

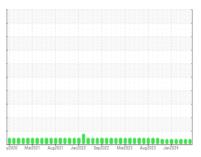
OIL ANALYSIS REPORT

Area

Kentucky [Kentucky] Oil - Port Reduction Gear

Port Reduction Gear

SAE 30W (26 GAL)



Sample Rating Trend



DIAGNOSIS

Recommendation

No corrective action is recommended at this time. 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.

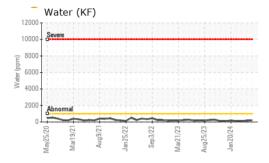
Fluid Condition

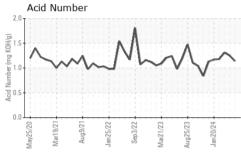
The oil viscosity is higher than normal. Confirm oil type. The AN level is acceptable for this fluid.

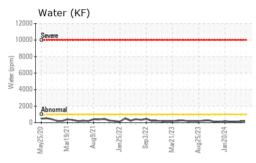
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0898540	WC0845807	WC0860056
Sample Date		Client Info		25 May 2024	25 Apr 2024	16 Mar 2024
Machine Age	hrs	Client Info		14978	14450	13560
Oil Age	hrs	Client Info		1689	1161	271
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				ATTENTION	ATTENTION	ATTENTION
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>150	5	4	4
Chromium	ppm	ASTM D5185m	>10	<1	<1	0
Nickel	ppm	ASTM D5185m	>10	0	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m		0	2	0
Aluminum	ppm	ASTM D5185m	>25	2	1	1
Lead	ppm	ASTM D5185m	>100	<1	<1	0
Copper	ppm	ASTM D5185m	>50	5	4	1
Tin	ppm	ASTM D5185m	>10	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 70	history1 56	history2 63
	ppm		limit/base			
Boron		ASTM D5185m	limit/base	70	56	63
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	70 <1	56 2 22 <1	63 0 22 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	70 <1 23 0 357	56 2 22 <1 330	63 0 22 0 344
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	70 <1 23 0 357 712	56 2 22 <1 330 681	63 0 22 0 344 673
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	70 <1 23 0 357 712 839	56 2 22 <1 330 681 780	63 0 22 0 344 673 873
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	70 <1 23 0 357 712 839 597	56 2 22 <1 330 681 780 539	63 0 22 0 344 673 873 580
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 ASTM D5185m	limit/base	70 <1 23 0 357 712 839	56 2 22 <1 330 681 780	63 0 22 0 344 673 873
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	70 <1 23 0 357 712 839 597	56 2 22 <1 330 681 780 539	63 0 22 0 344 673 873 580
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		70 <1 23 0 357 712 839 597 10204	56 2 22 <1 330 681 780 539 8833	63 0 22 0 344 673 873 580 10836
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	70 <1 23 0 357 712 839 597 10204 current	56 2 22 <1 330 681 780 539 8833 history1	63 0 22 0 344 673 873 580 10836
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	70 <1 23 0 357 712 839 597 10204 current	56 2 22 <1 330 681 780 539 8833 history1 4	63 0 22 0 344 673 873 580 10836 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >50 >20	70 <1 23 0 357 712 839 597 10204 current 2	56 2 22 <1 330 681 780 539 8833 history1 4 <1	63 0 22 0 344 673 873 580 10836 history2 1
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 >50 >20	70 <1 23 0 357 712 839 597 10204 current 2 0 2	56 2 22 <1 330 681 780 539 8833 history1 4 <1 1	63 0 22 0 344 673 873 580 10836 history2 1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	70 <1 23 0 357 712 839 597 10204 current 2 0 2 0.020	56 2 22 <1 330 681 780 539 8833 history1 4 <1 1 0.017	63 0 22 0 344 673 873 580 10836 history2 1 <1 2 0.012



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
	TEC	us allo a al	line it/le e e e		la i a ta mud	la i a ta uu . O
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	95.0	148	150	149

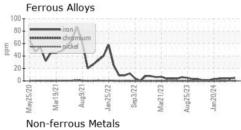
/isc @ 40°C	cSt	ASTM D445 95.0	<u> </u>	150	149	

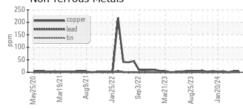
Color

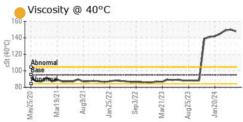
Bottom

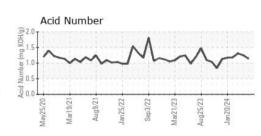


GRAPHS













Certificate 12367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No.

: WC0898540 Lab Number : 06201561 Unique Number : 11063684

Received **Tested** Diagnosed

: 06 Jun 2024 : 10 Jun 2024

: 10 Jun 2024 - Angela Borella

101 12TH ST CATLETTSBURG, KY US 41169 Contact: CORY GUMBERT

cagumbert@marathonpetroleum.com

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)

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

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

MARATHON PETROLEUM CO.