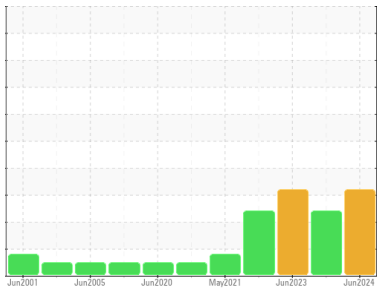
OIL ANALYSIS REPORT

Sample Rating Trend



COOLANT

Machine Id
SUL
Component
Starboard Main Engine
Fluid
CHEVRON RPM HEAVY DUTY SAE 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

Wear
The lead level is abnormal. Bearing and/or bushing wear is indicated.

Contamination
Sodium and/or potassium levels are high.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**MW0060675**	MW0060667	MW0031823
Sample Date		Client Info		**13 Jun 2024**	23 Feb 2024	05 Jun 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	**23**	12	21
Chromium	ppm	ASTM D5185m	>8	**1**	<1	1
Nickel	ppm	ASTM D5185m	>2	**<1**	0	0
Titanium	ppm	ASTM D5185m	>3	**<1**	0	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>15	**4**	4	<1
Lead	ppm	ASTM D5185m	>18	▲ **51**	13	▲ 46
Copper	ppm	ASTM D5185m	>80	**5**	2	4
Tin	ppm	ASTM D5185m	>14	**2**	<1	1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**178**	289	129
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m		**157**	142	121
Manganese	ppm	ASTM D5185m		**1**	<1	<1
Magnesium	ppm	ASTM D5185m		**710**	728	651
Calcium	ppm	ASTM D5185m		**1535**	1573	1560
Phosphorus	ppm	ASTM D5185m	1370	**701**	765	651
Zinc	ppm	ASTM D5185m	1480	**863**	889	838
Sulfur	ppm	ASTM D5185m		**2978**	2596	2954

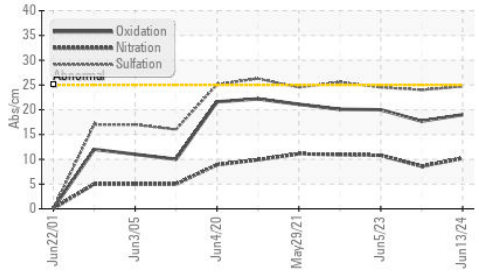
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**12**	8	7
Sodium	ppm	ASTM D5185m	>75	▲ **577**	396	▲ 387
Potassium	ppm	ASTM D5185m	>20	▲ **117**	▲ 56	▲ 54
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**1.1**	0.6	0.8
Nitration	Abs/cm	*ASTM D7624	>20	**10.2**	8.6	10.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	**24.7**	24.0	24.5

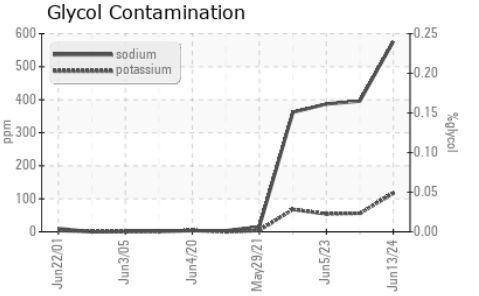
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.0**	17.7	20.0
Base Number (BN)	mg KOH/g	ASTM D2896	11.6	**8.8**	9.2	8.4

OIL ANALYSIS REPORT

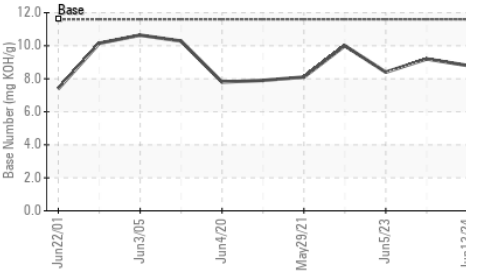
FT-IR (Direct Trend)



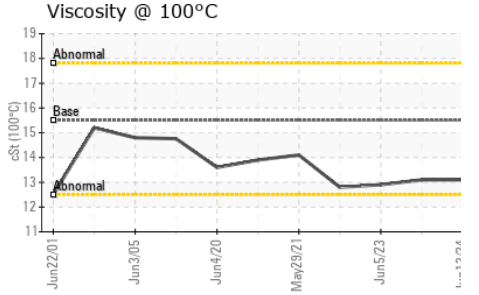
Glycol Contamination



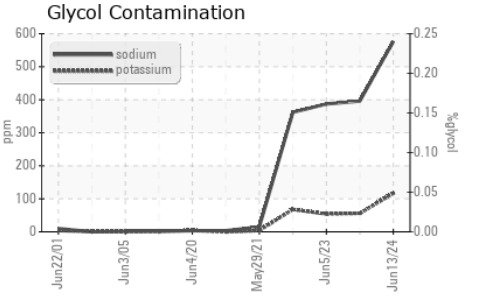
Base Number



Viscosity @ 100°C



Glycol Contamination

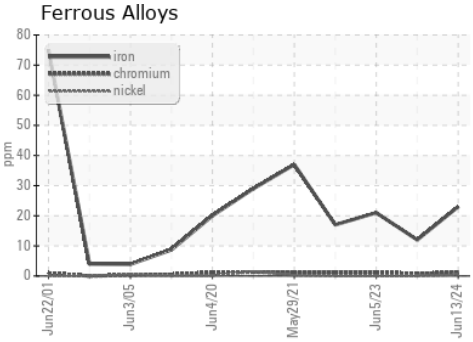


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

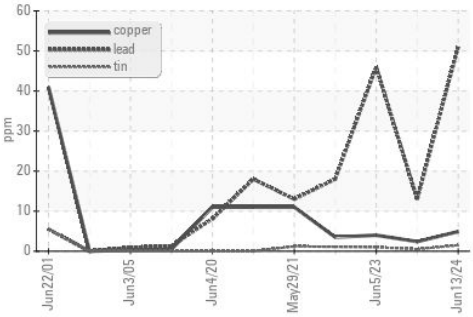
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	**13.1**	13.1	12.9

GRAPHS

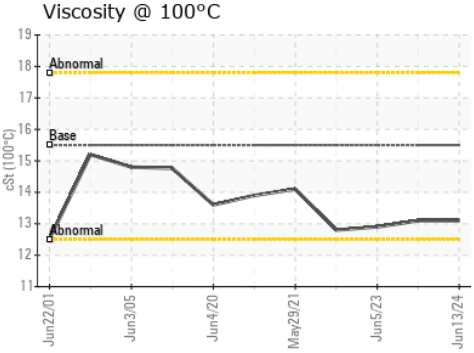
Ferrous Alloys



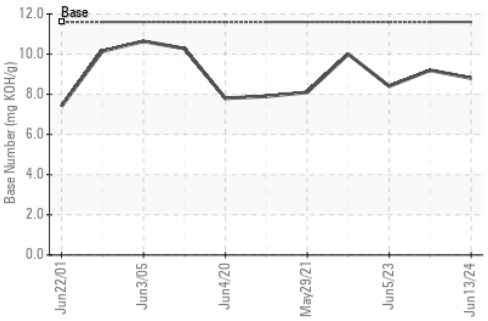
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0060675
Lab Number : 06217641
Unique Number : 11090505
Test Package : MAR 2 (Additional Tests: Glycol)

Received : 21 Jun 2024
Tested : 25 Jun 2024
Diagnosed : 25 Jun 2024 - Jonathan Hester

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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