

LABORATORY ANALYSIS



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Department **MAQUINADOS 1**
Equipment No. **447 HYD HAAS VERTICAL MILL MAZAK 9 (00002)**
System **Hydraulic System**
Oil Type **ENGINEERED LUBRICANTS ENLUBE 15-AW (--- GAL)**

DIAGNOSIS

We recommend that you drain the oil from the component if this has not already been done. 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. Zinc (Zn) ppm levels are severely low. cSt Vis. @ 40C is abnormally high. Viscosity of sample indicates oil is within ISO 46 range, advise investigate.

SAMPLE INFORMATION

Lab Number	New	2312-00074	2310-00494	2306-00813
Date of Sample	(Typical)	13 Nov 2023	20 Sep 2023	16 Jun 2023
Oil Added		UNK	UNK	UNK
Last Drain Date		--	--	--
Last Filter Service		--	--	--
Sample Point		---	---	---
Sample Status		SEVERE	SEVERE	SEVERE

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

SSU Vis. @ 100F	SSU	209.9	210.4	209.9
cSt Vis. @ 40C	cSt	32.0	▲ 40.76	▲ 40.67

COLOR (BASED ON ASTM D1500 STANDARDS)

Color	Scale 0-8	RED	RED	RED
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PARTICLE COUNT (PER 1ML)

ISO CODE	ISO 4406(c)	>19/18/14	19/16/12	20/19/15	18/15/12
4 Micron & Larger	particles/ml	>5000	■ 3,936	▲ 9,947	■ 1,687
6 Micron & Larger	particles/ml	>2500	■ 589	▲ 2,532	■ 249
14 Micron & Larger	particles/ml	>160	■ 22	▲ 265	■ 23
21 Micron & Larger	particles/ml	>40	■ 5	▲ 95	■ 6
38 Micron & Larger	particles/ml	>10	■ 0	▲ 15	■ 1
70 Micron & Larger	particles/ml	>3	■ 0	4	■ 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	■ 6	■ 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	23	25	25
Magnesium (Mg)	ppm	<5	<5	<5
Phosphorus(P)	ppm	220	235	231
Silicon (Si)	ppm	<5	<5	<5
Zinc (Zn)	ppm	668	■ 253	■ 267
Sulfur (S)	ppm	1,590	1,510	1,730

Customer Id: ENC0005J03
Sample No.: EN23120074
Lab Number: 23120074
Test Package: TEST



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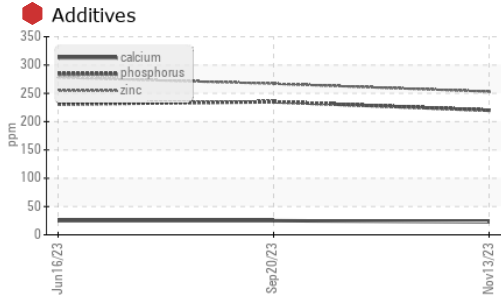
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OIL ANALYSIS REPORT



DR FERROGRAPHY READINGS

L		■ 1.6	● 38.1	■ 12.8
S		■ 0.4	■ 4.6	■ 1.0
WPC	DL + DS	■ 2	▲ 42.7	■ 13.8

CONTAMINATION

Water	>0.05	NEG	NEG	NEG
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