



OIL ANALYSIS REPORT

Sample Rating Trend

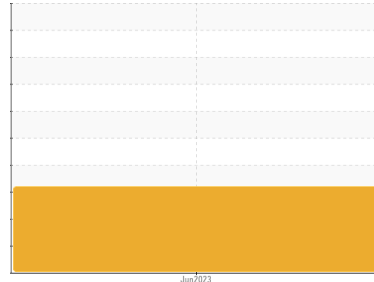
WATER



Machine Id
#10 CONVERTOR HPU

Component
Hydraulic System

Fluid
NOT GIVEN (--- GAL)



DIAGNOSIS

Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We recommend either performing an oil change or oil filtration. We cannot recommend specific action as we have limited information with regards to reservoir capacity and/or lubricant type. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. Please provide more complete information on your next sample.

Wear

All component wear rates are normal.

Contamination

There is a high concentration of water present in the oil.

Fluid Condition

The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|----------|----------|
| Sample Number | Client Info | | WC | --- | --- |
| Sample Date | Client Info | | 11 Jun 2023 | --- | --- |
| Machine Age | hrs | Client Info | 0 | --- | --- |
| Oil Age | hrs | Client Info | 0 | --- | --- |
| Oil Changed | Client Info | | N/A | --- | --- |
| Sample Status | | | SEVERE | --- | --- |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-------------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185(m) >20 | <1 | --- | --- |
| Chromium | ppm | ASTM D5185(m) >10 | 0 | --- | --- |
| Nickel | ppm | ASTM D5185(m) >10 | <1 | --- | --- |
| Titanium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Silver | ppm | ASTM D5185(m) | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185(m) >10 | 0 | --- | --- |
| Lead | ppm | ASTM D5185(m) >20 | <1 | --- | --- |
| Copper | ppm | ASTM D5185(m) >20 | 4 | --- | --- |
| Tin | ppm | ASTM D5185(m) >10 | 0 | --- | --- |
| Antimony | ppm | ASTM D5185(m) | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Beryllium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Cadmium | ppm | ASTM D5185(m) | 0 | --- | --- |

ADDITIVES

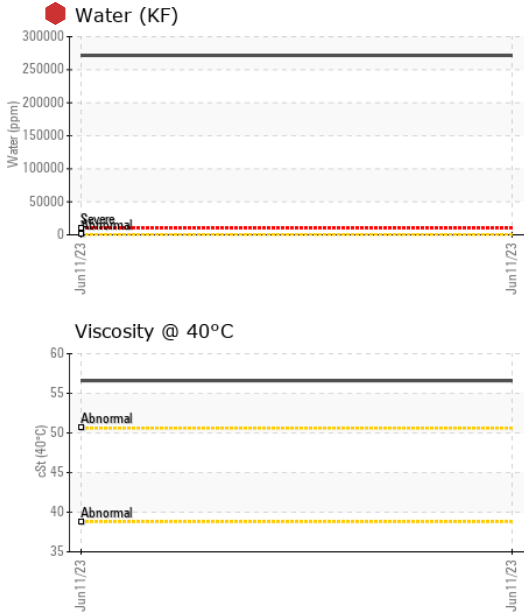
| | method | limit/base | current | history1 | history2 |
|------------|--------|---------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185(m) | <1 | --- | --- |
| Barium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185(m) | 0 | --- | --- |
| Manganese | ppm | ASTM D5185(m) | 0 | --- | --- |
| Magnesium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Calcium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Phosphorus | ppm | ASTM D5185(m) | 5 | --- | --- |
| Zinc | ppm | ASTM D5185(m) | 14 | --- | --- |
| Sulfur | ppm | ASTM D5185(m) | 28 | --- | --- |
| Lithium | ppm | ASTM D5185(m) | <1 | --- | --- |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-------------------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185(m) >15 | <1 | --- | --- |
| Sodium | ppm | ASTM D5185(m) | 0 | --- | --- |
| Potassium | ppm | ASTM D5185(m) >20 | <1 | --- | --- |
| Water | % | ASTM D6304* >0.05 | 27.17 | --- | --- |
| ppm Water | ppm | ASTM D6304* >500 | 271746.8 | --- | --- |





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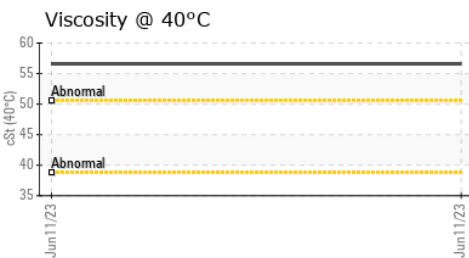
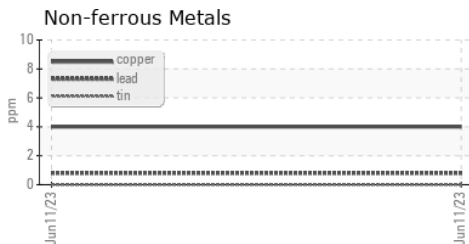
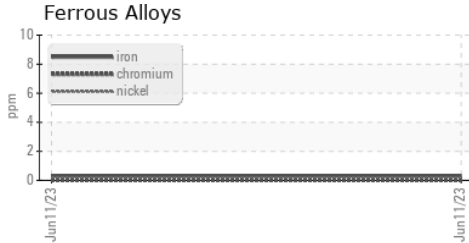
| VISUAL | method | limit/base | current | history1 | history2 | |
|------------------|--------|------------|---------|--------------|----------|-----|
| White Metal | scalar | Visual* | NONE | NONE | --- | --- |
| Yellow Metal | scalar | Visual* | NONE | NONE | --- | --- |
| Precipitate | scalar | Visual* | NONE | NONE | --- | --- |
| Silt | scalar | Visual* | NONE | NONE | --- | --- |
| Debris | scalar | Visual* | NONE | NONE | --- | --- |
| Sand/Dirt | scalar | Visual* | NONE | NONE | --- | --- |
| Appearance | scalar | Visual* | NORML | NORML | --- | --- |
| Odor | scalar | Visual* | NORML | NORML | --- | --- |
| Emulsified Water | scalar | Visual* | >0.05 | 1% | --- | --- |
| Free Water | scalar | Visual* | | NEG | --- | --- |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|---------------|-------------|----------|----------|
| Visc @ 40°C | cSt | ASTM D7279(m) | 56.6 | --- | --- |

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

| | | | | | |
|--------|--|--|---|----------|----------|
| Color | | |  | no image | no image |
| Bottom | | |  | no image | no image |

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC **Received** : 12 Jun 2023
Lab Number : **02563509** **Diagnosed** : 13 Jun 2023
Unique Number : 5592550 **Diagnostician** : Kevin Marson
Test Package : TEST (Additional Tests: ICP, KF, KV40, Spat)

Vale - Copper Cliff Smelter
 COPPER CLIFF SMELTER WAREHOUSE, 155 BALSAM ST.
 COPPER CLIFF, ON
 CA P0M 1N0
 Contact: Andy Kozachanko
 andrew.kozachanko@vale.com
 T: (705)682-6687
 F: (705)682-6939

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.