LIEBHERR
CONSTRUCTION EQUIPMENT

LIEBHERR A913 143645-1824 - Hydraulic System

Sample No: LH0269799

Oil Type: LIEBHERR GEAR BASIC 90 LS

SHAMROCK EARTHWORKS LTD
351 EVERSYDE WAY SW
CALGARY, AB
CA T2Y 4R2
Contact: Service Manager

T:
F:

SAMPLE INFORMATION

Sample Number		**LH0269799**	---	---	---
Sample Date		**28 Dec 2023**	---	---	---
Machine Hours		**643**	---	---	---
Oil Hours		**0**	---	---	---
Oil Changed		**Not Changd**	---	---	---
Sample Status		**ABNORMAL**	---	---	---

OIL CONDITION

Visc @ 40°C	cSt	**44.8**	---	---	---

CONTAMINATION

Water	%	**NEG**	---	---	---
Particles >4µm		**5055**	---	---	---
Particles >6µm		**1492**	---	---	---
Particles >14µm		**116**	---	---	---
ISO 4406:1999 (c)		**20/18/14**	---	---	---
Silicon	ppm	**2**	---	---	---
Sodium	ppm	**1**	---	---	---
Potassium	ppm	**3**	---	---	---

WEAR METALS

Iron	ppm	**5**	---	---	---
Copper	ppm	**2**	---	---	---
Lead	ppm	**<1**	---	---	---
Tin	ppm	**0**	---	---	---
Aluminum	ppm	**1**	---	---	---
Chromium	ppm	**<1**	---	---	---
Molybdenum	ppm	**0**	---	---	---
Nickel	ppm	**<1**	---	---	---
Titanium	ppm	**0**	---	---	---
Silver	ppm	**0**	---	---	---
Manganese	ppm	**0**	---	---	---
Vanadium	ppm	**0**	---	---	---

ADDITIVES

Calcium	ppm	**1265**	---	---	---
Magnesium	ppm	**4**	---	---	---
Zinc	ppm	**653**	---	---	---
Phosphorus	ppm	**613**	---	---	---
Barium	ppm	**0**	---	---	---
Boron	ppm	**<1**	---	---	---

Diagnosis

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. Viscosity of sample indicates oil is within SAE 10W range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

Depot: SHA351CAL
Unique No: 5707066
Signed: Kevin Marson
Report Date: 03 Jan 2024

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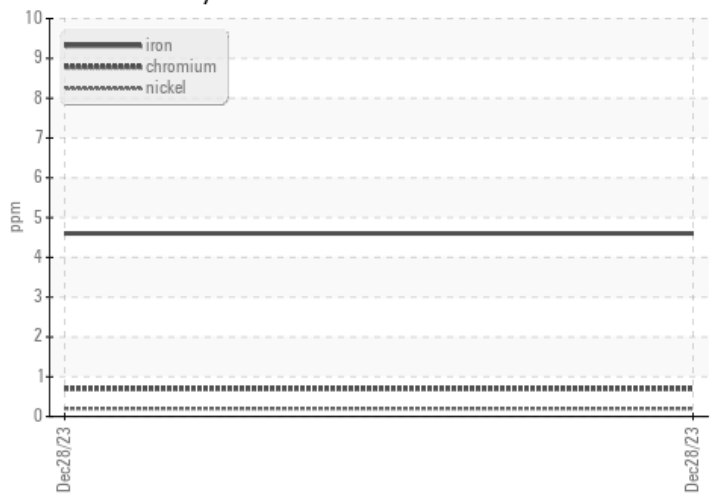
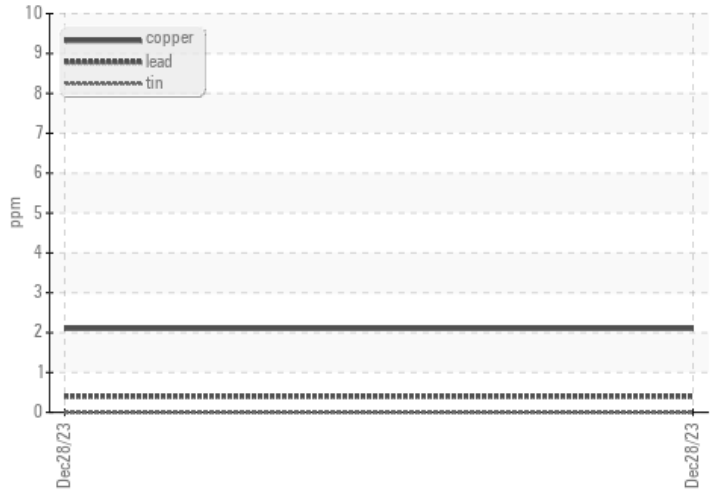
GRAPHS

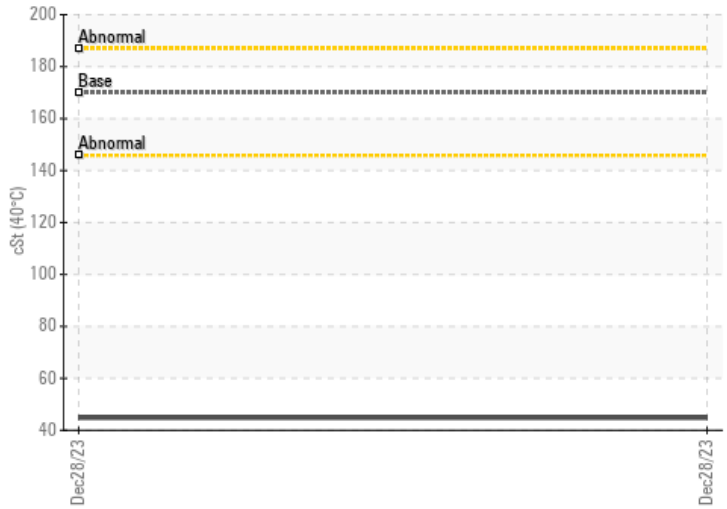
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 40°C



Particle Count