASTM 05185(m)>20SNEG </th <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>GFL0088355</th> <th>GFL0088358</th> <th>GFL0056360</th>	Sample Number		Client Info		GFL0088355	GFL0088358	GFL0056360
Oil AgehrsClient Info5006000Filter AgehrsClient Info5006000Oil ChangedClient InfoChangedN/AN/AFilter Changed1Client InfoChangedN/AN/ASample StatusNORMALNORMALABNORMALABNORMALIronppmASTM05165(m)>100292135ChromiumppmASTM05165(m)>20<1<11NickelppmASTM05165(m)>30<1<1<1NickelppmASTM05185(m)>300<1<1SilverppmASTM05185(m)>300<10AluminumppmASTM05185(m)>330222TinppmASTM05185(m)>330222TinppmASTM05185(m)>20858PotassiumppmASTM05185(m)>20858PotassiumppmASTM05185(m)>20968Soto%%ASTM05185(m)>2011.410.110.2SulfationAbs/cmASTM05185(m)>20NEGNEGNEGSoto%%ASTM05185(m)130.70.50.5NitrationAbs/cmASTM05185(m)11.410.110.2SulfationAbs/cmASTM05185(m)131118BarumppmAST	Sample Date		Client Info		24 Apr 2024	06 Nov 2023	04 Jan 2023
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Clict Name Filter ChangedClient IntoChangedChangedN/ASample StatusVIINAMNAMASNORMALIronppmASTM D5185(m)>100292135ChromiumppmASTM D5185(m)>20<1<11NickelppmASTM D5185(m)>440<1<1NickelppmASTM D5185(m)>300<1<1SilverppmASTM D5185(m)>300<10AluminumppmASTM D5185(m)>3020868LeadppmASTM D5185(m)>302221YanadiumppmASTM D5185(m)>5100<10VanadiumppmASTM D5185(m)>208588PotassiumppmASTM D5185(m)>20968FuelWC Method>2.0SIGNEGNEGNEGSoto %%ASTM D5185(m)>20968GlycolWC Method>2.0SIGNEGNEGNEGSoto %%ASTM D5185(m)>20SIGNEGNEGSoto %%ASTM D5185(m)20SIGNEGNEGSoto %%ASTM D5185(m)20SIGNEGNEGSoto %%ASTM D5185(m)20SIGNEGNEGSoto %%ASTM D5185(m)20NE	Oil Age	hrs	Client Info		500	600	0
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Iron ppm ASTM D5185(m) >100 29 21 35 Chromium ppm ASTM D5185(m) >20 <1 <1 1 Nickel ppm ASTM D5185(m) >4 0 <1 <1 Titanium ppm ASTM D5185(m) >4 0 <1 <1 Silver ppm ASTM D5185(m) >3 0 <1 0 Aluminum ppm ASTM D5185(m) >20 8 6 8 Lead ppm ASTM D5185(m) >20 8 6 8 Copper ppm ASTM D5185(m) >15 0 0 <1 Vanadium ppm ASTM D5185(m) >20 8 5 8 Potassium ppm ASTM D5185(m) >20 9 6 8 Fuel VC Method >20 11.0 1.5 0 1.5 Mater Asc ASTM D7624 >20 11.4	Filter Changed		Client Info		Changed	N/A	N/A
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NickelppmASTM D5185(m)>40<1			. ,				
TitaniumppmASTM D5185(m)Image and the set of							
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Potassium ppm ASTM D5185(m) >20 9 6 8 Fuel WC Method >2.0 <1.0 <1.0 1.5 Water /// WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Soot % % ASTM D7844' >3 0.7 0.5 0.5 Nitration Abs/cm ASTM D7624' >20 11.4 10.1 10.2 Sulfation Abs/.1mm ASTM D7415' >30 21.9 20.2 22.2 Emulsified Water scalar Visual* >0.2 NEG NEG NEG Sodium ppm ASTM D5185(m) 1 3 11 18 Barium ppm ASTM D5185(m) 1 3 63 65 Magnesium ppm ASTM D5185(m) 1 1 0 <1 Magnesium ppm ASTM D5185(m) 1010 1002<	Vanadium	ppm	ASTM D5185(m)		0	0	0
Potassium ppm ASTM D5185(m) >20 9 6 8 Fuel WC Method >2.0 <1.0 <1.0 1.5 Water /// WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Soot % % ASTM D7844' >3 0.7 0.5 0.5 Nitration Abs/cm ASTM D7624' >20 11.4 10.1 10.2 Sulfation Abs/.1mm ASTM D7415' >30 21.9 20.2 22.2 Emulsified Water scalar Visual* >0.2 NEG NEG NEG Sodium ppm ASTM D5185(m) 1 3 11 18 Barium ppm ASTM D5185(m) 1 3 63 65 Magnesium ppm ASTM D5185(m) 1 1 0 <1 Magnesium ppm ASTM D5185(m) 1010 1002<	Silicon	nnm	ASTM D5185(m)	>25	8	5	8
