

# **OIL ANALYSIS REPORT**

Sample Rating Trend





#### Component --Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- 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.

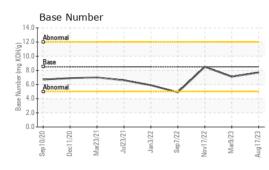
## Fluid Condition

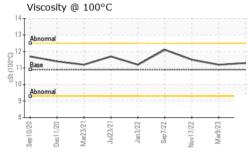
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				Jan2022 Sep2022 Nov2022 Mar20		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0101251	PCA0073183	PCA0067747
Sample Date		Client Info		17 Aug 2023	09 Mar 2023	17 Nov 2022
Machine Age	mls	Client Info		320057	295761	255177
Oil Age	mls	Client Info		30000	30000	30000
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	23	15	14
Chromium	ppm	ASTM D5185m	>20	1	2	2
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	3
Lead	ppm	ASTM D5185m	>40	<1	2	1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 2	history1 <1	history2 2
	ppm ppm					
Boron		ASTM D5185m	250	2	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	2 0	<1 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	2 0 70	<1 0 60	2 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	2 0 70 <1	<1 0 60 <1	2 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	2 0 70 <1 1218	<1 0 60 <1 956	2 0 61 <1 887
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	2 0 70 <1 1218 1331	<1 0 60 <1 956 1100	2 0 61 <1 887 1144
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	250 10 100 450 3000 1150	2 0 70 <1 1218 1331 1173	<1 0 60 <1 956 1100 997	2 0 61 <1 887 1144 999
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	250 10 100 450 3000 1150 1350 4250 Limit/base	2 0 70 <1 1218 1331 1173 1493	<1 0 60 <1 956 1100 997 1257	2 0 61 <1 887 1144 999 1221
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	2 0 70 <1 1218 1331 1173 1493 4022	<1 0 60 <1 956 1100 997 1257 2547	2 0 61 <1 887 1144 999 1221 3284
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	250 10 100 450 3000 1150 1350 4250 Limit/base	2 0 70 <1 1218 1331 1173 1493 4022 current	<1 0 60 <1 956 1100 997 1257 2547 history1	2 0 61 <1 887 1144 999 1221 3284 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	250 10 100 450 3000 1150 1350 4250 Limit/base >25	2 0 70 <1 1218 1331 1173 1493 4022 current 5	<1 0 60 <1 956 1100 997 1257 2547 history1 4	2 0 61 <1 887 1144 999 1221 3284 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Limit/base >25	2 0 70 <1 1218 1331 1173 1493 4022 current 5 1	<1 0 60 <1 956 1100 997 1257 2547 <b>history1</b> 4 2	2 0 61 <1 887 1144 999 1221 3284 history2 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	2 0 70 <1 1218 1331 1173 1493 4022 current 5 1 5	<1 0 60 <1 956 1100 997 1257 2547 history1 4 2 5	2 0 61 <1 887 1144 999 1221 3284 history2 3 0 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iinit/base</b> >25 >20 <b>Iinit/base</b> >3	2 0 70 <1 1218 1331 1173 1493 4022 current 5 1 5 1 5 5	<1 0 60 <1 956 1100 997 1257 2547 history1 4 2 5 5 history1	2 0 61 <1 887 1144 999 1221 3284 history2 3 0 10 10 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iinit/base</b> >25 >20 <b>Iinit/base</b> >3	2 0 70 <1 1218 1331 1173 1493 4022 current 5 1 5 5 1 5 5 2 1 5 5 2 1 2 5 2 1 2 5 2 2 2	<1 0 60 <1 956 1100 997 1257 2547 history1 4 2 5 history1 0.3	2 0 61 <1 887 1144 999 1221 3284 history2 3 0 10 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	2 0 70 <1 1218 1331 1173 1493 4022 <i>current</i> 5 1 5 1 5 <i>current</i> 0.2 7.9	<1 0 60 <1 956 1100 997 1257 2547 history1 4 2 5 <u>history1</u> 0.3 9.6	2 0 61 <1 887 1144 999 1221 3284 history2 3 0 10 10 history2 0.3 9.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 20 <b>limit/base</b> >3 >20 >30	2 0 70 <1 1218 1331 1173 1493 4022 current 5 1 5 5 1 5 5 0.2 7.9 19.1	<1 0 60 <1 956 1100 997 1257 2547 history1 4 2 5 5 history1 0.3 9.6 20.8	2 0 61 <1 887 1144 999 1221 3284 history2 3 0 10 10 history2 0.3 9.5 21.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 <b>imit/base</b> >3 >20 30 <b>imit/base</b>	2 0 70 <1 1218 1331 1173 1493 4022 <i>current</i> 5 1 5 1 5 <i>current</i> 0.2 7.9 19.1	<1 0 60 <1 956 1100 997 1257 2547 history1 4 2 5 history1 0.3 9.6 20.8 history1	2 0 61 <1 887 1144 999 1221 3284 history2 3 0 10 10 history2 0.3 9.5 21.7 history2

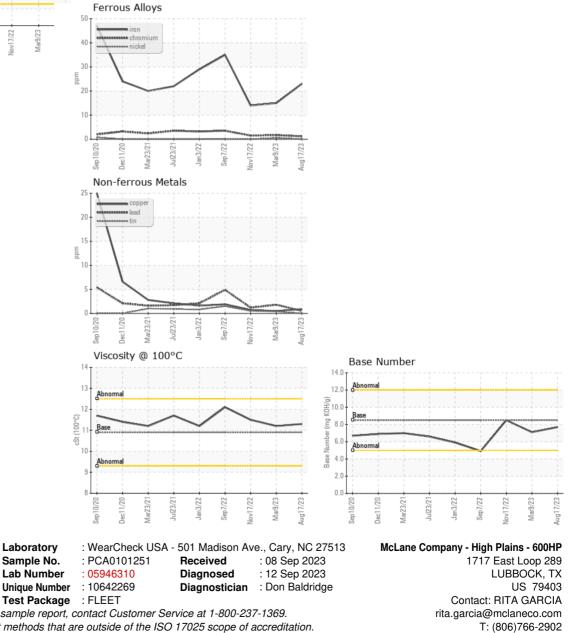


# **OIL ANALYSIS REPORT**





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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	11.3	11.2	11.5
GRAPHS						





Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: RITA GARCIA - MCLLUB

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