

## **OIL ANALYSIS REPORT**

Sample Rating Trend



# 20-140 (S/N 5KJJAED10KPKK7039)

Diesel Engine

{not provided} (--- GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

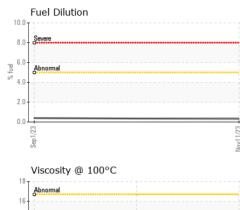
#### Fluid Condition

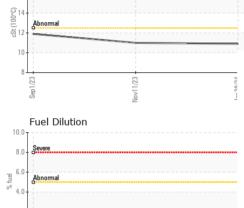
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

		Sep	2023	Nov2023 Jan20	24	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0109637	PCA0104620	PCA0104624
Sample Date		Client Info		29 Jan 2024	11 Nov 2023	01 Sep 2023
Machine Age	mls	Client Info		294241	283255	271499
Oil Age	mls	Client Info		285012	10000	271499
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	7	8	9
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	6
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	1	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		mathad	limit/base	ourropt	biotonut	history2
ADDITIVES		method	mmubase	current	history1	TIStoryz
Boron	ppm	ASTM D5185m	IIIIII/Dase	8	6	3
	ppm ppm		IIIII/base			
Boron		ASTM D5185m		8	6	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m		8 0	6 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		8 0 58	6 0 63	3 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		8 0 58 <1	6 0 63 <1	3 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		8 0 58 <1 906	6 0 63 <1 899	3 0 63 <1 903
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		8 0 58 <1 906 1009	6 0 63 <1 899 1165	3 0 63 <1 903 1169
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 ASTM D5185m		8 0 58 <1 906 1009 1015	6 0 63 <1 899 1165 1067	3 0 63 <1 903 1169 1032
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 0 58 <1 906 1009 1015 1208	6 0 63 <1 899 1165 1067 1219	3 0 63 <1 903 1169 1032 1277
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		8 0 58 <1 906 1009 1015 1208 3017	6 0 63 <1 899 1165 1067 1219 2573	3 0 63 <1 903 1169 1032 1277 3459
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	limit/base	8 0 58 <1 906 1009 1015 1208 3017 current	6 0 63 <1 899 1165 1067 1219 2573 history1	3 0 63 <1 903 1169 1032 1277 3459 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN 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 <b>method</b> ASTM D5185m	limit/base	8 0 58 <1 906 1009 1015 1208 3017 current 5	6 0 63 <1 899 1165 1067 1219 2573 history1 6	3 0 63 <1 903 1169 1032 1277 3459 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	limit/base >25 >20	8 0 58 <1 906 1009 1015 1208 3017 current 5 1	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m ASTM D5185m	limit/base >25 >20	8 0 58 <1 906 1009 1015 1208 3017 <u>current</u> 5 1 4	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5	8 0 58 <1 906 1009 1015 1208 3017 current 5 1 4 4 <1.0	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2 2 0.3	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5	8 0 58 <1 906 1009 1015 1208 3017 <i>current</i> 5 1 4 4 <1.0	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2 2 0.3 history1	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3 0.4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3	8 0 58 <1 906 1009 1015 1208 3017 <i>current</i> 5 1 4 4 <1.0 <i>current</i> 0.3	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2 0.3 kistory1 0.3	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3 0.4 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3 >20	8 0 58 <1 906 1009 1015 1208 3017 <i>current</i> 5 1 4 <1.0 <i>current</i> 0.3 6.7	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2 0.3 history1 0.3 7.1	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3 0.4 3 0.4 history2 0.3 6.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	Iimit/base >25 >20 >5 Iimit/base >3 >20 33 >30 Iimit/base	8 0 58 <1 906 1009 1015 1208 3017 <i>current</i> 5 1 4 <1.0 <i>current</i> 0.3 6.7 18.0 <i>current</i>	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2 0.3 history1 0.3 7.1 18.5 history1	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3 0.4 history2 0.3 6.9 18.2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3 >20 >3 >3	8 0 58 <1 906 1009 1015 1208 3017 <i>current</i> 5 1 4 <1.0 <i>current</i> 0.3 6.7 18.0	6 0 63 <1 899 1165 1067 1219 2573 history1 6 3 2 0.3 history1 0.3 7.1 18.5	3 0 63 <1 903 1169 1032 1277 3459 history2 6 4 3 0.4 5 0.4 history2 0.3 6.9 18.2



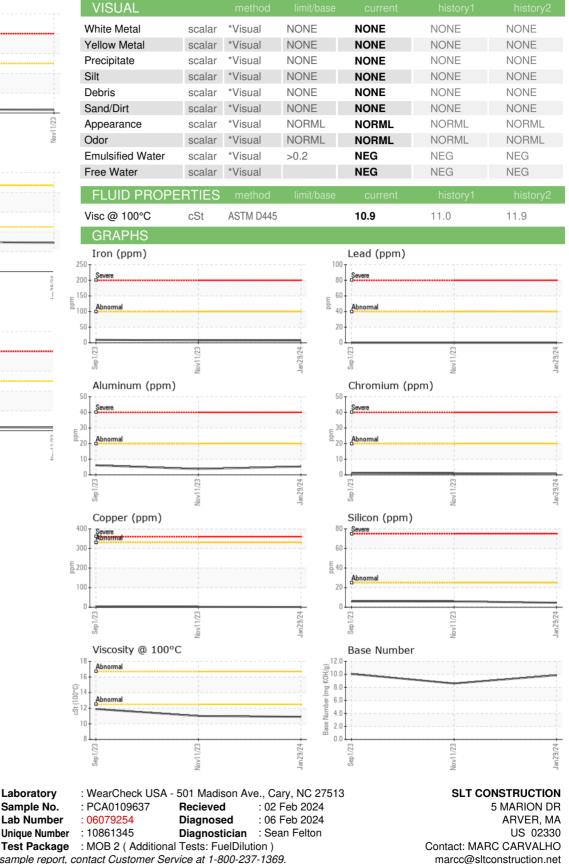
## **OIL ANALYSIS REPORT**





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Sep 1



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)

Certificate L2367

Laboratory

Sample No.

Lab Number

T:

F: