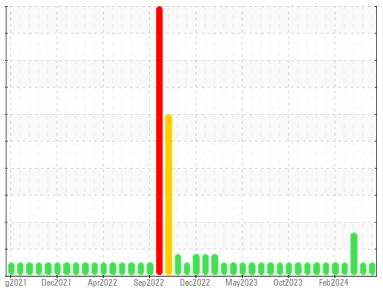
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
Findlay
Machine Id
[Findlay] Oil - Port Main Engine
Component
Port Main Engine
Fluid
MOBIL 15W40 (220 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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0874641**	WC0874646	WC0874736
Sample Date		Client Info		**18 Jun 2024**	14 May 2024	23 Apr 2024
Machine Age	hrs	Client Info		**14075**	13739	13316
Oil Age	hrs	Client Info		**10918**	10582	10129
Oil Changed		Client Info		**Filtered**	Filtered	Not Changd
Sample Status				**NORMAL**	NORMAL	ABNORMAL

CONTAMINATION		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	**13**	13	21
Chromium	ppm	ASTM D5185m	>8	**<1**	<1	1
Nickel	ppm	ASTM D5185m	>2	**1**	<1	<1
Titanium	ppm	ASTM D5185m	>3	**0**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>15	**2**	3	5
Lead	ppm	ASTM D5185m	>18	**15**	16	▲ 25
Copper	ppm	ASTM D5185m	>80	**35**	57	▲ 100
Tin	ppm	ASTM D5185m	>14	**0**	2	3
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**26**	39	39
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**52**	68	81
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**1359**	1271	1993
Calcium	ppm	ASTM D5185m		**1615**	1545	2492
Phosphorus	ppm	ASTM D5185m		**1154**	1070	1854
Zinc	ppm	ASTM D5185m		**1434**	1356	2115
Sulfur	ppm	ASTM D5185m		**3356**	3192	4542

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**3**	3	7
Sodium	ppm	ASTM D5185m	>118	**4**	3	4
Potassium	ppm	ASTM D5185m	>20	**3**	9	7
Water	%	ASTM D6304	>0.1	**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**13.8**	13.9	13.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**26.3**	25.8	25.6

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**29.4**	29.5	29.1
Base Number (BN)	mg KOH/g	ASTM D2896		**8.66**	3.73	8.21

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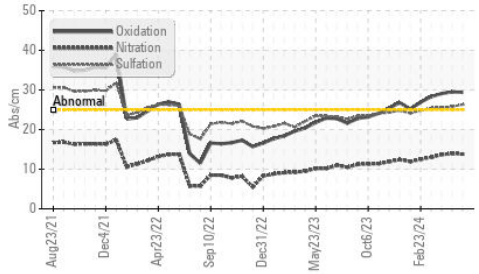
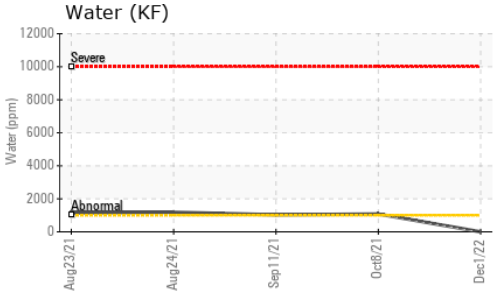
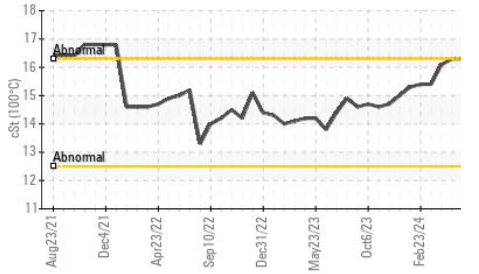
FT-IR (Direct Trend)



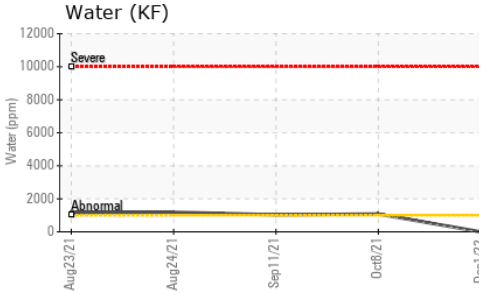
Water (KF)



Viscosity @ 100°C



Water (KF)

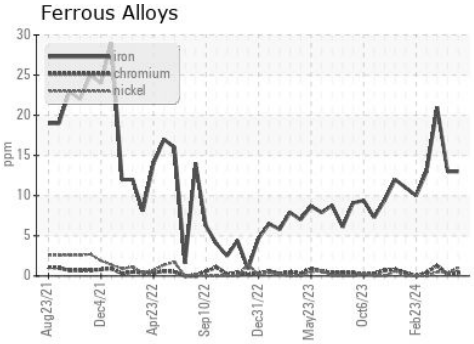


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

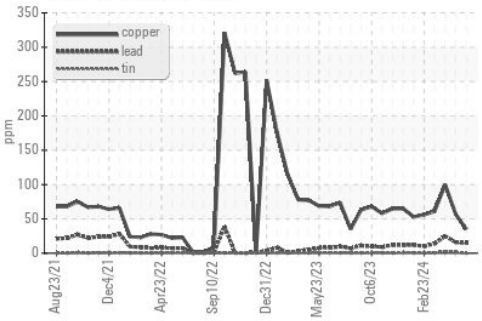
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**16.3**	16.3	16.1

GRAPHS

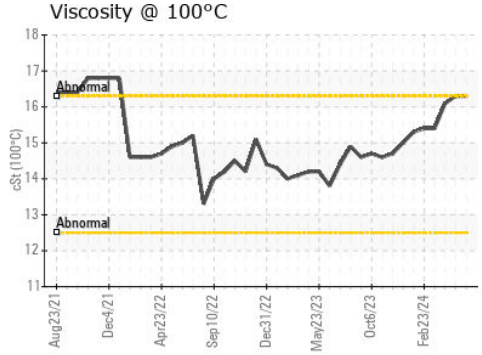
Ferrous Alloys



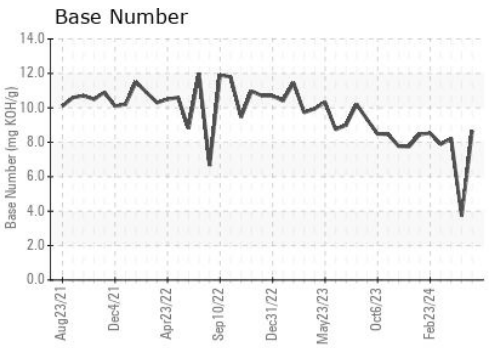
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0874641 **Received** : 25 Jun 2024
Lab Number : 06219918 **Tested** : 26 Jun 2024
Unique Number : 11098115 **Diagnosed** : 26 Jun 2024 - Sean Felton
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)

MARATHON PETROLEUM CO.
101 12TH ST
CATLETTSBURG, KY
US 41169
Contact: CORY GUMBERT
cagumbert@marathonpetroleum.com
T: (606)585-3950
F: x:

Report Id: MARCAT [WUSCAR] 06219918 (Generated: 06/30/2024 15:39:52) Rev: 1

Submitted By: M/V FINDLAY