LIEBHERR
CONSTRUCTION EQUIPMENT

[LIEBHERR] LIEBHERR A934C 041654-1006 - Diesel Engine

Sample No: LH0258360

Oil Type: DIESEL ENGINE OIL SAE 15W40

DUMES INC
1640 NORTH 6TH ST
VINCENNES, IN
US 47591
Contact:

T:
F:

SAMPLE INFORMATION

Sample Number		**LH0258360**	LH0244688	DJJ019952	DJJ018837
Sample Date		**13 Mar 2024**	15 Jun 2023	07 Dec 2016	20 Nov 2015
Machine Hours		**0**	1855	13397	12886
Oil Hours		**0**	0	250	250
Oil Changed		**N/A**	Changed	Changed	N/A
Sample Status		**SEVERE**	SEVERE	ATTENTION	NORMAL

OIL CONDITION

Visc @ 100°C	cSt	**67.4**	16.5	12.03	14.5
Base Number (BN)	mg KOH/g	**0.0**	0.0	---	---
Oxidation (PA)	%	**204**	101	24	44

CONTAMINATION

Water	%	**NEG**	NEG	NEG	NEG
Soot %	%	**7.1**	6.1	1.2	1.5
Nitration (PA)	%	**198**	133	33	50
Sulfation (PA)	%	**130**	102	42	53
Glycol	%	**NEG**	NEG	NEG	NEG
Fuel	%	**<1.0**	<1.0	<1.0	<1.0
Silicon	ppm	**7**	8	6	6
Sodium	ppm	**53**	94	2	6
Potassium	ppm	**10**	27	2	2

WEAR METALS

Iron	ppm	**96**	136	14	10
Copper	ppm	**53**	65	1	2
Lead	ppm	**7**	14	<1	<1
Tin	ppm	**3**	2	0	0
Aluminum	ppm	**3**	10	<1	2
Chromium	ppm	**2**	2	<1	0
Molybdenum	ppm	**55**	92	36	70
Nickel	ppm	**0**	0	0	0
Titanium	ppm	**<1**	0	0	0
Silver	ppm	**<1**	0	0	0
Manganese	ppm	**2**	2	1	<1
Vanadium	ppm	**<1**	0	0	0

ADDITIVES

Calcium	ppm	**2039**	2336	664	1262
Magnesium	ppm	**216**	179	547	487
Zinc	ppm	**1081**	1295	827	1067
Phosphorus	ppm	**927**	1024	689	865
Barium	ppm	**0**	4	0	0
Boron	ppm	**10**	11	8	210

Diagnosis

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.Cylinder, crank, or cam shaft wear is indicated. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

Depot: DUMVINLH
Unique No: 10926868
Signed: Jonathan Hester
Report Date: 19 Mar 2024

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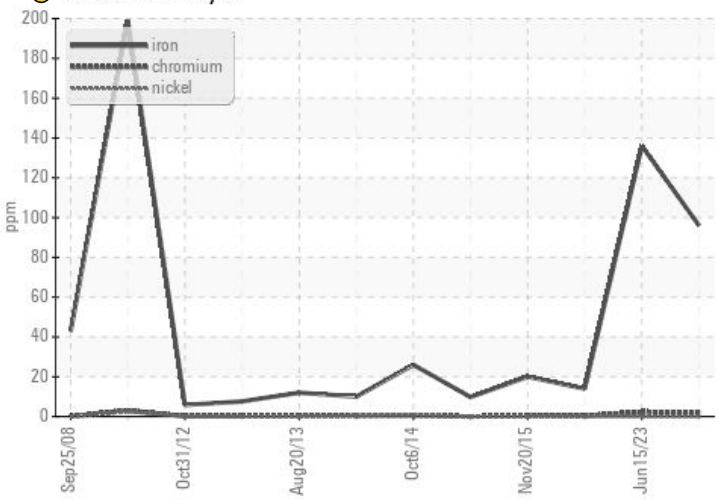
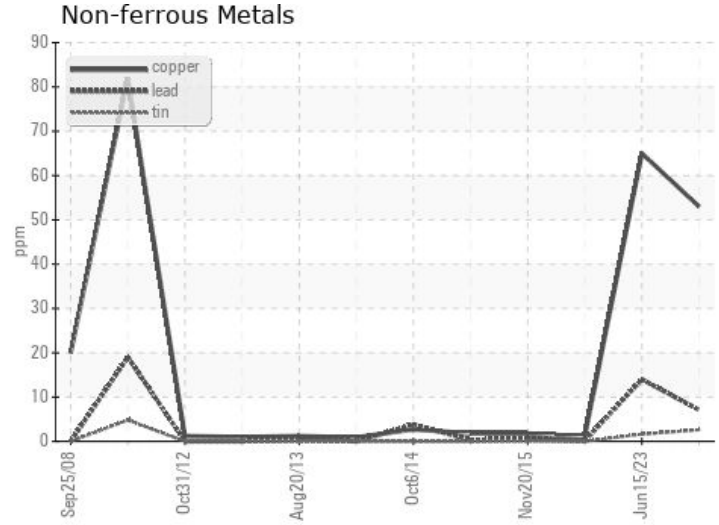
GRAPHS

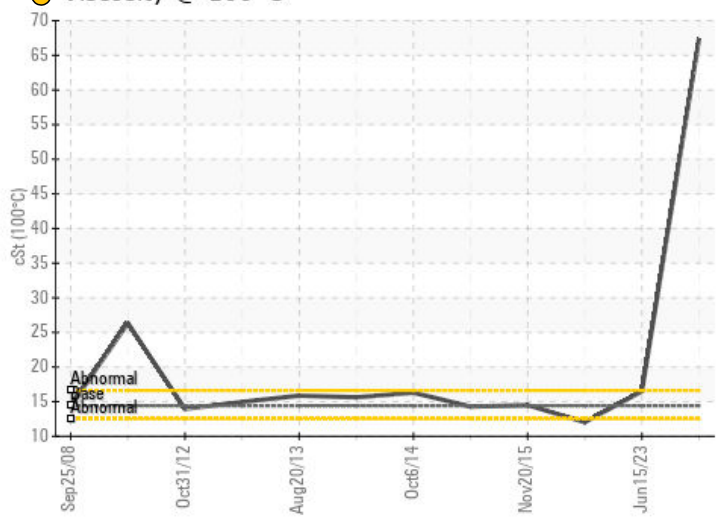
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number