

Area  
**Marcus Hook/Cryogenic/Compressor**  
 Machine Id  
**CRYOGENIC COMPRESSOR 10-C-301A**  
 Component  
**Rotary Compressor**  
 Fluid  
**TULCO LUBSOIL SYN RL WI 100 (385 GAL)**

## DIAGNOSIS

**Recommendation**  
 We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

**Wear**  
 All component wear rates are normal.

**Contamination**  
 There is a high amount of silt (particulates < 14 microns in size) 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	<b>TO90002097</b>	TO60001835	TO90003037
Sample Date	Client Info	<b>09 May 2024</b>	05 Nov 2023	25 Apr 2023
Machine Age	hrs	<b>0</b>	0	0
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >70	<b>9</b>	5	3
Chromium	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	<b>1</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m >3	<b>1</b>	0	0
Lead	ppm	ASTM D5185m >4	<b>&lt;1</b>	0	0
Copper	ppm	ASTM D5185m >20	<b>&lt;1</b>	0	<1
Tin	ppm	ASTM D5185m >3	<b>2</b>	2	<1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	<b>0</b>	0	0
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>1</b>	0	0
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Magnesium	ppm	ASTM D5185m	<b>20</b>	0	<1
Calcium	ppm	ASTM D5185m	<b>80</b>	82	84
Phosphorus	ppm	ASTM D5185m 1500	<b>623</b>	19	16
Zinc	ppm	ASTM D5185m	<b>26</b>	0	4
Sulfur	ppm	ASTM D5185m	<b>570</b>	552	491

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >45	<b>4</b>	4	4
Sodium	ppm	ASTM D5185m	<b>1</b>	<1	1
Potassium	ppm	ASTM D5185m >20	<b>2</b>	0	<1
Water	%	ASTM D6304 >2.26	<b>0.045</b>	0.017	0.035
ppm Water	ppm	ASTM D6304 >22600	<b>457</b>	173.9	356.2

## FLUID CLEANLINESS

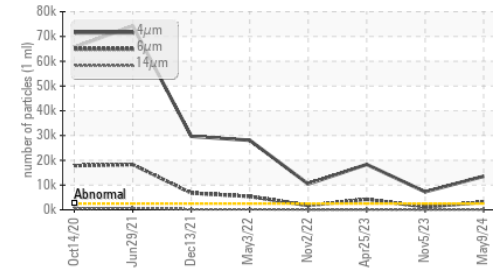
method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >2500	<b>▲ 13537</b>	▲ 7268	▲ 18324
Particles >6µm	ASTM D7647 >320	<b>▲ 3131</b>	▲ 1133	▲ 4224
Particles >14µm	ASTM D7647 >80	<b>80</b>	22	▲ 96
Particles >21µm	ASTM D7647 >20	<b>12</b>	3	11
Particles >38µm	ASTM D7647 >4	<b>0</b>	0	1
Particles >71µm	ASTM D7647 >3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c) >18/15/13	<b>▲ 21/19/13</b>	▲ 20/17/12	▲ 21/19/14

## FLUID DEGRADATION

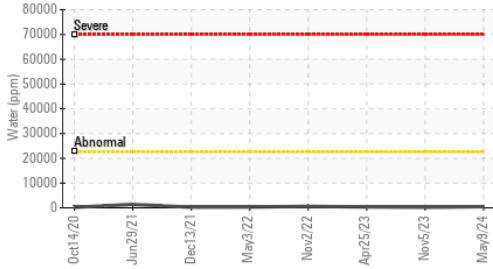
method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D8045 0.04	<b>0.091</b>	0.077	0.058

# OIL ANALYSIS REPORT

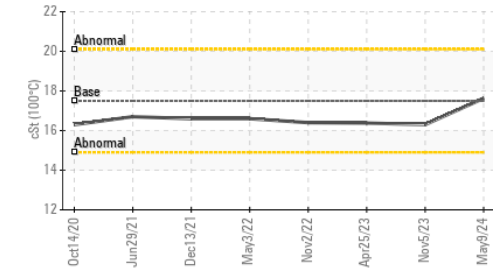
## Particle Trend



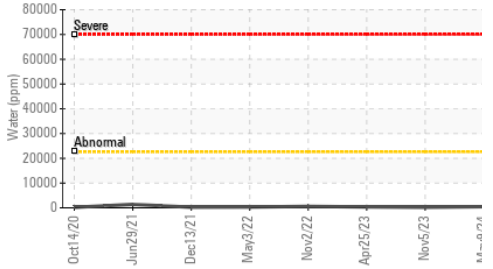
## Water (KF)



