

# [836826]

#### 194024 Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 30 (--- GAL)

#### RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) DIESEL ENGINE OIL SAE 30. Please confirm.

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### WEAR

All component wear rates are normal.

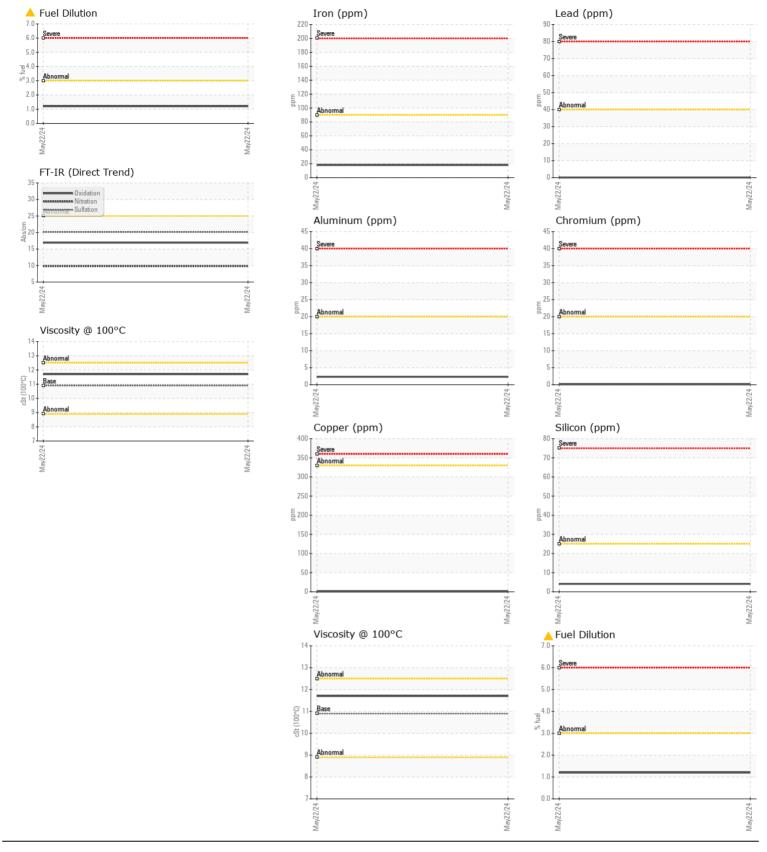
## CONTAMINATION

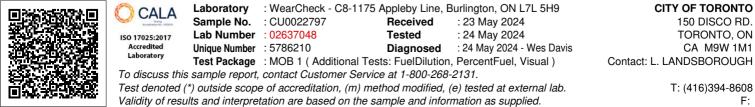
Light fuel dilution occurring. No other contaminants were detected in the oil.

#### **FLUID CONDITION**

The condition of the oil is acceptable for the time in service.

Test         UOM         Method         Limit/An         Current         History1         History2           Sample Number         Client Info         ZMay2024             Machine Age         hrs         Client Info         0             Machine Age         hrs         Client Info         0             Filter Age         hrs         Client Info         N/A             Oil Changed         Client Info         N/A             Sample Status         Client Info         N/A             Iron         ppm         ASTMD5185(m)         >20         <1            Nickel         ppm         ASTMD5185(m)         >20             Nickel         ppm         ASTMD5185(m)         >20         0            Aluminum         ppm         ASTMD5185(m)         >20             Lead         ppm         ASTMD5185(m)         >30        1             Vanadium         ppm         ASTMD5185(m)         >20 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Sample Number         Client Info         CU0022797             Machine Age         hrs         Client Info         0             Machine Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Oil Changed         Client Info         N/A             Filter Changed         Client Info         N/A             Sample Status         Kill MDS185m         >20             Kinon         ppm         ASTMD5185m         >20             Kickel         ppm         ASTMD5185m         >20             Nickel         ppm         ASTMD5185m         >20             Silver         ppm         ASTMD5185m         >20             Aluminum         ppm         ASTMD5185m         >300         C1             Vanadium         ppm         ASTMD5185m         >20         2	Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Date         Client Info         22 May 2024             Machine Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Oil Changed         Client Info         N/A             Filter Age         hrs         Client Info         N/A             Sample Status         Client Info         N/A             Iron         ppm         ASTMD5185(m)         >20         <1             Nickel         ppm         ASTMD5185(m)         >2         0             Aluminum         ppm         ASTMD5185(m)         >2         0             Vanadium         ppm         ASTMD5185(m)         >20         2             Vanadium         ppm         ASTMD5185(m)         >10             Vanadium         ppm         ASTMD5185(m)         >25         4             Vanadium         ppm         ASTMD5185(m)	Sample Number		Client Info				,
Machine Age         hrs         Client Info         0             Filter Age         hrs         Client Info         0             Filter Age         hrs         Client Info         N/A             Filter Changed         Client Info         N/A             Sample Status         Client Info         N/A             Iron         ppm         ASTM 05185(m)         >20         <1             Chromium         ppm         ASTM 05185(m)         >20              Nickel         ppm         ASTM 05185(m)         >20         0             Aluminum         ppm         ASTM 05185(m)         >20         0             Vanadum         ppm         ASTM 05185(m)         >20         1             Vanadum         ppm         ASTM 05185(m)         >30         <1             Vanadum         ppm         ASTM 05185(m)         >20         2             Vellow Metal					22 May 2024		
Oil Age         hrs         Client Info         0             Filter Age         hrs         Client Info         N/A             Oil Changed         Client Info         N/A             Filter Changed         Client Info         N/A             Sample Status         MARGINAL             Iron         ppm         ASTM05185(m)         >20         <1            Chromium         ppm         ASTM05185(m)         >20         0             Nickel         ppm         ASTM05185(m)         >20         0             Nickel         ppm         ASTM05185(m)         >20         0             Silver         ppm         ASTM05185(m)         >20         2             Copper         ppm         ASTM05185(m)         >20         2             Vanadium         ppm         ASTM05185(m)         >20         2             Vellow Metal         scalar         Visual*         NONE <th></th> <th>hrs</th> <th>Client Info</th> <th></th> <th></th> <th></th> <th></th>		hrs	Client Info				
Oil Changed         Client Info         N/A             Filter Changed         Client Info         N/A             Sample Status         MARGINAL             Iron         ppm         ASTM D5185(m)         >90         18             Nickel         ppm         ASTM D5185(m)         >2         0             Nickel         ppm         ASTM D5185(m)         >2         0             Aluminum         ppm         ASTM D5185(m)         >20         0             Lead         ppm         ASTM D5185(m)         >20         0             Vanadium         ppm         ASTM D5185(m)         >10              Vanadium         ppm         ASTM D5185(m)         >10              Vanadium         ppm         ASTM D5185(m)         >20         2             Vanadium         ppm         ASTM D5185(m)         >20         2             Vellow Metal	-	hrs	Client Info		0		
Filter Changed         Client Info         N/A             Sample Status         ViA             Iron         ppm         ASTM D5185(m)         >90         18            Iron         ppm         ASTM D5185(m)         >20         <1            Nickel         ppm         ASTM D5185(m)         >20         <1            Nickel         ppm         ASTM D5185(m)         >20         <1            Silver         ppm         ASTM D5185(m)         >20         0            Aluminum         ppm         ASTM D5185(m)         >20         0            Copper         ppm         ASTM D5185(m)         >300         <1            Vanadium         ppm         ASTM D5185(m)         >10             Veltow Metal         scalar         Visual*         NONE         NONE            Silicon         ppm         ASTM D5185(m)         >20         2             Silicon         ppm         ASTM D5185(m)         >20         2 <th>Filter Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th></th> <th></th>	Filter Age	hrs	Client Info		0		
Sample Status         MARGINAL             Iron         ppm         ASTM D5185(m)<>90         18             Chromium         ppm         ASTM D5185(m)         >20         <1             Nickel         ppm         ASTM D5185(m)         >2         0             Titanium         ppm         ASTM D5185(m)         >2         0             Silver         ppm         ASTM D5185(m)         >20         2             Aluminum         ppm         ASTM D5185(m)         >20         0             Qanadium         ppm         ASTM D5185(m)         >300         <1             Vanadium         ppm         ASTM D5185(m)         >300         <1             Vanadium         ppm         ASTM D5185(m)         >20         2             Vanadium         ppm         ASTM D5185(m)         >20         2             Vellow Metal         scalar         Visual*         NONE	Oil Changed		Client Info		N/A		
Iron         ppm         ASTM D5185(m)         >20         18             Chromium         ppm         ASTM D5185(m)         >20         <1             Nickel         ppm         ASTM D5185(m)         >2         0             Silver         ppm         ASTM D5185(m)         >2         0             Aluminum         ppm         ASTM D5185(m)         >20         2             Lead         ppm         ASTM D5185(m)         >40         0             Vanadium         ppm         ASTM D5185(m)         >40         0             Vanadum         ppm         ASTM D5185(m)         >50         0             Vanadum         ppm         ASTM D5185(m)         >20         2             Vanadum         ppm         ASTM D5185(m)         >20         2             Vanadum         ppm         ASTM D5185(m)         >20         2	Filter Changed		Client Info		N/A		
Chromium         ppm         ASTM D5185(m)         >20         <1	Sample Status				MARGINAL		
Chromium         ppm         ASTM D5185(m)         >20         <1							
Nickel         ppm         ASTM D5185(m)         >2         0             Titanium         ppm         ASTM D5185(m)         >2         0             Silver         ppm         ASTM D5185(m)         >20         2             Aluminum         ppm         ASTM D5185(m)         >20         2             Lead         ppm         ASTM D5185(m)         >40         0             Copper         ppm         ASTM D5185(m)         >50         0             Vanadium         ppm         ASTM D5185(m)         >15         0             Vanadium         ppm         ASTM D5185(m)         >20         2             Vandout         scalar         Visual*         NONE         NONE             Vandout         ppm         ASTM D5185(m)         >20         2					-		
Titanium         ppm         ASTM D5185(m)         >2         0             Aluminum         ppm         ASTM D5185(m)         >20         2             Aluminum         ppm         ASTM D5185(m)         >40         0             Lead         ppm         ASTM D5185(m)         >40         0             Copper         ppm         ASTM D5185(m)         >10         0             Vanadium         ppm         ASTM D5185(m)         >15         00             Vanadium         ppm         ASTM D5185(m)         >10         0             Vanadium         ppm         ASTM D5185(m)         >20         4             Vellow Metal         scalar         Visual*         NONE              Solicon         ppm         ASTM D7639*         >3.0         1.2             Fuel         %         ASTM D764*         >6         0.7             Glycol         WC Method			( )				
Silver         ppm         ASTM D3185/m         >2         0            Aluminum         ppm         ASTM D5185/m         >20         2             Lead         ppm         ASTM D5185/m         >40         0             Copper         ppm         ASTM D5185/m         >15         0             Vanadium         ppm         ASTM D5185/m         >15         0             Vanadium         ppm         ASTM D5185/m         >15         0             Vanadium         ppm         ASTM D5185/m         >20         A             Vanadium         ppm         ASTM D5185/m         >20         2             Vellow Metal         scalar         Visual*         NONE              Silicon         ppm         ASTM D7583*         >3.0         A         1.2             Glycol         WC Method         >0.2         NEG              Soot %         %			( /		-		
Aluminum         ppm         ASTM D5185(m)         >20         2             Lead         ppm         ASTM D5185(m)         >300         <1             Copper         ppm         ASTM D5185(m)         >330         <1             Vanadium         ppm         ASTM D5185(m)         >15         0             Vanadium         ppm         ASTM D5185(m)         >15         0             Vanadium         ppm         ASTM D5185(m)         >10              Vanadium         ppm         ASTM D5185(m)         >20         2             Vellow Metal         scalar         Visual*         NONE         NONE             Solicon         ppm         ASTM D5185(m)         >20         2             Water         ////////////////////////////////////			( )		-		
