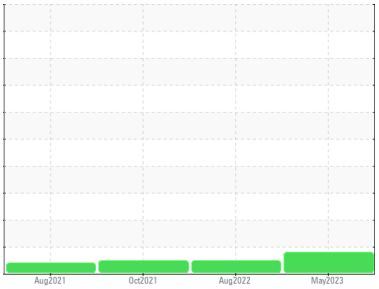
PROBLEM SUMMARY

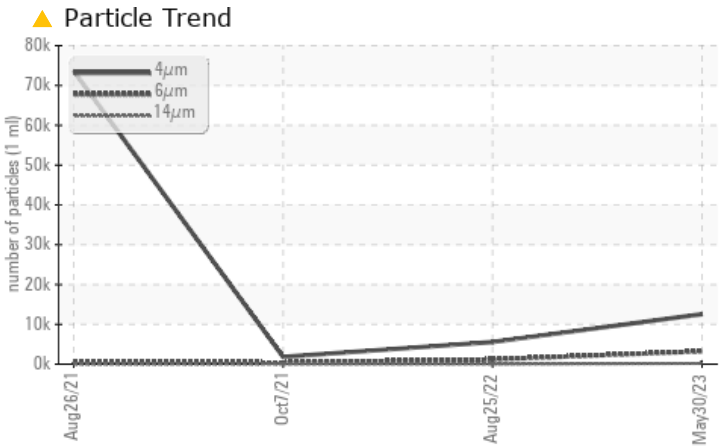
Area
FRONTIER II [200006776]
Machine Id
25WEA86890
Component
Wind Turbine Gearbox
Fluid
FUCHS RENOLIN CLP ISO 320 (--- LTR)

Sample Rating Trend



ISO

COMPONENT CONDITION SUMMARY



RECOMMENDATION

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

PROBLEMATIC TEST RESULTS

Sample Status				**ATTENTION**	NORMAL	NORMAL
Particles >6µm		ASTM D7647	>2500	▲ **3216**	1177	370
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ **21/19/15**	20/17/13	18/16/12

Customer Id: NORDEX
Sample No.: NX05867870
Lab Number: 05867870
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

25 Aug 2022 Diag: Doug Bogart

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

07 Oct 2021 Diag: Jonathan Hester

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

26 Aug 2021 Diag: Jonathan Hester

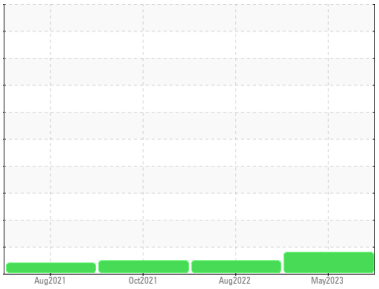
ISO

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
FRONTIER II [200006776]
Machine Id
25WEA86890
Component
Wind Turbine Gearbox
Fluid
FUCHS RENOLIN CLP ISO 320 (--- LTR)

DIAGNOSIS

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

Wear
All component wear rates are normal.

Contamination
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

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	history 1	history 2
Sample Number		Client Info		**NX05867870**	NX05639647	NX05391921
Sample Date		Client Info		**30 May 2023**	25 Aug 2022	07 Oct 2021
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ATTENTION**	NORMAL	NORMAL

WEAR METALS		method	limit/base	current	history 1	history 2
PQ		ASTM D8184	>80	**12**	7	14
Iron	ppm	ASTM D5185m	>150	**20**	12	5
Chromium	ppm	ASTM D5185m	>5	**<1**	0	0
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m	>10	**0**	0	0
Silver	ppm	ASTM D5185m		**0**	0	<1
Aluminum	ppm	ASTM D5185m	>10	**<1**	<1	0
Lead	ppm	ASTM D5185m	>20	**0**	0	0
Copper	ppm	ASTM D5185m	>50	**<1**	<1	<1
Tin	ppm	ASTM D5185m	>10	**0**	<1	<1
Antimony	ppm	ASTM D5185m	>5	**---**	---	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

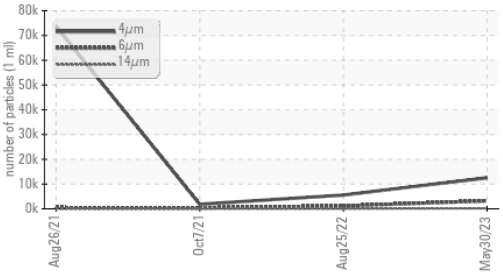
ADDITIVES		method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185m		**4**	4	12
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**<1**	0	<1
Calcium	ppm	ASTM D5185m		**4**	6	10
Phosphorus	ppm	ASTM D5185m		**157**	188	88
Zinc	ppm	ASTM D5185m		**0**	<1	0
Sulfur	ppm	ASTM D5185m		**6147**	4566	4551

CONTAMINANTS		method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185m	>50	**4**	4	3
Sodium	ppm	ASTM D5185m	>20	**3**	<1	<1
Potassium	ppm	ASTM D5185m	>20	**0**	0	0
Water	%	ASTM D6304	>0.05	**0.006**	0.003	0.005
ppm Water	ppm	ASTM D6304	>500	**68.5**	32.1	50.0

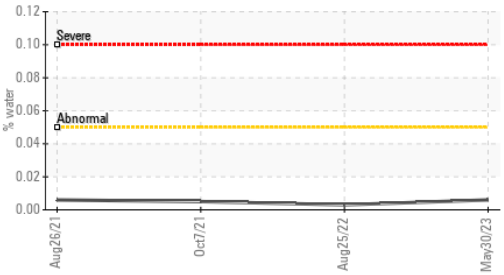
FLUID CLEANLINESS		method	limit/base	current	history 1	history 2
Particles >4µm		ASTM D7647		**12553**	5563	1825
Particles >6µm		ASTM D7647	>2500	▲ **3216**	1177	370
Particles >14µm		ASTM D7647	>320	**191**	52	27
Particles >21µm		ASTM D7647	>80	**38**	13	2
Particles >38µm		ASTM D7647	>20	**1**	1	0
Particles >71µm		ASTM D7647	>4	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ **21/19/15**	20/17/13	18/16/12

OIL ANALYSIS REPORT

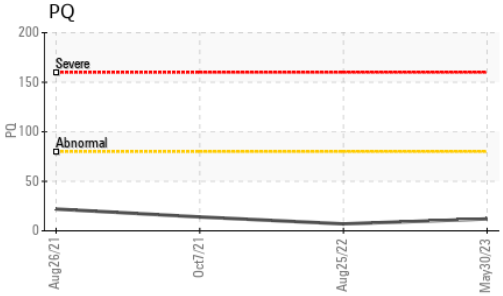
Particle Trend



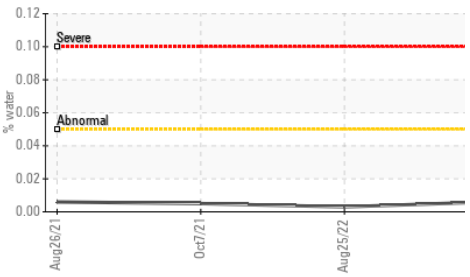
Water



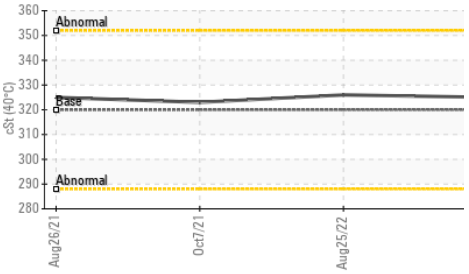
PQ



Water



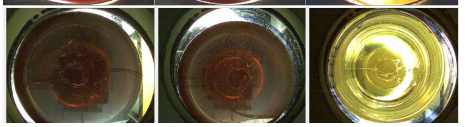
Viscosity @ 40°C



FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.52**	0.52	0.526

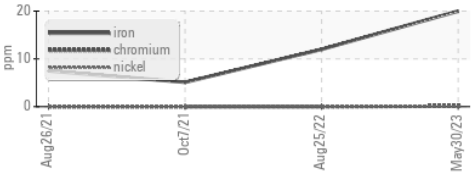
VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	**NONE**	VLITE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D445	320	**325**	326	323

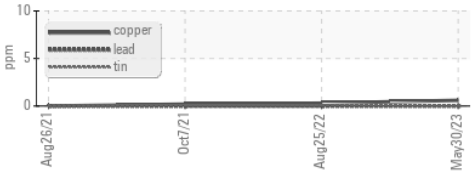
SAMPLE IMAGES	method	limit/base	current	history 1	history 2
Color					
Bottom					

GRAPHS

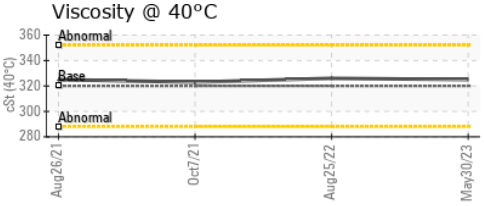
Ferrous Alloys



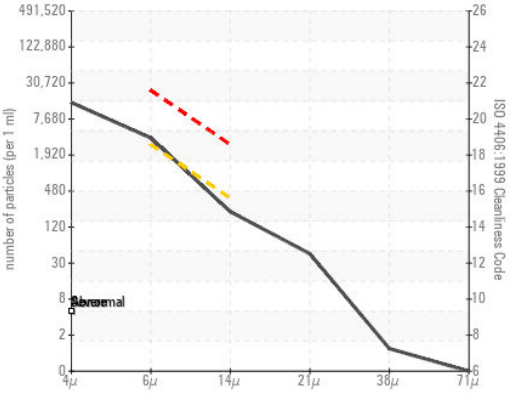
Non-ferrous Metals



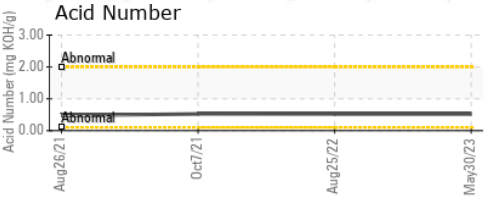
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05867870 **Received** : 08 Jun 2023
Lab Number : 05867870 **Diagnosed** : 11 Jun 2023
Unique Number : 10507654 **Diagnostician** : Doug Bogart
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)

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