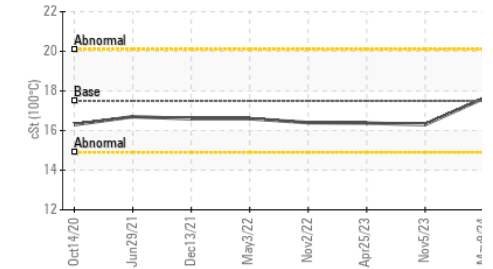
## Viscosity @ 100°C



## Water (KF)



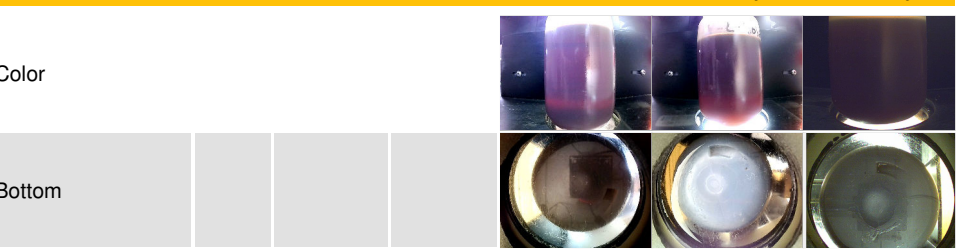
## Viscosity @ 100°C



PARAMETER	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	LIGHT
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>2.26	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

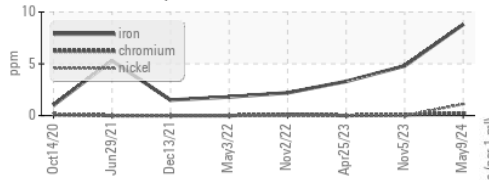
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	97	103	105
Visc @ 100°C	cSt	ASTM D445	17.5	17.63	16.3
Viscosity Index (VI)	Scale	ASTM D2270	198	188	167

## SAMPLE IMAGES

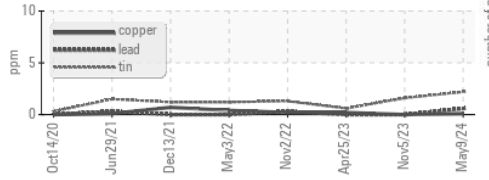


## GRAPHS

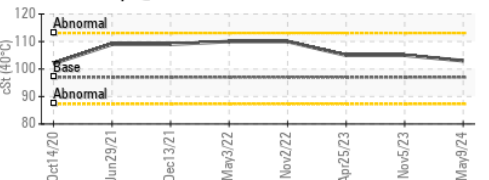
### Ferrous Alloys



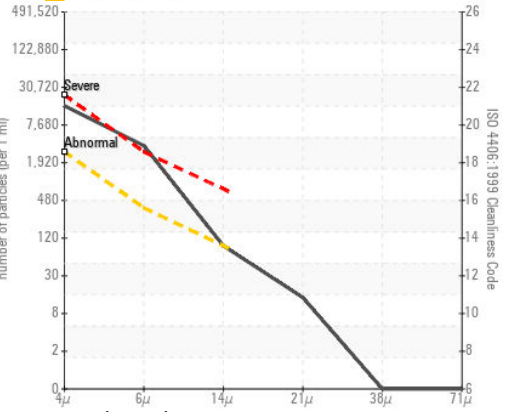
### Non-ferrous Metals



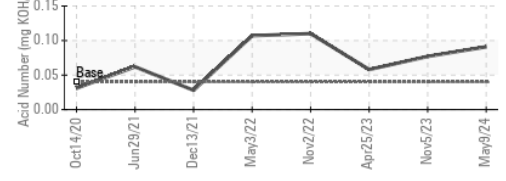
### Viscosity @ 40°C



### Particle Count



### Acid Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : TO90002097

**Lab Number** : 06182917

**Unique Number** : 11034243

**Test Package** : IND 2 ( Additional Tests: KF, KV100, PrtCount, VI )

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)

**Received** : 17 May 2024

**Tested** : 28 May 2024

**Diagnosed** : 28 May 2024 - Angela Borella

**ENERGY TRANSFER - MARCUS HOOK**

2ND & GREEN STREETS

MARCUS HOOK, PA

US 19061

Contact: CHRISTOPHER HOFFA

christopher.hoffa@energytransfer.com

T:

F: