

Area  
**Marcus Hook/Cryogenic/Compressor**  
 Machine Id  
**CRYOGENIC COMPRESSOR 50-C-101E**  
 Component  
**Rotary Compressor**  
 Fluid  
**FRICK 18 (220 GAL)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. ( Customer Sample Comment: Frick #18 )

### 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>TO90002166</b>	TO60001822	TO90003048
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>	ATTENTION	ABNORMAL

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >70	<b>2</b>	1	3
Chromium	ppm	ASTM D5185m >10	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	<b>0</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>0</b>	0	0
Lead	ppm	ASTM D5185m >4	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >20	<b>0</b>	0	0
Tin	ppm	ASTM D5185m >3	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m	<b>&lt;1</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>0</b>	0	0
Manganese	ppm	ASTM D5185m	<b>0</b>	0	0
Magnesium	ppm	ASTM D5185m	<b>0</b>	0	<1
Calcium	ppm	ASTM D5185m	<b>0</b>	<1	0
Phosphorus	ppm	ASTM D5185m	<b>0</b>	<1	0
Zinc	ppm	ASTM D5185m	<b>0</b>	0	1
Sulfur	ppm	ASTM D5185m	<b>0</b>	4	0

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >45	<b>&lt;1</b>	2	2
Sodium	ppm	ASTM D5185m	<b>1</b>	0	0
Potassium	ppm	ASTM D5185m >20	<b>0</b>	0	<1
Water	%	ASTM D6304 >0.6	<b>0.001</b>	0.003	0.001
ppm Water	ppm	ASTM D6304	<b>13</b>	25.4	9.2

## FLUID CLEANLINESS

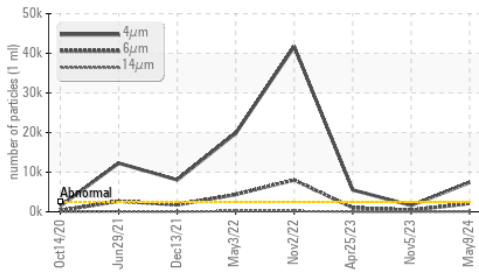
method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >2500	<b>▲ 7404</b>	1602	▲ 5523
Particles >6µm	ASTM D7647 >320	<b>▲ 2117</b>	● 419	▲ 1027
Particles >14µm	ASTM D7647 >80	<b>56</b>	25	25
Particles >21µm	ASTM D7647 >20	<b>6</b>	4	4
Particles >38µm	ASTM D7647 >4	<b>0</b>	0	1
Particles >71µm	ASTM D7647 >3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c) >18/15/13	<b>▲ 20/18/13</b>	● 18/16/12	▲ 20/17/12

## FLUID DEGRADATION

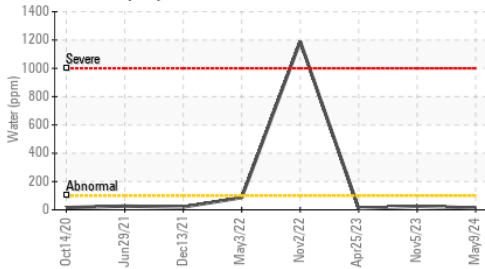
method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.041</b>	0.015	0.014

# OIL ANALYSIS REPORT

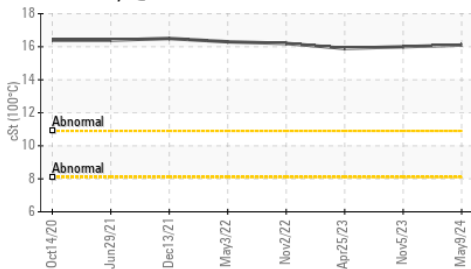
## ▲ Particle Trend



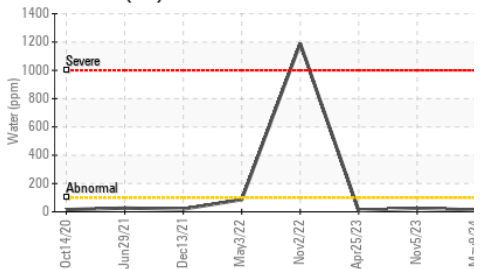
## Water (KF)



