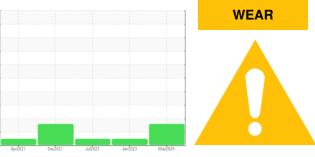


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

KENWORTH B13

Component Diesel Engine Fluid 10W30 DURON SEMI (--- QTS)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample.

A Wear

Piston, ring and cylinder wear is indicated.

Contamination

There is no indication of any contamination in the oil.

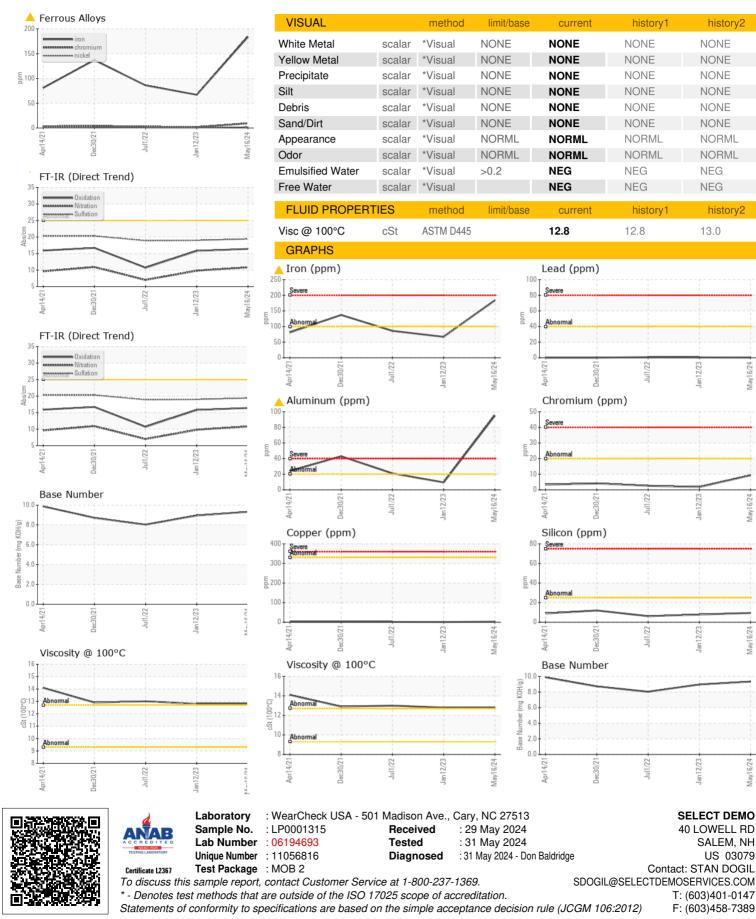
Fluid Condition

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

Sample Number Client Info IP 0001315 WC0570756 WC05701750 Sample Date Client Info 16 May 2021 12 Jan 2020 10 Jul 2020 Machine Age mis Client Info 12000 1000 10000 Oil Age mis Client Info 12000 1000 10000 Oil Age Client Info Changed Changed Changed NoRMAL CONTAMINATION WC Method >5.5 <1.0 <1.0 <1.0 Vic Method >5.5 <1.0 <1.0 <1.0 <1.0 Water WC Method >5.0 NEG NEG NEG Glycol WC Method >1.00 <1.84 67 .86 Chromium ppm ASTMD51555 >4.0 2 .0 .0 Silver ppm ASTMD51555 >3.0 0 .0 .0 Silver ppm ASTMD51555 >3.0 .1 .2 .1 Cloronium ppm	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine AgemisClient Info183622171369161758Oil AgemisClient Info12000100010000Oil ChangedClient Info12000100010000Sample StatusImagedClient InfoABNORMALNORMALNORMALCONTAMINATIONmethodimit/basecurrenthistory1history2FuelWC Method>5<1.0<1.0<1.0WaterWC Method>5<1.0<1.0<1.0GlycolWC Method>5<1.0<1.0NEGNEGWEAR METALSWC MethodSittorsSittorsNEGNEGNEGChromiumppmASTM 051555>100A 1846786ChromiumppmASTM 051555>3000NickelppmASTM 051555>30000AluminumppmASTM 051555>30312InnppmASTM 051555>30312CopperppmASTM 051555>30312NaduumppmASTM 051555>1<1<11AntimonyppmASTM 051555<1<1<1<1AntimonyppmASTM 051555<1<1<1<1AntimonyppmASTM 051555<1<1<1<1AntimonyppmASTM 051555<1<1<1<1Antim	Sample Number		Client Info		LP0001315	WC0570756	WC0570111
Oil AgemisClient info12000100010000Oil ChangedClient infoChangedChangedChangedChangedChangedChangedNoRMALNORMAL <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>16 May 2024</th> <th>12 Jan 2023</th> <th>01 Jul 2022</th>	Sample Date		Client Info		16 May 2024	12 Jan 2023	01 Jul 2022
Oil Changed Image Client Info Reaged Changed Changed Changed NORMAL Sample Status Image Imaged NORMAL NORMAL NORMAL NORMAL CONTAMINATION WC Method >5.2 Imaged NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG NEG Glycol WC Method >0.2 Imaged NEG NEG NEG WEAR METALS method Imit/base current Nistory1 Nistory1 Iron ppm ASTM D5185m >100 184 67 86 Nickel ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >4 2 0 0 Silver ppm ASTM D5185m >40 <1 1 1 2 Copper ppm ASTM D5185m >40 <1 1 1 1 Vandium ppm ASTM D5185m >41 0 0 0 ASTM D5185m >41 1 1 1	Machine Age	mls	Client Info		183622	171369	161758
Sample Status Image: Status ABNORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >5.2 NEG NEG NEG Glycol WC Method >5.2 NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >20 9 1 <1 <1 Ininium ppm ASTM D5185m >20 9 3 0 0 21 Lead ppm ASTM D5185m >30 3 1 2 1 Antimony ppm ASTM D5185m >1 <1 1 1 2 Antimony ppm ASTM D5185m <t< th=""><th>Oil Age</th><th>mls</th><th>Client Info</th><th></th><th>12000</th><th>1000</th><th>10000</th></t<>	Oil Age	mls	Client Info		12000	1000	10000
CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 +1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >100 184 67 86 Chromium ppm ASTM D5185m >20 9 2 1 41 Nickel ppm ASTM D5185m >44 2 1 41 41 Auminum ppm ASTM D5185m >40 <1 <1 41 21 Lead ppm ASTM D5185m >30 3 1 2 1 21 24 1 1 21 24 1 1 21 24 1 1 21 24 24 24 24 24 24 24 24 24 24 24 </th <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Changed</th> <th>Changed</th> <th>Changed</th>	Oil Changed		Client Info		Changed	Changed	Changed
FuelWC Method>5<1.0	Sample Status				ABNORMAL	NORMAL	NORMAL
FuelWC Method>5<1.0	CONTAMINATION	J	method	limit/base	current	historv1	historv2
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imit/base current history1 history2 Iron ppm ASTM D5186m >100< ▲ 184 67 86 Chromium ppm ASTM D5186m >20 9 2 3 Nickel ppm ASTM D5186m >20 9 2 3 Nickel ppm ASTM D5186m >20 9 2 3 Nickel ppm ASTM D5186m >30 0 0 0 Sliver ppm ASTM D5186m >30 3 1 2 1 Lead ppm ASTM D5186m >33.0 3 1 2 0 Vanadium ppm ASTM D5186m <<1 0 0 0 Cadmium ppm ASTM D5186m <<1 0 0 0 Boron ppm ASTM D5186m <1							
Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 184 67 86 Chromium ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >20 9 0 0 0 Silver ppm ASTM D5185m >4 2 0 0 0 Aluminum ppm ASTM D5185m >30 0 0 0 21 Lead ppm ASTM D5185m >40 <1 <1 2 1 Antimony ppm ASTM D5185m >4 <1 0 0 0 Cadmium ppm ASTM D5185m <1 <1 1 2 0 Molybdenum ppm ASTM D5185m <11 10 1 2 Molybdenum							
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 ▲ 184 67 86 Chromium ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >20 9 2 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 3 10 21 Lead ppm ASTM D5185m >40 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <11				20.2			
Iron ppm ASTM D5185m >100 ▲ 184 6.7 8.6 Chromium ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >4 2 <1	-			limit/baco			
Chromium ppm ASTM D5185m >20 9 2 3 Nickel ppm ASTM D5185m >4 2 <1 <1 Titanium ppm ASTM D5185m >4 2 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 3 1 21 Lead ppm ASTM D5185m >40 <1 <1 <1 Copper ppm ASTM D5185m >40 <1 <1 <1 <1 Antimony ppm ASTM D5185m >15 <1 <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 Adminum ppm ASTM D5185m <11 10 12 0 Adminum ppm ASTM D5185m 11 1 <1 1 Manganesium ppm ASTM D5185m 11 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Nickel ppm ASTM D5185m >4 2 <1							
Titanium ppm ASTM D5185m 2 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 95 10 21 Lead ppm ASTM D5185m >40 <1 <1 <1 Copper ppm ASTM D5185m >330 3 1 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Antimony ppm ASTM D5185m >15 <1 0 0 Cadmium ppm ASTM D5185m <1 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 10 12 Barium ppm ASTM D5185m 1089 974 1101 Magnesium ppm ASTM D5185m 1089 974 1101 Phosphorus							
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 ▲ 95 10 21 Lead ppm ASTM D5185m >40 <1 <1 <1 Copper ppm ASTM D5185m >330 3 1 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Antimony ppm ASTM D5185m <1 <1 0 0 Vanadium ppm ASTM D5185m <1 <1 0 0 Cadmium ppm ASTM D5185m <11 0 0 0 ADDTTVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 10 12 Barium ppm ASTM D5185m 128 33 57 63 Manganese ppm ASTM D5185m 1026 835 1027				>4			
Aluminum ppm ASTM D5185m >20 ▲ 95 10 21 Lead ppm ASTM D5185m >40 <1 <1 <1 Copper ppm ASTM D5185m >330 3 1 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Antmony ppm ASTM D5185m >15 <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m <11 0 12 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 1 1 1 Manganese ppm ASTM D5185m 1089 974 1101 Phosphorus ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 2977 3139 3650 C				0			
Lead ppm ASTM D5185m >40 <1							
Copper ppm ASTM D5185m >330 3 1 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Antimony ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 10 12 Barium ppm ASTM D5185m 63 57 63 Manganese ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1026 885 1027 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method							
Tin ppm ASTM D5185m >15 <1							
Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 10 12 Barium ppm ASTM D5185m 63 57 63 Malyadenum ppm ASTM D5185m 63 57 63 Magnese ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 277 5 9							
Vanadium ppm ASTM D5185m <1				>15			
Cadmium ppm ASTM D5185m <1	•						
