



OIL ANALYSIS REPORT

Sample Rating Trend

WATER



Area
BC FERRIES [02540865]
 Machine Id
BOSCH REXROTH E9092022AA
 Component
Hydraulic System
 Fluid
PANOLIN HLP SYNTH 46 (1000 LTR)



DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. The acid number (AN) indicates that your fluid is approaching the end of its useful life, please reduce sampling intervals to 250 hours.

Wear

All component wear rates are normal.

Contamination

There is a light concentration (<5.0%) of mineral oil present in the fluid. There is a moderate concentration of water present in the oil. The system cleanliness is acceptable for your target ISO 4406 cleanliness code.

Fluid Condition

The AN level is above the recommended limit. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	WC	---	---
Sample Date	Client Info	20 Feb 2023	---	---
Machine Age	hrs Client Info	0	---	---
Oil Age	hrs Client Info	0	---	---
Oil Changed	Client Info	N/A	---	---
Sample Status		ABNORMAL	---	---

WEAR METALS

method	limit/base	current	history1	history2
Iron ppm ASTM D5185(m)	>20	5	---	---
Chromium ppm ASTM D5185(m)	>10	0	---	---
Nickel ppm ASTM D5185(m)	>10	0	---	---
Titanium ppm ASTM D5185(m)		<1	---	---
Silver ppm ASTM D5185(m)		0	---	---
Aluminum ppm ASTM D5185(m)	>10	<1	---	---
Lead ppm ASTM D5185(m)	>10	1	---	---
Copper ppm ASTM D5185(m)	>75	2	---	---
Tin ppm ASTM D5185(m)	>10	<1	---	---
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	<1	---	---
Magnesium ppm ASTM D5185(m)	0	0	---	---
Calcium ppm ASTM D5185(m)	0	0	---	---
Phosphorus ppm ASTM D5185(m)	1700	1652	---	---
Zinc ppm ASTM D5185(m)	0	17	---	---
Sulfur ppm ASTM D5185(m)	1350	1387	---	---
Lithium ppm ASTM D5185(m)		<1	---	---

CONTAMINANTS

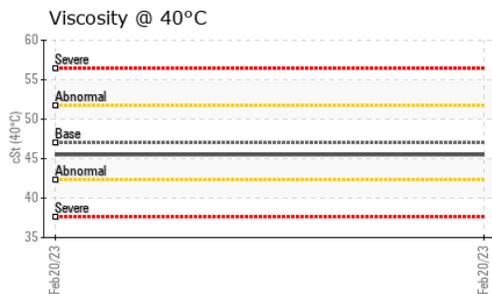
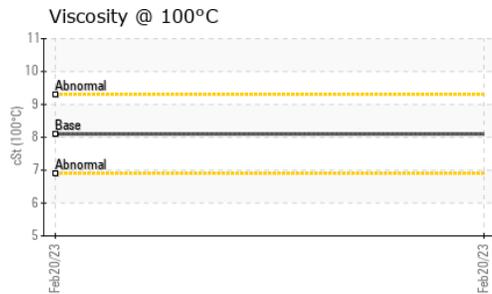
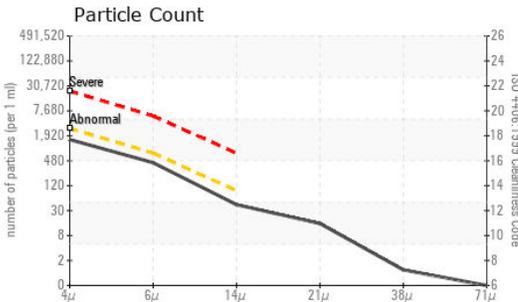
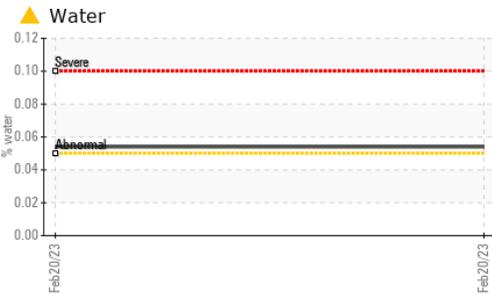
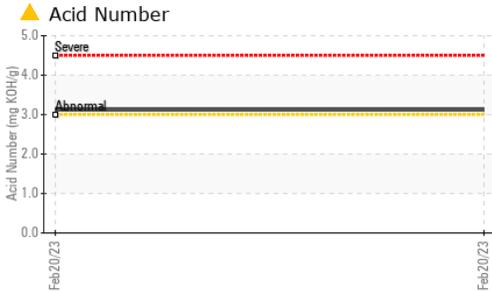
method	limit/base	current	history1	history2
Silicon ppm ASTM D5185(m)	>20	4	---	---
Sodium ppm ASTM D5185(m)		3	---	---
Potassium ppm ASTM D5185(m)	>20	<1	---	---
Water % ASTM D6304*	>0.05	▲ 0.054	---	---
ppm Water ppm ASTM D6304*	>500	▲ 548.1	---	---

INFRA-RED

method	limit/base	current	history1	history2
Soot % ASTM D7844*		0	---	---
Nitration Abs/cm ASTM D7624*		4.8	---	---
Sulfation Abs/.1mm ASTM D7415*		140.4	---	---
Mineral Oil Content % ASTM D7418*	<5.0%	<5.0	---	---



OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC
Lab Number : 02540863
Unique Number : 5537868
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.

