



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
PAUL F BROTZGE
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (350 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0066346	MW0053162	MW0069291
Sample Date		Client Info		06 Jul 2024	01 Jun 2024	01 May 2024
Machine Age	hrs	Client Info		13796	12956	12259
Oil Age	hrs	Client Info		13796	12956	12259
Filter Age	hrs	Client Info		808	1461	762
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	10	10	11
Chromium	ppm	ASTM D5185m	>8	<1	<1	1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>3	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	3	2	2
Lead	ppm	ASTM D5185m	>18	2	2	2
Copper	ppm	ASTM D5185m	>80	10	9	9
Tin	ppm	ASTM D5185m	>14	2	2	2
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

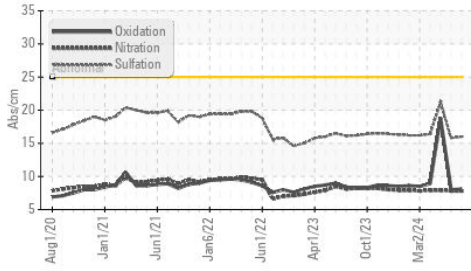
Silicon	ppm	ASTM D5185m	>20	3	3	3
Potassium	ppm	ASTM D5185m	>20	2	3	3
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.6	0.5	0.5
Nitration	Abs/cm	*ASTM D7624	>20	7.8	7.8	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.0	15.8	21.2
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

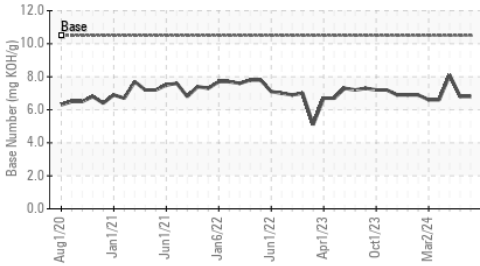
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	0	6	2
Boron	ppm	ASTM D5185m		39	43	43
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		46	47	48
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		10	13	11
Calcium	ppm	ASTM D5185m		3463	3645	3561
Phosphorus	ppm	ASTM D5185m		25	14	14
Zinc	ppm	ASTM D5185m		5	6	3
Sulfur	ppm	ASTM D5185m		2301	2694	2565
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.1	8.0	18.8
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	6.8	6.8	8.1
Visc @ 100°C	cSt	ASTM D445	15.5	14.2	14.4	14.5

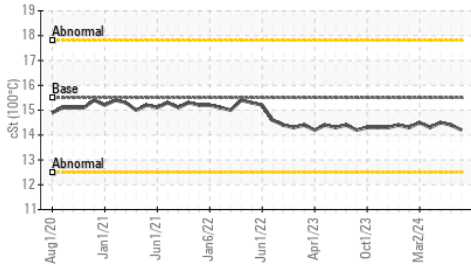
FT-IR (Direct Trend)



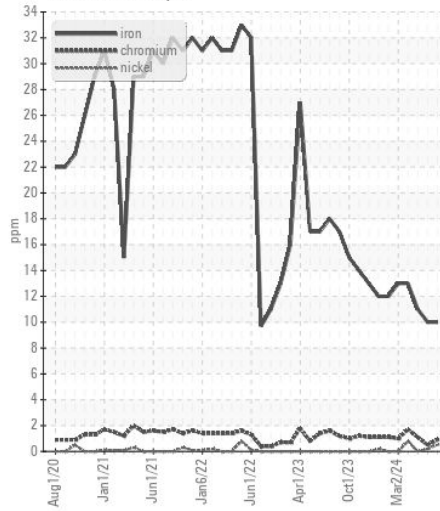
Base Number



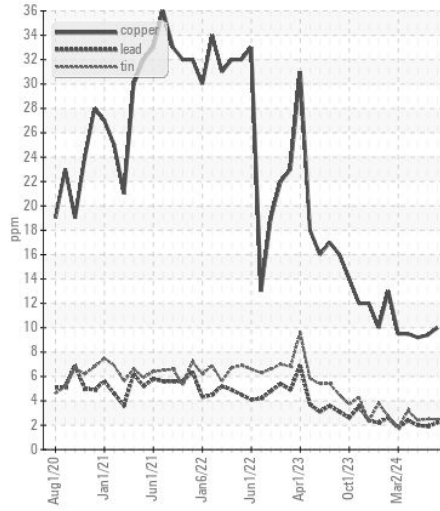
Viscosity @ 100°C



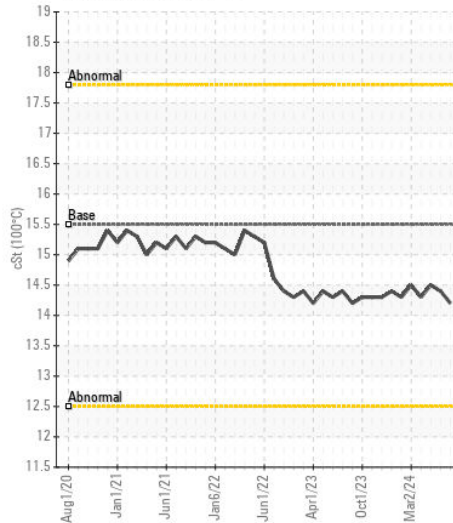
Ferrous Alloys



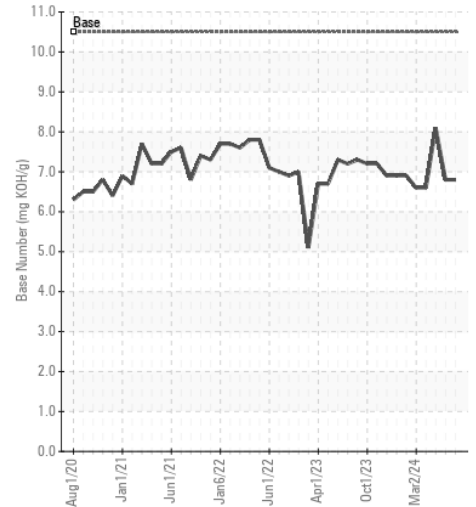
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0066346
Lab Number : 06238967
Unique Number : 11127801
Test Package : MAR 2

Received : 17 Jul 2024
Tested : 18 Jul 2024
Diagnosed : 18 Jul 2024 - Wes Davis

AMERICAN COMMERCIAL LINES
 PO BOX 610, 1701 E. MARKET STREET
 JEFFERSONVILLE, IN
 US 47130
 Contact: RONALD SCHNEIDER
 ronald.schneider@bargeacbl.com

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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