



Machine Id  
**LITHIUM SLS EP GREASE 2**  
 Component  
**Grease**  
 Fluid  
**NOT GIVEN (--- GAL)**



**DIAGNOSIS**

**Recommendation**

Resample at the next service interval to monitor. Please note that this grease is identified as a lithium-based grease but the test results suggest that this is not a lithium-based grease with only trace levels of lithium present. We suggest checking that the grease is in fact the grease identified. Please note that RULER testing was attempted on all grease samples submitted, but there was not a measurable level of antioxidant in the reference sample to compare to, causing the RULER results to be invalid and/or inconclusive. Analytical Ferrography: Results are typical for new grease, with minimal manufacturing debris and contamination.

**Wear**

All component wear rates are normal.

**Grease Condition**

The condition of the grease is acceptable for the time in service.

**Contaminants**

There is no indication of any contamination in the grease.

**SAMPLE INFORMATION** method limit/base current history1 history2

Sample Number	Client Info	<b>LH05968193</b>	---	---
Sample Date	Client Info	<b>02 Oct 2023</b>	---	---
Machine Age	hrs Client Info	<b>0</b>	---	---
Grease Age	hrs Client Info	<b>0</b>	---	---
Grease Serviced	Client Info	<b>N/A</b>	---	---
Sample Status		<b>NORMAL</b>	---	---

**WEAR METALS** method limit/base current history1 history2

PQ	ASTM D8184	>200	<b>84</b>	---	---
Iron	ppm ASTM D5185m	>250	<b>21</b>	---	---
Chromium	ppm ASTM D5185m	>10	<b>&lt;1</b>	---	---
Nickel	ppm ASTM D5185m	>5	<b>&lt;1</b>	---	---
Cadmium	ppm ASTM D5185m		<b>2</b>	---	---
Titanium	ppm ASTM D5185m		<b>0</b>	---	---
Vanadium	ppm ASTM D5185m		<b>&lt;1</b>	---	---
Lead	ppm ASTM D5185m	>25	<b>3</b>	---	---
Copper	ppm ASTM D5185m	>75	<b>2</b>	---	---
Tin	ppm ASTM D5185m	>5	<b>&lt;1</b>	---	---
Silver	ppm ASTM D5185m	>5	<b>&lt;1</b>	---	---

**ADDITIVES** method limit/base current history1 history2

Boron	ppm ASTM D5185m		<b>10</b>	---	---
Magnesium	ppm ASTM D5185m		<b>21</b>	---	---
Manganese	ppm ASTM D5185m		<b>1</b>	---	---
Molybdenum	ppm ASTM D5185m		<b>3722</b>	---	---
Phosphorus	ppm ASTM D5185m		<b>3</b>	---	---
Zinc	ppm ASTM D5185m		<b>&lt;1</b>	---	---

**THICKENER/SOAP** method limit/base current history1 history2

Aluminum	ppm ASTM D5185m		<b>22</b>	---	---
Barium	ppm ASTM D5185m		<b>&lt;1</b>	---	---
Calcium	ppm ASTM D5185m		<b>3992</b>	---	---
Sodium	ppm ASTM D5185m		<b>6</b>	---	---
Lithium	ppm ASTM D5185m		<b>124</b>	---	---
Sulfur	ppm ASTM D5185m		<b>18831</b>	---	---

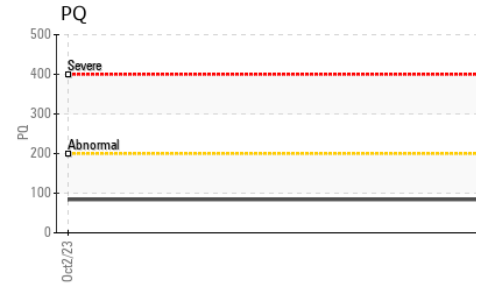
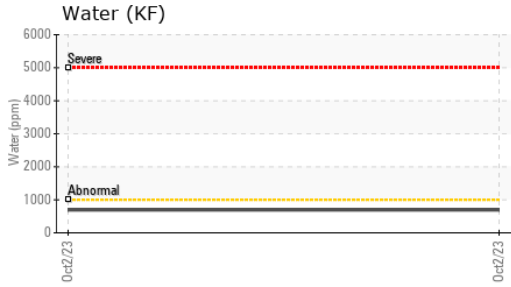
**CONTAMINANTS** method limit/base current history1 history2

Silicon	ppm ASTM D5185m	>150	<b>42</b>	---	---
Potassium	ppm ASTM D5185m		<b>4</b>	---	---
Water	% ASTM D6304	>0.1	<b>0.069</b>	---	---
ppm Water	ppm ASTM D6304	>1000	<b>694.1</b>	---	---

**GREASE CONDITION** method limit/base current history1 history2

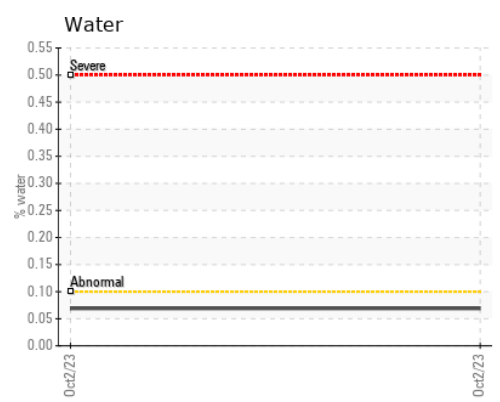
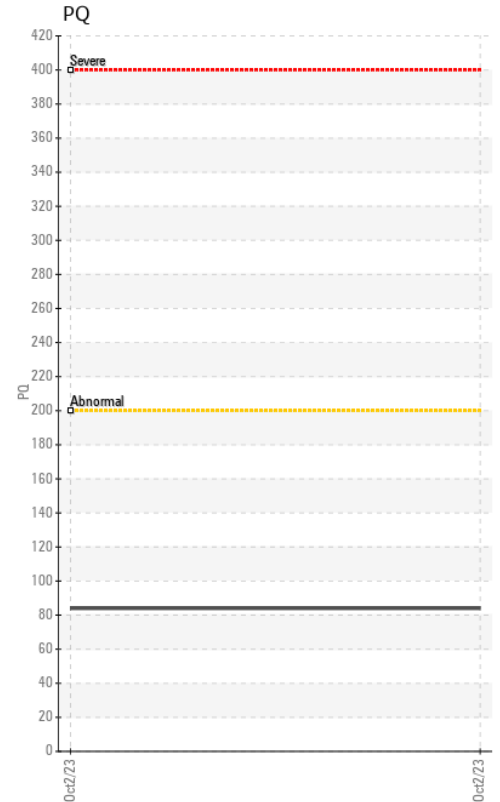
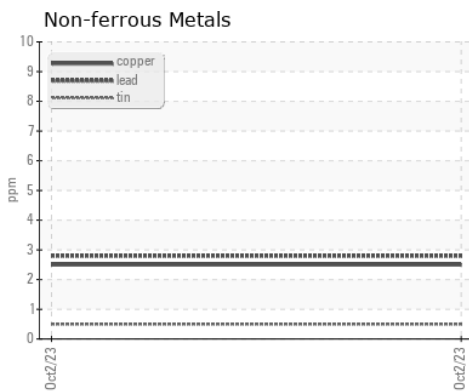
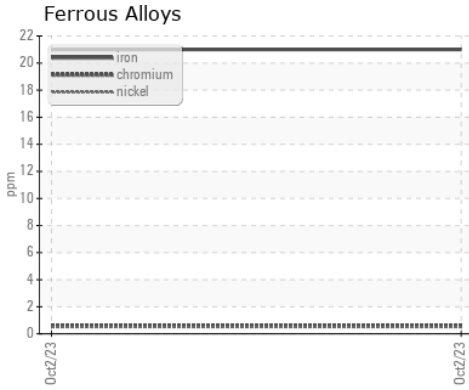
Grease Color	*Visual		<b>Black</b>	---	---
Texture	*In-house		<b>Buttery</b>	---	---
NLGI Consistency	NLGI Scale *SKF Method		<b>00-0</b>	---	---

**GREASE ANALYSIS**



SAMPLE IMAGES	method	limit/base	current	history1	history2
Color				no image	no image
Bottom				no image	no image