Received : 21 Feb 2023
Diagnosed : 28 Feb 2023
Diagnostician : Bill Quesnel

Envirolin Canada
 520 rue Adanac
 Quebec, QC
 CA G1C 7B7
 Contact: Patrick Levesque
 patrick.levesque@envirolin.com
 T:
 F: (418)660-8889

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	1362	---	---
Particles >6µm	ASTM D7647	>640	379	---	---
Particles >14µm	ASTM D7647	>80	37	---	---
Particles >21µm	ASTM D7647	>20	13	---	---
Particles >38µm	ASTM D7647	>4	1	---	---
Particles >71µm	ASTM D7647	>3	0	---	---
Oil Cleanliness	ISO 4406 (c)	>18/16/13	18/16/12	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm ASTM D7414*		156.9	---	---
Acid Number (AN)	mg KOH/g ASTM D974*		3.12	---	---

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	45.5	---	---
Visc @ 100°C	cSt ASTM D7279(m)	8.1	8.1	---	---
Viscosity Index (VI)	Scale ASTM D2270*	146	152	---	---

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



MINERAL OIL CONTENT REPORT

PASS

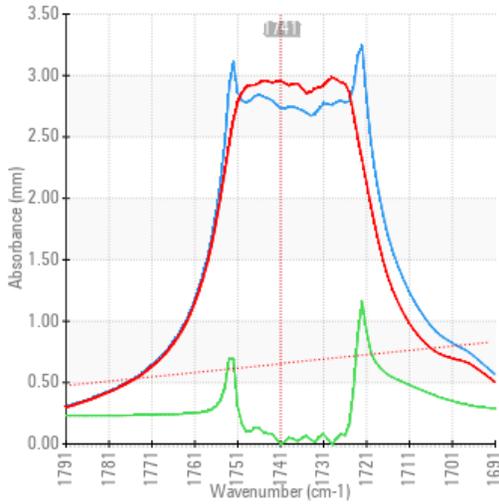


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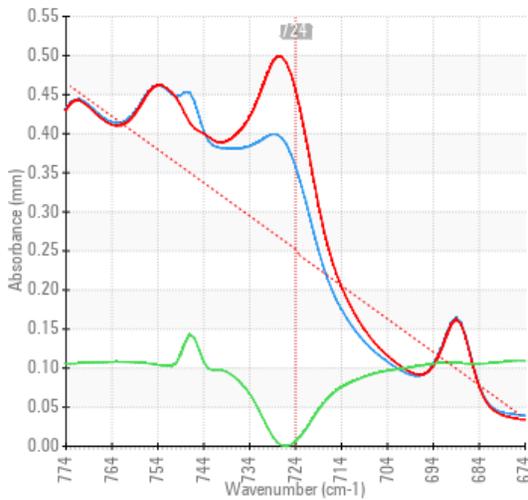
SPECTRAL ANALYSIS

		method	limit/base	current	history1	history2
Zinc	ppm	ASTM D5185(m)	0	17	---	---
Mineral Oil Content	%	ASTM D7418*	<5.0%	<5.0	---	---

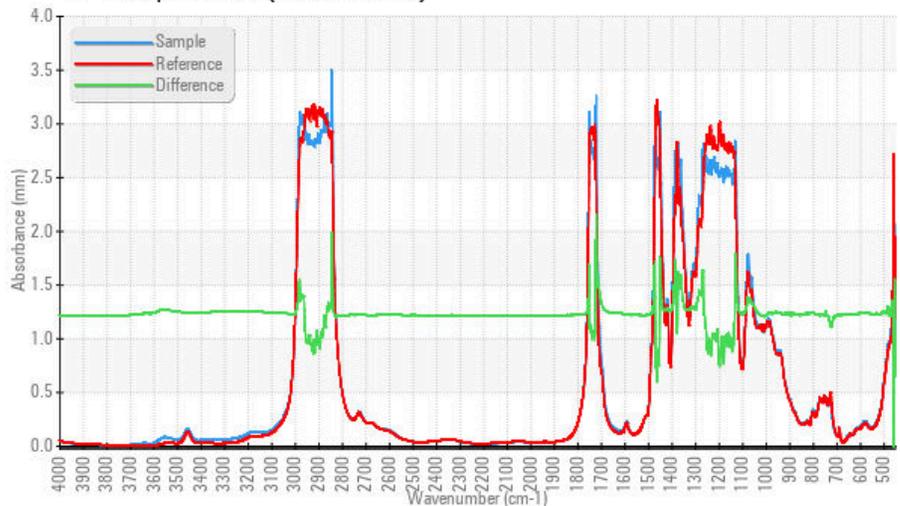
FT-IR - Esters I



FT-IR - Esters II



FT-IR Spectrum (Absorbance)



ISO 17025:2017
 Accredited
 Laboratory

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