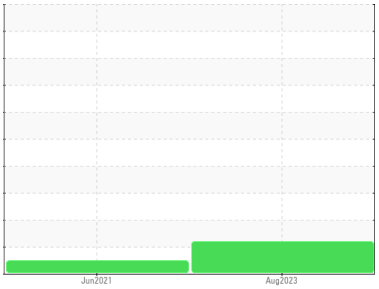
PROBLEM SUMMARY

Sample Rating Trend

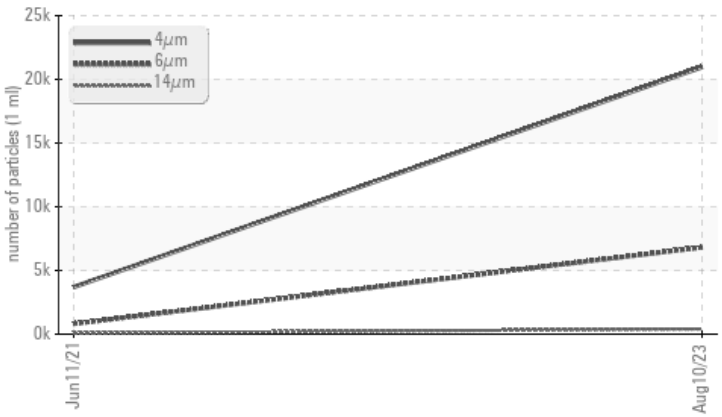


ISO

Area
DAKOTA RANGE III [200006928]
Machine Id
18WEA87755 - D-01
Component
Wind Turbine Gearbox
Fluid
FUCHS RENOLIN CLP ISO 320 (--- LTR)

COMPONENT CONDITION SUMMARY

Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	NORMAL	---
Particles >6µm		ASTM D7647	>2500	▲ **6816**	809	---
Particles >14µm		ASTM D7647	>320	▲ **403**	74	---
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ **22/20/16**	19/17/13	---

Customer Id: NORDEX
Sample No.: NX05931533
Lab Number: 05931533
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.

HISTORICAL DIAGNOSIS

11 Jun 2021 Diag: Angela Borella

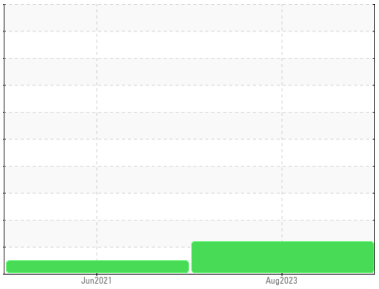
NORMAL

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.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
DAKOTA RANGE III [200006928]
Machine Id
18WEA87755 - D-01
Component
Wind Turbine Gearbox
Fluid
FUCHS RENOLIN CLP ISO 320 (--- LTR)

DIAGNOSIS

Recommendation
We recommend you service the filters on this component. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is a high amount of particulates 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	history1	history2
Sample Number		Client Info		**NX05931533**	NX05437527	---
Sample Date		Client Info		**10 Aug 2023**	11 Jun 2021	---
Machine Age	hrs	Client Info		**15369**	1134	---
Oil Age	hrs	Client Info		**0**	1262	---
Oil Changed		Client Info		**Not Changd**	N/A	---
Sample Status				**ABNORMAL**	NORMAL	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	**12**	19	---
Iron	ppm	ASTM D5185m	>150	**24**	7	---
Chromium	ppm	ASTM D5185m	>5	**<1**	0	---
Nickel	ppm	ASTM D5185m	>10	**0**	0	---
Titanium	ppm	ASTM D5185m	>10	**0**	0	---
Silver	ppm	ASTM D5185m		**0**	<1	---
Aluminum	ppm	ASTM D5185m	>10	**<1**	0	---
Lead	ppm	ASTM D5185m	>20	**1**	<1	---
Copper	ppm	ASTM D5185m	>50	**<1**	<1	---
Tin	ppm	ASTM D5185m	>10	**0**	<1	---
Antimony	ppm	ASTM D5185m	>5	**---**	0	---
Vanadium	ppm	ASTM D5185m		**0**	0	---
Cadmium	ppm	ASTM D5185m		**0**	0	---

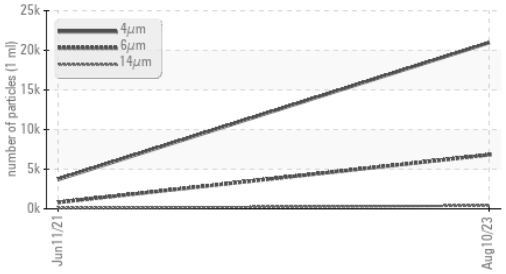
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**3**	9	---
Barium	ppm	ASTM D5185m		**0**	0	---
Molybdenum	ppm	ASTM D5185m		**0**	<1	---
Manganese	ppm	ASTM D5185m		**<1**	<1	---
Magnesium	ppm	ASTM D5185m		**0**	0	---
Calcium	ppm	ASTM D5185m		**23**	23	---
Phosphorus	ppm	ASTM D5185m		**223**	228	---
Zinc	ppm	ASTM D5185m		**1**	0	---
Sulfur	ppm	ASTM D5185m		**5870**	4890	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**6**	8	---
Sodium	ppm	ASTM D5185m	>20	**3**	<1	---
Potassium	ppm	ASTM D5185m	>20	**0**	0	---
Water	%	ASTM D6304	>0.05	**0.003**	0.006	---
ppm Water	ppm	ASTM D6304	>500	**26.9**	61.5	---

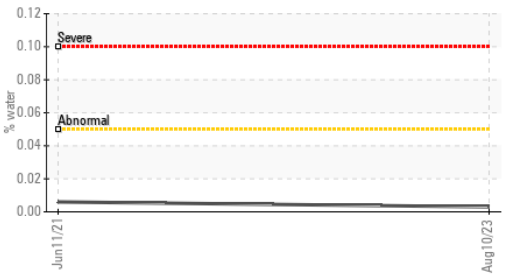
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**20962**	3697	---
Particles >6µm		ASTM D7647	>2500	▲ **6816**	809	---
Particles >14µm		ASTM D7647	>320	▲ **403**	74	---
Particles >21µm		ASTM D7647	>80	**61**	23	---
Particles >38µm		ASTM D7647	>20	**1**	0	---
Particles >71µm		ASTM D7647	>4	**1**	0	---
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ **22/20/16**	19/17/13	---

OIL ANALYSIS REPORT

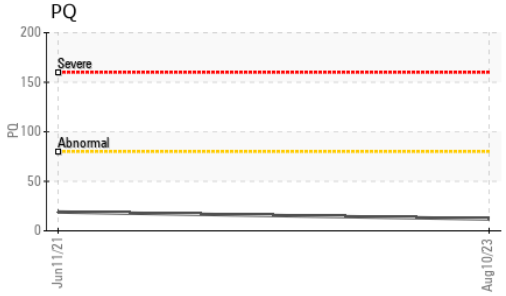
Particle Trend



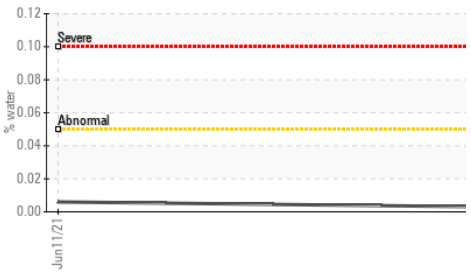
Water



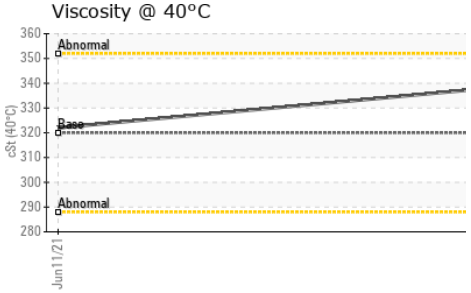
PQ



Water



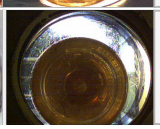
Viscosity @ 40°C



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.46**	0.386	---

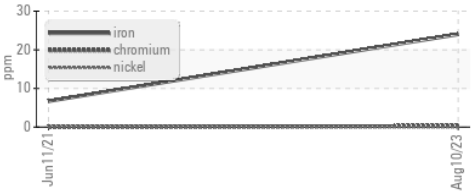
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	LIGHT	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	---
Appearance	scalar	*Visual	NORML	**NORML**	NORML	---
Odor	scalar	*Visual	NORML	**NORML**	NORML	---
Emulsified Water	scalar	*Visual	>0.05	**NEG**	NEG	---
Free Water	scalar	*Visual		**NEG**	NEG	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**338**	322	---

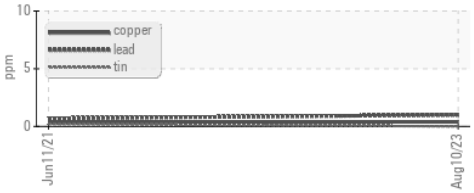
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*

GRAPHS

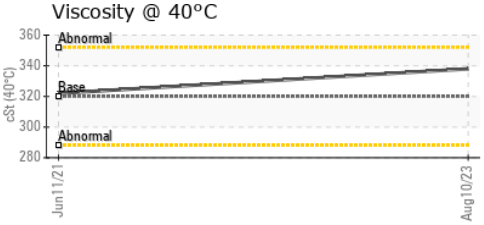
Ferrous Alloys



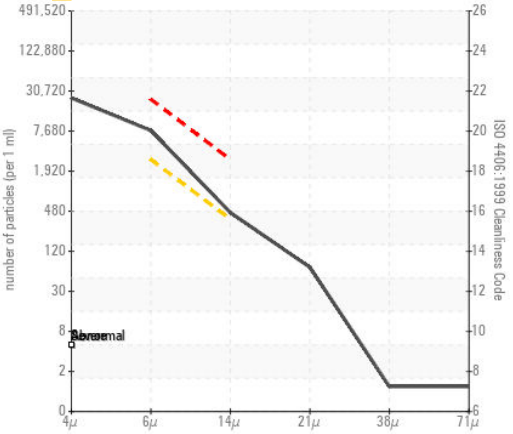
Non-ferrous Metals



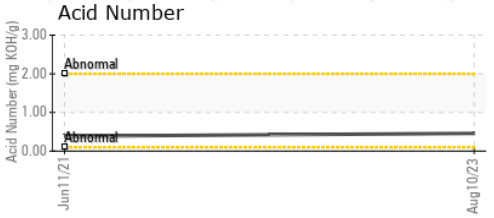
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05931533 **Received** : 22 Aug 2023
Lab Number : 05931533 **Diagnosed** : 24 Aug 2023
Unique Number : 10616804 **Diagnostician** : Jonathan Hester
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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