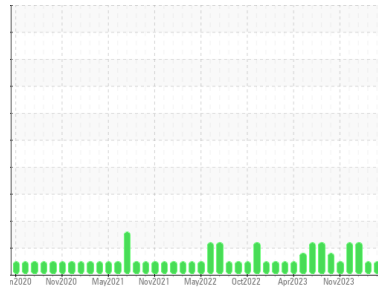




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

Direct Strip Mill/Finishing

Machine Id

HSM WEST GLYCOL BLK (S/N DSC 196)

Component

Hydraulic System

Fluid

HOUGHTON HOUGHTON SAFE 616 (--- GAL)

DIAGNOSIS

Recommendation

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

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 | | WC0931243 | WC0837387 | WC0837381 |
| Sample Date | Client Info | | 11 Jun 2024 | 16 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 | | | NORMAL | NORMAL | ABNORMAL |

WEAR METALS

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

ADDITIVES

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

CONTAMINANTS

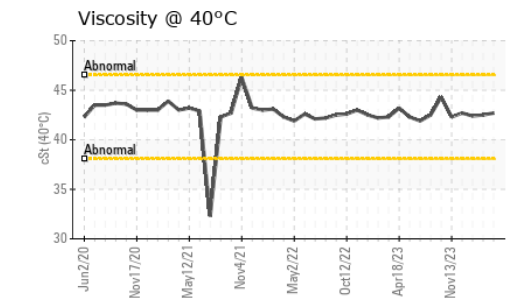
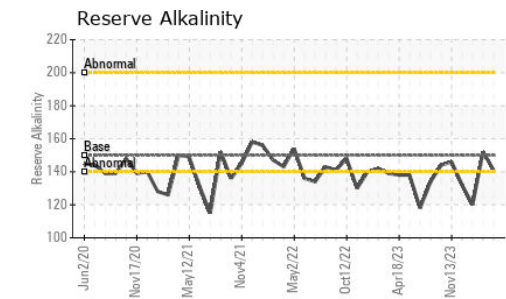
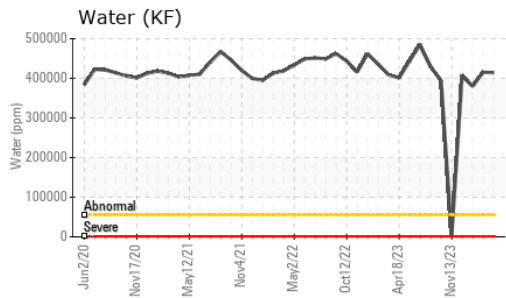
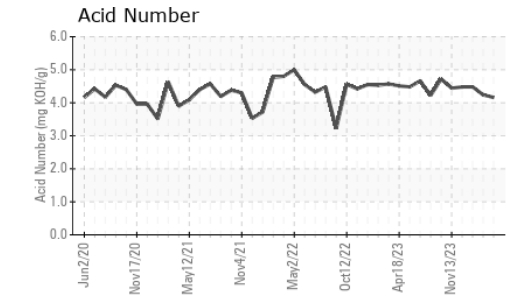
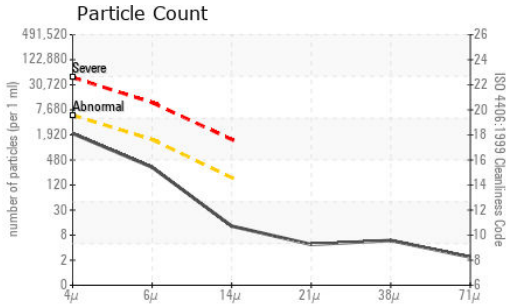
| | method | limit/base | current | history1 | history2 |
|-----------|--------|---------------|---------|---------------|----------|
| Silicon | ppm | ASTM D5185(m) | >15 | <1 | <1 |
| Sodium | ppm | ASTM D5185(m) | | 22 | 2 |
| Potassium | ppm | ASTM D5185(m) | >20 | 21 | 0 |
| Water | % | ASTM D6304* | >55 | 41.4 | 41.5 |
| ppm Water | ppm | ASTM D6304* | >55000 | 414000 | 415000 |

FLUID CLEANLINESS

| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | >5000 | 1822 | 2157 | 3029 |
| Particles >6µm | ASTM D7647 | >1300 | 282 | 383 | 626 |
| Particles >14µm | ASTM D7647 | >160 | 11 | 31 | 51 |
| Particles >21µm | ASTM D7647 | >40 | 4 | 9 | 31 |
| Particles >38µm | ASTM D7647 | >10 | 5 | 4 | 4 |
| Particles >71µm | ASTM D7647 | >3 | 2 | 0 | 2 |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | 18/15/11 | 18/16/12 | 19/16/13 |



OIL ANALYSIS REPORT



| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------------|----------|-------------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D974* | | 4.16 | 4.24 | 4.48 |
| Alkiline Reserve (Oils) | ml KOH/g | ASTM D1121* | 150 | 141 | 152 | ▲ 120 |

| 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 | NORML | FRGLY | FRGLY |
| Odor | scalar | Visual* | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | Visual* | >55 | NEG | >10% | >10% |
| Free Water | scalar | Visual* | | NEG | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|------------------|------------|---------------|------------|-------------|----------|----------|
| pH | Scale 0-14 | ASTM D1287* | | 9.64 | 9.39 | 9.48 |
| Visc @ 40°C | cSt | ASTM D7279(m) | | 42.7 | 42.5 | 42.4 |

| SAMPLE IMAGES | | method | limit/base | current | history1 | history2 |
|---------------|--|--------|------------|---------|----------|----------|
| Color | | | | | | |
| Bottom | | | | | | |



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0931243
Lab Number : **02642154**
Unique Number : 5799693
Test Package : IND 2 (Additional Tests: KF, pH, ReserveAlk, TAN Man)

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

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.