

WEAR NORMAL CONTAMINATION ABNORMAL FLUID CONDITION ABNORMAL



Machine Id 933011 Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- GAL)

RE	COI	MME	END/	۱T	ION	1	

We advise that you check for faulty combustion and a possible overheat condition. We recommend that you drain the oil from the component if this has not already been done.

		-
	/ / \	
	-	

All component wear rates are normal.

CONTAMINATION

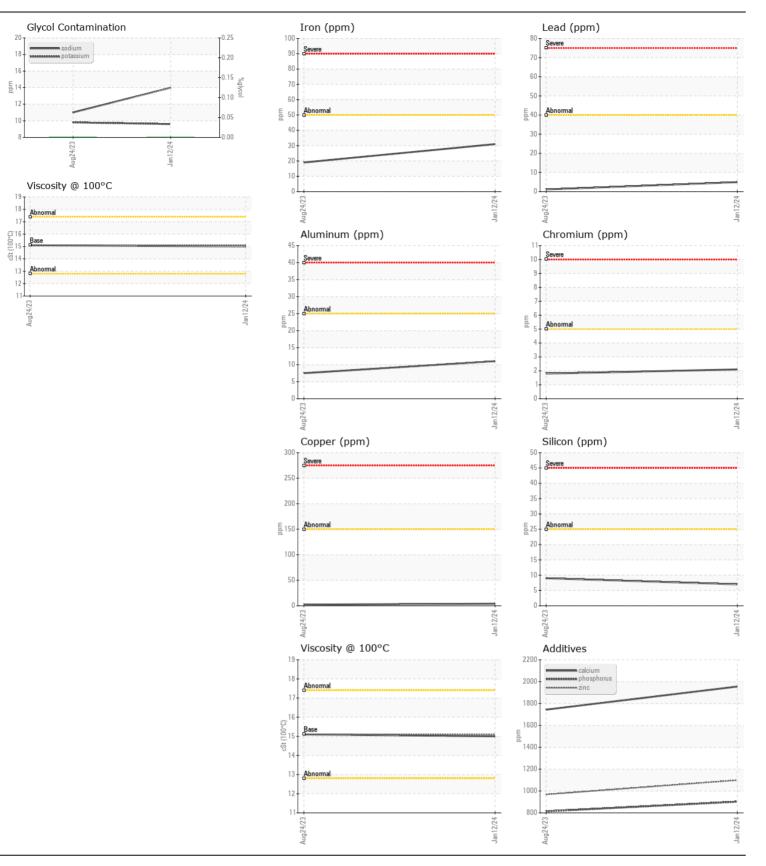
There is an abnormal level of sulfation indicated.

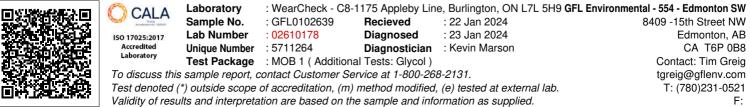
FLUID CONDITION

A small degree of oil oxidation was indicated. The oil is no longer serviceable.

