



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>ATTENTION</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**46356**  
Component  
**Hydraulic System**  
Fluid  
**TOTAL BIOHYDRAN SE 46 (500 LTR)**

### RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0284400</b>	LH0284399	LH
Sample Date		Client Info		<b>04 Feb 2024</b>	31 Jan 2024	03 May 2023
Machine Age	hrs	Client Info		<b>5004</b>	5001	4402
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Changd</b>	Changed	Not Changed
Filter Changed		Client Info		<b>N/A</b>	N/A	Changed
Sample Status				<b>ATTENTION</b>	---	ABNORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>50	<b>29</b>	101	66
Chromium	ppm	ASTM D5185(m)	>15	<b>&lt;1</b>	3	<1
Nickel	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m)	>8	<b>&lt;1</b>	2	1
Lead	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	<1	<1
Copper	ppm	ASTM D5185(m)	>15	<b>1</b>	2	2
Tin	ppm	ASTM D5185(m)	>5	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

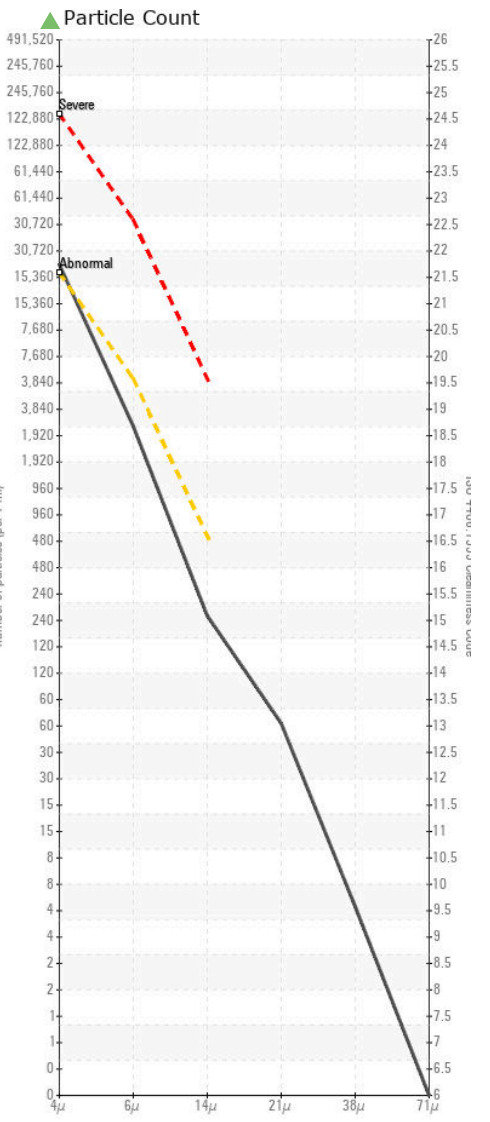
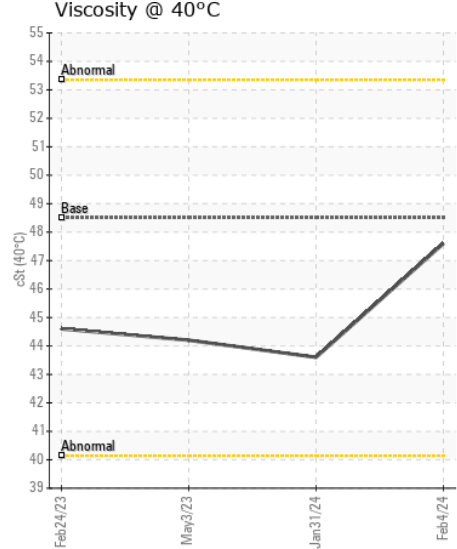
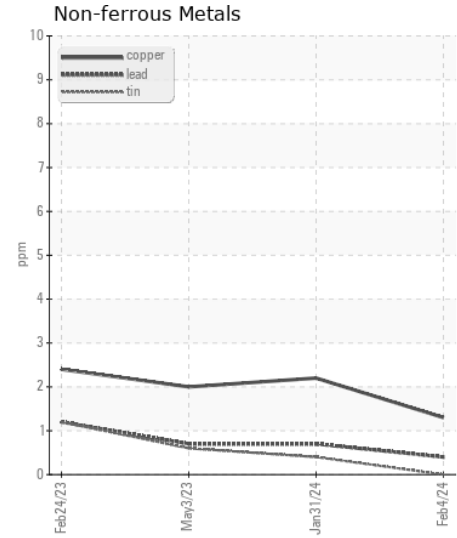
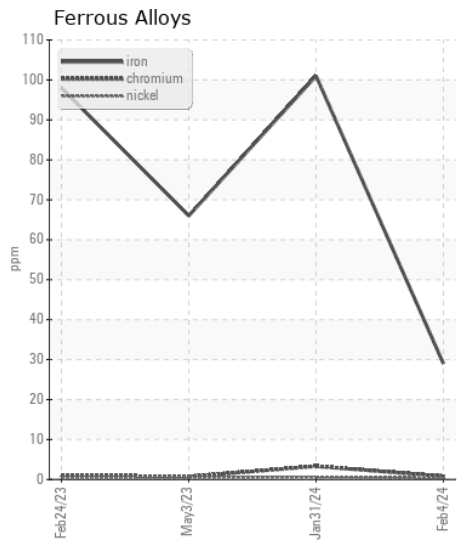
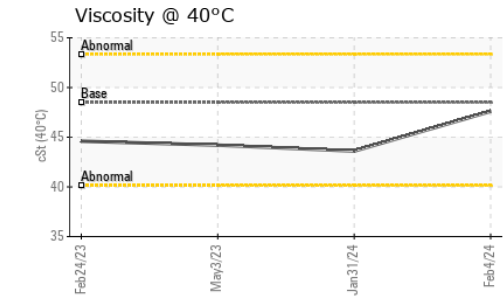
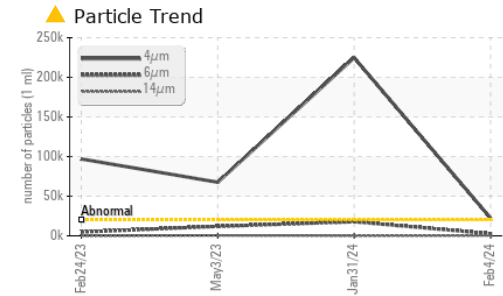
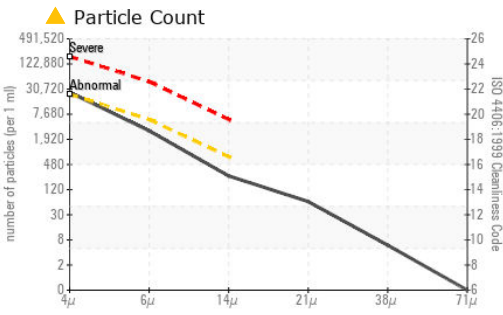
There is a light amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185(m)	>25	<b>2</b>	4	4
Potassium	ppm	ASTM D5185(m)	>20	<b>2</b>	0	2
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Particles >4µm		ASTM D7647	>20000	<b>22295</b>	224763	67621
Particles >6µm		ASTM D7647	>5000	<b>2683</b>	17756	11921
Particles >14µm		ASTM D7647	>640	<b>225</b>	18	451
Particles >21µm		ASTM D7647	>160	<b>55</b>	5	112
Particles >38µm		ASTM D7647	>40	<b>5</b>	0	2
Particles >71µm		ASTM D7647	>10	<b>0</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	<b>22/19/15</b>	25/21/11	23/21/16
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	HAZY	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	<b>NEG</b>	.2%	NEG

### FLUID CONDITION

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

Sodium	ppm	ASTM D5185(m)		<b>3</b>	7	6
Boron	ppm	ASTM D5185(m)	0	<b>2</b>	3	1
Barium	ppm	ASTM D5185(m)	0	<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)	0	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)	0	<b>0</b>	<1	1
Magnesium	ppm	ASTM D5185(m)	0	<b>&lt;1</b>	2	2
Calcium	ppm	ASTM D5185(m)	0	<b>5</b>	8	8
Phosphorus	ppm	ASTM D5185(m)	0	<b>354</b>	315	317
Zinc	ppm	ASTM D5185(m)	0	<b>23</b>	64	47
Sulfur	ppm	ASTM D5185(m)	1100	<b>960</b>	1271	1267
Visc @ 40°C	cSt	ASTM D7279(m)	48.5	<b>47.6</b>	43.6	44.2



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0284400 **Received** : 20 Feb 2024  
**Lab Number** : 02616696 **Tested** : 21 Feb 2024  
**Unique Number** : 5733806 **Diagnosed** : 21 Feb 2024 - Wes Davis  
**Test Package** : MOB 1 ( Additional Tests: PrtCount )

**Delsan - American Iron and Metal**  
 2187 Montee Masson  
 Laval, QC  
 CA H7B 0A6  
 Contact: MANNY MARQUES  
 mmarques@delsan-aim.com

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.