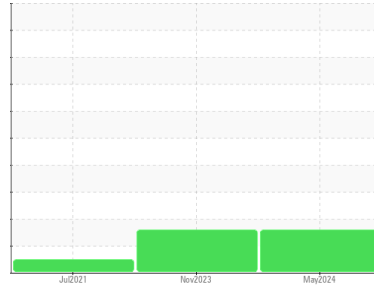




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
DAKOTA RANGE III [200006928]

Machine Id
11WEA87771 - B-05

Component
Wind Turbine Gearbox

Fluid
FUCHS RENOLIN UNISYN CLP 320 (--- LTR)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. 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	NX015981	NX06033474	NX05437536
Sample Date	Client Info	16 May 2024	03 Nov 2023	06 Jul 2021
Machine Age	hrs	22360	16263	0
Oil Age	hrs	22360	16263	0
Oil Changed	Client Info	Not Changed	Not Changd	Not Changed
Sample Status		ABNORMAL	ABNORMAL	NORMAL

WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184	>50	16	17	13	
Iron	ppm	ASTM D5185m	>30	19	14	4
Chromium	ppm	ASTM D5185m	>3	0	<1	0
Nickel	ppm	ASTM D5185m	>3	0	0	0
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	0	<1
Aluminum	ppm	ASTM D5185m	>30	0	0	0
Lead	ppm	ASTM D5185m	>15	2	1	<1
Copper	ppm	ASTM D5185m	>10	<1	<1	<1
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Antimony	ppm	ASTM D5185m	>5	---	---	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		8	10	7
Barium	ppm	ASTM D5185m		<1	<1	0
Molybdenum	ppm	ASTM D5185m		0	<1	<1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		1	0	0
Calcium	ppm	ASTM D5185m		27	20	22
Phosphorus	ppm	ASTM D5185m		218	208	216
Zinc	ppm	ASTM D5185m		15	6	0
Sulfur	ppm	ASTM D5185m		6022	4955	4687

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>+15	<1	5	4
Sodium	ppm	ASTM D5185m		4	4	0
Potassium	ppm	ASTM D5185m	>20	1	1	0
Water	%	ASTM D6304	>0.02	0.002	0.004	0.003
ppm Water	ppm	ASTM D6304	>200	24	41	34.5

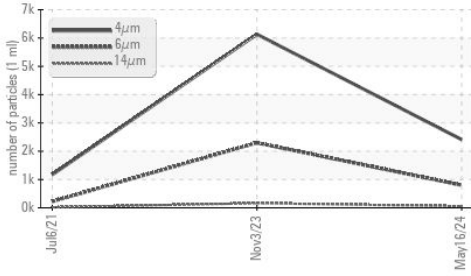
FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		2412	6131	1173
Particles >6µm	ASTM D7647	>320	▲ 800	▲ 2297	222
Particles >14µm	ASTM D7647	>40	▲ 54	▲ 163	17
Particles >21µm	ASTM D7647	>10	▲ 11	▲ 32	4
Particles >38µm	ASTM D7647	>3	1	1	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/15/12	▲ 18/17/13	▲ 20/18/15	17/15/11

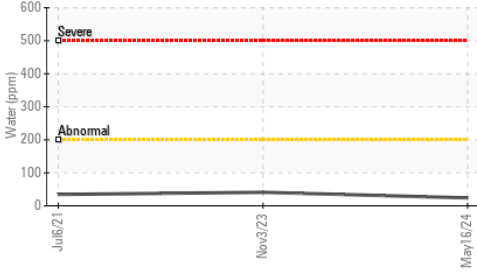


OIL ANALYSIS REPORT

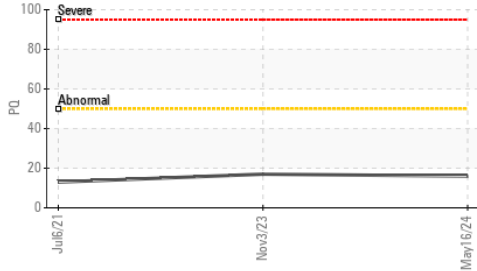
Particle Trend



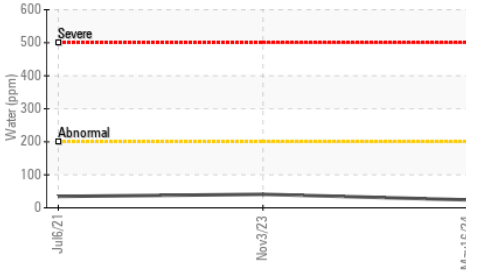
Water (KF)



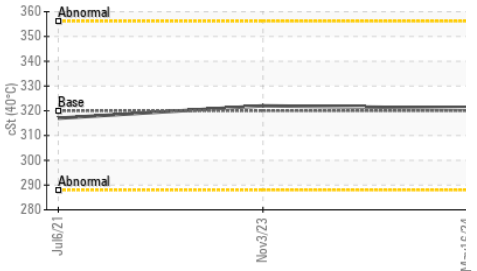
PQ



Water (KF)



Viscosity @ 40°C

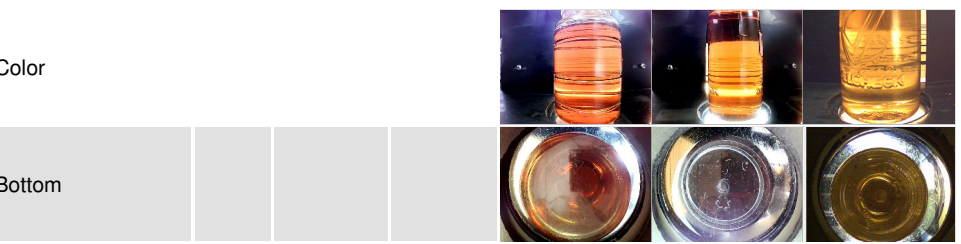


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	0.42	0.33	0.358

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	>0.02	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

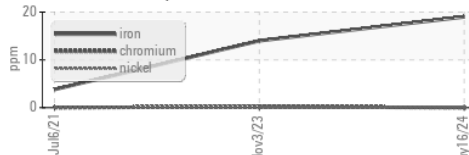
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	321	322	317

SAMPLE IMAGES

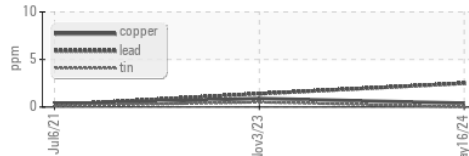


GRAPHS

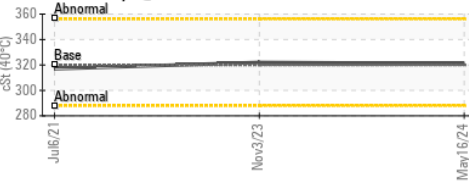
Ferrous Alloys



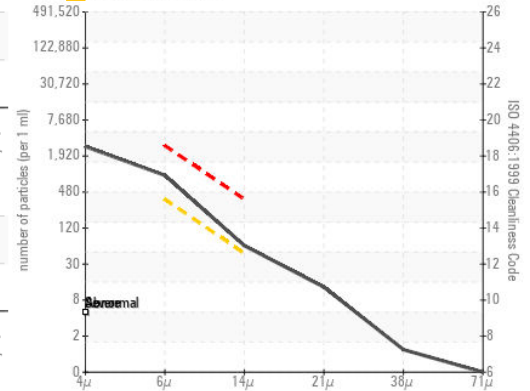
Non-ferrous Metals



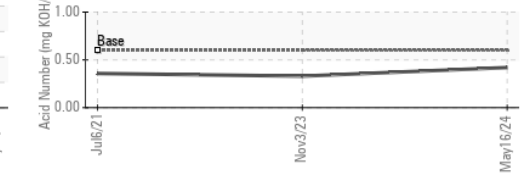
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : NX015981

Lab Number : **06196667**

Unique Number : 11058790

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

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)

Received : 31 May 2024

Tested : 03 Jun 2024

Diagnosed : 03 Jun 2024 - Don Baldrige

NORDEX USA - Chicago

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