

# **OIL ANALYSIS REPORT**

Tampa [Tampa] Oil - Port Main Engine

**Port Main Engine** 

MOBIL 15W40 (35 GAL)

Sample Rating Trend



## Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

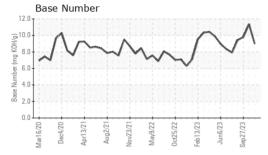
# **Fluid Condition**

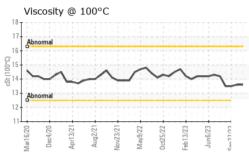
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0805335	WC0805340	WC0805343
Sample Date		Client Info		21 Nov 2023	25 Oct 2023	27 Sep 2023
Machine Age	hrs	Client Info		20055	19526	18858
Oil Age	hrs	Client Info		2173	1661	1017
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	7	6	3
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>3	2	2	2
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	<1
Lead	ppm	ASTM D5185m	>18	<1	0	<1
Copper	ppm	ASTM D5185m	>80	5	6	4
Tin	ppm	ASTM D5185m	>14	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base		المرسمة ما ما	history2
7.55111720		memou	IIIIII/Dase	current	history1	HISTOLYZ
Boron	ppm	ASTM D5185m	IIIIII/Dase	64	57	67
	ppm ppm		IIIIII/Dase			
Boron	• •	ASTM D5185m	IIIIIIVDase	64	57	67
Boron Barium	ppm	ASTM D5185m ASTM D5185m	IIIIII/Dase	64 0	57 <1	67 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	IIIIII/Dase	64 0 50	57 <1 45	67 0 41
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	IIIIII/Dase	64 0 50 <1	57 <1 45 0	67 0 41 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	IIIIII/Dase	64 0 50 <1 564	57 <1 45 0 554	67 0 41 <1 560
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	IIIIIIIIIIII	64 0 50 <1 564 1621	57 <1 45 0 554 1627	67 0 41 <1 560 1627
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	64 0 50 <1 564 1621 790	57 <1 45 0 554 1627 789	67 0 41 <1 560 1627 761
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 ASTM D5185m	limit/base	64 0 50 <1 564 1621 790	57 <1 45 0 554 1627 789 961	67 0 41 <1 560 1627 761 935
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	limit/base	64 0 50 <1 564 1621 790 941 2558	57 <1 45 0 554 1627 789 961 3014	67 0 41 <1 560 1627 761 935 2652
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	64 0 50 <1 564 1621 790 941 2558 current	57 <1 45 0 554 1627 789 961 3014 history1	67 0 41 <1 560 1627 761 935 2652 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	64 0 50 <1 564 1621 790 941 2558 current 5 0 3	57 <1 45 0 554 1627 789 961 3014 history1 5 4	67 0 41 <1 560 1627 761 935 2652 history2 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118	64 0 50 <1 564 1621 790 941 2558 current 5	57 <1 45 0 554 1627 789 961 3014 history1 5	67 0 41 <1 560 1627 761 935 2652 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118 >20	64 0 50 <1 564 1621 790 941 2558 current 5 0 3	57 <1 45 0 554 1627 789 961 3014 history1 5 4	67 0 41 <1 560 1627 761 935 2652 history2 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118 >20 >0.1	64 0 50 <1 564 1621 790 941 2558 current 5 0 3 NEG	57 <1 45 0 554 1627 789 961 3014 history1 5 4 2 NEG	67 0 41 <1 560 1627 761 935 2652 history2 4 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304	limit/base >20 >118 >20 >0.1	64 0 50 <1 564 1621 790 941 2558 current 5 0 3 NEG	57 <1 45 0 554 1627 789 961 3014 history1 5 4 2 NEG history1	67 0 41 <1 560 1627 761 935 2652 history2 4 <1 <1 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118 >20 >0.1 limit/base	64 0 50 <1 564 1621 790 941 2558 current 5 0 3 NEG current 0.2	57 <1 45 0 554 1627 789 961 3014 history1 5 4 2 NEG history1 0.2	67 0 41 <1 560 1627 761 935 2652 history2 4 <1 <1 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304  method  *ASTM D7844  *ASTM D7844	limit/base >20 >118 >20 >0.1 limit/base >20	64 0 50 <1 564 1621 790 941 2558 current 5 0 3 NEG current 0.2 8.6	57 <1 45 0 554 1627 789 961 3014 history1 5 4 2 NEG history1 0.2 8.0	67 0 41 <1 560 1627 761 935 2652 history2 4 <1 <1 NEG history2 0.2 6.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304  method  *ASTM D7844  *ASTM D7624  *ASTM D76145	limit/base >20 >118 >20 >0.1 limit/base >20 >0.3	64 0 50 <1 564 1621 790 941 2558 current 5 0 3 NEG current 0.2 8.6 22.0	57 <1 45 0 554 1627 789 961 3014 history1 5 4 2 NEG history1 0.2 8.0 22.3	67 0 41 <1 560 1627 761 935 2652 history2 4 <1 <1 NEG history2 0.2 6.9 21.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304  method  *ASTM D7624 *ASTM D7624 *ASTM D7615  method	limit/base >20 >118 >20 >0.1 limit/base >20 >0.1 limit/base	64 0 50 <1 564 1621 790 941 2558 current 5 0 3 NEG current 0.2 8.6 22.0 current	57 <1 45 0 554 1627 789 961 3014 history1 5 4 2 NEG history1 0.2 8.0 22.3 history1	67 0 41 <1 560 1627 761 935 2652 history2 4 <1 <1 NEG history2 0.2 6.9 21.2



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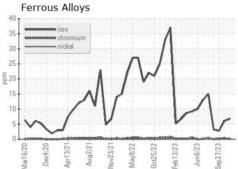


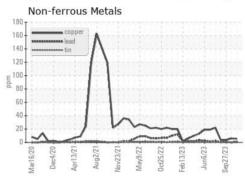


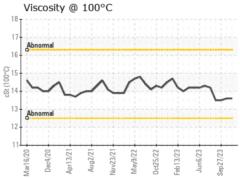
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

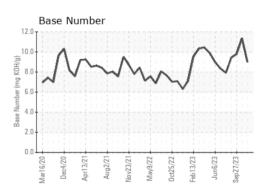
FLUID PROPERTIES		method			history2
Visc @ 100°C	cSt	ASTM D445	13.6	13.6	13.5

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10779360

: WC0805335 : 06029569

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed

Test Package : IND 2 (Additional Tests: KF)

: 08 Dec 2023 : 13 Dec 2023 Diagnostician : Jonathan Hester

Contact: CORY GUMBERT cagumbert@marathonpetroleum.com

MARATHON PETROLEUM CO.

\* - 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) T: (606)585-3950 F: x:

101 12TH ST

US 41169

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