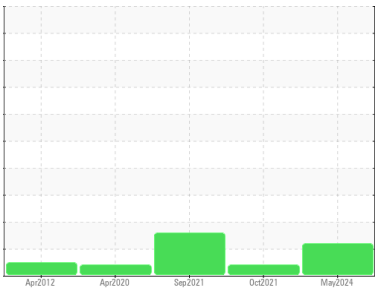
DIAMOND WTG ENGINEERING & SERVICES, INC.
a group company of MITSUBISHI HEAVY INDUSTRIES, LTD.

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
G-04
Component
Hydraulic System
Fluid
MOBIL DTE 10 EXCEL 32 (45 GAL)

DIAGNOSIS

Recommendation
Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s).

Wear
All component wear rates are normal.

Contamination
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition
The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**MHI026403**	MHI017353	MHI017356
Sample Date		Client Info		**15 May 2024**	04 Oct 2021	17 Sep 2021
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 D5185m	>50	**24**	18	16
Chromium	ppm	ASTM D5185m	>20	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>20	**<1**	<1	<1
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**<1**	0	0
Lead	ppm	ASTM D5185m	>20	**2**	2	2
Copper	ppm	ASTM D5185m	>20	**4**	1	1
Tin	ppm	ASTM D5185m	>20	**<1**	0	0
Antimony	ppm	ASTM D5185m		**---**	0	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	<1	<1
Barium	ppm	ASTM D5185m		**<1**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**5**	3	3
Calcium	ppm	ASTM D5185m	120	**127**	144	132
Phosphorus	ppm	ASTM D5185m	475	**425**	503	454
Zinc	ppm	ASTM D5185m		**37**	10	6
Sulfur	ppm	ASTM D5185m	1275	**1764**	1466	1365

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+30	**2**	<1	<1
Sodium	ppm	ASTM D5185m		**4**	2	1
Potassium	ppm	ASTM D5185m	>20	**2**	<1	0
Water	%	ASTM D6304	>0.1	**0.004**	0.008	0.003
ppm Water	ppm	ASTM D6304	>1000	**42**	86.0	35.8

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **111023**	▲ 7222	▲ 24605
Particles >6µm		ASTM D7647	>1300	▲ **9110**	789	▲ 2460
Particles >14µm		ASTM D7647	>160	**84**	69	▲ 161
Particles >21µm		ASTM D7647	>40	**30**	16	▲ 41
Particles >38µm		ASTM D7647	>10	**1**	0	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **24/20/14**	▲ 20/17/13	▲ 22/18/15

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.2**	0.05	0.05

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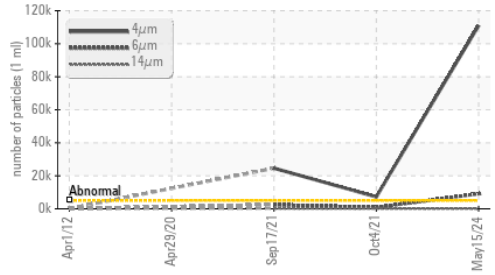
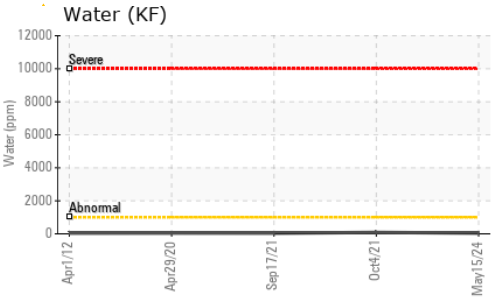
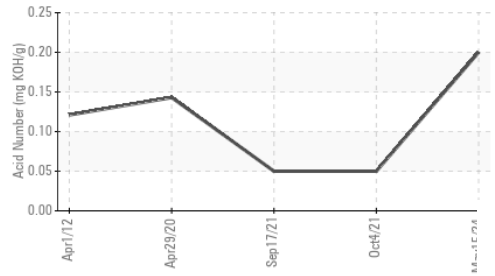
Particle Trend



Water (KF)



Acid Number



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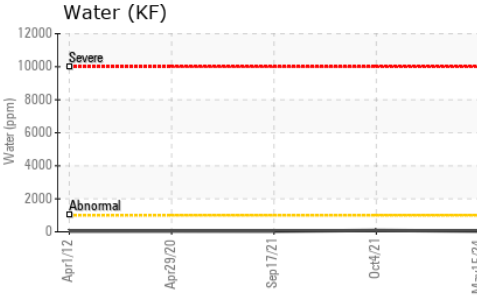
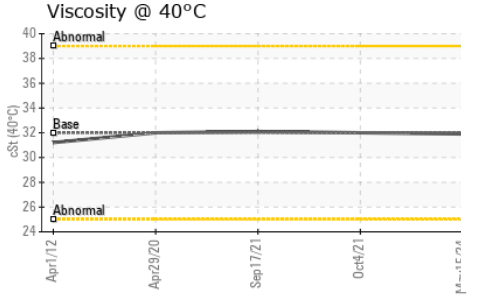
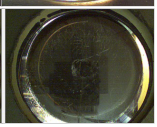


Viscosity @ 40°C



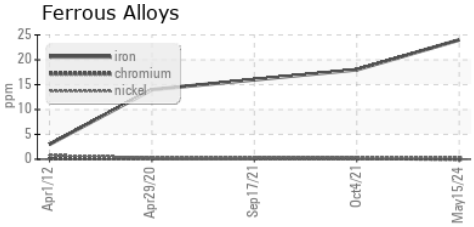
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	VLITE	LIGHT
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	VLITE	VLITE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	**31.9**	32.0	32.1

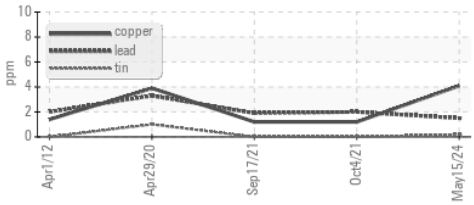
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

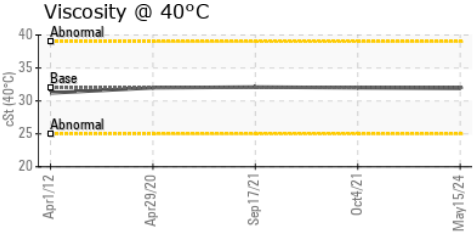
Ferrous Alloys



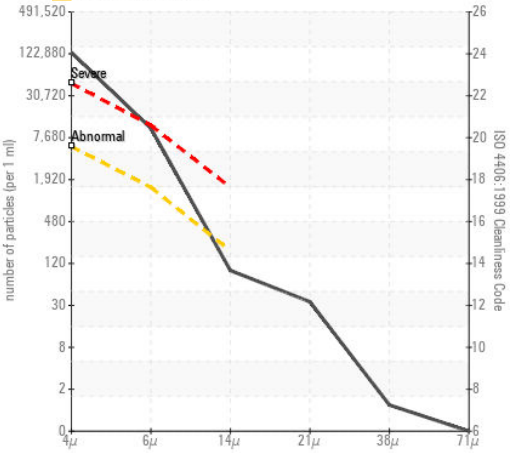
Non-ferrous Metals



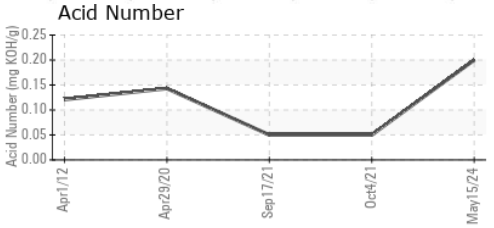
Viscosity @ 40°C



Particle Count



Acid Number



ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MHI026403
Lab Number : 06204601
Unique Number : 11072062
Test Package : IND 2 (Additional Tests: KF)

Received : 10 Jun 2024
Tested : 12 Jun 2024
Diagnosed : 12 Jun 2024 - Doug Bogart

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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