



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
SAMUELRIS
Machine Id
S30-2211 Main Propulsion Engine
Component
1 Main Engine
Fluid
CASTROL TLX PLUS 303 (670 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0638083	WC0759152	WC0638089
Sample Date		Client Info		08 Apr 2024	17 Dec 2023	07 Jul 2023
Machine Age	hrs	Client Info		15131	14824	14519
Oil Age	hrs	Client Info		4711	4404	4099
Filter Age	hrs	Client Info		815	508	203
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 D5185(m)	>25	15	15	15
Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	<1	<1	0
Titanium	ppm	ASTM D5185(m)	>3	0	0	<1
Silver	ppm	ASTM D5185(m)	>2	0	<1	0
Aluminum	ppm	ASTM D5185(m)	>10	4	5	4
Lead	ppm	ASTM D5185(m)	>5	0	<1	<1
Copper	ppm	ASTM D5185(m)	>5	<1	1	1
Tin	ppm	ASTM D5185(m)	>5	<1	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	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.

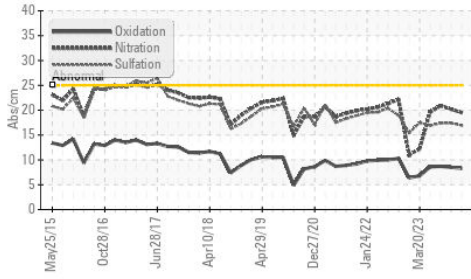
Silicon	ppm	ASTM D5185(m)	>20	7	8	9
Potassium	ppm	ASTM D5185(m)	>20	5	5	5
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>2	0.6	0.7	0.6
Nitration	Abs/cm	ASTM D7624*	>20	19.5	20.2	20.9
Sulfation	Abs/.1mm	ASTM D7415*	>30	16.9	17.4	17.4
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	VLITE	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

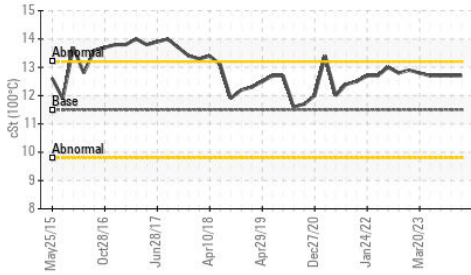
The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)	>75	8	8	7
Boron	ppm	ASTM D5185(m)		15	15	14
Barium	ppm	ASTM D5185(m)		<1	<1	<1
Molybdenum	ppm	ASTM D5185(m)		0	<1	1
Manganese	ppm	ASTM D5185(m)		<1	0	<1
Magnesium	ppm	ASTM D5185(m)		59	63	63
Calcium	ppm	ASTM D5185(m)	12000	12190	12897	12342
Phosphorus	ppm	ASTM D5185(m)	400	416	431	459
Zinc	ppm	ASTM D5185(m)	400	468	482	475
Sulfur	ppm	ASTM D5185(m)	12000	2530	2750	2877
Oxidation	Abs/.1mm	ASTM D7414*	>25	8.3	8.5	8.7
Visc @ 100°C	cSt	ASTM D7279(m)	11.5	12.7	12.7	12.7

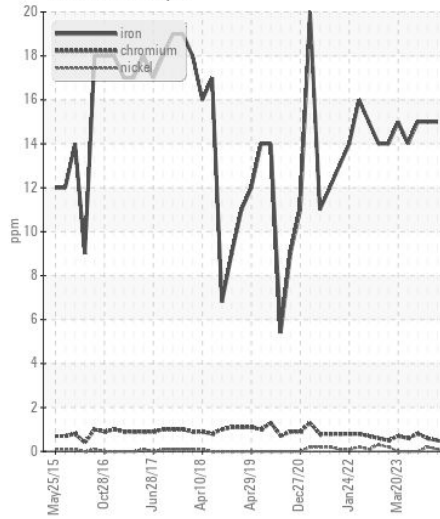
FT-IR (Direct Trend)



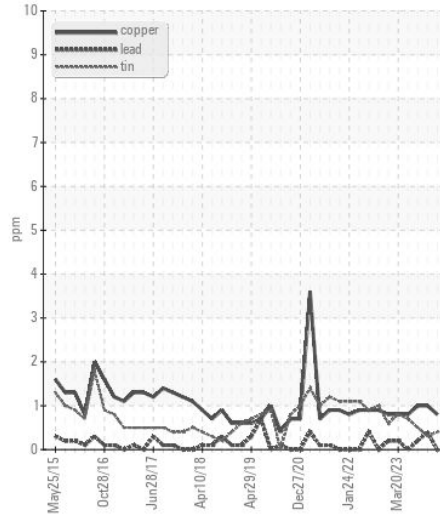
Viscosity @ 100°C



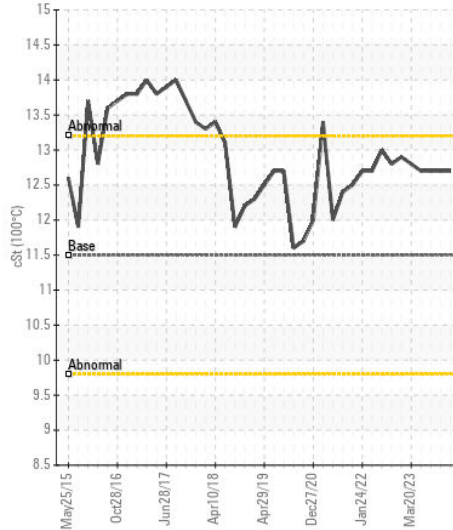
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

Sample No. : WC0638083

Lab Number : 02628109

Unique Number : 5761241

Test Package : MAR 1

Received : 11 Apr 2024

Tested : 11 Apr 2024

Diagnosed : 11 Apr 2024 - Wes Davis

CANADIAN COAST GUARD

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To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.