



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
Y.S. CHI
Machine Id
[Y.S. CHI] 003 503877-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (240 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0065961	MW0065957	MW0061227
Sample Date		Client Info		01 Apr 2024	01 Mar 2024	25 Feb 2024
Machine Age	hrs	Client Info		32341	31588	31492
Oil Age	hrs	Client Info		2606	1847	1751
Filter Age	hrs	Client Info		0	452	356
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	9	7	7
Chromium	ppm	ASTM D5185m	>8	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>18	<1	1	1
Copper	ppm	ASTM D5185m	>80	2	1	2
Tin	ppm	ASTM D5185m	>14	1	1	1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

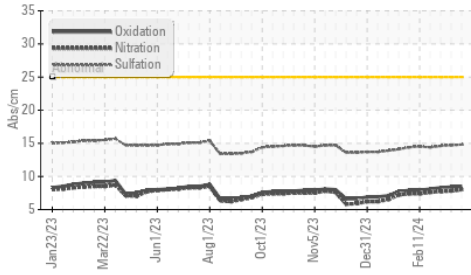
Silicon	ppm	ASTM D5185m	>20	6	6	6
Potassium	ppm	ASTM D5185m	>20	3	3	3
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.4	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.0	7.8	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	14.8	14.7	14.6
Silt	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

FLUID CONDITION

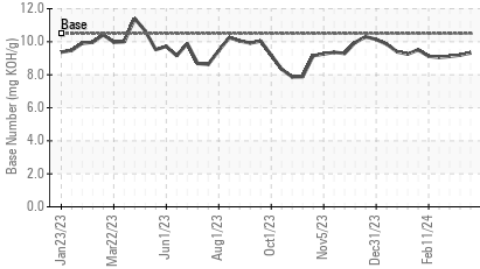
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	0	0	0
Boron	ppm	ASTM D5185m		42	40	40
Barium	ppm	ASTM D5185m		0	1	1
Molybdenum	ppm	ASTM D5185m		49	47	47
Manganese	ppm	ASTM D5185m		<1	1	1
Magnesium	ppm	ASTM D5185m		15	10	10
Calcium	ppm	ASTM D5185m		3433	3323	3347
Phosphorus	ppm	ASTM D5185m		39	10	10
Zinc	ppm	ASTM D5185m		29	4	4
Sulfur	ppm	ASTM D5185m		2773	2214	2274
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.5	8.4	8.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	9.32	9.19	9.11
Visc @ 100°C	cSt	ASTM D445	15.5	14.0	13.9	14.0

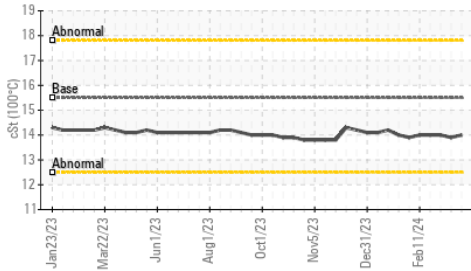
FT-IR (Direct Trend)



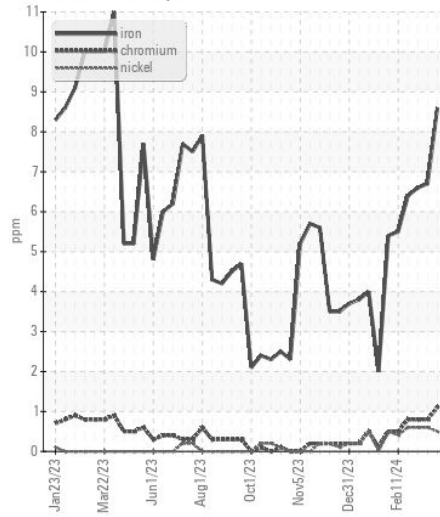
Base Number



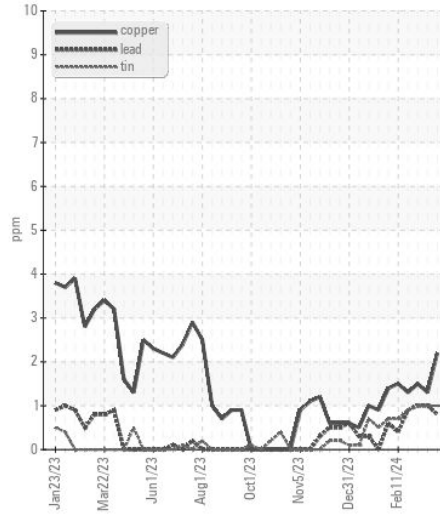
Viscosity @ 100°C



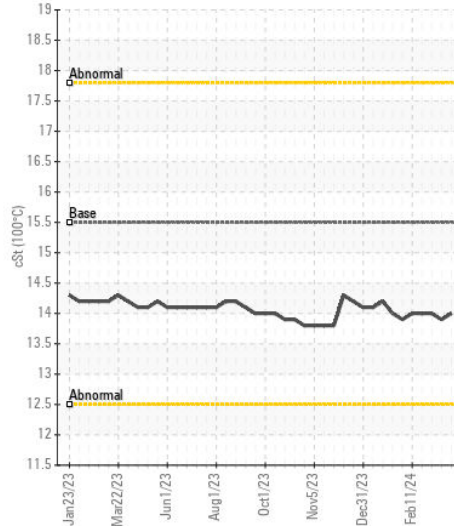
Ferrous Alloys



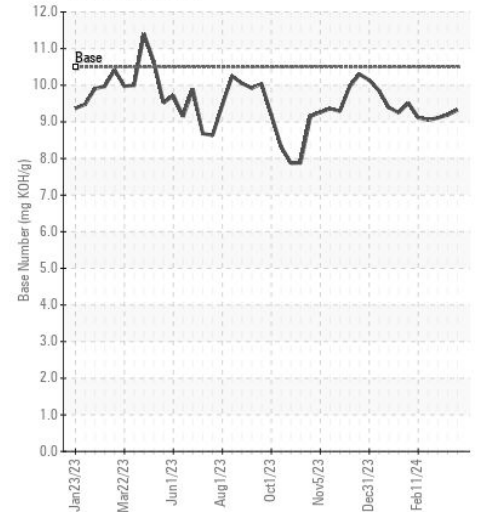
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW0065961

Lab Number : 06186899

Unique Number : 11043651

Test Package : MAR 2

Received : 21 May 2024

Tested : 23 May 2024

Diagnosed : 23 May 2024 - Wes Davis

INGRAM BARGE

900 S 3RD ST

PADUCAH, KY

US 42003

Contact: ANTHONY VAN CURA

anthony.vancura@ingrambarga.com

T: (270)415-4467

F: (615)695-3697

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)