

## **OIL ANALYSIS REPORT**

### Sample Rating Trend

### NORMAL

## TYSWILFS B-35 (S/N 50008CLFMTHAA3) Component

**Refrigeration Compressor** USPI ALT-68 SC (100 GAL)

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

#### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





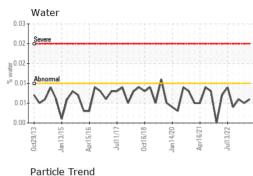
| Iron         ppm         ASTM D5185m         >8         2         2         2           Chromium         ppm         ASTM D5185m         >2         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         <1   | 2023            |
|--|-----------------|
| Machine AgehrsClient Info000Oil AgehrsClient Info0000Oil ChangedClient InfoN/AN/AN/ASample StatusImather Client InfoN/AN/AN/ASample StatusImather Client InfoNORMALATTENTIONABNORWEAR METALSmethodlimit/basecurrenthistory1history1IronppmASTM D5185m>8222ChromiumppmASTM D5185m>2000NickelppmASTM D5185m2000SilverppmASTM D5185m>2000AluminumppmASTM D5185m>3000LeadppmASTM D5185m>2000CopperppmASTM D5185m>4000Tin<ppmASTM D5185m>4000CadmiumppmASTM D5185m0000ADDITIVESmethodlimit/basecurrenthistory1history1  | RMAL            |
| Oil AgehrsClient Info000Oil ChangedClient InfoN/AN/AN/ASample StatusImageClient InfoNORMALATTENTIONWEAR METALSmethodlimit/basecurrenthistory1history1IronppmASTM D5185m>8222ChromiumppmASTM D5185m>2000NickelppmASTM D5185m>2000NickelppmASTM D5185m>2000SilverppmASTM D5185m>2000AluminumppmASTM D5185m>3000LeadppmASTM D5185m>2000CopperppmASTM D5185m>4000TinppmASTM D5185m>4000CadmiumppmASTM D5185m0000TinppmASTM D5185m>4000CadmiumppmASTM D5185m0000ADDITIVESmethodlimit/basecurrenthistory1history1  |                 |
| Oil ChangedClient InfoN/AN/AN/ASample StatusImage: Client InfoN/ANORMALATTENTIONABNORWEAR METALSmethodlimit/basecurrenthistory1history1history1IronppmASTM D5185m>8222ChromiumppmASTM D5185m>2000NickelppmASTM D5185m>2000NickelppmASTM D5185m2000SilverppmASTM D5185m>2000AluminumppmASTM D5185m>3000LeadppmASTM D5185m>2000CopperppmASTM D5185m>4000TinppmASTM D5185m>4000VanadiumppmASTM D5185m>0000CadmiumppmASTM D5185m0000CadmiumppmASTM D5185m0000ADDITIVESmethodlimit/basecurrenthistory1history1  |                 |
| Sample Statusmethodlimit/basecurrenthistory1ABNORWEAR METALSmethodlimit/basecurrenthistory1history1history1IronppmASTM D5185m>8222ChromiumppmASTM D5185m>2000NickelppmASTM D5185m0<1<1<1TitaniumppmASTM D5185m0000SilverppmASTM D5185m>2000AluminumppmASTM D5185m>3000LeadppmASTM D5185m>2000CopperppmASTM D5185m>8000TinppmASTM D5185m>4000VanadiumppmASTM D5185m0000CadmiumppmASTM D5185m0000ADDITIVESmethodlimit/basecurrenthistory1history1  |                 |
| WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >8         2         2         2           Chromium         ppm         ASTM D5185m         >2         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Titanium         ppm         ASTM D5185m         0         <11         <11           Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Lead         ppm         ASTM D5185m         >3         0         0         0           Copper         ppm         ASTM D5185m         >8         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium <th></th>  |                 |
| Iron         ppm         ASTM D5185m         >8         2         2         2           Chromium         ppm         ASTM D5185m         >2         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         <1   | story2          |
| Chromium         ppm         ASTM D5185m         >2         0         0         0           Nickel         ppm         ASTM D5185m         0         <1         <1         <1           Titanium         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Lead         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >2         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0  |                 |
| Nickel         ppm         ASTM D5185m         0         <1  |                 |
| Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0           Lead         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >8         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1  |                 |
| Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0         0           Lead         ppm         ASTM D5185m         >3         0         0         0         0           Copper         ppm         ASTM D5185m         >8         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1   |                 |
| Aluminum         ppm         ASTM D5185m         >3         0         0         0           Lead         ppm         ASTM D5185m         >2         0         0         0         0           Copper         ppm         ASTM D5185m         >8         0         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1         history1  |                 |
| Aluminum         ppm         ASTM D5185m         >3         0         0         0           Lead         ppm         ASTM D5185m         >2         0         0         0         0           Copper         ppm         ASTM D5185m         >8         0         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1         history1  |                 |
| Lead         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >8         0         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1   |                 |
| Copper         ppm         ASTM D5185m         >8         0         0         0           Tin         ppm         ASTM D5185m         >4         0         0         0           Vanadium         ppm         ASTM D5185m         >4         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1   |                 |
| Tin         ppm         ASTM D5185m         >4         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1  |                 |
| Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1         history1  |                 |
| Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2         history |                 |
|  |                 |
|  | story2          |
|  |                 |
| Barium ppm ASTM D5185m 0 0 0   |                 |
| Molybdenum         ppm         ASTM D5185m         O         O         O   |                 |
| Manganese         ppm         ASTM D5185m         0         0         0  |                 |
| Magnesium         ppm         ASTM D5185m         1         0         0  |                 |
| Calcium         ppm         ASTM D5185m         1         1         1  |                 |
| Phosphorus         ppm         ASTM D5185m         1         <1  |                 |
| Zinc ppm ASTM D5185m 4 2 4   |                 |
| Sulfur         ppm         ASTM D5165m         50         9         9         0  |                 |
|  | story2          |
| Silicon ppm ASTM D5185m >15 0 <1 2   |                 |
| Sodium         ppm         ASTM D5185m         0         0         0   |                 |
| Potassium         ppm         ASTM D5185m         >20         0         0         <1   |                 |
| Water         %         ASTM D6304         >0.01         0.006         0.005         0.00  | 16              |
| ppm Water ppm ASTM D6304 >100 61.6 50.4 62.4   |                 |
| FLUID CLEANLINESS method limit/base current history1 his   | story2          |
| Particles >4μm ASTM D7647 >10000 7282 ▲ 16157 ▲ 4075   |                 |
| Particles >6μm ASTM D7647 >2500 <b>1304</b> Δ 3569 Δ 6597  |                 |
| Particles >14µm ASTM D7647 >320 <b>33</b> 76 75  |                 |
| Particles >21µm         ASTM D7647         >80         6         8         8   |                 |
| Particles >38µm ASTM D7647 >20 0 0 0   |                 |
| Particles >71µm         ASTM D7647         >4         0         0         0  |                 |
| Oil Cleanliness         ISO 4406 (c)         >20/18/15         20/18/12         ▲ 21/19/13         ▲ 23/2  |                 |
| FLUID DEGRADATION method limit/base current history1 his   | 20/13           |
| Acid Number (AN) mg KOH/g ASTM D974 0.005 0.015 0.013 0.01   | 20/13<br>story2 |

