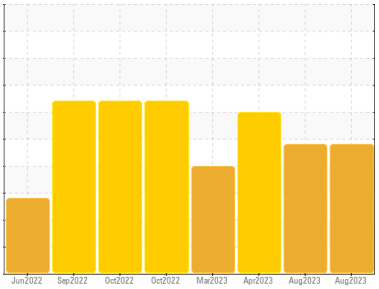
OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL

Area
BRUCE B/0B/54300
Machine Id
0B-54300-EPG2-E2
Component
Diesel Engine
Fluid
SHELL ROTELLA T4 15W40 (7 GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend an early resample to monitor this condition. Please note that this is a corrected copy for diagnostic comment updates.

Wear

All component wear rates are normal.

Contamination

Test for glycol is positive. There is a moderate amount of fuel present in the oil. There is a light concentration of glycol present in the oil. The water content is negligible. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0642785**	WC0642786	WC0642775
Sample Date		Client Info		**11 Aug 2023**	11 Aug 2023	26 Apr 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	**3**	3	2
Chromium	ppm	ASTM D5185(m)	>20	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>4	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)	>3	**<1**	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)	>40	**<1**	<1	<1
Copper	ppm	ASTM D5185(m)	>330	**1**	1	<1
Tin	ppm	ASTM D5185(m)	>15	**0**	<1	0
Antimony	ppm	ASTM D5185(m)		**0**	0	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)		**194**	193	168
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**<1**	<1	<1
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**11**	13	11
Calcium	ppm	ASTM D5185(m)		**2012**	2024	2027
Phosphorus	ppm	ASTM D5185(m)		**985**	982	941
Zinc	ppm	ASTM D5185(m)		**1038**	1033	1000
Sulfur	ppm	ASTM D5185(m)		**2871**	2851	2751
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**15**	16	▲ 25
Sodium	ppm	ASTM D5185(m)		**2**	2	2
Potassium	ppm	ASTM D5185(m)	>20	▲ **6**	▲ 6	▲ 6
Fuel	%	ASTM D7593*	>5	▲ **5.5**	▲ 5.6	▲ 4
Water	%	ASTM D6304*	>0.2	**0.044**	0.044	---
ppm Water	ppm	ASTM D6304*	>2000	**444.3**	440.0	---
Glycol	%	ASTM D7922*		▲ **0.02**	▲ 0.019	▲ 0.01

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0**	0	0
Nitration	Abs/cm	ASTM D7624*	>20	**5.0**	5.0	4.7
Sulfation	Abs/.1mm	ASTM D7415*	>30	**21.1**	21.1	20.1

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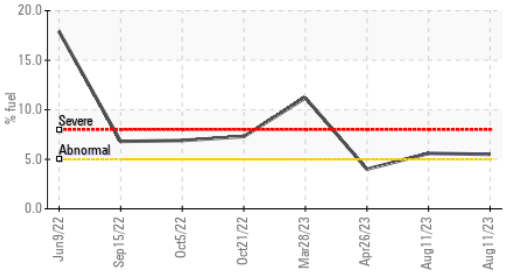
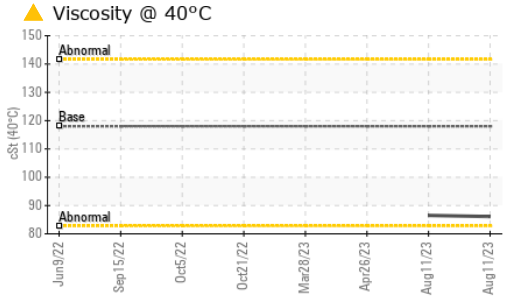
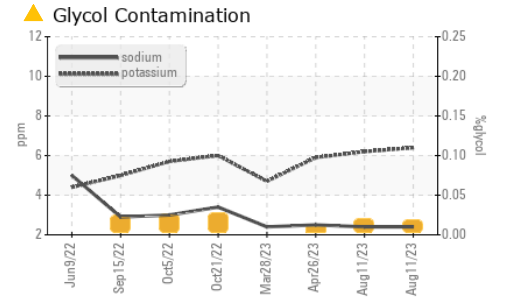
Fuel Dilution



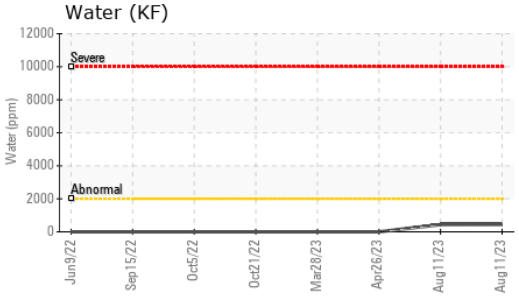
Viscosity @ 40°C



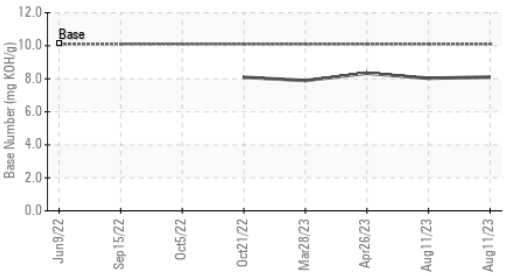
Glycol Contamination



Water (KF)



Base Number



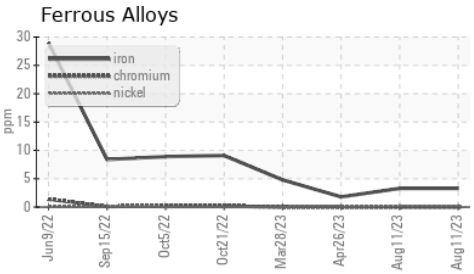
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**15.5**	15.5	15.6
Acid Number (AN)	mg KOH/g	ASTM D974*		**1.59**	2.13	---
Base Number (BN)	mg KOH/g	ASTM D2896*	10.1	**8.10**	8.03	8.33

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	**VLITE**	VLITE	---
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	NORML
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

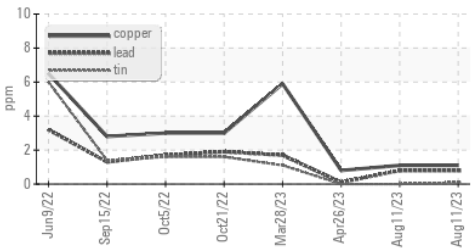
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	118	▲ **86.1**	▲ 86.5	---
Visc @ 100°C	cSt	ASTM D7279(m)	15	**12.6**	12.6	13.5
Viscosity Index (VI)	Scale	ASTM D2270*	133	**143**	142	---

GRAPHS

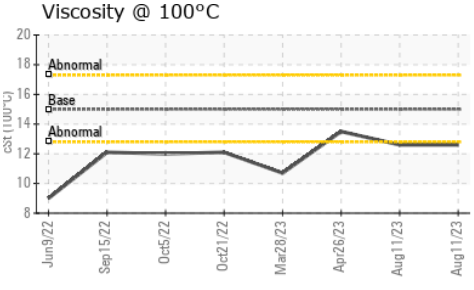
Ferrous Alloys



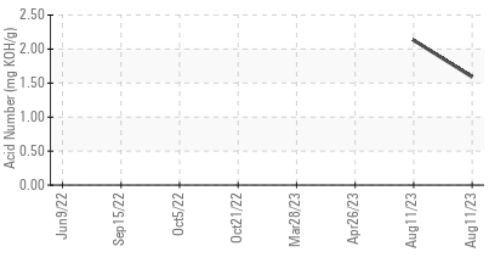
Non-ferrous Metals



Viscosity @ 100°C



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0642785 **Received** : 21 Aug 2023
Lab Number : 02577094 **Diagnosed** : 13 Oct 2023
Unique Number : 5630154 **Diagnostician** : Kevin Marson
Test Package : MOB 2 (Additional Tests: FUELDILUTION, Glycol, KF, KV40, PercentFuel, PrtCount, Tan Auto, VI, Visu

Bruce Power - Bruce A PdM
P.O.Box 1540, 177 Tie Road,, RM-222 U2 Column 2N11 615`
Tiverton, ON
CA N0G 2T0
Contact: Bradley Mangotich
bradley.mangotich@brucepower.com
T: (519)361-2673
F:

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.