

#### Machine Id **2449 MACK GRANITE** Component **Diesel Engine** Fluid **PETRO CANADA DURON SHP 15W40 (48 QTS)**

# RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

### WEAR

All component wear rates are normal.

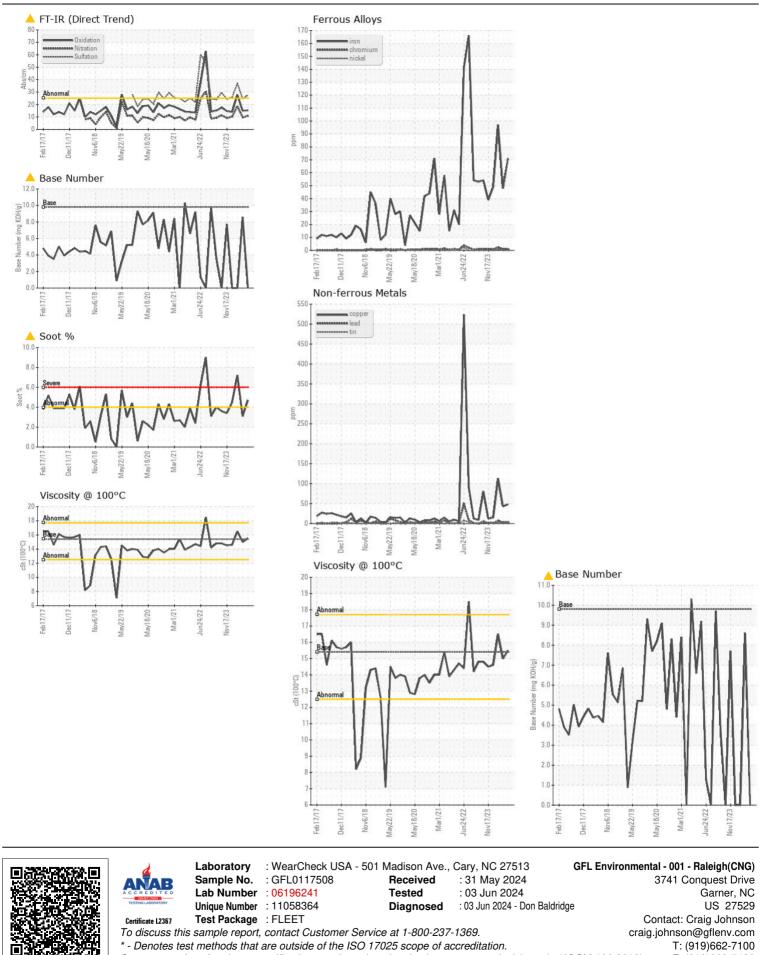
# CONTAMINATION

There is an abnormal amount of solids and carbon present in the oil.

## FLUID CONDITION

The BN level is low.

Sample Date         Client Info         29 May 2024         03 May 2024         12 Mar 202           Machine Age         hrs         Client Info         44080         43868         43459           Oil Age         hrs         Client Info         0         0         0           Filter Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         Changed         Changed         Changed         Changed           Filter Changed         Client Info         Changed         Changed         Changed         Changed           Sample Status         ASTM D5185m<>120         71         48         97           Chromium         ppm         ASTM D5185m<>20         <1         1         2           Nickel         ppm         ASTM D5185m<>20         <0         <1         1           Silver         ppm         ASTM D5185m<>20         2         3         3         7           Copper         ppm         ASTM D5185m<>30         48         43         113         1           Tin         ppm         ASTM D5185m<>15         2         2         3         3           Lead         ppm         ASTM D5185							
Sample Date         Client Info         29 May 2024         03 May 2024         12 Mar 2022           Machine Age         hrs         Client Info         0         0         0         0           Oil Age         hrs         Client Info         0         0         0         0           Filter Age         hrs         Client Info         Changed         Changed <th>Test</th> <th>UOM</th> <th>Method</th> <th>Limit/Abn</th> <th>Current</th> <th>History1</th> <th>History2</th>	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age         hrs         Client Info         44080         43868         43459           Oil Age         hrs         Client Info         0         0         0           Filter Age         hrs         Client Info         Changed         Changed         Changed         Changed           Sample Status         Client Info         Changed         Changed         Changed         Changed           Iron         ppm         ASTM D5185m         >20         <1         1         2           Nickel         ppm         ASTM D5185m         >20         <1         1         2           Nickel         ppm         ASTM D5185m         >20         0         <1         1           Aluminum         ppm         ASTM D5185m         >20         0         <1         1           Aluminum         ppm         ASTM D5185m         >20         2         3         3         1           Copper         ppm         ASTM D5185m         >40         3         3         7           Copper         ppm         ASTM D5185m         >20         2         3         3           Vanadium         ppm         ASTM D5185m         >20         6	Sample Number		Client Info		GFL0117508	GFL0117490	GFL0094655
Machine Age         hrs         Client Info         44080         43868         43459           Oil Age         hrs         Client Info         0         0         0           Filter Age         hrs         Client Info         Changed         Changed         Changed         Changed           Sample Status         Client Info         Changed         Changed         Changed         Changed           Iron         ppm         ASTM D5185m         >20         <1         1         2           Nickel         ppm         ASTM D5185m         >20         <1         1         2           Nickel         ppm         ASTM D5185m         >20         0         <1         1           Aluminum         ppm         ASTM D5185m         >20         0         <1         1           Aluminum         ppm         ASTM D5185m         >20         2         3         3         1           Copper         ppm         ASTM D5185m         >40         3         3         7           Copper         ppm         ASTM D5185m         >20         2         3         3           Vanadium         ppm         ASTM D5185m         >20         6	Sample Date		Client Info		29 May 2024	03 May 2024	12 Mar 2024
Filter Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         Changed         Changed <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th></th> <th>43868</th> <th>43459</th>	Machine Age	hrs	Client Info			43868	43459
Filter Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         Changed         Changed <th>Oil Age</th> <td>hrs</td> <td>Client Info</td> <td></td> <th></th> <td>0</td> <td>0</td>	Oil Age	hrs	Client Info			0	0
Oil ChangedClient InfoChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChange	-	hrs	Client Info		0	0	0
Filter Changed Sample StatusClient InfoChanged ABNORMALChanged ABNORMALChanged ABNORMALChanged ABNORMALSEVERE SEVEREIronppmASTM D5185m>120714.8897ChromiumppmASTM D5185m>20<112NickelppmASTM D5185m>2000<1TitaniumppmASTM D5185m>2200<1SilverppmASTM D5185m>20233LeadppmASTM D5185m>20233LeadppmASTM D5185m>33048433113TinppmASTM D5185m>33048433113TinppmASTM D5185m>2000<1VanadiumppmASTM D5185m>2041A1343TinppmASTM D5185m>25564Yellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONEA13433FuelWC Method>.0.2NEGNEGNEGSiliconppmASTM D5185m>20<1A1343FuelWC Method>.0.2NEGNEGNEGSiliconppmASTM D5185m20<1.0NEGNEGSiliconAst/Irm*ASTM D764>.0.2NEGNEGSilitsc	-		Client Info		Changed	Changed	Changed
Sample Status         ABNORMAL         ABNORMAL         SEVERE           Iron         ppm         ASTM D5185m<>120         71         4.88         97           Chromium         ppm         ASTM D5185m<>20         c1         1         2           Nickel         ppm         ASTM D5185m<>20         0         0.0         <1	-		Client Info		•		
Iron         ppm         ASTM D5185m         >120         71         48         97           Chromium         ppm         ASTM D5185m         >20         <1					-	0	-
Chromium         ppm         ASTM D5185m         >20         <1	· · · · · · · · · · · · · · · · · · ·						
Nickel         ppm         ASTM D5185m         >5         0         0         <1	Iron	ppm	ASTM D5185m	>120	71	48	
Titanium         ppm         ASTM D5185m         >2         0         0         <1           Silver         ppm         ASTM D5185m         >20         2         3         3           Lead         ppm         ASTM D5185m         >20         2         3         3           Copper         ppm         ASTM D5185m         >40         3         3         7           Copper         ppm         ASTM D5185m         >15         2         3         3           Vanadium         ppm         ASTM D5185m         >15         2         3         3           Vanadium         ppm         ASTM D5185m         >15         2         3         3           Vanadium         ppm         ASTM D5185m         >25         5         6         4           Vellow Metal         scalar         "Visual         NONE         NONE         NONE         NONE           Silicon         ppm         ASTM D5185m         >20         <1.0	Chromium	ppm	ASTM D5185m	>20	<1	1	2
SilverppmASTM D5185m>200<1AluminumppmASTM D5185m>20233LeadppmASTM D5185m>40337CopperppmASTM D5185m>33048433113TinppmASTM D5185m>15223VanadiumppmASTM D5185m>15223VanadiumppmASTM D5185m>15223VanadiumppmASTM D5185m>15223Vellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>20<1.0	Nickel	ppm	ASTM D5185m	>5	0	0	<1
AluminumppmASTM D5185m>20233LeadppmASTM D5185m>40337CopperppmASTM D5185m>33048433113TinppmASTM D5185m>15223VanadumppmASTM D5185m>15223Winite Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>25564PotassiumppmASTM D5185m>20<1.0	Titanium	ppm	ASTM D5185m	>2	0	0	
Lead         ppm         ASTM D5185m         >40         3         3         7           Copper         ppm         ASTM D5185m         >330         48         43         113           Tin         ppm         ASTM D5185m         >15         2         2         3           Vanadium         ppm         ASTM D5185m         0         0         <1	Silver	ppm	ASTM D5185m	>2	0	0	
Copper         ppm         ASTM D5185m         >330         48         43         113           Tin         ppm         ASTM D5185m         >15         2         2         3           Vanadium         ppm         ASTM D5185m         0         0         <1	Aluminum	ppm	ASTM D5185m	>20	2	3	3
TinppmASTM D5185m>15223VanadiumppmASTM D5185mNONE0<1		ppm	ASTM D5185m	>40	3	3	7
Vanadium         ppm         ASTM D5185m         0         0         <1           White Metal         scalar         *Visual         NONE         NONE         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE         NONE           Silicon         ppm         ASTM D5185m         >25         5         6         4           Potassium         ppm         ASTM D5185m         >20         <1	Copper	ppm	ASTM D5185m	>330	48	43	113
White Metalscalar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>20<1	Tin	ppm	ASTM D5185m	>15	2	2	3
Yellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>20<1▲1343PotassiumppmASTM D5185m>20<10▲1.0<1.0WaterWC Method>3.0<1.0<1.0<1.0<1.0<1.0WaterWC Method>0.2NEGNEGNEGNEGGlycolWC Method>0.2NEGNEGNEGSoot %%*ASTM D784>4▲ 4.73.1▲ 7.2NitrationAbs/cm*ASTM D762>2010.89.518.6SulfationAbs/tm*ASTM D764>2010.89.518.6SulfationAbs/tm*ASTM D762>2010.89.518.6SulfationAbs/tm*ASTM D762>2010.89.518.6SulfationAbs/tm*ASTM D764>2010.8NONENONEDebrisscalar*VisualNORNORENONENONESand/Dirtscalar*VisualNORNORMNORMNORMAppearancescalar*VisualNORNORMNORMNORMGoronscalar*VisualNORNORMNORMNORMBariumppmASTM D5185m0000MolybdenumppmASTM D5185m01112MagnesiumppmASTM D5185m1010938 <td< th=""><th>Vanadium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th>0</th><th>&lt;1</th></td<>	Vanadium	ppm	ASTM D5185m		0	0	<1
