MOB II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ATTENTION
FLUID CONDITION	NORMAL

Area
RIG 4
Machine Id
CATERPILLAR 3512 R4-G-04 NKL
Component
Diesel Engine
Fluid
{not provided} (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

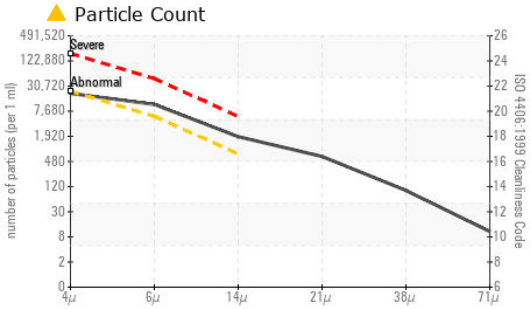
CONTAMINATION

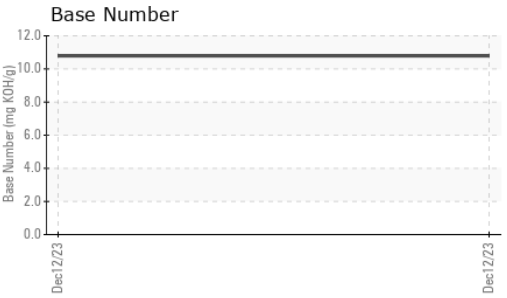
There is a moderate amount of particulates present in the oil. There is no indication of any contamination in the oil.

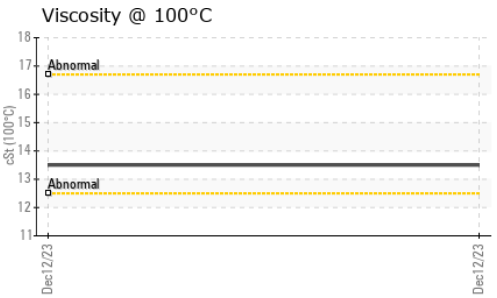
FLUID CONDITION

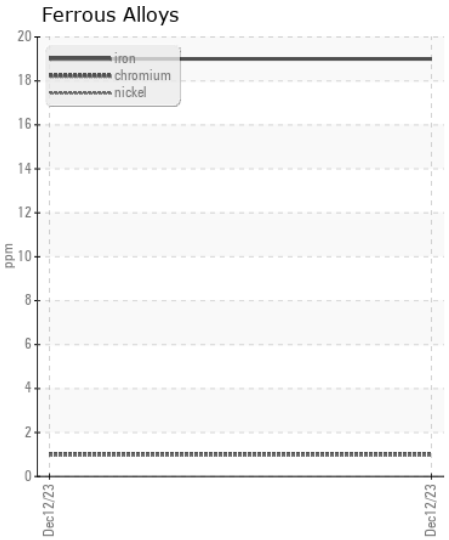
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

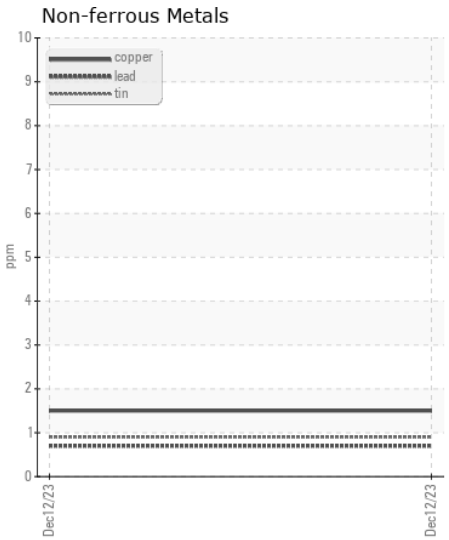
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0014060	---	---
Sample Date		Client Info		12 Dec 2023	---	---
Machine Age	days	Client Info		45272	---	---
Oil Age	days	Client Info		0	---	---
Filter Age	days	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				ATTENTION	---	---
Iron	ppm	ASTM D5185m	>100	19	---	---
Chromium	ppm	ASTM D5185m	>20	1	---	---
Nickel	ppm	ASTM D5185m	>2	1	---	---
Titanium	ppm	ASTM D5185m	>2	<1	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>25	9	---	---
Lead	ppm	ASTM D5185m	>40	<1	---	---
Copper	ppm	ASTM D5185m	>330	2	---	---
Tin	ppm	ASTM D5185m	>15	<1	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---
Silicon	ppm	ASTM D5185m	>25	11	---	---
Potassium	ppm	ASTM D5185m	>20	8	---	---
Fuel		WC Method	>5	<1.0	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844	>3	0.2	---	---
Nitration	Abs/cm	*ASTM D7624	>20	5.9	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.5	---	---
Particles >4µm		ASTM D7647	>20000	17791	---	---
Particles >6µm		ASTM D7647	>5000	▲ 9692	---	---
Particles >14µm		ASTM D7647	>640	▲ 1649	---	---
Particles >21µm		ASTM D7647	>160	▲ 556	---	---
Particles >38µm		ASTM D7647	>40	▲ 86	---	---
Particles >71µm		ASTM D7647	>10	9	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 21/20/18	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---	---
Sodium	ppm	ASTM D5185m		3	---	---
Boron	ppm	ASTM D5185m		368	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		129	---	---
Manganese	ppm	ASTM D5185m		1	---	---
Magnesium	ppm	ASTM D5185m		671	---	---
Calcium	ppm	ASTM D5185m		1561	---	---
Phosphorus	ppm	ASTM D5185m		707	---	---
Zinc	ppm	ASTM D5185m		856	---	---
Sulfur	ppm	ASTM D5185m		2816	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.9	---	---
Base Number (BN)	mg KOH/g	ASTM D2896		10.79	---	---
Visc @ 100°C	cSt	ASTM D445		13.5	---	---

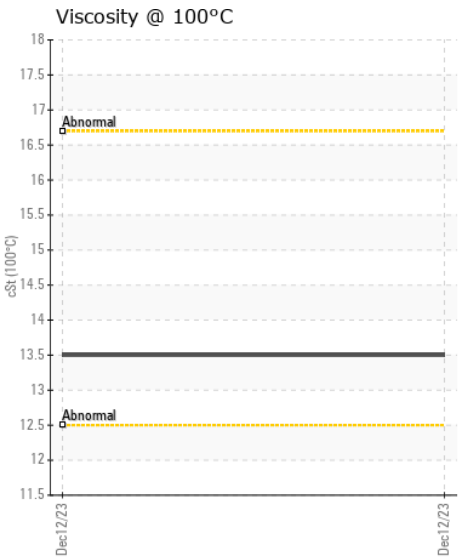


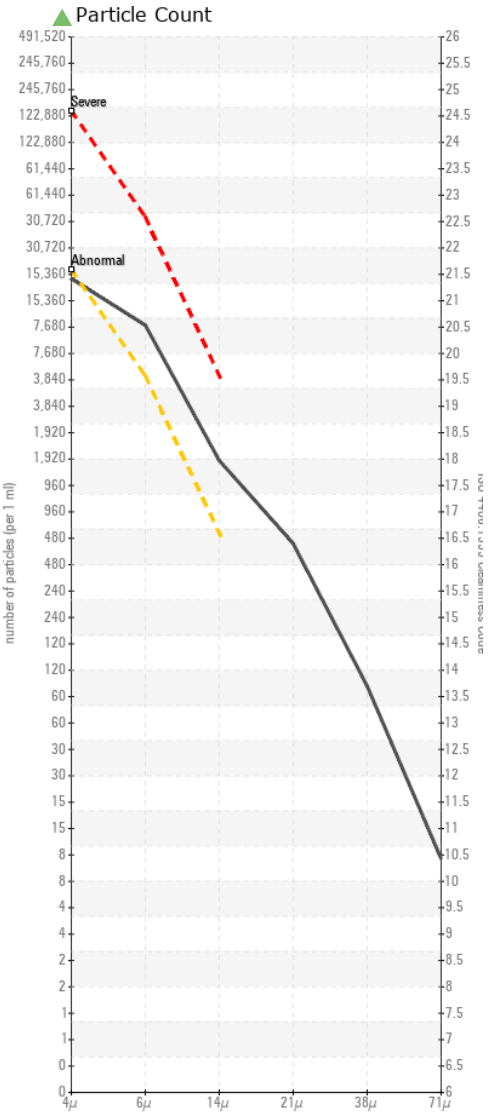


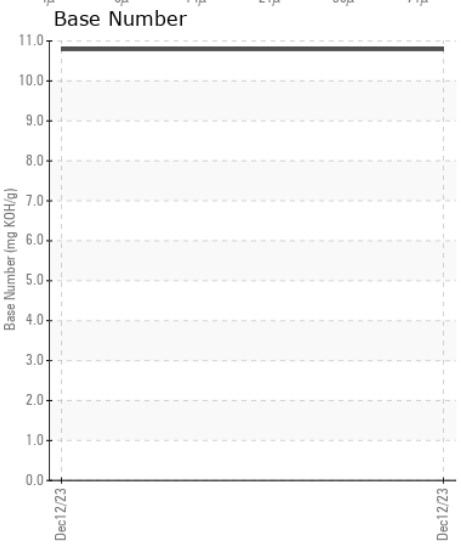












Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014060 **Recieved** : 08 Jan 2024
Lab Number : 06055018 **Diagnosed** : 10 Jan 2024
Unique Number : 10820967 **Diagnostician** : Sean Felton
Test Package : MOB 2 (Additional Tests: PrtCount)

Certificate L2367

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)

CITADEL DRILLING
7550 W I20
ODESSA, TX
US 79763
Contact: MIKE COMBDEN
mcombden@citadeldrilling.com
T: (780)955-5509
F: