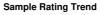


### **OIL ANALYSIS REPORT**





# Machine Id 830012

#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

#### 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.

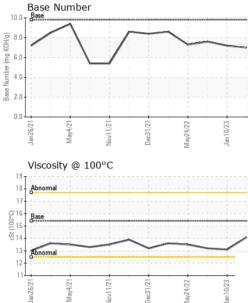
#### Fluid Condition

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

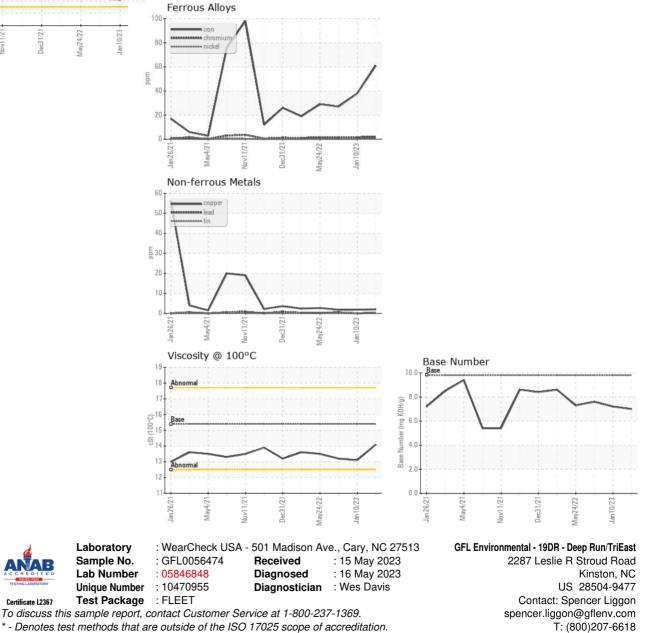
Sample Number     Client Info     GFL056474     GFL056585     GFL058584       Sample Date     Client Info     99 May 2023     10 Jan 2023     19 Aug 2022       Machine Age     hrs     Client Info     4992     4992     4992       Oil Age     hrs     Client Info     NA     Changed     Changed       Sample Status     I     Imit/Dase     current     history 1     history 2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Glycol     WC Method     >50     <1.0     <1.0     <1.0       Ref     WC Method     >20     2     1     Northol       Nickel     ppm     ASTM 05185m     >100     61     38     27       Chromium     ppm     ASTM 05185m     >20     2     2     1       Nickel     ppm     ASTM 05185m     >3     0     0     1       Silver     ppm     ASTM 05185m     >3     0     0     1       Auminum     ppm	SAMPLE INFORM	MATION	method	limit/base	current	history 1	history 2
Machine Age     hrs     Client Info     4992     4992     4992       Oil Age     hrs     Client Info     M92     611     603       Oil Changed     Client Info     N/A     Changed     Changed       Sample Status     Imit/Dase     current     history 1     history 2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Glycol     W WC Method     >5     <1.0     <1.0     <1.0       Glycol     W WC Method     >5     <1.0     <1.0     <1.0       Glycol     W W Method     >5     <1.0     <1.0     <1.0       Glycol     W W Method     >5     <1.0     <1.0     <1.0       Silver     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >30     0     <1     <1       Aluminum     ppm     ASTM D5185m     >30     2     2     2     1       Auminum     ppm     ASTM D5185m     >30	Sample Number		Client Info		GFL0056474	GFL0058558	GFL0058544
Oil Age     hrs     Client Info     4992     611     603       Oil Changed     Client Info     N/A     Changed     Changed       Sample Status     Imathematical Control     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     Imit/base     current     history 1     history 2       Fuel     WC Method     55     <1.0     <1.0     <1.0       Glycol     WC Method     55     <1.0     <1.0     <1.0       Glycol     WC Method     Status     NEG     NEG     NEG       VEAR METALS     method     Imit/base     current     history 1     history 2       Iron     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >3     0     <1     2       Lead     ppm     ASTM D5185m     >30     2     2     2       Tin     ppm     ASTM D5185m     >30     2     2     2       Chopper     ppm     ASTM D51	Sample Date		Client Info		09 May 2023	10 Jan 2023	19 Aug 2022
Oil Changed Sample StatusClient InfoN/AChanged NORMALChanged NORMALChanged NORMALChanged NORMALCONTAMINATIONmethodlimit/basecurrenthistory 1history 2FuelWC Method>5<1.0<1.0<1.0GlycolWC Method>5<1.0<1.0<1.0WEAR METALSmethodlimit/basecurrenthistory 1history 2IronppmASTM D5185m>100613827ChromiumppmASTM D5185m>20221NickelppmASTM D5185m>20432LeadppmASTM D5185m>3300<1CopperppmASTM D5185m>20432LeadppmASTM D5185m>3302222TinppmASTM D5185m>3302222TinppmASTM D5185m>15<1<10QopperppmASTM D5185m0387GadiumppmASTM D5185m0387BoronppmASTM D5185m0210MolybdenumppmASTM D5185m10101013894857CalaciumppmASTM D5185m10101133894857CalaciumppmASTM D5185m1270133512181161Suffur	Machine Age	hrs	Client Info		4992	4992	4992
Sample Status     Image: More Mail More Market More Mark	Oil Age	hrs	Client Info		4992	611	603
CONTAMINATION     method     limit/base     current     history 1     history 2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Glycol     WC Method     >5     <1.0     <1.0     <1.0       WEAR METALS     method     limit/base     current     history 1     history 2       Iron     ppm     ASTM D5185m     >100     61     38     27       Chromium     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >20     4     3     2       Lead     ppm     ASTM D5185m     >20     4     3     2       Lead     ppm     ASTM D5185m     >40     0     0     0       Cadmium     ppm     ASTM D5185m     >15     <1     <1     0       Vanadium     ppm     ASTM D5185m     0     3     8     7	Oil Changed		Client Info		N/A	Changed	Changed
Fuel     WC Method     >5     <1.0	Sample Status				NORMAL	NORMAL	NORMAL
Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history 1     history 2       Iron     ppm     ASTM D5185m     >100     61     38     27       Chromium     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >30     2     2     2       Lead     ppm     ASTM D5185m     >300     2     2     2       Tin     ppm     ASTM D5185m     >330     2     2     2       Gopper     ppm     ASTM D5185m     0     3     8     7       Cadmium     ppm     ASTM D5185m     0     3     8     7       Boron     ppm     ASTM D5185m     0     3     8     7       Barium<	CONTAMINATI	ION	method	limit/base	current	history 1	history 2
WEAR METALS     method     limit/base     current     history 1     history 2       Iron     ppm     ASTM D5185m     >100     61     38     27       Chromium     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >4     <1     <1     0       Titanium     ppm     ASTM D5185m     >4     <1     <1     0       Aluminum     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >20     4     3     2       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     0     0     0     0       Vanadium     ppm     ASTM D5185m     0     3     8     7       Baron     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     0     2     1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron     ppm     ASTM D5185m     >100     61     38     27       Chromium     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >4     <1     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     <1       Aluminum     ppm     ASTM D5185m     >3     0     0     <1       Aluminum     ppm     ASTM D5185m     >30     2     2     2       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >15     <1     <1     0       Vanadium     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     2     1     0 </th <th>Glycol</th> <th></th> <th>WC Method</th> <th></th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Glycol		WC Method		NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >20     2     2     1       Nickel     ppm     ASTM D5185m     >4     <1     <1     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     <1       Aluminum     ppm     ASTM D5185m     >20     4     3     2       Lead     ppm     ASTM D5185m     >20     4     3     2       Copper     ppm     ASTM D5185m     >330     2     2     2       Tin     ppm     ASTM D5185m     0     0     0     0       Vanadium     ppm     ASTM D5185m     0     2     1     0       Vanadium     ppm     ASTM D5185m     0     2     1     0       Vanadium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     0     2     1     0	WEAR METALS	S	method	limit/base	current	history 1	history 2
Nickel     ppm     ASTM D5185m     >4     <1	Iron	ppm	ASTM D5185m	>100	61	38	27
Nickel     ppm     ASTM D5185m     >4     <1	Chromium		ASTM D5185m	>20	2	2	1
Titanium     ppm     ASTM D5185m     0     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     <1       Aluminum     ppm     ASTM D5185m     >20     4     3     2       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >330     2     2     2       Tin     ppm     ASTM D5185m     >15     <1     <1     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     3     8     7       Boron     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     0     2     1     0       Magnesium     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     1013     894	Nickel		ASTM D5185m	>4	<1	<1	0
Silver     ppm     ASTM D5185m     >3     0     0     <1	Titanium		ASTM D5185m		0	0	0
Aluminum     ppm     ASTM D5185m     >20     4     3     2       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >330     2     2     2       Tin     ppm     ASTM D5185m     >15     <1     <1     0       Vanadium     ppm     ASTM D5185m     >15     <1     <1     0       Vanadium     ppm     ASTM D5185m     >15     <1     <1     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     Imit/base     current     history 1     history 2       Boron     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     <1     <1     0       Molybdenum     ppm     ASTM D5185m     0     <11     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1070     1233 </th <th>Silver</th> <th></th> <th>ASTM D5185m</th> <th>&gt;3</th> <th>0</th> <th>0</th> <th>&lt;1</th>	Silver		ASTM D5185m	>3	0	0	<1
Lead     ppm     ASTM D5185m     >40     <1	Aluminum					3	
Copper     ppm     ASTM D5185m     >330     2     2     2       Tin     ppm     ASTM D5185m     >15     <1     <1     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     3     8     7       Boron     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     0     2     1     0       Magnesium     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     2060     2920	Lead		ASTM D5185m	>40	<1	0	<1
Tin     ppm     ASTM D5185m     >15     <1							
Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history 1     history 2       Boron     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     0     2     1     0       Magnesium     ppm     ASTM D5185m     0     <1			ASTM D5185m		<1	<1	0
Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history 1     history 2       Boron     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     0     2     1     0       Magnesium     ppm     ASTM D5185m     0     <1				-			
ADDITIVES     method     limit/base     current     history 1     history 2       Boron     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     60     69     67     60       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     2							
Boron     ppm     ASTM D5185m     0     3     8     7       Barium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     60     69     67     60       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     0     <1     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5     5  Sodium     ppm     ASTM D		1.1			•		
Barium     ppm     ASTM D5185m     0     2     1     0       Molybdenum     ppm     ASTM D5185m     60     69     67     60       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >20     1     <1     <1       Potassium     ppm     ASTM D5185m     >20     1     <1     <1       INFRA-RED     method     limit/			method	limit/base	current	history 1	history 2
Molybdenum     ppm     ASTM D5185m     60     69     67     60       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1150     1115     991     912       Zinc     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >20     1     <1     <1       Potassium     ppm     ASTM D5185m     >20     1     <1     <1       INFRA-RED     method     lim		ppm					
Marganese     ppm     ASTM D5185m     0     <1	Boron		ASTM D5185m	0	3	8	7
Magnesium     ppm     ASTM D5185m     1010     1013     894     857       Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1150     1115     991     912       Zinc     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >20     1     <1     <1       Potassium     ppm     ASTM D5185m     >20     1     <1     <1       INFRA-RED     method     limit/base     current     history 1     history 2       Soot %     %     'ASTM D784	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	3 2	8 1	7 0
Calcium     ppm     ASTM D5185m     1070     1233     1174     1108       Phosphorus     ppm     ASTM D5185m     1150     1115     991     912       Zinc     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >20     1     <1     <1       Potassium     ppm     ASTM D5185m     >20     1     <1     <1       INFRA-RED     method     limit/base     current     history 1     history 2       Soot %     %     *ASTM D7844     >3     0.9     0.9     1       Nitration     Abs/cm     *ASTM D7624     >20     11.6     11.2     12.4       Sulfation     Abs/.1mm     *ASTM D74	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 2 69	8 1 67	7 0 60
Phosphorus     ppm     ASTM D5185m     1150     1115     991     912       Zinc     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >20     1     <1	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 2 69 <1	8 1 67 <1	7 0 60 <1
Zinc     ppm     ASTM D5185m     1270     1335     1218     1161       Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >20     1     <1     <1       Potassium     ppm     ASTM D5185m     >20     1     <1     <1       INFRA-RED     method     limit/base     current     history 1     history 2       Soot %     %     *ASTM D7844     >3     0.9     0.9     1       Nitration     Abs/cm     *ASTM D7624     >20     11.6     11.2     12.4       Sulfation     Abs/.imm     *ASTM D7415     >30     25.2     21.8     23.8	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 2 69 <1 1013	8 1 67 <1 894	7 0 60 <1 857
Sulfur     ppm     ASTM D5185m     2060     2920     2964     2749       CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >20     1     <1	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	3 2 69 <1 1013 1233	8 1 67 <1 894 1174	7 0 60 <1 857 1108
CONTAMINANTS     method     limit/base     current     history 1     history 2       Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >25     6     6     5       Potassium     ppm     ASTM D5185m     >20     1     <1     <1       INFRA-RED     method     limit/base     current     history 1     history 2       Soot %     %     *ASTM D7844     >3     0.9     0.9     1       Nitration     Abs/cm     *ASTM D7624     >20     11.6     11.2     12.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     25.2     21.8     23.8	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	0 0 60 0 1010 1070 1150	3 2 69 <1 1013 1233 1115	8 1 67 <1 894 1174 991	7 0 60 <1 857 1108 912
Silicon     ppm     ASTM D5185m     >25     6     6     5       Sodium     ppm     ASTM D5185m     >20     5     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	0 0 60 0 1010 1070 1150 1270	3 2 69 <1 1013 1233 1115 1335	8 1 67 <1 894 1174 991 1218	7 0 60 <1 857 1108 912 1161
Sodium     ppm     ASTM D5185m     5     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	0 0 60 0 1010 1070 1150 1270 2060	3 2 69 <1 1013 1233 1115 1335 2920	8 1 67 <1 894 1174 991 1218 2964	7 0 60 <1 857 1108 912 1161 2749
Potassium     ppm     ASTM D5185m     >20     1     <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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	3 2 69 <1 1013 1233 1115 1335 2920 current	8 1 67 <1 894 1174 991 1218 2964 history 1	7 0 60 <1 857 1108 912 1161 2749 history 2
INFRA-RED     method     limit/base     current     history 1     history 2       Soot %     %     *ASTM D7844     >3     0.9     0.9     1       Nitration     Abs/cm     *ASTM D7624     >20     11.6     11.2     12.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     25.2     21.8     23.8	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 ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	3 2 69 <1 1013 1233 1115 1335 2920 current 6	8 1 67 <1 894 1174 991 1218 2964 history 1 6	7 0 60 <1 857 1108 912 1161 2749 history 2 5
Soot %     %     *ASTM D7844     >3     0.9     0.9     1       Nitration     Abs/cm     *ASTM D7624     >20     11.6     11.2     12.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     25.2     21.8     23.8	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	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <
Nitration     Abs/cm     *ASTM D7624     >20     11.6     11.2     12.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     25.2     21.8     23.8	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	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5 1	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 2 <1	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1
Sulfation     Abs/.1mm     *ASTM D7415     >30     25.2     21.8     23.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5 1 1	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 <1 kistory 1	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1 <1 <1
	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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <b>limit/base</b> >20	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5 1 1 current 0.9	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 <1 history 1 0.9	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1 <1 <1 history 2 1
FLUID DEGRADATION method limit/base current history 1 history 2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5 1 current 0.9 11.6	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 <1 history 1 0.9 11.2	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1 <1 <1 history 2 1 12.4
	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	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5 1 current 0.9 11.6	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 <1 history 1 0.9 11.2	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1 <1 <1 history 2 1 12.4
Oxidation     Abs/.1mm     *ASTM D7414     >25     22.7     18.1     20.3	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	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >3 >20	3 2 69 <1 1013 1233 1115 1335 2920 current 6 5 1 current 0.9 11.6 25.2	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 <1 history 1 0.9 11.2 21.8	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1 <1 <1 history 2 1 12.4 23.8
Base Number (BN)     mg KOH/g     ASTM D2896     9.8     7.0     7.2     7.6	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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 3 3 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	3 2 69 <1 1013 1233 1115 1335 2920 Current 6 5 1 Current 0.9 11.6 25.2 Current	8 1 67 <1 894 1174 991 1218 2964 history 1 6 2 <1 history 1 0.9 11.2 21.8 history 1	7 0 60 <1 857 1108 912 1161 2749 history 2 5 <1 <1 <1 history 2 1 12.4 23.8 history 2



## **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history 1	history 2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.1	13.2
GRAPHS						



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

Certificate L2367

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