TestUOMMethodLimit/ACurrentHistory1History2Sample NumberClient InfoGFL0102530GFL0090610Sample DateClient InfoI2 Jan 202424 Aug 2023Machine AgehrsClient InfoV725602248Gil AgehrsClient InfoO0Filter AgehrsClient InfoN/AChangedGil AgehrsClient InfoN/AChangedGilter ChangedClient InfoN/AChangedFilter ChangedpmSTM 5186>503119.9Sample StatusKMORMALNORMALSample StatusstM 51868>503119.9IronpmASTM 51869>503119.9NickelpmASTM 51869>402SilverpmASTM 51869>40511AluminumpmASTM 51869>40511AluminumpmASTM 51869>4010SiliconpmASTM 51869>401010AgaditpmASTM 51869>401010SiliconpmASTM 51869>401010SiliconpmASTM 51869>2010.210.010Siliconpm<	LD 15W40 (G/	4L)				
Sample DateClient Into12 Jan 202424 Aug 2023Machine AgehrsClient Into725602248Oil AgehrsClient Into00Filter AgehrsClient IntoN/AChangedGli ChangedClient IntoN/AChangedFilter ChangedClient IntoN/AChangedSample StatusClient IntoN/AChangedIronppmASTMD51860>503119NickelppmASTMD51860>42<1NickelppmASTMD51860>402<1SilverppmASTMD51860>400AluminumppmASTMD51860>4051OpperppmASTMD51860>4051AluminumppmASTMD51860>401VanadiumppmASTMD51860>401NamadiumppmASTMD51860>40100VanadiumppmASTMD51860>40100SiliconppmASTMD51860>201010SiliconppmASTMD51860>20100.0SiliconppmASTMD51860>2010.010SiliconppmASTMD51860>20	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgeIrisClient InfoV725602248Oil AgehrsClient Info00Filter AgehrsClient InfoN/AChangedOil ChangedClient InfoN/AChangedFilter Changed1Client InfoN/AChangedSample StatusSiteASMOSIMSiteSite199IronppmASMOSIM-5031199NickelppmASMOSIM-5022NickelppmASMOSIM-5030SilverppmASMOSIM-5010AluminumppmASMOSIM-50118CopperppmASMOSIM-50118SiliconppmASMOSIM-501010VanadiumppmASMOSIM-501010PotassiumppmASMOSIM-501010SiliconkASMOSIM-501000SulfationASMASMOSIM-501010SulfationkASTMOSIM-501000SiliconppmASMOSIM-501000SulfationkASTMOSIM-50100SulfationkASTMOSIM5	Sample Number		Client Info		GFL0102639	GFL0090610	
Ciliange Filter Age Filter AgeInsCilent Info00Filter Age Oil ChangedCilent InfoN/AChangedFilter ChangedICilent InfoN/AChangedSample StatusSimo Simo Simo Simo Simo Simo Simo Simo	Sample Date		Client Info		12 Jan 2024	24 Aug 2023	
File OliIvsClient IntoIvsNAChangedGli ChangedClient IntoNAChangedFilter ChangedIvsClient IntoNAChangedSample StatusATM 0585(m)S0ASNORMALNORMALIronppmASTM0585(m)S03119IronppmASTM0585(m)S422NickelppmASTM0585(m)S42SilverppmASTM0585(m)S40AluminumppmASTM0585(m)S418LeadppmASTM0585(m)S41VanadiumppmASTM0585(m)S41SiliconppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S279SuitonppmASTM0585(m)S21010S	Machine Age	hrs	Client Info		72560	2248	
