



Area

VQU

Machine Id

VQU (S/N 10-B1-1005)

Component

Starboard Main Engine

Fluid

CHEVRON DELO 710 LS (350 GAL)

RECOMMENDATION

We advise that you check for possible coolant leak. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0060696	MW0060720	MW0060710
Sample Date		Client Info		21 Apr 2024	22 Feb 2024	06 Jan 2024
Machine Age	hrs	Client Info		14877	13670	12544
Oil Age	hrs	Client Info		8507	7300	6174
Filter Age	hrs	Client Info		1200	1126	1356
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	48	16	14
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	1	2
Lead	ppm	ASTM D5185m	>18	12	5	4
Copper	ppm	ASTM D5185m	>80	25	11	10
Tin	ppm	ASTM D5185m	>14	6	5	5
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

The high sodium (Na) level indicates the possible presence of salt water. Elemental level of sodium (Na) and/or boron (B) indicates a possible cooling water leak.

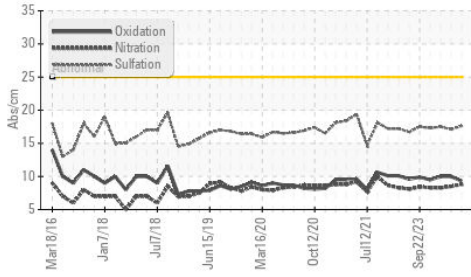
Silicon	ppm	ASTM D5185m	>20	12	3	2
Potassium	ppm	ASTM D5185m	>20	4	0	0
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	8.8	8.5	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.6	17.1	17.5
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

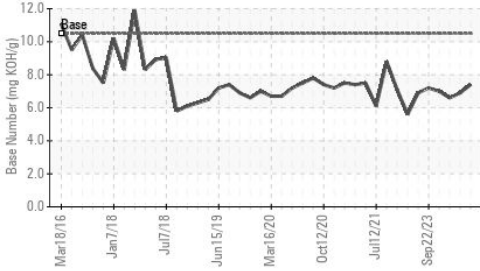
The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m	>75	▲ 200	1	<1
Boron	ppm	ASTM D5185m		79	40	41
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		48	47	44
Manganese	ppm	ASTM D5185m		2	<1	<1
Magnesium	ppm	ASTM D5185m		14	29	16
Calcium	ppm	ASTM D5185m		3625	3581	3410
Phosphorus	ppm	ASTM D5185m		5	15	3
Zinc	ppm	ASTM D5185m		10	16	0
Sulfur	ppm	ASTM D5185m		2697	2585	2155
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.3	10.0	10.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	7.4	6.9	6.6
Visc @ 100°C	cSt	ASTM D445	15.5	14.5	15.1	14.9

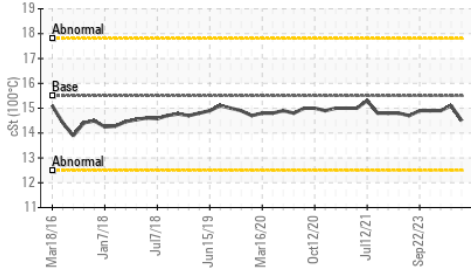
FT-IR (Direct Trend)



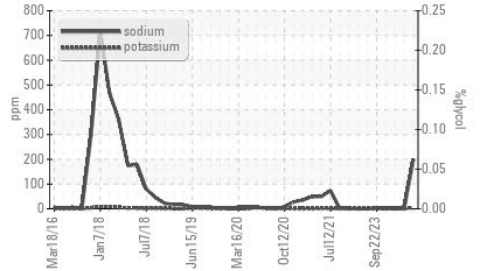
Base Number



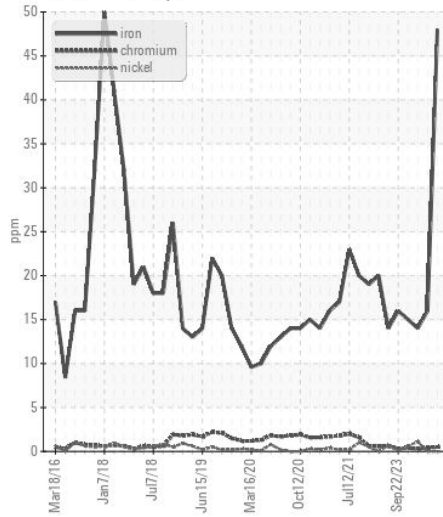
Viscosity @ 100°C



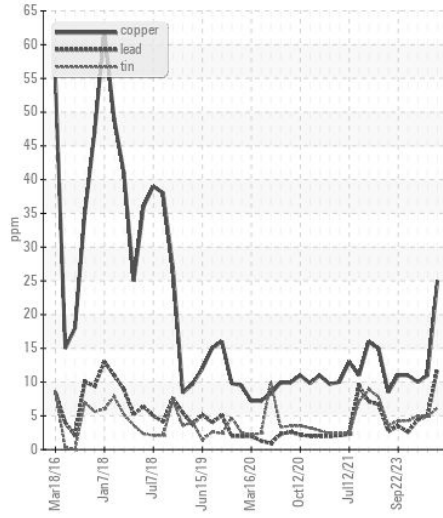
Glycol Contamination



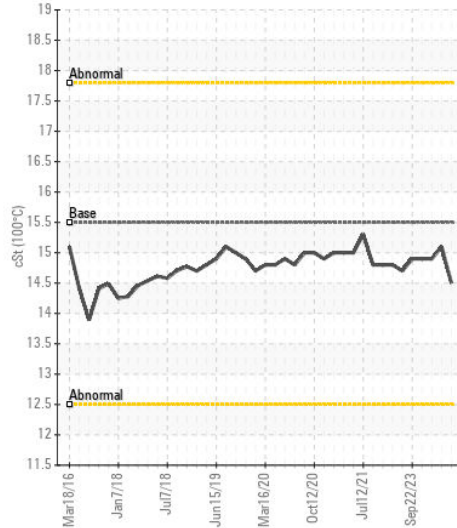
Ferrous Alloys



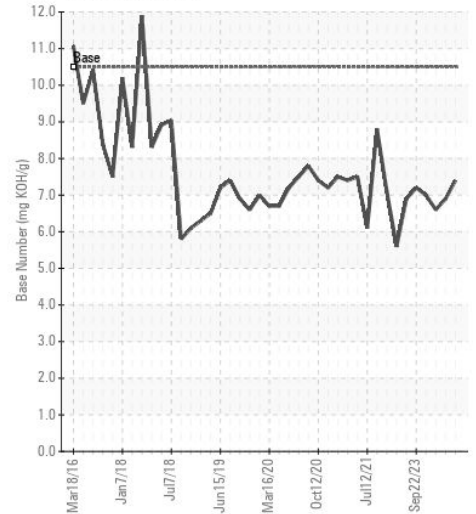
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0060696
Lab Number : 06161200
Unique Number : 10996623
Test Package : MAR 2 (Additional Tests: Glycol)

AMERICAN RIVER TRANSPORTATION CO.
 P.O. BOX 2889
 ST. LOUIS, MO
 US 63111
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 F: (314)481-5278

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)