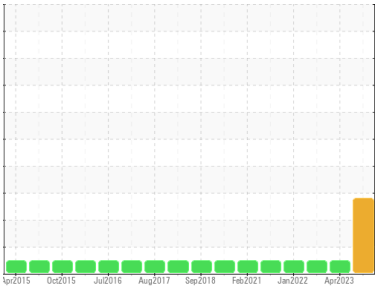
# PROBLEM SUMMARY

Sample Rating Trend

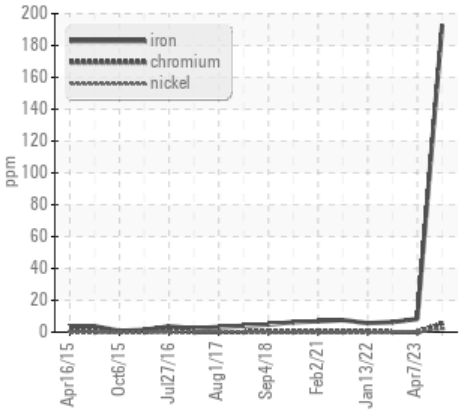


**DIRT**

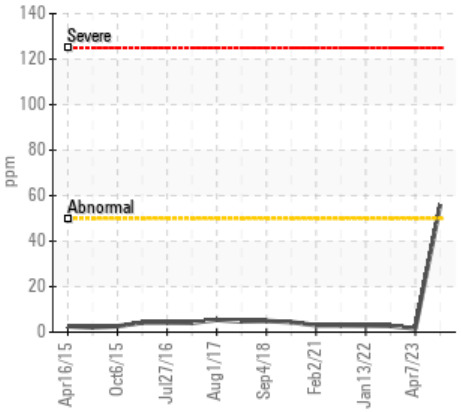
Area
**HAPL**
Machine Id
**HAPL 3.4 BRIDLE NO.3 W/ DEFLECTOR ROLL (S/N 16-1100-0415)**
Component
**Gearbox**
Fluid
**ISO 320 (--- QTS)**

## COMPONENT CONDITION SUMMARY

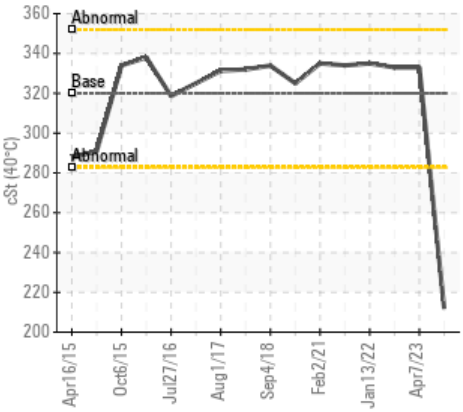
▲ Ferrous Alloys




▲ Silicon (ppm)




▲ Viscosity @ 40°C




## RECOMMENDATION

No corrective action is recommended at this time.
Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **ABNORMAL** | NORMAL | NORMAL |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >200 | ▲ **193** | 8 | 6 |
| Silicon | ppm | ASTM D5185m | >50 | ▲ **56** | 2 | 3 |
| Visc @ 40°C | cSt | ASTM D445 | 320 | ▲ **212** | 333 | 333 |


**Customer Id:** OUTCALAL
**Sample No.:** RP0035389
**Lab Number:** 05935558
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Don Baldridge +1
don.b505@comcast.net

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

**07 Apr 2023 Diag: Wes Davis**

NORMAL

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. Resample at the next service interval to monitor. 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.All component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**15 Jul 2022 Diag: Wes Davis**

NORMAL

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. Resample at the next service interval to monitor. 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.All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**13 Jan 2022 Diag: Wes Davis**

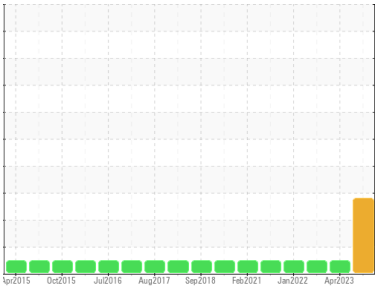
NORMAL

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. Resample at the next service interval to monitor. 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.All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. 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



**DIRT**

Area
**HAPL**
Machine Id
**HAPL 3.4 BRIDLE NO.3 W/ DEFLECTOR ROLL (S/N 16-1100-0415)**
Component
**Gearbox**
Fluid
**ISO 320 (--- QTS)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**
The iron level is marginal. All other component wear rates are normal.

**Contamination**
Elemental level of silicon (Si) above normal.

**Fluid Condition**
Viscosity of sample indicates oil is within ISO 220 range, advise investigate. Confirm oil type. The AN level is acceptable for this fluid.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **RP0035389** | RP0034534 | RP0028816 |
| Sample Date | | Client Info | | **24 Aug 2023** | 07 Apr 2023 | 15 Jul 2022 |
| 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** | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184 | | **116** | 12 | 20 |
| Iron | ppm | ASTM D5185m | >200 | ▲ **193** | 8 | 6 |
| Chromium | ppm | ASTM D5185m | >15 | **5** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >15 | **2** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >25 | **9** | 0 | <1 |
| Lead | ppm | ASTM D5185m | >100 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **<1** | 0 | <1 |
| Tin | ppm | ASTM D5185m | >25 | **0** | 0 | <1 |
| Antimony | ppm | ASTM D5185m | >5 | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

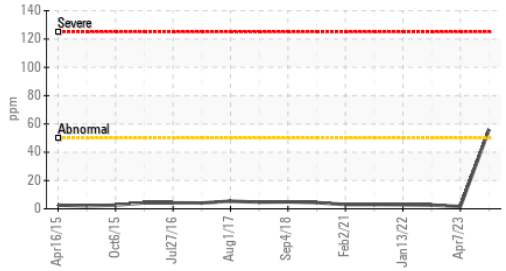
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **8** | 7 | 6 |
| Barium | ppm | ASTM D5185m | | **1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Manganese | ppm | ASTM D5185m | | **2** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | **4** | 0 | 0 |
| Calcium | ppm | ASTM D5185m | | **9** | 30 | 19 |
| Phosphorus | ppm | ASTM D5185m | | **173** | 100 | 81 |
| Zinc | ppm | ASTM D5185m | | **13** | 0 | 0 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | ▲ **56** | 2 | 3 |
| Sodium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 4 | <1 |
| Water | % | ASTM D6304 | >0.2 | **0.003** | 0.006 | 0.024 |
| ppm Water | ppm | ASTM D6304 | >2000 | **26.3** | 62.7 | 246.5 |

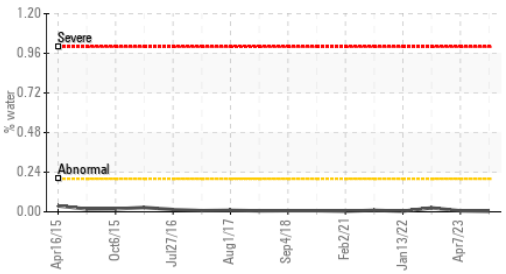
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.48** | 0.28 | 0.35 |

# OIL ANALYSIS REPORT

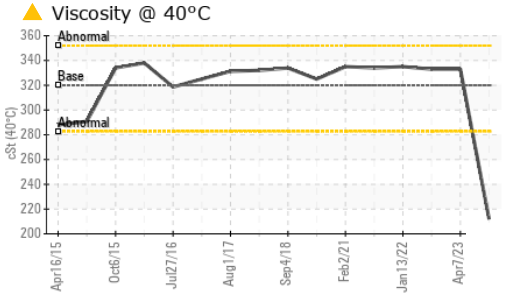
Silicon (ppm)



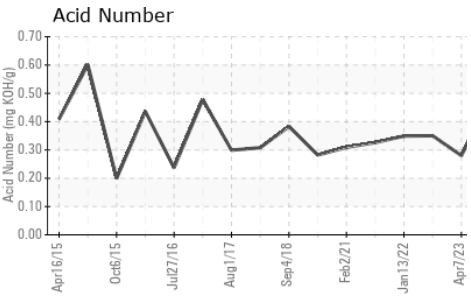

Water



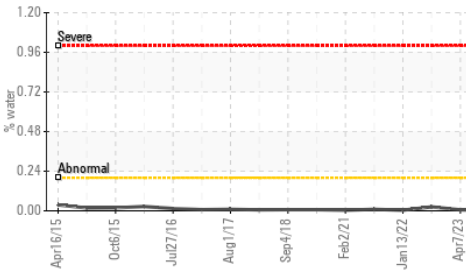

Viscosity @ 40°C




Acid Number

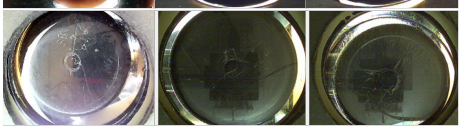



Water



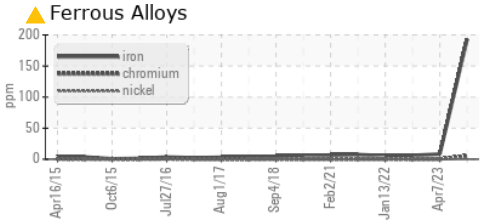

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **LIGHT** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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** | NORML | NORML |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 320 | ▲ **212** | 333 | 333 |

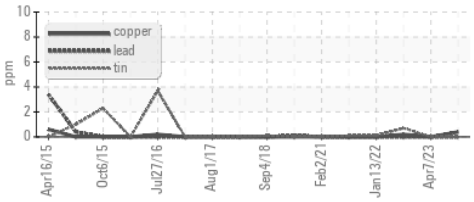
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

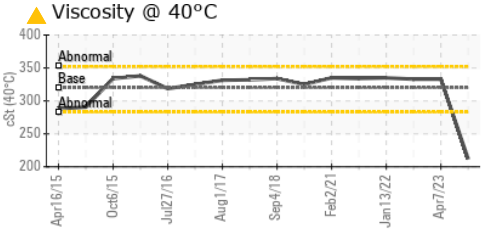
Ferrous Alloys



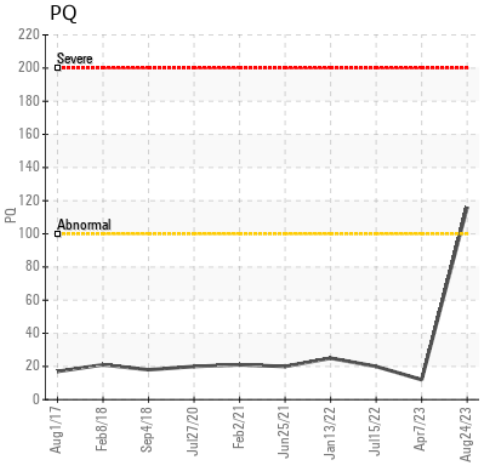

Non-ferrous Metals



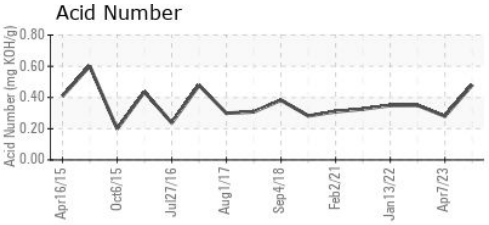

Viscosity @ 40°C




PQ




Acid Number




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RP0035389 **Received** : 25 Aug 2023
**Lab Number** : 05935558 **Diagnosed** : 28 Aug 2023
**Unique Number** : 10620829 **Diagnostician** : Don Baldridge
**Test Package** : IND 2 ( Additional Tests: PQ )

Certificate L2367

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*

**OUTOKUMPU STAINLESS USA**
HWY 43 N
CALVERT, AL
US 36513
Contact: MARIO JOHNSON
Mario.johnson@outokumpu.com
T: (251)321-4105
F: x:

Report Id: OUTCALAL [WUSCAR] 05935558 (Generated: 08/28/2023 19:31:59) Rev: 1

Submitted By: DALE ROBINSON