

OIL ANALYSIS REPORT

Area Speedway [Speedway] Oil - Port Main Engine

Port Main Engine

Fluid MOBIL MOBILGARD 410 NC (270 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 96 GAL)

Wear

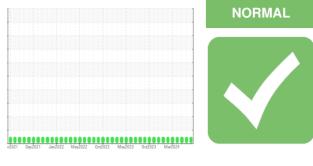
All component wear rates are normal.

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 INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0874682	WC0845793	WC0845796
Sample Date		Client Info		08 Jul 2024	11 Jun 2024	15 May 2024
Machine Age	hrs	Client Info		20790	20337	19966
Oil Age	hrs	Client Info		18817	18364	18717
Oil Changed		Client Info		Oil Added	Filtered	Oil Added
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	4	9	5
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>3	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	5	5	5
Lead	ppm	ASTM D5185m	>18	<1	4	2
Copper	ppm	ASTM D5185m	>80	9	20	10
Tin	ppm	ASTM D5185m	>14	1	6	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current 0	history1 7	history2 0
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	0	7	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	0 0	7 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 2	7 0 9	0 0 2
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 0 2 0	7 0 9 <1	0 0 2 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 2 0 44	7 0 9 <1 23	0 0 2 <1 11
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 0 2 0 44 2911	7 0 9 <1 23 3163	0 0 2 <1 11 2951
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		0 0 2 0 44 2911 28	7 0 9 <1 23 3163 26	0 0 2 <1 11 2951 5
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		0 0 2 0 44 2911 28 28	7 0 9 <1 23 3163 26 17	0 2 <1 11 2951 5 0
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	10 limit/base	0 0 2 0 44 2911 28 28 28 4807	7 0 9 <1 23 3163 26 17 5132	0 0 2 <1 11 2951 5 0 4960
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	10 limit/base >20	0 0 2 0 44 2911 28 28 4807 current	7 0 9 <1 23 3163 26 17 5132 history1	0 0 2 <1 11 2951 5 0 4960 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 method ASTM D5185m	10 limit/base >20	0 0 2 0 44 2911 28 28 4807 current 5	7 0 9 <1 23 3163 26 17 5132 history1 5	0 0 2 <1 11 2951 5 0 4960 history2 5
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	10 10 >20 >75	0 0 2 0 44 2911 28 28 4807 <u>current</u> 5 2	7 0 9 <1 23 3163 26 17 5132 history1 5 3	0 0 2 <1 11 2951 5 0 4960 history2 5 1
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	10 10 >20 >75 >20	0 0 2 0 44 2911 28 28 4807 <u>current</u> 5 2 2 0	7 0 9 <1 23 3163 26 17 5132 history1 5 3 2	0 0 2 <1 11 2951 5 0 4960 history2 5 1 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 10 >20 >75 >20 >75 >20 >0.1	0 0 2 0 44 2911 28 28 4807 current 5 2 0 0 NEG	7 0 9 <1 23 3163 26 17 5132 history1 5 3 2 NEG	0 0 2 <1 11 2951 5 0 4960 history2 5 1 0 NEG
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 D5185m	10 limit/base >20 >75 >20 >0.1 limit/base >3	0 0 2 0 44 2911 28 28 4807 <i>current</i> 5 2 0 0 NEG	7 0 9 <1 23 3163 26 17 5132 history1 5 3 2 NEG NEG history1	0 0 2 <1 11 2951 5 0 4960 history2 5 1 0 NEG NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 limit/base >20 >75 >20 >0.1 limit/base >3	0 0 2 0 44 2911 28 28 4807 <i>current</i> 5 2 0 <i>NEG</i> <i>current</i> 0.3	7 0 9 <1 23 3163 26 17 5132 history1 5 3 2 NEG history1 0.5	0 0 2 <1 11 2951 5 0 4960 history2 5 1 0 NEG NEG history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 10 20 >75 >20 >0.1 1imit/base >3 >20	0 0 2 0 44 2911 28 28 4807 <i>current</i> 5 2 0 NEG 0 NEG 0.3 8.8	7 0 9 <1 23 3163 26 17 5132 history1 5 3 2 NEG NEG history1 0.5 9.9	0 0 2 <1 11 2951 5 0 4960 history2 5 1 0 NEG NEG NEG 0.4 8.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 10 20 >75 >20 >0.1 20 >0.1 1 imit/base >3 >20 >30	0 0 2 0 44 2911 28 28 4807 <i>current</i> 5 2 0 <i>current</i> 0 NEG 0 NEG 0.3 8.8 20.0	7 0 9 <1 23 3163 26 17 5132 history1 5 3 2 NEG NEG history1 0.5 9.9 20.1	0 0 2 <1 11 2951 5 0 4960 history2 5 1 0 NEG NEG 0.4 8.7 19.5

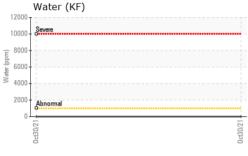
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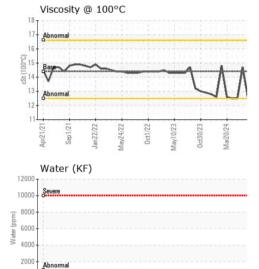
Sample Rating Trend



OIL ANALYSIS REPORT

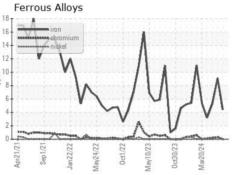


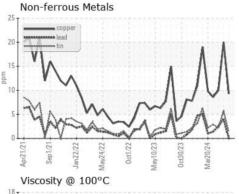


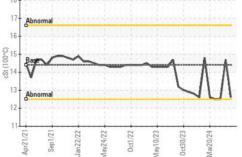


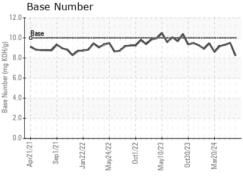
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	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	14.4	12.6	14.7	12.5

GRAPHS









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MARATHON PETROLEUM CO. : WC0874682 Sample No. Received : 15 Jul 2024 101 12TH ST Lab Number : 06236287 Tested : 16 Jul 2024 CATLETTSBURG, KY Unique Number : 11125121 Diagnosed : 16 Jul 2024 - Sean Felton US 41169 Test Package : IND 2 (Additional Tests: KF) Contact: CORY GUMBERT Certificate 12367 cagumbert@marathonpetroleum.com To discuss this sample report, contact Customer Service at 1-800-237-1369. T: (606)585-3950 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F: x:

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

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Submitted By: M/V SPEEDWAY

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