

LABORATORY ANALYSIS



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COPELAND(EMERSON CLIMATE TECHNOLOGIES)
3101 W MILITARY HWY BUILDING 2, (SALTILLO PLANT)
SALTILLO, AM
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Department **WINDING**
Equipment No. **LACER 02-LINEA 01-CELDA 5.3 (00012)**
System **Circulating System**
Oil Type **ENGINEERED LUBRICANTS ENWAY 149-HWO (--- GAL)**

DIAGNOSIS

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. Copper (Cu) ppm levels are marginal. All other component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. Additive levels indicate the addition of a different brand, or type of oil. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

Lab Number	New	2311-00630	2309-00978	2210-00384
Date of Sample	(Typical)	26 Oct 2023	22 Sep 2023	06 Oct 2022
Oil Added		UNK	UNK	UNK
Last Drain Date		--	--	--
Last Filter Service		--	--	--
Sample Point		---	---	---
Sample Status		SEVERE	ATTENTION	SEVERE

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

SSU Vis. @ 100F	SSU	161.3	159.7	157.7
cSt Vis. @ 40C	cSt	32.0	30.85	30.44

COLOR (BASED ON ASTM D1500 STANDARDS)

Color	Scale 0-8	2.5	2.0*	2.5	2.0

PARTICLE COUNT (PER 1ML)

ISO CODE	ISO 4406(c)	>19/17/14	25/23/18	19/18/14	22/19/14
4 Micron & Larger	particles/ml	>5000	261,649	4,832	27,118
6 Micron & Larger	particles/ml	>1300	51,551	1,383	3,640
14 Micron & Larger	particles/ml	>160	2,058	90	116
21 Micron & Larger	particles/ml	>40	503	21	24
38 Micron & Larger	particles/ml	>10	22	0	2
70 Micron & Larger	particles/ml	>3	2	0	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		12	298	292
Iron (Fe)	ppm		<5	42	38
Lead (Pb)	ppm		9	140	110
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	6	9
Titanium (Ti)	ppm		<5	<5	<5
Vanadium (V)	ppm		<5	<5	<5
Barium (Ba)	ppm	300	7	19	91
Boron (B)	ppm		<5	<5	<5
Calcium (Ca)	ppm		42	59	47
Magnesium (Mg)	ppm		<5	<5	<5
Phosphorus(P)	ppm	190	383	483	472
Silicon (Si)	ppm		7	<5	<5
Zinc (Zn)	ppm		406	357	217
Sulfur (S)	ppm	10295	1,900	1,740	2,030

Customer Id: EMESAL
Sample No.: EN23110630
Lab Number: 23110630
Test Package: TEST

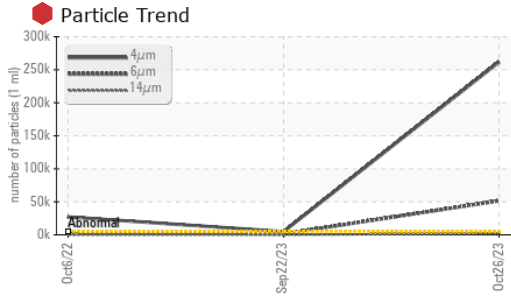


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OIL ANALYSIS REPORT



DR FERROGRAPHY READINGS

L		■ 88.7	■ 4.7	25.0
S		■ 33.2	■ 1.7	7.4
WPC	DL + DS	■ 121.9	■ 6.4	32.4

CONTAMINATION

Water	NEG	NEG	NEG
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