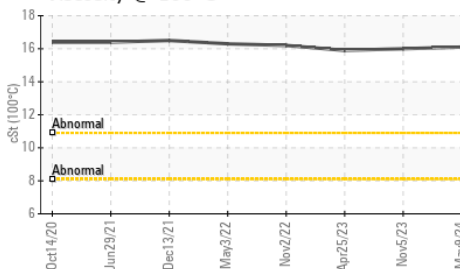
## Viscosity @ 100°C



## Water (KF)



## Viscosity @ 100°C



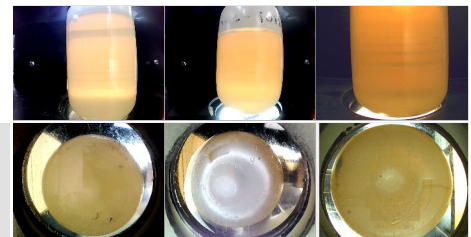
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.6	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	103	101	99.9
Visc @ 100°C	cSt	ASTM D445	16.1	16.0	15.9
Viscosity Index (VI)	Scale	ASTM D2270	167	169	170

SAMPLE IMAGES	method	limit/base	current	history1	history2
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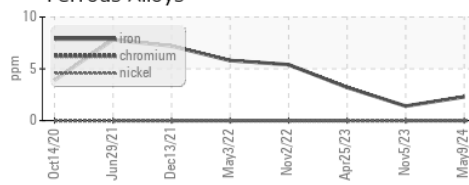
Color

Bottom

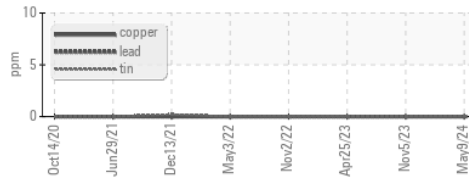


## GRAPHS

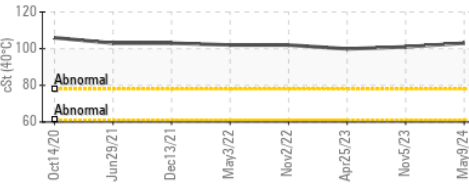
### Ferrous Alloys



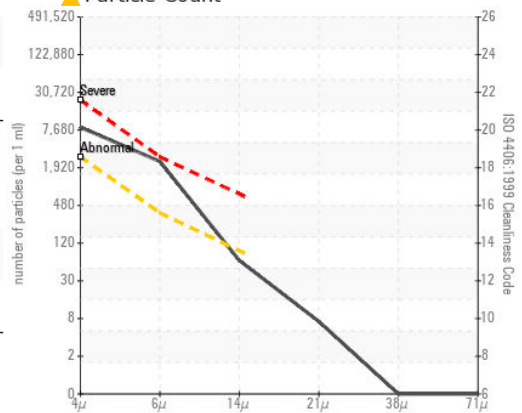
### Non-ferrous Metals



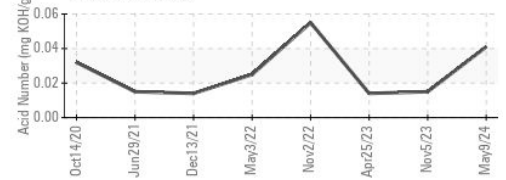
### Viscosity @ 40°C



### ▲ Particle Count



### Acid Number



Certificate L2367

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

**Sample No.** : TO90002166

**Lab Number** : 06182937

**Unique Number** : 11034263

**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** : 20 May 2024

**Diagnosed** : 21 May 2024 - Don Baldrige

**ENERGY TRANSFER - MARCUS HOOK**

2ND & GREEN STREETS

MARCUS HOOK, PA

US 19061

Contact: CHRISTOPHER HOFFA

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T:

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