

# LABORATORY ANALYSIS



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Department **AZUL**  
Equipment No. **8918.5 HYD MAQUINA DE ROSCADO X MACHINE 4 HEAD DRILLREAM (00041)**  
System **Hydraulic System**  
Oil Type **ENGINEERED LUBRICANTS ENLUBE 15-AW (--- GAL)**

## DIAGNOSIS

The oil is near the end of its useful service life, recommend schedule an oil change. 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. There is no indication of any contamination in the oil. The system and fluid cleanliness is acceptable. cSt Vis. @ 40C is abnormally high. Zinc (Zn) ppm levels are abnormally low. Viscosity of sample indicates oil is within ISO 46 range, advise investigate.

## SAMPLE INFORMATION

Lab Number	New	2312-00029	2310-00458	2306-00769
Date of Sample	(Typical)	<b>13 Nov 2023</b>	20 Sep 2023	16 Jun 2023
Oil Added		<b>UNK</b>	UNK	UNK
Last Drain Date		--	--	--
Last Filter Service		--	--	--
Sample Point		---	---	---
Sample Status		<b>ABNORMAL</b>	ABNORMAL	NORMAL

## VISCOSITY @ 100F OR 40C (ASTM D-445)

SSU Vis. @ 100F	SSU	222.1	173.7	168.3
cSt Vis. @ 40C	cSt	32.0	▲ 33.60	■ 32.55

## COLOR (BASED ON ASTM D1500 STANDARDS)

Color	Scale 0-8	RED	0.5	<0.5

## PARTICLE COUNT (PER 1ML)

ISO CODE	ISO 4406(c)	>19/18/14	18/16/12	21/19/15	17/16/13
4 Micron & Larger	particles/ml	>5000	■ 2,439	▲ 10,508	■ 1,083
6 Micron & Larger	particles/ml	>2500	■ 399	▲ 3,194	■ 449
14 Micron & Larger	particles/ml	>160	■ 37	▲ 225	■ 47
21 Micron & Larger	particles/ml	>40	■ 8	▲ 59	■ 12
38 Micron & Larger	particles/ml	>10	■ 0	■ 5	■ 1
70 Micron & Larger	particles/ml	>3	■ 0	■ 1	■ 0

## ICP - OILS (REPORTED IN PARTS PER MILLION)

Aluminum (Al)	ppm	<5	<5	<5
Antimony (Sb)	ppm	<5	<5	<5
Cadmium (Cd)	ppm	<5	<5	<5
Chromium (Cr)	ppm	<5	<5	<5
Cobalt (Co)	ppm	<5	<5	<5
Copper (Cu)	ppm	■ 7	■ <5	■ <5
Iron (Fe)	ppm	■ <5	■ <5	■ <5
Lead (Pb)	ppm	5	<5	<5
Manganese (Mn)	ppm	<5	<5	<5
Molybdenum(Mo)	ppm	<5	<5	<5
Nickel (Ni)	ppm	<5	<5	<5
Silver (Ag)	ppm	<5	<5	<5
Tin (Sn)	ppm	<5	<5	<5
Titanium (Ti)	ppm	<5	<5	<5
Vanadium (V)	ppm	<5	<5	<5
Barium (Ba)	ppm	<5	<5	<5
Boron (B)	ppm	<5	<5	<5
Calcium (Ca)	ppm	58	61	65
Magnesium (Mg)	ppm	<5	<5	<5
Phosphorus(P)	ppm	431	479	514
Silicon (Si)	ppm	<5	<5	<5
Zinc (Zn)	ppm	668	▲ 449	■ 584
Sulfur (S)	ppm	1,100	1,310	1,520

Customer Id: ENC0005J03  
Sample No.: EN23120029  
Lab Number: 23120029  
Test Package: TEST



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To discuss the diagnosis or test data:

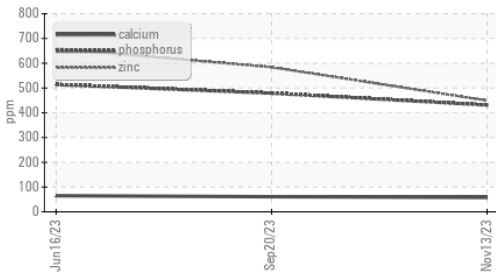
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# OIL ANALYSIS REPORT

### ▲ Additives



### DR FERROGRAPHY READINGS

L		■ 0.7	■ 19.5	■ 0.4
S		■ 0.4	■ 2.0	■ 0.1
WPC	DL + DS	■ 1.1	■ 21.5	■ 0.5

### CONTAMINATION

Water	>0.05	<b>NEG</b>	NEG	NEG
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### Viscosity @ 40°C

