

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **CATERPILLAR 990K 6088 (S/N A9P00362)** Diesel Engine Fluid

DIESEL ENGINE OIL SAE 10W30 (--- GAL)

Diricine

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.

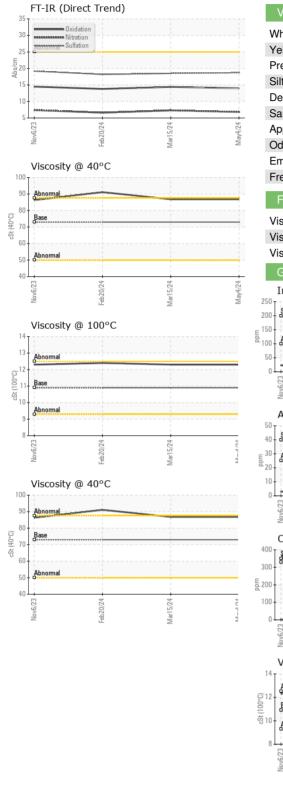
Fluid Condition

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

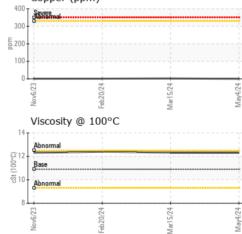
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		TO10003402	TO10002041	TO10001711
Sample Date		Client Info		04 May 2024	15 Mar 2024	20 Feb 2024
Machine Age	hrs	Client Info		15721	15264	15159
Oil Age	hrs	Client Info		457	435	330
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	۷	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	5	10	2
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	1	2	2
Lead	ppm	ASTM D5185m	>40	<1	2	<1
Copper	ppm	ASTM D5185m	>330	0	2	1
Tin	ppm	ASTM D5185m	>15	<1	1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	nnm	ACTM DE10Em		-		0
Caumum	ppm	ASTM D5185m		0	<1	0
ADDITIVES	ppin	method	limit/base	0 current	<1 history1	0 history2
	ppm		limit/base 250			-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	250	current 2 <1 64	history1 3	history2 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm	method ASTM D5185m ASTM D5185m	250 10 100	current 2 <1 64 <1	history1 3 1 67 1	history2 0 0 60 <1
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	current 2 <1 64 <1 928	history1 3 1 67 1 904	history2 0 0 60 <1 934
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	Current 2 <1 64 <1 928 1112	history1 3 1 67 1 904 1100	history2 0 0 60 <1 934 1029
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	current 2 <1 64 <1 928 1112 1113	history1 3 1 67 1 904 1100 1009	history2 0 0 60 <1 934 1029 1002
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	current 2 <1 64 <1 928 1112 1113 1224	history1 3 1 67 1 904 1100 1009 1182	history2 0 0 60 <1 934 1029 1002 1250
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	current 2 <1 64 <1 928 1112 1113	history1 3 1 67 1 904 1100 1009 1182 3116	history2 0 0 60 <1 934 1029 1002 1250 3182
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	current 2 <1 64 <1 928 1112 1113 1224 3647 current	history1 3 1 67 1 904 1100 1009 1182 3116 history1	history2 0 0 60 <1 934 1029 1002 1250 3182 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44
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	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 .20 Imit/base	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51 5 current	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9 history1	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >20 Imit/base	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51 5 current 0.3	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9 history1 0.3	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0 history2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium 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	250 10 100 450 3000 1150 1350 4250 i mit/base >25 >20 i mit/base >3 >20	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51 5 current 0.3 6.8	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9 history1 0.3 7.3	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0 history2 0.2 6.6
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	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >20 Imit/base	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51 5 current 0.3	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9 history1 0.3	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0 history2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium 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	250 10 100 450 3000 1150 1350 4250 i mit/base >25 >20 i mit/base >3 >20	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51 5 current 0.3 6.8	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9 history1 0.3 7.3	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0 history2 0.2 6.6
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >25 imit/base >3 >20 >3	current 2 <1 64 <1 928 1112 1113 1224 3647 current 2 51 5 current 0.3 6.8 18.7	history1 3 1 67 1 904 1100 1009 1182 3116 history1 4 72 9 history1 0.3 7.3 18.5	history2 0 0 60 <1 934 1029 1002 1250 3182 history2 2 44 0 history2 0.2 6.6 18.2

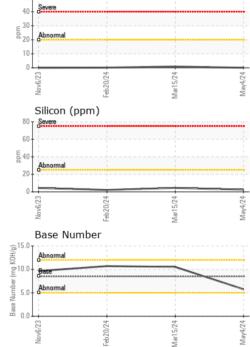


OIL ANALYSIS REPORT



VISUAL		method	limit/bas	se 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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/bas	se current	history1	history2
/isc @ 40°C	cSt	ASTM D445	73	86.8	86.8	91.1
/isc @ 100°C	cSt	ASTM D445	10.9	12.3	12.3	12.4
/iscosity Index (VI)	Scale	ASTM D2270	138	136	136	130
GRAPHS						
Iron (ppm)				Lead (ppm)		
Severe				100 80 Severe		
		1		00		
Abnormal			a a a a a a a a a a a a a a a a a a a	Abnormal		
				20		
20 st		*	4	0	4	
Nov6/23 eb20/24		Mar15/24	May4/24	Nov6/23	Feb20/24	4 2 /C 1 10 11
Aluminum (ppm)		2	~	_ Chromium (± 2	
Severe				50 J		
T i				10		
Abnormal				Abnormal		
				10		
		4	4			
Nov6/23 eb20/24		Mar15/24	May4/24	Vav6/23	Feb20/24	4C Propriet
LL.		Ma	Z			2
Copper (ppm)				Silicon (ppm)	





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 ANCHOR STONE TULSA ROCK Sample No. : TO10003402 Received : 10 May 2024 TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE Lab Number : 06176203 Tested : 13 May 2024 TULSA, OK Diagnosed Unique Number : 11022256 : 13 May 2024 - Wes Davis US 74137 Test Package : MOB 2 (Additional Tests: KV40, VI) Contact: SKIP SAENGERHAUSEN Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. skip@anchorstoneco.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (918)928-4575 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: ANCTUL [WUSCAR] 06176203 (Generated: 05/13/2024 14:10:35) Rev: 1

Submitted By: SKIP SAENGERHAUSEN

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