

# **PROBLEM SUMMARY**

# Lime Kilns Route #1 Machine Id 102371 Kiln #3 Feed Table Hydraulics

Hydraulic System Fluid ESSO NUTO H ISO 68 (30 GAL)

### COMPONENT CONDITION SUMMARY



### RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS								
Sample Status			SEVERE	SEVERE	SEVERE			
Particles >4µm	ASTM D7647	>5000	62367	99411	84744			
Particles >6µm	ASTM D7647	>1300	<b>A</b> 3132	<b>)</b> 9209	12343			
Oil Cleanliness	ISO 4406 (c)	>19/17/14	• 23/19/14	24/20/15	• 24/21/16			

Customer Id: BEAING Sample No.: WC0877631 Lab Number: 02608986 Test Package: IND 2



To manage this report scan the QR code

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RECOMMENDED AC	CTIONS			
Action	Status	Date	Done By	Description
Change Filter			?	We recommend you service the filters on this component.
Resample			?	Resample in 30-45 days to monitor this situation.
Check Breathers			?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Seals			?	Check seals and/or filters for points of contaminant entry.

## HISTORICAL DIAGNOSIS



# 16 Nov 2023 Diag: Wes Davis

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.



### 20 Apr 2023 Diag: Wes Davis

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.



150

### 06 Oct 2022 Diag: Wes Davis

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.All component wear rates are normal. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Oil Cleanliness are severely high. Particles >4µm are severely high. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.





# **OIL ANALYSIS REPORT**

# Lime Kilns Route #1 Machine Id 102371 Kiln #3 Feed Table Hydraulics

Hydraulic System Fluid ESSO NUTO H ISO 68 (30 GAL)

### DIAGNOSIS

#### Recommendation

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

#### Wear

All component wear rates are normal.

#### Contamination

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

### Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.



	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0877631	WC0868739	WC0804946
Sample Date		Client Info		12 Dec 2023	16 Nov 2023	20 Apr 2023
Machine Age	mths	Client Info		0	0	0
Oil Age r	mths	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	SEVERE	SEVERE
CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron p	ppm	ASTM D5185(m)	>20	6	7	7
Chromium p	ppm	ASTM D5185(m)	>20	12	13	11
Nickel	ppm	ASTM D5185(m)	>20	<1	<1	<1
Titanium p	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>20	1	1	1
Copper p	ppm	ASTM D5185(m)	>20	11	11	18
Tin p	ppm	ASTM D5185(m)	>20	<1	<1	1
Antimony p	ppm	ASTM D5185(m)		0	0	<1
Vanadium p	ppm	ASTM D5185(m)		0	0	0
Beryllium p	ppm	ASTM D5185(m)		0	0	0
Cadmium p	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron ß	ppm	ASTM D5185(m)	0	<1	<1	<1
Boron parium p	ppm ppm	ASTM D5185(m) ASTM D5185(m)	0	<1 0	<1 <1	<1 0
Boron p Barium p Molybdenum p	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0	<1 0 0	<1 <1 0	<1 0 0
Boron p Barium p Molybdenum p Manganese p	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0	<1 0 0 0	<1 <1 0 0	<1 0 0 <1
Boron parium par	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5	<1 0 0 0 2	<1 <1 0 0 2	<1 0 0 <1 2
Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50	<1 0 0 2 203	<1 <1 0 2 200	<1 0 0 <1 2 217
BoronpBariumpMolybdenumpManganesepMagnesiumpCalciumpPhosphorusp	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330	<1 0 0 2 203 319	<1 <1 0 2 200 315	<1 0 0 <1 2 217 340
BoronpBariumpMolybdenumpManganesepMagnesiumpCalciumpPhosphoruspZincp	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420	<1 0 0 2 203 319 344	<1 <1 0 2 200 315 349	<1 0 0 <1 2 217 340 345
Boron pariam pariam pariam pariam pariam panese pariam panese pan	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100	<1 0 0 2 203 319 344 7416	<1 <1 0 2 200 315 349 7018	<1 0 0 <1 2 217 340 345 6952
Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p Lithium p	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100	<1 0 0 2 203 319 344 7416 <1	<1 <1 0 2 200 315 349 7018 <1	<1 0 0 <1 2 217 340 345 6952 <1
BoronFBariumFMolybdenumFManganeseFMagnesiumFCalciumFPhosphorusFZincFSulfurFLithiumFCONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100	<1 0 0 2 203 319 344 7416 <1 <i>Current</i>	<1   <1   0   0   2   200   315   349   7018   <1	<1 0 0 <1 2 217 340 345 6952 <1 history2
BoronFBariumFMolybdenumFManganeseFMagnesiumFCalciumFPhosphorusFZincFSulfurFLithiumFCONTAMINANTSSiliconF	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100 3100 <b>imit/base</b> >15	<1 0 0 2 203 319 344 7416 <1 <i>current</i>	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>2</li> <li>200</li> <li>315</li> <li>349</li> <li>7018</li> <li>&lt;1</li> </ul> history1	<1 0 0 <1 2 217 340 345 6952 <1 history2 3
BoronFBariumFMolybdenumFManganeseFMagnesiumFCalciumFPhosphorusFZincFSulfurFLithiumFCONTAMINANTSSiliconFSodiumF	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100 <b>imit/base</b> >15	<1 0 0 2 203 319 344 7416 <1 <i>current</i> <1 0	<1 <1 0 0 2 200 315 349 7018 <1 history1 <1 <1 <1 <1 <1	<1 0 0 <1 2 217 340 345 6952 <1 <b>history2</b> 3 0
BoronFBariumFMolybdenumFManganeseFMagnesiumFCalciumFPhosphorusFZincFSulfurFLithiumFCONTAMINANTSFSiliconFSodiumFPotassiumF	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100 3100 <b>imit/base</b> >15 >20	<1 0 0 2 203 319 344 7416 <1 <i>current</i> <1 0 0	<1 <1 0 2 200 315 349 7018 <1 <b>history1</b> <1 <1 <1 <1	<1 0 0 <1 2 217 340 345 6952 <1 history2 3 0 0
BoronFBariumFMolybdenumFMagnaeseFMagnesiumFCalciumFPhosphorusFZincFSulfurFLithiumFCONTAMINANTSFSiliconFSodiumFPotassiumFLUID CLEANLINE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100 3100 <b>imit/base</b> >20 <b>imit/base</b>	<1 0 0 2 203 319 344 7416 <1 <i>current</i> <1 0 0	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>2</li> <li>200</li> <li>315</li> <li>349</li> <li>7018</li> <li>&lt;1</li> <li>history1</li> <li>&lt;1</li> <li>&lt;1</li> <li>&lt;1</li> <li>&lt;1</li> <li>&lt;1</li> <li>&lt;1</li> <li>History1</li> </ul>	<1 0 0 <1 2 217 340 345 6952 <1 <b>history2</b> 3 0 0 0 <b>history2</b>
BoronμBariumμMolybdenumμMagnaeseμMagnesiumμCalciumμPhosphorusμZincμSulfurμLithiumμCONTAMINANTSSiliconμSodiumμPotassiumμFLUID CLEANLINEParticles >4μm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<1 0 0 2 203 319 344 7416 <1 <i>current</i> <1 0 0 0 <i>current</i>	<1 <1 0 2 200 315 349 7018 <1 <b>history1</b> <1 <1 <1 <1 <1 <1 <1	<1 0 0 <1 2 217 340 345 6952 <1 <b>history2</b> 3 0 0 <b>history2</b> <b>k</b> 4744
BoronμBariumμMolybdenumμManganeseμMagnesiumμCalciumμPhosphorusμZincμSulfurμLithiumμCONTAMINANTSSiliconμSodiumμPotassiumμFLUID CLEANLINEParticles >4μmParticles >6μm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 5 50 330 420 3100 3100 <b>imit/base</b> >20 <b>imit/base</b> >5000 >1300	<1 0 0 2 203 319 344 7416 <1 <i>current</i> <1 0 0 0 <i>current</i> € 62367 ▲ 3132	<1 <ul> <li>&lt;1</li> <li>&lt;1</li> <li>0</li> <li>0</li> <li>2</li> <li>200</li> <li>315</li> <li>349</li> <li>7018</li> <li>&lt;1</li> <li>&lt;1<!--</th--><th>&lt;1 0 0 1 1 2 2 2 17 340 345 6952 &lt;1</th></li></ul>	<1 0 0 1 1 2 2 2 17 340 345 6952 <1
BoronμBariumμMolybdenumμManganeseμMagnesiumμCalciumμPhosphorusμZincμSulfurμLithiumμCONTAMINANTSSiliconμSodiumμPotassiumμFLUID CLEANLINEParticles >6μmμParticles >14μmμ	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647	0 0 0 5 5 330 420 3100 3100 >15 >20 <b>imit/base</b> >20 <b>imit/base</b> >5000 >1300 >160	<1 0 0 2 203 319 344 7416 <1 <i>current</i> <1 0 0 0 <i>current</i> €1 0 0 0 <i>current</i> €1 0 0 0 0	<1 <1 0 0 2 200 315 349 7018 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<1 0 0 2 217 340 345 6952 <1 <b>history2</b> 3 0 0 <b>history2</b> 4 3 0 0 0 <b>history2</b> 4 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7
BoronμBariumμMolybdenumμManganeseμMagnesiumμCalciumμPhosphorusμZincμSulfurμLithiumμCONTAMINANTSSiliconμSodiumμPotassiumμFLUID CLEANLINEParticles >4μmμParticles >14μmμParticles >21μmμ	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	0 0 0 5 5 330 420 3100 3100 5 5 5 5 5 5 5 5 5 5 5 5 0 5 5 0 0 5 5 0 0 5 1 3 0 5 5 0 0 5 5 0 0 5 5 0 5 5 5 5 5 5 5	<1 0 0 2 203 319 344 7416 <1 Current <1 0 0 Current €2367 ▲ 3132 102 23	<1 <1 0 0 2 200 315 349 7018 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<1 0 0 2 217 340 345 6952 <1 <b>history2</b> 3 0 0 <b>history2</b> 4 3 0 0 0 <b>history2</b> 4 3 0 0 0 <b>history2</b> 4 1 2 4 3 0 0 0 1 2 4 1 4 4 5 6 5 2 4 1 4 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 5 6 5 2 6 5 2 6 5 2 6 5 2 6 5 2 6 5 2 6 5 2 6 5 2 6 5 2 6 5 2 6 5 6 5 2 6 5 2 6 5 6 5 2 6 5 7 6 7 6 7 6 7 6 7 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7
BoronμBariumμMolybdenumμManganeseμMagnesiumμCalciumμPhosphorusμZincμSulfurμLithiumμCONTAMINANTSSiliconμSodiumμPotassiumμFLUID CLEANLINEParticles >4μmParticles >14μmParticles >21μmParticles >38μm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)         ASTM D7647         ASTM D7647         ASTM D7647         ASTM D7647	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<1 0 0 0 2 203 319 344 7416 <1 Current <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<1 0 0 2 200 315 349 7018 <1 <b>history1</b> <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<1 0 0 2 217 340 345 6952 <1 <b>history2</b> 3 0 0 <b>history2</b> 4 5 6 4 1 2 3 0 0 0 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2
BoronμBariumμMolybdenumμMagnesiumμMagnesiumμCalciumμPhosphorusμZincμSulfurμLithiumμCONTAMINANTSSiliconμSodiumμPotassiumμParticles >4μmParticles >21μmμParticles >21μmμParticles >38μmμParticles >71μmμ	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)         ASTM D7647         ASTM D7647         ASTM D7647	0 0 0 5 5 330 420 3100 3100 3100 >15 >20 <b>imit/base</b> >20 <b>imit/base</b> >5000 >1300 >1300 >160 >40 >10 >10	<1 0 0 2 203 319 344 7416 <1 Current <1 0 0 0 Current €2367 ▲ 3132 102 23 1 1 0 0	<1 0 0 2 200 315 349 7018 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<1 0 0 2 217 340 345 6952 <1 <b>history2</b> 3 0 0 0 <b>history2</b> 4 3 0 0 0 <b>history2</b> 4 3 0 0 0 <b>history2</b> 4 12343 637 140 2 0 0 0 12343 140 12343 140 12343 140 12343 140 12343 140 12343 140 12343 140 12343 140 12343 140 12343 12345



# **OIL ANALYSIS REPORT**

Color

Bottom







Δhn	ormal							
75 -								
70 - Ras								
Das			*****					
	~ / /	-						
65-	$\sim$					-		~
65 60 <b>Ab</b> n	ormal							$\sim$
65 - <b>Abn</b>	ormal							~
65 60 Abn	ormal	/14	/16	LIV	/18	61/	/21	/23

FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	.40	0.31	0.40	0.38
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	VLITE	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
	IFS	method	limit/base	current	history1	history2
TEOD THOFEIN		method		ourrent	history	motoryz
Visc @ 40°C	cSt	ASTM D7279(m)	68.8	66.2	66.3	65.0
SAMPLE IMAGES	3	method	limit/base	current	history1	history2





Test Package : IND 2 To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

Contact: Jeff Geddes jeff.geddes@carmeusena.com T: (519)423-6283 F: (519)423-6568



CALA

ISO 17025:2017 Accredited

Laboratory

Contact/Location: Jeff Geddes - BEAING