Fuel WC Method >2.0 <1.0							
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Emulsified Water scalar Visual* >0.2 NEG NEG NEG Sodium ppm ASTM D5185(m) 3 5 7 Boron ppm ASTM D5185(m) 1 3 111 18 Barium ppm ASTM D5185(m) 1 0 <1 0 Molybdenum ppm ASTM D5185(m) 1 0 <1 0 Magnesium ppm ASTM D5185(m) 1 <10 <1 <1 Magnesium ppm ASTM D5185(m) 1010 1002 928 848 Calcium ppm ASTM D5185(m) 1070 1129 1083 1250 Phosphorus ppm ASTM D5185(m) 1070 1129 9400 961 Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D5184 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Sodium ppm ASTM D5185(m) 3 5 7 Boron ppm ASTM D5185(m) 1 3 11 18 Barium ppm ASTM D5185(m) 1 0 <1 0 Molybdenum ppm ASTM D5185(m) 1 0 <1 0 Manganese ppm ASTM D5185(m) 1 <1 0 <1 Magnesium ppm ASTM D5185(m) 1010 1002 928 848 Calcium ppm ASTM D5185(m) 1070 1129 1083 1250 Phosphorus ppm ASTM D5185(m) 1070 1012 940 961 Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3							
Boron ppm ASTM D5185(m) 1 3 11 18 Barium ppm ASTM D5185(m) 1 0 <1							
Barium ppm ASTM D5185(m) 1 0 <1	Sodium	ppm	ASTM D5185(m)		3	5	7
Molybdenum ppm ASTM D5185(m) 60 63 63 65 Manganese ppm ASTM D5185(m) 1 <1 0 <1 Magnesium ppm ASTM D5185(m) 101 1002 928 848 Calcium ppm ASTM D5185(m) 1070 1129 1083 1250 Phosphorus ppm ASTM D5185(m) 1150 1012 940 961 Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Boron	ppm	ASTM D5185(m)	1	3	11	18
Manganese ppm ASTM D5185(m) 1 <1	Barium	ppm	ASTM D5185(m)	1	0	<1	0
Magnesium ppm ASTM D5185(m) 1010 1002 928 848 Calcium ppm ASTM D5185(m) 1070 1129 1083 1250 Phosphorus ppm ASTM D5185(m) 1150 1012 940 961 Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Molybdenum	ppm	ASTM D5185(m)	60	63	63	65
Calcium ppm ASTM D5185(m) 1070 1129 1083 1250 Phosphorus ppm ASTM D5185(m) 1150 1012 940 961 Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Manganese	ppm	ASTM D5185(m)	1	<1	0	<1
Phosphorus ppm ASTM D5185(m) 1150 1012 940 961 Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Magnesium	ppm	ASTM D5185(m)	1010	1002	928	848
Zinc ppm ASTM D5185(m) 1270 1240 1170 1104 Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Calcium	ppm	ASTM D5185(m)	1070	1129	1083	1250
Sulfur ppm ASTM D5185(m) 2060 2457 2459 2620 Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Phosphorus	ppm	ASTM D5185(m)	1150	1012	940	961
Oxidation Abs/.1mm ASTM D7414* >25 18.5 16.3 17.3	Zinc	ppm	ASTM D5185(m)	1270	1240	1170	1104
	Sulfur	ppm	ASTM D5185(m)	2060	2457	2459	2620
Visc @ 100°C cSt ASTM D7279(m) 15.6 13.9 13.5 🔺 11.2	Oxidation	Abs/.1mm	ASTM D7414*	>25	18.5	16.3	17.3
	Visc @ 100°C	cSt	ASTM D7279(m)	15.6	13.9	13.5	▲ 11.2

Submitted By: Angele Labonte Page 1 of 2







Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 CALA Sample No. : GFL0088355 Received : 25 Apr 2024 Lab Number : 02631273 Tested : 25 Apr 2024 ISO 17025:2017 Accredited Laboratory Unique Number : 5772426 : 25 Apr 2024 - Wes Davis Diagnosed Test Package : MOB 1 To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied. GFL Environmental - 508 1926 hWY 17 West North Bay, ON CA P1B 2H3 Contact: Shawn Chartrand schartrand@gflenv.com T: (705)491-2957 F:

Submitted By: Angele Labonte Page 2 of 2