



LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ATTENTION
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH50 1216-118499
Component
Hydraulic System
Fluid
CHEVRON RANDO HD 46 (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0236678	LH0236507	LH0207784
Sample Date		Client Info		13 Jan 2023	23 Aug 2022	31 Mar 2022
Machine Age	hrs	Client Info		4897	4046	3093
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	Not Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

The iron level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	▲ 99	▲ 86	46
Chromium	ppm	ASTM D5185m	>5	2	2	1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>2	<1	1	<1
Lead	ppm	ASTM D5185m	>4	<1	<1	<1
Copper	ppm	ASTM D5185m	>10	3	2	2
Tin	ppm	ASTM D5185m	>2	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	VLITE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

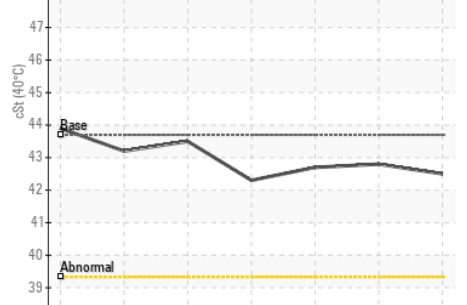
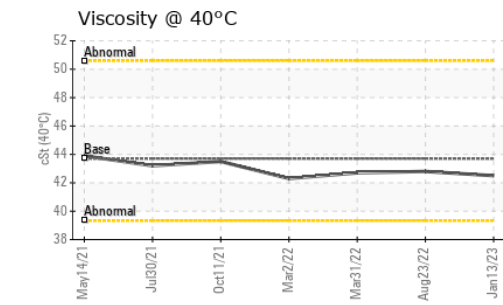
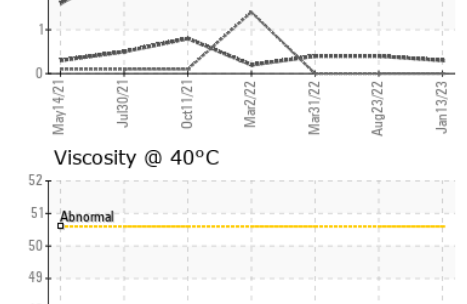
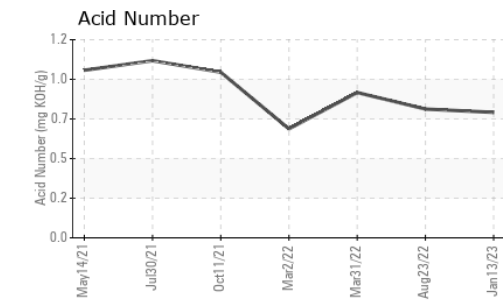
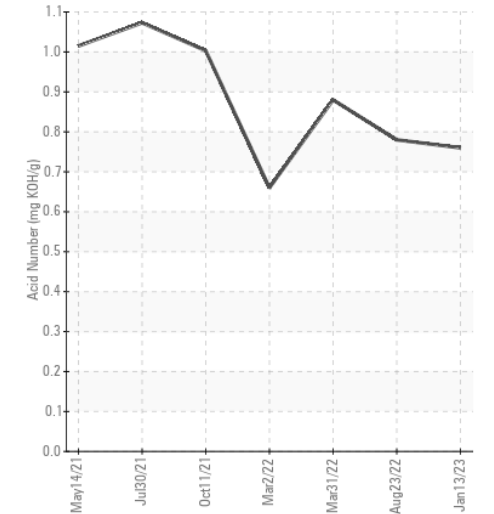
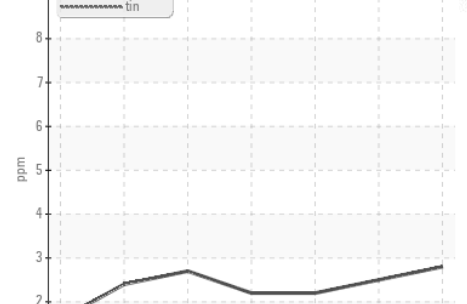
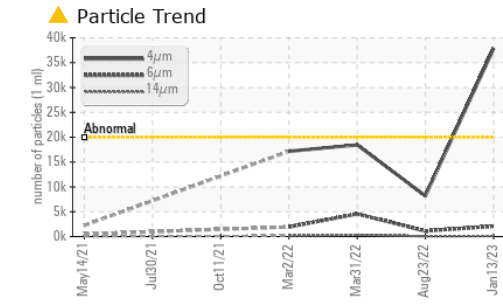
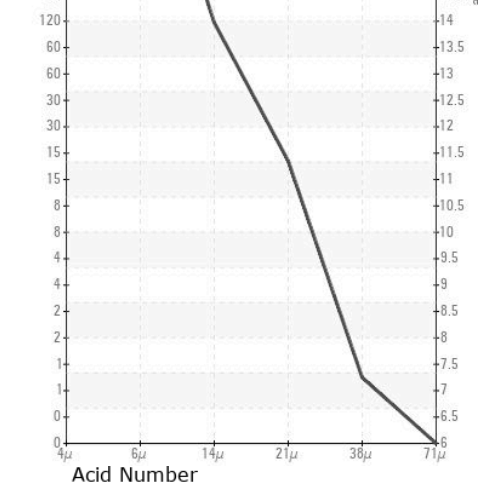
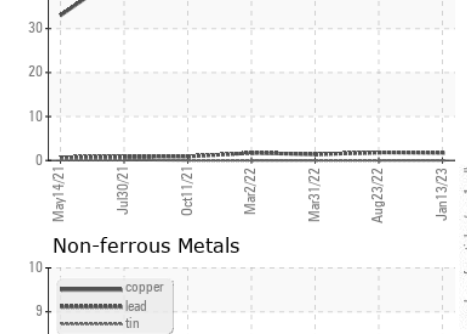
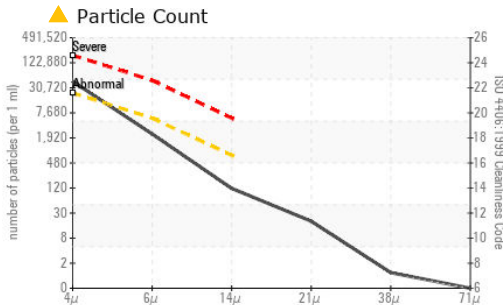
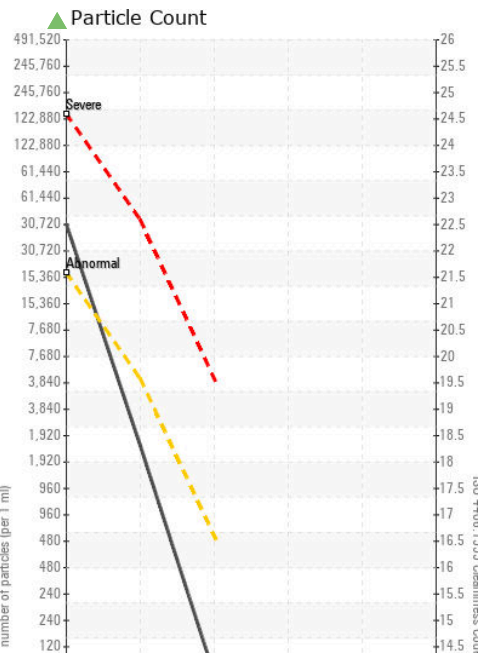
