

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# Machine Id 811041-101310

#### 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.

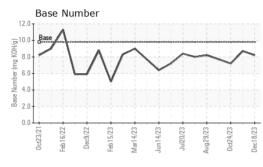
## Fluid Condition

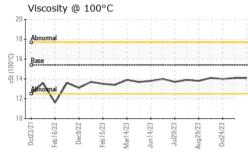
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number     Client Info     Info <thinfo< th="">     Info     Info<!--</th--><th>SAMPLE INFOR</th><th>MATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></thinfo<>	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     4646     4524     4384       Oil Age     hrs     Client Info     122     56     0       Oil Changed     Client Info     122     56     0     0       Sample Status     NORMAL     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Chromium     ppm     ASTM DS185m     >00     3     6     17       Nickel     ppm     ASTM DS185m     >20     2     1     5       Silver     ppm     ASTM DS185m     >20     2     1     5       Silver     ppm     ASTM DS185m     >10     0     <1     1       NorbiSils     >15     0<	Sample Number		Client Info		GFL0103014	GFL0098848	GFL0098827
Oil Age     Ins     Client Info     122     56     0       Oil Changed     Client Info     Changed     Changed     Changed     Changed     Changed     Changed     Changed     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     So     <1.0     <1.0     <1.0       Water     WC Method     So     <1.0     <1.0     <1.0       Water     WC Method     So     NEG     NEG     NEG       Wear     WC Method     So     current     history1     history2       Iron     ppm     ASTM DISISm     >100     3     6     17       Chromium     ppm     ASTM DISISm     >4     <1     0     <1       Nickel     ppm     ASTM DISISm     >3     0     0     <1       Copper     ppm     ASTM DISISm     >4     0     0     <1       Cadmium     ppm     ASTM DISISm     0<	Sample Date		Client Info		18 Dec 2023	10 Nov 2023	24 Oct 2023
Oil Changed Sample Status     Client Info     Changed NORMAL     NORMAL     NORMAL <th< th=""><th>Machine Age</th><th>hrs</th><th>Client Info</th><th></th><th>4646</th><th>4524</th><th>4384</th></th<>	Machine Age	hrs	Client Info		4646	4524	4384
Sample Status     NORMAL     NORMAL     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     imil/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     Norman     NEG     NEG     NEG       WEAR METALS     method     imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >200     <1     <1     1       Nickel     ppm     ASTM D5185m     >20     <1     <1     <1       Nickel     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >20     0     <1     <1       Vanadium     ppm     ASTM D5185m     >20     0     <1        Vanadium     ppm     ASTM D5185m     >30     <1     2     2 </th <th>•</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>122</th> <th>56</th> <th>0</th>	•	hrs	Client Info		122	56	0
CONTAMINATION     method     imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     3     6     17       Chromium     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >3     0     0     <1     <1       Silver     ppm     ASTM D5185m     >20     2     1     5      <2     <1     <5     <1     <0     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     <1     0     1<	Oil Changed		Client Info		Changed	Changed	Changed
Fuel     WC Method     >5     <1.0	Sample Status				NORMAL	NORMAL	NORMAL
Fuel     WC Method     >5     <1.0	CONTAMINAT	ION	method	limit/base	current	historv1	historv2
Water     WC Method     >0.2     NEG     NEG     NEG     NEG       Glycol     WC Method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     3     6     17       Chromium     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >3     0     0     <1       Silver     ppm     ASTM D5185m     >3     0     0     <1       Copper     ppm     ASTM D5185m     >30     0     0     <1       Copper     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >40     0     0     <1       Vanadium     ppm     ASTM D5185m     0     0     <1        Vanadium     ppm     ASTM D5185m     0     5     4     40       Baron     ppm     ASTM D5185m     0     <1     0 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >4     <1     0     <1       Silver     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >20     0     0     <1       Vanadium     ppm     ASTM D5185m     0     0     <1     0       Vanadium     ppm     ASTM D5185m     0     0     <1     0       Adminum     ppm     ASTM D5185m     0     5     4     40       Baroim     ppm     ASTM D5185m     0     58     55     47							
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     3     6     17       Chromium     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >3     0     0     <1       Silver     ppm     ASTM D5185m     >3     0     0     <1       Copper     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >20     0     0     <1       Copper     ppm     ASTM D5185m     0     0     0     <1       Vanadium     ppm     ASTM D5185m     0     5     4     40       Barium     ppm     ASTM D5185m     0     5     5     47       Manganese     ppm     ASTM D5185m     0     <1     0     <	Glycol						
Iron     ppm     ASTM D5185m     >100     3     6     17       Chromium     ppm     ASTM D5185m     >20     <1     <1     1       Nickel     ppm     ASTM D5185m     >4     <1     0     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >300     <1     2     2       Tin     ppm     ASTM D5185m     >300     <1     0     0       Cadmium     ppm     ASTM D5185m     0     5     4     40       Boron     ppm     ASTM D5185m     0     5     47     4       Maganese     ppm     ASTM D5185m     1010     961     878     654	-	\$		limit/base	-	-	
Chromium     ppm     ASTM D5185m     >20     <1							
Nickel     ppm     ASTM D5185m     -4     <1	-				-		
Titanium     ppm     ASTM D5185m     0     <1							
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >40     0     0     <1				>4			
Atuminum     ppm     ASTM D5185m     >20     2     1     5       Lead     ppm     ASTM D5185m     >40     0     0     <1       Copper     ppm     ASTM D5185m     >330     <1     2     2       Tin     ppm     ASTM D5185m     >15     0     0     <1       Vanadium     ppm     ASTM D5185m     0     0     <1     0       Cadmium     ppm     ASTM D5185m     0     5     4     40       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     5     4     40       Barium     ppm     ASTM D5185m     0     <1     0     0       Molybdenum     ppm     ASTM D5185m     0     <1     0     0       Marganese     ppm     ASTM D5185m     1010     961     878     654       Calcium     ppm     ASTM D5185m     1070     10401     1236 </th <th></th> <th></th> <th></th> <th>0</th> <th></th> <th></th> <th></th>				0			
Lead     ppm     ASTM D5185m     >40     0     0     <1					-		
Copper     ppm     ASTM D5185m     >330     <1							
Tin     ppm     ASTM D5185m     >15     0     0     <1					-		
Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     <1							
Cadmium     ppm     ASTM D5185m     0     0     <1				>15			
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     5     4     40       Barium     ppm     ASTM D5185m     0     0     <1     0       Molybdenum     ppm     ASTM D5185m     60     58     55     47       Manganese     ppm     ASTM D5185m     0     <1     0     0       Magnesium     ppm     ASTM D5185m     1010     961     878     654       Calcium     ppm     ASTM D5185m     1070     1040     1020     1391       Phosphorus     ppm     ASTM D5185m     1270     1306     1178     1226       Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     4     4     7       Sodium     ppm     ASTM D5185m							
Boron     ppm     ASTM D5185m     0     5     4     40       Barium     ppm     ASTM D5185m     0     0     0     <1		ppm	ASTM D5185m		0	0	
Barium     ppm     ASTM D5185m     0     0     <1							
Molybdenum     ppm     ASTM D5185m     60     58     55     47       Manganese     ppm     ASTM D5185m     0     <1     0     0       Magnesium     ppm     ASTM D5185m     1010     961     878     654       Calcium     ppm     ASTM D5185m     1070     1040     1020     1391       Phosphorus     ppm     ASTM D5185m     1070     1040     1020     1391       Phosphorus     ppm     ASTM D5185m     1070     1040     1020     1391       Zinc     ppm     ASTM D5185m     1270     1306     1178     1236       Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     4     7       Sodium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/ba	ADDITIVES		method	limit/base	current	history1	history2
Manganese     ppm     ASTM D5185m     0     <1		ppm					
Magnesium     ppm     ASTM D5185m     1010     961     878     654       Calcium     ppm     ASTM D5185m     1070     1040     1020     1391       Phosphorus     ppm     ASTM D5185m     1150     1145     976     1041       Zinc     ppm     ASTM D5185m     1270     1306     1178     1236       Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/.1mm     *ASTM D7844     >3     0.3     6.3     9.4       Sulfation     Abs/.1mm     *ASTM D74	Boron		ASTM D5185m	0	5	4	40
Calcium     ppm     ASTM D5185m     1070     1040     1020     1391       Phosphorus     ppm     ASTM D5185m     1150     1145     976     1041       Zinc     ppm     ASTM D5185m     1270     1306     1178     1236       Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7414     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	5 0	4 <1	40 0
Phosphorus     ppm     ASTM D5185m     1150     1145     976     1041       Zinc     ppm     ASTM D5185m     1270     1306     1178     1236       Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.imm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     c	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 58	4 <1 55	40 0 47
Zinc     ppm     ASTM D5185m     1270     1306     1178     1236       Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.tmm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25 <th>Boron Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m</th> <th>0 0 60 0</th> <th>5 0 58 &lt;1</th> <th>4 &lt;1 55 0</th> <th>40 0 47 0</th>	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 58 <1	4 <1 55 0	40 0 47 0
Sulfur     ppm     ASTM D5185m     2060     3248     3249     3563       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >20     2     4     4     7       Potassium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.tmm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 0 58 <1 961	4 <1 55 0 878	40 0 47 0 654
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     >25     4     1     4       Potassium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.tmm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     14.4     14.3     18.4	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	5 0 58 <1 961 1040	4 <1 55 0 878 1020 976	40 0 47 0 654 1391
Silicon     ppm     ASTM D5185m     >25     4     4     7       Sodium     ppm     ASTM D5185m     4     1     4       Potassium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7614     >20     6.3     6.3     9.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	5 0 58 <1 961 1040 1145	4 <1 55 0 878 1020 976	40 0 47 0 654 1391 1041 1236
Sodium     ppm     ASTM D5185m     4     1     4       Potassium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	0 0 60 0 1010 1070 1150 1270	5 0 58 <1 961 1040 1145 1306	4 <1 55 0 878 1020 976 1178	40 0 47 0 654 1391 1041 1236
Potassium     ppm     ASTM D5185m     >20     2     4     8       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	5 0 58 <1 961 1040 1145 1306 3248	4 <1 55 0 878 1020 976 1178 3249	40 0 47 0 654 1391 1041 1236 3563
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	0 0 60 0 1010 1070 1150 1270 2060	5 0 58 <1 961 1040 1145 1306 3248 current	4 <1 55 0 878 1020 976 1178 3249 history1	40 0 47 0 654 1391 1041 1236 3563 history2
Soot %     %     *ASTM D7844     >3     0.3     0.3     0.6       Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	0 0 60 0 1010 1070 1150 1270 2060	5 0 58 <1 961 1040 1145 1306 3248 <i>current</i> 4	4 <1 55 0 878 1020 976 1178 3249 history1 4	40 0 47 0 654 1391 1041 1236 3563 history2 7
Nitration     Abs/cm     *ASTM D7624     >20     6.3     6.3     9.4       Sulfation     Abs/.1mm     *ASTM D7615     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	5 0 58 <1 961 1040 1145 1306 3248 current 4 4	4 <1 55 0 878 1020 976 1178 3249 history1 4 1	40 0 47 0 654 1391 1041 1236 3563 history2 7 4
Sulfation     Abs/.1mm     *ASTM D7415     >30     18.8     18.9     21.4       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.4     14.3     18.4	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	5 0 58 <1 961 1040 1145 1306 3248 current 4 4 2	4 <1 55 0 878 1020 976 1178 3249 history1 4 1 4	40 0 47 0 654 1391 1041 1236 3563 history2 7 4 8
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 14.4 14.3 18.4	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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	5 0 58 <1 961 1040 1145 1306 3248 current 4 4 2 2 current	4 <1 55 0 878 1020 976 1178 3249 history1 4 1 4 1 4 1 4	40 0 47 0 654 1391 1041 1236 3563 history2 7 4 8 8 history2
Oxidation Abs/.1mm *ASTM D7414 >25 14.4 14.3 18.4	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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	5 0 58 <1 961 1040 1145 1306 3248 <u>current</u> 4 2 2 <u>current</u> 0.3	4 <1 55 0 878 1020 976 1178 3249 history1 4 1 4 1 4 1 4 1 0.3	40 0 47 0 654 1391 1041 1236 3563 history2 7 4 8 8 history2 0.6
	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	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	5 0 58 <1 961 1040 1145 1306 3248 <i>current</i> 4 2 <i>current</i> 0.3 6.3	4 <1 55 0 878 1020 976 1178 3249 history1 4 1 4 1 4 1 4 1 0.3 6.3	40 0 47 0 654 1391 1041 1236 3563 history2 7 4 8 <u>history2</u> 0.6 9.4
Base Number (BN)     mg KOH/g     ASTM D2896     9.8     8.2     8.7     7.2	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 2060 225 20 225 20 20 320 33 20 20 20 20 20 20 20 20 20 20 20 20 20	5 0 58 <1 961 1040 1145 1306 3248 <u>current</u> 4 4 2 <u>current</u> 0.3 6.3 18.8	4 <1 55 0 878 1020 976 1178 3249 history1 4 1 4 1 4 history1 0.3 6.3 18.9	40 0 47 0 654 1391 1041 1236 3563 history2 7 4 8 <u>history2</u> 0.6 9.4 21.4
	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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	5 0 58 <1 961 1040 1145 1306 3248 <i>current</i> 4 4 2 <i>current</i> 0.3 6.3 18.8	4 <1 55 0 878 1020 976 1178 3249 history1 4 1 4 1 4 0.3 6.3 18.9 history1	40 0 47 0 654 1391 1041 1236 3563 history2 7 4 8 history2 0.6 9.4 21.4 history2



