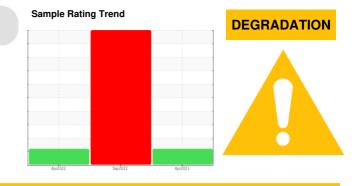
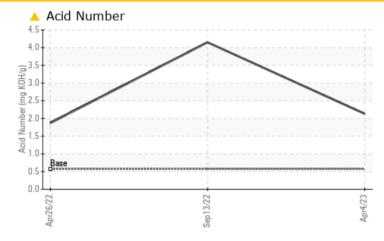


# **PROBLEM SUMMARY**

#### Area PO-4010 Machine Id ELGI MSLL061014 - CBRE BATTERY PLANT Component Compressor



### COMPONENT CONDITION SUMMARY



#### RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

PROBLEMATIC T	EST RE	SULTS				
Sample Status				ABNORMAL	SEVERE	ABNORMAL
Acid Number (AN)	mg KOH/g	ASTM D8045	0.573	<u> </u>	<b>4</b> .15	<b>1</b> .87

Customer Id: UCELGCHA Sample No.: UCP05824145 Lab Number: 05824145 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED	ACTIONS			
Action	Status	Date	Done By	Description
Change Fluid	MISSED	Aug 15 2023	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	MISSED	Aug 15 2023	?	We recommend an early resample to monitor this condition.

### HISTORICAL DIAGNOSIS



### 13 Sep 2022 Diag: Angela Borella

We advise that you check for a possible overheat condition. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. Elemental level of silicon (Si) above normal indicating ingress of seal material. Excessive free water present. There is a moderate amount of visible silt present in the sample. The AN level is above the recommended limit.



### 26 Apr 2022 Diag: Doug Bogart

### DEGRADATION



The oil is near the end of it's useful service life, recommend schedule an oil change. Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The AN level is at the top-end of the recommended limit.





# **OIL ANALYSIS REPORT**

#### Area PO-4010 Machine Id ELGI MSLL061014 - CBRE BATTERY PLANT Component

Compressor

## DIAGNOSIS

### Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

The AN level is above the recommended limit.