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 10 12 Barium ppm ASTM D5185m 1 2 0 Molybdenum ppm ASTM D5185m 63 57 63 Manganese ppm ASTM D5185m 63 57 63 Magnesium ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 924 835 1027 Zinc ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1219 1119 1259 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Sulfur ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >20 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Boron ppm ASTM D5185m 11 10 12 Barium ppm ASTM D5185m 1 2 0 Molybdenum ppm ASTM D5185m 63 57 63 Manganese ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 924 835 1027 Zinc ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1026 885 1027 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Sulfur ppm ASTM D5185m >20 10 3 5 Sodium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D784 >3	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 1 2 0 Molybdenum ppm ASTM D5185m 63 57 63 Manganese ppm ASTM D5185m 1 <1 <1 <1 Magnesium ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 924 835 1027 Calcium ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1219 1119 1259 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7							
Molybdenum ppm ASTM D5185m 63 57 63 Manganese ppm ASTM D5185m 1 <1 <1 Magnesium ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 1089 974 1101 Phosphorus ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 2977 3139 3650 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Sulfur ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Marganese ppm ASTM D5185m 1 <1		ppm		limit/base			
Magnesium ppm ASTM D5185m 924 834 949 Calcium ppm ASTM D5185m 1089 974 1101 Phosphorus ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 2977 3139 3650 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation	Boron		ASTM D5185m	limit/base	11	10	12
Calcium ppm ASTM D5185m 1089 974 1101 Phosphorus ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1219 1119 1259 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/ltm *ASTM D7624 >30 19.4 19.0 18.9	Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	11 1	10 2	12 0
Phosphorus ppm ASTM D5185m 1026 885 1027 Zinc ppm ASTM D5185m 1219 1119 1259 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7415 30 19.4 19.0 <th< th=""><th>Boron Barium Molybdenum</th><th>ppm ppm</th><th>ASTM D5185m ASTM D5185m ASTM D5185m</th><th>limit/base</th><th>11 1 63</th><th>10 2 57</th><th>12 0 63</th></th<>	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	11 1 63	10 2 57	12 0 63
Zinc ppm ASTM D5185m 1219 1119 1259 Sulfur ppm ASTM D5185m 2977 3139 3650 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m >20 10 3 5 Potassium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.mm *ASTM D7415 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	11 1 63 1	10 2 57 <1	12 0 63 <1
SulfurppmASTM D5185m297731393650CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>251086SodiumppmASTM D5185m2759PotassiumppmASTM D5185m>201035INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.70.51.1NitrationAbs/cm*ASTM D7624>2010.89.87.0SulfationAbs/lmm*ASTM D7415>3019.419.018.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/lmm*ASTM D7414>2516.415.810.7Base Number (BN)mg KOH/gASTM D28969.338.958.03	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	11 1 63 1 924	10 2 57 <1 834	12 0 63 <1 949
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>251086SodiumppmASTM D5185m2759PotassiumppmASTM D5185m>201035INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.70.51.1NitrationAbs/cm*ASTM D7624>2010.89.87.0SulfationAbs/1mm*ASTM D7415>3019.419.018.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2516.415.810.7Base Number (BN)mg KOH/gASTM D28969.338.958.03	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	11 1 63 1 924 1089	10 2 57 <1 834 974	12 0 63 <1 949 1101
Silicon ppm ASTM D5185m >25 10 8 6 Sodium ppm ASTM D5185m Q 27 5 9 Potassium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7624 >20 10.8 9.8 7.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg K0H/g ASTM D2896 9.33 8.95 8.03	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	limit/base	11 1 63 1 924 1089 1026	10 2 57 <1 834 974 885	12 0 63 <1 949 1101 1027
