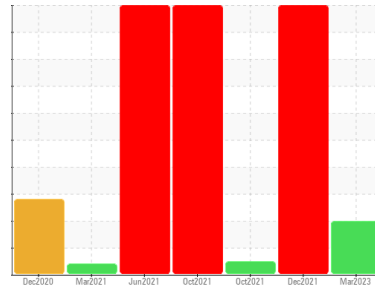




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Machine Id
OSV HERCULES 2PH

Component
Starboard Wheel Hub

Fluid
SHELL OMALA 68 (25 GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil.

Fluid Condition

Confirm oil type. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	WC0757308	WC0631047	WC0579473
Sample Date	Client Info	09 Mar 2023	23 Dec 2021	19 Oct 2021
Machine Age	hrs	23732	20560	20055
Oil Age	hrs	0	574	8000
Oil Changed	Client Info	Changed	N/A	Changed
Sample Status		ABNORMAL	SEVERE	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >500	4	271	0
Chromium	ppm ASTM D5185m >8	0	▲ 27	0
Nickel	ppm ASTM D5185m >5	0	▲ 15	<1
Titanium	ppm ASTM D5185m	0	<1	0
Silver	ppm ASTM D5185m	0	1	0
Aluminum	ppm ASTM D5185m >5	<1	2	0
Lead	ppm ASTM D5185m >5	0	2	0
Copper	ppm ASTM D5185m >50	0	▲ 512	3
Tin	ppm ASTM D5185m	0	▲ 44	<1
Antimony	ppm ASTM D5185m >5	---	0	0
Vanadium	ppm ASTM D5185m	0	<1	<1
Cadmium	ppm ASTM D5185m	0	<1	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	0	4	0
Barium	ppm ASTM D5185m	0	0	1
Molybdenum	ppm ASTM D5185m	0	1	0
Manganese	ppm ASTM D5185m	<1	4	0
Magnesium	ppm ASTM D5185m	4	8	0
Calcium	ppm ASTM D5185m	40	10	0
Phosphorus	ppm ASTM D5185m	204	318	271
Zinc	ppm ASTM D5185m	0	0	0
Sulfur	ppm ASTM D5185m	6886	6922	5995

CONTAMINANTS

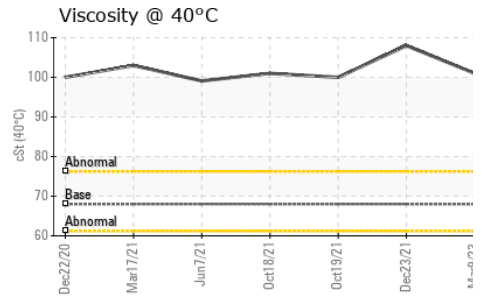
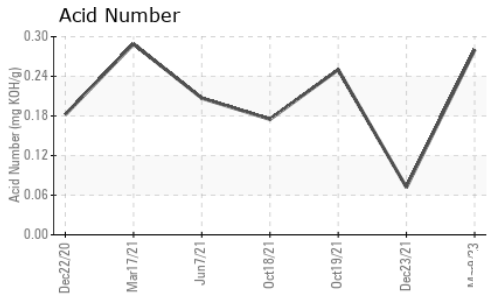
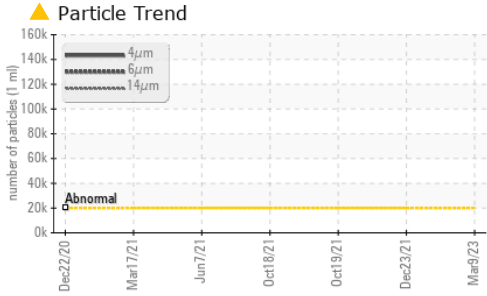
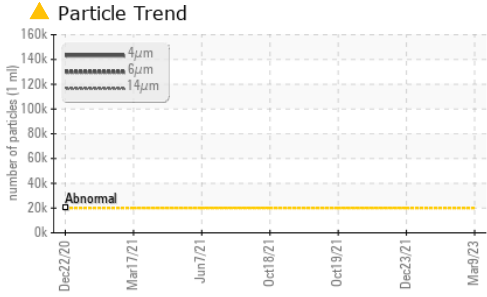
method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<1	5	<1
Sodium	ppm ASTM D5185m	2	55	3
Potassium	ppm ASTM D5185m >20	0	2	<1

