



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>

Area  
**(IMO 889648) MILLER SHIPPING LTD**  
Machine Id  
**MV WESTERN TUGGER**  
Component  
**Front/Steering Travel Hydraulic System**  
Fluid  
**AW HYDRAULIC OIL ISO 68 (610 LTR)**

## RECOMMENDATION

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. ( Customer Sample Comment: Not sure if oil is AW32 or AW68 )

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>OF0001096</b>	---	---
Sample Date		Client Info		<b>06 Jun 2024</b>	---	---
Machine Age	hrs	Client Info		<b>21000</b>	---	---
Oil Age	hrs	Client Info		<b>21000</b>	---	---
Filter Age	hrs	Client Info		<b>100</b>	---	---
Oil Changed		Client Info		<b>Not Changd</b>	---	---
Filter Changed		Client Info		<b>Not Changd</b>	---	---
Sample Status				<b>ABNORMAL</b>	---	---

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>20	<b>2</b>	---	---
Chromium	ppm	ASTM D5185(m)	>10	<b>0</b>	---	---
Nickel	ppm	ASTM D5185(m)	>10	<b>0</b>	---	---
Titanium	ppm	ASTM D5185(m)		<b>0</b>	---	---
Silver	ppm	ASTM D5185(m)		<b>0</b>	---	---
Aluminum	ppm	ASTM D5185(m)	>10	<b>0</b>	---	---
Lead	ppm	ASTM D5185(m)	>10	<b>0</b>	---	---
Copper	ppm	ASTM D5185(m)	>75	<b>&lt;1</b>	---	---
Tin	ppm	ASTM D5185(m)	>10	<b>0</b>	---	---
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	---	---
White Metal	scalar	Visual*	NONE	<b>NONE</b>	---	---
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	---	---

## CONTAMINATION

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

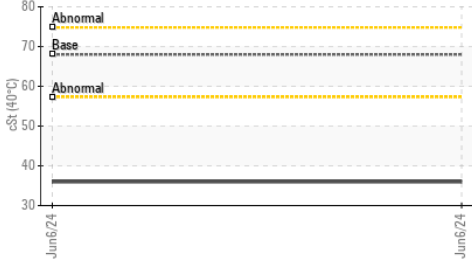
Silicon	ppm	ASTM D5185(m)	>20	<b>0</b>	---	---
Potassium	ppm	ASTM D5185(m)	>20	<b>0</b>	---	---
Water		WC Method	>0.1	<b>NEG</b>	---	---
Particles >4µm		ASTM D7647	>5000	<b>365</b>	---	---
Particles >6µm		ASTM D7647	>1300	<b>140</b>	---	---
Particles >14µm		ASTM D7647	>160	<b>36</b>	---	---
Particles >21µm		ASTM D7647	>40	<b>15</b>	---	---
Particles >38µm		ASTM D7647	>10	<b>2</b>	---	---
Particles >71µm		ASTM D7647	>3	<b>1</b>	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	<b>16/14/12</b>	---	---
Silt	scalar	Visual*	NONE	<b>NONE</b>	---	---
Debris	scalar	Visual*	NONE	<b>NONE</b>	---	---
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	---	---
Appearance	scalar	Visual*	NORML	<b>NORML</b>	---	---
Odor	scalar	Visual*	NORML	<b>NORML</b>	---	---
Emulsified Water	scalar	Visual*	>0.1	<b>NEG</b>	---	---

## FLUID CONDITION

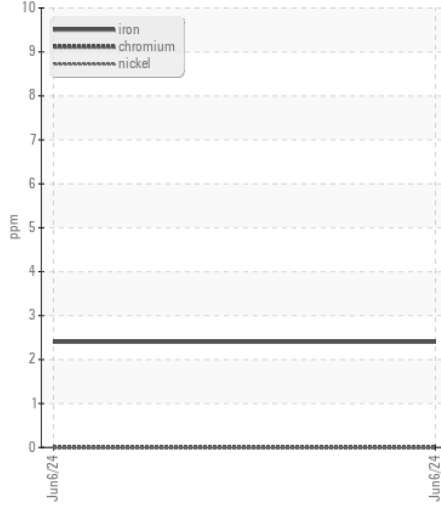
Viscosity of sample indicates oil is within ISO 32 range, advise investigate. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)		<b>0</b>	---	---
Boron	ppm	ASTM D5185(m)	5	<b>&lt;1</b>	---	---
Barium	ppm	ASTM D5185(m)	5	<b>0</b>	---	---
Molybdenum	ppm	ASTM D5185(m)	5	<b>0</b>	---	---
Manganese	ppm	ASTM D5185(m)		<b>0</b>	---	---
Magnesium	ppm	ASTM D5185(m)	25	<b>&lt;1</b>	---	---
Calcium	ppm	ASTM D5185(m)	200	<b>59</b>	---	---
Phosphorus	ppm	ASTM D5185(m)	300	<b>323</b>	---	---
Zinc	ppm	ASTM D5185(m)	370	<b>412</b>	---	---
Sulfur	ppm	ASTM D5185(m)	2500	<b>4160</b>	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	68	<b>▲ 36.0</b>	---	---

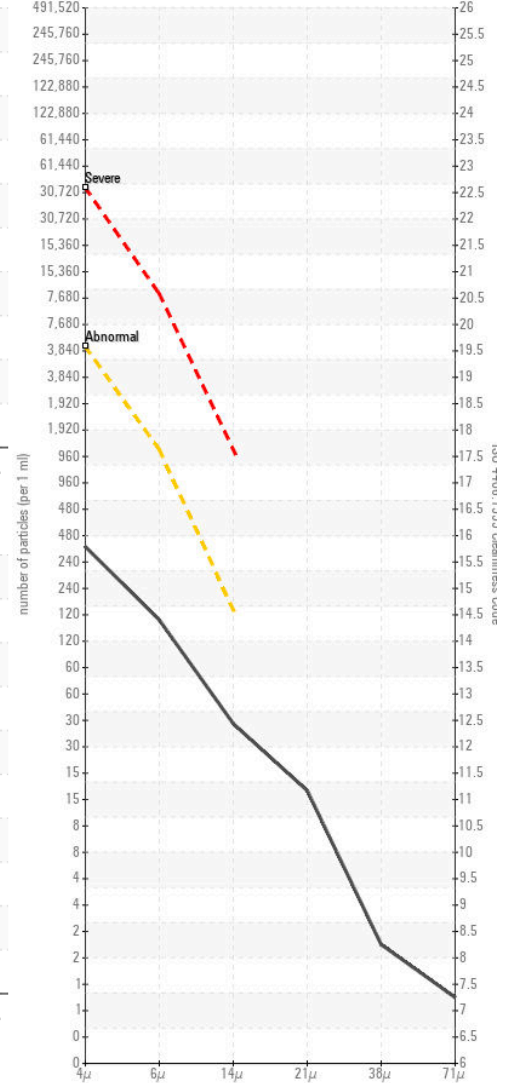
▲ Viscosity @ 40°C



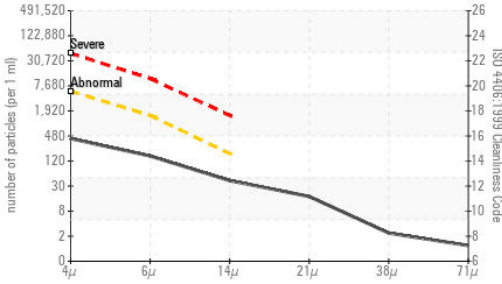
Ferrous Alloys



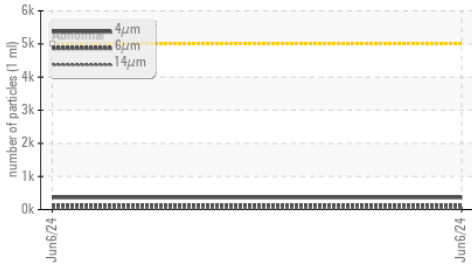
Particle Count



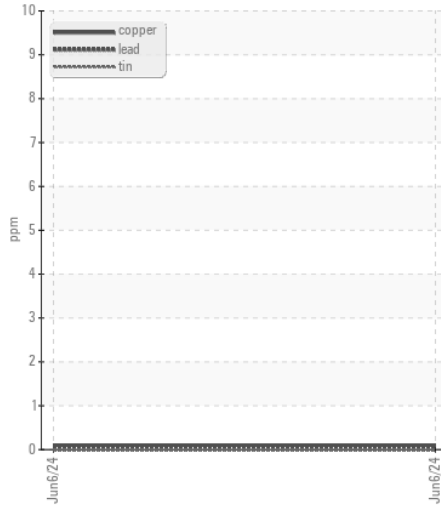
Particle Count



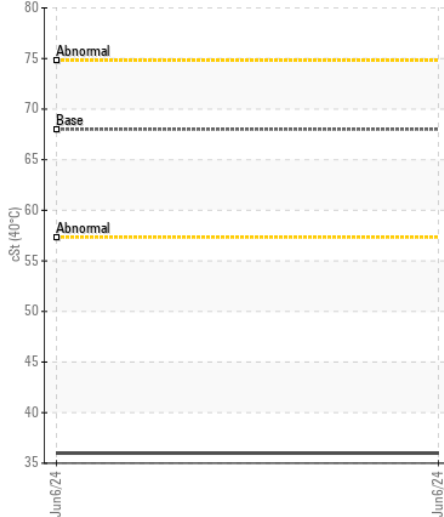
Particle Trend



Non-ferrous Metals



▲ Viscosity @ 40°C



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : OF0001096 **Received** : 13 Jun 2024  
**Lab Number** : 02641760 **Tested** : 14 Jun 2024  
**Unique Number** : 5799299 **Diagnosed** : 17 Jun 2024 - Kevin Marson  
**Test Package** : MOB 2

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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.