



OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area

5

Machine Id

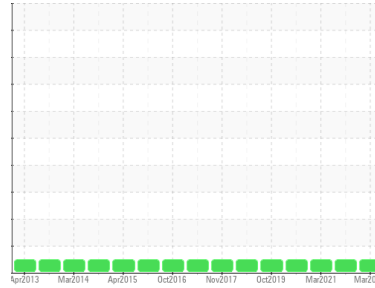
WINERGY GEARBOX WTG-501 (S/N 4836487-0020-3)

Component

Wind Turbine Gearbox

Fluid

FUCHS RENOLIN UNISYN CKC ISO 320 (340 LTR)



DIAGNOSIS

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 component. The amount and size of particulates present in the system is acceptable.

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0804465	WC05504495	WC0547173
Sample Date	Client Info		02 Mar 2023	27 Jan 2022	03 Mar 2021
Machine Age	yrs	Client Info	8	0	120
Oil Age	yrs	Client Info	8	0	65
Oil Changed	Client Info		Not Changed	N/A	Not Changed
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>50	12	20	21	
Iron	ppm	ASTM D5185m	>65	16	7	11
Chromium	ppm	ASTM D5185m	>3	<1	0	<1
Nickel	ppm	ASTM D5185m	>3	0	0	0
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>10	<1	0	0
Lead	ppm	ASTM D5185m	>5	0	0	<1
Copper	ppm	ASTM D5185m	>10	0	0	<1
Tin	ppm	ASTM D5185m	>10	<1	0	0
Antimony	ppm	ASTM D5185m	>5	---	---	0
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	25	<1	0	3
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		<1	0	0
Calcium	ppm	ASTM D5185m	17	16	4	21
Phosphorus	ppm	ASTM D5185m	200	198	227	219
Zinc	ppm	ASTM D5185m		53	6	0
Sulfur	ppm	ASTM D5185m	5000	5771	4639	4871

CONTAMINANTS

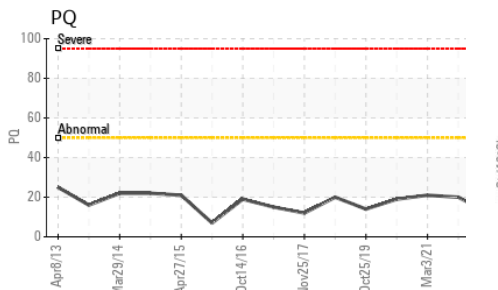
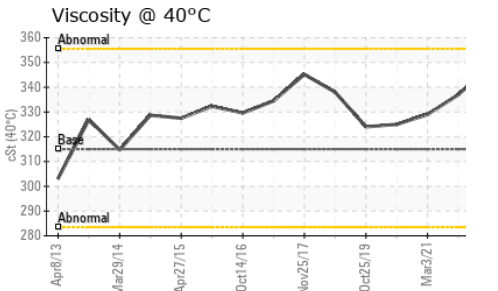
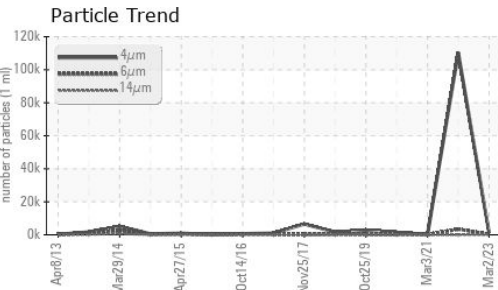
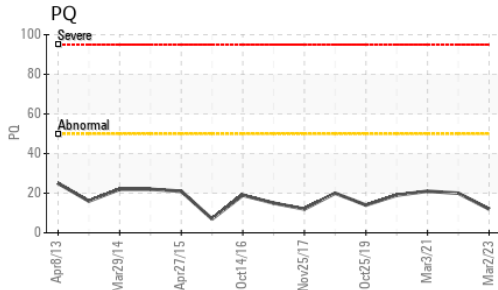
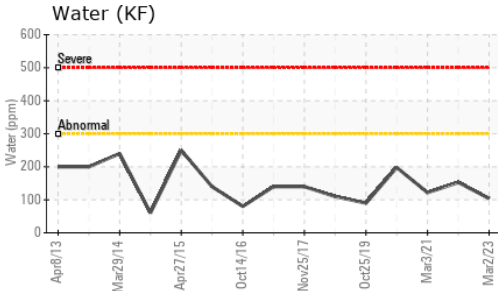
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>15	<1	<1	0
Sodium	ppm	ASTM D5185m		4	0	3
Potassium	ppm	ASTM D5185m	>20	2	0	1
Water	%	ASTM D6304	>0.03	0.010	0.015	0.012
ppm Water	ppm	ASTM D6304	>300	103.9	152.5	121.8

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		1177	110297	189
Particles >6µm	ASTM D7647	>5000	385	3396	33
Particles >14µm	ASTM D7647	>640	45	21	5
Particles >21µm	ASTM D7647	>160	9	6	3
Particles >38µm	ASTM D7647	>40	1	3	0
Particles >71µm	ASTM D7647	>10	0	1	0
Oil Cleanliness	ISO 4406 (c)	>--/19/16	17/16/13	24/19/12	15/12/10



OIL ANALYSIS REPORT

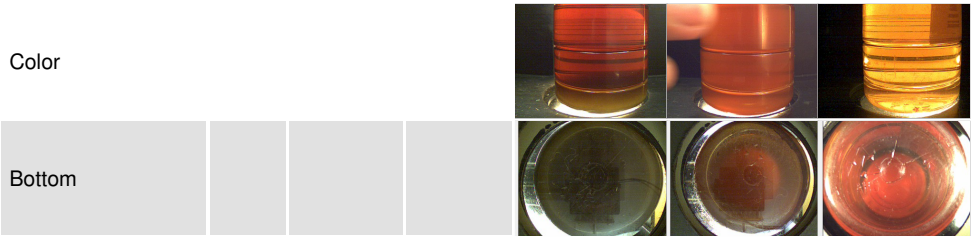


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.9	1.04	1.12	0.891

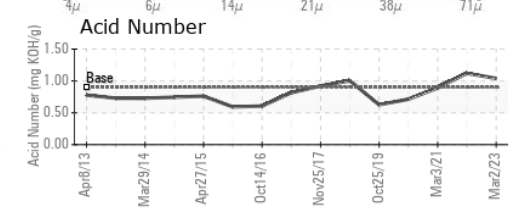
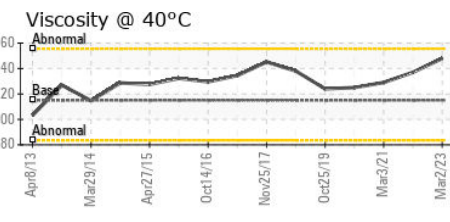
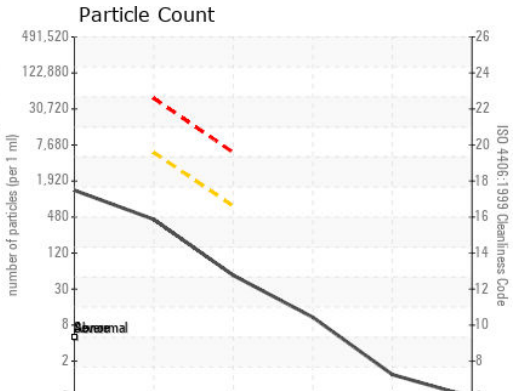
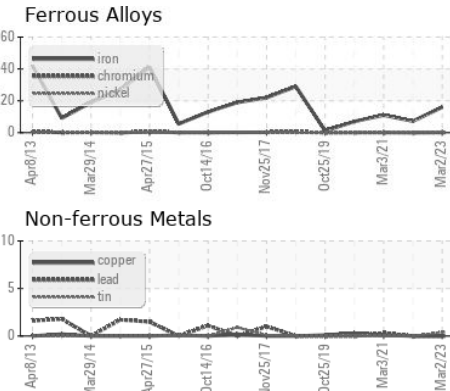
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.03	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	315	348	337	329

SAMPLE IMAGES		method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0804465 **Received** : 26 May 2023
Lab Number : 05857912 **Diagnosed** : 30 May 2023
Unique Number : 10492377 **Diagnostician** : Don Baldrige
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

ENERGIA EOLICA
 STA ANA KM25 CARRETERA AL SUR, A 1KM DEL CRUCE
 FRANCISCO MORAZAN, ZZ
 HN
 Contact: SANTOS DEL CID
 sdelcid@dennci.com

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)

T: x:
 F: x: