

OIL ANALYSIS REPORT

Area [722504] LCT-2 Component

Diesel Engine

PHILLIPS 66 Fleet Supreme EC 15W40 (--- GAL)

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

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



2015 Nov2016 Jun2018 Dec2019 Jun2020 Nov2020 Dec2021 Jun2023 Mad

Sample Rating Trend

Sample Number Client Info WC0803178 WC0803478 WC080737 Sample Date Client Info 06 Jul 2023 04 May 2023 20 Mar 2023 Machine Age hrs Client Info 2307 2877 2856 Oil Age hrs Client Info 23 0 0 Oil Age Client Info Not Changd N/A Not Changd Sample Status Imtehod Imtubase current History1 History2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 <1.0 Tran ppm ASTM 051858 >100 2 0 <1.1 <1.0 <1.1 <1.0 <1.1 <1.0 <1.0 <1.1 <1.0 <1.1 <1.0 <1.0 <1.1 <1.0 <1.0 <1.1 <1.0 <1.0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Info 06 Jul 2023 04 May 2023 20 Mar 2023 Machine Age hrs Client Info 2907 2877 2856 Oil Age hrs Client Info 23 0 0 Oil Changed Client Info Not Changd N/A Not Changd Sample Status Client Info Not Changd N/A Nort Changd Glycol WC Method 55 <1.0 <1.0 <1.0 Glycol WC Method 55 <1.0 <1.0 <1.0 Chromium ppm ASTM 05185m >20 0 0 0 VEAR METALS method imit/base current history1 history2 Iron ppm ASTM 05185m >20 0 0 0 Nickel ppm ASTM 05185m >20 2 5 3 Ivandum ppm ASTM 05185m >30 0 0 0 Silver ppm ASTM 05185m	Sample Number		Client Info		WC0803178	WC0808468	WC0687737
Machine Age Oil Age Oil Age IrsClient Info290728772856Oil Changed Sample StatusClient InfoNot Changd NORMALN/ANot Changd NORMALCONTAMINATIONmethodImit/basecurrenthistory1history2Fuel GlycolWC Method>5<1.0<1.0<1.0GlycolWC MethodS5<1.0<1.0<1.0MEAR METALSmethodimit/basecurrenthistory1history2IronppmASTM D5185m>100202ChromiumppmASTM D5185m>20000NickelppmASTM D5185m>30000TataniumppmASTM D5185m>33000AuminumppmASTM D5185m>330<112CopperppmASTM D5185m>15000ADDITIVESmethodimit/basecurrenthistory1history2BoronppmASTM D5185m0000ADDITIVESmethodimit/basecurrenthistory1history2BronppmASTM D5185m9085818290BariumppmASTM D5185m908580011MaganeseppmASTM D5185m391238686CalciumppmASTM D5185m1116109711831092St			Client Info		06 Jul 2023	04 May 2023	20 Mar 2023
Oil Age hrs Client Info 23 0 0 Oil Changed Client Info Not Changd NoRMAL NoRMAL NoRMAL CONTAMINATION method limit/base current Fistory1 Fistory1 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 Fuel WC Method >50 0 0 0 0 Iron ppm ASTM D5185m >20 0 0 0 0 Itanium ppm ASTM D5185m >30 0 0 0 1 2 Stiver ppm ASTM D5185m >30 1 0 1 2 Copper ppm ASTM D5185m >30 1 0 1	•	hrs	Client Info		2907		2856
Oil Changed Sample Status Client Info Not Changd NORMAL N/A Not Changd NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >30 <1 0 <1 Tin ppm ASTM D5185m >30 <1 0 0 Vanadium ppm ASTM D5185m >30 <1 0 0 Kornentum ppm ASTM D5185m <1 0 0 0 Copper ppm ASTM D5185m <1 0 <1 1 Kornenum ppm ASTM D5185m	-	hrs	Client Info		23	0	0
Sample Status Imathe initiality association of the story	-		Client Info		Not Changd		Not Changd
Fuel WC Method >5 <1.0	-				Ű	NORMAL	-
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >40 <1 0 <1 Yanadium ppm ASTM D5185m 10 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 Addium ppm ASTM D5185m 11 0 <1 0 Cadmium ppm ASTM D5185m 90 85 80 Barium <t< th=""><th>CONTAMINATION</th><th>1</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATION	1	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 2 0 2 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >20 0 <1 1 2 Copper ppm ASTM D5185m >330 <1 0 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 0 Cadmium ppm ASTM D5185m 110 0 <1 0 1 0 1 <t< th=""><th>Fuel</th><th></th><th>WC Method</th><th>>5</th><th><1.0</th><th><1.0</th><th><1.0</th></t<>	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron ppm ASTM D5185m >100 2 0 2 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Auminum ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >3 0 0 <11	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >40 <1 1 2 Copper ppm ASTM D5185m >40 <1 0 <1 Tin ppm ASTM D5185m >40 <1 0 <1 Vanadium ppm ASTM D5185m >30 <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITVES method limit/base current history1 history2 Boron ppm ASTM D5185m 81 82 90 Barium ppm ASTM D5185m 90 85 80 <	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >20 2 5 3 Copper ppm ASTM D5185m >40 <1	Iron	ppm	ASTM D5185m	>100	2	0	2
Titanium ppm ASTM D5185m <1 0 <1 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >40 <1	Chromium	ppm	ASTM D5185m	>20	0	0	0
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >330 <1 1 2 Copper ppm ASTM D5185m >330 <1 0 <1 Tin ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m >15 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 2312 2239 2176 Phosphorus ppm ASTM D5185m 116 1097 1183	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m		<1	0	<1
Lead ppm ASTM D5185m >40 <1 1 2 Copper ppm ASTM D5185m >330 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 <1 0 <1 Tin ppm ASTM D5185m >15 0 0 <1	Aluminum		ASTM D5185m	>20	2	5	3
Tin ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m <1	Lead	ppm	ASTM D5185m	>40	<1	1	2
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 81 82 90 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 90 85 80 Magnese ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 39 123 86 Calcium ppm ASTM D5185m 1116 1097 1183 1092 Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 225 4 3 4 Sodium ppm ASTM D5185m >22 4 3 4 Sodium ppm	Copper	ppm	ASTM D5185m	>330	<1	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 81 82 90 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 90 85 80 Calcium ppm ASTM D5185m 39 123 86 Calcium ppm ASTM D5185m 2312 2239 2176 Phosphorus ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m	Tin	ppm	ASTM D5185m	>15	0	0	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 81 82 90 Barium ppm ASTM D5185m 0 0 0 Malybdenum ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 90 <1	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 81 82 90 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 90 85 80 Manganese ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 90 85 80 Calcium ppm ASTM D5185m 91 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 90 85 80 Manganese ppm ASTM D5185m 90 85 80 Magnesium ppm ASTM D5185m 39 123 86 Calcium ppm ASTM D5185m 2312 2239 2176 Phosphorus ppm ASTM D5185m 1116 1097 1183 1092 Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 255 4 3 4 Sodium ppm ASTM D5185m >20 <1 1 2 INFRA-RED method limit/base current history1 history2 <td< th=""><th>ADDITIVES</th><th></th><th>mothod</th><th>limit/base</th><th>ourropt</th><th>history1</th><th>history2</th></td<>	ADDITIVES		mothod	limit/base	ourropt	history1	history2
Molybdenum ppm ASTM D5185m 90 85 80 Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 39 123 86 Calcium ppm ASTM D5185m 2312 2239 2176 Phosphorus ppm ASTM D5185m 1116 1097 1183 1092 Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 25 4 3 4 Sodium ppm ASTM D5185m >20 <1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 <th>//BBHHYE0</th> <th></th> <th>methou</th> <th>iiiiii/base</th> <th>current</th> <th>Thistory I</th> <th>TIStoryz</th>	//BBHHYE0		methou	iiiiii/base	current	Thistory I	TIStoryz
Maganese ppm ASTM D5185m <1		ppm		IIIII/Dase			
Magnesium ppm ASTM D5185m 39 123 86 Calcium ppm ASTM D5185m 2312 2239 2176 Phosphorus ppm ASTM D5185m 1116 1097 1183 1092 Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 25 4 3 3992 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1 2 1 Potassium ppm ASTM D5185m >20 <1 0.1 0.1 Nitration Abs/.m *ASTM D7624 >3	Boron		ASTM D5185m	inni/base	81	82	90
Calcium ppm ASTM D5185m 2312 2239 2176 Phosphorus ppm ASTM D5185m 1116 1097 1183 1092 Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1478 4835 3992 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >20 <1	Boron Barium	ppm	ASTM D5185m ASTM D5185m	IIIIIUJase	81 0	82 0	90 0
Phosphorus ppm ASTM D5185m 1116 1097 1183 1092 Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 1291 1400 1235 Soliton ppm ASTM D5185m 20 4718 4835 3992 CONTAMINANTS method limit/base current history1 history2 Soliton ppm ASTM D5185m >20 <1	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90	82 0 85	90 0 80
Zinc ppm ASTM D5185m 1250 1291 1400 1235 Sulfur ppm ASTM D5185m 1250 4718 4835 3992 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 <1 2 <1 Potassium ppm ASTM D5185m >20 <1 1 2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.3 7.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 </th <th>Boron Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m</th> <th></th> <th>81 0 90 <1</th> <th>82 0 85 0</th> <th>90 0 80 <1</th>	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90 <1	82 0 85 0	90 0 80 <1
Sulfur ppm ASTM D5185m 4718 4835 3992 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 <1 2 <1 Potassium ppm ASTM D5185m >20 <1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.3 7.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90 <1 39	82 0 85 0 123	90 0 80 <1 86
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m<>25434SodiumppmASTM D5185m>25434PotassiumppmASTM D5185m>20<112<1PotassiumppmASTM D5185m>20<112<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.10.10.1NitrationAbs/cm*ASTM D7624>207.37.47.2SulfationAbs/.1mm*ASTM D7415>3016.717.417.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2512.712.912.3	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90 <1 39 2312	82 0 85 0 123 2239	90 0 80 <1 86 2176
Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 1 2 <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116	81 0 90 <1 39 2312 1097	82 0 85 0 123 2239 1183	90 0 80 <1 86 2176 1092
Sodium ppm ASTM D5185m 1 2 <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116	81 0 90 <1 39 2312 1097 1291	82 0 85 0 123 2239 1183 1400	90 0 80 <1 86 2176 1092 1235
Potassium ppm ASTM D5185m >20 <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116 1250	81 0 90 <1 39 2312 1097 1291 4718	82 0 85 0 123 2239 1183 1400 4835	90 0 80 <1 86 2176 1092 1235 3992
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.3 7.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.7 12.9 12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116 1250 limit/base	81 0 90 <1 39 2312 1097 1291 4718 current	82 0 85 0 123 2239 1183 1400 4835 history1	90 0 80 <1 86 2176 1092 1235 3992 history2
Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.3 7.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.7 12.9 12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1116 1250 limit/base	81 0 90 <1 39 2312 1097 1291 4718 current 4	82 0 85 0 123 2239 1183 1400 4835 history1 3	90 0 80 <1 86 2176 1092 1235 3992 history2 4
Nitration Abs/cm *ASTM D7624 >20 7.3 7.4 7.2 Sulfation Abs/.1mm *ASTM D7615 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.7 12.9 12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116 1250 limit/base >25	81 0 90 <1 39 2312 1097 1291 4718 <u>current</u> 4 1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <
Sulfation Abs/.1mm *ASTM D7415 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.7 12.9 12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1116 1250 limit/base >25 >20	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 1 <1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2
Sulfation Abs/.1mm *ASTM D7415 >30 16.7 17.4 17.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.7 12.9 12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1116 1250 limit/base >25 >20 limit/base	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 <1 <1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 1 history1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2
Oxidation Abs/.1mm *ASTM D7414 >25 12.7 12.9 12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	1116 1250 limit/base >25 >20 limit/base >3	81 0 90 <1 39 2312 1097 1291 4718 <i>current</i> 4 1 <1 <1 <i>current</i> 0.1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 1 history1 0.1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	11116 1250 limit/base >25 >20 limit/base >3 >20	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 <1 current 0.1 7.3	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 3 2 1 history1 0.1 7.4	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1 7.2
Base Number (BN) mg KOH/g ASTM D2896 9.7 11.21 7.3 10.02	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1116 1250 1000 225 220 1000 220 1000 220 20 20 20 20 20 20 20 20 20 20 20	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 <1 <1 <1 current 0.1 7.3 16.7	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 1 history1 0.1 7.4 17.4	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1 7.2 17.3
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	11116 1250 1imit/base >25 >20 1imit/base >3 >20 >30 >30	81 0 90 <1 39 2312 1097 1291 4718 <i>current</i> 4 1 <1 <1 <i>current</i> 0.1 7.3 16.7	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 3 2 1 history1 0.1 7.4 17.4 17.4 history1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1 7.2 17.3 history2

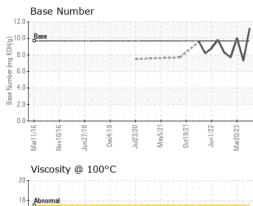


cSt (100°C)

13

Mar11

OIL ANALYSIS REPORT





Certificate L2367

Contact/Location: Vanessa Macias - TLDNOR