MAR II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
[13976219]
Machine Id
CAHE-HPU518110 DRILLING HPU UNIT
Component
2 Hydraulic System
Fluid
MOBIL DTE EXCEL ISO 32 (--- GAL)

RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

WEAR

All component wear rates are normal.

CONTAMINATION

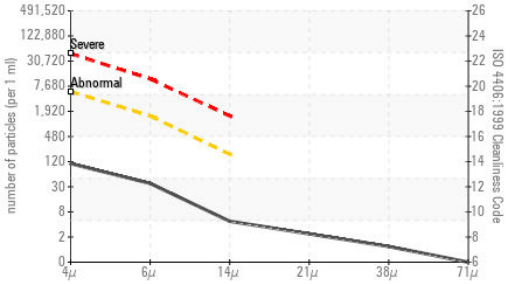
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

FLUID CONDITION

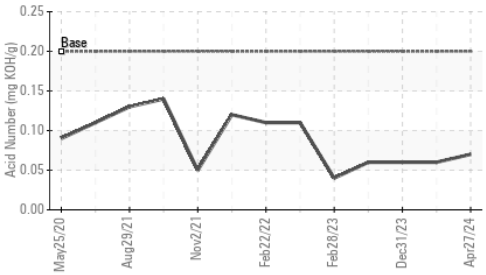
Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		**PP**	PP	PP
Sample Date		Client Info		**27 Apr 2024**	12 Apr 2024	31 Dec 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Filter Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Filter Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**NORMAL**	NORMAL	NORMAL
Iron	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Chromium	ppm	ASTM D5185(m)	>20	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>20	**0**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>20	**0**	0	0
Lead	ppm	ASTM D5185(m)	>20	**0**	0	0
Copper	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)	>20	**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>15	**2**	3	<1
Potassium	ppm	ASTM D5185(m)	>20	**1**	<1	0
Water		WC Method	>0.05	**NEG**	NEG	NEG
Particles >4µm		ASTM D7647	>5000	**95**	259	1481
Particles >6µm		ASTM D7647	>1300	**32**	94	445
Particles >14µm		ASTM D7647	>160	**4**	11	36
Particles >21µm		ASTM D7647	>40	**2**	3	11
Particles >38µm		ASTM D7647	>10	**1**	1	2
Particles >71µm		ASTM D7647	>3	**0**	1	1
Oil Cleanliness		ISO 4406 (c)	>19/17/14	**14/12/9**	15/14/11	18/16/12
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	VLITE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.05	**NEG**	NEG	NEG
Sodium	ppm	ASTM D5185(m)		**<1**	<1	<1
Boron	ppm	ASTM D5185(m)		**0**	0	0
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)		**68**	67	61
Phosphorus	ppm	ASTM D5185(m)		**212**	218	201
Zinc	ppm	ASTM D5185(m)		**8**	8	5
Sulfur	ppm	ASTM D5185(m)		**729**	742	688
Acid Number (AN)	mg KOH/g	ASTM D974*	.2	**0.07**	0.06	0.06
Visc @ 40°C	cSt	ASTM D7279(m)	33.0	**30.3**	30.6	30.6

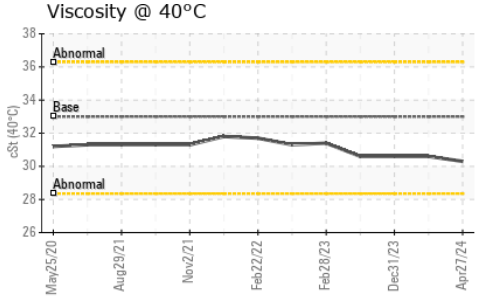
Particle Count



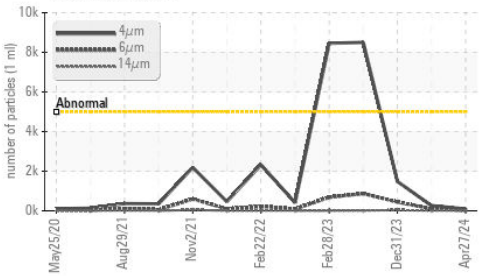
Acid Number



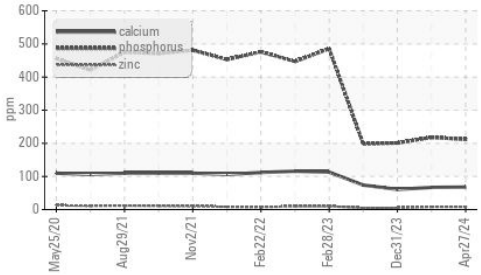
Viscosity @ 40°C



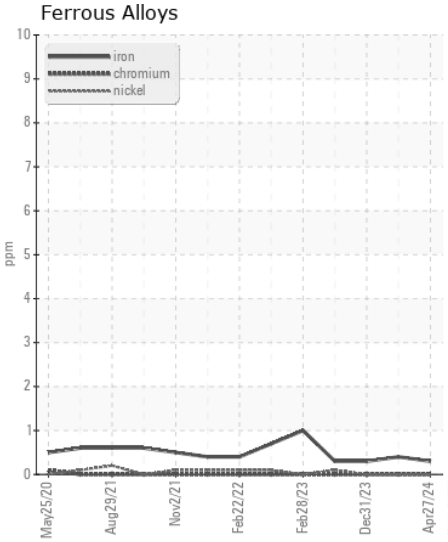
Particle Trend



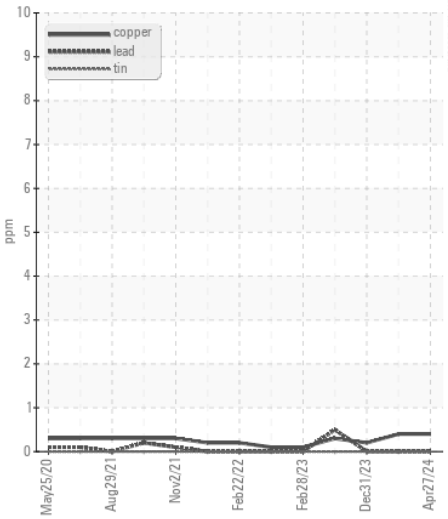
Additives



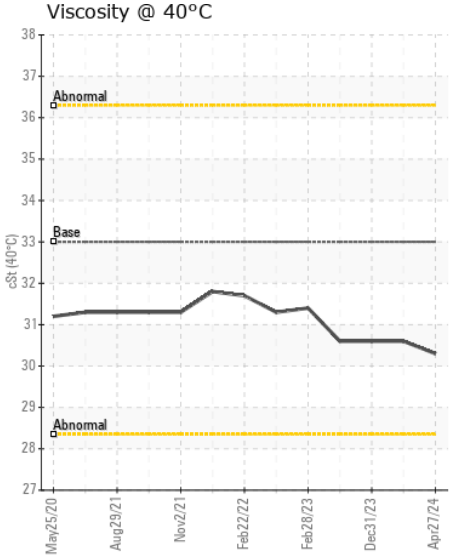
Ferrous Alloys



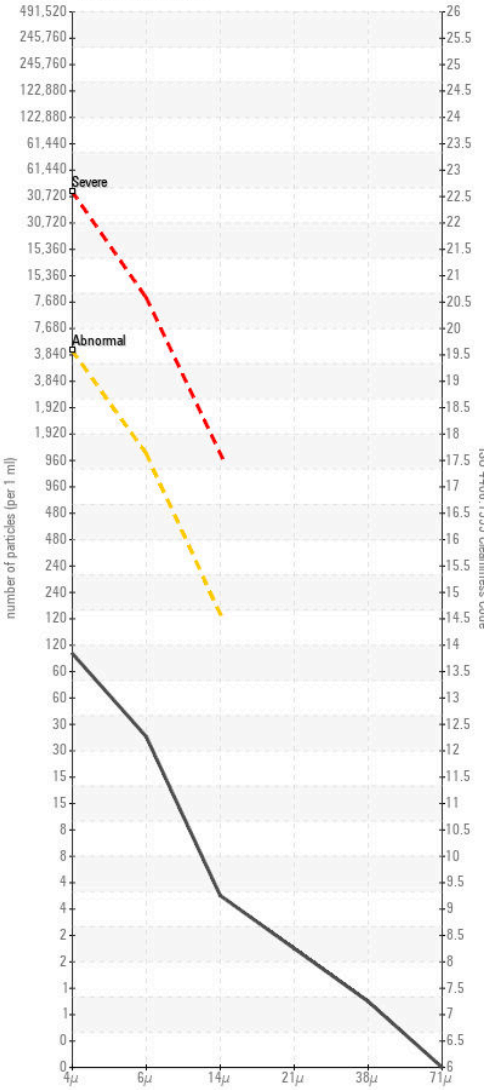
Non-ferrous Metals



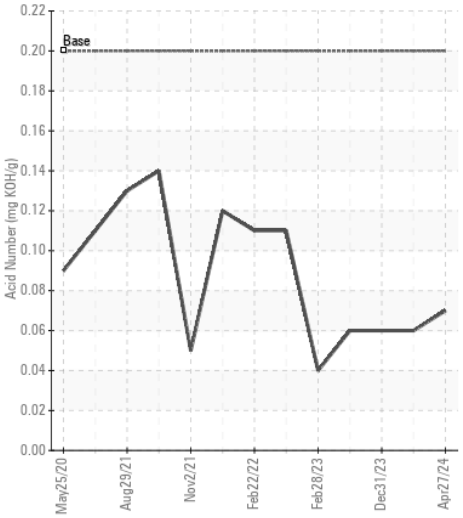
Viscosity @ 40°C



Particle Count



Acid Number



CALA
ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP
Lab Number : 02636628
Unique Number : 5785790
Test Package : MAR 2

Received : 21 May 2024
Tested : 22 May 2024
Diagnosed : 22 May 2024 - Kevin Marson

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.

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