

OIL ANALYSIS REPORT

Sample Rating Trend



RON W CALLEGAN

Port Diesel Engine

MOBIL MOBILGARD 410 NC (11 GAL)

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.

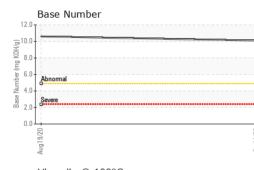
Fluid Condition

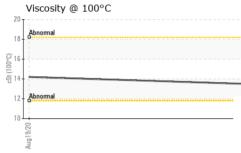
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

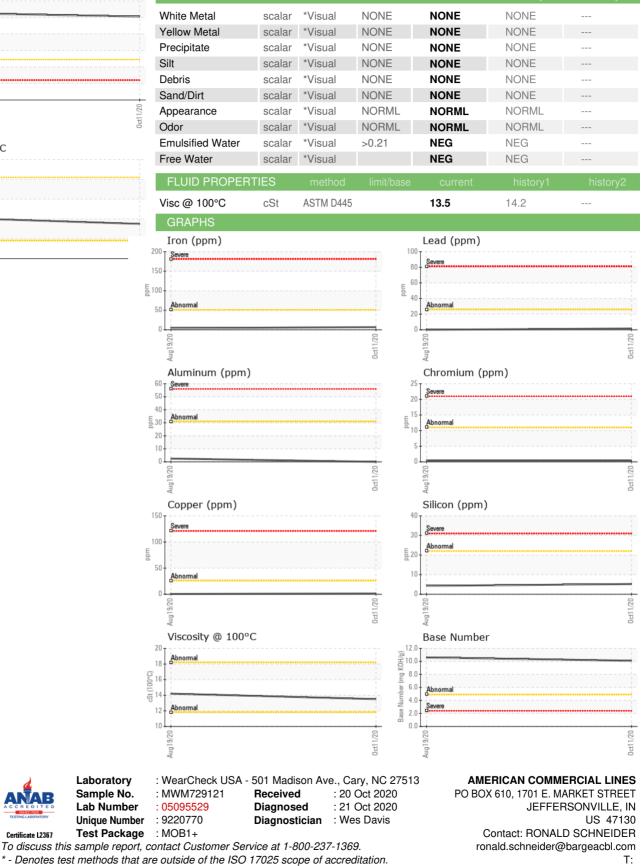
			Aug2020	0ct2020		
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		MWM729121	MW0002536	
Sample Date		Client Info		11 Oct 2020	19 Aug 2020	
Machine Age	hrs	Client Info		29285	28369	
Oil Age	hrs	Client Info		429	462	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	<1.0	<1.0	
Glycol		WC Method	22.1	NEG	NEG	
				MEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	7	4	
Chromium	ppm	ASTM D5185m	>11	<1	<1	
Nickel	ppm	ASTM D5185m	>5	<1	0	
Titanium	ppm	ASTM D5185m		<1	<1	
Silver	ppm	ASTM D5185m		0	0	
Aluminum	ppm	ASTM D5185m	>31	0	2	
Lead	ppm	ASTM D5185m	>26	2	0	
Copper	ppm	ASTM D5185m	>26	2	<1	
Tin	ppm	ASTM D5185m	>4	<1	0	
Antimony	ppm	ASTM D5185m		0	0	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 17	history1 1	history2
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	17	1	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	17 0	1 <1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 5	1 <1 2	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 5 <1	1 <1 2 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 5 <1 15	1 <1 2 <1 10	
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	17 0 5 <1 15 3042	1 <1 2 <1 10 3084	
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	17 0 5 <1 15 3042 19	1 <1 2 <1 10 3084 <1	
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	17 0 5 <1 15 3042 19 0	1 <1 2 <1 10 3084 <1 6	
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		17 0 5 <1 15 3042 19 0 3876	1 <1 2 <1 10 3084 <1 6 3794	
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	limit/base	17 0 5 <1 15 3042 19 0 3876 current	1 <1 2 <1 10 3084 <1 6 3794 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	17 0 5 <1 15 3042 19 0 3876 current 5	1 <1 2 <1 10 3084 <1 6 3794 history1 4	 history2
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 >22 >31	17 0 5 <1 15 3042 19 0 3876 <u>current</u> 5 8	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3	 history2
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 >22 >31 >20	17 0 5 <1 15 3042 19 0 3876 current 5 8 11	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3 0	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >22 >31 >20 limit/base	17 0 5 <1 15 3042 19 0 3876 current 5 8 11 1	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3 0 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >22 >31 >20 limit/base >3	17 0 5 <1 15 3042 19 0 3876 current 5 8 11 1 current 0.2	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3 0 history1 0.3	 history2 history2 history2
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	limit/base >22 >31 >20 limit/base >3 >20	17 0 5 <1 15 3042 19 0 3876 <i>current</i> 5 8 11 <i>current</i> 0.2 10	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3 0 history1 0.3 10.9	 history2 history2 history2
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	Imit/base >22 >31 >20 Imit/base >3 >20 >30	17 0 5 <1 15 3042 19 0 3876 <u>current</u> 5 8 11 0.2 10 22.1	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3 0 history1 0.3 10.9 21.5	 history2 history2 history2
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 *ASTM D7415	limit/base >22 >31 >20 limit/base >3 >20 >30 limit/base	17 0 5 <1 15 3042 19 0 3876 Current 5 8 11 Current 0.2 10 22.1 Current	1 <1 2 <1 10 3084 <1 6 3794 history1 4 3 0 history1 0.3 10.9 21.5 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT







Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

F: (812)288-1644