OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Area
IRON MOUNTAIN EQUIPMENT RENTALS [02565426]
Machine Id
JOHN DEERE 17G MX69 (S/N 1FF017GXJNK232942)
Component
Hydraulic System
Fluid
PANOLIN HLP SYNTH 46 (26 LTR)

DIAGNOSIS

Recommendation

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. There is a light concentration (<5.0%) of mineral oil present in the fluid. The water content is negligible. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC**	---	---
Sample Date		Client Info		**19 Jun 2023**	---	---
Machine Age	hrs	Client Info		**228**	---	---
Oil Age	hrs	Client Info		**0**	---	---
Oil Changed		Client Info		**Changed**	---	---
Sample Status				**ABNORMAL**	---	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>32	**<1**	---	---
Chromium	ppm	ASTM D5185(m)	>9	**0**	---	---
Nickel	ppm	ASTM D5185(m)	>5	**<1**	---	---
Titanium	ppm	ASTM D5185(m)		**0**	---	---
Silver	ppm	ASTM D5185(m)		**0**	---	---
Aluminum	ppm	ASTM D5185(m)	>9	**<1**	---	---
Lead	ppm	ASTM D5185(m)	>28	**0**	---	---
Copper	ppm	ASTM D5185(m)	>50	**<1**	---	---
Tin	ppm	ASTM D5185(m)	>5	**0**	---	---
Antimony	ppm	ASTM D5185(m)		**0**	---	---
Vanadium	ppm	ASTM D5185(m)		**0**	---	---
Beryllium	ppm	ASTM D5185(m)		**0**	---	---
Cadmium	ppm	ASTM D5185(m)		**0**	---	---

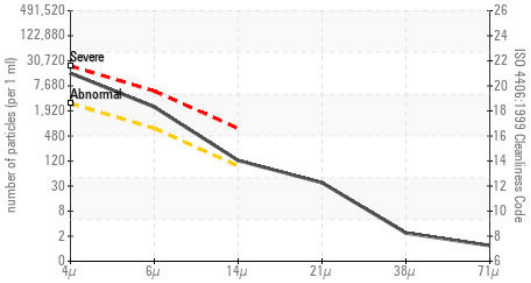
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**<1**	---	---
Barium	ppm	ASTM D5185(m)	0	**0**	---	---
Molybdenum	ppm	ASTM D5185(m)	0	**0**	---	---
Manganese	ppm	ASTM D5185(m)	0	**0**	---	---
Magnesium	ppm	ASTM D5185(m)	0	**<1**	---	---
Calcium	ppm	ASTM D5185(m)	0	**<1**	---	---
Phosphorus	ppm	ASTM D5185(m)	1700	**1619**	---	---
Zinc	ppm	ASTM D5185(m)	0	**4**	---	---
Sulfur	ppm	ASTM D5185(m)	1350	**1350**	---	---
Lithium	ppm	ASTM D5185(m)		**<1**	---	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>11	**1**	---	---
Sodium	ppm	ASTM D5185(m)	>21	**<1**	---	---
Potassium	ppm	ASTM D5185(m)	>20	**0**	---	---
Water	%	ASTM D6304*	>0.05	**0.023**	---	---
ppm Water	ppm	ASTM D6304*	>500	**232.7**	---	---

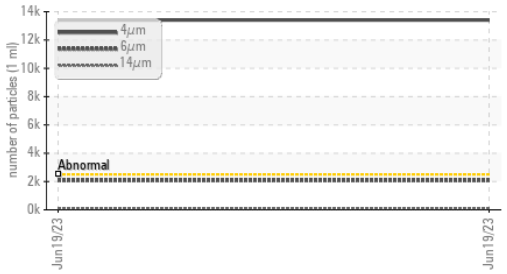
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	---	---
Nitration	Abs/cm	ASTM D7624*		**4.0**	---	---
Sulfation	Abs/.1mm	ASTM D7415*		**156.3**	---	---
Mineral Oil Content	%	ASTM D7418*	<5.0%	**<5.0**	---	---

OIL ANALYSIS REPORT

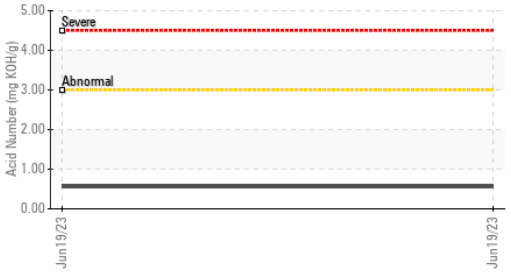
Particle Count



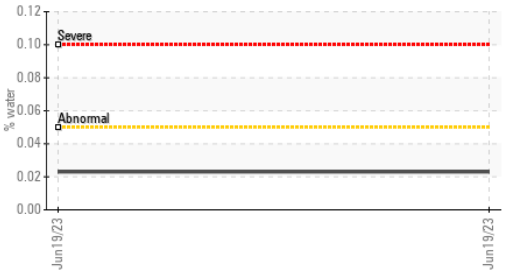
Particle Trend



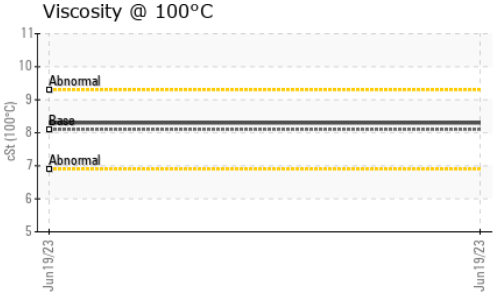
Acid Number



Water



Viscosity @ 100°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	▲ **13407**	---	---
Particles >6µm		ASTM D7647	>640	▲ **2080**	---	---
Particles >14µm		ASTM D7647	>80	▲ **109**	---	---
Particles >21µm		ASTM D7647	>20	▲ **32**	---	---
Particles >38µm		ASTM D7647	>4	**2**	---	---
Particles >71µm		ASTM D7647	>3	**1**	---	---
Oil Cleanliness		ISO 4406 (c)	>18/16/13	▲ **21/18/14**	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		**146.9**	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.56**	---	---

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	---	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	---	---
Precipitate	scalar	Visual*	NONE	**NONE**	---	---
Silt	scalar	Visual*	NONE	**NONE**	---	---
Debris	scalar	Visual*	NONE	**NONE**	---	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	---
Appearance	scalar	Visual*	NORML	**NORML**	---	---
Odor	scalar	Visual*	NORML	**NORML**	---	---
Emulsified Water	scalar	Visual*	>0.05	**NEG**	---	---
Free Water	scalar	Visual*		**NEG**	---	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	47.0	**46.0**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	8.1	**8.3**	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	146	**157**	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color				*no image*	*no image*
Bottom				*no image*	*no image*

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC **Received** : 20 Jun 2023
Lab Number : 02565427 **Diagnosed** : 23 Jun 2023
Unique Number : 5594468 **Diagnostician** : Bill Quesnel
Test Package : MOB 2 (Additional Tests: TAN Man)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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MINERAL OIL CONTENT REPORT

PASS

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Hydraulic System
Fluid
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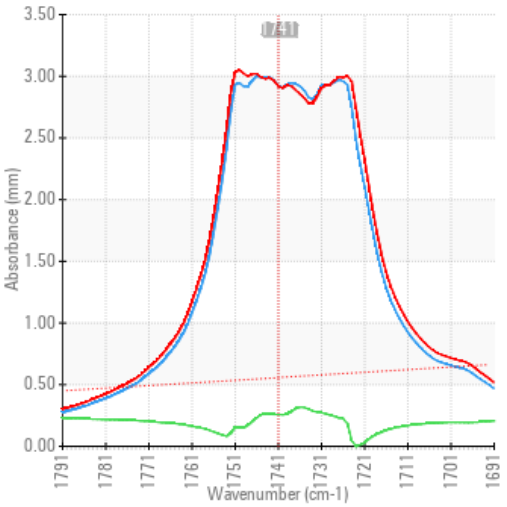
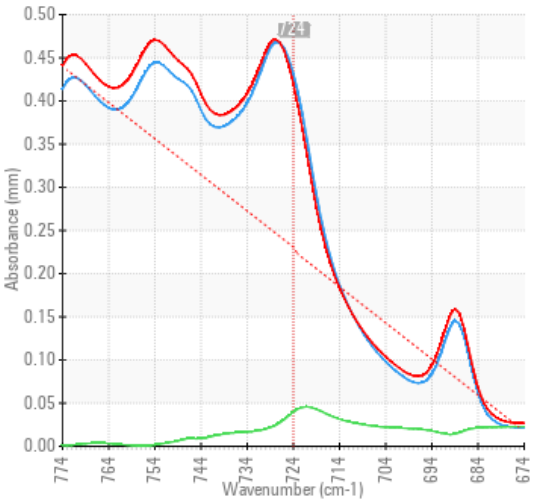
SPECTRAL ANALYSIS

		method	limit/base	current	history1	history2
Zinc	ppm	ASTM D5185(m)	0	**4**	---	---
Mineral Oil Content	%	ASTM D7418*	<5.0%	**<5.0**	---	---

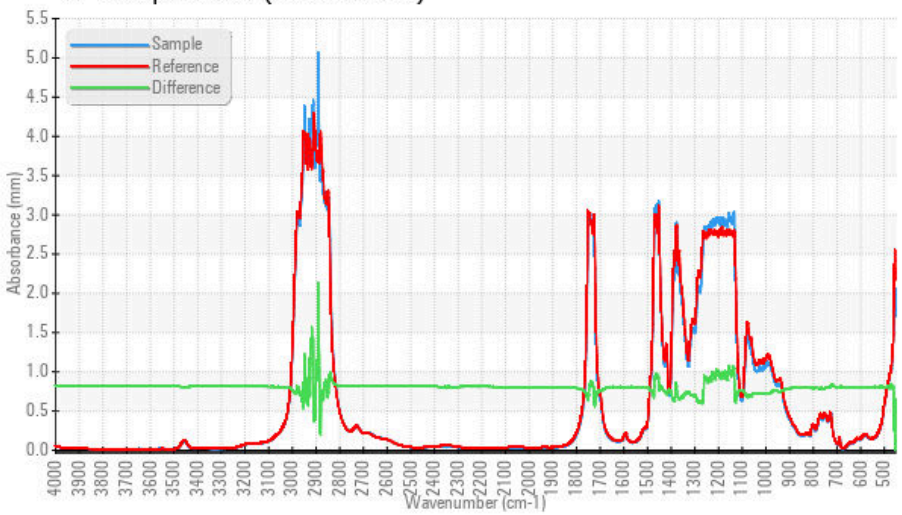
FT-IR - Esters 1



FT-IR - Esters Ii



FT-IR Spectrum (Absorbance)



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