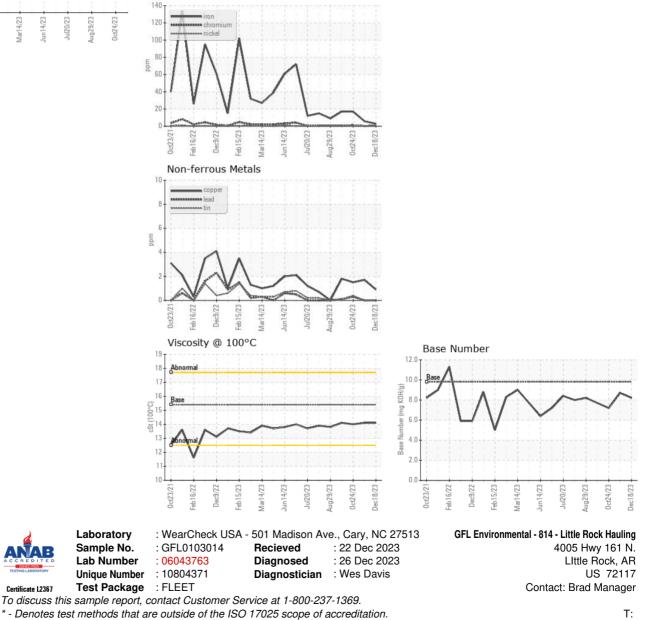
# **OIL ANALYSIS REPORT**





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	>0.2	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	15.4	14.1	14.1	14.0
GRAPHS						

Ferrous Alloys



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