



# CONSTRUCTION EQUIPMENT

## FRED-DERR VOLVO EC220EL 314441 - HYDRAULIC SYSTEM



**Sample No:** VCP429447  
**Oil Type:** VOLVO SUPER HYDRAULIC OIL 46  
**Job No:** FRED-DERR



### SAMPLE INFORMATION

Sample Number	<b>VCP429447</b>	VCP376247	VCP351196	---
Sample Date	<b>11 Jan 2024</b>	04 Aug 2022	24 Jan 2022	---
Machine Hours	<b>2803</b>	2895	734	---
Oil Hours	<b>0</b>	1500	734	---
Oil Changed	<b>Not Chngd</b>	Not Chngd	Not Chngd	---
Sample Status	<b>ATTENTION</b>	ATTENTION	NORMAL	---

### FREDERICK DERR AND COMPANY

PO BOX 2719  
 SARASOTA, FL  
 US 34230  
 Contact: ROBERT TENNANT  
 ROBERT@FREDERICKDERRCOMPANY.COM  
 T: (941)355-8575  
 F:



### OIL CONDITION

Visc @ 40°C	cSt	<b>46.7</b>	40.0	40.2	---
Acid Number (AN)	mg KOH/g	<b>0.46</b>	0.53	0.490	---



### CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	---
Particles >4µm		<b>▲ 48183</b>	▲ 47858	■ 1455	---
Particles >6µm		<b>■ 1374</b>	■ 6776	■ 324	---
Particles >14µm		<b>■ 34</b>	■ 181	■ 37	---
ISO 4406:1999 (c)		<b>23/18/12</b>	23/20/15	18/16/12	---
Silicon	ppm	<b>■ 4</b>	■ 6	■ 5	---
Sodium	ppm	<b>■ 2</b>	■ 0	■ <1	---
Potassium	ppm	<b>■ 0</b>	■ 1	■ 0	---

### Diagnosis

We recommend you service the filters on this component. Resample at the next service interval to monitor. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



### WEAR METALS

Iron	ppm	<b>■ 4</b>	■ 3	■ 3	---
Copper	ppm	<b>■ 29</b>	■ 23	■ 20	---
Lead	ppm	<b>■ 0</b>	■ <1	■ <1	---
Tin	ppm	<b>■ &lt;1</b>	0	<1	---
Aluminum	ppm	<b>■ 0</b>	■ <1	■ 0	---
Chromium	ppm	<b>■ 0</b>	■ 0	■ 0	---
Molybdenum	ppm	<b>■ 1</b>	■ <1	■ <1	---
Nickel	ppm	<b>■ 0</b>	■ 0	■ 0	---
Titanium	ppm	<b>&lt;1</b>	0	0	---
Silver	ppm	<b>0</b>	0	<1	---
Manganese	ppm	<b>■ 0</b>	■ 0	■ 0	---
Vanadium	ppm	<b>&lt;1</b>	0	0	---



### ADDITIVES

Calcium	ppm	<b>■ 54</b>	■ 93	■ 107	---
Magnesium	ppm	<b>■ &lt;1</b>	■ 2	■ 1	---
Zinc	ppm	<b>■ 390</b>	■ 481	■ 478	---
Phosphorus	ppm	<b>■ 352</b>	■ 371	■ 437	---
Barium	ppm	<b>■ 0</b>	■ 0	■ 0	---
Boron	ppm	<b>■ &lt;1</b>	■ 0	■ 3	---

**Depot:** FRESAR  
**Unique No:** 10871001  
**Signed:** Wes Davis  
**Report Date:** 09 Feb 2024

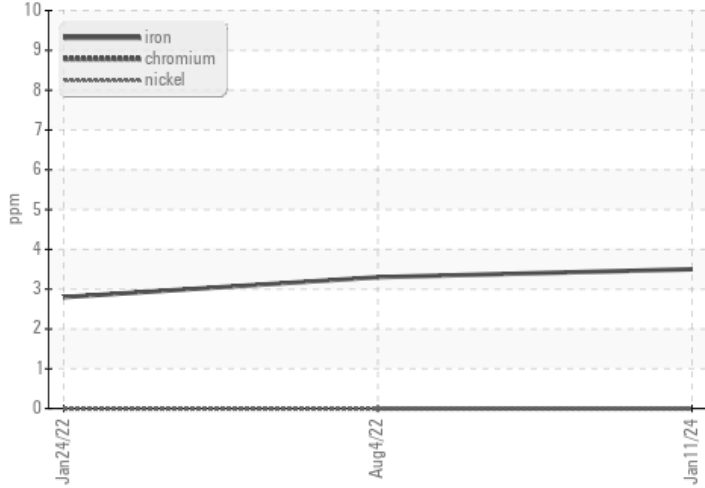


# CONSTRUCTION EQUIPMENT

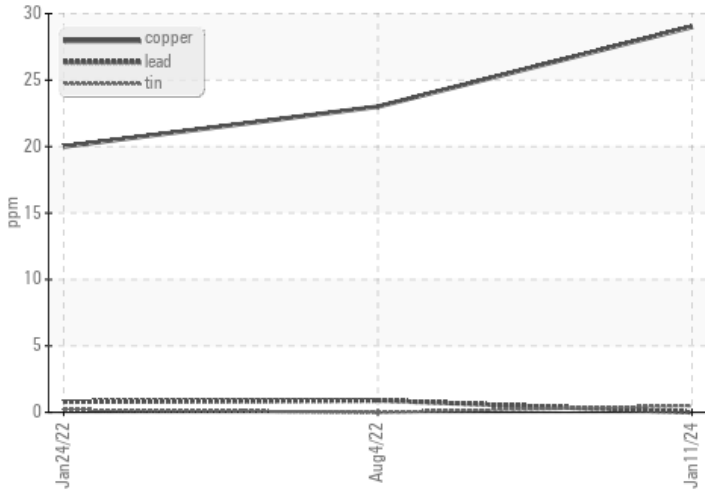


## GRAPHS

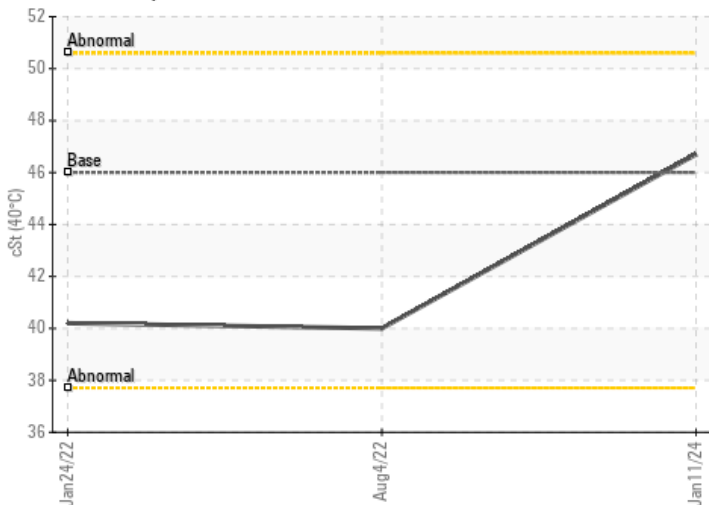
### Ferrous Alloys



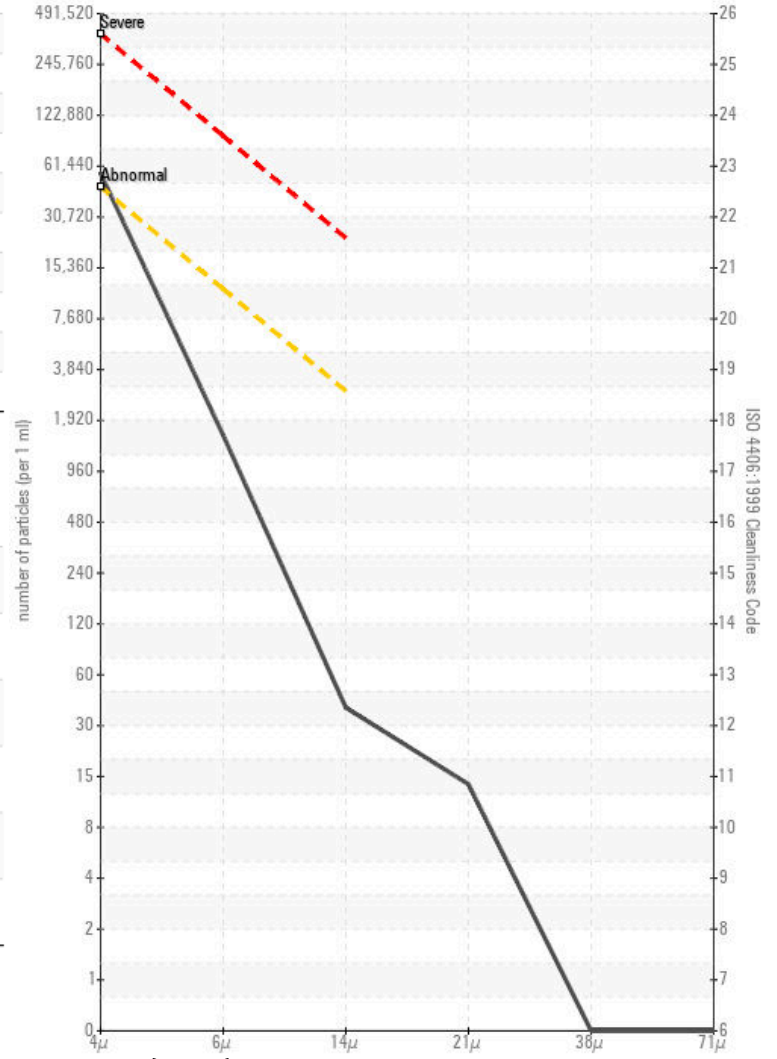
### Non-ferrous Metals



### Viscosity @ 40°C



### Particle Count



### Acid Number

