



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
34103
 Component
Port Main Engine
 Fluid
CASTROL MHP 154 (11000 LTR)

RECOMMENDATION

Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. this testkit includes BN to determine the suitability of the oil for continued use.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0787186	WC0787182	WC0787211
Sample Date		Client Info		09 May 2024	20 Jan 2024	31 Aug 2023
Machine Age	hrs	Client Info		46490	46398	46278
Oil Age	hrs	Client Info		46398	46278	0
Filter Age	hrs	Client Info		46398	46278	0
Oil Changed		Client Info		Not Changd	N/A	N/A
Filter Changed		Client Info		Not Changd	N/A	N/A
Sample Status				NORMAL	MARGINAL	ABNORMAL

WEAR

Component wear rates appear to be normal (unconfirmed).

Iron	ppm	ASTM D5185(m)	>75	3	3	4
Chromium	ppm	ASTM D5185(m)	>8	0	0	0
Nickel	ppm	ASTM D5185(m)	>2	0	<1	<1
Titanium	ppm	ASTM D5185(m)	>3	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	0	<1
Aluminum	ppm	ASTM D5185(m)	>15	1	2	1
Lead	ppm	ASTM D5185(m)	>18	0	0	0
Copper	ppm	ASTM D5185(m)	>80	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>14	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
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.

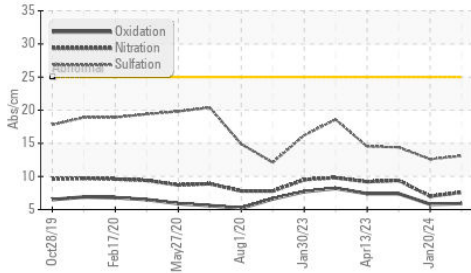
Silicon	ppm	ASTM D5185(m)	>20	8	11	6
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Fuel		WC Method	>4.0	<1.0	▲ 2.7	▲ 5.6
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>2	0	0	0
Nitration	Abs/cm	ASTM D7624*	>20	7.6	7.0	9.4
Sulfation	Abs/.1mm	ASTM D7415*	>30	13.1	12.6	14.4
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

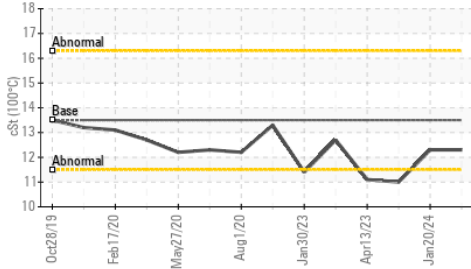
The condition of the oil is acceptable for the time in service (unconfirmed).

Sodium	ppm	ASTM D5185(m)	>75	<1	<1	1
Boron	ppm	ASTM D5185(m)		3	3	6
Barium	ppm	ASTM D5185(m)		0	0	<1
Molybdenum	ppm	ASTM D5185(m)		0	<1	1
Manganese	ppm	ASTM D5185(m)		<1	<1	0
Magnesium	ppm	ASTM D5185(m)		26	26	28
Calcium	ppm	ASTM D5185(m)		4884	5074	4840
Phosphorus	ppm	ASTM D5185(m)		809	836	723
Zinc	ppm	ASTM D5185(m)		872	900	829
Sulfur	ppm	ASTM D5185(m)		9025	9988	8321
Oxidation	Abs/.1mm	ASTM D7414*	>25	5.9	5.8	7.4
Visc @ 100°C	cSt	ASTM D7279(m)	13.5	12.3	12.3	▲ 11.0

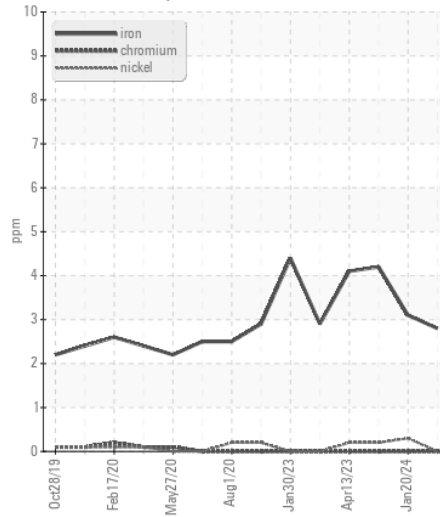
FT-IR (Direct Trend)



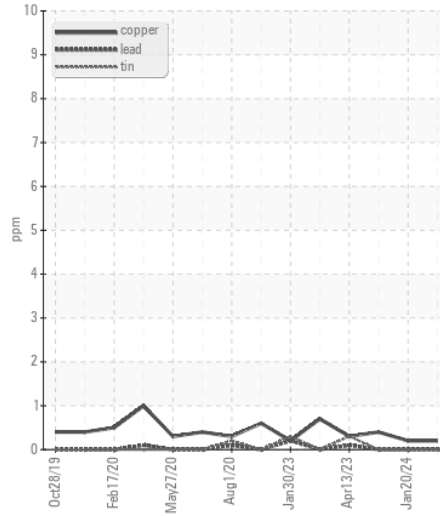
Viscosity @ 100°C



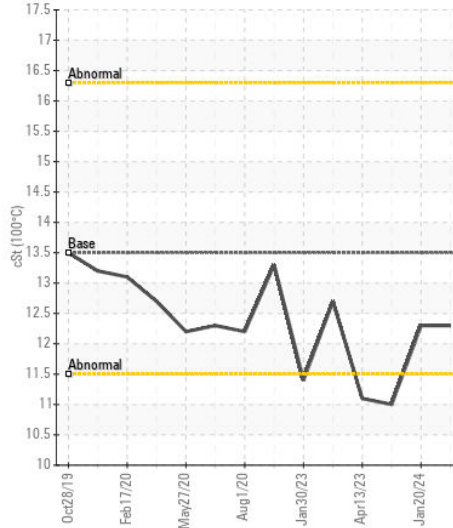
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0787186
Lab Number : 02638321
Unique Number : 5787483
Test Package : MAR 1

Received : 29 May 2024
Tested : 29 May 2024
Diagnosed : 29 May 2024 - Wes Davis

Horizon Maritime Services Ltd. - K.J. Gardner
 101 Research Drive, Main Floor
 Dartmouth, NS
 CA B2Y 4T6
 Contact: Engine Room
 chiefeng.kjgardner@horizonmaritime.com

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.

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F: