

OIL ANALYSIS REPORT

Area Speedway [Speedway] Oil - Port Main Engine

Port Main Engine Fluid SAE 40W (270 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 36 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.



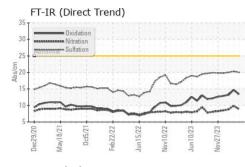
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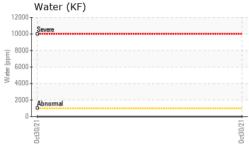
Sample Rating Trend

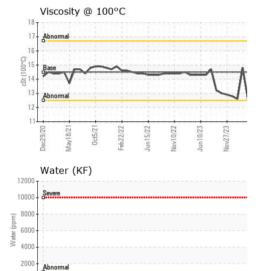
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0860041	WC0860045	WC0845773
Sample Date		Client Info		20 Mar 2024	21 Feb 2024	23 Jan 2024
Machine Age	hrs	Client Info		19132	18754	18414
Oil Age	hrs	Client Info		17942	17574	17234
Oil Changed		Client Info		Oil Added	Not Changd	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
	_		11 11 11			
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	5	11	5
Chromium	ppm	ASTM D5185m		0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		5	4	5
Lead	ppm	ASTM D5185m	>18	1	5	5
Copper	ppm	ASTM D5185m		10	19	11
Tin	ppm	ASTM D5185m	>14	2	6	3
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES						
ADDITIVE5		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current 2	history1 4	history2 3
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/dase	2	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	2 0	4	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		2 0 3	4 0 11	3 0 5
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		2 0 3 <1	4 0 11 <1	3 0 5 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		2 0 3 <1 35	4 0 11 <1 42	3 0 5 2 33
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		2 0 3 <1 35 2815	4 0 11 <1 42 3015	3 0 5 2 33 2801
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		2 0 3 <1 35 2815 16	4 0 11 <1 42 3015 31	3 0 5 2 33 2801 15
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	limit/base	2 0 3 <1 35 2815 16 13	4 0 11 <1 42 3015 31 26	3 0 5 2 33 2801 15 19
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	limit/base	2 0 3 <1 35 2815 16 13 4976	4 0 11 <1 42 3015 31 26 4370	3 0 5 2 33 2801 15 19 4267
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 ASTM D5185m	limit/base	2 0 3 <1 35 2815 16 13 4976 current	4 0 11 <1 42 3015 31 26 4370 history1	3 0 5 2 33 2801 15 19 4267 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 method	limit/base	2 0 3 <1 35 2815 16 13 4976 current 5	4 0 11 <1 42 3015 31 26 4370 history1 4	3 0 5 2 33 2801 15 19 4267 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 method ASTM D5185m	limit/base >20 >75 >20	2 0 3 <1 35 2815 16 13 4976 <u>current</u> 5 1	4 0 11 42 3015 31 26 4370 history1 4 1	3 0 5 2 33 2801 15 19 4267 history2 5 4
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 >20 >75 >20	2 0 3 <1 35 2815 16 13 4976 <u>current</u> 5 1 0	4 0 11 42 3015 31 26 4370 history1 4 1 0	3 0 5 2 33 2801 15 19 4267 history2 5 4 3
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	limit/base >20 >75 >20 >0.1 limit/base	2 0 3 <1 35 2815 16 13 4976 current 5 1 0 NEG	4 0 11 <1 42 3015 31 26 4370 history1 4 1 0 NEG	3 0 5 2 33 2801 15 19 4267 history2 5 4 3 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED	ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 >0.1 limit/base >3	2 0 3 <1 35 2815 16 13 4976 <i>current</i> 5 1 0 NEG	4 0 11 <1 42 3015 31 26 4370 history1 4 1 0 NEG history1	3 0 5 2 33 2801 15 19 4267 history2 5 4 3 NEG history2
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 ASTM D5185m	limit/base >20 >75 >20 >0.1 limit/base >3 >20	2 0 3 <1 35 2815 16 13 4976 <i>current</i> 5 1 0 NEG <i>current</i> 0.3	4 0 11 <1 42 3015 31 26 4370 history1 4 1 0 NEG history1 0.5	3 0 5 2 33 2801 15 19 4267 history2 5 4 3 NEG history2 0.3
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 ASTM D6304 *ASTM D7844	limit/base >20 >75 >20 >0.1 limit/base >3 >20	2 0 3 <1 35 2815 16 13 4976 <i>current</i> 5 1 0 NEG 0.3 8.9	4 0 11 <1 42 3015 31 26 4370 history1 4 1 0 NEG history1 0.5 9.9	3 0 5 2 33 2801 15 19 4267 history2 5 4 3 NEG NEG 0.3 8.8
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 D5185m	limit/base >20 >75 >20 >0.1 limit/base >3 >20 >30 >30 limit/base	2 0 3 <1 35 2815 16 13 4976 <i>current</i> 5 1 0 <i>NEG</i> <i>current</i> 0.3 8.9 20.0	4 0 11 <1 42 3015 31 26 4370 history1 4 1 0 NEG history1 0.5 9.9 20.3 history1	3 0 5 2 33 2801 15 19 4267 history2 5 4 3 NEG 5 4 3 NEG 0.3 8.8 20.0 history2
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 D5185m	limit/base >20 >75 >20 >0.1 limit/base >3 >20 >30 >30 limit/base	2 0 3 <1 35 2815 16 13 4976 <i>current</i> 5 1 0 <i>NEG</i> 0.3 8.9 20.0	4 0 11 <1 42 3015 31 26 4370 history1 4 1 0 NEG history1 0.5 9.9 20.3	3 0 5 2 33 2801 15 19 4267 history2 5 4 3 NEG history2 0.3 8.8 20.0



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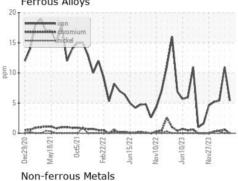


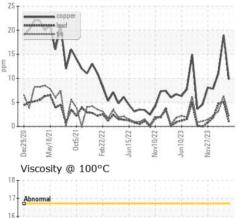


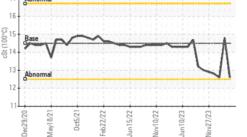


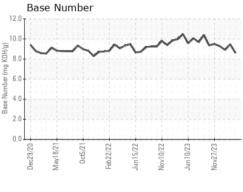
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
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	14.5	12.6	14.8	12.6
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MARATHON PETROLEUM CO. : WC0860041 Sample No. Received : 05 Apr 2024 101 12TH ST Lab Number : 06140108 Tested : 09 Apr 2024 CATLETTSBURG, KY Unique Number : 10964916 Diagnosed : 09 Apr 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)

Report Id: MARCAT [WUSCAR] 06140108 (Generated: 04/09/2024 18:28:09) Rev: 1

Submitted By: M/V SPEEDWAY

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