Client InfoN/AChangedFilter Changed(Client InfoN/AChangedSample StatusKIMO StatusASIMOSIS(m) -5.0ASIMOSIMANORMALIronppmASIMOSIS(m) -5.03119ChromiumppmASIMOSIS(m) -5.03119NickelppmASIMOSIS(m) -5.022TitaniumppmASIMOSIS(m) -5.00SilverppmASIMOSIS(m) -5.010AluminumppmASIMOSIS(m) -5.0118LeadppmASIMOSIS(m) -5.01CopperppmASIMOSIS(m) -5.01SiliconppmASIMOSIS(m) -5.01SiliconppmASIMOSIS(m) -5.079Glycol%ASIMOSIS(m) -5.01010.0SotifacionppmASIMOSIS(m) -5.014.212.5Sotifacionkos/mASIMOSIS(m) -5.014.212.5Sotifacionkos/mASIMOSIS(m) -5.014.212.5Sotifacionkos/mASIMOSIS(m) -5.014.212.5Sotifacionkos/mASIMOSIS(m) -5.014.212.5Sotifacionkos/mASIMOSIS(m) -5.014.212.5Sotifacionkos/mASIMOSIS(m) -5.014.212.	Oil Age	hrs	Client Info		0	0	
Filter Changed Sample StatusClient InfoN/AChangedAENORMALNORMALNORMALIronppmASTM D5185(m)>503119IronppmASTM D5185(m)>522NickelppmASTM D5185(m)>42<1NickelppmASTM D5185(m)>42<1SilverppmASTM D5185(m)>300AluminumppmASTM D5185(m)>418LeadppmASTM D5185(m)>41<1CopperppmASTM D5185(m)>41<1SiliconppmASTM D5185(m)>279SiliconppmASTM D5185(m)>210100SiliconppmASTM D5185(m)>201010SiliconppmASTM D5185(m)>20100.0Solity%ASTM D7824<00.0SulfationAbs/:mASTM D7824>2014.212.5SolifationAbs/:mASTM D7824>2014.212.5SolifationAbs/:mASTM D7825>306SolifationAbs/:mASTM D7825>2014.212.5SolifationAbs/:mASTM D7824>2014.2 <th>Filter Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th></th>	Filter Age	hrs	Client Info		0	0	
Sample StatusABNORMALNORMALIronppmASTM D5185(m>503119ChromiumppmASTM D5185(m>422NickelppmASTM D5185(m>42<1TitaniumppmASTM D5185(m>42<1SilverppmASTM D5185(m>30<1AluminumppmASTM D5185(m>30<1LeadppmASTM D5185(m>40511CopperppmASTM D5185(m>41<1VanadiumppmASTM D5185(m>2579SiliconppmASTM D5185(m>2579VanadiumppmASTM D5185(m>261010SiliconppmASTM D5185(m>201010VanadiumppmASTM D5185(m>201010SiliconppmASTM D5185(m>2010.00.0SiliconppmASTM D5185(m>2010.00.0Soto %%ASTM D7824>2010.00.0Soto %%ASTM D7824>2014.212.5Soto %%ASTM D7824>2014.212.5Soto %%ASTM D7825%0 </th <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>N/A</th> <th>Changed</th> <th></th>	Oil Changed		Client Info		N/A	Changed	
Iron ppm ASTM D5185(m) >50 31 19 Chromium ppm ASTM D5185(m) >5 2 2 Nickel ppm ASTM D5185(m) >4 2 <1 Titanium ppm ASTM D5185(m) >3 0 <1 Silver ppm ASTM D5185(m) >3 0 0 Aluminum ppm ASTM D5185(m) >40 5 11 88 Lead ppm ASTM D5185(m) >40 5 1 Copper ppm ASTM D5185(m) >40 1 Vanadium ppm ASTM D5185(m) >4 1 Silicon ppm ASTM D5185(m) >25 7 9 Silicon ppm ASTM D5185(m) >25 7 9 Silicon ppm ASTM D5185(m) >25 7 9 Solicon ppm ASTM D5185(m) >25 7 9 Silicon kSTM D5185(m) >25 10 100 Soliton ASTM D5185	Filter Changed		Client Info		N/A	Changed	
Chromium ppm ASTM D5185(m) >5 2 2 Nickel ppm ASTM D5185(m) >4 2 <1 Titanium ppm ASTM D5185(m) >5 0 <1 Silver ppm ASTM D5185(m) >3 0 0 Aluminum ppm ASTM D5185(m) >40 5 11 8 Lead ppm ASTM D5185(m) >40 5 1 Copper ppm ASTM D5185(m) >40 5 1 Yanadium ppm ASTM D5185(m) >4 1 <1 Vanadium ppm ASTM D5185(m) >20 100 0 Silicon ppm ASTM D5185(m) >20 100 0.0 Silicon ppm ASTM D5185(m) >20 14.2 12.5 Silicon Abs/	Sample Status				ABNORMAL	NORMAL	
