LABORATORY ANALYSIS

ENGINEERED LUBRICANTS
11525 Rock Island Court, St. Louis, MO 63043
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Department **BRASS MILL - 10 CL**

Equipment No. **MILL-CLN-10C-LEVL UPPER & LOWER LEVELER DRIVE (00003)**

System **Gearbox**

Oil Type **ENGINEERED LUBRICANTS ENLUBE MOLY GEAR OIL 962-OB (--- GAL)**

WIELAND
BRASS ACCOUNTS PAYABLE, GEORGE STREET
EAST ALTON, IL
US 62024
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DIAGNOSIS

Additive Levels are extremely low and a high number of iron in the sample. We recommend that this component be drained and refilled with new Enlube MGO 962-OB at this time. This will also help to remove some of the iron particles.Iron (Fe) ppm levels are severe. Gear wear is indicated. There is no indication of any contamination in the oil. Molybdenum(Mo) ppm levels are severely low. Phosphorus(P) ppm levels are abnormally low. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

Lab Number		New	**2302-00759**	2106-00970	1906-00059
Date of Sample		(Typical)	**21 Feb 2023**	29 Jun 2021	31 May 2019
Oil Added			**UNK**	UNK	UNK
Last Drain Date			**--**	--	--
Last Filter Service			**--**	--	--
Sample Point			**---**	---	---
Sample Status			**SEVERE**	NORMAL	SEVERE

VISCOSITY @ 100F OR 40C (ASTM D445)

cSt Vis. @ 40C	cSt	155.1	**146.6**	147.3	146.4

% WATER - RELATIVE HUMIDITY SENSOR (ASTM D7546)

% Water	%		**0.020**	0.036	0.035
ppm Water	ppm		**200**	360	350

TOTAL ACID NUMBER (NEUT. NO.)(ASTM D974)

TAN, mg KOH/g	mg KOH/g	5.64	**4.51**	6.16	5.56

ENERGY DISPERSIVE XRF - PPM (*BELOW MINIMUM DETECTION LIMIT)

Aluminum (Al)	ppm		*	---	*
Antimony (Sb)	ppm		*	---	*
Cadmium (Cd)	ppm		*	---	*
Chromium (Cr)	ppm		*	---	*
Cobalt (Co)	ppm		*	---	*
Copper (Cu)	ppm		**15**	---	17
Iron (Fe)	ppm		**222**	---	194
Lead (Pb)	ppm		*	---	*
Manganese (Mn)	ppm		*	---	*
Molybdenum(Mo)	ppm	5860	**488**	---	408
Nickel (Ni)	ppm		*	---	*
Potassium (K)	ppm		*	---	*
Tin (Sn)	ppm		*	---	*
Titanium (Ti)	ppm		*	---	*
Vanadium (V)	ppm		*	---	*
Barium (Ba)	ppm		*	---	*
Calcium (Ca)	ppm		**31**	---	57
Magnesium (Mg)	ppm		*	---	*
Phosphorus(P)	ppm	1510	**888**	---	978
Silicon (Si)	ppm		*	---	*
Zinc (Zn)	ppm		**10**	---	10
Chlorine (Cl)	ppm		*	---	*
Sulfur (S)	ppm		**8,530**	---	9,390

DR FERROGRAPHY READINGS

L			**845.0**	260.0	248.0
S			**445.0**	235.0	190.0
WPC	DL + DS		**1290**	495.0	438.0

Customer Id: GLOEAS
Sample No.: EN23020759
Lab Number: 23020759
Test Package: TEST

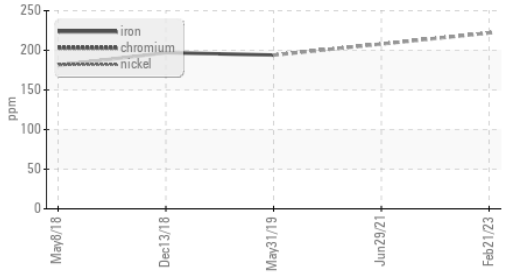
To manage this report scan the QR code

To discuss the diagnosis or test data:
Beau Vuagniaux +1
bvuagniaux@englube.com

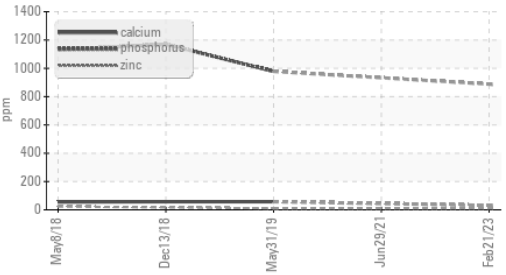
To change component or sample information:
Tracy Weaks +1 (314)872-9540
tweaks@englube.com

OIL ANALYSIS REPORT

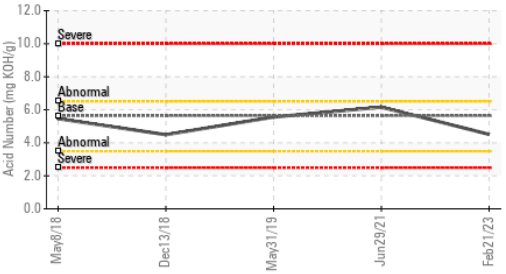
Ferrous Alloys



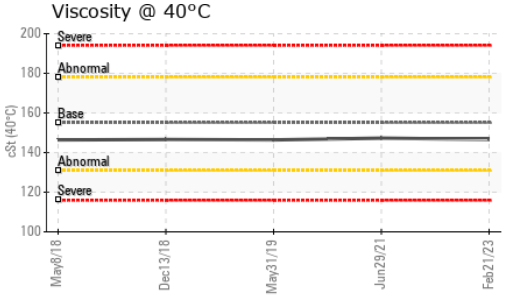
Additives



Acid Number



Viscosity @ 40°C



FERROGRAM

AFerr Dilution	**1:1**	1:1	1:1
Rubbing Wear	**1**	2	2
Severe Wear Rolling/Sliding	**3**	1	2
Red Oxides			1
Dark Oxides			
Abrasive Wear (cutting) Small	**1**		
Abrasive Wear (cutting) Large			
Spheres - Small			
Spheres - Large			
Chunks	**3**		
Reworked Particles	**3**		2
White Nonferrous Metal	**3**		
Copper Alloy			
Molybdenum Disulfide			
Corrosive Wear			
Friction Polymer			
Fibers			
Nonmetallic Crystalline	**3**		
Nonmetallic Amorphous Material			
Other			