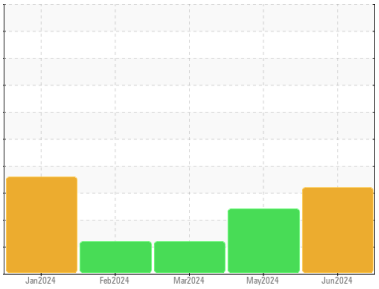
OIL ANALYSIS REPORT

Area
MINING
Machine Id
ME-61 CATERPILLAR 980M MK700210
Component
Hydraulic System
Fluid
CAT HYDO (43 GAL)

Sample Rating Trend



DIRT

DIAGNOSIS

Recommendation
We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0950841**	WC0910902	WC0909670
Sample Date		Client Info		**04 Jun 2024**	01 May 2024	28 Mar 2024
Machine Age	hrs	Client Info		**12200**	11790	11312
Oil Age	hrs	Client Info		**2000**	1500	1000
Oil Changed		Client Info		**Changed**	Not Changd	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	**12**	11	10
Chromium	ppm	ASTM D5185m	>10	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m		**<1**	1	<1
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>10	● **17**	● 17	▲ 13
Lead	ppm	ASTM D5185m	>10	**0**	<1	0
Copper	ppm	ASTM D5185m	>75	**<1**	2	1
Tin	ppm	ASTM D5185m	>10	**0**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**0**	1	0
Molybdenum	ppm	ASTM D5185m		**3**	2	2
Manganese	ppm	ASTM D5185m		**0**	0	0
Magnesium	ppm	ASTM D5185m		**8**	11	11
Calcium	ppm	ASTM D5185m		**199**	210	198
Phosphorus	ppm	ASTM D5185m	1100	**701**	816	640
Zinc	ppm	ASTM D5185m	1210	**867**	944	865
Sulfur	ppm	ASTM D5185m		**1872**	1876	1623

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	▲ **20**	▲ 21	18
Sodium	ppm	ASTM D5185m		**2**	0	0
Potassium	ppm	ASTM D5185m	>20	**0**	2	1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	● **5732**	2413	---
Particles >6µm		ASTM D7647	>1300	**88**	564	---
Particles >14µm		ASTM D7647	>160	**4**	34	---
Particles >21µm		ASTM D7647	>40	**1**	7	---
Particles >38µm		ASTM D7647	>10	**0**	0	---
Particles >71µm		ASTM D7647	>3	**0**	0	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	● **20/14/9**	18/16/12	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.75**	0.73	0.68

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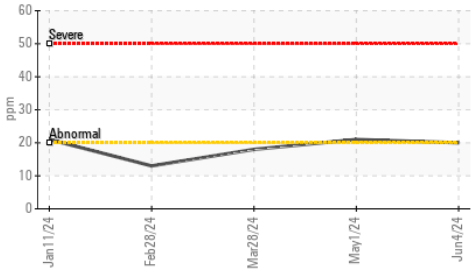
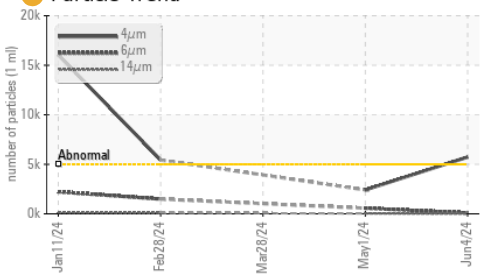
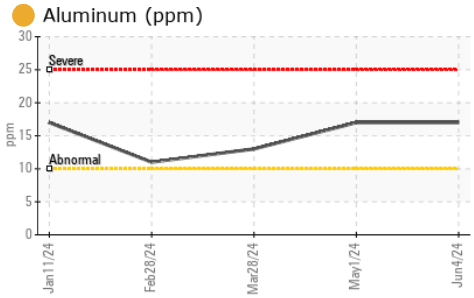
Silicon (ppm)



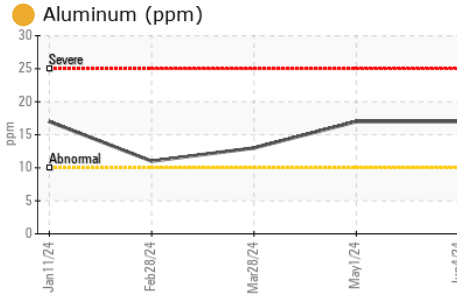
Particle Trend



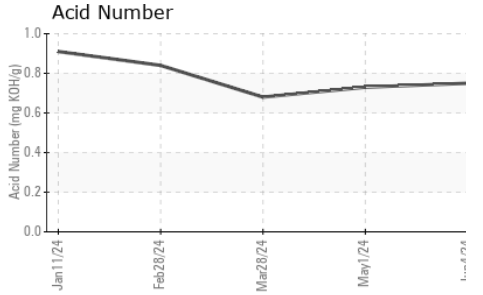
Aluminum (ppm)



Aluminum (ppm)



Acid Number



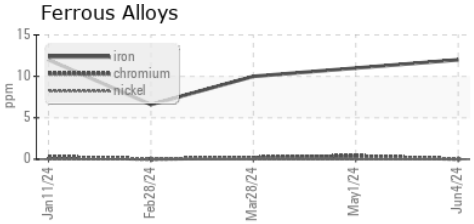
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	▲ MODER
Sand/Dirt	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 @ 40°C	cSt	ASTM D445	37.9	**39.9**	44.6	40.2

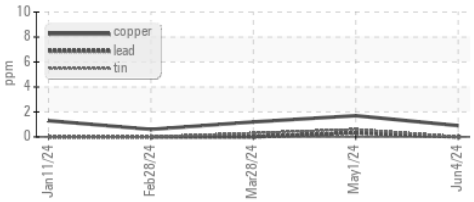
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

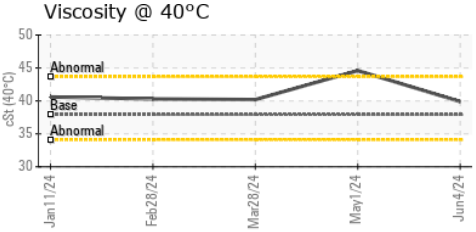
Ferrous Alloys



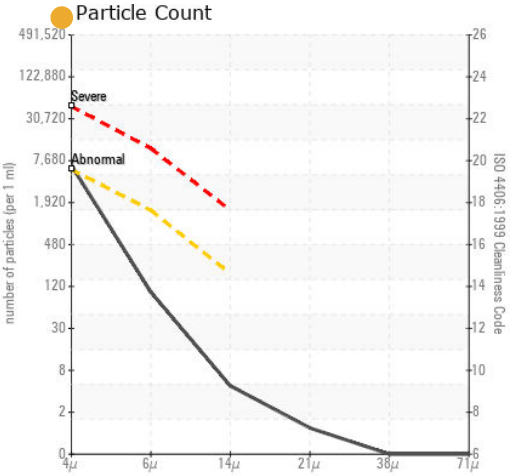
Non-ferrous Metals



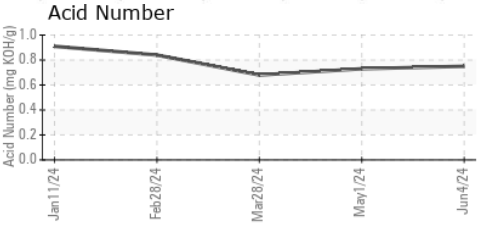
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0950841
Lab Number : 06206437
Unique Number : 11073898
Test Package : CONST

Received : 11 Jun 2024
Tested : 13 Jun 2024
Diagnosed : 13 Jun 2024 - Don Baldridge

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)

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