

Area

# WEAR NORMAL CONTAMINATION ABNORMAL FLUID CONDITION ABNORMAL



#### [W02008185] Machine Id VOLVO A30F 82248

Diesel Engine

## VÕLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (11 GAL)

### RECOMMENDATION

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. ( Customer Sample Comment: W02008185 )

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VV	EA	R.	

All component wear rates are normal.

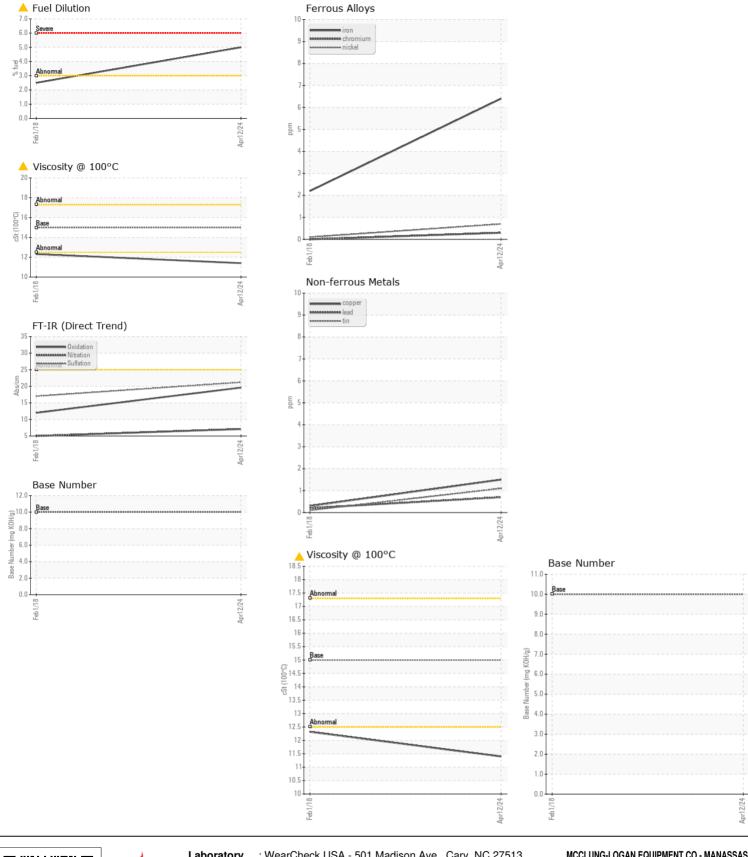
### CONTAMINATION

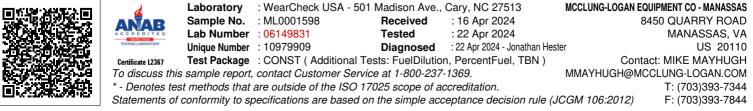
There is a moderate amount of fuel present in the oil.

#### **FLUID CONDITION**

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Test         UOM         Method         LimitAn         Current         History1         History2           Sample Date         Client Info         12 Apr 2024         01 Feb 2018            Machine Age         hrs         Client Info         14 Apr 2024         01 Feb 2018            Oil Age         hrs         Client Info         500         0            Filter Age         hrs         Client Info         Changed         Not Changed            Oil Changed         Client Info         Changed         Not Changed            Filter Changed         Client Info         Changed         Not Changed            Sample Status          ABNORMAL          ABNORMAL            Nickel         ppm         ASTM D5185m         >20         6         2            Nickel         ppm         ASTM D5185m         >20         1             Silver         ppm         ASTM D5185m         >20         2         1            Qapper         ppm         ASTM D5185m         >20         1					~		
Sample Date         Client Info         12 Apr 2024         01 Feb 2018            Machine Age         hrs         Client Info         500         0            Oil Age         hrs         Client Info         500         0            Filter Age         hrs         Client Info         Changed         Not Changed            Filter Changed         Client Info         Changed         Not Changed         Not Changed            Sample Status         ASTM D5185m         >200         6         2            Nickel         ppm         ASTM D5185m         >20         0         0            Nickel         ppm         ASTM D5185m         >20         0         0            Nickel         ppm         ASTM D5185m         >20         1             Aluminum         ppm         ASTM D5185m         >20         1             Vanadium         ppm         ASTM D5185m         >20         1             Vanadium         ppm         ASTM D5185m         >20         1	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age Dil Age Filter Age         hrs Client Info         14578 500         6580	Sample Number		Client Info		ML0001598	VCP218868	
Oil Age         hrs         Client Info         500         0            Filter Age         hrs         Client Info         S00         0            Gil Changed         Client Info         Changed         Not Changed            Filter Changed         Client Info         Changed         NA            Iron         ppm         ASTM D5185m         >20         <1         0            Nickel         ppm         ASTM D5185m         >20         <1         0            Nickel         ppm         ASTM D5185m         >20         <1         0            Aluminum         ppm         ASTM D5185m         >20         2         1            Lead         ppm         ASTM D5185m         >20         2         <1            Vanadium         ppm         ASTM D5185m         >20         2         <1            Vanadium         ppm         ASTM D5185m         >20         2         <1            Vanadium         ppm         ASTM D5185m         >20         2         2            Vanad	Sample Date		Client Info		12 Apr 2024	01 Feb 2018	
Filter Age         hrs         Client Info         500         0            Oil Changed         Client Info         Changed         Not Changed            Filter Changed         Client Info         Changed         N/A            Sample Status         ABNORMAL         MARGINAL            Iron         ppm         ASTM D5185m         >200         6         2            Chromium         ppm         ASTM D5185m         >20         <1         0            Nickel         ppm         ASTM D5185m         >20         <1         0            Silver         ppm         ASTM D5185m         >20         0         0            Lead         ppm         ASTM D5185m         >20         2         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         7         4            Veitow Metal         scalar	Machine Age	hrs	Client Info		14578	6580	
Oil Changed         Client Info         Changed         Not Changed            Filter Changed         Client Info         Changed         N/A            Sample Status         Client Info         Changed         N/A            Iron         ppm         ASTM 05185m         >200         6         2            Chromium         ppm         ASTM 05185m         >200         -<1         0            Nickel         ppm         ASTM 05185m         >20         -<1         0            Aluminum         ppm         ASTM 05185m         >20         0         0            Lead         ppm         ASTM 05185m         >20         1             Vanadium         ppm         ASTM 05185m         >20         7         4	Oil Age	hrs	Client Info		500	0	
Filter Changed Sample Status         Client Info         Changed ABNORMAL         N/A MARGINAL           Iron         ppm         ASTM D5185m         >200         6         2            Nickel         ppm         ASTM D5185m         >200         -1         0            Nickel         ppm         ASTM D5185m         >20         <1         0            Titanium         ppm         ASTM D5185m         >20         0         0            Aluminum         ppm         ASTM D5185m         >30         2         1            Lead         ppm         ASTM D5185m         >20         1             Vanadium         ppm         ASTM D5185m         >20         1             Vellow Metal         scalar         'Visual         NONE         NONE         NONE            Silicon         ppm         ASTM D5185m         >20         7         4            Yellow Metal         scalar         'Visual         NONE         NONE         NONE            Silicon         ppm         ASTM D5185m	Filter Age	hrs	Client Info		500	0	
Sample Status         ABNORMAL         MARGINAL            Iron         ppm         ASTM D5185m         >200         6         2            Chromium         ppm         ASTM D5185m         >200          0            Nickel         ppm         ASTM D5185m         >10         <1         0            Silver         ppm         ASTM D5185m         >20         0         0            Aluminum         ppm         ASTM D5185m         >20         2         <1            Lead         ppm         ASTM D5185m         >20         2         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         2         <         NONE         NONE         NONE            Vanadium         ppm         ASTM D5185m         >20         7         4            Vanadium         ppm         ASTM D5185m	Oil Changed		Client Info		Changed	Not Changd	
Iron         ppm         ASTM D5185m         >200         6         2            Chromium         ppm         ASTM D5185m         >20         <1         0            Nickel         ppm         ASTM D5185m         >10         <1         <1            Silver         ppm         ASTM D5185m         >20         0         0            Aluminum         ppm         ASTM D5185m         >20         2         1            Lead         ppm         ASTM D5185m         >20         2         <1            Copper         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1         0            Vanadium         ppm         ASTM D5185m         >20         7         4            Vellow Metal         scalar         Visual         NONE         NONE         NONE            Solicon         ppm         ASTM D7624	Filter Changed		Client Info		Changed	N/A	
Chromium         ppm         ASTM D5185m         >20         <1	Sample Status				ABNORMAL	MARGINAL	
Chromium         ppm         ASTM D5185m         >20         <1							
Nickel         ppm         ASTM D5185m         >10         <1	-				-		
Titanium         ppm         ASTM D5185m         <							
Silver         ppm         ASTM D5185m         >20         0         0            Aluminum         ppm         ASTM D5185m         >30         2         1            Lead         ppm         ASTM D5185m         >20         2         <1            Copper         ppm         ASTM D5185m         >20         1             Vanadium         ppm         ASTM D5185m         >20         1             Vanadium         ppm         ASTM D5185m         >20         1             Vellow Metal         scalar         *Visual         NONE         NONE         NONE            Fuel         %         ASTM D5185m         >20         7         4            Fuel         %         ASTM D5185m         >20         7         4            Fuel         %         ASTM D5185m         >20         7         4            Fuel         %         ASTM D5185m         >20         7.1         5.0            Silicon         Abs/cm         *ASTM D7624         >20				>10			
Aluminum         ppm         ASTM D5185m         >30         2         1            Lead         ppm         ASTM D5185m         >40         <1         <1            Copper         ppm         ASTM D5185m         >20         2         <1            Tin         ppm         ASTM D5185m         >20         1         <1            Vanadium         ppm         ASTM D5185m         >20         1         <1            White Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Silicon         ppm         ASTM D5185m         >20         7         4            Vellow Metal         scalar         *Visual         NONE         NONE         NONE            Silicon         ppm         ASTM D7185         >30         1         0            Water         %         ASTM D7185         >30         21.2         17.            Suifation         Abs/rm         *ASTM D7184							
Lead         ppm         ASTM D5185m         >40         <1							
Copper         ppm         ASTM D5185m         >20         2         <1							
Tin         ppm         ASTM D5185m         >20         1         <1							
VanadiumppmASTM D5185m<1							
White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONESiliconppmASTM D5185m>2022PotassiumppmASTM D5185m>2022Fuel%ASTM D5185m>2022WaterWC Method>0.2NEGNEGGlycolWC Method>0.2NEGNEGSoot %%*ASTM D7844>30.10NitrationAbs/.tmm*ASTM D7624>207.15SulfationAbs/.tmm*ASTM D715>3021.217Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNORLNORMLAppearancescalar*VisualNORLNORMLNORMLMolybdenumppmASTM D5185m2.5613BoronppmASTM D5185m0.0<10ManganeseppmASTM D5185m0.0<136ManganeseppmASTM D5185m20571651985ManganeseppmASTM D5185m20571651985Phosphorusppm<				>20			
Yellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>2074PotassiumppmASTM D5185m>2022Fuel%ASTM D3524>3.0▲ 5.0▲ 2.5WaterWC Method>0.2NEGNEGGlycolWC Method>0.2NEGNEGSoot %%*ASTM D7844>30.10NitrationAbs/.tmm*ASTM D7624>207.15SulfationAbs/.tmm*ASTM D7155>3021.217Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONEAppearancescalar*VisualNORLNORMLOdorscalar*VisualNORLNORMLNORMLBoronppmASTM D5185m0.0<10MagnaeseppmASTM D5185m0.0<10MagnesiumppmASTM D5185m20.5613MagnesiumppmASTM D5185m0.0<1<1MagnesiumppmASTM D5185m20.51651985PhosphorusppmASTM D5185m20571651985MagnesiumppmASTM D5185m						÷	
Silicon         ppm         ASTM D5185m         >20         7         4            Potassium         ppm         ASTM D5185m         >20         2         2            Fuel         %         ASTM D5185m         >20         5.0         ▲ 2.5            Water         WC Method         >0.2         NEG         NEG            Glycol         WC Method         >0.2         NEG         NEG            Soot %         %         *ASTM D7844         >3         0.1         0            Soot %         %         *ASTM D7824         >20         7.1         5.            Sulfation         Abs/.mm<*ASTM D7824         >20         7.1         5.            Sulfation         Abs/.tmm<*ASTM D7824         >20         7.1         5.            Sulfation         Abs/.tmm<*ASTM D7824         >20         7.1         5.            Sulfation         Abs/.tmm<*ASTM D7824         >20         7.1         5.            Sulfation         Abs/.tmm<*Visual         NONE         NONE         NONE					-		
Potassium         ppm         ASTM D5185m         >20         2         2            Fuel         %         ASTM D3524         >3.0         ▲ 5.0         ▲ 2.5            Water         WC Method         >0.2         NEG         NEG            Glycol         WC Method         >0.2         NEG         NEG            Soot %         %         *ASTM D7844         >3         0.1         0            Nitration         Abs/.mm         *ASTM D7844         >30         21.2         17.            Sulfation         Abs/.tmm         *ASTM D7415         >30         21.2         17.            Sulfation         Abs/.tmm         *ASTM D7415         >30         21.2         17.            Sulfation         Abs/.tmm         *ASTM D7415         >30         21.2         17.            Sulfation         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NORM         NORML         NORML            Appearance         scalar         *Visual	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Potassium         ppm         ASTM D5185m         >20         2         2            Fuel         %         ASTM D3524         >3.0         ▲ 5.0         ▲ 2.5            Water         WC Method         >0.2         NEG         NEG            Glycol         WC Method         >0.2         NEG         NEG            Soot %         %         *ASTM D7844         >3         0.1         0            Nitration         Abs/.mm         *ASTM D7844         >30         21.2         17.            Sulfation         Abs/.tmm         *ASTM D7415         >30         21.2         17.            Sulfation         Abs/.tmm         *ASTM D7415         >30         21.2         17.            Sulfation         Abs/.tmm         *ASTM D7415         >30         21.2         17.            Sulfation         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NORM         NORML         NORML            Appearance         scalar         *Visual	Silicon	nnm	ASTM D5185m	>20	7	Д	
Fuel         %         ASTM D3524         >3.0         ▲ 5.0         ▲ 2.5            Water         WC Method         >0.2         NEG         NEG            Glycol         WC Method         NEG         NEG            Soot %         %         *ASTM D7844         >3         0.1         0            Nitration         Abs/cm         *ASTM D7624         >20         7.1         5.            Sulfation         Abs/.1m         *ASTM D7624         >20         7.1         5.            Sulfation         Abs/.1m         *ASTM D7415         >30         21.2         17.            Silt         scalar         *Visual         NONE         NONE         NONE            Debris         scalar         *Visual         NOR         NORM         NORML            Appearance         scalar         *Visual         NORM         NORML         NORML            Glycor         scalar         *Visual         NOR         NORML         NORML            Molybdenum         ppm         ASTM D5185m         2.5         61 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG            Soot %         %         *ASTM D7844         >3         0.1         0            Nitration         Abs/cm         *ASTM D7624         >20         7.1         5.            Sulfation         Abs/cm         *ASTM D7624         >20         7.1         5.            Sulfation         Abs/cm         *ASTM D7624         >20         7.1         5.            Sulfation         Abs/.1mm         *ASTM D7415         >30         21.2         17.            Sulfation         Abs/.1mm         *ASTM D7415         >30         21.2         17.            Sulfation         Abs/.1mm         *ASTM D7415         >30         21.2         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NORM         NORML         NORML            Appearance         scalar         *Visual					_		
GlycolWC MethodNEGNEGSoot %%*ASTM D7844>30.10NitrationAbs/cm*ASTM D7624>207.15SulfationAbs/.1mm*ASTM D7415>3021.217Siltscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMNORMLNORMLOdorscalar*VisualNORMNORMLNORMLGlycorscalar*VisualNORMNORMLNORMLAppearancescalar*VisualNORMNORMLNORMLGorscalar*VisualNORMNORMLNORMLBoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<1<1MagnesiemppmASTM D5185m0.0<1<1MagnesiumppmASTM D5185m2.51651985PhosphorusppmASTM D5185m2.51651985ZincppmASTM D5185m1223893998SulfurppmASTM D5185m1223893998Sulfur		70					
Soot %         %         *ASTM D7844         >3         0.1         0            Nitration         Abs/cm         *ASTM D7624         >20         7.1         5.            Sulfation         Abs/.1mm         *ASTM D7624         >20         21.2         17.            Silt         scalar         *Visual         NONE         NONE         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NOR         NORE         NORE            Appearance         scalar         *Visual         NOR         NORML         NORML            Odor         scalar         *Visual         NOR         NORML         NORML            Gor         scalar         *Visual         >0.2         NEG         NEG            Boron         ppm         ASTM D5185m         2.5         61         3            Molybdenum         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm <td< th=""><th></th><th></th><th></th><th>20.L</th><th></th><th></th><th></th></td<>				20.L			
NitrationAbs/cm*ASTM D7624>207.15SulfationAbs/.1mm*ASTM D7415>3021.217Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLCdorscalar*VisualNORMLNORMLNORMLCdorscalar*Visual>0.2NEGNEGBoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<10MaganeseppmASTM D5185m0.0<1<1MagnesiumppmASTM D5185m20571651985PhosphorusppmASTM D5185m20571651985ZincppmASTM D5185m1223893998SulfurppmASTM D5185m122319.612Dase Number (BN)mg KOHgASTM D286109.6SulfurppmASTM D2185m1238933476Dese Number (BN)mg KOHgASTM D2896109.6 <td< th=""><th>,</th><th>0/_</th><th></th><th><u>\</u>3</th><th></th><th></th><th></th></td<>	,	0/_		<u>\</u> 3			
SulfationAbs/.1mm*ASTM D7415>3021.217Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGBoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<10MaganeseppmASTM D5185m0.0<1<1MagnesiumppmASTM D5185m20571651985PhosphorusppmASTM D5185m20571651985ZincppmASTM D5185m20571651985SulfurppmASTM D5185m1223893998QxidationAbs/.imm*ASTM D7414>2519.612Base Number (BN)mg KOHgASTM D2896109.6CoxidationAbs/.imm*ASTM D2896109.6							
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m2.5613BoronppmASTM D5185m0.0<10MalybdenumppmASTM D5185m0.0<10MagnesiumppmASTM D5185m0.0<1<1PhosphorusppmASTM D5185m205716519854ZincppmASTM D5185m12238933998SulfurppmASTM D5185m1223893998OxidationAbs/.tmm'ASTM D7414>2519.612Base Number (BN)mg KOHgASTM D2896109.6							
Debrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGBoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<10MolybdenumppmASTM D5185m0.0<10MagnesiumppmASTM D5185m0.0<1<1PhosphorusppmASTM D5185m256490854ZincppmASTM D5185m2571651985SulfurppmASTM D5185m1223893998OxidationAbs/.tmm*ASTM D714>2519.612Base Number (BN)mg KOHgASTM D2896109.6							
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m12BoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<10MolybdenumppmASTM D5185m0.0<1<1MaganeseppmASTM D5185m256490854CalciumppmASTM D5185m20571651985PhosphorusppmASTM D5185m1223893998ZincppmASTM D5185m1223893998SulfurppmASTM D5185m1223893998OxidationAbs/.tmm*ASTM D7414>2519.612Base Number (BN)mg KOHgASTM D2896109.6							
Appearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m12BoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<10MolybdenumppmASTM D5185m0.0<1<1MaganeseppmASTM D5185m0.0<1<1MagnesiumppmASTM D5185m256490854CalciumppmASTM D5185m20571651985PhosphorusppmASTM D5185m1223893998ZincppmASTM D5185m1223893998SulfurppmASTM D5185m407928463476OxidationAbs/.imm*ASTM D7414>2519.612Base Number (BN)mg KOHgASTM D2896109.6							
Odorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m12BoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<1					-		
Emulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m12BoronppmASTM D5185m2.5613BariumppmASTM D5185m0.0<10MolybdenumppmASTM D5185m0.74356ManganeseppmASTM D5185m0.0<1<1MagnesiumppmASTM D5185m256490854CalciumppmASTM D5185m20571651985PhosphorusppmASTM D5185m9357881009ZincppmASTM D5185m1223893998SulfurppmASTM D5185m407928463476OxidationAbs/.tmm*ASTM D7414>2519.612Base Number (BN)mg KOHgASTM D2896109.6							
Sodium         ppm         ASTM D5185m         1         2            Boron         ppm         ASTM D5185m         2.5         61         3            Barium         ppm         ASTM D5185m         0.0         <1         0            Molybdenum         ppm         ASTM D5185m         0.0         <1         0            Manganese         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm         ASTM D5185m         0.0         <1         <1            Calcium         ppm         ASTM D5185m         2057         1651         985            Phosphorus         ppm         ASTM D5185m         2057         1651         985            Zinc         ppm         ASTM D5185m         1223         893         998            Sulfur         ppm         ASTM D5185m         1223         893         946            Oxidation         Abs/.1mm         *ASTM D741*         >2				>0.2	-		
Boron         ppm         ASTM D5185m         2.5         61         3            Barium         ppm         ASTM D5185m         0.0         <1         0            Molybdenum         ppm         ASTM D5185m         0.0         <1         0            Manganese         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm         ASTM D5185m         0.0         <1         <1            Calcium         ppm         ASTM D5185m         256         490         854            Calcium         ppm         ASTM D5185m         2057         1651         985            Zinc         ppm         ASTM D5185m         935         788         1009            Sulfur         ppm         ASTM D5185m         1223         893         998            Oxidation         Abs/.tmm<*ASTM D7414         >25         19.6         12.            Base Number (BN)         mg K0H/g         ASTM D2896 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Barium         ppm         ASTM D5185m         0.0         <1		ppm					
Molybdenum         ppm         ASTM D5185m         0.7         43         56            Manganese         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm         ASTM D5185m         0.0         <1         <1            Magnesium         ppm         ASTM D5185m         256         490         854            Calcium         ppm         ASTM D5185m         2057         1651         985            Phosphorus         ppm         ASTM D5185m         935         788         1009            Zinc         ppm         ASTM D5185m         1223         893         998            Sulfur         ppm         ASTM D5185m         4079         2846         3476            Oxidation         Abs/.tmm<*ASTM D7414         >25         19.6         12.            Base Number (BN)         mg K0H/g         ASTM D2896         10         9.6	Boron	ppm	ASTM D5185m	2.5	61	3	
Manganese         ppm         ASTM D5185m         0.0         <1	Barium	ppm	ASTM D5185m	0.0			
Magnesium         ppm         ASTM D5185m         256         490         854            Calcium         ppm         ASTM D5185m         2057         1651         985            Phosphorus         ppm         ASTM D5185m         935         788         1009            Zinc         ppm         ASTM D5185m         1223         893         998            Sulfur         ppm         ASTM D5185m         4079         2846         3476            Oxidation         Abs/.tmm         *ASTM D7414         >25         19.6         12.            Base Number (BN)         mg KOH/g         ASTM D2896         10         9.6	Molybdenum	ppm	ASTM D5185m	0.7	43	56	
Calcium         ppm         ASTM D5185m         2057         1651         985            Phosphorus         ppm         ASTM D5185m         935         788         1009            Zinc         ppm         ASTM D5185m         1223         893         998            Sulfur         ppm         ASTM D5185m         4079         2846         3476            Oxidation         Abs/.tmm         *ASTM D7414         >25         19.6         12.            Base Number (BN)         mg KOH/g         ASTM D2896         10         9.6	Manganese	ppm	ASTM D5185m		<1	<1	
Phosphorus         ppm         ASTM D5185m         935 <b>788</b> 1009            Zinc         ppm         ASTM D5185m         1223 <b>893</b> 998            Sulfur         ppm         ASTM D5185m         4079 <b>2846</b> 3476            Oxidation         Abs/.tmm         *ASTM D714         >25 <b>19.6</b> 12.            Base Number (BN)         mg KOH/g         ASTM D2896         10 <b>9.6</b>	0	ppm	ASTM D5185m				
Zinc         ppm         ASTM D5185m         1223         893         998            Sulfur         ppm         ASTM D5185m         4079         2846         3476            Oxidation         Abs/.tmm         *ASTM D714         >25         19.6         12.            Base Number (BN)         mg KOH/g         ASTM D2896         10         9.6		ppm					
Sulfur         ppm         ASTM D5185m         4079         2846         3476            Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         12.            Base Number (BN)         mg KOH/g         ASTM D2896         10         9.6		ppm	ASTM D5185m				
Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         12.            Base Number (BN)         mg KOH/g         ASTM D2896         10         9.6							
Base Number (BN)         mg KOH/g         ASTM D2896         10         9.6			ASTM D5185m	4079			
Visc @ 100°C cSt ASTM D445 15.0 🚺 11.4 / 12.32	( )						
	Visc @ 100°C	cSt	ASTM D445	15.0	11.4	12.32	





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