Sample Date     Client Info     04 Apr 2023     13 Sep 2022     26 Apr 2022       Machine Age     hrs     Client Info     12587     8132     5512       Oil Age     hrs     Client Info     0     0     5512       Oil Changed     Client Info     N/A     N/A     N/A     N/A       Sample Status     method     Imit/base     current     history1     history2       Iron     ppm     ASTM 05155m     >50     18     8     3       Othormium     ppm     ASTM 05155m     <1							
SAMPLE INFORMATION     method     limit/base     current     history1     history2       Sample Number     Client Info     04 Apr 2023     13 Sep 2022     26 Apr 2022       Machine Age     hrs     Client Info     0     0     5512       Oil Age     hrs     Client Info     0     0     5512       Oil Changed     Client Info     0     0     5512       Oil Changed     Client Info     N/A     N/A     N/A       Sample Status     method     Imit/base     current     history1     history2       Ron     ppm     ASTM 05185m     >10     0     -1     0       Nickel     ppm     ASTM 05185m     >25     3     2     1       Itanium     ppm     ASTM 05185m     >50     0     0     -1       Silver     ppm     ASTM 05185m     >50     7     2     1       Copper     ppm     ASTM 05185m     >50     0     -1<     -1       Cadmium     ppm     AS			-				
Sample Number     Client Info     UCP05824145     UCP05584496     UCP0558479       Sample Date     ns     Client Info     04 Apr 2023     13 Sep 2022     26 Apr 2022       Machine Age     hrs     Client Info     12587     6132     5512       Oil Age     hrs     Client Info     N/A     N/A     N/A       Sample Status     Client Info     N/A     N/A     N/A     N/A       WCAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM 05185m     >50     18     8     3       Chromium     ppm     ASTM 05185m     >10     0     0     0       Nickel     ppm     ASTM 05185m     >50     7     2     1       Lead     ppm     ASTM 05185m     >50     7     2     1       Vanadium     ppm     ASTM 05185m     >50     -1     -1       Adminum     ppm     ASTM 05185m     >50     0     -1     -1 <td< th=""><th></th><th></th><th>Ap</th><th>2022</th><th>Sep2022 Apr202</th><th>23</th><th></th></td<>			Ap	2022	Sep2022 Apr202	23	
Sample Date     Client Info     04 Apr 2023     13 Sep 2022     26 Apr 2022       Machine Age     hrs     Client Info     12587     8132     5512       Oil Age     hrs     Client Info     0     0     5512       Oil Changed     Client Info     N/A     N/A     N/A     N/A       Sample Status     method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     18     8     3       Othormium     ppm     ASTM D5185m     >50     18     8     3       Ironium     ppm     ASTM D5185m     <0	SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     12587     8132     5512       Oil Age     hrs     Client Info     0     0     5512       Oil Age     hrs     Client Info     N/A     N/A     N/A     N/A       Sample Status     Imethod     Imit/base     current     history1     history2       Iron     ppm     ASTM 05185m     >50     18     8     3       Chromium     ppm     ASTM 05185m     <10	Sample Number		Client Info		UCP05824145	UCP05644963	UCP0558512
Oil AgehrsClient Info005512Oil ChangedClient InfoN/AN/AN/AN/ASample StatusIIIABNORMALSEVEREABNORMALWEAR METALSmethodImbiboscurrenthistory1history2IronppmASTM 05185m>501883ChromiumppmASTM 05185m<10	Sample Date		Client Info		04 Apr 2023	13 Sep 2022	26 Apr 2022
Oil Changed Client Info N/A N/A N/A N/A   Sample Status Image Status Image Status Image Status Severe ABNORMAL   WEAR METALS method limit/base current history1 history2   Iron ppm ASTM D5185n >50 18 8 3   Chromium ppm ASTM D5185n >10 0 <1	Machine Age	hrs	Client Info		12587	8132	5512
Sample StatusmethodImit/baseCurrentNistory1ABNORMALWEAR METALSmethodlimit/basecurrentNistory2Nistory2IronppmASTM D5185m>501883ChromiumppmASTM D5185m>100<1	-	hrs	Client Info		0	0	5512
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     18     8     3       Chromium     ppm     ASTM D5185m     <1	-		Client Info				
Iron     ppm     ASTM D5185n     >550     18     8     3       Chromium     ppm     ASTM D5185n     >10     0     <1	Sample Status				ABNORMAL	SEVERE	ABNORMAL
Dromium     ppm     ASTM D5185m     >10     0     <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     <1     <1     <1     <1     <1       Titanium     ppm     ASTM D5185m     0     0     0     0       Silver     ppm     ASTM D5185m     >25     3     2     1       Lead     ppm     ASTM D5185m     >25     0     0     <1	Iron	ppm	ASTM D5185m	>50	18	8	3
Titanium     ppm     ASTM D5185m     0     0     0     0       Silver     ppm     ASTM D5185m     >25     3     2     1       Lead     ppm     ASTM D5185m     >25     0     0     -1       Copper     ppm     ASTM D5185m     >25     0     0     -1       Copper     ppm     ASTM D5185m     >50     7     2     1       Tin     ppm     ASTM D5185m     >15     0     <1	Chromium	ppm	ASTM D5185m	>10	0	<1	0
SilverppmASTM D5185m000AluminumppmASTM D5185m>25321LeadppmASTM D5185m>2500<1	Nickel	ppm	ASTM D5185m		<1	<1	<1
Aluminum   ppm   ASTM D5185m   >25   3   2   1     Lead   ppm   ASTM D5185m   >25   0   0   <1     Copper   ppm   ASTM D5185m   >50   7   2   1     Tin   ppm   ASTM D5185m   >15   0   <1   <1     Vanadium   ppm   ASTM D5185m   0   <1   <1   0     Cadmium   ppm   ASTM D5185m   0   0   1   7     Boron   ppm   ASTM D5185m   0.4   2   0   3     Barium   ppm   ASTM D5185m   0.4   2   0   3     Barium   ppm   ASTM D5185m   0.4   2   0   3     Magnesium   ppm   ASTM D5185m   0.4   17   <1   <1     Calcium   ppm   ASTM D5185m   0.3   814   0   2   11     Zinc   ppm   ASTM D5185m   0.3   814   0   2   11     Zinc   ppm   ASTM D5185m   2.3	Titanium	ppm	ASTM D5185m		0	0	0
LeadppmASTM D5185m>2500<1CopperppmASTM D5185m>50721TinppmASTM D5185m>150<1	Silver	ppm	ASTM D5185m		0	0	0
Copper     ppm     ASTM D5185m     >50     7     2     1       Tin     ppm     ASTM D5185m     >15     0     <1	Aluminum	ppm	ASTM D5185m	>25	3	2	1
Tin     ppm     ASTM D5185m     >15     0     <1     <1       Vanadium     ppm     ASTM D5185m     0     <1	Lead	ppm	ASTM D5185m	>25	0	0	<1
VanadiumppmASTM D5185m0<10CadmiumppmASTM D5185m0<1	Copper	ppm	ASTM D5185m	>50	7	2	1
CadmiumppmASTM D5185m0<1<1ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0.420.03BariumppmASTM D5185m0.420.00MolybdenumppmASTM D5185m0.5000ManganeseppmASTM D5185m0.4<1	Tin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0.420.03MolybdenumppmASTM D5185m0.420.03MolybdenumppmASTM D5185m0.4<1	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron     ppm     ASTM D5185m     0.4     2     0     1     7       Barium     ppm     ASTM D5185m     0.4     2     0     3       Molybdenum     ppm     ASTM D5185m     0.5     0     0     0       Manganese     ppm     ASTM D5185m     0.4     <1     <1     <1       Magnesium     ppm     ASTM D5185m     0.3     814     0     2       Calcium     ppm     ASTM D5185m     0.3     814     0     2       Calcium     ppm     ASTM D5185m     0.3     814     0     2       Calcium     ppm     ASTM D5185m     0.3     814     0     2       Sulfur     ppm     ASTM D5185m     320     2788     1089     471       CONTAMINANTS     method     limit/base     current     history1     history2       Solium     ppm     ASTM D5185m     >20     14     <1     5       FLUID DEGRADATION     method     limit/base	Cadmium	ppm	ASTM D5185m		0	<1	<1
BariumppmASTM D5185m0.4203MolybdenumppmASTM D5185m0.5000ManganeseppmASTM D5185m0.4<1<1<1MagnesiumppmASTM D5185m017<1<1CalciumppmASTM D5185m0.381402PhosphorusppmASTM D5185m137660961211ZincppmASTM D5185m32027881089471CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1SodiumppmASTM D5185m>2014<15FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2Acid Number (AN)mg KOHgASTM D5185m>2014<15VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONESoldar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESoldar*VisualNONENONENONENONENONE	ADDITIVES		method	limit/base	current	history1	history2
MolybdenumppmASTM D5185m0.5000ManganeseppmASTM D5185m0.4<1	Boron	ppm	ASTM D5185m	0	0	1	7
ManganeseppmASTM D5185m0.4<1<1<1MagnesiumppmASTM D5185m017<1	Barium	ppm	ASTM D5185m	0.4	2	0	3
MagnesiumppmASTM D5185m017<1<1CalciumppmASTM D5185m0.381402PhosphorusppmASTM D5185m137660961211ZincppmASTM D5185m0413018SulfurppmASTM D5185m32027881089471CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1	Molybdenum	ppm	ASTM D5185m	0.5	0	0	0
CalciumppmASTM D5185m0.381402PhosphorusppmASTM D5185m137660961211ZincppmASTM D5185m0413018SulfurppmASTM D5185m32027881089471CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1	Manganese	ppm	ASTM D5185m	0.4	<1	<1	<1
PhosphorusppmASTM D5185m137660961211ZincppmASTM D5185m0413018SulfurppmASTM D5185m32027881089471CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1	Magnesium	ppm	ASTM D5185m	0	17	<1	<1
ZincppmASTM D5185m0413018SulfurppmASTM D5185m32027881089471CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1	Calcium	ppm	ASTM D5185m	0.3	814	0	2
SulfurppmASTM D5185m32027881089471CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1	Phosphorus	ppm	ASTM D5185m	1376	609	612	11
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>252354<1	Zinc	ppm	ASTM D5185m	0	413	0	18
Silicon   ppm   ASTM D5185m   >25   2   354   <1     Sodium   ppm   ASTM D5185m   >20   18   <1   41     Potassium   ppm   ASTM D5185m   >20   14   <1   5     FLUID DEGRADATION   method   limit/base   current   history1   history2     Acid Number (AN)   mg KOHg   ASTM D8045   0.573   2.13   4.15   1.87     VISUAL   method   limit/base   current   history1   history2     White Metal   scalar   *Visual   NONE   NONE   NONE   NONE     Yellow Metal   scalar   *Visual   NONE   NONE   NONE   NONE   NONE     Precipitate   scalar   *Visual   NONE   NONE   NONE   NONE   NONE     Silt   scalar   *Visual   NONE   NONE   NONE   NONE   NONE     Debris   scalar   *Visual   NONE   NONE   NONE   NONE   NONE     Sand/Dirt   scalar   *Visual   NORML   NORML	Sulfur	ppm	ASTM D5185m	320	2788	1089	471
SodiumppmASTM D5185m18<1	CONTAMINANTS	6	method	limit/base	current	history1	history2
PotassiumppmASTM D5185m>2014<15FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2Acid Number (AN)mg KOHgASTM D80450.5732.134.151.87VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNORMLNORMLASILDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Silicon	ppm	ASTM D5185m	>25	2	9354	<1
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2Acid Number (AN)mg KOH/gASTM D80450.5732.134.151.87VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNORMLNORMLNONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Sodium	ppm	ASTM D5185m		18	<1	41
Acid Number (AN)mg KOH/gASTM D80450.5732.134.151.87VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONEMODERNONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Potassium	ppm	ASTM D5185m	>20	14	<1	5
VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLA SOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Acid Number (AN)	mg KOH/g	ASTM D8045	0.573	<b>A</b> 2.13	<b>4</b> .15	<b>1</b> .87
Yellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONEMODERNONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLSOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEG	VISUAL		method	limit/base	current	history1	history2
Precipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONEMODERNONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLSOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEG	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Siltscalar*VisualNONENONEMODERNONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLSOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEG	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLSOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLSOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Silt	scalar	*Visual	NONE	NONE	🔺 MODER	NONE
Appearancescalar*VisualNORMLNORMLSOLIDNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEG	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odor     scalar     *Visual     NORML     NORML     NORML     NORML     NORML       Emulsified Water     scalar     *Visual     >0.1     NEG     NEG     NEG	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Emulsified Water scalar *Visual >0.1 NEG NEG NEG	Appearance	scalar	*Visual	NORML	NORML	🔺 SOLID	NORML
	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Free Water scalar *Visual NEG >10% NEG	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	>10%	NEG

Sample Rating Trend

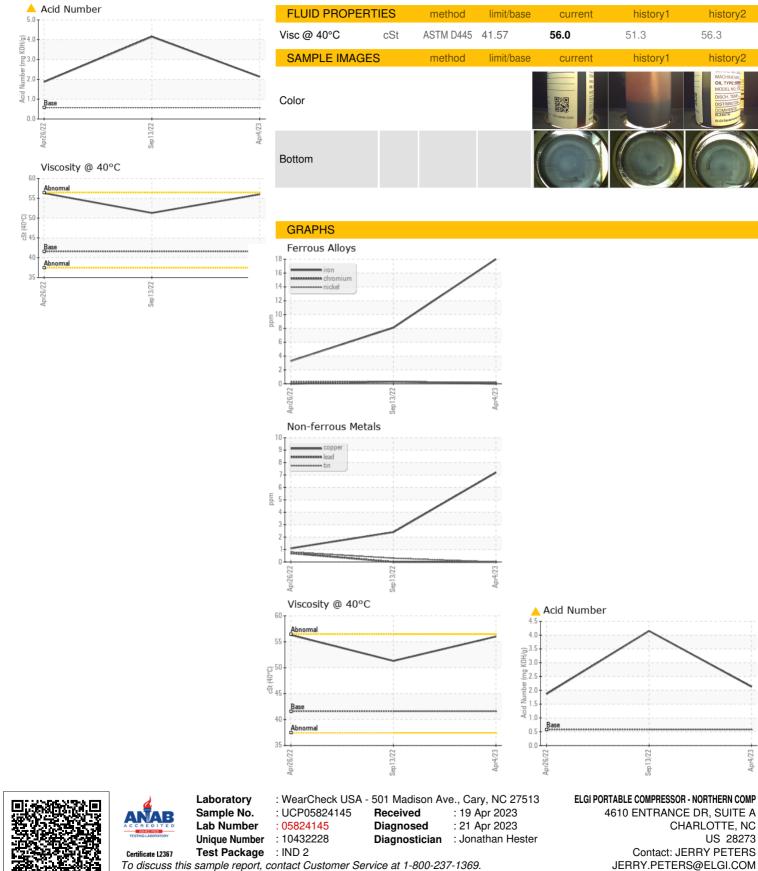
DEGRADATION



Contact/Location: JERRY PETERS - UCELGCHA



# **OIL ANALYSIS REPORT**



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)

Sep13/22.

CHARLOTTE, NC

T: 1(980)260-8915

Contact: JERRY PETERS

US 28273

F:

pr4/23

history2

history2

56.3

history1