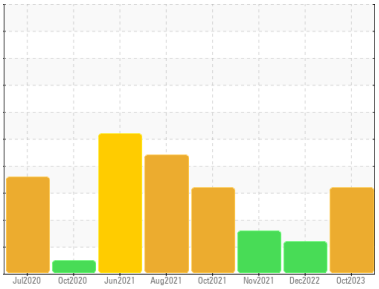
PROBLEM SUMMARY

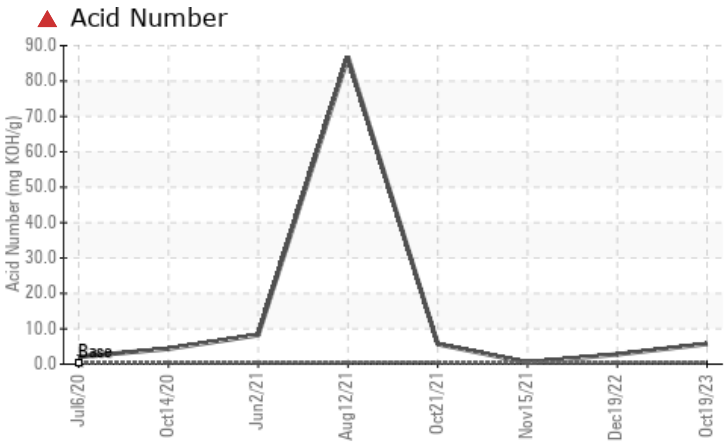
Sample Rating Trend



DEGRADATION

Area
CHAUDIERE GS5
Machine Id
GS5-G2-US-COMBINED (1)
Component
Thrust Bearing
Fluid
BIOBLEND BIOGEAR EPS 100 (80 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

				SEVERE	ABNORMAL	MARGINAL
Sample Status						
Acid Number (AN)	mg KOH/g	ASTM D974*	0.41	▲ **5.71**	▲ 2.77	0.46

Customer Id: ENE271OTT
Sample No.: WC0815815
Lab Number: 02591046
Test Package: IND 3

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.

HISTORICAL DIAGNOSIS

19 Dec 2022 Diag: Kevin Marson

DEGRADATION

We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. There is no indication of any contamination in the oil. The AN level is above the recommended limit. Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable.

view report

15 Nov 2021 Diag: Kevin Marson

WEAR PARTICLES

We recommend an early resample to monitor this condition. No other corrective action is recommended at this time.Wear particle analysis indicates that the ferrous cutting particles are marginal. All other component wear rates are normal. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embeding themselves in softer materials (sand, etc.), and gouging out mating surfaces. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid.

view report

21 Oct 2021 Diag: Kevin Marson

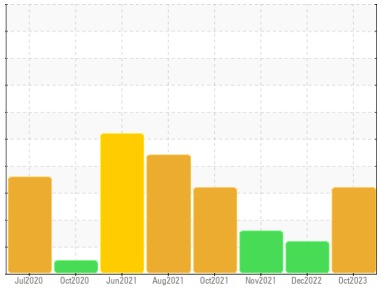
DEGRADATION

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. There is no indication of any contamination in the oil. The oil viscosity is higher than normal. The high AN level of the oil indicates the presence of oxi-polymerized products. The AN level is much higher than the recommended limit. The oil is no longer serviceable.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Area
CHAUDIERE GS5
Machine Id
GS5-G2-US-COMBINED (1)
Component
Thrust Bearing
Fluid
BIOBLEND BIOGEAR EPS 100 (80 LTR)

DIAGNOSIS

▲ Recommendation

We recommend that you drain the oil from the component if this has not already been done. Resample at the next service interval to monitor.

Wear

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

There is no indication of any contamination in the oil.

▲ Oil Condition

The high AN level of the oil indicates the presence of oxi-polymerized products. The AN level is much higher than the recommended limit. The oil is no longer serviceable.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0815815**	WC0736155	WC0642259
Sample Date		Client Info		**19 Oct 2023**	19 Dec 2022	15 Nov 2021
Machine Age		Client Info		**74**	64	53
Oil Age		Client Info		**0**	14	3
Oil Changed		Client Info		**N/A**	Not Changd	Changed
Sample Status				**SEVERE**	ABNORMAL	MARGINAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>2	**NEG**	NEG	NEG

