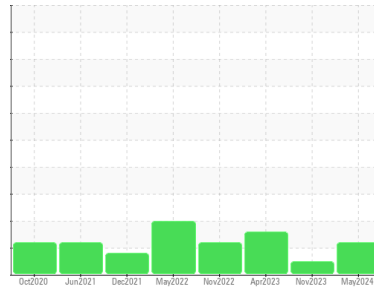


OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
Marcus Hook/Cryogenic/Compressor
 Machine Id
CRYOGENIC COMPRESSOR 40-C-301D
 Component
Rotary Compressor
 Fluid
FRICK COMPRESSOR OIL #12B (385 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. 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	TO60001794	TO60001828	TO90003046
Sample Date	Client Info	09 May 2024	05 Nov 2023	25 Apr 2023
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	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	
Iron	ppm	ASTM D5185m >70	9	6	3
Chromium	ppm	ASTM D5185m >10	0	0	0
Nickel	ppm	ASTM D5185m	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	<1	0	0
Aluminum	ppm	ASTM D5185m >3	0	0	0
Lead	ppm	ASTM D5185m >4	<1	0	0
Copper	ppm	ASTM D5185m >20	<1	0	0
Tin	ppm	ASTM D5185m >3	1	1	<1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	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	0	0
Manganese	ppm	ASTM D5185m	0	0	0
Magnesium	ppm	ASTM D5185m	0	<1	<1
Calcium	ppm	ASTM D5185m	176	161	151
Phosphorus	ppm	ASTM D5185m	0	14	100
Zinc	ppm	ASTM D5185m	0	0	7
Sulfur	ppm	ASTM D5185m	321	349	391

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >45	4	4	4
Sodium	ppm	ASTM D5185m	1	<1	<1
Potassium	ppm	ASTM D5185m >20	<1	0	<1
Water	%	ASTM D6304 >0.6	0.020	0.177	0.015
ppm Water	ppm	ASTM D6304	209	1777.0	159.1

FLUID CLEANLINESS

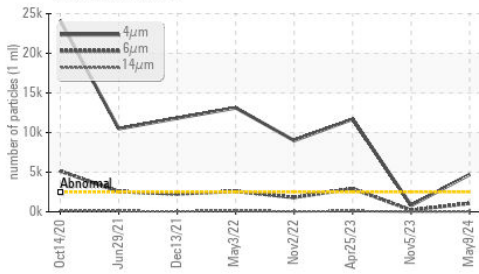
method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >2500	4705	794	▲ 11697
Particles >6µm	ASTM D7647 >320	1065	203	▲ 2927
Particles >14µm	ASTM D7647 >80	31	15	▲ 89
Particles >21µm	ASTM D7647 >20	2	5	8
Particles >38µm	ASTM D7647 >4	1	0	1
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >18/15/13	▲ 19/17/12	17/15/11	▲ 21/19/14

FLUID DEGRADATION

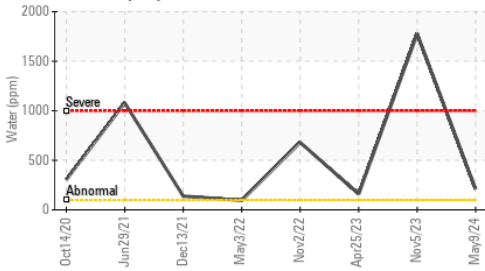
method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D8045	0.089	0.084	0.03

OIL ANALYSIS REPORT

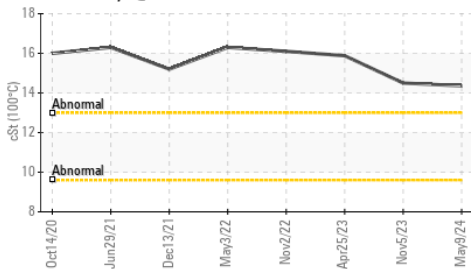
▲ Particle Trend



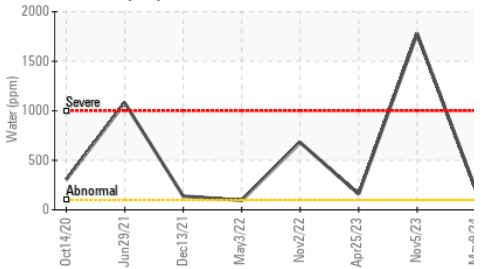
Water (KF)



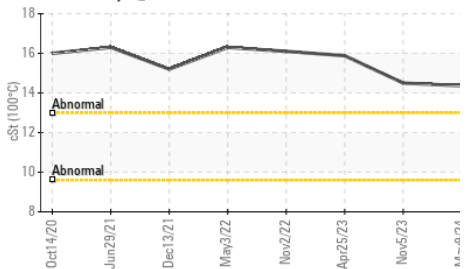
Viscosity @ 100°C



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	99.24	103	102
Visc @ 100°C	cSt	ASTM D445	14.36	14.5	15.88
Viscosity Index (VI)	Scale	ASTM D2270	148	145	166

SAMPLE IMAGES	method	limit/base	current	history1	history2
---------------	--------	------------	---------	----------	----------

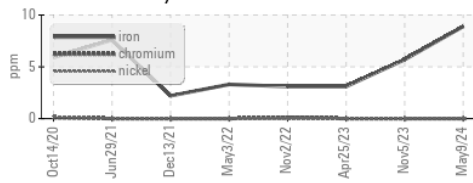
Color



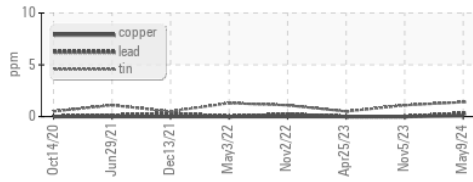
Bottom

GRAPHS

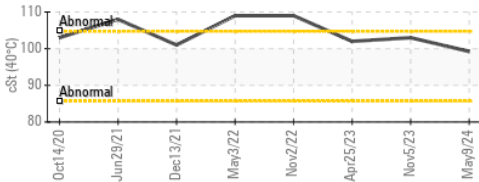
Ferrous Alloys



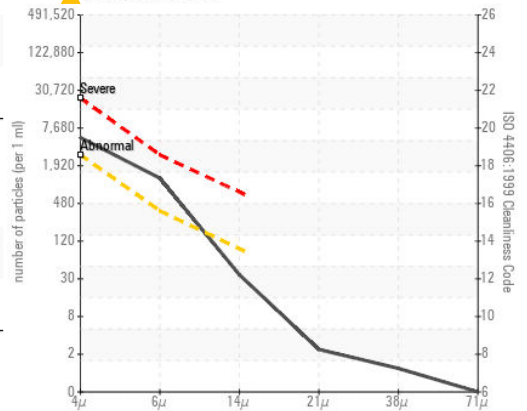
Non-ferrous Metals



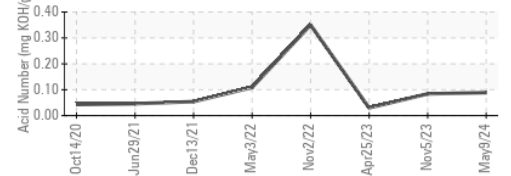
Viscosity @ 40°C



▲ Particle Count



Acid Number



Certificate L2367

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

Sample No. : TO60001794

Lab Number : 06182915

Unique Number : 11034241

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

Received : 17 May 2024

Tested : 30 May 2024

Diagnosed : 30 May 2024 - Jonathan Hester

ENERGY TRANSFER - MARCUS HOOK

2ND & GREEN STREETS

MARCUS HOOK, PA

US 19061

Contact: CHRISTOPHER HOFFA

christopher.hoffa@energytransfer.com

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)

T:

F: