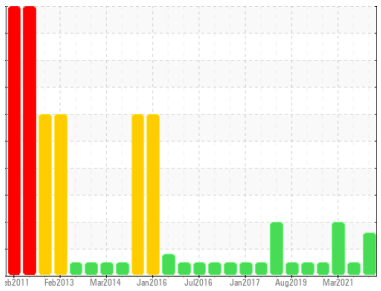
OIL ANALYSIS REPORT

OIL DIAGNOSTICS

Area
KEMP QUARRIES / HULBERT
Machine Id
OHT043
Component
Diesel Engine
Fluid
MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

Sample Rating Trend



WEAR

DIAGNOSIS

▲ Recommendation
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear
The copper level is abnormal. Cylinder, crank, or cam shaft wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

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 acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0085921**	PCA0048631	PCA0037489
Sample Date		Client Info		**13 Apr 2024**	24 Sep 2021	16 Mar 2021
Machine Age	hrs	Client Info		**37547**	36553	36041
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	▲ **110**	42	47
Chromium	ppm	ASTM D5185m	>20	**3**	1	2
Nickel	ppm	ASTM D5185m	>2	**<1**	<1	2
Titanium	ppm	ASTM D5185m	>2	**1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**<1**	<1	0
Aluminum	ppm	ASTM D5185m	>25	**4**	2	3
Lead	ppm	ASTM D5185m	>40	**5**	10	▲ 90
Copper	ppm	ASTM D5185m	>330	▲ **516**	19	21
Tin	ppm	ASTM D5185m	>15	**4**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	0	2
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**3**	0	19
Barium	ppm	ASTM D5185m	0	**2**	0	0
Molybdenum	ppm	ASTM D5185m	0	**69**	54	52
Manganese	ppm	ASTM D5185m		**2**	<1	<1
Magnesium	ppm	ASTM D5185m	0	**1014**	857	910
Calcium	ppm	ASTM D5185m		**1153**	1037	1132
Phosphorus	ppm	ASTM D5185m		**1085**	953	897
Zinc	ppm	ASTM D5185m		**1322**	1160	1052
Sulfur	ppm	ASTM D5185m		**3210**	2490	2255

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**17**	5	10
Sodium	ppm	ASTM D5185m		**10**	19	▲ 150
Potassium	ppm	ASTM D5185m	>20	**<1**	2	2
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

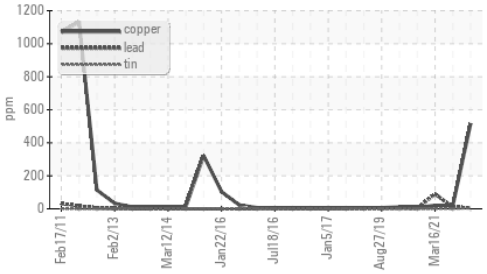
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**1.7**	1.8	1.4
Nitration	Abs/cm	*ASTM D7624	>20	**10.7**	10.9	12.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**23.7**	23.7	25

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**21.0**	19.3	19.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.4	**8.5**	---	---

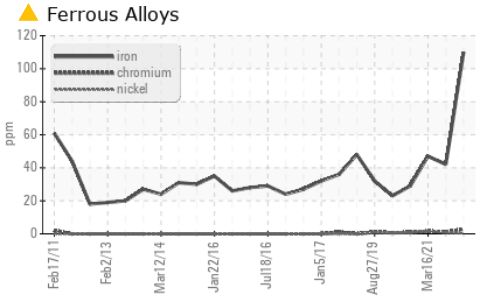
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

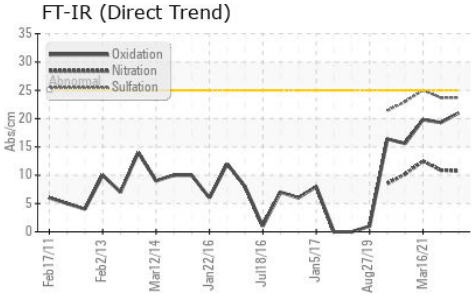
Non-ferrous Metals



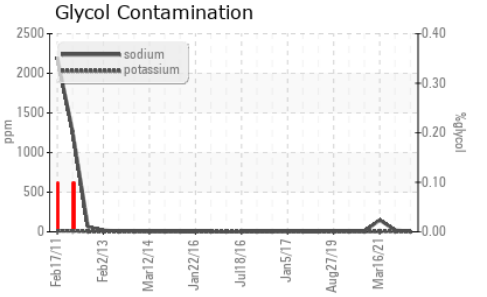
Ferrous Alloys



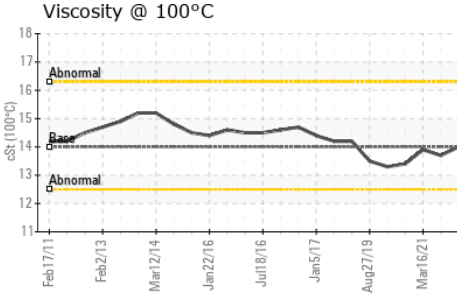
FT-IR (Direct Trend)



Glycol Contamination



Viscosity @ 100°C

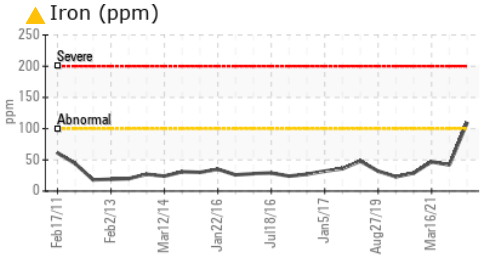


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

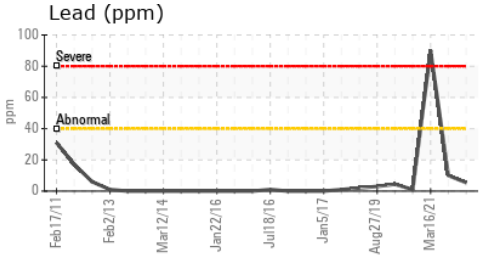
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14	**14.0**	13.7	13.9

GRAPHS

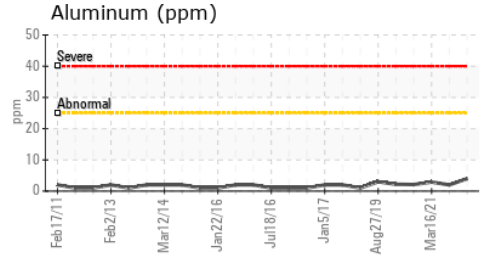
Iron (ppm)



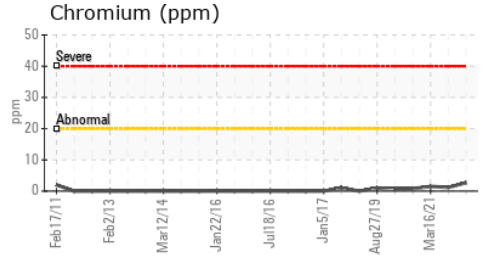
Lead (ppm)



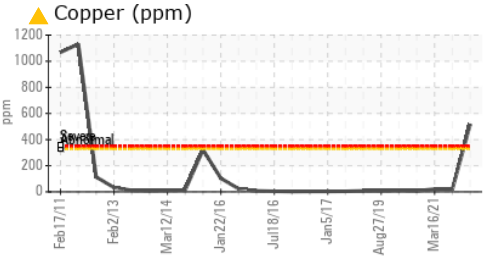
Aluminum (ppm)



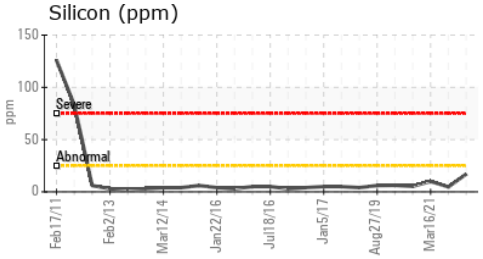
Chromium (ppm)



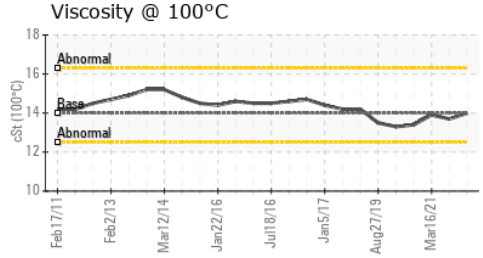
Copper (ppm)



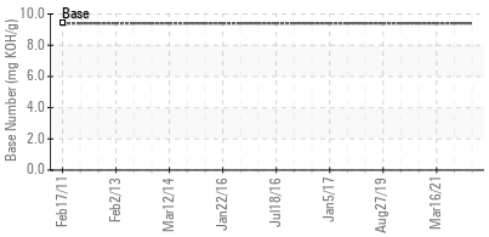
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0085921
Lab Number : 06155609
Unique Number : 10991032
Test Package : MOB 1 (Additional Tests: Glycol, TBN)

Received : 22 Apr 2024
Tested : 24 Apr 2024
Diagnosed : 24 Apr 2024 - Sean Felton

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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Report Id: KEMHUL [WUSCAR] 06155609 (Generated: 04/24/2024 13:26:01) Rev: 1

Submitted By: