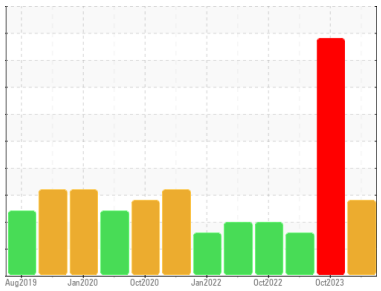
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
CRYO
Machine Id
C-162 (S/N XC-0622)
Component
Refrigeration Compressor
Fluid
TULCO LUBSOIL SYN RL WI 100 (250 GAL)

DIAGNOSIS

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

Wear
The iron level is abnormal. All other component wear rates are normal.

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

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**TO20000357**	TO20000354	TO20000192
Sample Date		Client Info		**26 Mar 2024**	19 Oct 2023	11 Apr 2023
Machine Age	hrs	Client Info		**11**	11	11
Oil Age	hrs	Client Info		**11**	11	11
Oil Changed		Client Info		**Oil Added**	Changed	Oil Added
Sample Status				**ABNORMAL**	SEVERE	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>8	▲ **17**	▲ 16	16
Chromium	ppm	ASTM D5185m	>2	**0**	<1	0
Nickel	ppm	ASTM D5185m		**0**	<1	0
Titanium	ppm	ASTM D5185m		**0**	<1	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>3	**0**	1	5
Lead	ppm	ASTM D5185m	>2	**<1**	0	0
Copper	ppm	ASTM D5185m	>8	**0**	2	13
Tin	ppm	ASTM D5185m	>4	**11**	10	8
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	<1	0
Manganese	ppm	ASTM D5185m		**0**	0	<1
Magnesium	ppm	ASTM D5185m		**0**	0	4
Calcium	ppm	ASTM D5185m		**99**	89	84
Phosphorus	ppm	ASTM D5185m	1500	**937**	940	859
Zinc	ppm	ASTM D5185m		**36**	39	52
Sulfur	ppm	ASTM D5185m		**0**	0	0

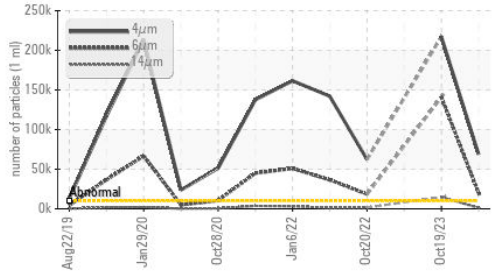
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	**3**	4	4
Sodium	ppm	ASTM D5185m		**0**	<1	0
Potassium	ppm	ASTM D5185m	>20	**0**	2	<1
Water	%	ASTM D6304	>2.26	**0.043**	0.175	0.191
ppm Water	ppm	ASTM D6304	>22600	**435**	1750.2	1917.7

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	▲ **68811**	▲ 217153	---
Particles >6µm		ASTM D7647	>2500	▲ **20200**	▲ 140992	---
Particles >14µm		ASTM D7647	>320	▲ **1131**	▲ 14784	---
Particles >21µm		ASTM D7647	>80	▲ **214**	▲ 2691	---
Particles >38µm		ASTM D7647	>20	**1**	▲ 21	---
Particles >71µm		ASTM D7647	>4	**0**	0	---
Oil Cleanliness		ISO 4406 (c)	>20/18/15	▲ **23/22/17**	▲ 25/24/21	---

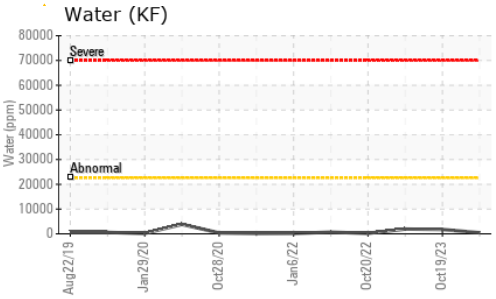
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974	0.04	**0.382**	0.111	0.073

OIL ANALYSIS REPORT

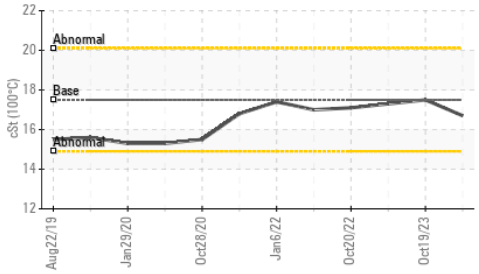
Particle Trend



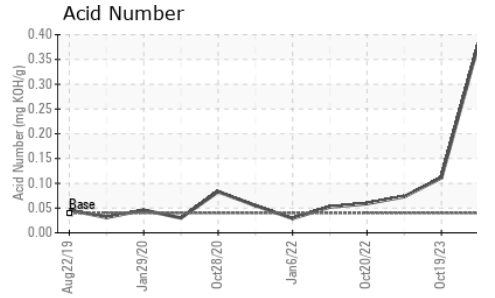
Water (KF)



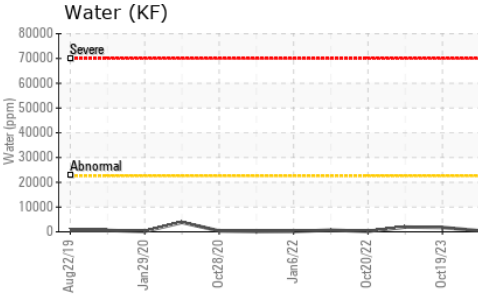
Viscosity @ 100°C



Acid Number



Water (KF)



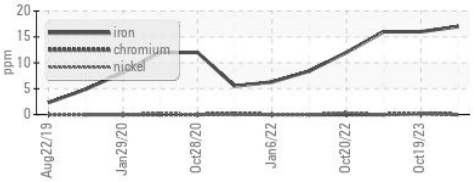
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	▲ MODER
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**LIGHT**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	▲ HEAVY	▲ MODER
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	>2.26	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	97	**101**	99.5	104
Visc @ 100°C	cSt	ASTM D445	17.5	**16.7**	17.5	17.3
Viscosity Index (VI)	Scale	ASTM D2270	198	**179**	193	182

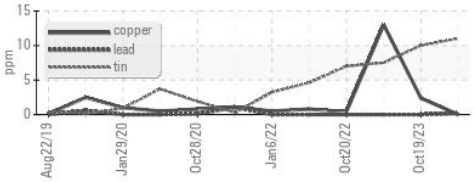
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

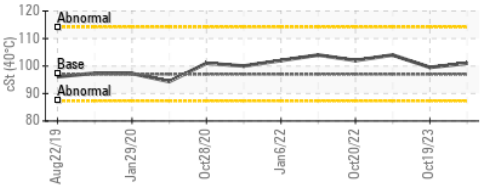
Ferrous Alloys



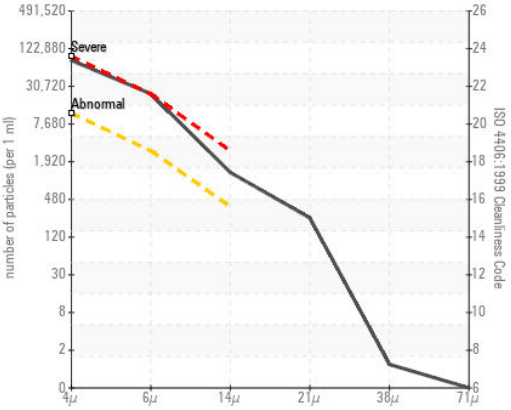
Non-ferrous Metals



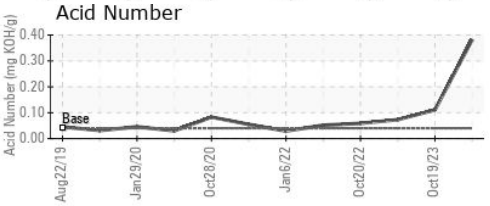
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO20000357
Lab Number : 06141373
Unique Number : 10966181
Test Package : IND 2 (Additional Tests: KV100, PrtCount, VI)

Received : 08 Apr 2024
Tested : 09 Apr 2024
Diagnosed : 10 Apr 2024 - Angela Borella

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: IROAMB [WUSCAR] 06141373 (Generated: 04/10/2024 16:46:49) Rev: 1

Submitted By: JULIE WILLIAMS