Lead         ppm         ASTM D5185(m)         >40         0            Copper         ppm         ASTM D5185(m)         >330         <1            Vanadium         ppm         ASTM D5185(m)         >15         0            Vanadium         ppm         ASTM D5185(m)         0             White Metal         scalar         Visual*         NONE         NONE            Yellow Metal         scalar         Visual*         NONE         NONE            Solicon         ppm         ASTM D5185(m)         >20         2             Fuel         %         ASTM D5185(m)         >20         2             Water         WC Method         >0.2         NEG             Glycol         WC Method         >0.2         NEG             Soot %         %         ASTM D7834*         >6         0.7             Sulfation         Abs/rm         ASTM D7624*         >20         9.8             Sulfation			( /		-		
Copper         ppm         ASTM D5185(m)         >330         <1			( /				
Tin         ppm         ASTM D5185(m)         >15         0            Vanadium         ppm         ASTM D5185(m)         0             White Metal         scalar         Visual*         NONE         NONE             Yellow Metal         scalar         Visual*         NONE         NONE             Silicon         ppm         ASTM D5185(m)         >20         2             Potassium         ppm         ASTM D5185(m)         >20         2             Fuel         %         ASTM D5185(m)         >20         2             Water         WC Method         >0.2         NEG             Gilycol         WC Method         >0.2         NEG             Sott %         & ASTM D7624*         >20         9.8             Sulfation         Abs/tmm         ASTM D7624*         >20         9.8             Solution         Abs/tmm         ASTM D7624*         >30         20.1			( )				
Name         ppm         ASTM D5185(m)         O             White Metal         scalar         Visual*         NONE         NONE             Yellow Metal         scalar         Visual*         NONE         NONE             Silicon         ppm         ASTM D5185(m)         >25         4             Potassium         ppm         ASTM D5185(m)         >20         2             Fuel         %         ASTM D5185(m)         >20         2             Water         WC Method         >0.2         NEG             Glycol         WC Method         >0.2         NEG             Soot %         %         ASTM D7624*         >20         9.8             Sulfation         Abs/rm         ASTM D764*         >20         9.8             Sulfation         Abs/rm         ASTM D7624*         >20         9.8             Sulfation         Abs/rm         ASTM D764*         >00							
White Metal         scalar         Visual*         NONE         NONE            Yellow Metal         scalar         Visual*         NONE         NONE            Silicon         ppm         ASTM D5185(m)         >20         2            Potassium         ppm         ASTM D5185(m)         >20         2            Fuel         %         ASTM D7593*         >3.0         ▲ 1.2            Water         WC Method         >0.2         NEG            Glycol         WC Method         >0.2         9.8            Soot %         %         ASTM D7844*         >6         0.7            Sulfation         Abs/cm         ASTM D7624*         >20         9.8            Sulfation         Abs/rm         ASTM D7455         >30         20.1            Sulfation         Abs/rm         ASTM D7457         >30         20.1            Sulfation         calar         Visual*         NONE         NONE            Sulfation         scalar         Visual*         NORE         NORE				>15			
Yellow Metal         scalar         Visual*         NONE         NONE             Silicon         ppm         ASTM D5185(m)         >20         2             Potassium         ppm         ASTM D5185(m)         >20         2             Fuel         %         ASTM D7593*         >3.0         ▲ 1.2             Water         WC Method         >0.2         NEG             Glycol         WC Method         >0.2         NEG             Soot %         %         ASTM D784*         >6         0.7             Solfation         Abs/.mm         ASTM D7624*         >20         9.8             Sulfation         Abs/.mm         ASTM D715*         >30         20.1             Debris         scalar         Visual*         NONE         NONE             Appearance         scalar         Visual*         NORM         NORML             Boron         ppm         ASTM D5185(m)					-		
Silicon       ppm       ASTM D5185(m)       >25       4           Potassium       ppm       ASTM D5185(m)       >20       2           Fuel       %       ASTM D5185(m)       >20       1.2           Water       WC Method       >0.2       NEG           Glycol       WC Method       >0.2       NEG           Soot %       %       ASTM D7624*       >20       9.8           Nitration       Abs/rm       ASTM D7624*       >20       9.8           Sulfation       Abs/rm       ASTM D7624*       >20       9.8           Sulfation       Abs/rm       ASTM D7624*       >20       9.8           Sulfation       Abs/rm       ASTM D7624*       >0       9.0       1           Sulfation       Abs/rm       ASTM D7145*       >30       20.1           Debris       scalar       Visual*       NONE            Appearance					-		
Potassium         ppm         ASTM D5185(m)         >20         2             Fuel         %         ASTM D5185(m)         >20         1.2             Water         WC Method         >0.2         NEG             Glycol         WC Method         NEG             Soot %         %         ASTM D7844*         >6         0.7             Nitration         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/tm         ASTM D7624*         >20         9.8             Sulfation         Abs/tm         ASTM D7415*         >30         20.1             Sulfation         Abs/tm         ASTM D7415*         >30         20.1             Sulfation         Abs/tm         ASTM D7415*         >30         20.1             Sulfation         scalar         Visual*         NONE         NORE             Appearance         scalar         Visual*         NORM <th>Yellow Metal</th> <th>scalar</th> <th>Visual*</th> <th>NONE</th> <th>NONE</th> <th></th> <th></th>	Yellow Metal	scalar	Visual*	NONE	NONE		
Potassium         ppm         ASTM D5185(m)         >20         2             Fuel         %         ASTM D5185(m)         >20         1.2             Water         WC Method         >0.2         NEG             Glycol         WC Method         NEG             Soot %         %         ASTM D7844*         >6         0.7             Nitration         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/tm         ASTM D7624*         >20         9.8             Sulfation         Abs/tm         ASTM D7415*         >30         20.1             Sulfation         Abs/tm         ASTM D7415*         >30         20.1             Sulfation         Abs/tm         ASTM D7415*         >30         20.1             Sulfation         scalar         Visual*         NONE         NORE             Appearance         scalar         Visual*         NORM <th>Silicon</th> <th>nom</th> <th>ASTM D5185(m)</th> <th>&gt;25</th> <th>4</th> <th></th> <th></th>	Silicon	nom	ASTM D5185(m)	>25	4		
Fuel         %         ASTM D7593*         >3.0         ▲         1.2            Water         WC Method         >0.2         NEG             Glycol         WC Method         >0.2         NEG             Soot %         %         ASTM D7593*         >3.0         NEG             Sulfation         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/rm         ASTM D7145*         >30         20.1             Sulfation         scalar         Visual*         NONE         NORE             Debris         scalar         Visual*         NORM         NORML             Appearance         scalar         Visual*<			( )		-		
Water         WC Method         >0.2         NEG            Glycol         WC Method         NEG             Soot %         %         ASTM D7844*         >6         0.7             Nitration         Abs/cm         ASTM D7844*         >20         9.8             Sulfation         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/cm         ASTM D7115*         >30         20.1             Silt         scalar         Visual*         NONE         VLITE             Sand/Dirt         scalar         Visual*         NORE         NORE             Appearance         scalar         Visual*         NORM         NORML             Boron         ppm         ASTMD5185(m)         250         2			· · · ·		_		
Glycol         WC Method         NEG             Soot %         %         ASTM D7844*         >6         0.7             Nitration         Abs/cm         ASTM D7844*         >20         9.8             Sulfation         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/cm         ASTM D7624*         >30         20.1             Sulfation         Abs/cm         ASTM D7115*         >30         20.1             Sulfation         scalar         Visual*         NONE         VLITE             Debris         scalar         Visual*         NORM         NORE             Appearance         scalar         Visual*         NORM         NORML             Gdyor         scalar         Visual*         NORM         NOREG             Boron         ppm         ASTM		,0					
Soot %         %         ASTM D7844*         >6         0.7             Nitration         Abs/cm         ASTM D7624*         >20         9.8             Sulfation         Abs/.1mm         ASTM D7624*         >30         20.1             Sulfation         Abs/.1mm         ASTM D7415*         >30         20.1             Silt         scalar         Visual*         NONE         VLITE             Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NORM         NORML             Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Boron         ppm         ASTM D5185(m)         >75         1             Barium         ppm         ASTM D5185(m)         100         0             Maganese				20.2			
Nitration         Abs/cm         ASTM D7624*         >20         9.8            Sulfation         Abs/cm         ASTM D7624*         >30         20.1            Sulfation         Abs/tmm         ASTM D7415*         >30         20.1            Silt         scalar         Visual*         NONE         VLITE            Debris         scalar         Visual*         NONE         NONE            Sand/Dirt         scalar         Visual*         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML            Odor         scalar         Visual*         NORML         NORML             Boron         scalar         Visual*         >0.2         NEG             Boron         ppm         ASTM D5185(m)         >75         1             Barium         ppm         ASTM D5185(m)         10         0             Magnesium         ppm         ASTM D5185(m)         100         59		%		>6			
Sulfation         Abs/.1mm         ASTM D7415*         >30         20.1             Silt         scalar         Visual*         NONE         VLITE             Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NONE         NONE             Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Sodium         ppm         ASTM D5185(m)         >75         1             Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         0             Magnesium         ppm         ASTM D5185(m)         100         59             Magnesium         pp							
Silt         scalar         Visual*         NONE         VLITE            Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NONE         NONE             Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Emulsified Water         scalar         Visual*         >0.2         NEG             Sodium         ppm         ASTM D5185(m)         250         2             Boron         ppm         ASTM D5185(m)         10         0             Malganese         ppm         ASTM D5185(m)         100         59             Magnesium         ppm         A							
Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NONE         NONE             Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Emulsified Water         scalar         Visual*         >0.2         NEG             Sodium         ppm         ASTM D5185(m)         >75         1             Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         100         0             Malganese         ppm         ASTM D5185(m)         100         59             Magnesium         ppm         ASTM D5185(m)         3000         1017             Phosphorus							
Sand/Dirt         scalar         Visual*         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Emulsified Water         scalar         Visual*         NORML         NORML             Sodium         ppm         scalar         Visual*         >0.2         NEG             Boron         ppm         ASTM D5185(m)         >75         1             Barium         ppm         ASTM D5185(m)         250         2             Molybdenum         ppm         ASTM D5185(m)         10         0             Magnesium         ppm         ASTM D5185(m)         100         59             Magnesium         ppm         ASTM D5185(m)         450         949             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Emulsified Water         scalar         Visual*         NORML         NORML             Sodium         ppm         ASTM D5185(m)         >75         1             Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         0             Molybdenum         ppm         ASTM D5185(m)         100         59             Magnesium         ppm         ASTM D5185(m)         450         949             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Sulfur         ppm         ASTM D5185(m)         1350         1163        Oxidation				-	-		
Odor         scalar         Visual*         NORML         NORML            Emulsified Water         scalar         Visual*         >0.2         NEG             Sodium         ppm         ASTM D5185(m)         >75         1             Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         0             Molybdenum         ppm         ASTM D5185(m)         100         59             Manganese         ppm         ASTM D5185(m)         450         949             Magnesium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9							
Emulsified Water         scalar         Visual*         >0.2         NEG            Sodium         ppm         ASTM D5185(m)         >75         1             Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         0             Molybdenum         ppm         ASTM D5185(m)         100         59             Manganese         ppm         ASTM D5185(m)         450         949             Magnesium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9							
Sodium         ppm         ASTM D5185(m)         >75         1             Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         0             Molybdenum         ppm         ASTM D5185(m)         100         59             Manganese         ppm         ASTM D5185(m)         100         59             Magnesium         ppm         ASTM D5185(m)         450         949             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9							
Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         0             Molybdenum         ppm         ASTM D5185(m)         100         59             Manganese         ppm         ASTM D5185(m)         450         949             Magnesium         ppm         ASTM D5185(m)         3000         1017             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Sulfur         ppm         ASTM D5185(m)         1350         1163             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9		Jourun					
Barium         ppm         ASTM D5185(m)         10         0            Molybdenum         ppm         ASTM D5185(m)         100         59             Manganese         ppm         ASTM D5185(m)         100         59             Magnesium         ppm         ASTM D5185(m)         450         949             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Sodium	ppm	ASTM D5185(m)	>75	1		
Molybdenum         ppm         ASTM D5185(m)         100         59             Manganese         ppm         ASTM D5185(m)         <<1             Magnesium         ppm         ASTM D5185(m)         450         949             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Boron	ppm	ASTM D5185(m)	250	2		
Manganese         ppm         ASTM D5185(m)         <1	Barium	ppm	ASTM D5185(m)	10	0		
Magnesium         ppm         ASTM D5185(m)         450         949             Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Molybdenum	ppm	ASTM D5185(m)	100	59		
Calcium         ppm         ASTM D5185(m)         3000         1017             Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Manganese	ppm	ASTM D5185(m)		<1		
Phosphorus         ppm         ASTM D5185(m)         1150         973             Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Magnesium	ppm	ASTM D5185(m)	450	949		
Zinc         ppm         ASTM D5185(m)         1350         1163             Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Calcium	ppm	ASTM D5185(m)	3000	1017		
Sulfur         ppm         ASTM D5185(m)         4250         2474             Oxidation         Abs/.1mm         ASTM D7414*         >25         16.9	Phosphorus	ppm	ASTM D5185(m)	1150	973		
Oxidation Abs/.1mm ASTM D7414* >25 <b>16.9</b>	Zinc	ppm	ASTM D5185(m)	1350	1163		
	Sulfur	ppm	ASTM D5185(m)	4250	2474		
Visc @ 100°C cSt ASTM D7279(m) 10.9 11.7	Oxidation	Abs/.1mm	ASTM D7414*	>25	16.9		
	Visc @ 100°C	cSt	ASTM D7279(m)	10.9	11.7		





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