Sodium ppm ASTM D5185m 27 5 9 Potassium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7615 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7415 >30 19.4 19.0 18.9 Dxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	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	limit/base	11 1 63 1 924 1089 1026 1219	10 2 57 <1 834 974 885 1119	12 0 63 <1 949 1101 1027 1259
Sodium ppm ASTM D5185m 27 5 9 Potassium ppm ASTM D5185m >20 10 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D715 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		11 1 63 1 924 1089 1026 1219 2977	10 2 57 <1 834 974 885 1119 3139	12 0 63 <1 949 1101 1027 1259 3650
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	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 ASTM D5185m	limit/base	11 1 63 1 924 1089 1026 1219 2977 current	10 2 57 <1 834 974 885 1119 3139 history1	12 0 63 <1 949 1101 1027 1259 3650 history2
Soot % % *ASTM D7844 >3 0.7 0.5 1.1 Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base	11 1 63 1 924 1089 1026 1219 2977 current 10	10 2 57 <1 834 974 885 1119 3139 history1 8	12 0 63 <1 949 1101 1027 1259 3650 history2 6
Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	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 ASTM D5185m	limit/base	11 1 63 1 924 1089 1026 1219 2977 current 10 27	10 2 57 <1 834 974 885 1119 3139 history1 8 5	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9
Nitration Abs/cm *ASTM D7624 >20 10.8 9.8 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	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	limit/base >25 >20	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5
Sulfation Abs/.1mm *ASTM D7415 >30 19.4 19.0 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	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	limit/base >25 >20 limit/base	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10 current	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3 3	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5 5 history2
Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10 current 0.7	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3 3 history1 0.5	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5 5 history2 1.1
Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 10.7 Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10 current 0.7 10.8	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3 3 history1 0.5 9.8	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5 5 history2 1.1 7.0
Base Number (BN) mg KOH/g ASTM D2896 9.33 8.95 8.03	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	limit/base >25 >20 limit/base >3 >20 >30	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10 current 0.7 10.8 19.4	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3 3 history1 0.5 9.8 19.0	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5 5 history2 1.1 7.0 18.9
	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 D7844 *ASTM D7844	limit/base >25 >20 limit/base >3 >20 >30 limit/base	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10 current 0.7 10.8 19.4 current	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3 history1 0.5 9.8 19.0 history1	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5 5 history2 1.1 7.0 18.9 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base >25 >20 limit/base >3 >20 >30 limit/base	11 1 63 1 924 1089 1026 1219 2977 current 10 27 10 current 0.7 10.8 19.4 current 10.8	10 2 57 <1 834 974 885 1119 3139 history1 8 5 3 3 history1 0.5 9.8 19.0 history1 15.8	12 0 63 <1 949 1101 1027 1259 3650 history2 6 9 5 5 history2 1.1 7.0 18.9 history2 10.7



OIL ANALYSIS REPORT



Report Id: SELSALNH [WUSCAR] 06194693 (Generated: 06/04/2024 08:57:00) Rev: 1

Contact/Location: STAN DOGIL - SELSALNH

Page 2 of 2

Aav16/24