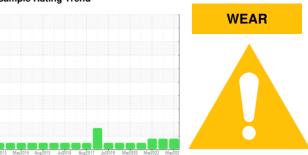


GREASE ANALYSIS

Sample Rating Trend



Machine Id

TURBINA 14 (S/N 101296)

Wind Turbine Gearbox

FUCHS RENOLIN UNISYN CLP 320 (340 LTR)

DIAGNOSIS

Recommendation

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

The iron level is abnormal. All other 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.

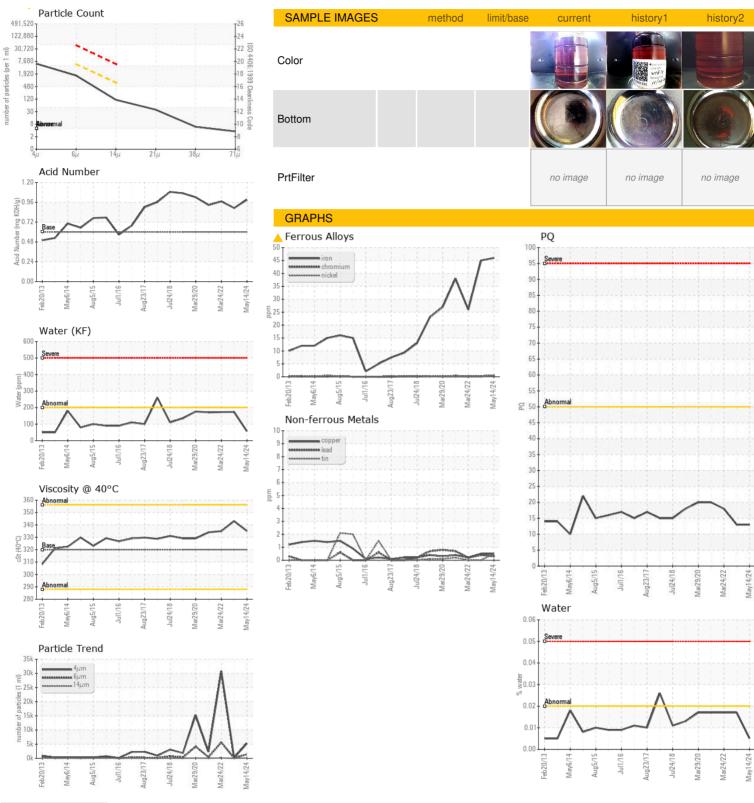
Fluid Condition

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

-						
SAMPLE INFORMA	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0881124	WC0831533	WC05582425
Sample Date		Client Info		14 May 2024	15 Aug 2023	24 Mar 2022
Machine Age	yrs	Client Info		12	11	72
Oil Age	yrs	Client Info		9	7	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ATTENTION
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>50	13	13	18
Iron p	ppm	ASTM D5185m	>30	4 6	<u>45</u>	26
Chromium	ppm	ASTM D5185m	>3	<1	<1	<1
Nickel	ppm	ASTM D5185m	>3	<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	0	0
Titanium	ppm	ASTM D5185m	>10	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Lead	ppm	ASTM D5185m	>15	<1	<1	<1
Copper	ppm	ASTM D5185m	>10	<1	<1	<1
Tin p	ppm	ASTM D5185m	>10	<1	0	0
Silver	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
		method	IIIIII/Dase	current	HISTORY	HISTOLYZ
Boron p	ppm	ASTM D5185m	IIIIII/Dase	0	0	0
·	ppm ppm		IIIIIVDase			,
Magnesium		ASTM D5185m	IIIIII/Dase	0	0	0
Magnesium panganese panganese	ppm	ASTM D5185m ASTM D5185m	IIIIII/Dase	0 <1	0	0 <1
Magnesium p Manganese p Molybdenum p	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	illill/base	0 <1 0	0 0 0	0 <1 <1
Magnesium p Manganese p Molybdenum p Phosphorus p	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	illill/base	0 <1 0 <1	0 0 0	0 <1 <1 0
Magnesium panganese pangan	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	illill/base	0 <1 0 <1 186	0 0 0 0 185	0 <1 <1 0 136
Magnesium p Manganese p Molybdenum p Phosphorus p Zinc p	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 <1 0 <1 186 104	0 0 0 0 185 102	0 <1 <1 0 136 82
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 <1 0 <1 186 104	0 0 0 0 185 102	0 <1 <1 0 136 82
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 <1 0 <1 186 104 	0 0 0 0 185 102 	0 <1 <1 <1 0 136 82 history2
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m		0 <1 0 <1 186 104 current	0 0 0 0 185 102 history1	0 <1 <1 <1 0 136 82 history2 <1
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m		0 <1 0 <1 186 104 current 1	0 0 0 0 185 102 history1 0	0 <1 <1 <1 0 136 82 history2 <1 0
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium Sodium	pppm pppm pppm pppm pppm pppm	ASTM D5185m		0 <1 0 <1 186 104 current 1 1 8	0 0 0 0 185 102 history1 0 2	0 <1 <1 <0 <1 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium Sodium	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m		0 <1 0 <1 186 104 current 1 1 8 3 3	0 0 0 0 185 102 history1 0 2 7	0 <1 <1 <1 0 136 82 history2 <1 0 4 1
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium Sodium Sulfur CONTAMINANTS	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m	limit/base	0 <1 0 <1 186 104 current 1 1 8 3 4730	0 0 0 185 102 history1 0 2 7 0 5619	0 <1 <1 <1 0 136 82 history2 <1 0 4 1 4062
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium Sodium Sulfur CONTAMINANTS Silicon	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m	limit/base	0 <1 0 <1 186 104 current 1 1 8 3 4730 current	0 0 0 185 102 history1 0 2 7 0 5619	0 <1 <1 <1 0 136 82 history2 <1 0 4 1 4062 history2
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium Sodium Sulfur CONTAMINANTS Silicon Potassium	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m	limit/base	0 <1 0 <1 186 104 current 1 1 8 3 4730 current 1	0 0 0 185 102 history1 0 2 7 0 5619 history1	0
Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/SOAP Aluminum Barium Calcium Sodium Sulfur CONTAMINANTS Silicon Potassium Water	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m	limit/base limit/base >+15 >0.02	0 <1 0 <1 0 <1 186 104 current 1 1 8 3 4730 current 1 1	0 0 0 185 102 history1 0 2 7 0 5619 history1 10 <1	0 <1 <1 <1 0 136 82 history2 <1 0 4 1 4062 history2 <1 0



GREASE ANALYSIS







Certificate 12367

Sample No.

Laboratory

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06194676

: WC0881124

Received **Tested** Diagnosed

: 29 May 2024 : 31 May 2024 : 31 May 2024 - Angela Borella

EOLO DE NICARAGUA S.A. DEL SEMAFORO DEL CLUB TERRAZA, 1 CUADRA AL SUR MANAGUA, ZZ NI

Unique Number : 11056799 Test Package : GRS 1 (Additional Tests: Consistency, FilterPatch, GreaseColor, ICP, KF, KV40, PQ, PrtCount, Confident Rafael Bermudez To discuss this sample report, contact Customer Service at 1-800-237-1369.

 st - 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)

T:

F: