

OIL ANALYSIS REPORT

Area

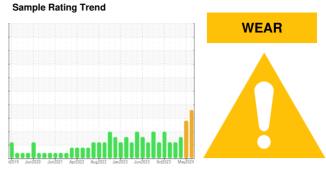
Fermentation

Lightnin FHG51CB01 Main Fermentor, Agitator

Gearbox

Fluid

JAX FGG-AW ISO 220 (46 GAL)



DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. We recommend an early resample to monitor this condition.

Wear

Gear wear is indicated.

Contamination

There is a high amount of particulates present in the oil. Appearance is hazy.

Fluid Condition

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

Sample Number Client Info WC0886635 WC0916396 WC0853617 Sample Date Client Info O	CAMPLE INFORM	AATIONI		11 11 11			1111
Sample Date Client Info 31 May 2024 01 May 2024 18 Jan 2024 Machine Age hrs Client Info 0		MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A N/A Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >200 347 276 151 Chromium ppm ASTM D5185m >200 347 276 151 Chromium ppm ASTM D5185m >15 2 1 <1							
Oil Age hrs Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >200 347 Δ 276 151 Chromium ppm ASTM D5185m >15 2 1 <1	•				•	01 May 2024	18 Jan 2024
Oil Changed Status							
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WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >200 3477 276 151 Chromium ppm ASTM D5185m >15 2 1 -1 Nickel ppm ASTM D5185m 0 0 -1 2 Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m 0 0 0 0 Aluminum ppm ASTM D5185m 100 0 0 1 Lead ppm ASTM D5185m >200 0 0 -1 Copper ppm ASTM D5185m >200 0 0 -1 Vanadium ppm ASTM D5185m 0 0 -1 1 Vanadium ppm ASTM D5185m 0 0 -1 1 ADDITIVES method limit/base current history1			Client Info				
Iron	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Chromium ppm ASTM D5185m >15 2 1 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >15 0 <1	Iron	ppm	ASTM D5185m	>200	4 347	<u>^</u> 276	151
Titanium ppm ASTM D5185m Q	Chromium	ppm	ASTM D5185m	>15	2	1	<1
Silver	Nickel	ppm	ASTM D5185m	>15	0	<1	2
Aluminum ppm ASTM D5185m >25 0 0 2 Lead ppm ASTM D5185m >100 0 0 1 Copper ppm ASTM D5185m >200 0 0 <1 Tin ppm ASTM D5185m >25 0 0 <1 Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 Molybdenum ppm ASTM D5185m 0 0 <1 Mangaese ppm ASTM D5185m 0 0 0 <1 Mangaesium ppm ASTM D5185m 0 0 0 0 <0 <0 <0 <0 0 0 <0 <0 <0 <0 <0 <0	Titanium	ppm	ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >100 0 0 1 Copper ppm ASTM D5185m >200 0 0 <1	Silver	ppm	ASTM D5185m		0	0	0
Copper ppm ASTM D5185m >200 0 0 <1	Aluminum	ppm	ASTM D5185m	>25	0	0	2
Tin	Lead	ppm	ASTM D5185m	>100	0	0	1
Vanadium ppm ASTM D5185m 0 0 <1	Copper	ppm	ASTM D5185m	>200	0	0	
Cadmium ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>25	0	0	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 1 Molybdenum ppm ASTM D5185m 0 0 1 Manganese ppm ASTM D5185m 3 2 2 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 15 13 15 Phosphorus ppm ASTM D5185m 651 617 626 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 1 22 2 Sodium ppm ASTM D5185m >50 <1 2 2 2 Sodium ppm ASTM D5185m >20 0 0 1 1 1 0 1 1 <t< th=""><th>Vanadium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th>0</th><th></th></t<>	Vanadium	ppm	ASTM D5185m		0	0	
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Barium ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
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Sulfur ppm ASTM D5185m 848 807 733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 <1 2 2 Sodium ppm ASTM D5185m >20 0 0 1 Potassium ppm ASTM D5185m >20 0 0 1 Water % ASTM D5185m >20 0 0 1 Water % ASTM D5185m >20 0 0 1 Water % ASTM D5185m >20 0 0 0 1 Water % ASTM D5185m >20 0 </th <th>Phosphorus</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>651</th> <th>617</th> <th>626</th>	Phosphorus	ppm	ASTM D5185m		651	617	626
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 <1 2 2 Sodium ppm ASTM D5185m >20 0 0 1 Potassium ppm ASTM D5185m >20 0 0 1 Water % ASTM D6304 >0.2 0.004 0.010 0.010 ppm Water ppm ASTM D6304 >2000 42 107 101 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 419523 405491 196684 Particles >6µm ASTM D7647 >5000 295302 273163 96774 Particles >14µm ASTM D7647 >640 9780 6803 1081 Particles >21µm ASTM D7647 >10 4 4 2 Particles >38µm ASTM D7647 >10 0 0	Zinc	ppm	ASTM D5185m		0	0	0
Silicon ppm ASTM D5185m >50 <1	Sulfur	ppm	ASTM D5185m		848	807	733
Sodium ppm ASTM D5185m <1	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m <1	Silicon	maa	ASTM D5185m	>50	<1	2	2
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Water % ASTM D6304 >0.2 0.004 0.010 0.010 ppm Water ppm ASTM D6304 >2000 42 107 101 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >20000 419523 405491 196684 Particles >6μm ASTM D7647 >5000 295302 273163 96774 Particles >14μm ASTM D7647 >640 9780 6803 1081 Particles >21μm ASTM D7647 >160 465 395 129 Particles >38μm ASTM D7647 >40 4 2 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >21/19/16 26/25/20 26/25/20 25/24/17 FLUID DEGRADATION method limit/base current history1 history2	Potassium		ASTM D5185m	>20	0	0	1
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Particles >21μm ASTM D7647 >160 ▲ 465 ▲ 395 129 Particles >38μm ASTM D7647 >40 4 4 2 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/25/20 ▲ 26/25/20 ▲ 25/24/17 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>5000	295302	273163	△ 96774
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Particles >38μm ASTM D7647 >40 4 4 2 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >21/19/16 Δ 26/25/20 Δ 26/25/20 Δ 25/24/17 FLUID DEGRADATION method limit/base current history1 history2			ASTM D7647	>160			
Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/25/20 ▲ 26/25/20 ▲ 25/24/17 FLUID DEGRADATION method limit/base current history1 history2	•						
Oil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/25/20 ▲ 26/25/20 ▲ 25/24/17 FLUID DEGRADATION method limit/base current history1 history2							
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g					



OIL ANALYSIS REPORT







Certificate 12367

Laboratory

Sample No. Lab Number Unique Number : 11059745

: WC0888635 : 06197622

Received **Tested**

: 03 Jun 2024 : 04 Jun 2024 Diagnosed : 04 Jun 2024 - Don Baldridge

P.O. BOX 576, 77 PERRY CHAPEL CHURCH ROAD FRANKLINTON, NC US 27525

Contact: BRUCE THOMAS brct@novozymes.com

T: (919)494-3146 F: (919)494-3456

To discuss this sample report, contact Customer Service at 1-800-237-1369. st - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Test Package : IND 2 (Additional Tests: KF, PrtCount)

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)