

OIL ANALYSIS REPORT

Sample Rating Trend

WEAR

Machine Id

TURBINA 01 (S/N 101309)

Component Wind Turbine Gearbox

Fluid FUCHS RENOLIN UNISYN CLP 320 (320 LTR)

DIAGNOSIS

A Recommendation

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

🔺 Wear

The iron level is abnormal.

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

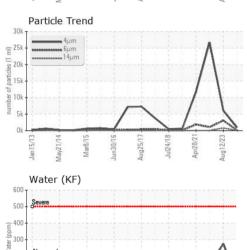
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

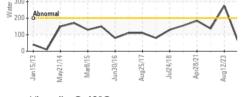
SAMPLE INFORM		method	limit/base	current	history1	history2
Sample Number		Client Info		WC0881109	WC0505306	WC05582415
Sample Date		Client Info Client Info		07 May 2024	12 Aug 2023	29 Mar 2022
Machine Age	yrs			12	11 2	6 0
Oil Age	yrs	Client Info		3	_	U N/A
Oil Changed		Client Info			Changed	
Sample Status				ABNORMAL	ABNORMAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>50	15	9	21
Iron	ppm	ASTM D5185m	>30	<u> </u>	<u> </u>	21
Chromium	ppm	ASTM D5185m	>3	<1	<1	<1
Nickel	ppm	ASTM D5185m	>3	<1	1	0
Titanium	ppm	ASTM D5185m	>10	<1	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>30	1	0	<1
Lead	ppm	ASTM D5185m	>15	0	<1	<1
Copper	ppm	ASTM D5185m	>10	<1	<1	<1
Tin	ppm	ASTM D5185m	>10	<1	0	0
Antimony	ppm	ASTM D5185m	>5			
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	0	<1
Barium	ppm	ASTM D5185m		1	2	0
Molybdenum	ppm	ASTM D5185m		<1	0	0
Manganese	ppm	ASTM D5185m		0	0	<1
Magnesium	ppm	ASTM D5185m		<1	<1	0
Calcium	ppm	ASTM D5185m		9	6	4
Phosphorus	ppm	ASTM D5185m		201	190	154
Zinc	ppm	ASTM D5185m		100	90	76
0						
Sulfur	ppm	ASTM D5185m		4535	4748	4136
CONTAMINANTS		ASTM D5185m method	limit/base	4535 current	4748 history1	4136 history2
CONTAMINANTS			limit/base		_	
	3	method		current	history1	history2
CONTAMINANTS Silicon	ppm ppm	method ASTM D5185m		current 2	history1 8	history2 <1
CONTAMINANTS Silicon Sodium	ppm	method ASTM D5185m ASTM D5185m	>+15	current 2 2	history1 8 0 <1	history2 <1 1
CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	>+15 >20	current 2 2 1	history1 8 0	history2 <1 1 0
CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm % ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304	>+15 >20 >0.02	current 2 2 1 0.006	history1 8 0 <1 ▲ 0.027	history2 <1 1 0 0.013
CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm % ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304	>+15 >20 >0.02 >200	current 2 2 1 0.006 63	history1 8 0 <1 ▲ 0.027 ▲ 275.4	history2 <1 1 0 0.013 136.9
CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN	ppm ppm ppm % ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 method	>+15 >20 >0.02 >200 limit/base	current 2 2 1 0.006 63 current	history1 8 0 <1 ▲ 0.027 ▲ 275.4 history1	history2 <1 1 0 0.013 136.9 history2
CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm % ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 method ASTM D7647	>+15 >20 >0.02 >200 limit/base	current 2 2 1 0.006 63 current 965	history1 8 0 <1 ▲ 0.027 ▲ 275.4 history1 6105	history2 <1 1 0 0.013 136.9 history2 26764
CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm % ppm	method ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 Method ASTM D7647 ASTM D7647	>+15 >20 >0.02 >200 limit/base >5000 >640	current 2 2 1 0.006 63 current 965 144	history1 8 0 <1 ▲ 0.027 ▲ 275.4 history1 6105 3065	history2 <1 1 0 0.013 136.9 history2 26764 1073
CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm ppm % ppm	method ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 Method ASTM D7647 ASTM D7647 ASTM D7647	>+15 >20 >0.02 >200 limit/base >5000 >640	current 2 2 1 0.006 63 current 965 144 20	history1 8 0 <1 ▲ 0.027 ▲ 275.4 history1 6105 3065 ● 753	history2 <1 1 0 0.013 136.9 history2 26764 1073 19
CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm % ppm	Method ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	>+15 >20 >200 limit/base >5000 >640 >160 >40	current 2 2 1 0.006 63 current 965 144 20 13	history1 8 0 <1 0.027 275.4 history1 6105 3065 753 294	history2 <1

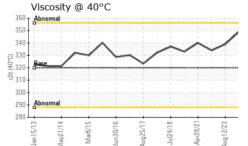


OIL ANALYSIS REPORT

Wate	er (Kl	-)							FLU
600 T	i i i i								FLU
500 - Severe									Acid N
(mdd) 300 200 − Abnon									VISU
Abnon	mal						Δ		White
100-	-				-		$\langle \rangle$		Yellow
									Precip
	/14	/15	/16	11/2	/18	3/21	/23	-	Silt
Jan 15/13	May21/14	Mar8/15	Jun30/16	Aug25/17	Jul24/18	Apr28/21	Aug12/23		Debris
	_								Sand/
PQ 100 _T Severe									Appea
0			1	1	1	1			Odor
80-									Emuls
	mal								Free V
40									
20-									FLU
	\sim				\frown		~		Visc @
0 2	14	15	16	17	10	21	53	-	0.4.4
Jan 15/13	May21/14	Mar8/15	Jun30/16	Aug25/17	Jul24/18	Apr28/21	Aug12/23		SAN
<u> </u>	\leq	_	ĥ	Ai	-2	4	AL		





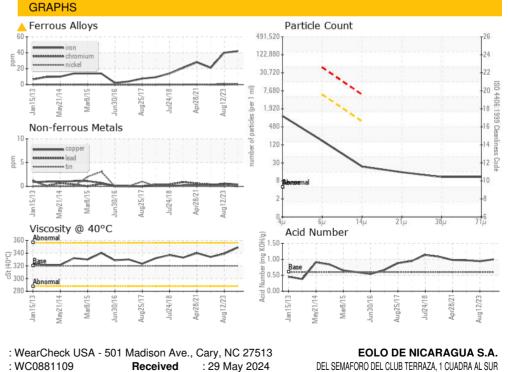


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	1.00	0.94	0.97
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	LIGHT
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	>0.02	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	349	339	334
SAMPLE IMAGES		method	limit/base	current	history1	history2

Color



Bottom



: 31 May 2024

DEL SEMAFORO DEL CLUB TERRAZA, 1 CUADRA AL SUR MANAGUA, ZZ : 31 May 2024 - Angela Borella NI Contact: Rafael Bermudez

Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount) 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)

Tested

Diagnosed

Certificate 12367

Laboratory

Sample No.

Lab Number : 06194669

Unique Number : 11056792

Contact/Location: Rafael Bermudez - EOLOMAN

T:

F: