MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
MIS
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

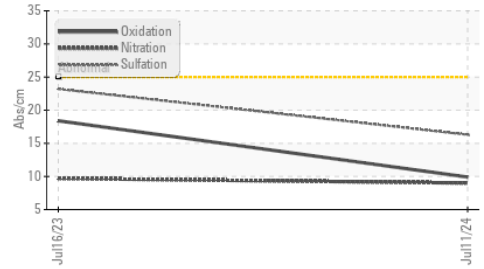
There is no indication of any contamination in the oil.

FLUID CONDITION

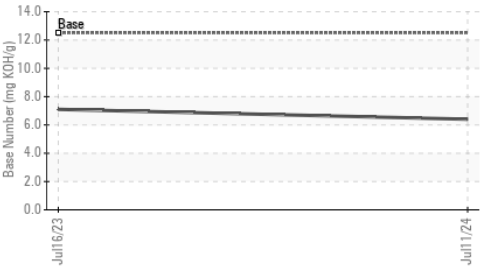
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0054567	MW0054617	---
Sample Date		Client Info		11 Jul 2024	16 Jul 2023	---
Machine Age	hrs	Client Info		26377	0	---
Oil Age	hrs	Client Info		976	0	---
Filter Age	hrs	Client Info		976	0	---
Oil Changed		Client Info		Changed	N/A	---
Filter Changed		Client Info		Changed	N/A	---
Sample Status				NORMAL	ABNORMAL	---
Iron	ppm	ASTM D5185m	>75	10	19	---
Chromium	ppm	ASTM D5185m	>8	<1	<1	---
Nickel	ppm	ASTM D5185m	>2	<1	<1	---
Titanium	ppm	ASTM D5185m	>3	2	5	---
Silver	ppm	ASTM D5185m	>2	0	0	---
Aluminum	ppm	ASTM D5185m	>15	3	2	---
Lead	ppm	ASTM D5185m	>18	<1	2	---
Copper	ppm	ASTM D5185m	>80	2	▲ 132	---
Tin	ppm	ASTM D5185m	>14	<1	<1	---
Vanadium	ppm	ASTM D5185m		<1	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---
Silicon	ppm	ASTM D5185m	>20	3	4	---
Potassium	ppm	ASTM D5185m	>20	2	3	---
Fuel		WC Method	>4.0	<1.0	<1.0	---
Water		WC Method	>0.1	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844		0.5	0.4	---
Nitration	Abs/cm	*ASTM D7624	>20	9.0	9.7	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.3	23.2	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	---
Sodium	ppm	ASTM D5185m	>75	0	0	---
Boron	ppm	ASTM D5185m	151	33	123	---
Barium	ppm	ASTM D5185m	0.4	<1	0	---
Molybdenum	ppm	ASTM D5185m	250	41	86	---
Manganese	ppm	ASTM D5185m		<1	<1	---
Magnesium	ppm	ASTM D5185m	0	26	634	---
Calcium	ppm	ASTM D5185m	2046	3237	1520	---
Phosphorus	ppm	ASTM D5185m	1043	57	715	---
Zinc	ppm	ASTM D5185m	943	38	842	---
Sulfur	ppm	ASTM D5185m	5012	2426	2843	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.9	18.4	---
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	6.4	7.1	---
Visc @ 100°C	cSt	ASTM D445	14.4	14.0	13.1	---

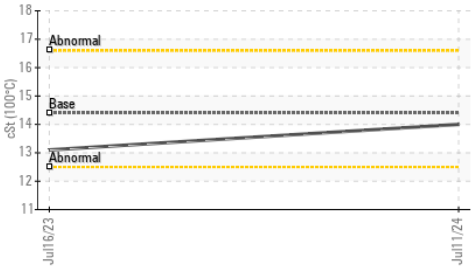
FT-IR (Direct Trend)



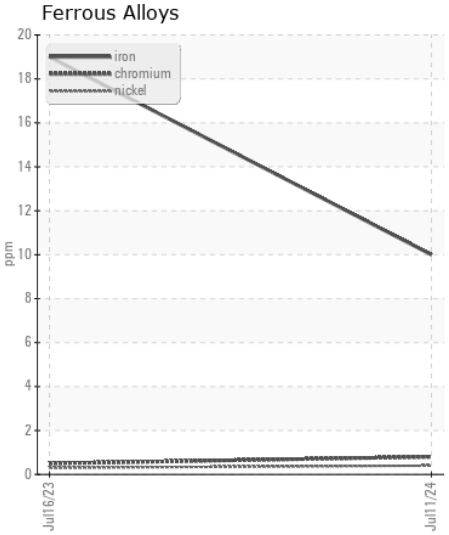
Base Number



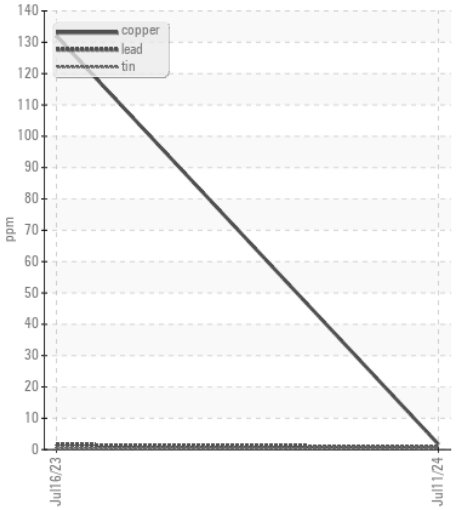
Viscosity @ 100°C



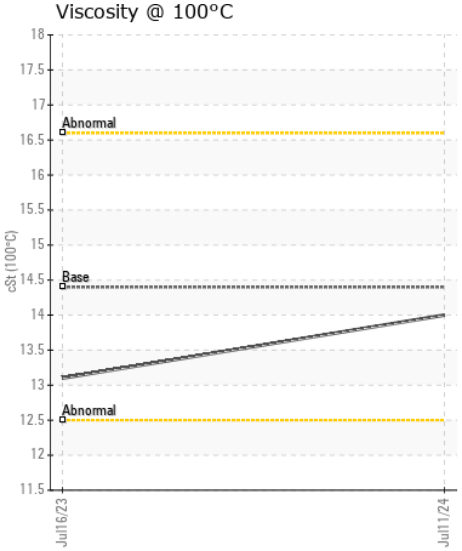
Ferrous Alloys



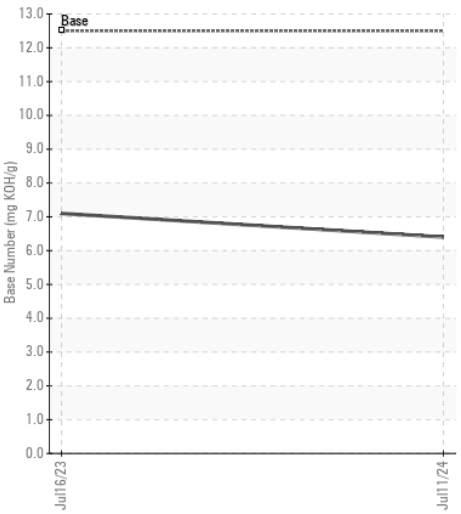
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0054567
Lab Number : 06238952
Unique Number : 11127786
Test Package : MAR 2

Received : 17 Jul 2024
Tested : 18 Jul 2024
Diagnosed : 19 Jul 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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