

# **OIL ANALYSIS REPORT**



#### Machine Id W1 Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 15W40 (--- QTS)

#### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

## Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

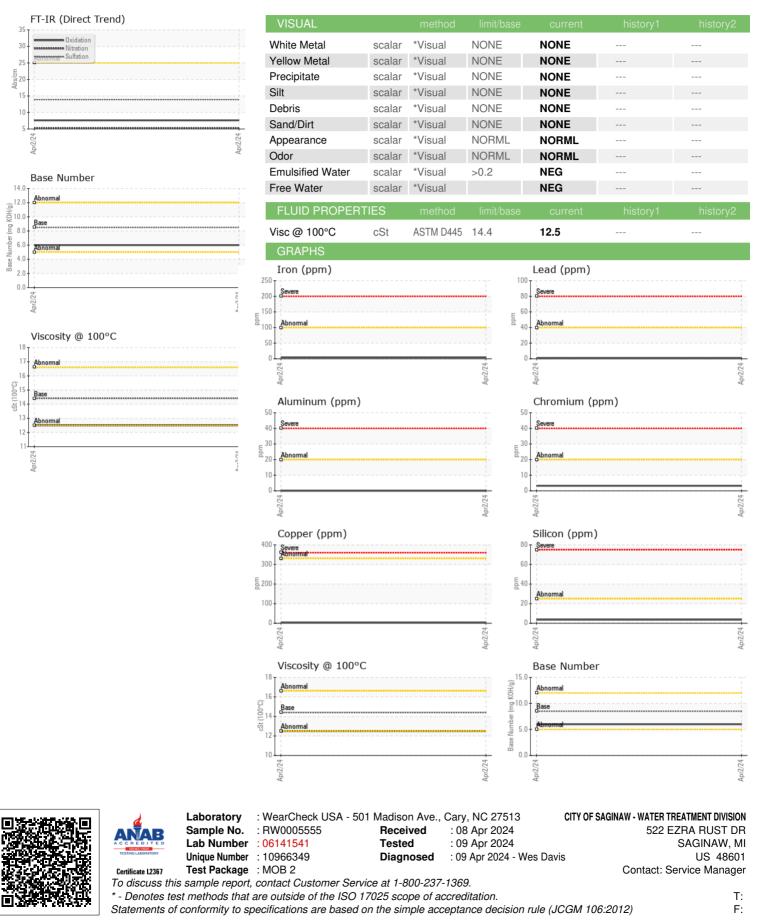
#### Fluid Condition

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         RW0005555             Sample Date         Client Info         02 Apr 2024             Machine Age         hrs         Client Info         2191             Oil Age         hrs         Client Info         167             Oil Changed         Client Info         N/A             Sample Status         Imathematical Status              Sample Status         Imathematical Status         Imathematical Status             Sample Xeatus         Imathematical Status         Imathe						la i a ta mud	bists w.O
Sample Date         Client Into         02 Apr 2024             Machine Age         hrs         Client Info         2191             Oil Age         hrs         Client Info         167             Sample Status         Client Info         NA              CONTAMINATION         method         Imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0             Qontaminum         WC Method         >0.2         NEG             Water         WC Method         >0.2         NEG             Water         ppm         ASTM05185m         >100         4             Water         ppm         ASTM05185m         >20         3             Itanium         ppm         ASTM05185m         >40              Sliver         ppm         ASTM05185m         >30         4             Gopper         ppm         ASTM0518		ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         2191             Oil Age         hrs         Client Info         167             Sample Status         Client Info         N/A             CONTAMINATION         method         Imit/base         current         history1            Water         Imit/base         current         history1             Glycol         WC Method         >5         <1.0							
Oli Age         hrs         Client Info         167             Oil Changed         Client Info         N/A             Sample Status         C         Imit/bass         current         history1            CONTAMINATION         method         imit/bass         current         history1         history2           Fuel         WC Method         >5         <1.0             Water         WC Method         >0              WeAR METALS         method         imit/bass         current         history1         history2           Iron         ppm         ASTM D5185m         >100         4             Mickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >30              Cadmium         ppm         ASTM D5185m         >40              Cadmium         <					-		
Oli Changed         Client Info         N/A             Sample Status         I         Nethod         NorRMAL             CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5.2         <1.0	-				-		
Sample Status         method         imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0             Water         WC Method         >0.2         NEG             Glycol         WC Method         >0.2         NEG             WeAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5185         >100         4             Okcel         ppm         ASTM D5185         >20         3             Nockel         ppm         ASTM D5185         >4         0             Auminum         ppm         ASTM D5185         >4         0             Lead         ppm         ASTM D5185         >20         0             Adminum         ppm         ASTM D5185         20         0             Vanadium         ppm         ASTM D5185         0	-	hrs			-		
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0             Water         WC Method         >0.2         NEG             Glycol         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >4         0             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >3         0             Lead         ppm         ASTM D5185m         >30         4             Vanadium         ppm         ASTM D5185m         >15         <1             Copper         ppm         ASTM D5185m         10         0             Aduminum         ppm         ASTM D5185m         11             Aduminum	U		Client Info				
Fuel         WC Method         >5         <1.0	Sample Status				NORMAL		
Water         WC Method         >0.2         NEG             Glycol         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         4             Chromium         ppm         ASTM D5185m         >20         3             Nickel         ppm         ASTM D5185m         >4         0             Aluminum         ppm         ASTM D5185m         >20         0             Silver         ppm         ASTM D5185m         >20         0             Aluminum         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >10         <11             Vanadium         ppm         ASTM D5185m         10         0             Addition         ppm         ASTM D5185m         100         7 </th <th>CONTAMINATION</th> <th>۷</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATION	۷	method	limit/base	current	history1	history2
Glycol         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         3             Chromium         ppm         ASTM D5185m         >20         3             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >3         0             Lead         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >30         4             Adaminum         ppm         ASTM D5185m         >10              Vanadium         ppm         ASTM D5185m         10              ADDITVES         method         limit/base         current         history1         history1         history2           Barium         ppm         ASTM D5185m         100	Fuel		WC Method	>5	<1.0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         4             Chromium         ppm         ASTM D5185m         >20         3             Nickel         ppm         ASTM D5185m         >4         0             Titanium         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >3         0             Lead         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >15         <1	Water		WC Method	>0.2	NEG		
Iron         ppm         ASTM D5185m         >100         4             Chromium         ppm         ASTM D5185m         >20         3             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >30         0             Copper         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >40         <1             Cadmium         ppm         ASTM D5185m         >330         4             Vanadium         ppm         ASTM D5185m         >330         4             Cadmium         ppm         ASTM D5185m         0	Glycol		WC Method		NEG		
Chromium         ppm         ASTM D5185m         >20         3             Nickel         ppm         ASTM D5185m         >4         0             Titanium         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >3         0             Lead         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >40         <1             Copper         ppm         ASTM D5185m         >30         4             Cadmium         ppm         ASTM D5185m         >15         <1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         10         0             Magnesium         ppm         ASTM D5185m         150         90             Calcium         ppm         ASTM D5185m         1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >4         0             Titanium         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >20         0             Lead         ppm         ASTM D5185m         >330         4             Copper         ppm         ASTM D5185m         >40              Vanadium         ppm         ASTM D5185m         >30         4             Vanadium         ppm         ASTM D5185m         >30         4             Vanadium         ppm         ASTM D5185m         0              Addminum         ppm         ASTM D5185m         10         0             ADDITVES         method         limit/base         current         history1            Molydenum         ppm         ASTM D5185m         100	Iron	ppm	ASTM D5185m	>100	4		
Nickel         ppm         ASTM D5185m         >4         0             Titanium         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >20         0             Lead         ppm         ASTM D5185m         >20         0             Copper         ppm         ASTM D5185m         >330         4             Tin         ppm         ASTM D5185m         >15         <1	Chromium		ASTM D5185m	>20	3		
Titanium         ppm         ASTM D5185m         1             Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >20         0             Lead         ppm         ASTM D5185m         >30         4             Copper         ppm         ASTM D5185m         >330         4             Vanadium         ppm         ASTM D5185m         >330         4             Vanadium         ppm         ASTM D5185m         >15         <1	Nickel		ASTM D5185m	>4	0		
Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >20         0             Lead         ppm         ASTM D5185m         >40         <1	Titanium		ASTM D5185m		1		
Lead         ppm         ASTM D5185m         >40         <1             Copper         ppm         ASTM D5185m         >330         4             Tin         ppm         ASTM D5185m         >15         <1	Silver		ASTM D5185m	>3	0		
Copper         ppm         ASTM D5185m         >330         4             Tin         ppm         ASTM D5185m         >15         <1	Aluminum	ppm	ASTM D5185m	>20	0		
Copper         ppm         ASTM D5185m         >330         4             Tin         ppm         ASTM D5185m         >15         <1	Lead		ASTM D5185m	>40	<1		
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         11             Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         7             Maganese         ppm         ASTM D5185m         100         7             Magnesium         ppm         ASTM D5185m         100         7             Magnesium         ppm         ASTM D5185m         100         719             Calcium         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         1450         719             Sulfur         ppm         ASTM D5185m         255         4	Copper	ppm	ASTM D5185m	>330	4		
Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         11             Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         7             Magnesse         ppm         ASTM D5185m         100         7             Magnesium         ppm         ASTM D5185m         100         7             Calcium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Sulfur         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         250         3110             Sulfur         ppm         ASTM D5185m         >22         0<	Tin	ppm	ASTM D5185m	>15	<1		
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m25011BariumppmASTM D5185m100MolybdenumppmASTM D5185m1007ManganeseppmASTM D5185m1007MagnesiumppmASTM D5185m45090CalciumppmASTM D5185m300021866PhosphorusppmASTM D5185m1350801SulfurppmASTM D5185m1350801SulfurppmASTM D5185m2503110CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>254NotassiumppmASTM D5185m>200INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7644>30.1NitrationAbs/.tmm*ASTM D7645>3013.9SulfationAbs/.tmm*ASTM D7644>30.1FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2CxidationAbs/.tmm*ASTM D7145>30	Vanadium	ppm	ASTM D5185m		0		
Boron         ppm         ASTM D5185m         250         11             Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         7             Manganese         ppm         ASTM D5185m         100         7             Magnesium         ppm         ASTM D5185m         100         7             Magnesium         ppm         ASTM D5185m         100         7             Calcium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Calcium         ppm         ASTM D5185m         1150         719             Sulfur         ppm         ASTM D5185m         1350         801             Solium         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m <t< th=""><th>Cadmium</th><th>nnm</th><th>ASTM D5185m</th><th></th><th>•</th><th></th><th></th></t<>	Cadmium	nnm	ASTM D5185m		•		
Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         7             Manganese         ppm         ASTM D5185m         100         7             Magnesium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Phosphorus         ppm         ASTM D5185m         1150         719             Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         14250         3110             Sulfur         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >158         1             INFRA-RED         method	odamiani	ppm	ASTIVI DJ10JIII		U		
Molybdenum         ppm         ASTM D5185m         100         7             Manganese         ppm         ASTM D5185m         450         90             Magnesium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Phosphorus         ppm         ASTM D5185m         1150         719             Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         14250         3110             Sulfur         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >158         1             Potassium         ppm         ASTM D7844         >3         0.1             Nitration         Abs/cm		ppin		limit/base	-		
Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Phosphorus         ppm         ASTM D5185m         1150         719             Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         4250         3110             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3	ADDITIVES		method		current	history1	history2
Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Phosphorus         ppm         ASTM D5185m         1150         719             Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         4250         3110             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >158         1             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844 <td< td=""><td>ADDITIVES Boron</td><td>ppm</td><td>method ASTM D5185m</td><td>250</td><th>current</th><td>history1</td><td>history2</td></td<>	ADDITIVES Boron	ppm	method ASTM D5185m	250	current	history1	history2
Magnesium         ppm         ASTM D5185m         450         90             Calcium         ppm         ASTM D5185m         3000         2186             Phosphorus         ppm         ASTM D5185m         1150         719             Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         4250         3110             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >20         0             Ntrassium         ppm         ASTM D5185m         >20         0             Ntrassium         ppm         ASTM D5185m         >20         5.3             Nitration         Abs/cm         *ASTM D7614 <td>ADDITIVES Boron Barium</td> <td>ppm ppm</td> <td>method ASTM D5185m ASTM D5185m</td> <td>250 10</td> <th>current 11 0</th> <td>history1 </td> <td>history2 </td>	ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current 11 0	history1 	history2 
Calcium         ppm         ASTM D5185m         3000         2186             Phosphorus         ppm         ASTM D5185m         1150         719             Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         1350         801             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/1mm         *ASTM D7624	ADDITIVES Boron Barium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250 10	current 11 0 7	history1  	history2  
Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         4250         3110             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >158         1             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/cm         *ASTM D7624         >20         5.3             Sulfation         Abs/1mm         *ASTM D7415         >30         13.9        FLUID DEGRADATION         method	ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	current 11 0 7 <1	history1  	history2  
Zinc         ppm         ASTM D5185m         1350         801             Sulfur         ppm         ASTM D5185m         4250         3110             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >158         1             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/cm         *ASTM D7624         >20         5.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         13.9             Qxidation         Abs/.1mm	ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	current 11 0 7 <1 90	history1   	history2   
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>254SodiumppmASTM D5185m>1581PotassiumppmASTM D5185m>200INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.1NitrationAbs/cm*ASTM D7624>205.3SulfationAbs/.imm*ASTM D7415>3013.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.imm*ASTM D7414>257.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	current           11           0           7           <1           90           2186	history1	history2   
Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         >158         1             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/cm         *ASTM D7624         >20         5.3             Sulfation         Abs/.tmm         *ASTM D7415         >30         13.9             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.tmm         *ASTM D7414         >25         7.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	Current 11 0 7 <1 90 2186 719	history1	history2
Sodium         ppm         ASTM D5185m         >158         1             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/cm         *ASTM D7624         >20         5.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         13.9             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         7.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350	Current 11 0 7 <1 90 2186 719 801	history1	history2
Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/cm         *ASTM D7624         >20         5.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         13.9             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         7.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250	Current 11 0 7 <1 90 2186 719 801 3110	history1	history2
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.1NitrationAbs/cm*ASTM D7624>205.3SulfationAbs/.1mm*ASTM D7415>3013.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>257.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	Current 11 0 7 <1 90 2186 719 801 3110 Current	history1	history2
Soot %         %         *ASTM D7844         >3         0.1             Nitration         Abs/cm         *ASTM D7624         >20         5.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         13.9             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         7.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	current           11           0           7           <1           90           2186           719           801           3110           current           4	history1 history1	history2 history2
Nitration         Abs/cm         *ASTM D7624         >20 <b>5.3</b> Sulfation         Abs/.1mm         *ASTM D7615         >30 <b>13.9</b> FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25 <b>7.6</b>	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	current           11           0           7           <1           90           2186           719           801           3110           current           4           1	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         13.9             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         7.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	current           11           0           7           <1           90           2186           719           801           3110           current           4           1           0	history1 history1 history1	history2 history2
SulfationAbs/.1mm*ASTM D7415>3013.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>257.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iinit/base</b> >25 >158 >20 <b>Iinit/base</b>	current           11           0           7           <1           90           2186           719           801           3110           current           4           1           0           current	history1 history1 history1 history1	history2
Oxidation Abs/.1mm *ASTM D7414 >25 7.6	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b> >3	current           11           0           7           <1           90           2186           719           801           3110           current           4           1           0           current           0           current           0.1	history1 history1 history1 history1	history2
	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 <b>Iimit/base</b> >3 >20	current           11           0           7           <1           90           2186           719           801           3110           current           4           1           0           current           0           current           0.1           5.3	history1                              history1               history1            history1	history2   history2               history2
	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method         ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >3 >20	current           11           0           7           <1           90           2186           719           801           3110           current           4           1           0           current           0.1           5.3           13.9	history1  history1            history1	history2                              history2            history2            history2            history2 </td
	ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D76185m           *ASTM D7624           *ASTM D7624           *ASTM D7415           method	250 10 100 450 3000 1150 1350 4250 <b>bimit/base</b> >25 >158 >20 <b>bimit/base</b> >3 >20 >30	current         11         0         7         <1         90         2186         719         801         3110         current         4         1         0         current         0         current         1.3.9         current	history1  history1            history1	history2  history2               history2            history2            history2            history2               history2



# **OIL ANALYSIS REPORT**



Contact/Location: Service Manager - CITSAGMI