NickelppmASTM D5185(m)>42<1	Iron	ppm	ASTM D5185(m)	>50	31	19	
Titanium ppm ASTM D5185(m) >5 0 <1	Chromium	ppm	ASTM D5185(m)	>5	2	2	
Silver ppm ASTM D5185(m) >3 0 0 Aluminum ppm ASTM D5185(m) >25 11 8 Lead ppm ASTM D5185(m) >40 5 1 Copper ppm ASTM D5185(m) >40 4 2 Tin ppm ASTM D5185(m) >40 1 <1	Nickel	ppm	ASTM D5185(m)	>4	2	<1	
Aluminum ppm ASTM D5185(m) >25 11 8 Lead ppm ASTM D5185(m) >40 5 1 Copper ppm ASTM D5185(m) >10 4 2 Tin ppm ASTM D5185(m) >4 1 <1 Vanadium ppm ASTM D5185(m) >20 10 0 Silicon ppm ASTM D5185(m) >20 10 10 Vanadium ppm ASTM D5185(m) >20 10 10 Solicon ppm ASTM D5185(m) >20 10.0 0.0 Water WC Method >0.1 NEG NEG Solifycol % ASTM D784* 0 0 Sulfation Abs/cm ASTM D7155 >30 ASTA 22.3 Sodium ppm ASTM D5185(m) 50 6	Titanium	ppm	ASTM D5185(m)	>5	0	<1	
LeadppmASTM D5185(m)>4051CopperppmASTM D5185(m)>15042TinppmASTM D5185(m)>41<1VanadiumppmASTM D5185(m)>200SiliconppmASTM D5185(m)>2579PotassiumppmASTM D5185(m)>201010WaterWC Method>0.1NEGNEGGlycol%ASTM D7922*0.00.0Soot %%ASTM D7924*2014.212.5SulfationAbs/cmASTM D7624*>2014.212.5SulfationAbs/cmASTM D7145*>30 \mathbb{A} 32.228.3SodiumppmASTM D5185(m)50668BariumppmASTM D5185(m)5065577ManganeseppmASTM D5185(m)5065577ManganeseppmASTM D5185(m)151019551744PhosphorusppmASTM D5185(m)780902814PhosphorusppmASTM D5185(m)780902814ManganeseppmASTM D5185(m)780902814CalciumppmASTM D5185(m)780902814Phosphorusp	Silver	ppm	ASTM D5185(m)	>3	0	0	
Copper ppm ASTM D5185(m) >150 4 2 Tin ppm ASTM D5185(m) >4 1 <1 Vanadium ppm ASTM D5185(m) >4 0 0 Silicon ppm ASTM D5185(m) >25 7 9 Potassium ppm ASTM D5185(m) >20 10 10 Water WC Method >0.1 NEG Soto % % ASTM D782* 0 0.0 Soto % % ASTM D784* 0 0 Sulfation Abs/cm ASTM D784* >0 0.0 Sulfation Abs/cm ASTM D784* >0 0 Sulfation Abs/cm ASTM D784* >0.1 NEG NEG Sulfation ppm ASTM D5185(m)<	Aluminum	ppm	ASTM D5185(m)	>25	11	8	
Tin ppm ASTM D5185(m) >4 1 <1	Lead	ppm	ASTM D5185(m)	>40	5	1	
VanadiumppmASTM D5185(m) 0 <t< th=""><th>Copper</th><th>ppm</th><th>ASTM D5185(m)</th><th>>150</th><th>4</th><th>2</th><th></th></t<>	Copper	ppm	ASTM D5185(m)	>150	4	2	
Silicon ppm ASTM D5185(m) >25 7 9 Potassium ppm ASTM D5185(m) >20 10 10 $$ Water WC Method >0.1 NEG NEG Glycol % ASTM D7922' $$ 0.0 0.0 $$ Soot % % ASTM D7824' 20 14.2 12.5 $$ Nitration Abs/.m ASTM D7624' 20 14.2 12.5 $$ Sulfation Abs/.1mm ASTM D7145' 300 A 32.2 28.3 $$ Sodium ppm ASTM D5185(m) 50 A 32.2 28.3 $$ Sodium ppm ASTM D5185(m) 50 A 6 8 $$ Sodium ppm ASTM D5185(m) 50 0 0 $$ Barium ppm ASTM D5185(m) 50 6 8 $$ Malganesium ppm ASTM D5185(m) 50 11 1 $$	Tin	ppm	ASTM D5185(m)	>4	1	<1	
Potassium ppm ASTM D5185(m) >20 10 10 Water WC Method >0.1 NEG NEG Glycol % ASTM D7922* 0.0 0.0 Soot % % ASTM D7922* 0.0 0.0 Nitration Abs/cm ASTM D7624* >20 14.2 12.5 Sulfation Abs/cm ASTM D7624* >20 14.2 12.5 Sulfation Abs/cm ASTM D7624* >20 14.2 12.5 Sulfation Abs/cm ASTM D7145* >30 A 32.2 28.3 Sodium ppm ASTM D5185(m) 5.0 NEG Sodium ppm ASTM D5185(m) 50 6 8 Molybdenum ppm ASTM D5185(m) 50 0 Manganese ppm ASTM D5185(m) 560 704	Vanadium	ppm	ASTM D5185(m)		0	0	
