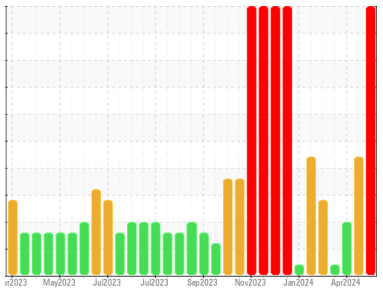
OIL ANALYSIS REPORT

Area
RIG 879
Machine Id
R879-MP-01
Component
Gearbox
Fluid
BRENNTAG COASTAL CHEMICAL HBC GEAR OIL 320 (--- GAL)

Sample Rating Trend



WEAR

DIAGNOSIS

Recommendation
We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. There is too much water present in this sample to perform a particle count.

Wear
A sharp increase in the iron level is noted. Gear wear is indicated.

Contamination
There is a high concentration of water present in the oil.

Fluid Condition
Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KL0014479**	KL0014320	KL0014301
Sample Date		Client Info		**11 Jun 2024**	07 May 2024	03 Apr 2024
Machine Age	days	Client Info		**0**	0	0
Oil Age	days	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	SEVERE	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	▲ **1340**	38	17
Chromium	ppm	ASTM D5185m	>10	▲ **16**	0	0
Nickel	ppm	ASTM D5185m	>10	**2**	0	0
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m		**0**	<1	0
Aluminum	ppm	ASTM D5185m	>25	**8**	4	3
Lead	ppm	ASTM D5185m	>50	**<1**	0	0
Copper	ppm	ASTM D5185m	>200	**14**	5	6
Tin	ppm	ASTM D5185m	>10	**2**	0	0
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		● **19**	0	<1
Barium	ppm	ASTM D5185m		**26**	39	6
Molybdenum	ppm	ASTM D5185m		**4**	1	0
Manganese	ppm	ASTM D5185m		**8**	<1	<1
Magnesium	ppm	ASTM D5185m		● **79**	3	<1
Calcium	ppm	ASTM D5185m		● **187**	27	32
Phosphorus	ppm	ASTM D5185m		**197**	119	113
Zinc	ppm	ASTM D5185m		● **93**	42	39
Sulfur	ppm	ASTM D5185m		**11478**	9719	10044

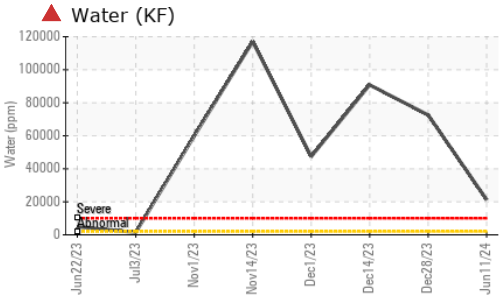
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**40**	22	15
Sodium	ppm	ASTM D5185m		**471**	14	5
Potassium	ppm	ASTM D5185m	>20	**13**	2	<1
Water	%	ASTM D6304	>0.2	▲ **2.13**	---	---
ppm Water	ppm	ASTM D6304	>2000	▲ **21300**	---	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**---**	▲ 160120	▲ 134132
Particles >6µm		ASTM D7647	>5000	**---**	▲ 85076	▲ 38915
Particles >14µm		ASTM D7647	>640	**---**	▲ 2681	● 1252
Particles >21µm		ASTM D7647	>160	**---**	● 245	▲ 337
Particles >38µm		ASTM D7647	>40	**---**	1	33
Particles >71µm		ASTM D7647	>10	**---**	0	4
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**---**	▲ 25/24/19	▲ 24/22/17

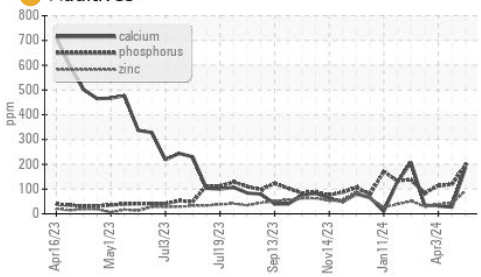
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.68**	0.43	0.41

OIL ANALYSIS REPORT

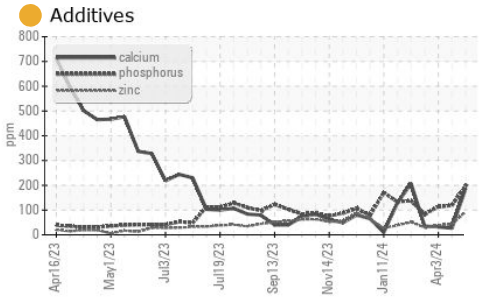
Water (KF)



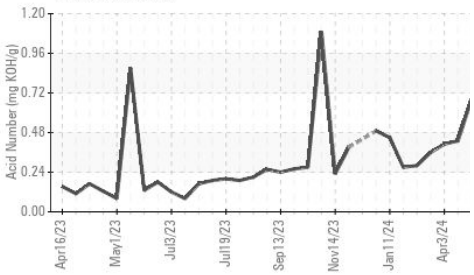
Additives



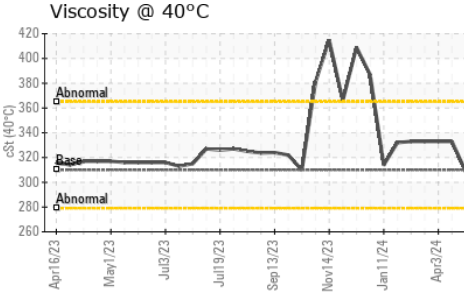
Additives



Acid Number



Viscosity @ 40°C



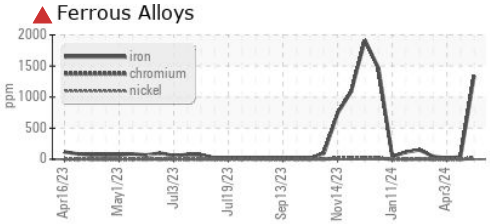
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**MODER**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	310	**309**	333	333

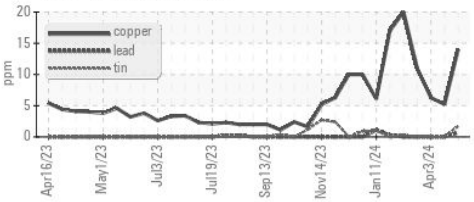
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

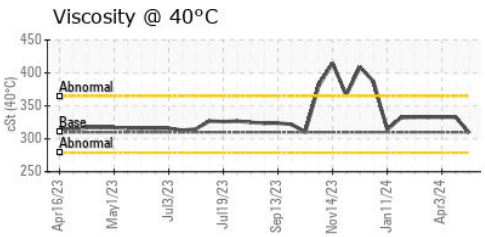
Ferrous Alloys



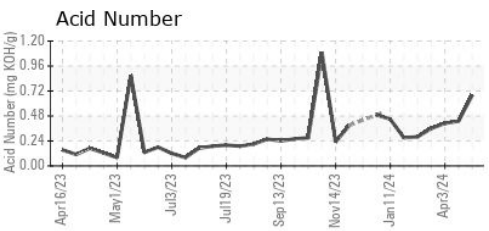
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014479
Lab Number : 06215784
Unique Number : 11088648
Test Package : MOB 2 (Additional Tests: KF, PrtCount)

Received : 20 Jun 2024
Tested : 22 Jun 2024
Diagnosed : 22 Jun 2024 - Don Baldridge

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)

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Report Id: PATMIDTX [WUSCAR] 06215784 (Generated: 06/23/2024 06:02:01) Rev: 1

Submitted By: Mike Richardson