



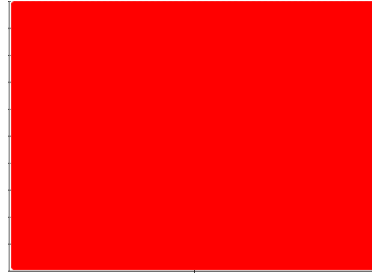
OIL ANALYSIS REPORT

Sample Rating Trend

ISO



Area
MICHEL MILLER INC [02621276]
 Machine Id
CATERPILLAR 349-07 860 (S/N RYG21005)
 Component
Hydraulic System
 Fluid
PANOLIN HLP SYNTH 46 (217 LTR)



DIAGNOSIS

▲ Recommendation

Nous vous recommandons de vérifier tous les endroits par lesquels des contaminants peuvent pénétrer dans le système. Nous vous recommandons de remplacer le filtre et d'utiliser un système de filtrage hors-ligne afin d'améliorer la propreté du fluide. Le reniflard d'air doit être réparé. S'il n'est pas classé, nous vous recommandons de le remplacer par un reniflard à air adapté au micron et / ou au dessiccant. Si évalué, nous vous recommandons de réparer / remplacer le reniflard. Échantillonner de nouveau dans 30 à 45 jours afin de contrôler la situation.

Wear

Les taux d'usure de tous les composants sont normaux.

▲ Contamination

Il y a une quantité élevée de matières particulaires (2 à 100 µm de taille) présente dans l'huile. Il y a une concentration modérée (8.1%) d'huile minérale présente dans le fluide. La teneur en eau est négligeable. Le code de propreté du système est beaucoup plus haut que la limite acceptable pour votre objectif de propreté ISO 4406.

● Fluid Condition

Le AN est acceptable pour ce fluide. l'huile peut encore servir si la contamination peut être réduite à un niveau acceptable.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC	---	---
Sample Date	Client Info		06 Mar 2024	---	---
Machine Age	hrs Client Info		1115	---	---
Oil Age	hrs Client Info		0	---	---
Oil Changed	Client Info		N/A	---	---
Sample Status			SEVERE	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm ASTM D5185(m)	>20	2	---	---
Chromium	ppm ASTM D5185(m)	>10	0	---	---
Nickel	ppm ASTM D5185(m)	>10	<1	---	---
Titanium	ppm ASTM D5185(m)		0	---	---
Silver	ppm ASTM D5185(m)		0	---	---
Aluminum	ppm ASTM D5185(m)	>10	<1	---	---
Lead	ppm ASTM D5185(m)	>10	0	---	---
Copper	ppm ASTM D5185(m)	>75	1	---	---
Tin	ppm ASTM D5185(m)	>10	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	38	---	---
Phosphorus	ppm ASTM D5185(m)	1700	1463	---	---
Zinc	ppm ASTM D5185(m)	0	153	---	---
Sulfur	ppm ASTM D5185(m)	1350	1487	---	---
Lithium	ppm ASTM D5185(m)		<1	---	---

CONTAMINANTS

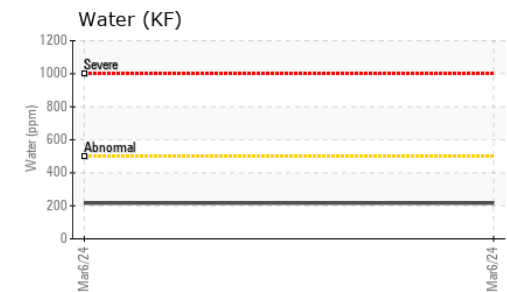
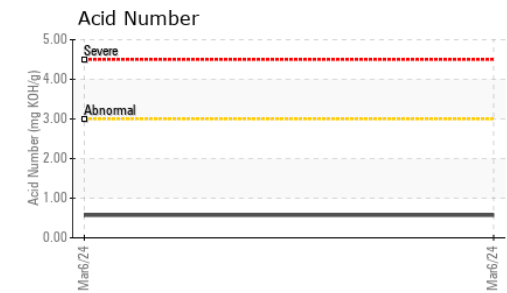
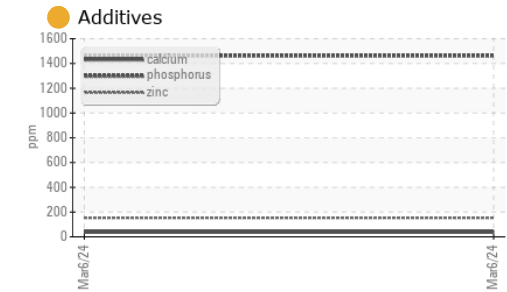
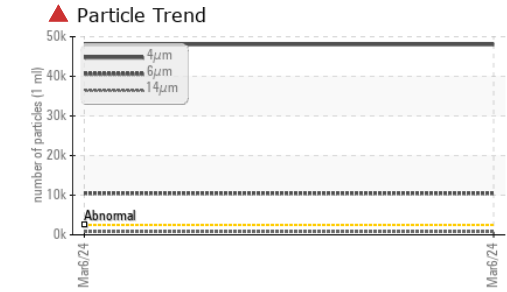
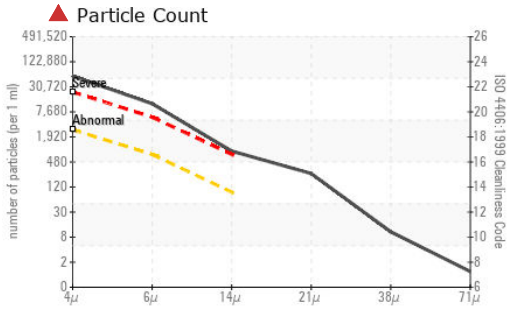
	method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m)	>20	<1	---	---
Sodium	ppm ASTM D5185(m)		1	---	---
Potassium	ppm ASTM D5185(m)	>20	<1	---	---
Water	% ASTM D6304*	>0.05	0.021	---	---
ppm Water	ppm ASTM D6304*	>500	216	---	---

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	% ASTM D7844*		0	---	---
Nitration	Abs/cm ASTM D7624*		3.5	---	---
Sulfation	Abs/.1mm ASTM D7415*		153.0	---	---
Mineral Oil Content	% ASTM D7418*	<5.0%	8.1	---	---



OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC
Lab Number : 02621277
Unique Number : 5746396
Test Package : MOB 2 (Additional Tests: TAN Man)

Received : 11 Mar 2024
Tested : 12 Mar 2024
Diagnosed : 12 Mar 2024 - Bill Quesnel

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.

Envirolin Canada
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 Quebec, QC
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 Contact: Patrick Levesque
 patrick.levesque@envirolin.com
 T: (418)623-1216
 F: (418)660-8889

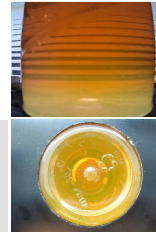
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	▲ 48030	---	---
Particles >6µm	ASTM D7647	>640	▲ 10482	---	---
Particles >14µm	ASTM D7647	>80	▲ 769	---	---
Particles >21µm	ASTM D7647	>20	▲ 223	---	---
Particles >38µm	ASTM D7647	>4	● 9	---	---
Particles >71µm	ASTM D7647	>3	1	---	---
Oil Cleanliness	ISO 4406 (c)	>18/16/13	▲ 23/21/17	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	142.0	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	---	---

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	44.4	---
Visc @ 100°C	cSt	ASTM D7279(m)	8.1	8.0	---
Viscosity Index (VI)	Scale	ASTM D2270*	146	153	---

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





MINERAL OIL CONTENT REPORT

FAIL



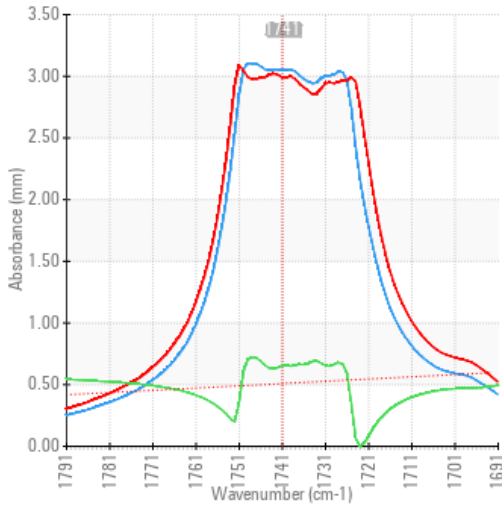
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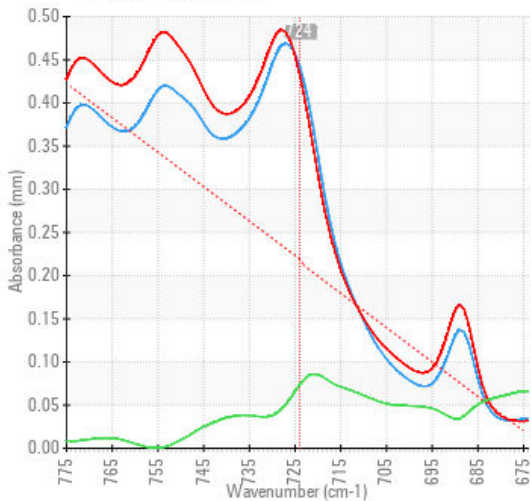
SPECTRAL ANALYSIS

		method	limit/base	current	history1	history2
Zinc	ppm	ASTM D5185(m)	0	● 153	---	---
Mineral Oil Content	%	ASTM D7418*	<5.0%	▲ 8.1	---	---

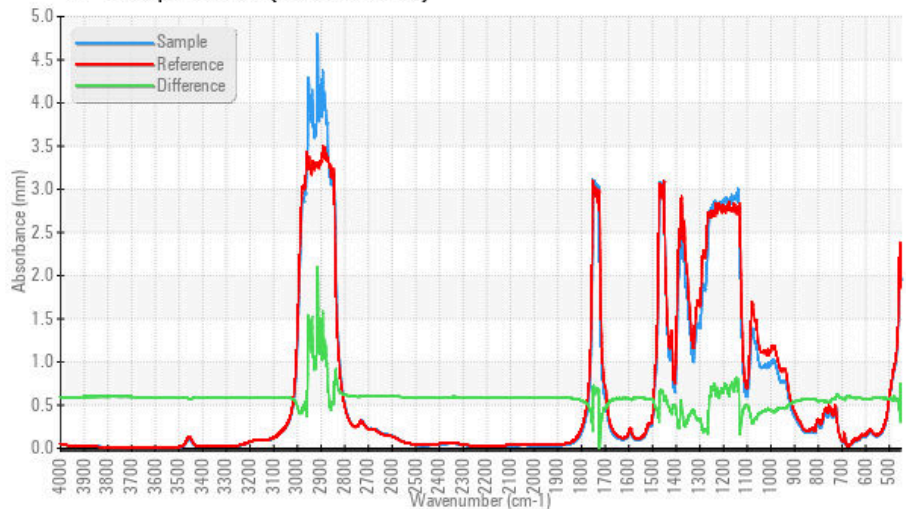
FT-IR - Esters I



FT-IR - Esters II



FT-IR Spectrum (Absorbance)



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