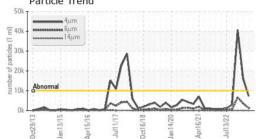


Water

0.03

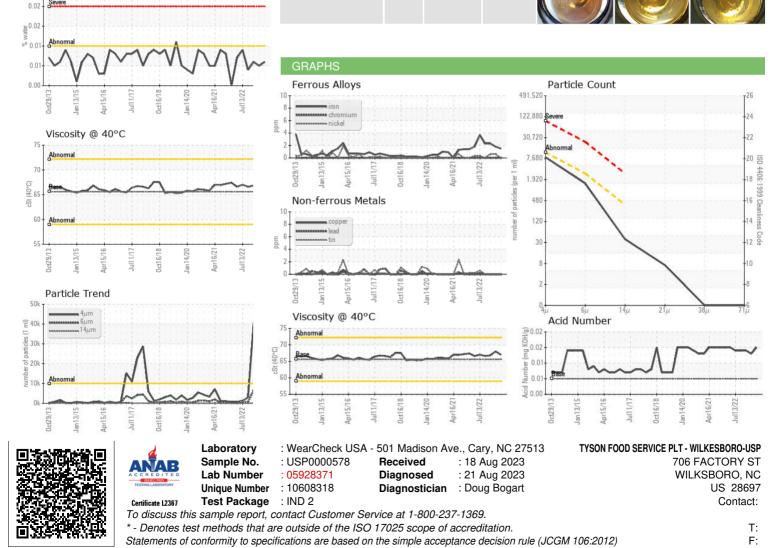
# **OIL ANALYSIS REPORT**





| 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   | NORML                                   | NORML    |
| Odor             | scalar | *Visual   | NORML      | NORML   | NORML                                   | NORML    |
| Emulsified Water | scalar | *Visual   | >0.01      | NEG     | NEG                                     | NEG      |
| Free Water       | scalar | *Visual   |            | NEG     | NEG                                     | NEG      |
| FLUID PROPERT    | IES    | method    | limit/base | current | history1                                | history2 |
| Visc @ 40°C      | cSt    | ASTM D445 | 65.6       | 67.0    | 68.0                                    | 66.8     |
| SAMPLE IMAGES    | 3      | method    | limit/base | current | history1                                | history2 |
| Color            |        |           |            |         | And |          |
| Detterre         |        |           |            |         |   |          |

Bottom



Contact/Location: ? ? - TYSWILFOO