Silicon       ppm       ASTM D5185m< >25       5       6       4         Potassium       ppm       ASTM D5185m       >20       <1	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium         ppm         ASTM D5185m         >20         <1         134         3           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG         Second         Second         %         *ASTM D7844         >4         A.7.7         3.1         A.7.2           Nitration         Abs/cm         *ASTM D7624         >20         10.8         9.5         18.6           Sulfation         Abs/.1mm         *ASTM D7624         >20         10.8         9.5         18.6           Sulfation         scalar         *Visual         NONE         NONE         NONE         NONE           Debris         scalar         *Visual         NORM         NORM         NORM         NORM         NORM           Appearance </td <th>Yellow Metal</th> <td>scalar</td> <td>*Visual</td> <td>NONE</td> <th>NONE</th> <td>NONE</td> <td>NONE</td>	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium         ppm         ASTM D5185m         >20         <1							
FuelWC Method>3.0<1.0		ppm			-		
WaterWC Method>0.2NEGNEGNEGGlycolWC MethodNEGNEGNEGSoot %%*ASTM D7844>4▲ 4.73.1▲ 7.2NitrationAbs/cm*ASTM D7624>2010.89.518.6SulfationAbs/1mm*ASTM D7624>2010.89.518.6SulfationAbs/1mm*ASTM D715>3027.424.636.9Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENORMLNORMLNORMLAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLBoronppmASTM D5185m0232BariumppmASTM D5185m0112MaganeseppmASTM D5185m0112MagnesiumppmASTM D5185m1010938897952CalciumppmASTM D5185m12701041111591107PhosphorusppmASTM D5185m1270124012131224SulfaropmASTM D5185m1270124032753052CalciumppmASTM D5185m1260323632753052CalciumppmASTM D5185m1260<		ppm					
GlycolWC MethodNEGNEGNEGSoot %%*ASTM D7844>4▲ 4.73.1▲ 7.2NitrationAbs/cm*ASTM D7624>2010.89.518.6SulfationAbs/.1mm*ASTM D715>3027.424.636.9Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMOdorscalar*VisualNORMNORMLNORMLNORMGorscalar*VisualNORMNORMLNORMLNORMOdorscalar*VisualNORMNORMLNORMLNORMBoronppmASTM D5185m0232BariumppmASTM D5185m01112MaganeseppmASTM D5185m01112MagnesiumppmASTM D5185m1100938897952CalciumppmASTM D5185m12701041111591107PhosphorusppmASTM D5185m1270124012131224SulfuropmASTM D5185m1270124032753052CalciumppmASTM D5185m2060323632753052DiritarioApp<							
Soot %         %         *ASTM D7844         >4         ▲ 4.7         3.1         ▲ 7.2           Nitration         Abs/cm         *ASTM D7624         >20         10.8         9.5         18.6           Sulfation         Abs/lmm         *ASTM D7624         >20         NONE         NONE         NONE           Debris         scalar         *Visual         NONE         NONE         NONE         NORM           Appearance         scalar         *Visual         NORML         NORML         NORML         NORML         NORML           Goro         scalar         *Visual         >0.2         NEG         NEG         NEG           Sodium         ppm         ASTM D5185m         0         0         0         0         0				>0.2			
NitrationAbs/cm*ASTM D7624>2010.89.518.6SulfationAbs/1mm*ASTM D7415>3027.424.636.9Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLBenulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m0232BariumppmASTM D5185m0000MolybdenumppmASTM D5185m011112MagnesiumppmASTM D5185m10109388897952CalciumppmASTM D5185m1150104111591107PhosphorusppmASTM D5185m1270124012131224SulfurppmASTM D5185m1270124012131224SulfurppmASTM D5185m2060323632753052OxidationAbs/1mm*ASTM D714>2515.314.927.7Base Number (BN)mgKOHgASTM D28969.8 <b>A</b> 0.08.60.0							
SulfationAbs/.1mm*ASTM D7415>3027.424.636.9Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m0232BariumppmASTM D5185m0000MolybdenumppmASTM D5185m011112MagnesiumppmASTM D5185m1070104111591107PhosphorusppmASTM D5185m11501032953ZincppmASTM D5185m1270124012131224SulfurppmASTM D5185m1270124012131224SulfurppmASTM D5185m2060323632753052OxidationAbs/.1mm*ASTM D744>2515.314.927.7Base Number (BN)mg KOHgASTM D28969.8♠ 0.0€.0€.0	Soot %	%	*ASTM D7844	>4			
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Sand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m0232BariumppmASTM D5185m0000MolybdenumppmASTM D5185m01000MagnesiumppmASTM D5185m0112MagnesiumppmASTM D5185m10109388897952CalciumppmASTM D5185m11501032953ZincppmASTM D5185m1270124012131224SulfurppmASTM D5185m2060323632753052OxidationAbs/1mm*ASTM D7144>2515.314.927.7Base Number (BN)mg KOHgASTM D28969.8▲ 0.08.6▲ 0.0	Silt	scalar				NONE	
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGNEGSodiumppmASTM D5185m0232BariumppmASTM D5185m0000MolybdenumppmASTM D5185m0112MagnesiumppmASTM D5185m0112MagnesiumppmASTM D5185m1010938897952CalciumppmASTM D5185m1070104111591107PhosphorusppmASTM D5185m1270124012131224SulfurppmASTM D5185m2060323632753052OxidationAbs/1mm*ASTM D28969.8▲ 0.08.6▲ 0.0	Debris	scalar	*Visual	NONE		NONE	NONE
Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m0232BoronppmASTM D5185m0232BariumppmASTM D5185m0000MolybdenumppmASTM D5185m60596455ManganeseppmASTM D5185m0112MagnesiumppmASTM D5185m1010938897952CalciumppmASTM D5185m1070104111591107PhosphorusppmASTM D5185m1270124012131224SulfurppmASTM D5185m2060323632753052OxidationAbs/1mm*ASTM D7141>2515.314.927.7Base Number (BN)mg KOHgASTM D28969.8♠ 0.0€.0€.0€.0			*Visual		-		NONE
Emulsified Water         scalar         *Visual         >0.2         NEG         NEG         NEG           Sodium         ppm         ASTM D5185m         0         2         3         2           Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         64         55           Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D2896         9.8         0.0         8.6         0.0	Appearance	scalar	*Visual		NORML		
Sodium         ppm         ASTM D5185m         2         A82         4           Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         64         55           Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         0         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/1mm         *ASTM D7144         >25         15.3         14.9         27.7           Base Number (BN)         mg KOHg         ASTM D2896         9.8         • 0.0         8.6         • 0.0	Odor				-		NORM
Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         64         55           Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         0         1         1         2           Calcium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOHg         ASTM D2896         9.8         0.0         8.6         0.0	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         64         55           Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         0         1         1         2           Calcium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm<*ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8         0.0         8.6         0.0	Sodium	000	ACTM DE105m		0	A 00	Λ
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60 <b>59</b> 64         55           Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         1010 <b>938</b> 897         952           Calcium         ppm         ASTM D5185m         1070 <b>1041</b> 1159         1107           Phosphorus         ppm         ASTM D5185m         1070 <b>1041</b> 1123         953           Zinc         ppm         ASTM D5185m         1270 <b>1240</b> 1213         1224           Sulfur         ppm         ASTM D5185m         2060 <b>3236</b> 3275         3052           Oxidation         Abs/.1mm         *ASTM D7144         >25 <b>15.3</b> 14.9         27.7           Base Number (BN)         mg KOHg         ASTM D2896         9.8 <b>0.0</b> 8.6 <b>0.0</b>				0			
Molybdenum         ppm         ASTM D5185m         60         59         64         55           Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1150         1056         1032         953           Zinc         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8         0.0         8.6         0.0							
Manganese         ppm         ASTM D5185m         0         1         1         2           Magnesium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1150         1056         1032         953           Zinc         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOHg         ASTM D2896         9.8         0.0         8.6         0.0							
Magnesium         ppm         ASTM D5185m         1010         938         897         952           Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1150         1056         1032         953           Zinc         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8         0.0         8.6         0.0	-						
Calcium         ppm         ASTM D5185m         1070         1041         1159         1107           Phosphorus         ppm         ASTM D5185m         1150         1056         1032         953           Zinc         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOHg         ASTM D2896         9.8         ▲ 0.0         8.6         ▲ 0.0	-						
Phosphorus         ppm         ASTM D5185m         1150         1056         1032         953           Zinc         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8         ▲ 0.0         8.6         ▲ 0.0	-						
Zinc         ppm         ASTM D5185m         1270         1240         1213         1224           Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8         ▲ 0.0         8.6         ▲ 0.0							
Sulfur         ppm         ASTM D5185m         2060         3236         3275         3052           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8 <b>0.0</b> 8.6 <b>0</b> .0	•						
Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.9         27.7           Base Number (BN)         mg KOH/g         ASTM D2896         9.8 <b>4 0.0</b> 8.6 <b>4</b> 0.0							
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         ▲ 0.0         8.6         ▲ 0.0							
VISC @ 100°C CST ASTM D445 15.4 15.5 15.0 16.5	( )						
	visc @ 100°C	cSt	ASTM D445	15.4	15.5	15.0	16.5



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

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