

# **OIL ANALYSIS REPORT**

Sample Rating Trend





834050 Component Natural Gas Engine

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

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

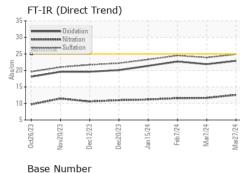
#### Fluid Condition

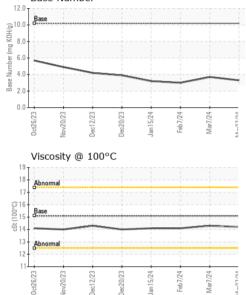
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

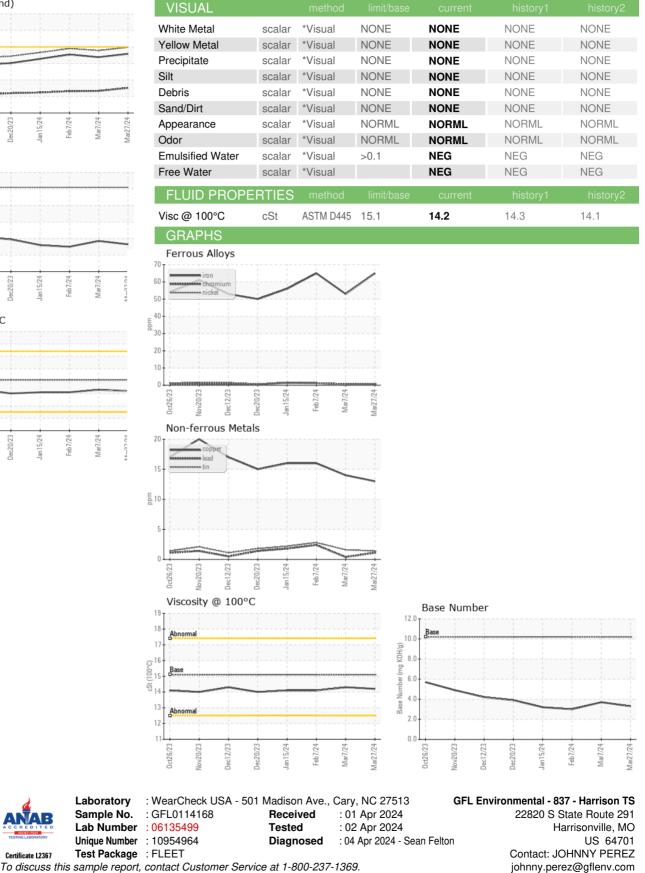
Machine Age     hrs     Client Info     1151     1063     868       Oil Age     hrs     Client Info     1151     1063     737       Oil Changed     Client Info     Not Changd     Nor Changd     Not Changd     Nor Changd       Sample Status     Imit Mode     Imit Mose     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Water     WC Method     >0.1     NEG     NEG     NEG       Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     0     0     1       Nickel     ppm     ASTM D5185m     >3     0     <1     <1       Lead     ppm     ASTM D5185m     >40     1     <1     2     3       Copper     ppm     ASTM D5185m     >150     13     14     16 <th>Sample Date     Client Info     27 Mar 2024     07 Mar 2024     07 Heb 2024       Machine Age     hrs     Client Info     1151     1063     868       Oil Age     hrs     Client Info     1151     1063     737       Oil Changed     Client Info     Not Changd     N/A     Not Changd     Stample Status     Nor Changd     <t< th=""><th>SAMPLE INFORM</th><th>MATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<></th>	Sample Date     Client Info     27 Mar 2024     07 Mar 2024     07 Heb 2024       Machine Age     hrs     Client Info     1151     1063     868       Oil Age     hrs     Client Info     1151     1063     737       Oil Changed     Client Info     Not Changd     N/A     Not Changd     Stample Status     Nor Changd     Nor Changd <t< th=""><th>SAMPLE INFORM</th><th>MATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     1151     1063     868       Oil Age     hrs     Client Info     1151     1063     737       Oil Changed     Client Info     1151     1063     737       Oil Changed     Client Info     Not Changd     Not Changd     Not Changd       Sample Status     WC Method     >0.1     NEG     NEG     NEG       Water     WC Method     >0.1     NEG     NEG     NEG       Iron     ppm     ASTM D5185m     >5     65     53     65       Silver     ppm     ASTM D5185m     >4     1     2     1       Aluminum     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >6     7	Machine Age     hrs     Client Info     1151     1063     868       Oil Age     hrs     Client Info     1151     1063     737       Oil Changed     Client Info     Not Changd     Not Changd     Not Changd       Sample Status     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM 0565m     >5     <1     <1     1       Nickel     ppm     ASTM 0565m     >5     0     0     1       Silver     ppm     ASTM 0565m     >25     3     3     4       Lead     ppm     ASTM 0565m     >40     1     2     3       Vanadium     ppm     ASTM 0565m     50     7     12     8       Barium     ppm	Sample Number		Client Info		GFL0114168	GFL0114126	GFL0102413
Oil Age hrs Client Info 1151 1063 737   Oil Changed Client Info Not Changd N/A Not Changd   Sample Status Imit/base current history1 NorRMAL   CONTAMINATION method limit/base current history1 history2   Water WC Method >0.1 NEG NEG NEG   WEAR METALS method imit/base current history1 history2   Iron ppm ASTM D5185m >50 65 53 65   Chromium ppm ASTM D5185m >5 0 0 1   Nickel ppm ASTM D5185m >5 0 0 0   Silver ppm ASTM D5185m >5 0 0 0   Silver ppm ASTM D5185m >40 1 <1 2   Copper ppm ASTM D5185m >40 1 <1 2   Cadmium ppm ASTM D5185m >40 1 <1 2   Copper ppm ASTM D5185m >40 1 2 3   Vanadium ppm ASTM D5185m 50 7 12<	Oil Age     hrs     Client Info     1151     1063     737       Oil Changed     Client Info     Not Changd     N/A     Not Changd       Sample Status     Imit Info     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     Imit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       VEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185n     >50     65     53     65       Chromium     ppm     ASTM D5185n     >5     0     0     1       Nickel     ppm     ASTM D5185n     >5     0     0     0       Silver     ppm     ASTM D5185n     >40     1     <1     2       Copper     ppm     ASTM D5185n     >40     1     <1     2       Copper     ppm     ASTM D5185n     >60     0     0     0       Cadmium <t< th=""><th>Sample Date</th><th></th><th>Client Info</th><th></th><th>27 Mar 2024</th><th>07 Mar 2024</th><th>07 Feb 2024</th></t<>	Sample Date		Client Info		27 Mar 2024	07 Mar 2024	07 Feb 2024
Oil Changed Sample StatusClient InfoNot Changd NORMALN/ANot Changd NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>50655365ChromiumppmASTM D5185m>5<1<111NickelppmASTM D5185m>50000SilverppmASTM D5185m>500000AluminumppmASTM D5185m>41<12334LeadppmASTM D5185m>401<12334LeadppmASTM D5185m>401233000CopperppmASTM D5185m>15013141612334LeadppmASTM D5185m507128810000AdminumppmASTM D5185m5068596464101111111111111111111111111111111111 </th <th>Oil Changed Sample StatusClient InfoNot Changd NORMALN/ANot Changd NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method&gt;0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m&gt;5&lt;1&lt;11NickelppmASTM D5185m&gt;5&lt;1&lt;11NickelppmASTM D5185m&gt;5&lt;000SilverppmASTM D5185m&gt;5000SilverppmASTM D5185m&gt;5000CopperppmASTM D5185m&gt;5131416TinppmASTM D5185m&gt;401&lt;12CopperppmASTM D5185m&gt;150131416TinppmASTM D5185m&gt;150131416TinppmASTM D5185m0000CadadiumppmASTM D5185m07128BoronppmASTM D5185m507128BariumppmASTM D5185m50685964MagnesiumppmASTM D5185m50784667777CalciumppmASTM D5185m7946677772340PhosphorusppmASTM D5185m780784690</th> <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>1151</th> <th>1063</th> <th>868</th>	Oil Changed Sample StatusClient InfoNot Changd NORMALN/ANot Changd NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>5<1<11NickelppmASTM D5185m>5<1<11NickelppmASTM D5185m>5<000SilverppmASTM D5185m>5000SilverppmASTM D5185m>5000CopperppmASTM D5185m>5131416TinppmASTM D5185m>401<12CopperppmASTM D5185m>150131416TinppmASTM D5185m>150131416TinppmASTM D5185m0000CadadiumppmASTM D5185m07128BoronppmASTM D5185m507128BariumppmASTM D5185m50685964MagnesiumppmASTM D5185m50784667777CalciumppmASTM D5185m7946677772340PhosphorusppmASTM D5185m780784690	Machine Age	hrs	Client Info		1151	1063	868
Oil ChangedClient InfoNot Changd NORMALN/ANot Changd NORMALSample Statusmethodlimit/basecurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>50655365ChromiumppmASTM D5185m>50655365ChromiumppmASTM D5185m>50655365ChromiumppmASTM D5185m>5061<11	Oil Changed Sample StatusClient InfoNot Changd NORMALN/ANot Changd NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>5<1<11NickelppmASTM D5185m>5<1<11NickelppmASTM D5185m>5<000SilverppmASTM D5185m>5000SilverppmASTM D5185m>5000CopperppmASTM D5185m>5131416TinppmASTM D5185m>401<12CopperppmASTM D5185m>150131416TinppmASTM D5185m>150131416TinppmASTM D5185m0000CadadiumppmASTM D5185m07128BoronppmASTM D5185m507128BariumppmASTM D5185m50685964MagnesiumppmASTM D5185m50784667777CalciumppmASTM D5185m7946677772340PhosphorusppmASTM D5185m780784690	Oil Age	hrs	Client Info		1151	1063	737
CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wear METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     0     0     1       Nickel     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     2     2       Copper     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     66     59     64	CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wear     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     0     0     1       Nickel     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >5     0     1     <1     2       Copper     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     7     12     8	Oil Changed		Client Info		Not Changd	N/A	Not Changd
Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     <1     <1     1       Nickel     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     784     667     7777       Caldium     ppm     ASTM D5185m     780     784     690     731 <th>Water     WC Method     &gt;0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     &gt;5     &lt;1     &lt;1     1       Nickel     ppm     ASTM D5185m     &gt;5     &lt;1     &lt;1     1       Nickel     ppm     ASTM D5185m     &gt;5     0     0     0       Silver     ppm     ASTM D5185m     &gt;3     0     &lt;1     &lt;1       Aluminum     ppm     ASTM D5185m     &gt;25     3     3     4       Lead     ppm     ASTM D5185m     &gt;25     3     3     4       Lead     ppm     ASTM D5185m     &gt;4     1     2     3       Vanaduum     ppm     ASTM D5185m     &gt;4     1     2     3       Vanaduum     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64</th> <th>Sample Status</th> <th></th> <th></th> <th></th> <th>NORMAL</th> <th>NORMAL</th> <th>NORMAL</th>	Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >5     <1     <1     1       Nickel     ppm     ASTM D5185m     >5     <1     <1     1       Nickel     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >3     0     <1     <1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >4     1     2     3       Vanaduum     ppm     ASTM D5185m     >4     1     2     3       Vanaduum     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     <1     <1     1       Nickel     ppm     ASTM D5185m     >4     <1     0     1       Titanium     ppm     ASTM D5185m     >4     <1     0     1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2     3       Vanadium     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     68 <th>WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     &gt;50     65     53     65       Chromium     ppm     ASTM D5185m     &gt;5     &lt;1     &lt;1     1       Nickel     ppm     ASTM D5185m     &gt;5     0     0     0       Silver     ppm     ASTM D5185m     &gt;5     0     0     1     &lt;1       Aluminum     ppm     ASTM D5185m     &gt;25     3     3     4       Lead     ppm     ASTM D5185m     &gt;40     1     &lt;1     2     3       Vanadium     ppm     ASTM D5185m     &gt;40     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<></th>	WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     <1     <1     1       Nickel     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >5     0     0     1     <1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2     3       Vanadium     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50 <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINAT	ION	method	limit/base	current	history1	history2
Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >5     <1     <1     1       Nickel     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >3     0     <1     <1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Boron     ppm     ASTM D5185m     50     68     59     64<	Iron     ppm     ASTM D5185m     >50     65     53     65       Chromium     ppm     ASTM D5185m     >4     <1     1       Nickel     ppm     ASTM D5185m     >4     <1     0     1       Titanium     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >3     0     <1     <1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2     3       Vanadium     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     >60     0     0     0       Cadmium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     784     667	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >5     <1	Chromium     ppm     ASTM D5185m     >5     <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >-4     <1	Nickel     ppm     ASTM D5185m     >4     <1	Iron	ppm	ASTM D5185m	>50	65	53	65
Titanium     ppm     ASTM D5185m     >55     0     0     0       Silver     ppm     ASTM D5185m     >3     0     <1     <1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >25     3     3     4       Copper     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Marganese     ppm     ASTM D5185m     50     88     10	Titanium     ppm     ASTM D5185m     >5     0     0     0       Silver     ppm     ASTM D5185m     >3     0     <1     <1       Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >40     1     2     3       Vanadium     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Magnaese     ppm     ASTM D5185m     50     68     8     10       Magnesium     ppm     ASTM D5185m     650     794     667	Chromium	ppm	ASTM D5185m	>5	<1	<1	1
Silver     ppm     ASTM D5185m     >3     0     <1	Silver     ppm     ASTM D5185m     >3     0     <1	Nickel	ppm	ASTM D5185m	>4	<1	0	1
Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >4     1     2     3       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     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     794     667     7777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     260     784     <	Aluminum     ppm     ASTM D5185m     >25     3     3     4       Lead     ppm     ASTM D5185m     >40     1     <1     2       Copper     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Magnaese     ppm     ASTM D5185m     50     68     133     1042       Phosphorus     ppm     ASTM D5185m     50     784     690	Titanium	ppm	ASTM D5185m	>5	0	0	0
Lead     ppm     ASTM D5185m     >40     1     <1	Lead     ppm     ASTM D5185m     >40     1     <1	Silver	ppm	ASTM D5185m	>3	0	<1	<1
Copper     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     >4     1     2     3       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     7     12     8       Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Magnesee     ppm     ASTM D5185m     50     784     667     7777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21	Copper     ppm     ASTM D5185m     >150     13     14     16       Tin     ppm     ASTM D5185m     >4     1     2     3       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     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Maganese     ppm     ASTM D5185m     50     68     8     10       Magnesium     ppm     ASTM D5185m     50     784     667     777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     histo	Aluminum	ppm	ASTM D5185m	>25	3	3	4
Tin     ppm     ASTM D5185m     >4     1     2     3       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     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     68     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     7777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21	Tin     ppm     ASTM D5185m     >4     1     2     3       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     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Magnesiem     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     660     794     667     777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     70     980     871     919     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     imit/base     current </th <th>Lead</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;40</th> <th>1</th> <th>&lt;1</th> <th>2</th>	Lead	ppm	ASTM D5185m	>40	1	<1	2
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     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     784     667     7777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2	Vanadium     ppm     ASTM D5185m     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     68     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     7777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m     >25     21     20<	Copper	ppm	ASTM D5185m	>150	13	14	16
CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m507128BariumppmASTM D5185m507128BariumppmASTM D5185m50685964ManganeseppmASTM D5185m5068810MagnesiumppmASTM D5185m560794667777CalciumppmASTM D5185m1510136811331042PhosphorusppmASTM D5185m780784690731ZincppmASTM D5185m2040283721722340CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>202<12INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%'ASTM D78440000NitrationAbs/cm'ASTM D78442012.611.711.6	Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     50     68     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     70     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m     >20     2     <1	Tin	ppm	ASTM D5185m	>4	1	2	3
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     8711     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     imit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20 <th>ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     70     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m&lt;&gt;20     2<th>Vanadium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th>0</th><th>0</th></th>	ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     70     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m<>20     2 <th>Vanadium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Vanadium	ppm	ASTM D5185m		0	0	0
Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     660     794     667     7777       Calcium     ppm     ASTM D5185m     560     794     667     7777       Calcium     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Solium     ppm     ASTM D5185m     >20     2     <1	Boron     ppm     ASTM D5185m     50     7     12     8       Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     7777       Calcium     ppm     ASTM D5185m     560     794     667     731       Zinc     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     <1     2       Sodium     ppm     ASTM D5185m     >20 <t< th=""><th>Cadmium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th>0</th><th>0</th></t<>	Cadmium	ppm	ASTM D5185m		0	0	0
Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m	Barium     ppm     ASTM D5185m     5     2     2     3       Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     <							
Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base	Molybdenum     ppm     ASTM D5185m     50     68     59     64       Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m     >20     2     <1	ADDITIVES		method	limit/base	current	history1	history2
Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20<	Manganese     ppm     ASTM D5185m     0     8     8     10       Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0     0       Nitration     Abs/:m     *ASTM D7624     20 </th <th></th> <th>ppm</th> <th></th> <th></th> <th></th> <th></th> <th>8</th>		ppm					8
Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6	Magnesium     ppm     ASTM D5185m     560     794     667     777       Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/.m     *ASTM D7624     >20     12.6     11.7     11.6       Sulfation     Abs/.inm     *ASTM D7415     >30	Boron Barium		ASTM D5185m	50	7	12	8
Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1	Calcium     ppm     ASTM D5185m     1510     1368     1133     1042       Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <11	Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	7 2	12 2	8 3
Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6	Phosphorus     ppm     ASTM D5185m     780     784     690     731       Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <11	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	7 2 68	12 2 59	8 3 64
Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6	Zinc     ppm     ASTM D5185m     870     990     871     919       Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6       Sulfation     Abs/.imm     *ASTM D7415     >30     24.9     23.9     24.5       FLUID DEGRADATION     method     limit/base     current     history1     history2	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	7 2 68 8	12 2 59 8	8 3 64 10
Sulfur     ppm     ASTM D5185m     2040     2837     2172     2340       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     >20     2     <1	SulfurppmASTM D5185m2040283721722340CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25212027SodiumppmASTM D5185m444PotassiumppmASTM D5185m>202<12INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2012.611.711.6SulfationAbs/lmm*ASTM D715>3024.923.924.5FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	7 2 68 8 794	12 2 59 8 667	8 3 64 10 777
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25212027SodiumppmASTM D5185m444PotassiumppmASTM D5185m>202<12INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2012.611.711.6	CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25212027SodiumppmASTM D5185m20444PotassiumppmASTM D5185m>202<12INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2012.611.711.6SulfationAbs/.1mm*ASTM D715>3024.923.924.5FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	7 2 68 8 794 1368	12 2 59 8 667 1133	8 3 64 10 777 1042
Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     4     4     4     4       Potassium     ppm     ASTM D5185m     >20     2     <1	Silicon     ppm     ASTM D5185m     >25     21     20     27       Sodium     ppm     ASTM D5185m     4     4     4     4       Potassium     ppm     ASTM D5185m     >20     2     <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	7 2 68 8 794 1368 784	12 2 59 8 667 1133 690	8 3 64 10 777 1042 731
Sodium     ppm     ASTM D5185m     4     4     4       Potassium     ppm     ASTM D5185m     >20     2     <1	Sodium     ppm     ASTM D5185m     4     4     4       Potassium     ppm     ASTM D5185m     >20     2     <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	7 2 68 8 794 1368 784 990	12 2 59 8 667 1133 690 871	8 3 64 10 777 1042 731 919
Potassium     ppm     ASTM D5185m     >20     2     <1	Potassium     ppm     ASTM D5185m     >20     2     <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040	7 2 68 8 794 1368 784 990 2837	12 2 59 8 667 1133 690 871 2172	8 3 64 10 777 1042 731 919 2340
Potassium     ppm     ASTM D5185m     >20     2     <1	Potassium     ppm     ASTM D5185m     >20     2     <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040	7 2 68 8 794 1368 784 990 2837 current	12 2 59 8 667 1133 690 871 2172 history1	8 3 64 10 777 1042 731 919 2340 history2
Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6	Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6       Sulfation     Abs/.1mm     *ASTM D7415     >30     24.9     23.9     24.5       FLUID DEGRADATION     method     limit/base     current     history1     history2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	50 5 50 0 560 1510 780 870 2040	7 2 68 8 794 1368 784 990 2837 current 21	12 2 59 8 667 1133 690 871 2172 history1 20	8 3 64 10 777 1042 731 919 2340 history2 27
Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6	Nitration     Abs/cm     *ASTM D7624     >20     12.6     11.7     11.6       Sulfation     Abs/.1mm     *ASTM D7415     >30     24.9     23.9     24.5       FLUID DEGRADATION     method     limit/base     current     history1     history2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 <b>limit/base</b> >25	7 2 68 8 794 1368 784 990 2837 <u>current</u> 21 4	12 2 59 8 667 1133 690 871 2172 history1 20 4	8 3 64 10 777 1042 731 919 2340 history2 27 4
	SulfationAbs/.1mm*ASTM D7415>3024.923.924.5FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 <b>Iimit/base</b> >25	7 2 68 8 794 1368 784 990 2837 <u>current</u> 21 4 2	12 2 59 8 667 1133 690 871 2172 history1 20 4 <1	8 3 64 10 777 1042 731 919 2340 history2 27 4 2 27 4 2
	SulfationAbs/.1mm*ASTM D7415>3024.923.924.5FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 <b>Iimit/base</b> >25	7 2 68 8 794 1368 784 990 2837 current 21 4 2 2 2 1 4 2 2	12 2 59 8 667 1133 690 871 2172 history1 20 4 <1 20 4 story1	8 3 64 10 777 1042 731 919 2340 history2 27 4 22 4 2 2 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 2040 2040 2040 225 >20 20	7 2 68 8 794 1368 784 990 2837 current 21 4 2 2 2 4 2 2 0	12 2 59 8 667 1133 690 871 2172 history1 20 4 <1 20 4 <1 20	8 3 64 10 777 1042 731 919 2340 history2 27 4 27 4 2 27 4 2 27 4 0
FLUID DEGRADATION method limit/base current history1 history2	Oxidation Abs/.1mm *ASTM D7414 >25 22.9 21.9 22.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 imit/base >25 >20 imit/base	7 2 68 8 794 1368 784 990 2837 <i>current</i> 21 4 2 2 21 4 2 <i>current</i> 0 12.6	12 2 59 8 667 1133 690 871 2172 history1 20 4 <1 20 4 <1 bistory1 0 11.7	8 3 64 10 777 1042 731 919 2340 history2 27 4 27 4 22 kistory2 0 11.6
Oxidation Abs/.1mm *ASTM D7414 >25 22.9 21.9 22.7		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	ASTM D5185m ASTM D5185m	50 50 50 150 1510 780 870 2040 <b>imit/base</b> >25 <b>imit/base</b> >20	7 2 68 8 794 1368 784 990 2837 <u>current</u> 21 4 2 2 <u>current</u> 0 12.6 24.9	12 2 59 8 667 1133 690 871 2172 history1 20 4 <1 20 4 <1 0 11.7 23.9	8 3 64 10 777 1042 731 919 2340 history2 27 4 27 4 2 27 4 2 2 history2 0 11.6 24.5
	Base Number (BN)     mg KOH/g     ASTM D2896     10.2     3.3     3.7     3.0	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	ASTM D5185m ASTM D5185m	50 50 560 1510 780 870 2040 2040 225 220 220 imit/base 220 230 imit/base	7 2 68 8 794 1368 784 990 2837 Current 21 4 2 Current 0 12.6 24.9 Current	12 2 59 8 667 1133 690 871 2172 history1 20 4 <1 20 4 <1 history1 0 11.7 23.9 history1	8 3 64 10 777 1042 731 919 2340 history2 27 4 27 4 22 history2 0 11.6 24.5 history2



# **OIL ANALYSIS REPORT**







\* - 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)

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Certificate 12367

Submitted By: JEREMY BROWN

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