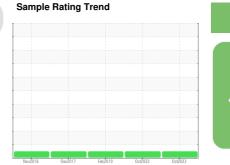


# **OIL ANALYSIS REPORT**

G.LOPES CONSTRUCTION INC./On-Road





NORMAL

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

SAMPLE INFORMATION method

## DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

WT11 Component

### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

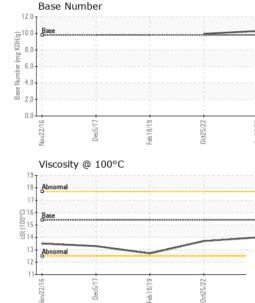
### Fluid Condition

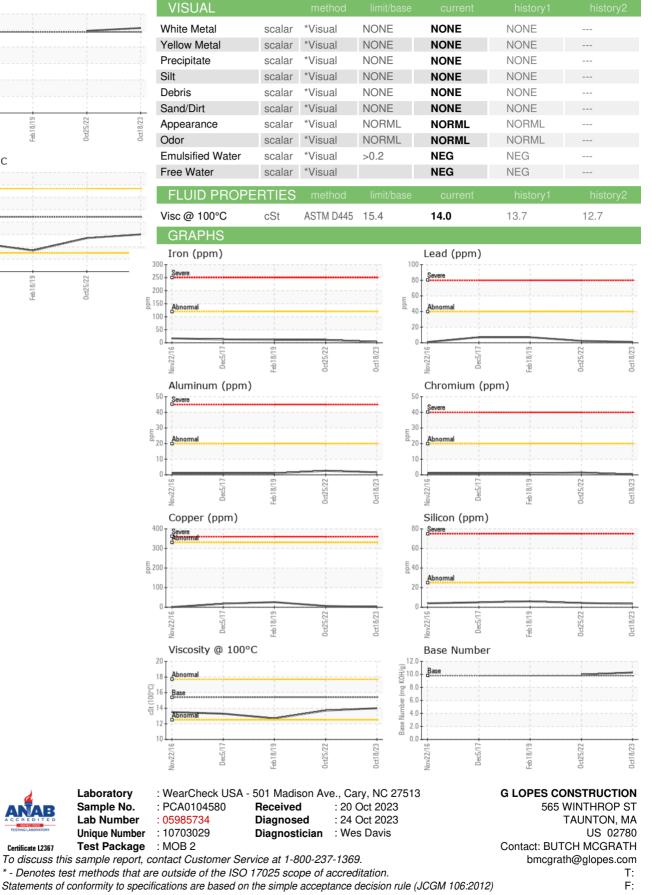
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number         Client Info         PCA0104580         PCA0178202         PCA63173041           Sample Date         Client Info         18 Oct 2023         25 Oct 2022         18 Feb 2019           Machine Age         mis         Client Info         406000         406000            Oll Age         mis         Client Info         406000         406000            Oll Anged         Client Info         N/A         N/A         N/A         N/A           Sample Status         Im         Client Info         N/A         N/A         N/A           Glopol         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Tron         ppm         ASTM 05185         >20         <1         0            Trainum         ppm         ASTM 05185         >20         <1         0            Trainum         ppm         ASTM 05185         >20         2         3         1            Coper         ppm	SAMPLE INFOR	VIATION	methou	iiiiii/base	current	TIIStOLA	Thistory Z
Machine Age         mils         Client Info         406000         406000         406000           Oil Age         mils         Client Info         N/A         N/A         N/A           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Imit/base         current         History1         History2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Mickel         ppm         ASTM D5185m         >120         3         11         11           Chromium         ppm         ASTM D5185m         >5         <1         0         0           Titanium         ppm         ASTM D5185m         >20         <1         2         7           Copper         ppm         ASTM D5185m         >20         <1         0            ADDITY         ASTM D5185m         >40         1         2         7         Copper         ppm         ASTM D5185m         <1 <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>PCA0104580</th> <th>PCA0078202</th> <th>PCA63173041</th>	Sample Number		Client Info		PCA0104580	PCA0078202	PCA63173041
Oil Age         mis         Client Info         406000         406000            Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Imit Description         Imit/Description         NoRMAL         NORMAL         NORMAL           CONTAMINATION         method         Imit/Description         Current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.1         11	Sample Date		Client Info		18 Oct 2023	25 Oct 2022	18 Feb 2019
Oil Age         mis         Client Info         406000         406000            Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Imit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.1         11	Machine Age	mls	Client Info		406000	406000	406000
Oli Changed         Client Info         N/A         N/A         N/A         N/A         N/A           Sample Status         Image Status         Image Status         NormAL         NormAL         NormAL         NormAL         NormAL         NormAL         NormAL         NormAL           CONTAMINATION         method         Imit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         >3.0         <1.0         <1.0         <1.0           Chromium         ppm         ASTM D5185m         >12.0         3         11         11           Chromium         ppm         ASTM D5185m         >2.2         0         <1         0           Silver         ppm         ASTM D5185m         >2.2         0         <1         0            Auminum         ppm         ASTM D5185m         >2.0         <1         0           0            Auminum         ppm         ASTM D5185m         >2.0         <1         0            0            0	0	mls	Client Info		406000	406000	
Sample Status         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         0.0           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         <1         2         1           Nickel         ppm         ASTM D5185m         >2         0         <1         0           Silver         ppm         ASTM D5185m         >2         0         <1         0           Copper         ppm         ASTM D5185m         >20         2         3         1           Lead         ppm         ASTM D5185m         >20         2         6         26           Tin         ppm         ASTM D5185m         >15         <1         <1         0           Copper         ppm         ASTM D5185m         0         0         <1         0           Roadmium	•					N/A	N/A
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         0.0           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         <1         2         1           Nickel         ppm         ASTM D5185m         >20         <1         0         0           Silver         ppm         ASTM D5185m         >2         0         <1         0         0           Silver         ppm         ASTM D5185m         >20         2         3         1         1         2         7           Copper         ppm         ASTM D5185m         >20         2         3         1         0         1         0         1         0         1         0         1         0         1         1         0         1         0         1         0         1         0         1         1         0         1         0         1         1	0				NORMAL		NORMAL
Fuel         WC Method         >3.0         <1.0	•						-
