

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### N/A 2092-Hydraulic System

Sample No: LH0033707

Oil Type: SHELL TELLUS T46



#### SAMPLE INFORMATION

Sample Number	LH0033707	LH	LHP0026994	LH0028276
Sample Date	22 Nov 2007	28 Mar 2007	14 Mar 2007	20 Sep 2006
Machine Hours	7838	0	7520	7413
Oil Hours	0	0	0	0
Oil Changed	Changed	Not Changd	Not Changd	N/A
Sample Status	ABNORMAL	SEVERE	ABNORMAL	ABNORMAL

**LIEBHERR CANADA LTEE**  
 4250 AUTOROUTE CHOMEDEY 13  
 LAVAL, QC  
 CA H7R 6E9  
 Contact: Stephane St-Onge  
 Stephane.St-Onge@liebherr.com  
 T: (450)963-7174  
 F: (450)963-9176



#### OIL CONDITION

Visc @ 40°C	cSt	36.7	91.6	30.0	32.6
-------------	-----	------	------	------	------



#### CONTAMINATION

Water	%	NEG	0.052	0.258	NEG
Particles >4µm		38196	---	---	25660
Particles >6µm		6429	1659	903	11539
Particles >14µm		306	189	71	1830
ISO 4406:1999 (c)		22/20/15	18/15	17/13	22/21/18
Silicon	ppm	12	2	13	8
Sodium	ppm	2	<1	2	2
Potassium	ppm	2	<1	4	0

#### Diagnosis

Nous recommandons le remplacement des filtres de ce composant. Les taux d'usure de tous les composants sont normaux. Il y a une grande quantité de particules (de 5 à 50 microns) dans l'huile. La viscosité de l'huile est faible, ce qui indique soit une viscosité de cisaillement, soit l'ajout d'une huile plus légère.



#### WEAR METALS

Iron	ppm	7	62	11	6
Copper	ppm	36	36	3	1
Lead	ppm	1	0	<1	0
Tin	ppm	<1	0	<1	0
Aluminum	ppm	2	0	2	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	1	<1	<1	<1
Nickel	ppm	0	<1	<1	0
Titanium	ppm	<1	0	<1	<1
Silver	ppm	<1	<1	1	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	<1	0



#### ADDITIVES

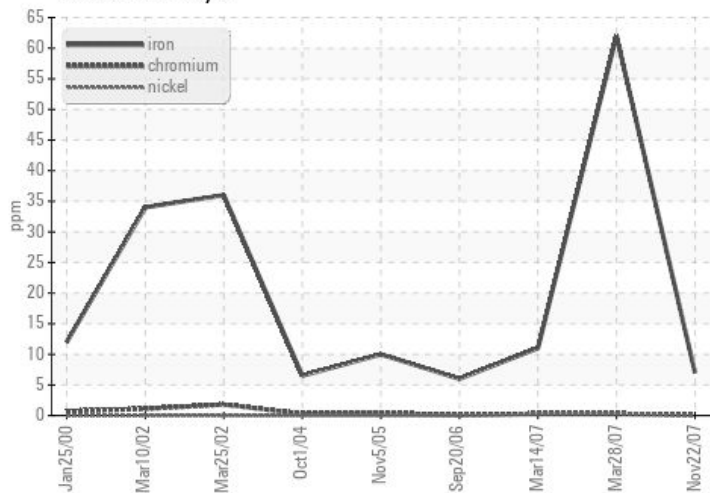
Calcium	ppm	3257	28	1966	2149
Magnesium	ppm	7	0	9	8
Zinc	ppm	992	17	744	739
Phosphorus	ppm	822	1218	613	628
Barium	ppm	<1	<1	<1	0
Boron	ppm	3	315	4	2

