

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id ASL237600 Component

Diesel Engine

DIESEL ENGINE OIL SAE 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.

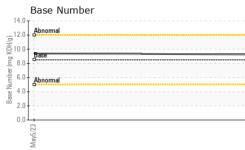
#### Fluid Condition

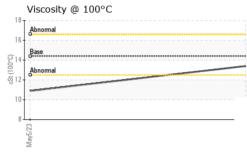
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

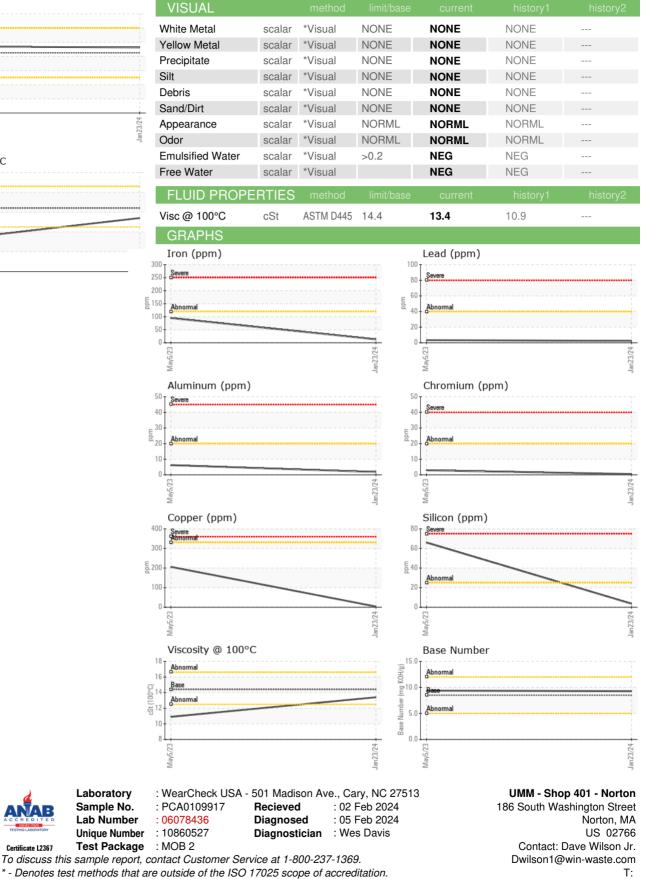
Sample Date      Client Info      23 Jan 2024      05 May 2023         Machine Age      hrs      Client Info      1793      1793         Dil Age      hrs      Client Info      1793      0         Sample Status      Client Info      N/A      N/A      N/A         CONTAMINATION      method      Imit/base      current      history1      history2        Fuel      WC Method      >0.0      4.10      0.4         Water      WC Method      >0.2      NEG      NEG         Silvol      WC Method      NEG       Silvol      25         Kickel      ppm      ASTM 05185m      >2      <1      1         Silver      ppm      ASTM 05185m      >2      <1      1         Silver      ppm      ASTM 05185m      >2      <1      1         Auminum      ppm      ASTM 05185m      >2      <1      <1         Silver <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Sample Date      Client Into      23 Jan 2024      05 May 2023         Machine Age      hrs      Client Info      1793      1793         Oil Age      hrs      Client Info      1793      0         Sample Status      Client Info      N/A      N/A          CONTAMINATION      method      limit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0      0.4         Water      WC Method      >0.2      NEG      NEG         WEAR METALS      method      limit/base      current      history1      history2        kron      ppm      ASTM D5185m      >120      13      95         WEAR METALS      method      limit/base      current      history1      history2        kron      ppm      ASTM D5185m      >2      1      1         Silver      ppm      ASTM D5185m      >2      1      1         Kitekis      pp	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age      hrs      Client Info      1793      1793         Dil Age      hrs      Client Info      1793      0         Dil Changed      Client Info      1793      0         Sample Status      Imit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0      0.4         Water      WC Method      >0.2      NEG         Orronium      ppm      ASTM 5585      >13      95         Nickel      ppm      ASTM 5585      >20      1      3         Nickel      ppm      ASTM 5585      >20      2      6         Aluminum      ppm      ASTM 5585      >20      2      6         Aluminum      ppm      ASTM 5585      >30      4      206         Auminum      ppm      ASTM 5585      >20      2      6         Auminum      ppm      ASTM 5585      2      9	Sample Number		Client Info		PCA0109917	PCA0090518	
Dil Age      hrs      Client Info      1793      0         Sample Status      Client Info      N/A      N/A      N/A         Sample Status      method      limit/base      current      history1      history2        Fuel      WC Method      >0.0       method      method      no.0         Water      WC Method      >0.2      NEG      NEG         WetAR METALS      method      imit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >120      13      95         WEAR METALS      method      isit D5185m      >2      1      1         Iron      ppm      ASTM D5185m      >2      1      1         Iranium      ppm      ASTM D5185m      >2      1      1         Silver      ppm      ASTM D5185m      >2      9          Copper      ppm      ASTM D5185m      >10      0	Sample Date		Client Info		23 Jan 2024	05 May 2023	
Dil Changed      Client Info      N/A      N/A      ABNORMAL	Machine Age	hrs	Client Info		1793	1793	
Sample Status      NORMAL      ABNORMAL         CONTAMINATION      method      limit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0      0.4         Water      WC Method      >0.2      NEG      NEG         Glycol      WC Method      >0.2      NEG      NEG         WEAR METALS      method      limit/base      current      history1      history2        ron      ppm      ASTM D5185m<>20      <1      3         Nickel      ppm      ASTM D5185m<>22      <1      1         Nickel      ppm      ASTM D5185m<>22      <1      1         Aluminum      ppm      ASTM D5185m<>20      2      6         Read      ppm      ASTM D5185m      2      9         Aluminum      ppm      ASTM D5185m      21      21         Copper      ppm      ASTM D5185m      25      10      0	Oil Age	hrs	Client Info		1793	0	
