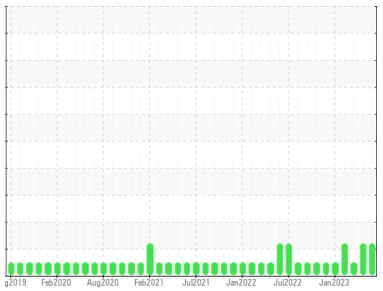
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Area
Direct Strip Mill/Finishing
Machine Id
HSM GLYCOL EAST BULK TANK (S/N DSC 195)
Component
Hydraulic System
Fluid
HOUGHTON HOUGHTON SAFE 616 (--- GAL)

DIAGNOSIS

Recommendation
Due to the low reserve alkalinity it is advised that you contact HOUGHTON to assist in restoring the proper amine concentration. We recommend an early resample to monitor this condition. 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
The reserve alkalinity of this fluid is lower than acceptable. The AN level is acceptable for this fluid. The pH level of this fluid is within the acceptable limits. The water concentration level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0837386**	WC0780794	WC0780778
Sample Date		Client Info		**16 Apr 2024**	16 May 2023	19 Mar 2023
Machine Age	hrs	Client Info		**0**	0	6
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	**0**	9	1
Chromium	ppm	ASTM D5185(m)	>20	**0**	<1	<1
Nickel	ppm	ASTM D5185(m)	>20	**0**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	2	0
Aluminum	ppm	ASTM D5185(m)	>20	**0**	1	<1
Lead	ppm	ASTM D5185(m)	>20	**0**	0	0
Copper	ppm	ASTM D5185(m)	>20	**0**	2	2
Tin	ppm	ASTM D5185(m)	>20	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	<1	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

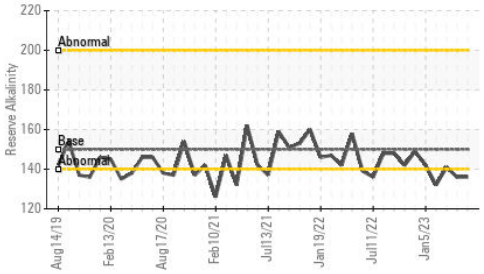
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	2	<1
Barium	ppm	ASTM D5185(m)		**1**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	1	1
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**<1**	2	1
Calcium	ppm	ASTM D5185(m)		**<1**	4	<1
Phosphorus	ppm	ASTM D5185(m)		**1**	4	<1
Zinc	ppm	ASTM D5185(m)		**0**	0	<1
Sulfur	ppm	ASTM D5185(m)		**45**	15	12
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**<1**	3	<1
Sodium	ppm	ASTM D5185(m)		**23**	35	39
Potassium	ppm	ASTM D5185(m)	>20	**21**	47	45
Water	%	ASTM D6304*	>55	**44.0**	40.3	39.9
ppm Water	ppm	ASTM D6304*	>55000	**440000**	403000	399000

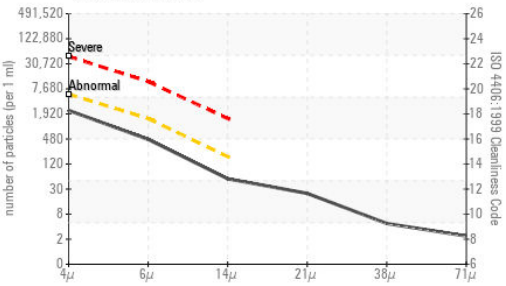
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	**2039**	1160	2772
Particles >6µm		ASTM D7647	>1300	**413**	225	504
Particles >14µm		ASTM D7647	>160	**47**	17	22
Particles >21µm		ASTM D7647	>40	**21**	8	11
Particles >38µm		ASTM D7647	>10	**4**	2	3
Particles >71µm		ASTM D7647	>3	**2**	0	1
Oil Cleanliness		ISO 4406 (c)	>19/17/14	**18/16/13**	17/15/11	19/16/12

OIL ANALYSIS REPORT

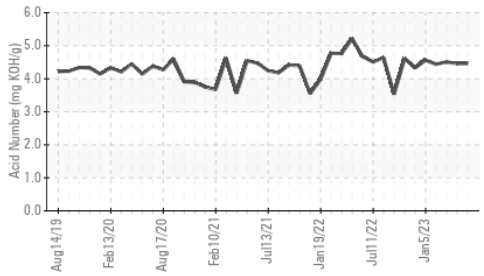
Reserve Alkalinity



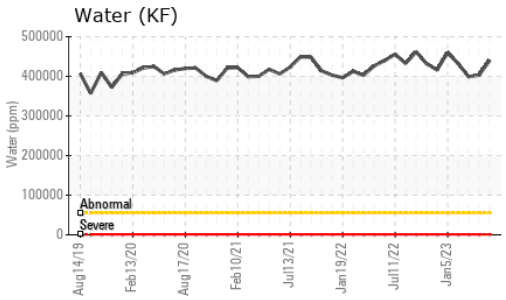
Particle Count



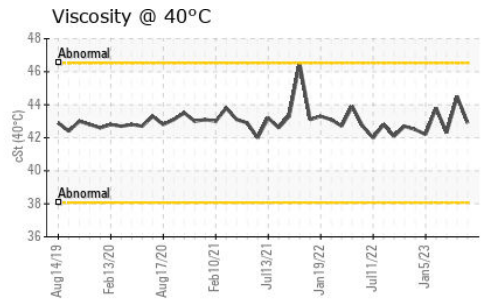
Acid Number



Water (KF)



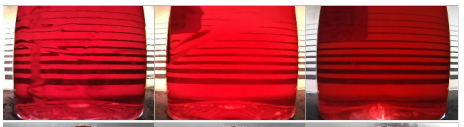
Viscosity @ 40°C



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**4.46**	4.46	4.51
Alkiline Reserve (Oils)	ml KOH/g	ASTM D1121*	150	▲ **136**	▲ 136	141

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**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**FRGLY**	FRGLY	FRGLY
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>55	**>10%**	>10%	>10%
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
pH	Scale 0-14	ASTM D1287*		**9.49**	9.52	9.51
Visc @ 40°C	cSt	ASTM D7279(m)		**42.9**	44.5	42.3

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0837386
Lab Number : 02630792
Unique Number : 5763924
Test Package : IND 2 (Additional Tests: KF, pH, ReserveAlk, TAN Man)
Received : 22 Apr 2024
Tested : 30 Apr 2024
Diagnosed : 30 Apr 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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