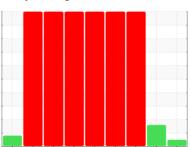


# **GREASE ANALYSIS**

Sample Rating Trend







Machine Id

# TURBINA 20 - REAR BEARING (S/N 101181) Component Grease

KLUBER KLUBERPLEX BEM 41-141 (--- LTR)

## Recommendation

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

All component wear rates are normal.

## **Grease Condition**

The condition of the grease is acceptable for the time in service.

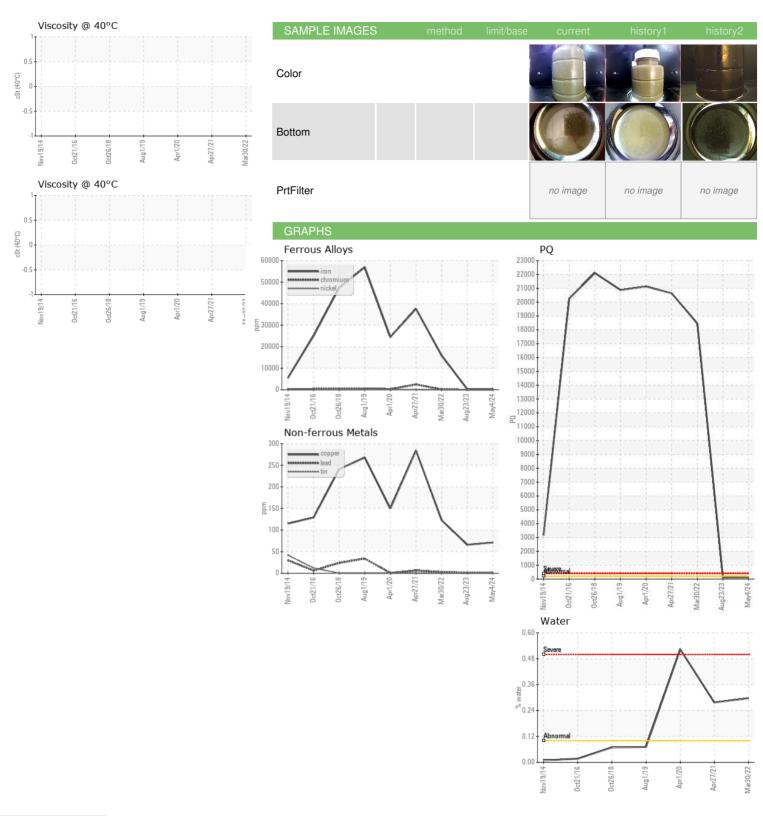
## Contaminants

There is no indication of any contamination in the grease.

| R)   |   | NovŽ014 Oct   | 2016 Oct2018 Aug2019                  | Apr2020 Apr2021 Mar2022 Aug20.   |   |   |
|--|---|---|---------------------------------------|--|---|---|
| SAMPLE INFORM  | MATION  | method  | limit/base                            | current  | history1  | history2  |
| Sample Number  |   | Client Info   |                                       | WC0881138  | WCI2352752  | WC05582723  |
| Sample Date  |   | Client Info   |                                       | 04 May 2024  | 23 Aug 2023   | 30 Mar 2022   |
| Machine Age  | yrs   | Client Info   |                                       | 2  | 11  | 0   |
| Grease Age   | yrs   | Client Info   |                                       | 1  | 1   | 6   |
| Grease Serviced  |   | Client Info   |                                       | N/A  | N/A   | N/A   |
| Sample Status  |   |   |                                       | NORMAL   | ABNORMAL  | SEVERE  |
| CONTAMINATIO   | V   | method  | limit/base                            | current  | history1  | history2  |
| Water  |   | WC Method   | >0.1                                  | NEG  | NEG   | NEG   |
| WEAR METALS  |   | method  | limit/base                            | current  | history1  | history2  |
| PQ   |   | ASTM D8184  | >200                                  | 123  | 113   | <b>18464</b>  |
| Iron   | ppm   | ASTM D5185m   | >250                                  | 335  | 232   | <b>▲</b> 15892  |
| Chromium   | ppm   | ASTM D5185m   | >10                                   | 6  | 4   | <b>▲</b> 152  |
| Nickel   | ppm   | ASTM D5185m   | >5                                    | 0  | 0   | 2   |
| Cadmium  | ppm   | ASTM D5185m   |                                       | 1  | 1   | 0   |
| Titanium   | ppm   | ASTM D5185m   |                                       | 1  | 2   | 2   |
| Vanadium   | ppm   | ASTM D5185m   |                                       | 2  | 1   | 2   |
| Lead   | ppm   | ASTM D5185m   | >25                                   | 1  | <1  | 3   |
| Copper   | ppm   | ASTM D5185m   | >75                                   | 71   | 66  | <u> </u>  |
| Tin  | ppm   | ASTM D5185m   | >5                                    | 0  | 0   | 0   |
| Silver   | ppm   | ASTM D5185m   | >5                                    | 0  | <1  | 0   |
|  |   |   |                                       |  |   |   |
| ADDITIVES  |   | method  | limit/base                            | current  | history1  | history2  |
| ADDITIVES Boron  | ppm   | method<br>ASTM D5185m   | limit/base                            | current<br>152   | history1<br>143   | history2<br>156   |
|  | ppm   |   | limit/base                            |  |   |   |
| Boron  | •       | ASTM D5185m   | limit/base                            | 152  | 143<br>0<br>2   | 156   |
| Boron<br>Magnesium   | ppm   | ASTM D5185m<br>ASTM D5185m  | limit/base                            | 152<br>0   | 143<br>0  | 156<br>6  |
| Boron<br>Magnesium<br>Manganese  | ppm<br>ppm                                    | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base                            | 152<br>0<br>2  | 143<br>0<br>2   | 156<br>6<br>96  |
| Boron<br>Magnesium<br>Manganese<br>Molybdenum  | ppm<br>ppm                                    | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base                            | 152<br>0<br>2<br>4512  | 143<br>0<br>2<br>4151   | 156<br>6<br>96<br>3576  |
| Boron<br>Magnesium<br>Manganese<br>Molybdenum<br>Phosphorus  | ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base                            | 152<br>0<br>2<br>4512<br>892   | 143<br>0<br>2<br>4151<br>937  | 156<br>6<br>96<br>3576<br>836   |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc   | ppm<br>ppm<br>ppm<br>ppm<br>ppm               | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base                            | 152<br>0<br>2<br>4512<br>892   | 143<br>0<br>2<br>4151<br>937<br>157   | 156<br>6<br>96<br>3576<br>836<br>128  |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony  | ppm<br>ppm<br>ppm<br>ppm<br>ppm               | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   |                                       | 152<br>0<br>2<br>4512<br>892<br>304  | 143<br>0<br>2<br>4151<br>937<br>157   | 156<br>6<br>96<br>3576<br>836<br>128  |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  |                                       | 152<br>0<br>2<br>4512<br>892<br>304<br>  | 143<br>0<br>2<br>4151<br>937<br>157<br>                                       | 156<br>6<br>96<br>3576<br>836<br>128<br>  |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m   |                                       | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current   | 143<br>0<br>2<br>4151<br>937<br>157<br><br>history1                           | 156<br>6<br>96<br>3576<br>836<br>128<br><br>history2                              |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m   |                                       | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0  | 143<br>0<br>2<br>4151<br>937<br>157<br><br>history1<br>0<br>12                | 156 6 96 3576 836 128 history2  |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m   |                                       | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23  | 143 0 2 4151 937 157 history1 0 12 26   | 156 6 96 3576 836 128 history2  11 0 28   |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium   | ppm       | ASTM D5185m   |                                       | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60  | 143 0 2 4151 937 157 history1 0 12 26 52                                      | 156 6 96 3576 836 128 history2  11 0 28 62  |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium Lithium   | ppm       | ASTM D5185m   |                                       | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60<br>3121                                | 143 0 2 4151 937 157 history1 0 12 26 52 3333                                 | 156 6 96 3576 836 128 history2  11 0 28 62 2525                                   |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium Lithium Sulfur  | ppm       | ASTM D5185m   | limit/base                            | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60<br>3121<br>4425                        | 143 0 2 4151 937 157 history1 0 12 26 52 3333 4259                            | 156 6 96 3576 836 128 history2  11 0 28 62 2525 4528                              |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINANTS                                 | ppm       | ASTM D5185m   | limit/base                            | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60<br>3121<br>4425<br>current             | 143 0 2 4151 937 157 history1 0 12 26 52 3333 4259 history1                   | 156 6 96 3576 836 128 history2  11 0 28 62 2525 4528 history2                     |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINANTS                                 | ppm       | ASTM D5185m  Method ASTM D5185m   | limit/base                            | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60<br>3121<br>4425<br>current             | 143 0 2 4151 937 157 history1 0 12 26 52 3333 4259 history1  ▲ 584            | 156 6 96 3576 836 128 history2  ▲ 11 0 28 62 2525 4528 history2  ▲ 378            |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINANTS Silicon Potassium               | ppm       | ASTM D5185m   | limit/base limit/base >150            | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60<br>3121<br>4425<br>current<br>172<br>7 | 143 0 2 4151 937 157 history1 0 12 26 52 3333 4259 history1  ▲ 584 4          | 156 6 96 3576 836 128 history2  ▲ 11 0 28 62 2525 4528 history2  ▲ 378 3          |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOA Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINANTS Silicon Potassium GREASE CONDIT | ppm       | ASTM D5185m | limit/base limit/base >150 limit/base | 152<br>0<br>2<br>4512<br>892<br>304<br><br>current<br>0<br>13<br>23<br>60<br>3121<br>4425<br>current<br>172<br>7 | 143 0 2 4151 937 157 history1 0 12 26 52 3333 4259 history1  ▲ 584 4 history1 | 156 6 96 3576 836 128 history2  ▲ 11 0 28 62 2525 4528 history2  ▲ 378 3 history2 |



## **GREASE ANALYSIS**







Certificate 12367

Laboratory Sample No.

: WC0881138 Lab Number : 06194933 Unique Number : 11057056

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 29 May 2024

**Tested** : 13 Jun 2024 DEL SEMAFORO DEL CLUB TERRAZA, 1 CUADRA AL SUR MANAGUA, ZZ NI

**EOLO DE NICARAGUA S.A.** 

Diagnosed : 13 Jun 2024 - Doug Bogart Test Package: GRS 1 (Additional Tests: KV40, SCREEN)

Contact: Rafael Bermudez

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)

Contact/Location: Rafael Bermudez - EOLOMAN

T:

F: