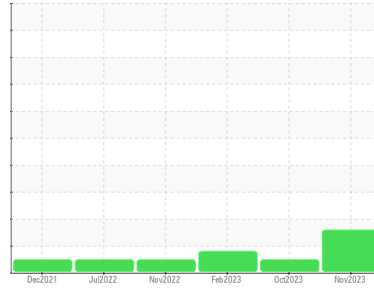


PROBLEM SUMMARY

Area
Vessel
Machine Id
KAT 018 (STERNTUBE)
Component
Sterntube
Fluid
VICKERS HYDROX BIO 220 (150 LTR)

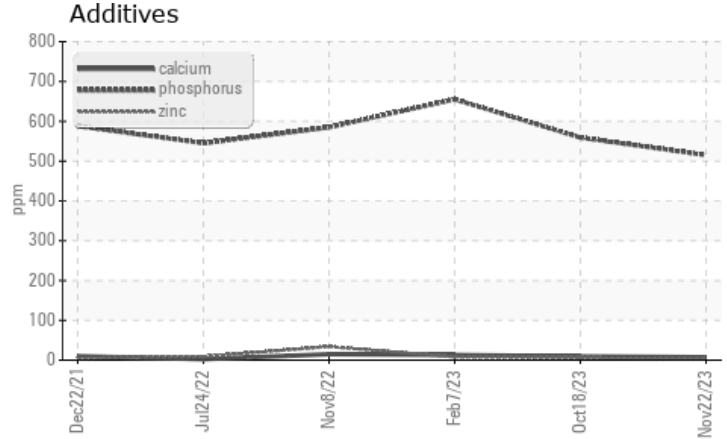
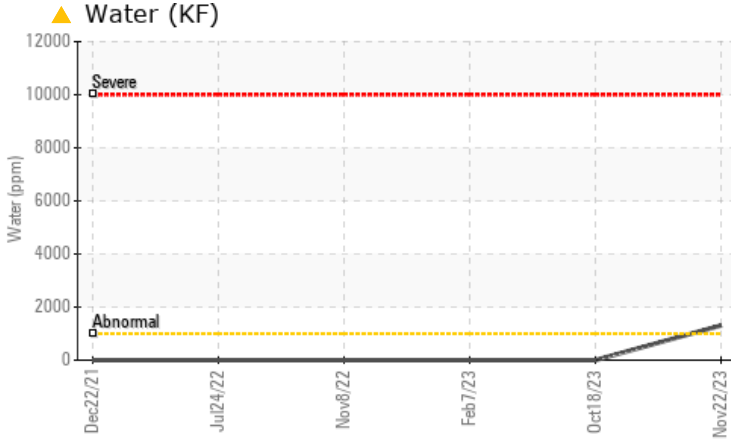
Sample Rating Trend



WATER



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	NORMAL	ABNORMAL
Water	%	ASTM D6304*	>0.1	▲ 0.130	---
ppm Water	ppm	ASTM D6304*	>1000	▲ 1308	---

Customer Id: KATSHESH
Sample No.: PC0080315
Lab Number: 02601984
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
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Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
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RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
Check Water Access	---	---	?	We advise that you check for the source of water entry.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
Filter Fluid	---	---	?	We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil.

HISTORICAL DIAGNOSIS

18 Oct 2023 Diag: Kevin Marson

NORMAL



Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

view report



07 Feb 2023 Diag: Kevin Marson

WEAR



We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample. Titanium ppm levels are abnormal. There is no indication of any contamination in the oil. Viscosity of sample indicates oil is within ISO 220 range, advise investigate. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report



08 Nov 2022 Diag: Kevin Marson

NORMAL

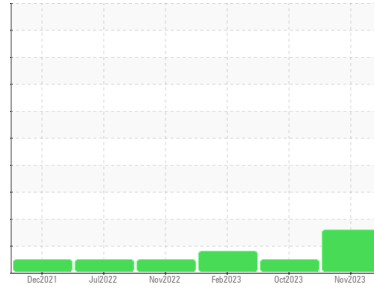


Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

view report



Area
Vessel
Machine Id
KAT 018 (STERNTUBE)
Component
Sterntube
Fluid
VICKERS HYDROX BIO 220 (150 LTR)



DIAGNOSIS

Recommendation
We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a moderate concentration of water present in the oil. Elemental level of calcium (Ca) indicates contamination with brine (salt water).

Fluid Condition
Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PC0080315	PC0018590	PC
Sample Date	Client Info			22 Nov 2023	18 Oct 2023	07 Feb 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed	Client Info			N/A	N/A	N/A
Sample Status				ABNORMAL	NORMAL	ABNORMAL

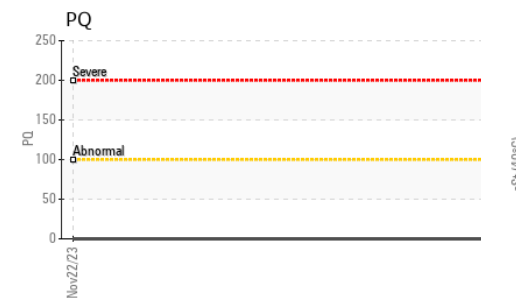
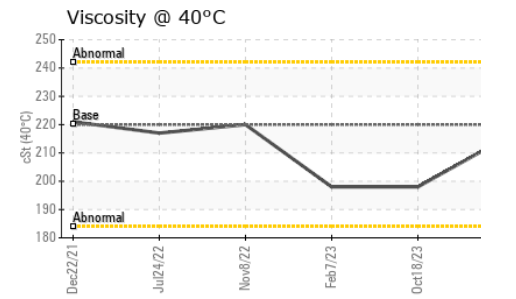
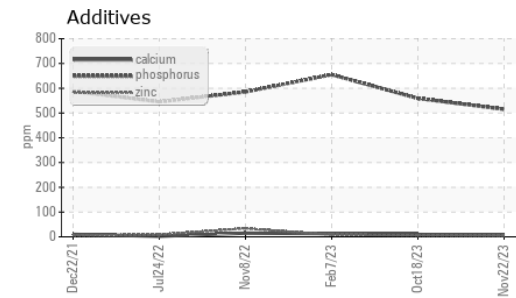
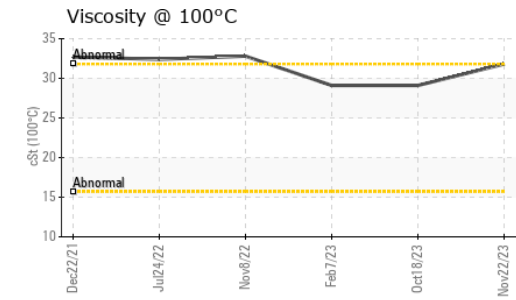
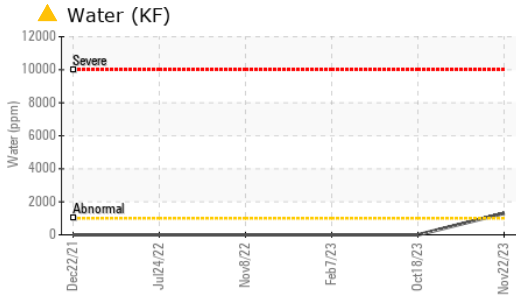
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	---	---
Iron	ppm	ASTM D5185(m)	>15	5	6	13
Chromium	ppm	ASTM D5185(m)	>2	0	0	0
Nickel	ppm	ASTM D5185(m)	>2	<1	0	<1
Titanium	ppm	ASTM D5185(m)	>8	15	16	▲ 22
Silver	ppm	ASTM D5185(m)		<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>4	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>15	6	3	2
Copper	ppm	ASTM D5185(m)	>25	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>10	<1	1	3
Antimony	ppm	ASTM D5185(m)		0	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	<1
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		3	2	1
Barium	ppm	ASTM D5185(m)		<1	<1	0
Molybdenum	ppm	ASTM D5185(m)		0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)		3	1	<1
Calcium	ppm	ASTM D5185(m)		7	10	13
Phosphorus	ppm	ASTM D5185(m)		515	559	655
Zinc	ppm	ASTM D5185(m)		5	6	8
Sulfur	ppm	ASTM D5185(m)		1331	1166	1496
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	16	18	21
Sodium	ppm	ASTM D5185(m)		31	33	35
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	1
Water	%	ASTM D6304*	>0.1	▲ 0.130	---	---
ppm Water	ppm	ASTM D6304*	>1000	▲ 1308	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		1.39	---	---

OIL ANALYSIS REPORT

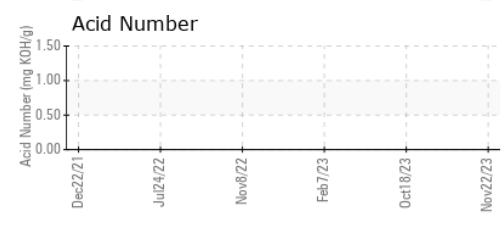
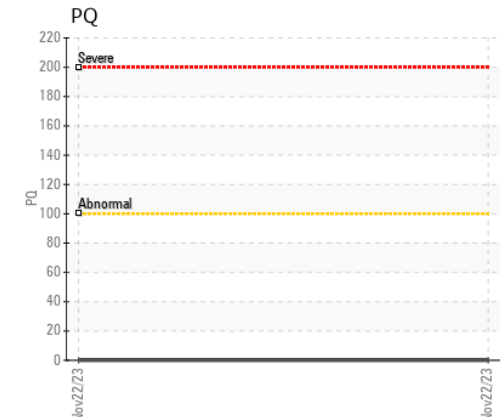
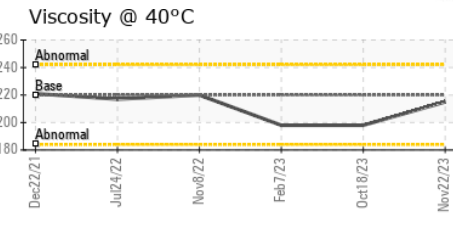
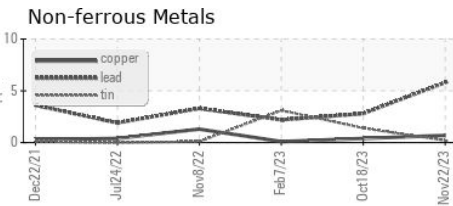
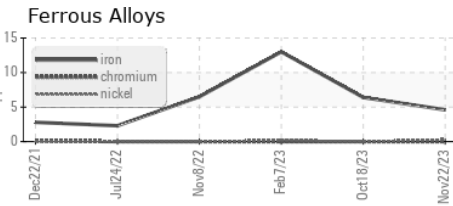


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	220	215	198
Visc @ 100°C	cSt	ASTM D7279(m)		31.8	29.1
Viscosity Index (VI)	Scale	ASTM D2270*	200	192	187

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Ocean Choice International - Katsheshuk II
Sample No. : PC0080315 **Received** : 08 Dec 2023
Lab Number : 02601984 **Diagnosed** : 11 Dec 2023
Unique Number : 5695069 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: KF, KV100, VI)
 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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