CONTAMINATION      method      limit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0      0.4         Glycol      WC Method      >0.2      NEG      NEG         WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM 05185m      >120      13      95         Nickel      ppm      ASTM 05185m      >20      <1      3         Silver      ppm      ASTM 05185m      >2      <1      1         Auminum      ppm      ASTM 05185m      >2      <1      1         Copper      ppm      ASTM 05185m      >20      2      6         Cadmium      ppm      ASTM 05185m      >30      4      206         ADDITIVES      method      limit/base      current      history1      history2        Barium      ppm      ASTM 05185m      100      0	Oil Changed		Client Info		N/A	N/A	
Fuel      WC Method      >3.0      <1.0	Sample Status				NORMAL	ABNORMAL	
Water      WC Method      >0.2      NEG      NEG         Glycol      WC Method      NEG      NEG         WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM 05185m      >120      13      95         Chromium      ppm      ASTM 05185m      >20      <1      3         Nickel      ppm      ASTM 05185m      >2      <1      1         Silver      ppm      ASTM 05185m      >2      <1      <1         Aluminum      ppm      ASTM 05185m      >20      2      6         Silver      ppm      ASTM 05185m      >20      2      6         Auminum      ppm      ASTM 05185m      >15      2      9         Capper      ppm      ASTM 05185m      10      24         Cadmium      ppm      ASTM 05185m      10      0         Marganesic      ppm	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol      WC Method      NEG      NEG         WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >120      13      95         Nickel      ppm      ASTM D5185m      >20      <1      3         Nickel      ppm      ASTM D5185m      >2      <1      1         Nickel      ppm      ASTM D5185m      >2      <1      1         Aluminum      ppm      ASTM D5185m      >20      2      6         Aluminum      ppm      ASTM D5185m      >20      2      6         Lead      ppm      ASTM D5185m      >15      2      9         Vanadium      ppm      ASTM D5185m      15      2      9         ADDITIVES      method      limit/base      current      history1      history2        Baron      ppm      ASTM D5185m      10      0 </th <th>Fuel</th> <th></th> <th>WC Method</th> <th>&gt;3.0</th> <th>&lt;1.0</th> <th>0.4</th> <th></th>	Fuel		WC Method	>3.0	<1.0	0.4	
WEAR METALS      method      limit/base      current      history1      history2        iron      ppm      ASTM D5185m      >120      13      95         Chromium      ppm      ASTM D5185m      >20      <1      3         Nickel      ppm      ASTM D5185m      >5      3      25         Titanium      ppm      ASTM D5185m      >2      <1      1         Silver      ppm      ASTM D5185m      >2      <1      1         Lead      ppm      ASTM D5185m      >20      2      6         Copper      ppm      ASTM D5185m      >20      2      6         Copper      ppm      ASTM D5185m      >20      2      6         Cadmium      ppm      ASTM D5185m      >15      2      9         Additium      ppm      ASTM D5185m      10      0          Additium      ppm      ASTM D5185m      250      10	Water		WC Method	>0.2	NEG	NEG	
ron      ppm      ASTM D5185m      >120      13      95         Chromium      ppm      ASTM D5185m      >20      <1      3         Nickel      ppm      ASTM D5185m      >5      3      ▲      25         Nickel      ppm      ASTM D5185m      >2      <1      1         Silver      ppm      ASTM D5185m      >20      2      6         Lead      ppm      ASTM D5185m      >20      2      6         Lead      ppm      ASTM D5185m      >20      2      3         Copper      ppm      ASTM D5185m      >330      4      2066         Cadmium      ppm      ASTM D5185m      >15      2      9         ADDITVES      method      limit/base      current      history1      history2        Barium      ppm      ASTM D5185m      100      60      110         Maganesium      ppm      ASTM D5185m      150	Glycol		WC Method		NEG	NEG	
Chromium      ppm      ASTM D5185m      >20      <1	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium      ppm      ASTM D5185m      >20      <1	Iron	nnm	ASTM D5185m	>120	13	95	
Nickel      ppm      ASTM D5185m      >5      3      ▲      25         Titanium      ppm      ASTM D5185m      >2      <1      1         Silver      ppm      ASTM D5185m      >20      2      6         Aluminum      ppm      ASTM D5185m      >20      2      6         Lead      ppm      ASTM D5185m      >20      2      3         Copper      ppm      ASTM D5185m      >215      2      9         Copper      ppm      ASTM D5185m      >15      2      9         Cadmium      ppm      ASTM D5185m      >15      2      9         ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      250      10      24         Barium      ppm      ASTM D5185m      100      60      110         Calaium      ppm      ASTM D5185m      120					-		
Titanium      ppm      ASTM D5185m      >2      <1							
Silver      ppm      ASTM D5185m      >2      <1							
Aluminum      ppm      ASTM D5185m      >20      2      6         Lead      ppm      ASTM D5185m      >40      2      3         Copper      ppm      ASTM D5185m      >330      4      206         Tin      ppm      ASTM D5185m      >15      2      9         Cadmium      ppm      ASTM D5185m      <1      <1          ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      250      10      24         Molybdenum      ppm      ASTM D5185m      100      60      110         Magnesse      ppm      ASTM D5185m      100      60      110         Magnesium      ppm      ASTM D5185m      150      968      772         Calcium      ppm      ASTM D5185m      130      1186      977         Sulfur      ppm      ASTM D5185m      250<							
Lead      ppm      ASTM D5185m      >40      2      3         Copper      ppm      ASTM D5185m      >330      4      206         Tin      ppm      ASTM D5185m      >15      2      9         Vanadium      ppm      ASTM D5185m      <1      <1         Cadmium      ppm      ASTM D5185m      <1      0         ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      250      10      24         Molybdenum      ppm      ASTM D5185m      100      60      110         Maganese      ppm      ASTM D5185m      100      60          Magnesium      ppm      ASTM D5185m      100      60          Calcium      ppm      ASTM D5185m      100      903      816         Sulfur      ppm      ASTM D5185m      150      2772      231							
Copper      ppm      ASTM D5185m      >330      4      206         Tin      ppm      ASTM D5185m      >15      2      9         Vanadium      ppm      ASTM D5185m      <1      <1         Cadmium      ppm      ASTM D5185m      <1      0         ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      250      10      24         Barium      ppm      ASTM D5185m      10      0      0         Maganese      ppm      ASTM D5185m      100      60      110         Galcium      ppm      ASTM D5185m      100      6       1470         Calcium      ppm      ASTM D5185m      100      903      816         Sulfur      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      255      4							
Tin    ppm    ASTM D5185m<>15    2    9       Vanadium    ppm    ASTM D5185m    <1							
Vanadium      ppm      ASTM D5185m      <1	Tin						
Cadmium      ppm      ASTM D5185m      <1				10			
ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      250      10      24         Barium      ppm      ASTM D5185m      10      0      0         Molybdenum      ppm      ASTM D5185m      100      60      110         Manganese      ppm      ASTM D5185m      100      60      110         Magnesium      ppm      ASTM D5185m      100      60      110         Calcium      ppm      ASTM D5185m      100      903      816         Calcium      ppm      ASTM D5185m      3000      991      1470         Calcium      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      225      4      66         Solium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base<	Cadmium						
Boron      ppm      ASTM D5185m      250      10      24         Barium      ppm      ASTM D5185m      10      0      0         Molybdenum      ppm      ASTM D5185m      100      60      110         Manganese      ppm      ASTM D5185m      100      60      110         Magnesium      ppm      ASTM D5185m      450      903      816         Calcium      ppm      ASTM D5185m      450      903      816         Calcium      ppm      ASTM D5185m      150      968      772         Vince      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      4250      2772      2318         CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base	ADDITIVES		method	limit/base	current	historv1	historv2
Barium      ppm      ASTM D5185m      10      0      0							,
Molybdenum      ppm      ASTM D5185m      100      60      110         Manganese      ppm      ASTM D5185m      2      6         Magnesium      ppm      ASTM D5185m      450      903      816         Calcium      ppm      ASTM D5185m      3000      991      1470         Calcium      ppm      ASTM D5185m      1150      968      772         Zinc      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      4250      2772      2318         Sulfur      ppm      ASTM D5185m      4250      2772      2318         Solfum      ppm      ASTM D5185m      >25      4      66         Soldium      ppm      ASTM D5185m      >158      4      5         Soldium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base <t< th=""><th>Boron</th><th>nnm</th><th>4STM D5185m</th><th>250</th><th>10</th><th>24</th><th></th></t<>	Boron	nnm	4STM D5185m	250	10	24	
Manganese    ppm    ASTM D5185m    2    6       Magnesium    ppm    ASTM D5185m    450    903    816       Calcium    ppm    ASTM D5185m    3000    991    1470       Calcium    ppm    ASTM D5185m    3000    991    1470       Phosphorus    ppm    ASTM D5185m    1150    968    772       Zinc    ppm    ASTM D5185m    1350    1186    977       Sulfur    ppm    ASTM D5185m    4250    2772    2318       CONTAMINANTS    method    limit/base    current    history1    history2      Silicon    ppm    ASTM D5185m    >25    4    66       Sodium    ppm    ASTM D5185m    >25    4    10       INFRA-RED    method    limit/base    current    history1    history2      Soot %    %    *ASTM D7844    >4    0.5    1.1       Sulfation    Abs/rmm    *ASTM D7415	Boron Barium				-		
Magnesium    ppm    ASTM D5185m    450    903    816       Calcium    ppm    ASTM D5185m    3000    991    1470       Phosphorus    ppm    ASTM D5185m    1150    968    772       Zinc    ppm    ASTM D5185m    1350    1186    977       Sulfur    ppm    ASTM D5185m    4250    2772    2318       CONTAMINANTS    method    limit/base    current    history1    history2      Silicon    ppm    ASTM D5185m    >25    4    66       Sodium    ppm    ASTM D5185m    >158    4    5       Potassium    ppm    ASTM D5185m    >20    4    10       INFRA-RED    method    limit/base    current    history1    history2      Soot %    %    *ASTM D7844    >4    0.5    1.1       Sulfation    Abs/cm    *ASTM D7624    >20    8.4    14.0       Sulfation    Abs/.1m	Barium	ppm	ASTM D5185m	10	0	0	
Calcium      ppm      ASTM D5185m      3000      991      1470         Phosphorus      ppm      ASTM D5185m      1150      968      772         Zinc      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      4250      2772      2318         CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4	Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	10	0 60	0 110	
Phosphorus      ppm      ASTM D5185m      1150      968      772         Zinc      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      1350      1186      977         CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >158      4      5         Sodium      ppm      ASTM D5185m      >158      4      5         Potassium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.5      1.1         Sulfation      Abs/(mm      *ASTM D7624      >20      8.4      14.0         FLUID DEGRADATION      method      limit/base <th>Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m</th> <th>10 100</th> <th>0 60 2</th> <th>0 110 6</th> <th></th>	Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	10 100	0 60 2	0 110 6	
Zinc      ppm      ASTM D5185m      1350      1186      977         Sulfur      ppm      ASTM D5185m      4250      2772      2318         CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >25      4      5         Sodium      ppm      ASTM D5185m      >25      4      06         Sodium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.5      1.1         Sulfation      Abs/cm      *ASTM D7624      >20      8.4      14.0         FLUID DEGRADATION      method      limit/base	Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450	0 60 2 903	0 110 6 816	  
SulfurppmASTM D5185m425027722318CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25466SodiumppmASTM D5185m>15845PotassiumppmASTM D5185m>20410INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.51.1NitrationAbs/cm*ASTM D7624>208.414.0SulfationAbs/imm*ASTM D7415>3019.224.7FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2515.025.3	Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000	0 60 2 903 991	0 110 6 816 1470	  
Silicon      ppm      ASTM D5185m      >25      4      66         Sodium      ppm      ASTM D5185m      >158      4      5         Potassium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.5      1.1         Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000 1150	0 60 2 903 991 968	0 110 6 816 1470 772	  
Sodium      ppm      ASTM D5185m      >158      4      5         Potassium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.5      1.1         Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350	0 60 2 903 991 968 1186	0 110 6 816 1470 772 977	   
Sodium      ppm      ASTM D5185m      >158      4      5         Potassium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.5      1.1         Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	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 ASTM D5185m	10 100 450 3000 1150 1350 4250	0 60 2 903 991 968 1186 2772	0 110 6 816 1470 772 977 2318	
Potassium      ppm      ASTM D5185m      >20      4      10         INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.5      1.1         Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	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 ASTM D5185m	10 100 450 3000 1150 1350 4250	0 60 2 903 991 968 1186 2772 current	0 110 6 816 1470 772 977 2318 history1	     history2
Soot %      %      *ASTM D7844      >4      0.5      1.1         Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	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	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	0 60 2 903 991 968 1186 2772 current 4	0 110 6 816 1470 772 977 2318 history1 ▲ 66	     history2 
Soot %      %      *ASTM D7844      >4      0.5      1.1         Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	0 60 2 903 991 968 1186 2772 current 4 4	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5	     history2
Nitration      Abs/cm      *ASTM D7624      >20      8.4      14.0         Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	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	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	0 60 2 903 991 968 1186 2772 current 4 4 4	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5 10	    history2  
Sulfation      Abs/.1mm      *ASTM D7415      >30      19.2      24.7         FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <i>limit/base</i> >25 >158 >20 <i>limit/base</i>	0 60 2 903 991 968 1186 2772 current 4 4 4 4	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5 10 history1	    history2   history2
FLUID DEGRADATION  method  limit/base  current  history1  history2    Oxidation  Abs/.1mm  *ASTM D7414  >25  15.0  25.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b> >4	0 60 2 903 991 968 1186 2772 current 4 4 4 4 0.5	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5 10 history1 1.1	    history2   history2
Oxidation      Abs/.1mm      *ASTM D7414      >25      15.0      25.3	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >20	0 60 2 903 991 968 1186 2772 <u>current</u> 4 4 4 4 0.5 8.4	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5 10 history1 1.1 1.4.0	    history2  history2 history2
	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	10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >4 >20 >4 >20 >30	0 60 2 903 991 968 1186 2772 current 4 4 4 4 4 0.5 8.4 19.2	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5 10 history1 1.1 1.4 24.7	    history2  history2  history2
Base Number (BN)      mg KOH/g      ASTM D2896      8.5      9.26      9.39	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	10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >4 >20 >4 >20 >30	0 60 2 903 991 968 1186 2772 current 4 4 4 4 4 0.5 8.4 19.2	0 110 6 816 1470 772 977 2318 history1 ▲ 66 5 10 history1 1.1 1.4 24.7	    history2  history2  history2
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >4 >20 >30 <b>imit/base</b>	0 60 2 903 991 968 1186 2772 <i>current</i> 4 4 4 4 4 0.5 8.4 19.2 <i>current</i>	0 110 6 816 1470 772 977 2318 history1 6 66 5 10 10 1.1 1.4.0 24.7 history1 25.3	     history2  history2  history2  history2



# **OIL ANALYSIS REPORT**







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

Certificate L2367

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