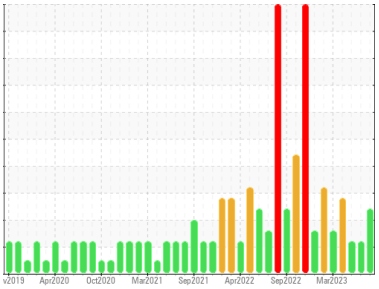
PROBLEM SUMMARY

Sample Rating Trend

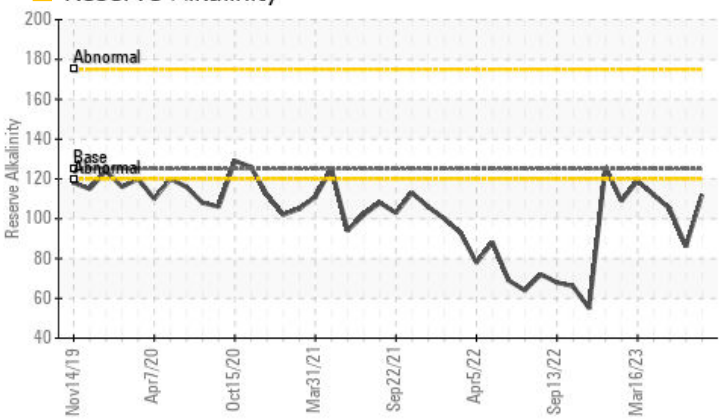


DEGRADATION

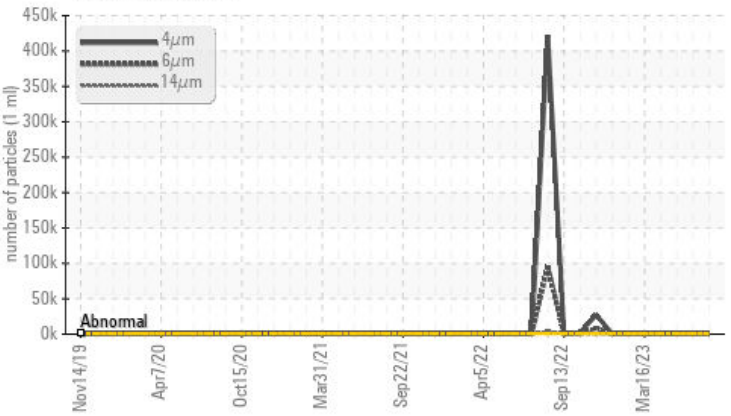
Area
Direct Strip Mill/Caster
Machine Id
CH2.4 HYDRAULIC SYSTEM (DSC193) (S/N 1000024515)
Component
Hydraulic System
Fluid
HOUGHTON HOUGHTO-SAFE 620 (2730 LTR)

COMPONENT CONDITION SUMMARY

▲ Reserve Alkalinity



▲ Particle Trend



RECOMMENDATION

Due to the low reserve alkalinity it is advised that you contact HOUGHTON to assist in restoring the proper amine concentration. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Particles >14µm		ASTM D7647	>20	▲ **29**	8	12
Particles >21µm		ASTM D7647	>4	▲ **19**	5	3
Oil Cleanliness		ISO 4406 (c)	>16/14/11	▲ **15/14/12**	16/14/10	14/13/11
Alkiline Reserve (Oils)	ml KOH/g	ASTM D1121*	125	▲ **112**	▲ 86	▲ 105

Customer Id: ALGSSM
Sample No.: WC0813753
Lab Number: 02575516
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Contact Required	---	---	?	Due to the low reserve alkalinity it is advised that you contact HOUGHTON to assist in restoring the proper amine concentration.
Alert	---	---	?	NOTE: We recommend using IND 3 test kits,
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

25 Jun 2023 Diag: Kevin Marson

DEGRADATION

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.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. 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.

view report

16 May 2023 Diag: Kevin Marson

DEGRADATION

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. 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.Component wear rates appear to be normal (unconfirmed). The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. 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.

view report

18 Apr 2023 Diag: Kevin Marson

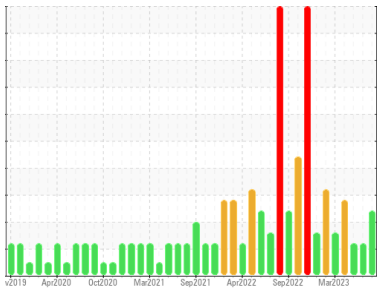
DEGRADATION

Due to the low reserve alkalinity it is advised that you contact HOUGHTON to assist in restoring the proper amine concentration. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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.Component wear rates appear to be normal (unconfirmed). There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. 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. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Area
Direct Strip Mill/Caster
Machine Id
CH2.4 HYDRAULIC SYSTEM (DSC193) (S/N 1000024515)
Component
Hydraulic System
Fluid
HOUGHTON HOUGHTO-SAFE 620 (2730 LTR)

DIAGNOSIS

Recommendation

Due to the low reserve alkalinity it is advised that you contact HOUGHTON to assist in restoring the proper amine concentration. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

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. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0813753**	WC0780826	WC0780870
Sample Date		Client Info		**09 Aug 2023**	25 Jun 2023	16 May 2023
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 D5185(m)	>20	**0**	<1	3
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**	0	<1
Aluminum	ppm	ASTM D5185(m)	>20	**0**	0	<1
Lead	ppm	ASTM D5185(m)	>20	**0**	0	0
Copper	ppm	ASTM D5185(m)	>20	**2**	2	4
Tin	ppm	ASTM D5185(m)	>20	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**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

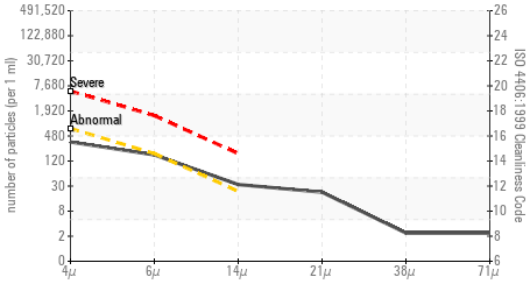
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**2**	2	2
Barium	ppm	ASTM D5185(m)		**1**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	<1	<1
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**2**	<1	1
Calcium	ppm	ASTM D5185(m)		**1**	1	2
Phosphorus	ppm	ASTM D5185(m)		**1**	<1	2
Zinc	ppm	ASTM D5185(m)		**0**	0	0
Sulfur	ppm	ASTM D5185(m)		**55**	8	8
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**0**	0	1
Sodium	ppm	ASTM D5185(m)		**15**	31	36
Potassium	ppm	ASTM D5185(m)	>20	**20**	32	42
Water	%	ASTM D6304*	>43.5	**33.7**	38.6	40.0
ppm Water	ppm	ASTM D6304*	>435000	**337000**	386000	400000

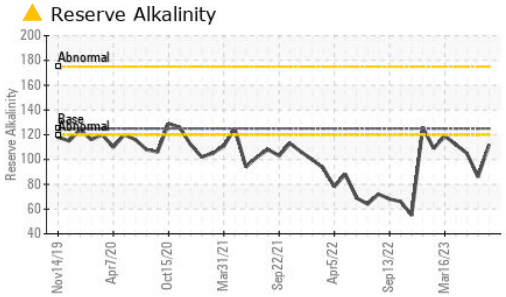
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>640	**303**	464	123
Particles >6µm		ASTM D7647	>160	**149**	105	57
Particles >14µm		ASTM D7647	>20	▲ **29**	8	12
Particles >21µm		ASTM D7647	>4	▲ **19**	5	3
Particles >38µm		ASTM D7647	>3	**2**	2	1
Particles >71µm		ASTM D7647	>3	**2**	0	0
Oil Cleanliness		ISO 4406 (c)	>16/14/11	▲ **15/14/12**	16/14/10	14/13/11

OIL ANALYSIS REPORT

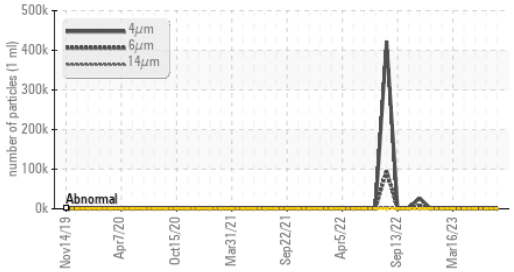
Particle Count



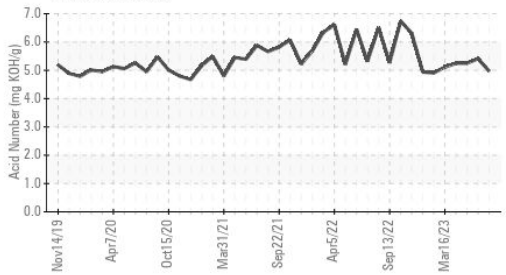
Reserve Alkalinity



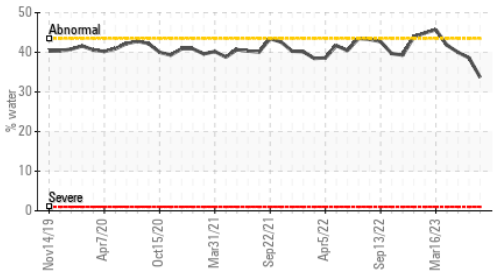
Particle Trend



Acid Number



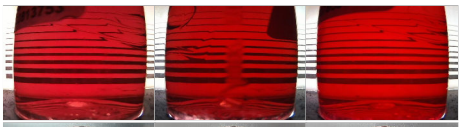
Water



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**4.97**	5.41	5.25
Alkiline Reserve (Oils)	ml KOH/g	ASTM D1121*	125	▲ **112**	▲ 86	▲ 105

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*	>43.5	**>10%**	>10%	>10%
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
pH	Scale 0-14	ASTM D1287*		**9.37**	9.15	9.38
Visc @ 40°C	cSt	ASTM D7279(m)		**41.4**	41.3	40.1

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
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ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **ALGOMA STEEL INC. - STORES DEPT.**
Sample No. : WC0813753 **Received** : 11 Aug 2023 301 WALLACE TERRACE
Lab Number : 02575516 **Diagnosed** : 22 Aug 2023 SAULT STE MARIE, ON
Unique Number : 5620567 **Diagnostician** : Kevin Marson CA P6C 1K8
Test Package : IND 2 (Additional Tests: KF, pH, ReserveAlk, TAN Man) Contact: Algoma Reliability

To discuss this sample report, contact Customer Service at 1-800-268-2131. algomareliability@algoma.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (705)206-1059
Validity of results and interpretation are based on the sample and information as supplied. F: (705)945-3585