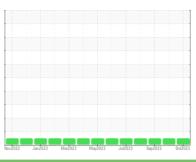


OIL ANALYSIS REPORT

West Virginia [West Virginia] Oil - Port Genset

Port Genset

MARATHON 15W40 (8 GAL)



Sample Rating Trend



Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Thurman Richardson

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

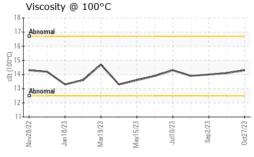
Fluid Condition

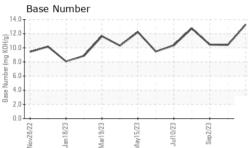
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0804888	WC0804884	WC0805333
Sample Date		Client Info		27 Oct 2023	02 Oct 2023	02 Sep 2023
Machine Age	hrs	Client Info		26183	26004	25591
Oil Age	hrs	Client Info		1045	875	453
Oil Changed		Client Info		N/A	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	V	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	>50	19	13	10
Chromium	ppm	ASTM D5185m	>4	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>12	4	0	<1
Lead	ppm	ASTM D5185m	>17	<1	<1	1
Copper	ppm	ASTM D5185m	>70	1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	<1
Caumum	ррпп	710 TWI DO 100111		<1	U	<u> </u>
ADDITIVES	ррш	method	limit/base	current	history1	history2
	ppm		limit/base			
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 33	history1	history2 28
ADDITIVES Boron Barium	ppm	method ASTM D5185m ASTM D5185m	limit/base	current 33 <1	history1 28 0	history2 28 0
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 33 <1 101	history1 28 0 71	history2 28 0 68
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 33 <1 101 <1	history1 28 0 71 <1	history2 28 0 68 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 33 <1 101 <1 1772	history1 28 0 71 <1 1256	history2 28 0 68 <1 1203
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776	history1 28 0 71 <1 1256 1336	history2 28 0 68 <1 1203 1382
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776 1378	history1 28 0 71 <1 1256 1336 997	history2 28 0 68 <1 1203 1382 956
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776 1378 1723	history1 28 0 71 <1 1256 1336 997 1214	history2 28 0 68 <1 1203 1382 956 1181
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776 1378 1723 5581	history1 28 0 71 <1 1256 1336 997 1214 3445	history2 28 0 68 <1 1203 1382 956 1181 4015
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776 1378 1723 5581 current	history1 28 0 71 <1 1256 1336 997 1214 3445 history1	history2 28 0 68 <1 1203 1382 956 1181 4015 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4 15	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base >25 >20	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4 15 3	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3 9 <1	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3 6 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m method	limit/base >25 >20 limit/base	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4 15 3 current	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3 9 <1	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3 6 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m method ASTM D5185m	limit/base >25 >20 limit/base	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4 15 3 current 0.2	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3 9 <1	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3 6 <1 history2 0.2
ADDITIVES 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	method ASTM D5185m method *ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >20	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4 15 3 current 0.2 12.4	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3 9 <1 history1 0.2 11.8	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3 6 <1 history2 0.2 11.5
ADDITIVES 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	method ASTM D5185m method *ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base >25 >20 limit/base >20 >30	current 33 <1 101 <1 1772 1776 1378 1723 5581 current 4 15 3 current 0.2 12.4 23.2	history1 28 0 71 <1 1256 1336 997 1214 3445 history1 3 9 <1 history1 0.2 11.8 21.6	history2 28 0 68 <1 1203 1382 956 1181 4015 history2 3 6 <1 history2 0.2 11.5 21.6



OIL ANALYSIS REPORT



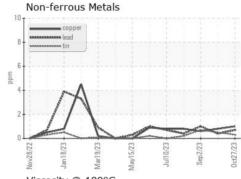


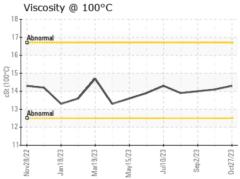
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

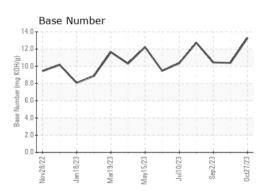
FLUID PROPERTIES		method	ilmivbase		nistory i	nistoryz	
	Visc @ 100°C	cSt	ASTM D445		14.3	14.1	14.0

GRAPHS

Ferrous Alloys E 10











Laboratory Sample No. Lab Number Unique Number : 10724250

: WC0804888 : 05995890

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

: 01 Nov 2023 : 02 Nov 2023

Diagnostician : Sean Felton

Contact: CORY GUMBERT cagumbert@marathonpetroleum.com T: (606)585-3950

MARATHON PETROLEUM CO.

Test Package : IND 2 (Additional Tests: KF) 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)

Report Id: MARCAT [WUSCAR] 05995890 (Generated: 11/02/2023 14:41:07) Rev: 2

Submitted By: M/V WEST VIRGINIA

101 12TH ST

US 41169

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CATLETTSBURG, KY