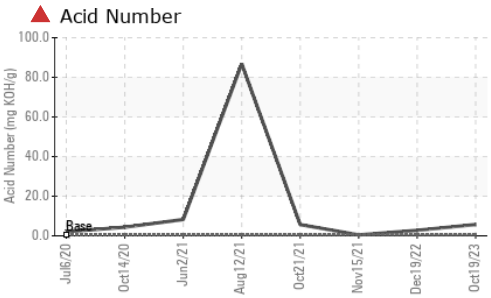
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>20	**17**	8	1
Chromium	ppm	ASTM D5185(m)	>20	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>20	**<1**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>20	**<1**	0	0
Lead	ppm	ASTM D5185(m)	>20	**<1**	0	0
Copper	ppm	ASTM D5185(m)	>20	**<1**	0	<1
Tin	ppm	ASTM D5185(m)	>20	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	<1	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

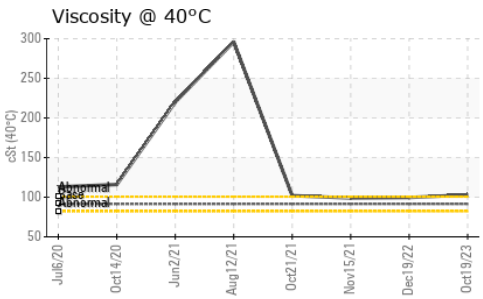
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	12	**10**	9	8
Barium	ppm	ASTM D5185(m)	0.0	**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	0.0	**0**	0	0
Manganese	ppm	ASTM D5185(m)	0.0	**0**	<1	0
Magnesium	ppm	ASTM D5185(m)	0.1	**0**	<1	0
Calcium	ppm	ASTM D5185(m)	0.7	**<1**	0	<1
Phosphorus	ppm	ASTM D5185(m)	107	**98**	113	100
Zinc	ppm	ASTM D5185(m)	0.6	**28**	16	3
Sulfur	ppm	ASTM D5185(m)	4034	**5938**	6160	6404
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

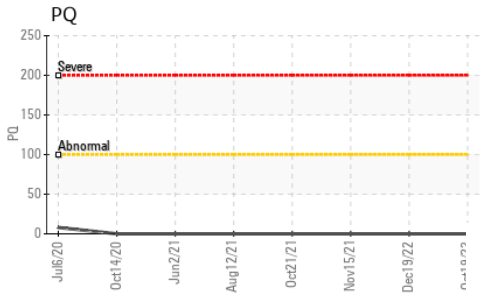
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**2**	1	<1
Sodium	ppm	ASTM D5185(m)		**1**	1	<1
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.41	▲ **5.71**	▲ 2.77	0.46

OIL ANALYSIS REPORT





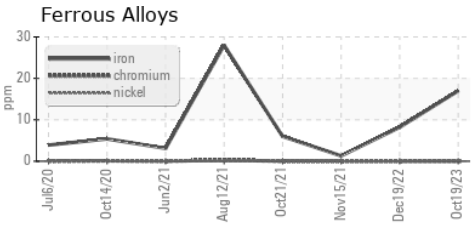


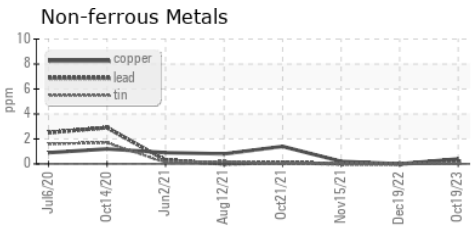
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

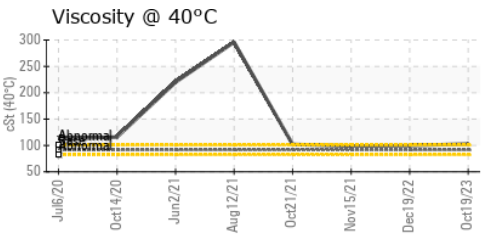
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	91.5	**103**	99.6	98.9

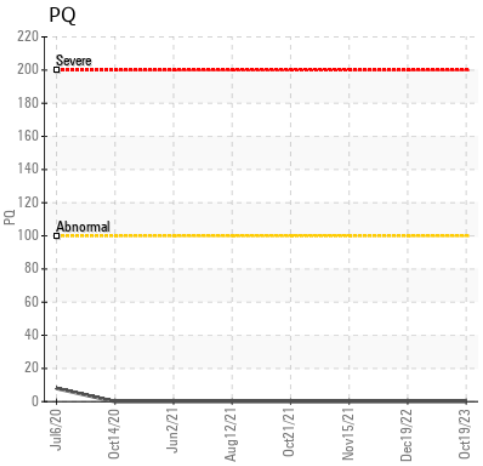
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