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	▲ 148095	---	---
Particles >6µm	ASTM D7647 >5000	▲ 78581	---	---
Particles >14µm	ASTM D7647 >640	▲ 4931	---	---
Particles >21µm	ASTM D7647 >160	▲ 339	---	---
Particles >38µm	ASTM D7647 >40	6	---	---
Particles >71µm	ASTM D7647 >10	0	---	---
Oil Cleanliness	ISO 4406 (c) >21/19/16	▲ 24/23/19	---	---



OIL ANALYSIS REPORT

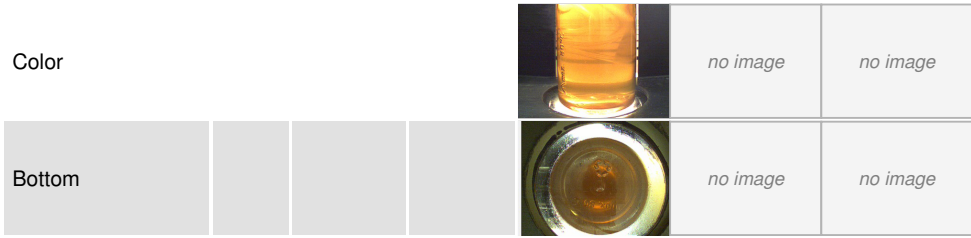


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.28	0.072	0.250

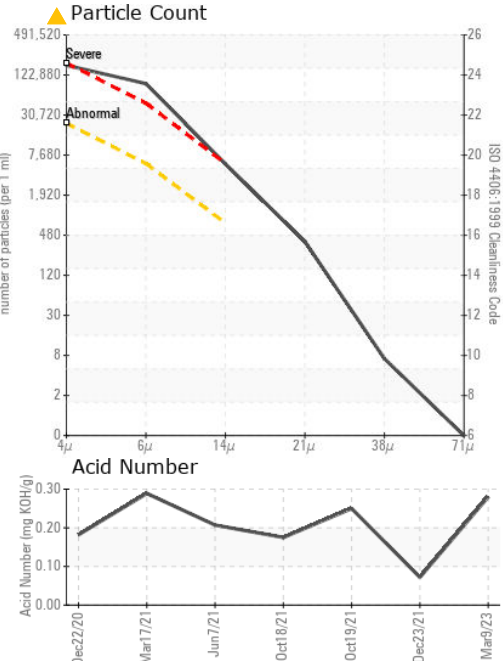
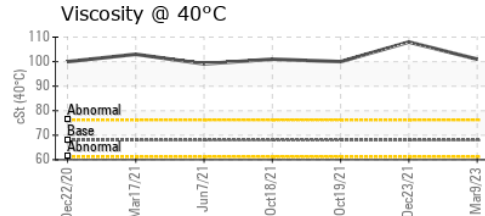
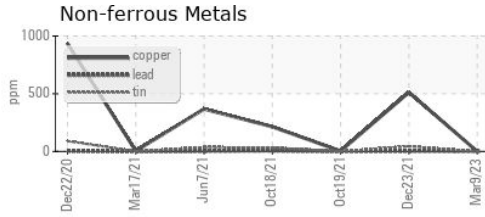
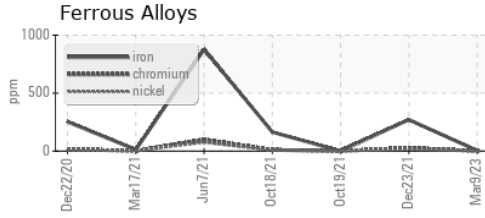
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	HAZY	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	0.2%	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	68.0	101	108	100

SAMPLE IMAGES



GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0757308 **Received** : 16 Mar 2023
Lab Number : 05794050 **Tested** : 20 Mar 2023
Unique Number : 10383734 **Diagnosed** : 20 Mar 2023 - Don Baldrige
Test Package : MAR 2 (Additional Tests: PrtCount)

ALASKA VESSEL AGENTS
 PO BOX 920785
 DUTCH HARBOR, AK
 US 99692
 Contact: MONIKA BERGERT
 monika.bergert@alaskavesselagents.com
 T: (907)581-4591
 F:

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)