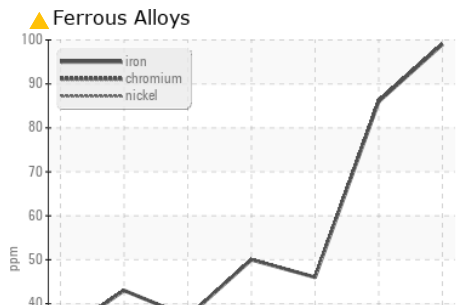
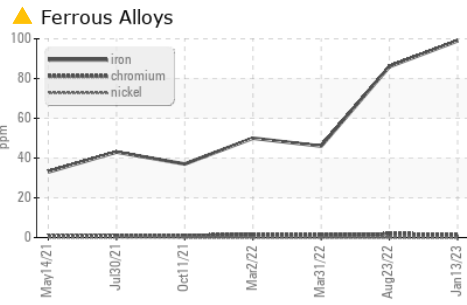
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>17	1	2	5
Potassium	ppm	ASTM D5185m	>20	2	1	1
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	▲ 37827	8188	18446
Particles >6µm		ASTM D7647	>5000	2084	1121	4564
Particles >14µm		ASTM D7647	>640	104	51	329
Particles >21µm		ASTM D7647	>160	17	8	80
Particles >38µm		ASTM D7647	>40	1	0	5
Particles >71µm		ASTM D7647	>10	0	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 22/18/14	20/17/13	21/19/16
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		0	0	0
Boron	ppm	ASTM D5185m		0	<1	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		2	2	<1
Magnesium	ppm	ASTM D5185m		5	5	5
Calcium	ppm	ASTM D5185m		1218	1191	1170
Phosphorus	ppm	ASTM D5185m		490	457	458
Zinc	ppm	ASTM D5185m		577	539	554
Sulfur	ppm	ASTM D5185m		3716	3314	2883
Acid Number (AN)	mg KOH/g	ASTM D8045		0.76	0.78	0.88
Visc @ 40°C	cSt	ASTM D445	43.7	42.5	42.8	42.7



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0236678
Lab Number : 05744571
Unique Number : 10299170
Test Package : CONST
Received : 20 Jan 2023
Tested : 23 Jan 2023
Diagnosed : 23 Jan 2023 - Don Baldrige

SADOFF IRON AND METAL
 240 ARNDT STREET
 FOND DU LAC, WI
 US 54936
 Contact: DAVE CASPER
 casperd@sadoff.com

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)