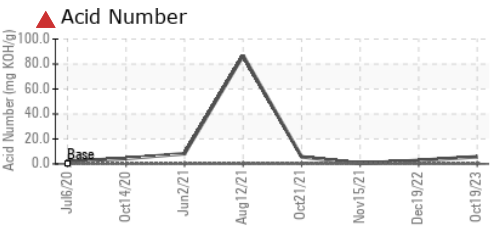
GRAPHS











ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0815815 **Received** : 23 Oct 2023
Lab Number : 02591046 **Tested** : 26 Oct 2023
Unique Number : 5668125 **Diagnosed** : 30 Oct 2023 - Kevin Marson
Test Package : IND 3 (Additional Tests: TAN Man)

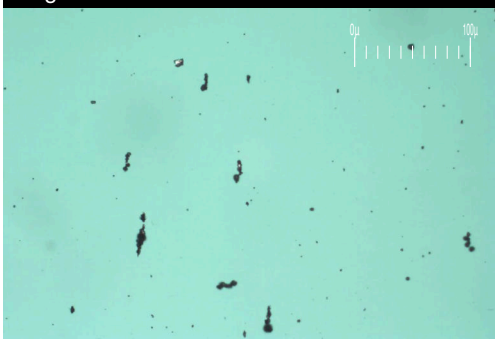
To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

Portage Power - Energy Ottawa
4 Booth Street
Ottawa, ON
CA K1R 6K8
Contact: Cheryl Gharib
info@portagepower.com
T:
F: x:

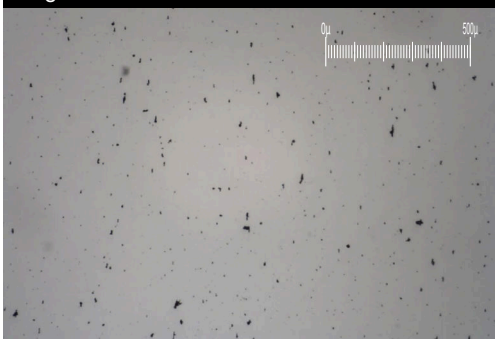
FERROGRAPHY REPORT

Area
CHAUDIERE GS5
Machine Id
GS5-G2-US-COMBINED (1)
Component
Thrust Bearing
Fluid
BIOBLEND BIOGEAR EPS 100 (80 LTR)

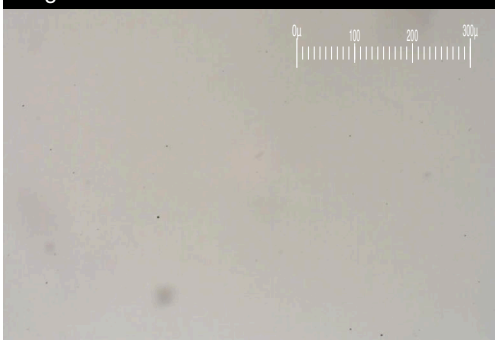
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

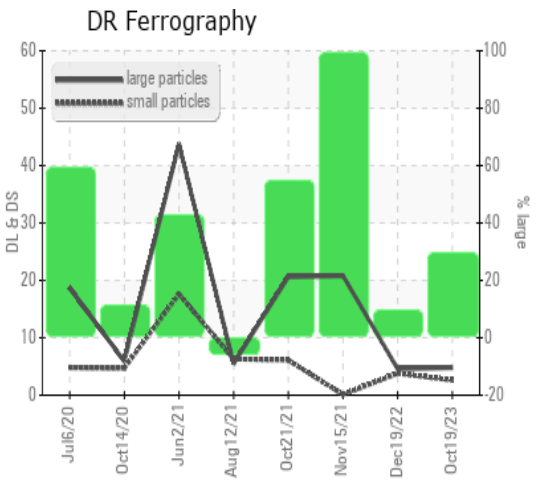


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**4.8**	4.6	20.8
Small Particles		DR-Ferr*		**2.6**	3.8	0.1
Total Particles		DR-Ferr*	>---	**7.4**	8.4	20.9
Large Particles Percentage	%	DR-Ferr*		**29.7**	9.5	99
Severity Index		DR-Ferr*		**11**	4	431

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		**2**	3	3
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				1
Ferrous Rolling	Scale 0-10	ASTM D7684*		**1**	1	1
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				1
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		**1**		1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		**1**	1	1

WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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