Depot: LIESTL  
 Unique No: 2566968  
 Signed:  
 Report Date: 05 Dec 2007

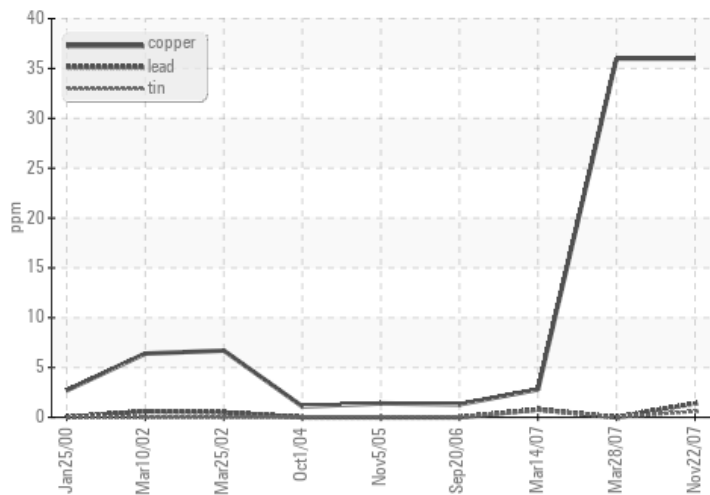


### GRAPHS

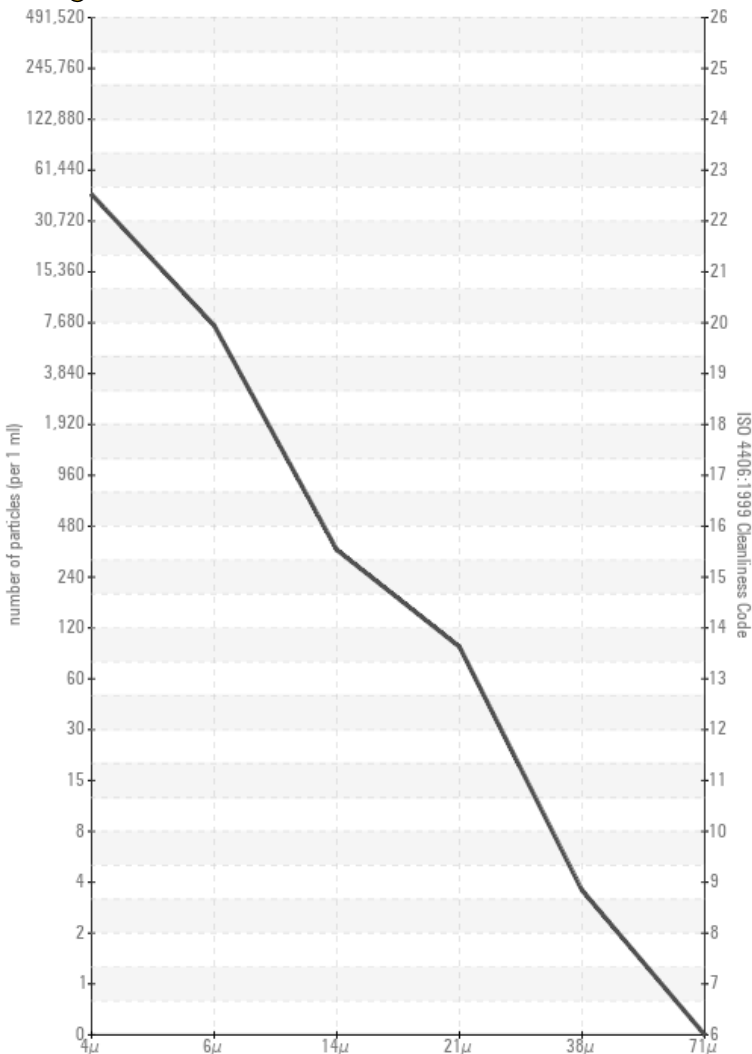
#### Ferrous Alloys



#### Non-ferrous Metals



#### Particle Count



#### Viscosity @ 40°C

