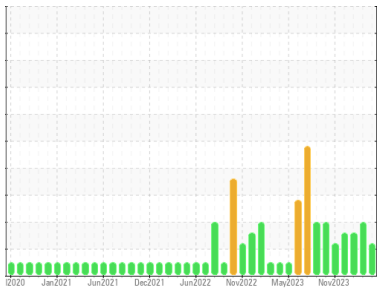
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
## Direct Strip Mill/Finishing
Machine Id
## PH3 HYDRAULIC SYSTEM (DSC004) (S/N 1000014662)
Component
**Hydraulic System**
Fluid
**HOUGHTON HOUGHTO-SAFE 620 (15000 LTR)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component. Resample at the next service interval to monitor. 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**
Component wear rates appear to be normal (unconfirmed).

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

**Fluid Condition**
The AN level is acceptable for this fluid. The pH level of this fluid is within the acceptable limits. The reserve alkalinity of this fluid is acceptable. The water concentration level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0931094** | WC0813577 | WC0837440 |
| Sample Date | | Client Info | | **11 Jun 2024** | 21 Apr 2024 | 28 Feb 2024 |
| 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 | | | | **ATTENTION** | ABNORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >40 | **0** | 0 | 0 |
| Chromium | ppm | ASTM D5185(m) | >4 | **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) | | **<1** | <1 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >4 | **0** | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >10 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185(m) | >60 | **0** | 0 | 0 |
| Tin | ppm | ASTM D5185(m) | >4 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **<1** | 0 | <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 |

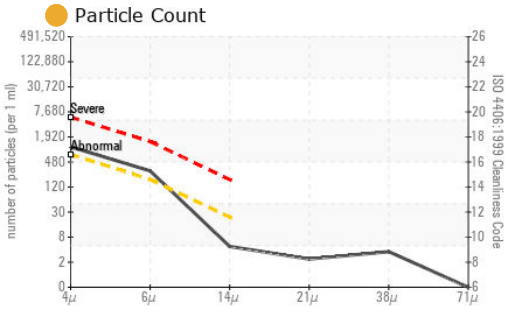
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |
| Barium | ppm | ASTM D5185(m) | | **1** | 1 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | **<1** | <1 | 0 |
| Calcium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |
| Phosphorus | ppm | ASTM D5185(m) | | **0** | <1 | <1 |
| Zinc | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Sulfur | ppm | ASTM D5185(m) | | **48** | 44 | 57 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |
| Sodium | ppm | ASTM D5185(m) | | **23** | 6 | 19 |
| Potassium | ppm | ASTM D5185(m) | >20 | **8** | 0 | 5 |
| Water | % | ASTM D6304* | >43.5 | **41.1** | 41.4 | 44.4 |
| ppm Water | ppm | ASTM D6304* | >435000 | **411000** | 414000 | 444000 |

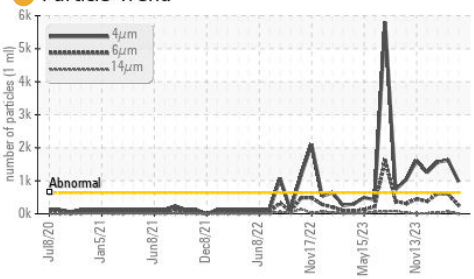
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >640 | **972** | ▲ 1627 | ▲ 1565 |
| Particles >6µm | | ASTM D7647 | >160 | **258** | ▲ 599 | ▲ 614 |
| Particles >14µm | | ASTM D7647 | >20 | **4** | ▲ 65 | ● 29 |
| Particles >21µm | | ASTM D7647 | >4 | **2** | ▲ 13 | 5 |
| Particles >38µm | | ASTM D7647 | >3 | **3** | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >16/14/11 | **17/15/9** | ▲ 18/16/13 | ▲ 18/16/12 |

# OIL ANALYSIS REPORT

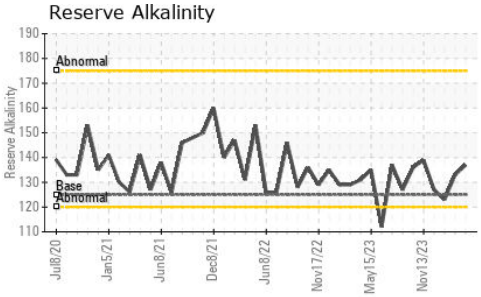
Particle Count



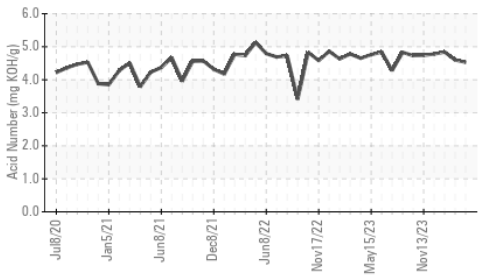

Particle Trend



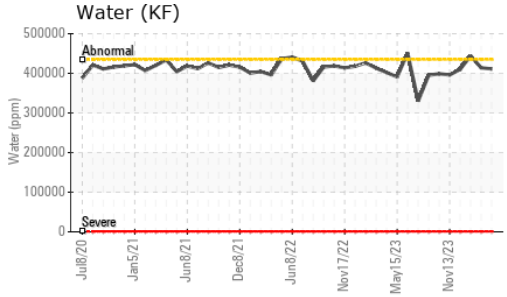

Reserve Alkalinity




Acid Number



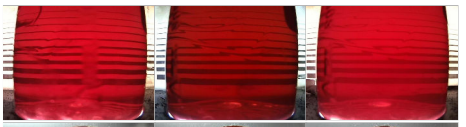

Water (KF)




| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | | **4.53** | 4.60 | 4.84 |
| Alkiline Reserve (Oils) | ml KOH/g | ASTM D1121* | 125 | **137** | 133 | 123 |

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

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| pH | Scale 0-14 | ASTM D1287* | | **9.46** | 9.45 | 9.44 |
| Visc @ 40°C | cSt | ASTM D7279(m) | | **41.5** | 41.7 | 41.7 |

| 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.** : WC0931094
**Lab Number** : 02642166
**Unique Number** : 5799705
**Test Package** : IND 2 ( Additional Tests: KF, pH, ReserveAlk, TAN Man )

**Received** : 14 Jun 2024
**Tested** : 18 Jun 2024
**Diagnosed** : 19 Jun 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.*


**ALGOMA STEEL INC. - STORES DEPT.**
301 WALLACE TERRACE
SAULT STE MARIE, ON
CA P6C 1K8
Contact: Algoma Reliability
algomareliability@algoma.com
T: (705)206-1059
F: (705)945-3585