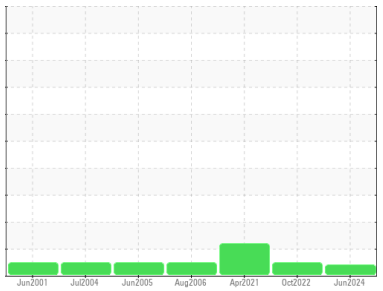
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Machine Id
SUL
Component
Starboard Genset
Fluid
{not provided} (--- GAL)

DIAGNOSIS

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 no indication of any contamination in the oil.

Fluid Condition
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**MW0060669**	MW0042686	MWM636808
Sample Date		Client Info		**13 Jun 2024**	05 Oct 2022	16 Apr 2021
Machine Age	hrs	Client Info		**0**	0	4730
Oil Age	hrs	Client Info		**0**	0	500
Oil Changed		Client Info		**N/A**	Changed	Changed
Sample Status				**ATTENTION**	NORMAL	ATTENTION

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	**11**	14	8
Chromium	ppm	ASTM D5185m	>4	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**<1**	<1	0
Titanium	ppm	ASTM D5185m		**<1**	<1	9
Silver	ppm	ASTM D5185m	>5	**0**	0	0
Aluminum	ppm	ASTM D5185m	>12	**4**	2	2
Lead	ppm	ASTM D5185m	>17	**7**	3	0
Copper	ppm	ASTM D5185m	>70	**33**	2	2
Tin	ppm	ASTM D5185m	>15	**7**	<1	0
Antimony	ppm	ASTM D5185m		**---**	---	0
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**314**	255	208
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**121**	108	56
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**737**	730	629
Calcium	ppm	ASTM D5185m		**1608**	1658	1557
Phosphorus	ppm	ASTM D5185m		**756**	736	779
Zinc	ppm	ASTM D5185m		**889**	907	860
Sulfur	ppm	ASTM D5185m		**3012**	3202	2550

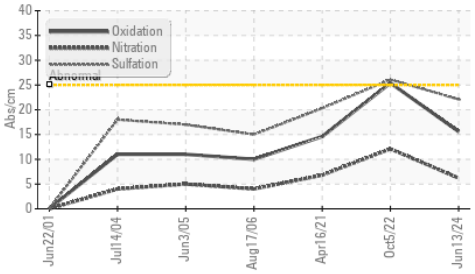
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**11**	7	4
Sodium	ppm	ASTM D5185m		**16**	2	3
Potassium	ppm	ASTM D5185m	>20	**5**	2	4
Fuel	%	ASTM D3524	>4.0	**<1.0**	<1.0	▲ 1.7

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**6.2**	12.1	6.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.1**	26.1	20.3

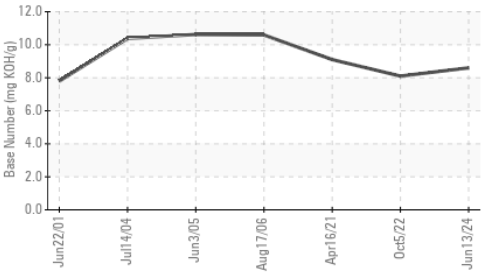
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**15.6**	25.4	14.6
Base Number (BN)	mg KOH/g	ASTM D2896		**8.6**	8.1	9.1

OIL ANALYSIS REPORT

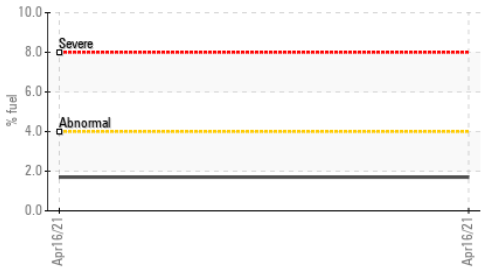
FT-IR (Direct Trend)



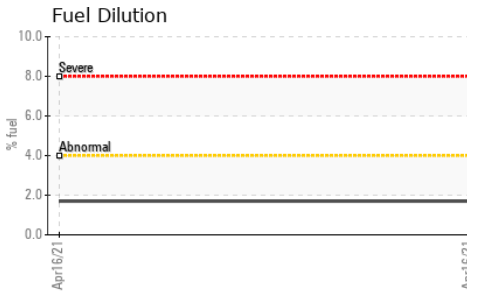
Base Number



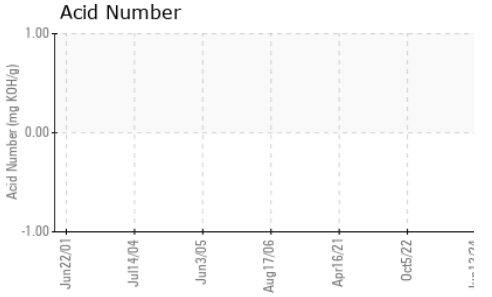
Fuel Dilution



Fuel Dilution



Acid Number

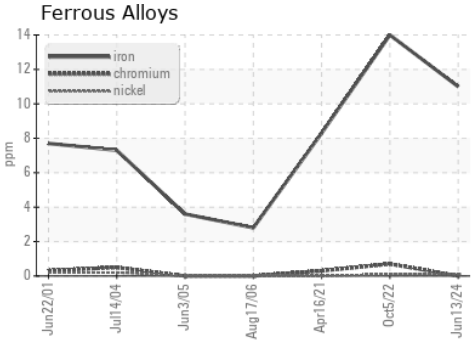


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

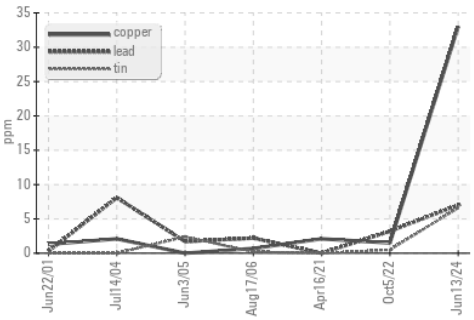
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**11.9**	14.5	12.0

GRAPHS

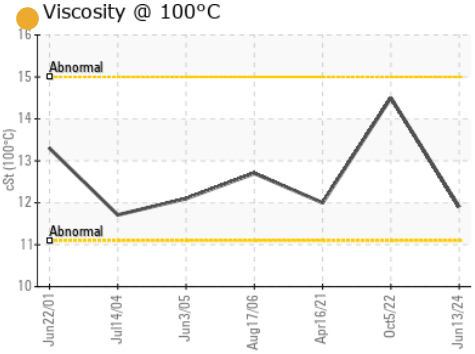
Ferrous Alloys



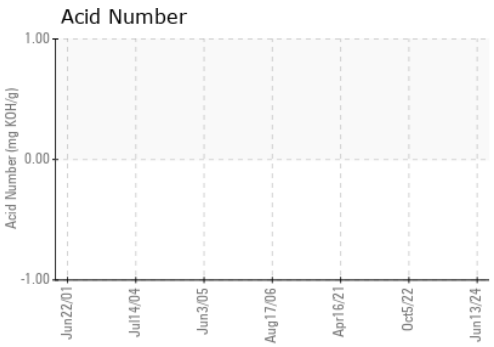
Non-ferrous Metals



Viscosity @ 100°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0060669
Lab Number : 06217595
Unique Number : 11090459
Test Package : MAR 2 (Additional Tests: FUELDILUTION, PercentFuel, TAN Man)

Received : 21 Jun 2024
Tested : 26 Jun 2024
Diagnosed : 26 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)

AMERICAN RIVER TRANSPORTATION CO.
PO BOX 585
CASSVILLE, WI
US 53806
Contact: Dale Grimshaw
Dale.Grimshaw@adm.com
T: (608)725-2311
F: