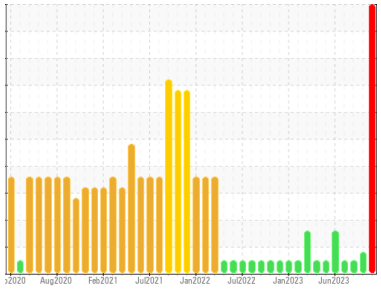
PROBLEM SUMMARY

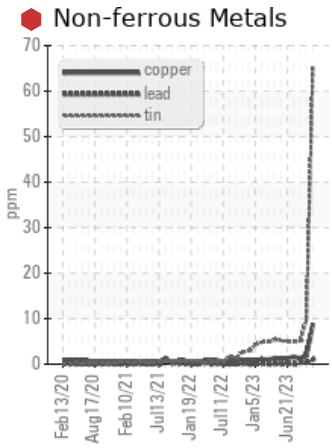
Sample Rating Trend

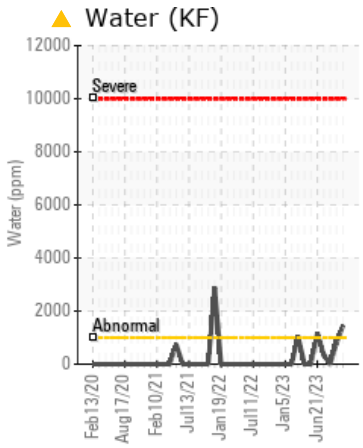


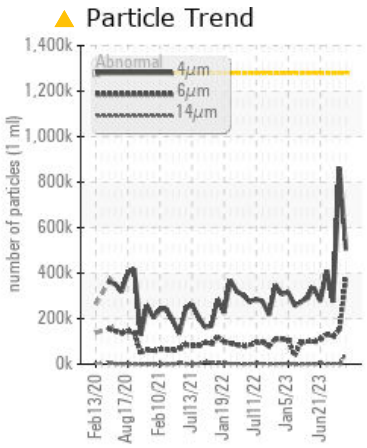
WEAR

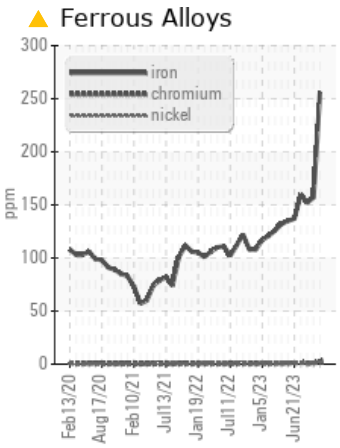
Area
Direct Strip Mill/Finishing
Machine Id
NL1 ROUGHER MORGOIL SYSTEM (DSC016) (S/N 1000016795)
Component
Gear Lube System
Fluid
SHELL OMALA 680 (6000 LTR)

COMPONENT CONDITION SUMMARY









RECOMMENDATION

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We advise that you check for visible metal particles in the oil. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We recommend you service the filters on this component. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). 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.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	NORMAL
Iron	ppm	ASTM D5185(m)	>150	▲ **256**	157	152
Tin	ppm	ASTM D5185(m)	>10	⬢ **65**	▲ 10	5
Antimony	ppm	ASTM D5185(m)	>5	▲ **4**	<1	<1
Water	%	ASTM D6304*	>0.1	▲ **0.145**	0.079	---
ppm Water	ppm	ASTM D6304*	>1000	▲ **1459**	793.8	---
Particles >14µm		ASTM D7647	>20000	▲ **46653**	1851	3214
Oil Cleanliness		ISO 4406 (c)	>27/26/21	▲ **26/26/23**	27/24/18	25/24/19
White Metal	scalar	Visual*	NONE	▲ **VLITE**	NONE	VLITE
Emulsified Water	scalar	Visual*	>0.1	▲ **.2%**	.2%	NEG
PrtFilter					*no image*	*no image*

Customer Id: ALGSSM
Sample No.: WC0837454
Lab Number: 02610440
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 recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF).
Contact Required	---	---	?	Please contact your representative for information regarding the proper sampling kits for your service.
Alert	---	---	?	NOTE: We recommend using IND 3 test kits,
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Water Access	---	---	?	We advise that you check for the source of water entry.
Check For Visual Metal	---	---	?	We advise that you check for visible metal particles in the oil.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
Filter Fluid	---	---	?	We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil.

HISTORICAL DIAGNOSIS

14 Nov 2023 Diag: Kevin Marson

WEAR

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.Tin ppm levels are abnormal. A sharp increase in the tin level is noted. Bearing and/or bushing wear is indicated. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

26 Sep 2023 Diag: Kevin Marson

NORMAL

Resample at the next service interval to monitor.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 AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

08 Aug 2023 Diag: Kevin Marson

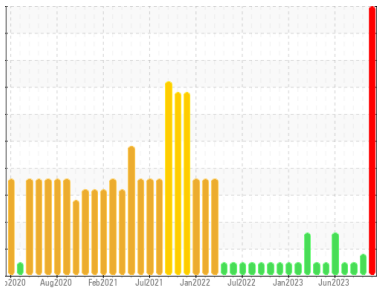
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
Direct Strip Mill/Finishing
Machine Id
NL1 ROUGHER MORGOIL SYSTEM (DSC016) (S/N 1000016795)
Component
Gear Lube System
Fluid
SHELL OMALA 680 (6000 LTR)

DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We advise that you check for visible metal particles in the oil. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We recommend you service the filters on this component. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). 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.

Wear

Tin Tin ppm levels are severe. Iron and antimony ppm levels are abnormal. A sharp increase in the tin level is noted. Moderate concentration of visible metal present. Gear wear is indicated. Bearing and/or bushing wear is indicated. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

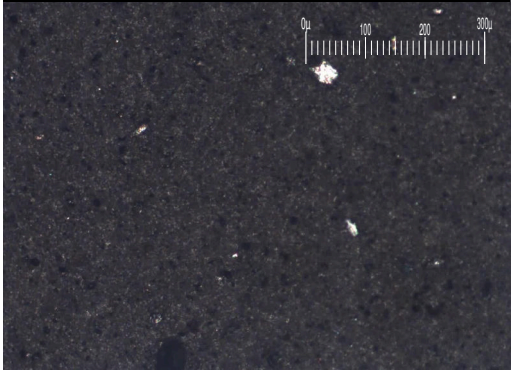
Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. There is a moderate concentration of water present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear

Particle Filter (Magn: 100 x)



SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0837454**	WC0837421	WC0837460
Sample Date		Client Info		**18 Jan 2024**	14 Nov 2023	26 Sep 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				**SEVERE**	ABNORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**29**	0	0
Iron	ppm	ASTM D5185(m)	>150	▲ **256**	157	152
Chromium	ppm	ASTM D5185(m)	>10	**3**	1	1
Nickel	ppm	ASTM D5185(m)	>10	**1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>25	**3**	2	2
Lead	ppm	ASTM D5185(m)	>100	**1**	<1	<1
Copper	ppm	ASTM D5185(m)	>50	**9**	2	1
Tin	ppm	ASTM D5185(m)	>10	● **65**	▲ 10	5
Antimony	ppm	ASTM D5185(m)	>5	▲ **4**	<1	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

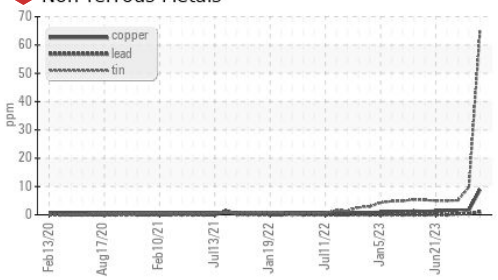
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**2**	2	1
Barium	ppm	ASTM D5185(m)		**0**	0	<1
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**4**	<1	<1
Magnesium	ppm	ASTM D5185(m)		**1**	<1	<1
Calcium	ppm	ASTM D5185(m)		**4**	4	4
Phosphorus	ppm	ASTM D5185(m)	512	**179**	173	173
Zinc	ppm	ASTM D5185(m)	3.8	**6**	6	5
Sulfur	ppm	ASTM D5185(m)	8167	**8252**	8279	8267
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**4**	2	3
Sodium	ppm	ASTM D5185(m)		**5**	4	4
Potassium	ppm	ASTM D5185(m)	>20	**4**	2	2
Water	%	ASTM D6304*	>0.1	▲ **0.145**	0.079	---
ppm Water	ppm	ASTM D6304*	>1000	▲ **1459**	793.8	---

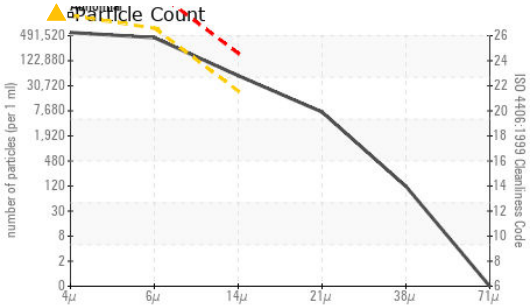
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>1280000	**503279**	861810	274051
Particles >6µm	ASTM D7647	>640000	**377994**	151825	121814
Particles >14µm	ASTM D7647	>20000	▲ **46653**	1851	3214
Particles >21µm	ASTM D7647	>5000	**6269**	195	380
Particles >38µm	ASTM D7647	>1300	**104**	2	6
Particles >71µm	ASTM D7647	>320	**0**	0	1
Oil Cleanliness	ISO 4406 (c)	>27/26/21	▲ **26/26/23**	27/24/18	25/24/19

OIL ANALYSIS REPORT

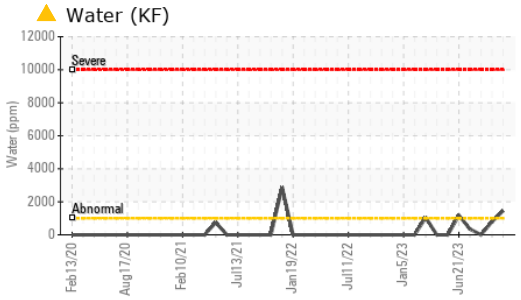
Non-ferrous Metals



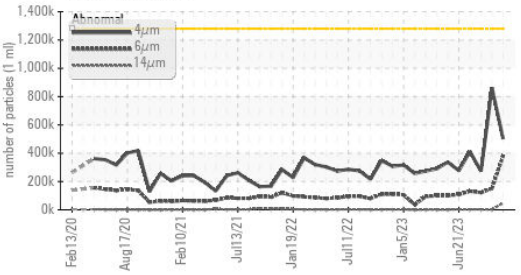
Particle Count



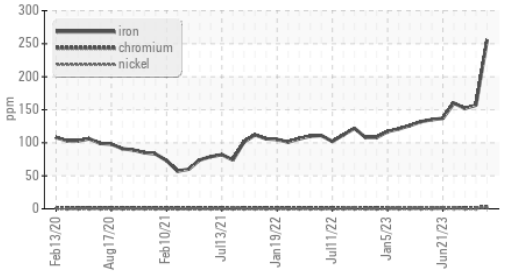
Water (KF)



Particle Trend



Ferrous Alloys



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.68**	0.57	0.55

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	▲ **VLITE**	NONE	VLITE
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	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	▲ **.2%**	.2%	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	680	**701**	683	687

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter				*no image*	*no image*

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **ALGOMA STEEL INC. - STORES DEPT.**
Sample No. : WC0837454 **Recieved** : 22 Jan 2024 301 WALLACE TERRACE
Lab Number : 02610440 **Diagnosed** : 25 Jan 2024 SAULT STE MARIE, ON
Unique Number : 5711526 **Diagnostician** : Kevin Marson CA P6C 1K8
Test Package : IND 2 (Additional Tests: BottomAnalysis, FILTERPATCH, KF, PQ, PrtFilter, 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