**GRAPHS**



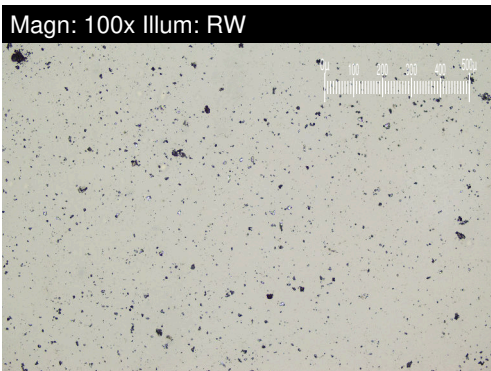
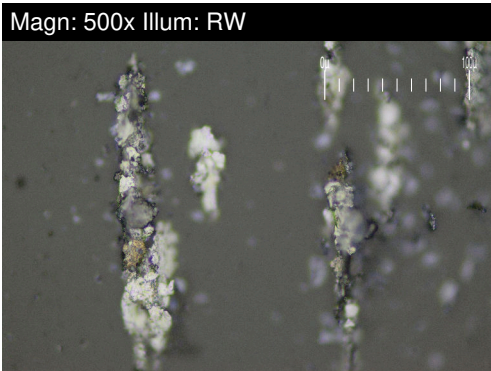
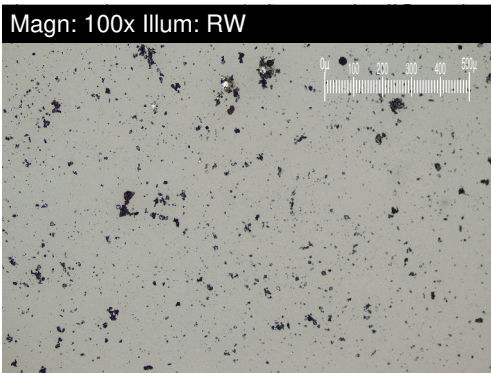
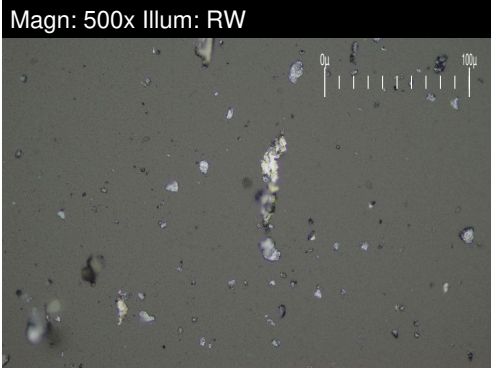
Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LH05968193 **Received** : 03 Oct 2023  
**Lab Number** : 05968193 **Diagnosed** : 23 Oct 2023  
**Unique Number** : 10674744 **Diagnostician** : Aaron Black  
**Test Package** : GRS 3 ( Additional Tests: SCREEN )

**LIEBHERR MINING EQUIPMENT CO**  
 5800 S DOUGLAS HWY  
 GILLETTE, WY  
 US 82718  
 Contact: DUSTIN HARDEN  
 DUSTIN.HARDEN@LIEBHERR.COM  
 T: (307)660-8763  
 F:

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)

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FERROGRAPHY	method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10 *ASTM D7684		2		
Ferrous Sliding	Scale 0-10 *ASTM D7684		1		
Ferrous Cutting	Scale 0-10 *ASTM D7684				
Ferrous Rolling	Scale 0-10 *ASTM D7684				
Ferrous Break-in	Scale 0-10 *ASTM D7684				
Ferrous Spheres	Scale 0-10 *ASTM D7684				
Ferrous Black Oxides	Scale 0-10 *ASTM D7684				
Ferrous Red Oxides	Scale 0-10 *ASTM D7684				
Ferrous Corrosive	Scale 0-10 *ASTM D7684				
Ferrous Other	Scale 0-10 *ASTM D7684				
Nonferrous Rubbing	Scale 0-10 *ASTM D7684				
Nonferrous Sliding	Scale 0-10 *ASTM D7684				
Nonferrous Cutting	Scale 0-10 *ASTM D7684				
Nonferrous Rolling	Scale 0-10 *ASTM D7684				
Nonferrous Other	Scale 0-10 *ASTM D7684				
Carbonaceous Material	Scale 0-10 *ASTM D7684				
Lubricant Degradation	Scale 0-10 *ASTM D7684				
Sand/Dirt	Scale 0-10 *ASTM D7684				
Fibres	Scale 0-10 *ASTM D7684				
Spheres	Scale 0-10 *ASTM D7684				
Other	Scale 0-10 *ASTM D7684		2		

**WEAR**

All component wear rates are normal.

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