



OIL ANALYSIS REPORT

Sample Rating Trend

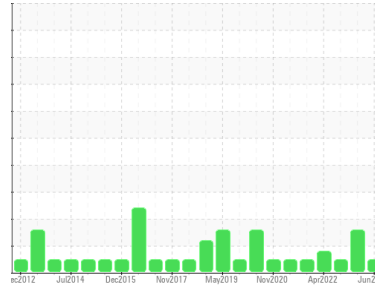
NORMAL



Area
HINO [600380380]
Machine Id
47WEA81863

Component
Wind Turbine Gearbox
Fluid

CASTROL OPTIGEAR SYNTHETIC X 320 (--- 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 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 INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		NX05928208	NX05766518	NX05700245
Sample Date	Client Info		05 Jun 2023	10 Jan 2023	21 Oct 2022
Machine Age	mths	Client Info	0	0	0
Oil Age	mths	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	ABNORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>80	12	34	11
Iron	ppm	ASTM D5185m	>150	8	7
Chromium	ppm	ASTM D5185m	>5	0	<1
Nickel	ppm	ASTM D5185m	>10	0	<1
Titanium	ppm	ASTM D5185m	>10	0	0
Silver	ppm	ASTM D5185m		0	0
Aluminum	ppm	ASTM D5185m	>10	<1	0
Lead	ppm	ASTM D5185m	>20	0	1
Copper	ppm	ASTM D5185m	>50	5	5
Tin	ppm	ASTM D5185m	>10	0	<1
Vanadium	ppm	ASTM D5185m		0	<1
Cadmium	ppm	ASTM D5185m		0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	17
Barium	ppm	ASTM D5185m		0	0
Molybdenum	ppm	ASTM D5185m	1150	754	728
Manganese	ppm	ASTM D5185m		0	<1
Magnesium	ppm	ASTM D5185m		4	8
Calcium	ppm	ASTM D5185m	2000	1342	1367
Phosphorus	ppm	ASTM D5185m	400	319	331
Zinc	ppm	ASTM D5185m	0	0	1
Sulfur	ppm	ASTM D5185m	1850	1892	1974

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	9	8
Sodium	ppm	ASTM D5185m	>20	1	3
Potassium	ppm	ASTM D5185m	>20	<1	1
Water	%	ASTM D6304	>0.05	0.030	0.013
ppm Water	ppm	ASTM D6304	>500	306.6	137.6

FLUID CLEANLINESS

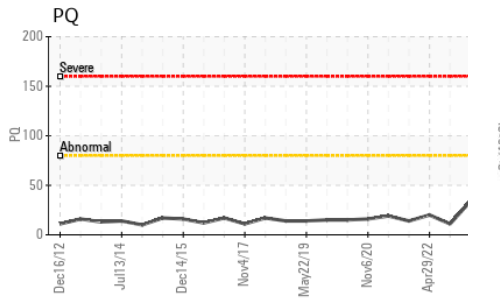
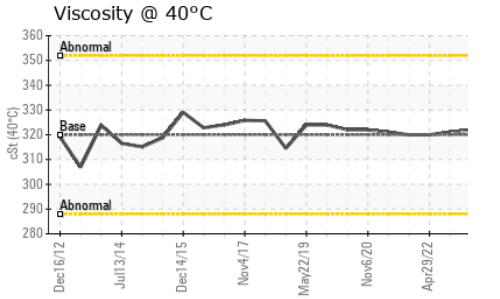
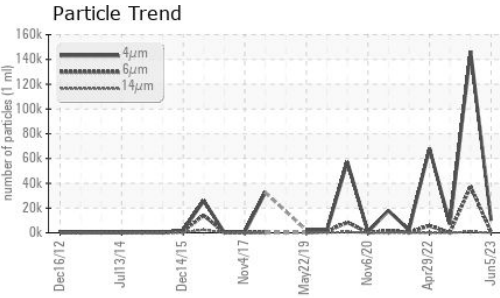
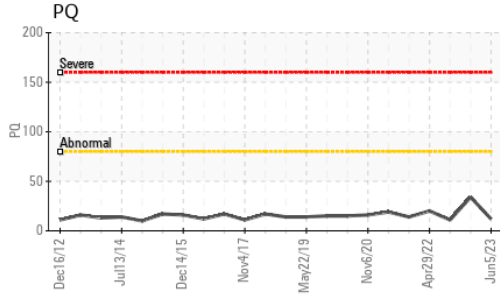
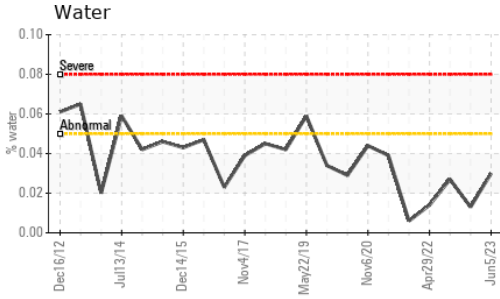
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		10176	146617	7021
Particles >6µm	ASTM D7647	>2500	596	▲ 37483	165
Particles >14µm	ASTM D7647	>320	12	▲ 801	10
Particles >21µm	ASTM D7647	>80	4	▲ 204	4
Particles >38µm	ASTM D7647	>20	1	15	0
Particles >71µm	ASTM D7647	>4	0	1	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	21/16/11	▲ 24/22/17	20/15/10

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.92	0.80



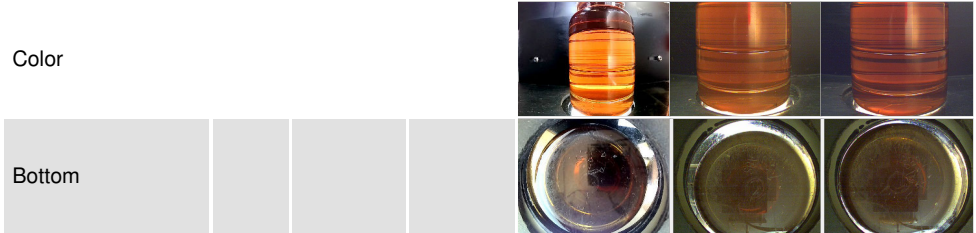
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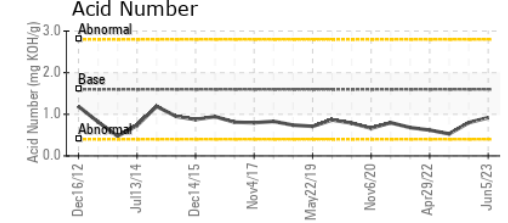
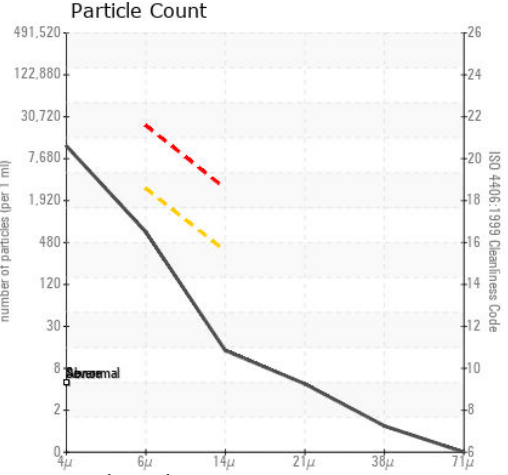
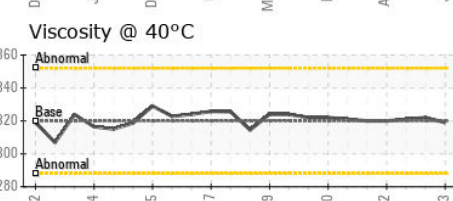
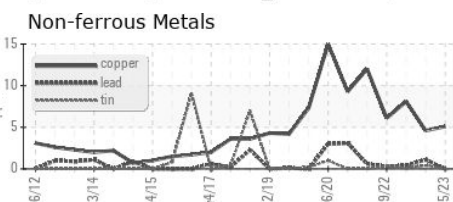
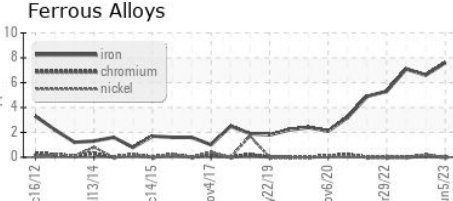
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	VLITE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	319	322

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05928208 **Received** : 18 Aug 2023
Lab Number : 05928208 **Diagnosed** : 22 Aug 2023
Unique Number : 10608155 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

NORDEX USA - HIGHLAND & HIGHLAND NORTH
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 CHICAGO, IL
 US 60606
 Contact: Robert Warner
 rwarner@everpower.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: