

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend

### NORMAL

### 10510C AUTOCAR ISL Component

**Natural Gas Engine** 

PETRO CANADA DURON GEO LD 15W40 (28 QTS)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### 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.





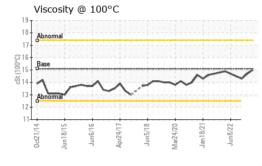
Sample Number     Client Info     FL 0094725     GFL 00947131     GFL 005681       Sample Date     Client Info     17 Nov 2023     18 Jul 2023     17 Apr 2023       Oil Age     hrs     Client Info     5548     4771     4321       Oil Age     hrs     Client Info     0     0     197       Oil Changed     Client Info     0     0     197       Oil Changed     Client Info     0     0     197       Oil Changed     Client Info     0     0     197       Oth Changed     Nembod     NorMAL     NORMAL     NORMAL       CONTAMINATION     method     imit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Water     WC Method     >0.1     9     14     14       Chromium     ppm     ASTM D5185m     >2     0     <1     1       Silver     ppm     ASTM D5185m     >3     0     0     0     1 <t< th=""><th>SAMPLE INFOR</th><th>MATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     5548     4771     4321       Oil Age     hrs     Client Info     0     0     197       Oil Changed     Client Info     Changed     N/A     Changed       Sample Status     Client Info     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     Imit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wetar     method     imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >2     0     <1     1       Chromium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >30     <1     <1     2       Lead     ppm     ASTM D5185m     >30     <1     <1     1       Copper     ppm     ASTM D5185m     >4     <1     <1     1       Copper     ppm     AS	Sample Number		Client Info		GFL0094726	GFL0087131	GFL0056681
Oil Age     hrs     Client Info     0     0     197       Oil Changed     Client Info     Changed     N/A     Changed       Sample Status     Imit/base     current     NoRMAL     NORMAL       CONTAMINATION     method     Imit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Water     WC Method     >0.1     NEG     NEG     NEG       Uron     ppm     ASTM D5185m     >50     19     14     14       Chromium     ppm     ASTM D5185m     >2     0     <1     1       Nickel     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >30     <1     <1     2       Lead     ppm     ASTM D5185m     >30     <1     <1     1       Vanadium     ppm     ASTM D5185m     >50     9     26     26       Barium     ppm     ASTM	Sample Date		Client Info		17 Nov 2023	18 Jul 2023	17 Apr 2023
Oil Changed Sample StatusClient InfoChanged NORMALN/AChanged NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method >0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM 05185m>50191414ChromiumppmASTM 05185m>20<1<1NickelppmASTM 05185m>3000NickelppmASTM 05185m>3000AluminumppmASTM 05185m>3000LeadppmASTM 05185m>3262TinppmASTM 05185m>35262CopperppmASTM 05185m>35262CadmiumppmASTM 05185m>3001VanadiumppmASTM 05185m5092626BoronppmASTM 05185m50545151ManganeseppmASTM 05185m50545151ManganeseppmASTM 05185m50545151ManganeseppmASTM 05185m50545151ManganeseppmASTM 05185m50545151ManganeseppmASTM 05185m751747701N	Machine Age	hrs	Client Info		5548	4771	4321
Sample Status     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history1       Water     WC Method     >0.1     NEG     NEG     NEG       Wetar     wC Method     >0.1     NEG     NEG     NEG       Wetar     wC Method     >0.1     NEG     NEG     NEG       Iron     ppm     ASTM D5185m     >2     0     <1     <1       Chromium     ppm     ASTM D5185m     >2     0     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     1     2       Copper     ppm     ASTM D5185m     >30     <1     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >35     2     66     26       Barium     ppm     ASTM D5185m     50     9     26     26	Oil Age	hrs	Client Info		0	0	197
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     19     14     14       Chromium     ppm     ASTM D5185m     >2     0     <1     <1       Nickel     ppm     ASTM D5185m     >2     0     <1     <1       Nickel     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     0       Lead     ppm     ASTM D5185m     >35     2     6     2       Copper     ppm     ASTM D5185m     >4     <1     <1     2       Copper     ppm     ASTM D5185m     >6     0     0     0     <1       Cadmium     ppm     ASTM D5185m     50     54     51	Oil Changed		Client Info		Changed	N/A	Changed
Water     WC Method     >0.1     NEG     NEG     NEG       WeAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5165m     >50     19     14     14       Chromium     ppm     ASTM D5165m     >2     0     <1     2       Nickel     ppm     ASTM D5165m     >2     0     <1     <1       Silver     ppm     ASTM D5165m     >3     0     0     <1       Aluminum     ppm     ASTM D5165m     >3     0     0     <1     2       Copper     ppm     ASTM D5165m     >3     <1     <1     2     2       Copper     ppm     ASTM D5165m     >4     <1     <1     1     2       Cadmium     ppm     ASTM D5165m     <0     0     <1     1     2       Mandium     ppm     ASTM D5165m     50     9     26     26     26       Barium     ppm     A	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     19     14     14       Chromium     ppm     ASTM D5185m     >4     2     1     2       Nickel     ppm     ASTM D5185m     >2     0     <1     <1       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >9     3     5     2       Lead     ppm     ASTM D5185m     >35     2     6     2       Tin     ppm     ASTM D5185m     >4     <1     <1     2       Copper     ppm     ASTM D5185m     0     0     0     1       Cadmium     ppm     ASTM D5185m     50     9     26     26<	CONTAMINAT	ION	method	limit/base	current	history1	history2
Iron     ppm     ASTM D5185m     >500     19     14     14       Chromium     ppm     ASTM D5185m     >4     2     1     2       Nickel     ppm     ASTM D5185m     >2     0     <1	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >4     2     1     2       Nickel     ppm     ASTM D5185m     >2     0     <1     <1       Titanium     ppm     ASTM D5185m     >2     0     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >30     <1     <1     2       Lead     ppm     ASTM D5185m     >30     <1     <1     2       Copper     ppm     ASTM D5185m     >30     <1     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >30     <1     <1     <1     <1     <1       Cadmium     ppm     ASTM D5185m     50     9     26     26     26       Barium     ppm     ASTM D5185m     50     54     51     51       Magnesium     ppm     ASTM D5185m     560     589     523     536       Catacium     ppm <th>WEAR METAL</th> <th>S</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >2     0     <1	Iron	ppm	ASTM D5185m	>50	19	14	14
Titanium     ppm     ASTM D5185m     <1	Chromium	ppm	ASTM D5185m	>4	2	1	2
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >9     3     5     2       Lead     ppm     ASTM D5185m     >30     <1	Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum     ppm     ASTM D5185m     >9     3     5     2       Lead     ppm     ASTM D5185m     >30     <1     <1     2       Copper     ppm     ASTM D5185m     >35     2     6     2       Tin     ppm     ASTM D5185m     >4     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >4     <1     0     1       Cadmium     ppm     ASTM D5185m     0     0     <1     1       Cadmium     ppm     ASTM D5185m     50     9     26     26       Boron     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     50     589     523     536       Calcium     ppm     ASTM D5185m     751     747     701       Zinc     ppm     ASTM D5185m     740     55     10     5 <th>Titanium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>&lt;1</th> <th>0</th> <th>&lt;1</th>	Titanium	ppm	ASTM D5185m		<1	0	<1
Lead     ppm     ASTM D5185m     >30     <1	Silver	ppm	ASTM D5185m	>3	-	0	0
Copper     ppm     ASTM D5185m     >35     2     6     2       Tin     ppm     ASTM D5185m     >4     <1     <1     <1       Vanadium     ppm     ASTM D5185m      <1     0     1       Cadmium     ppm     ASTM D5185m     0     0     <1     1       Cadmium     ppm     ASTM D5185m     50     9     26     26       Boron     ppm     ASTM D5185m     50     9     26     26       Barium     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     50     54     51     51       Magnesium     ppm     ASTM D5185m     560     589     523     536       Calcium     ppm     ASTM D5185m     760     751     747     701       Zinc     ppm     ASTM D5185m     760     1039     923     891       Sulfur     ppm     ASTM D5185m     200     266     <	Aluminum	ppm	ASTM D5185m	>9	3	5	2
Tin     ppm     ASTM D5185m     >4     <1	Lead	ppm	ASTM D5185m	>30	<1	<1	
Vanadium     ppm     ASTM D5185m     <1	Copper	ppm	ASTM D5185m	>35	2	6	2
Cadmium     ppm     ASTM D5185m     0     0     <1	Tin	ppm	ASTM D5185m	>4	<1	<1	
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     9     26     26       Barium     ppm     ASTM D5185m     50     0     0     0       Molybdenum     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     60     589     523     536       Calcium     ppm     ASTM D5185m     560     589     523     536       Calcium     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >20	Vanadium	ppm	ASTM D5185m		<1	0	1
Boron     ppm     ASTM D5185m     50     9     26     26       Barium     ppm     ASTM D5185m     5     0     0     0       Molybdenum     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     0     <1     <1     2       Magnesium     ppm     ASTM D5185m     560     589     523     536       Calcium     ppm     ASTM D5185m     1510     1688     1528     1456       Phosphorus     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >10     5     5     5       Sodium     ppm     ASTM D5185m     >20	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium     ppm     ASTM D5185m     5     0     0     0       Molybdenum     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     0     <1     <1     2       Magnesium     ppm     ASTM D5185m     560     589     523     536       Calcium     ppm     ASTM D5185m     1510     1688     1528     1456       Phosphorus     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     50     54     51     51       Manganese     ppm     ASTM D5185m     0     <1     <1     2       Magnesium     ppm     ASTM D5185m     560     589     523     536       Calcium     ppm     ASTM D5185m     1510     1688     1528     1456       Phosphorus     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANT     method     imit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >100     5     10     5       Sodium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     'ASTM D7624     20 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Manganese     ppm     ASTM D5185m     0     <1	Boron	ppm	ASTM D5185m	50	9	26	26
Magnesium     ppm     ASTM D5185m     560     589     523     536       Calcium     ppm     ASTM D5185m     1510     1688     1528     1456       Phosphorus     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >20     3     3     4       Potassium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/.tmm     *ASTM D7415     >30     <							
Calcum     ppm     ASTM D5185m     1510     1688     1528     1456       Phosphorus     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >20     3     3     4       NFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/.m     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.im     *ASTM D7624     >20	Barium	ppm	ASTM D5185m	5	0	0	0
Phosphorus     ppm     ASTM D5185m     780     751     747     701       Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >+20     3     3     4       NFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/.m     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1m     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     curr	Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	5 50	0 54	0 51	0 51
Zinc     ppm     ASTM D5185m     870     1039     923     891       Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >20     3     3     4       Potassium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current <th>Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m</th> <th>5 50 0</th> <th>0 54 &lt;1</th> <th>0 51 &lt;1</th> <th>0 51 2</th>	Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0	0 54 <1	0 51 <1	0 51 2
Sulfur     ppm     ASTM D5185m     2040     2496     2566     2497       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     >20     3     3     4       Potassium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25	Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560	0 54 <1 589	0 51 <1 523	0 51 2 536
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+1005105SodiumppmASTM D5185m448PotassiumppmASTM D5185m>20334INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D784400.10NitrationAbs/cm*ASTM D7624>2010.88.48.2SulfationAbs/.1mm*ASTM D7415>3020.819.119.5FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2518.316.116.3	Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510	0 54 <1 589 1688	0 51 <1 523 1528	0 51 2 536 1456
Silicon     ppm     ASTM D5185m     >+100     5     10     5       Sodium     ppm     ASTM D5185m     4     4     8       Potassium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780	0 54 <1 589 1688 751	0 51 <1 523 1528 747	0 51 2 536 1456 701
Sodium     ppm     ASTM D5185m     4     4     8       Potassium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	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	5 50 0 560 1510 780 870	0 54 <1 589 1688 751 1039	0 51 <1 523 1528 747 923	0 51 2 536 1456 701 891
Potassium     ppm     ASTM D5185m     >20     3     3     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	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	5 50 0 560 1510 780 870 2040	0 54 <1 589 1688 751 1039 2496	0 51 <1 523 1528 747 923 2566	0 51 2 536 1456 701 891 2497
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	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	5 50 0 560 1510 780 870 2040 <b>limit/base</b>	0 54 <1 589 1688 751 1039 2496 current	0 51 <1 523 1528 747 923 2566 history1	0 51 2 536 1456 701 891 2497 history2
Soot %     %     *ASTM D7844     0     0.1     0       Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	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	5 50 0 560 1510 780 870 2040 <b>limit/base</b>	0 54 <1 589 1688 751 1039 2496 2496 <u>current</u> 5	0 51 <1 523 1528 747 923 2566 history1 10	0 51 2 536 1456 701 891 2497 history2 5
Nitration     Abs/cm     *ASTM D7624     >20     10.8     8.4     8.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	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 <b>method</b> ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	0 54 <1 589 1688 751 1039 2496 current 5 4	0 51 <1 523 1528 747 923 2566 history1 10 4	0 51 2 536 1456 701 891 2497 history2 5 8
Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.1     19.5       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.3     16.1     16.3	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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 <b>imit/base</b> >+100	0 54 <1 589 1688 751 1039 2496 <u>current</u> 5 4 3	0 51 <1 523 1528 747 923 2566 history1 10 4 3	0 51 2 536 1456 701 891 2497 history2 5 8 8 4
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 18.3 16.1 16.3	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	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 <b>imit/base</b> >+100	0 54 <1 589 1688 751 1039 2496 current 5 4 3 2 4 9	0 51 <1 523 1528 747 923 2566 history1 10 4 3 3 history1 0.1	0 51 2 536 1456 701 891 2497 history2 5 8 4 4 history2 0
Oxidation Abs/.1mm *ASTM D7414 >25 18.3 16.1 16.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 <i>limit/base</i> >+100 >20 <i>limit/base</i>	0 54 <1 589 1688 751 1039 2496 current 5 4 3 2 4 9	0 51 <1 523 1528 747 923 2566 history1 10 4 3 3 history1 0.1	0 51 2 536 1456 701 891 2497 history2 5 8 4 4 history2 0
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 <b>imit/base</b> >+100 >20 <b>imit/base</b>	0 54 <1 589 1688 751 1039 2496 <u>current</u> 5 4 3 3 <u>current</u> 0 10.8	0 51 <1 523 1528 747 923 2566 history1 10 4 3 3 history1 0.1 8.4	0 51 2 536 1456 701 891 2497 history2 5 8 4 4 <u>history2</u> 0 8.2
Base Number (BN)     mg KOH/g     ASTM D2896     10.2     5.2     7.8     7.2	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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 2040 >+100 >20 imit/base >20 imit/base	0 54 <1 589 1688 751 1039 2496 <u>current</u> 5 4 3 <u>current</u> 0 10.8 20.8	0 51 <1 523 1528 747 923 2566 history1 10 4 3 3 history1 0.1 8.4 19.1	0 51 2 536 1456 701 891 2497 history2 5 8 4 4 <u>history2</u> 0 8.2 19.5
	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 TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	5 50 0 560 1510 780 870 2040 <b>imit/base</b> >20 <b>imit/base</b> >20 >30 <b>imit/base</b>	0 54 <1 589 1688 751 1039 2496 current 5 4 3 current 0 10.8 20.8	0 51 <1 523 1528 747 923 2566 history1 10 4 3 3 history1 0.1 8.4 19.1 history1	0 51 2 536 1456 701 891 2497 history2 5 8 4 4 history2 0 8.2 19.5 history2



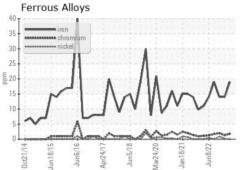
# **OIL ANALYSIS REPORT**





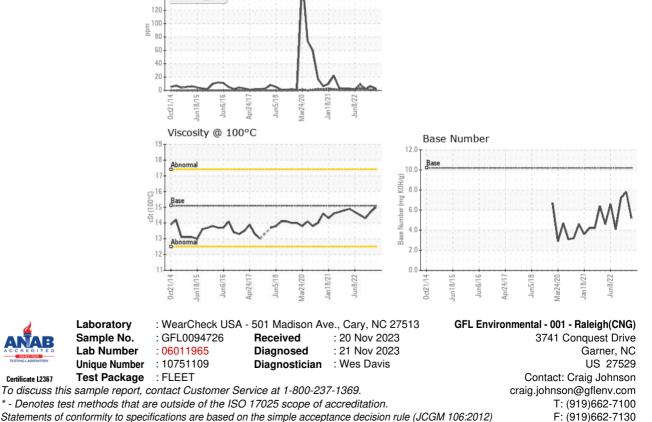


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	15.0	14.7	14.3
GRAPHS						



Non-ferrous Metals

180 160 140



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)