Water WC Method >0.1 NEG NEG Glycol % ASTM D7922* 0.0 0.0 Soot % % ASTM D7844* 0 0 Nitration Abs/cm ASTM D7624* >20 14.2 12.5 Sulfation Abs/cm ASTM D7624* >20 14.2 28.3 Sulfation Abs/cm ASTM D7145* >30 A 32.2 28.3 Sodium Ascalar Visual* >0.1 NEG NEG Sodium ppm ASTM D5185(m) 50 A 32.2 28.3 Sodium ppm ASTM D5185(m) >0.1 11 Boron ppm ASTM D5185(m) 50 6 8 Molybdenum ppm ASTM D5185(m) 50 11 1 Magnesium ppm ASTM D5185(m) 560	Silicon	ppm	ASTM D5185(m)	>25	7	9	
Glycol%ASTM D7922*00.0Soot %%ASTM D7824*00NitrationAbs/cmASTM D7624*>2014.212.5SulfationAbs/cmASTM D7415*>30A 32.228.3Emulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)51411BoronppmASTM D5185(m)50668BariumppmASTM D5185(m)5065577MolybdenumppmASTM D5185(m)50111ManganeseppmASTM D5185(m)5607046255PhosphorusppmASTM D5185(m)119551744ZincppmASTM D5185(m)7809028144SulfurppmASTM D5185(m)8701099968SulfurppmASTM D5185(m)204023001993	Potassium	ppm	ASTM D5185(m)	>20	10	10	
Soot % % ASTM D7844* 0 0 Nitration Abs/cm ASTM D7624* >20 14.2 12.5 Sulfation Abs/cm ASTM D7415* >30 A 32.2 28.3 Emulsified Water scalar Visual* >0.1 NEG NEG Sodium ppm ASTM D5185(m) 50 14.4 11 Sodium ppm ASTM D5185(m) 50 16 8 Boron ppm ASTM D5185(m) 50 0 0 Malybdenum ppm ASTM D5185(m) 50 65 57 Magnesium ppm ASTM D5185(m) 0 11 Phosphorus ppm ASTM D5185(m) 50 65 57 Magnesium ppm ASTM D5185(m) 1510 114 Phosphorus ppm ASTM D5185(m)	Water		WC Method	>0.1	NEG	NEG	
Nitration Abs/cm ASTM D7624* >20 14.2 12.5 Sulfation Abs/.1m ASTM D7415* >30 A 32.2 28.3 Emulsified Water scalar Visual* >0.1 NEG NEG Sodium ppm ASTM D5185(m) 50 6 8 Boron ppm ASTM D5185(m) 50 6 8 Barium ppm ASTM D5185(m) 50 6 8 Molybdenum ppm ASTM D5185(m) 50 6 8 Manganese ppm ASTM D5185(m) 50 6 57 Magnesium ppm ASTM D5185(m) 0 1 1 Phosphorus ppm ASTM D5185(m) 1510 1955 1744 Zinc ppm ASTM D5185(m) 780 902 814 Sulfur ppm A	Glycol	%	ASTM D7922*		0.0	0.0	
Sulfation Abs/.1mm ASTM D7415* >30 A 32.2 28.3 Emulsified Water scalar Visual* >0.1 NEG NEG Sodium ppm ASTM D5185(m) 50 14 11 Boron ppm ASTM D5185(m) 50 6 8 Barium ppm ASTM D5185(m) 50 65 57 Molybdenum ppm ASTM D5185(m) 50 61 1 Manganese ppm ASTM D5185(m) 50 11 1 Magnesium ppm ASTM D5185(m) 50 11 1 Magnesium ppm ASTM D5185(m) 50 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm <th>Soot %</th> <th>%</th> <th>ASTM D7844*</th> <th></th> <th>0</th> <th>0</th> <th></th>	Soot %	%	ASTM D7844*		0	0	
Emulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)14111BoronppmASTM D5185(m)50668BariumppmASTM D5185(m)506657MolybdenumppmASTM D5185(m)506557ManganeseppmASTM D5185(m)011MagnesiumppmASTM D5185(m)5607046250CalciumppmASTM D5185(m)151019551744PhosphorusppmASTM D5185(m)780902814ZincppmASTM D5185(m)8701099968SulfurppmASTM D5185(m)204023001993OxidationAbs/.1mmASTM D744>25A 30.523.1	Nitration	Abs/cm	ASTM D7624*	>20	14.2	12.5	
Sodium ppm ASTM D5185(m) 14 11 Boron ppm ASTM D5185(m) 50 6 8 Barium ppm ASTM D5185(m) 50 6 8 Molybdenum ppm ASTM D5185(m) 50 65 577 Manganese ppm ASTM D5185(m) 0 1 1 Magnesium ppm ASTM D5185(m) 560 704 6255 Calcium ppm ASTM D5185(m) 1510 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D714* >25 A 30.5 23.1	Sulfation	Abs/.1mm	ASTM D7415*	>30	A 32.2	28.3	
Boron ppm ASTM D5185(m) 50 6 8 Barium ppm ASTM D5185(m) 5 0 0 Molybdenum ppm ASTM D5185(m) 50 65 57 Manganese ppm ASTM D5185(m) 0 1 1 Magnesium ppm ASTM D5185(m) 0 10 625 Calcium ppm ASTM D5185(m) 1500 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 8144 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D714* >25 A 30.5 23.1	Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	
Barium ppm ASTM D5185(m) 5 0 0 Molybdenum ppm ASTM D5185(m) 50 655 577 Manganese ppm ASTM D5185(m) 0 1 1 Magnesium ppm ASTM D5185(m) 560 704 6253 Calcium ppm ASTM D5185(m) 1510 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D5185(m) 255 A 30.5 23.1	Sodium	ppm	ASTM D5185(m)		14	11	
Molybdenum ppm ASTM D5185(m) 50 65 57 Manganese ppm ASTM D5185(m) 0 1 1 Magnesium ppm ASTM D5185(m) 560 704 625 Calcium ppm ASTM D5185(m) 1510 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D714* >25 A 30.5 23.1	Boron	ppm	ASTM D5185(m)	50	6	8	
Manganese ppm ASTM D5185(m) 0 1 1 Magnesium ppm ASTM D5185(m) 560 704 625 Calcium ppm ASTM D5185(m) 1510 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D7414* >25 A 30.5 23.1	Barium	ppm	ASTM D5185(m)	5	0	0	
Magnesium ppm ASTM D5185(m) 560 704 625 Calcium ppm ASTM D5185(m) 1510 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D7414* >25 A 30.5 23.1	Molybdenum	ppm	ASTM D5185(m)	50	65	57	
Calcium ppm ASTM D5185(m) 1510 1955 1744 Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D7414* >25 A 30.5 23.1	Manganese	ppm	ASTM D5185(m)	0	1	1	
Phosphorus ppm ASTM D5185(m) 780 902 814 Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D7414* >25 A 30.5 23.1	_	ppm	ASTM D5185(m)	560	704	625	
Zinc ppm ASTM D5185(m) 870 1099 968 Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D7414* >25 A 30.5 23.1	Calcium	ppm	ASTM D5185(m)	1510	1955	1744	
Sulfur ppm ASTM D5185(m) 2040 2300 1993 Oxidation Abs/.1mm ASTM D7414* >25 A 30.5 23.1	Phosphorus	ppm	ASTM D5185(m)	780	902	814	
Oxidation Abs/.1mm ASTM D7414* >25 4 30.5 23.1	Zinc	ppm	ASTM D5185(m)	870	1099	968	
	Sulfur	ppm	· /	2040	2300	1993	
Visc @ 100°C cSt ASTM D7279(m) 15.1 15.0 15.1		Abs/.1mm	ASTM D7414*	>25	A 30.5	23.1	
	Visc @ 100°C	cSt	ASTM D7279(m)	15.1	15.0	15.1	

Contact/Location: Tim Greig - GFL554





Contact/Location: Tim Greig - GFL554 Page 2 of 2