

## **OIL ANALYSIS REPORT**



MOBIL MOBILGEAR 600 XP 320 (1200 LTR)

#### DIAGNOSIS

#### Recommendation

We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

#### 🛑 Wear

Lead ppm levels are noted. A sharp increase in the lead level is noted. All other component wear rates are normal.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

#### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



Sample Rating Trend

SAMPLE INFORM	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		wc	WC0925384	WC0902116
Sample Date		Client Info		07 Jul 2024	10 Apr 2024	20 Feb 2024
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				ATTENTION	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>200	18	13	17
Chromium	ppm	ASTM D5185(m)	>15	0	0	0
Nickel	ppm	ASTM D5185(m)	>15	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>25	<1	0	<1
Lead	ppm	ASTM D5185(m)	>100	<mark> </mark> 84	6	78
Copper	ppm	ASTM D5185(m)	>200	2	<1	1
Tin	ppm	ASTM D5185(m)	>25	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	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
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base 57	current 26	history1 19	history2 37
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	limit/base 57 0.0	current 26 <1	history1 19 <1	history2 37 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 57 0.0 2.0	current 26 <1 0	history1 19 <1 0	history2 37 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0	current 26 <1 0 0	history1 19 <1 0 0	history2 37 0 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 0.0	current 26 <1 0 0 <1	history1 19 <1 0 0 <1	history2 37 0 0 0 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 0.0 42	current 26 <1 0 0 <1 6	history1 19 <1 0 0 <1 7	history2 37 0 0 0 <1 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 0.0 42 399	current     26     <1     0     <1     6     258	history1 19 <1 0 0 <1 7 228	history2 37 0 0 0 <1 6 249
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 0.0 42 399 13	current     26     <1     0     <1     6     258     3	history1 19 <1 0 0 <1 7 228 6	history2 37 0 0 0 <1 6 249 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 0.0 42 399 13 13649	current     26     <1     0     <1     6     258     3     9886	history1   19   <1   0   <1   7   228   6   8822	history2 37 0 0 0 <1 6 249 2 2 9431
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 0.0 42 399 13 13649	current     26     <1     0     <1     6     258     3     9886     <1	history1   19   <1   0   <1   7   228   6   8822   <1	history2     37     0     0     0     249     2     9431     <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 limit/base	26   <1   0   <1   6   258   3   9886   <1   current	history1   19   <1   0   <1   7   228   6   8822   <1   History1	history2   37   0   0   0   249   2   9431   <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm 1 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13649 Limit/base >50	26   <1   0   <1   6   258   3   9886   <1   current	history1   19   <1   0   <1   7   228   6   8822   <1   history1	history2   37   0   0   0   249   2   9431   <1   history2   4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13649 Limit/base >50	26   <1   0   <1   6   258   3   9886   <1   current   4   1	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1	history2   37   0   0   0   -1   6   249   2   9431   <1   history2   4   1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 Limit/base >50	26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1	history2   37   0   0   0   0   249   249   249   9431   <1   history2   4   1   <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 2 ppm 4 ppm 4	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 S50 S50 S20	26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   <1	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   history1	history2   37   0   0   0   0   249   249   2   9431   <1   history2   4   1   <1   history2   4   1   <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 limit/base >50 ≤20 limit/base	current   26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   current   1   <1   current   106335	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <13   <14   40683	history2   37   0   0   0   0   249   249   249   9431   <1   history2   4   1   <1   history2   2   96371
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Potassium Particles >4µm Particles >6µm	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4	method     ASTM D5185(m)	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 Jimit/base >50 \$20	current   26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   current   1   <1   258   3   9886   <1   0   4   1   <1   current   10635   1238	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1 <th>history2   37   0   0   0   -1   6   249   2   9431   &lt;1   history2   4   1   &lt;1   bistory2   4   1   &lt;1   5465</th>	history2   37   0   0   0   -1   6   249   2   9431   <1   history2   4   1   <1   bistory2   4   1   <1   5465
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185(m)     ASTM D7647     ASTM D7647	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 <u>limit/base</u> >50 >20 <u>limit/base</u> >20 20 20	current   26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   current   1   <1   57	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <2)2	history2   37   0   0   0   0   249   2   9431   <1   history2   4   1   <1   history2   4   1   <1   5465   249
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4 ppm 5 ppm 4 ppm 4	method     ASTM D5185(m)     ASTM D7647     ASTM D7647     ASTM D7647     ASTM D7647	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 20 <b>limit/base</b> >50 20 <b>limit/base</b> >20 20 20 20 20 20 20 20 20 20 20 20 20 2	current   26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   current   1   <258   3   9886   <1   current   1   57   17	history1   19   <1   0   <1   7   228   6   8822   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1	history2   37   0   0   0   0   249   22   9431   <1   history2   4   1   <1   bistory2   4   1   <1   26871   5465   249   33
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >38µm	ppm 1 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4	method     ASTM D5185(m)     ASTM D7647     ASTM D7647     ASTM D7647     ASTM D7647	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 13 50 50 50 50 50 50 50 50 50 50 50 50 50	current   26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   current   1   <1   57   17   2	history1   19   <1   0   <1   7   228   6   8822   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1	history2   37   0   0   0   0   249   249   249   21   9431   <1   history2   4   1   <1   bistory2   26871   5465   249   33   1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm Particles >21µm Particles >38µm Particles >71µm	ppm 1 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4	method     ASTM D5185(m)     ASTM D7647     ASTM D7647     ASTM D7647     ASTM D7647     ASTM D7647	limit/base 57 0.0 2.0 0.0 42 399 13 13649 13 13649 2 bimit/base >50 20 bimit/base >20 bimit/base >320000 >160000 >160000 >10000 >2500	current   26   <1   0   <1   6   258   3   9886   <1   current   4   1   <1   0   258   3   9886   <1   0   1   57   17   2   1	history1   19   <1   0   <1   7   228   6   8822   <1   history1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1 <th>history2   37   0   0   0   0   0   0   0   0   0   1   4   1   &lt;1   history2   4   1   &lt;1   bistory2   26871   5465   249   33   1   0</th>	history2   37   0   0   0   0   0   0   0   0   0   1   4   1   <1   history2   4   1   <1   bistory2   26871   5465   249   33   1   0



Apr10/

491,520 122,88

€ 30,720

number of particles (per 1 1 920 480

7,680

120

30

1.00 8.08 (B/H0) ₽°0.6

a 10.40 Pio 0.2 0.00

Particle Count -

Acid Number

# **OIL ANALYSIS REPORT** Particle Trend

0/11/n

24

22 8

20 4406:1999 Cleanli 16 114

14

12

10 8

FLUID DEGRADATION						
Acid Number (AN)	mg KOH/g	ASTM D974*	0.68	0.83	0.61	0.87
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	NONE	VLITE	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*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	275	305	311	308
SAMPLE IMAGES		method	limit/base	current	history1	history2
			5			

Color

Bottom

GRAPHS





21





9

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 CALA Sample No. : WC Received : 08 Jul 2024 Lab Number : 02646479 Tested : 10 Jul 2024 ISO 17025:2017 Accredited Laboratory Diagnosed Unique Number : 5812031 : 10 Jul 2024 - Kevin Marson Test Package : IND 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.

### ST. MARYS CEMENT CO.

400 BOWMANVILLE AVENUE BOWMANVILLE, ON CA L1C 7B5 Contact: Lou Traiforos lou.traiforos@vcimentos.com T: (905)440-5874 F: (905)623-4695

Report Id: STMBOW [WCAMIS] 02646479 (Generated: 07/10/2024 12:02:11) Rev: 2

Sep11/23.

Jan 11/22

ISO 4406:1999 Cle 20

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12 8