

OIL ANALYSIS REPORT

Sample Rating Trend



1908 Component

Machine Id

Diesel Engine Fluid DIESEL ENGINE OIL SAE 5W30 (--- QTS)

DIAGNOSIS

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.

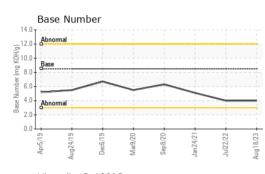
Fluid Condition

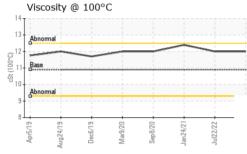
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 18 Aug 2023 22 Jul 2022 24 Jan 2021 Machine Age mis Client Info 559317 453354 303814 Oil Age mis Client Info Changed Changed Changed Sample Status Client Info Changed NORMAL NORMAL 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 Glycol WC Method NEG NEG NEG NEG Vical MSTM D5185m >100 50 42 26 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 8 9 6 Biver ppm ASTM D5185m >30 0 <1 2 Nickel ppm <th></th> <th>IATION</th> <th>method</th> <th></th> <th></th> <th></th> <th>history2</th>		IATION	method				history2
Sample Date Client Info 18 Aug 2023 22 Jul 2022 24 Jan 2021 Machine Age mis Client Info 559317 453354 303814 Oil Age mis Client Info 50000 100000 Changed Sample Status Client Info Changed NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method NEG NEG NEG Vical MSTM D5185m >20 <1 <1 <1 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <8 9 <6 Barinum ppm ASTM	Sample Number		Client Info		WC0814847	WC0686081	WC0509603
Machine Age mis Client Info 559317 453354 303814 Oil Age mis Client Info 50000 100000 100000 Oil Age mis Client Info S0000 100000 100000 Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method NEG NEG NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >3 0 <1 <1 Silver ppm ASTM D5185m >20 8 9 6 Auminum ppm ASTM D5185m >21 0 0 0 Copper ppm <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>18 Aug 2023</th> <th>22 Jul 2022</th> <th>24 Jan 2021</th>	Sample Date		Client Info		18 Aug 2023	22 Jul 2022	24 Jan 2021
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Nickel ppm ASTM D5185m >4 0 <1	Iron	ppm	ASTM D5185m	>100	50	42	26
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
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INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>310.90.6NitrationAbs/cm*ASTM D7624>2014.215.212.5SulfationAbs/.1mm*ASTM D7415>3028.731.327.1FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	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	10 100 450 3000 1150 1350 4250 limit/base	0 68 <1 1182 905 1114 1342 3597 current 9	7 0 65 <1 1156 976 1038 1335 3720 history1 8	10 0 64 <1 1191 922 1066 1266 2598 history2 10
Soot % % *ASTM D7844 >3 1 0.9 0.6 Nitration Abs/cm *ASTM D7624 >20 14.2 15.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 28.7 31.3 27.1 FLUID DEGRADATION method limit/base current history1 history2	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 method ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25	0 68 <1 1182 905 1114 1342 3597 current 9 7	7 0 65 <1 1156 976 1038 1335 3720 history1 8 5	10 0 64 <1 1191 922 1066 1266 2598 history2 10 5
Nitration Abs/cm *ASTM D7624 >20 14.2 15.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 28.7 31.3 27.1 FLUID DEGRADATION method limit/base current history1 history2	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25	0 68 <1 1182 905 1114 1342 3597 current 9 7	7 0 65 <1 1156 976 1038 1335 3720 history1 8 5	10 0 64 <1 1191 922 1066 1266 2598 history2 10 5
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FLUID DEGRADATION method limit/base current history1 history2	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >20 limit/base >3	0 68 <1 1182 905 1114 1342 3597 current 9 7 6 current 1	7 0 65 <1 1156 976 1038 1335 3720 history1 8 5 17 history1 0.9	10 0 64 <1 1191 922 1066 1266 2598 history2 10 5 18 history2 0.6
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	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	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 imit/base >25 >20 imit/base >3 >20	0 68 <1 1182 905 1114 1342 3597 <u>current</u> 9 7 6 6 <u>current</u> 1 1	7 0 65 <1 1156 976 1038 1335 3720 history1 8 5 17 8 5 17 history1 0.9 15.2	10 0 64 <1 1191 922 1066 1266 2598 history2 10 5 18 history2 0.6 12.5
Oxidation Abs/.1mm *ASTM D7414 >25 30.4 32.1 27.4	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	10 100 450 3000 1150 1350 4250 imit/base >25 >20 imit/base >3 >20 >30	0 68 <1 1182 905 1114 1342 3597 current 9 7 6 current 1 14.2 28.7	7 0 65 <1 1156 976 1038 1335 3720 history1 8 5 17 history1 0.9 15.2 31.3	10 0 64 <1 1191 922 1066 1266 2598 history2 10 5 18 history2 0.6 12.5 27.1
Base Number (BN) mg KOH/g ASTM D2896 8.5 4.0 4.0 5.1	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	10 100 450 3000 1150 1350 4250 imit/base >25 >20 imit/base >3 >20 >30	0 68 <1 1182 905 1114 1342 3597 current 9 7 6 current 1 14.2 28.7	7 0 65 <1 1156 976 1038 1335 3720 history1 8 5 17 history1 0.9 15.2 31.3	10 0 64 <1 1191 922 1066 1266 2598 history2 10 5 18 history2 0.6 12.5 27.1



OIL ANALYSIS REPORT

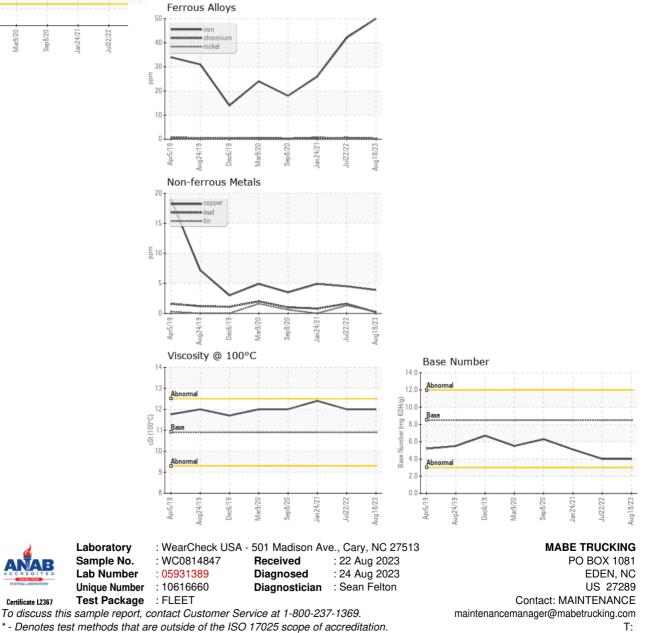




Certificate L2367

Report Id: MABEDE [WUSCAR] 05931389 (Generated: 08/24/2023 12:07:09) Rev: 1

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	12.0	12.0	12.4
GRAPHS						



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