Glycol         WC Method         NEG         NEG         0.0           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         3         11         11           Chromium         ppm         ASTM D5185m         >20         <1         2         1           Nickel         ppm         ASTM D5185m         >2         0         <1         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         3         1           Lead         ppm         ASTM D5185m         >20         2         3         1           Lead         ppm         ASTM D5185m         >40         1         2         7           Copper         ppm         ASTM D5185m         0         <<1         0            ADDITIVES         method         limit/base         current         history1         history2           Barium         ppm         ASTM D5185m         0         0         <1       Magnes	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         3         11         11           Othromium         ppm         ASTM D5185m         >20         <1         2         1           Nickel         ppm         ASTM D5185m         >2         0         <1         0         0           Titanium         ppm         ASTM D5185m         >2         0         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0         0           Lead         ppm         ASTM D5185m         >20         2         3         1         1           Lead         ppm         ASTM D5185m         >20         2         3         1         0           Copper         ppm         ASTM D5185m         >20         2         3         1         0           Cadmium         ppm         ASTM D5185m         >20         2         3         1         0           Cadmium         ppm         ASTM D5185m         15         <1         0          1	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Iron         ppm         ASTM D5185m         >120         3         11         11           Chromium         ppm         ASTM D5185m         >20         <1	Glycol		WC Method		NEG	NEG	0.0
Chromium         ppm         ASTM D5185m         >20         <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >5         <1	Iron	ppm	ASTM D5185m	>120	3	11	11
Titanium         ppm         ASTM D5185m         >2         0         <1	Chromium	ppm	ASTM D5185m	>20	<1	2	1
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         3         1           Lead         ppm         ASTM D5185m         >40         1         2         7           Copper         ppm         ASTM D5185m         >330         2         6         26           Tin         ppm         ASTM D5185m         >15         <1	Nickel	ppm	ASTM D5185m	>5	<1	0	0
Aluminum         ppm         ASTM D5185m         >20         2         3         1           Lead         ppm         ASTM D5185m         >40         1         2         7           Copper         ppm         ASTM D5185m         >330         2         6         26           Tin         ppm         ASTM D5185m         >15         <1         <1         0           Vanadium         ppm         ASTM D5185m         <1         0         <1         0           Cadmium         ppm         ASTM D5185m         0         <1         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         7         8         48           Barium         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         0         0         <11            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1	Titanium	ppm	ASTM D5185m	>2	0	<1	0
Lead         ppm         ASTM D5185m         >40         1         2         7           Copper         ppm         ASTM D5185m         >330         2         6         26           Tin         ppm         ASTM D5185m         >15         <1         <1         0           Vanadium         ppm         ASTM D5185m         >15         <1         0         <           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         7         8         48           Barium         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         0         0         <1            Magnesium         ppm         ASTM D5185m         0         0         <1            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         2060         3860 <th>Silver</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;2</th> <th>0</th> <th>0</th> <th>0</th>	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >330         2         6         26           Tin         ppm         ASTM D5185m         >15         <1         <1         0           Vanadium         ppm         ASTM D5185m         >15         <1         0         <           Cadmium         ppm         ASTM D5185m         <1         0          0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         7         8         48           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         <11            Magnesium         ppm         ASTM D5185m         0         0         <11            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         2060         <	Aluminum	ppm	ASTM D5185m	>20	2	3	1
Tin         ppm         ASTM D5185m         >15         <1	Lead	ppm	ASTM D5185m	>40	1	2	7
Vanadium         ppm         ASTM D5185m         0         <1	Copper	ppm	ASTM D5185m	>330	2	6	26
Cadmium         ppm         ASTM D5185m         <1	Tin	ppm	ASTM D5185m	>15	<1	<1	0
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         7         8         48           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         61         58         41           Manganese         ppm         ASTM D5185m         0         0         <1            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         <	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron         ppm         ASTM D5185m         0         7         8         48           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         61         58         41           Manganese         ppm         ASTM D5185m         0         0         <1            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            Solicon         ppm         ASTM D5185m         >255         4         4         6           Sodium         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method         limit/base         cur	Cadmium	ppm	ASTM D5185m		<1	0	
Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         61         58         41           Manganese         ppm         ASTM D5185m         0         0         <1            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         61         58         41           Manganese         ppm         ASTM D5185m         0         0         <1            Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         1070         1023         1355         910           Zinc         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method         limit/b	Boron	ppm	ASTM D5185m	0	7	8	48
Manganese         ppm         ASTM D5185m         0         0         <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         928         997         507           Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         1150         1074         1050         770           Zinc         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         6           Sodium         ppm         ASTM D5185m         >20         2         1         4           Potassium         ppm         ASTM D5185m         >20         2         1         4           Nitration         Abs/cm         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/.1mm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *	Molybdenum	ppm	ASTM D5185m	60	61	58	41
Calcium         ppm         ASTM D5185m         1070         1063         1260         1758           Phosphorus         ppm         ASTM D5185m         1150         1074         1050         770           Zinc         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         6           Sodium         ppm         ASTM D5185m         >20         2         2         1           Potassium         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7415	Manganese	ppm	ASTM D5185m	0	0	<1	
Phosphorus         ppm         ASTM D5185m         1150         1074         1050         770           Zinc         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         6           Sodium         ppm         ASTM D5185m         >25         4         4         6           Sodium         ppm         ASTM D5185m         >20         2         2         1           Potassium         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7415	Magnesium	ppm	ASTM D5185m	1010	928	997	507
Zinc         ppm         ASTM D5185m         1270         1226         1355         910           Sulfur         ppm         ASTM D5185m         2060         3860         3663            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         6           Sodium         ppm         ASTM D5185m         >20         2         1         4           Potassium         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7615         >30         17.5         20.6            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	1063	1260	1758
SulfurppmASTM D5185m2060386003663CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25446SodiumppmASTM D5185m>20214PotassiumppmASTM D5185m>20221INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.20.60.84NitrationAbs/cm*ASTM D7624>205.37.5SulfationAbs/1mm*ASTM D7615>3017.520.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2513.515.62	Phosphorus	ppm	ASTM D5185m	1150	1074	1050	770
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25446SodiumppmASTM D5185m>20221PotassiumppmASTM D5185m>20221INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.20.60.84NitrationAbs/cm*ASTM D7624>205.37.5SulfationAbs/.1mm*ASTM D7415>3017.520.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2513.515.62	Zinc	ppm	ASTM D5185m	1270	1226	1355	910
Silicon         ppm         ASTM D5185m         >25         4         4         6           Sodium         ppm         ASTM D5185m         <1	Sulfur	ppm	ASTM D5185m	2060	3860	3663	
Sodium         ppm         ASTM D5185m         <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2         2         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         20.6            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.5         15.6         2	Silicon	ppm	ASTM D5185m	>25	4	4	6
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7624         >30         17.5         20.6            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.5         15.6         2	Sodium	ppm	ASTM D5185m		<1	<1	4
Soot %         %         *ASTM D7844         >4         0.2         0.6         0.84           Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         20.6            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.5         15.6         2	Potassium	ppm	ASTM D5185m	>20	2	2	1
Nitration         Abs/cm         *ASTM D7624         >20         5.3         7.5            Sulfation         Abs/.1mm         *ASTM D7615         >30         17.5         20.6            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.5         15.6         2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         20.6            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.5         15.6         2	Soot %	%	*ASTM D7844	>4	0.2	0.6	0.84
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     13.5     15.6     2	Nitration	Abs/cm	*ASTM D7624	>20	5.3	7.5	
Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.6 2	i ili allori						
			*ASTM D7415	>30	17.5	20.6	
Base Number (BN) mg KOH/g ASTM D2896 9.8 10.29 9.95	Sulfation	Abs/.1mm					
	Sulfation FLUID DEGRAE	Abs/.1mm	method	limit/base	current	history1	history2



# **OIL ANALYSIS REPORT**





Certificate L2367

Submitted By: MATT MANOLI

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