

# LABORATORY ANALYSIS



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**COPELAND (MHDS)**  
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Department **WINDING**  
Equipment No. **TRANS07 DIP & BAKE CONVEYOR #2 (00012)**  
System **Transmission**  
Oil Type **ENGINEERED LUBRICANTS ENLUBE S-POLY-G-2188-WGO-X (--- GAL)**

## Diagnosis

The oil is near the end of its useful service life, recommend schedule an oil change. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. L, % large particles, severity index and wpc levels are abnormal. There is a moderate amount of silt (particulates < 14 microns in size) present in the fluid. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. Phosphorus(P) ppm levels are abnormally low. The fluid is no longer serviceable as a result of the abnormal and/or severe wear.

## Sample Information

Lab Number	New	<b>2405-00134</b>	2312-00750	2308-01089
Date of Sample	(Typical)	<b>28 Apr 2024</b>	14 Dec 2023	14 Aug 2023
Oil Added		<b>UNK</b>	UNK	UNK
Last Drain Date		--	--	--
Last Filter Service		--	--	--
Sample Point		---	---	---
Sample Status		<b>ABNORMAL</b>	NORMAL	SEVERE

## VISCOSITY INDEX (ASTM D445)

cSt Vis. @ 40C	cSt	460	<b>474.4</b>	456.2	460.3
SSU Vis. @ 100F	SSU		<b>2,198.3</b>	2,114.0	2,132.8
cSt Vis. @ 100C	cSt		<b>79.99</b>	77.63	81.16
SSU Vis. @ 210F	SSU		<b>373.5</b>	362.5	378.9
cSt Vis. @ 40C	cSt	460	<b>474.4</b>	456.2	460.3
SSU Vis. @ 40C	SSU		<b>2,198.3</b>	2,114.0	2,132.8
cSt Vis. @ 100C	cSt		<b>79.99</b>	77.63	81.16
SSU Vis. @ 100C	SSU		<b>373.5</b>	362.5	378.9
Viscosity Index			<b>252</b>	252	260

## TOTAL ACID NUMBER (NEUT. NO.)(ASTM D974)

TAN, mg KOH/g	mg KOH/g	0.61	<b>0.55</b>	0.59	0.48
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## Hiac Particle Count/ISO 4406

4 Micron & Larger	particles/ml	>640000	<b>869,095</b>	268,904	776,947
6 Micron & Larger	particles/ml	>80000	<b>357,600</b>	24,326	11,633
14 Micron & Larger	particles/ml	>2500	<b>1,445</b>	680	248
ISO Code	ISO 4406(c)	>26/23/18	<b>27/26/18</b>	25/22/17	27/21/15

## ENERGY DISPERSIVE XRF - PPM (\*BELOW MINIMUM DETECTION LIMIT)

Aluminum (Al)	ppm		*	*	*
Antimony (Sb)	ppm		*	*	*
Cadmium (Cd)	ppm		*	*	*
Chromium (Cr)	ppm		*	*	*
Cobalt (Co)	ppm		*	*	*
Copper (Cu)	ppm		<b>86</b>	59	207
Iron (Fe)	ppm		*	*	*
Lead (Pb)	ppm		*	*	*
Manganese (Mn)	ppm		*	*	*
Molybdenum(Mo)	ppm		*	*	*
Nickel (Ni)	ppm		*	*	*
Potassium (K)	ppm		*	*	*
Tin (Sn)	ppm		*	*	*
Titanium (Ti)	ppm		*	*	*
Vanadium (V)	ppm		*	*	*
Barium (Ba)	ppm		*	*	*
Calcium (Ca)	ppm		*	*	*
Magnesium (Mg)	ppm		*	*	*
Phosphorus(P)	ppm	957	<b>642</b>	685	785
Silicon (Si)	ppm		*	*	*
Zinc (Zn)	ppm		*	*	*
Chlorine (Cl)	ppm		*	*	*
Sulfur (S)	ppm	555	<b>286</b>	249	436

Customer Id: MOTMCA  
Sample No.: EN24050134  
Lab Number: 24050134  
Test Package: TEST

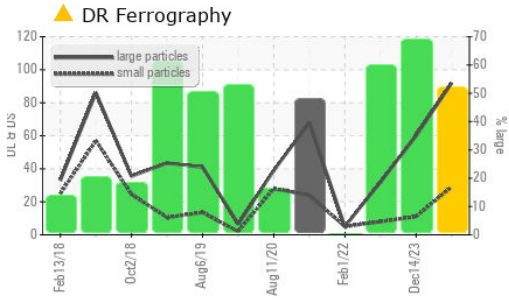


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# OIL ANALYSIS REPORT



### DR FERROGRAPHY READINGS

L		▲ <b>92.0</b>	■ 60.0	■ 32.0
S		■ <b>29.0</b>	■ 11.0	■ 8.0
WPC	DL + DS	▲ <b>121</b>	■ 71	■ 40

### Contamination

Water	>0.45	<b>NEG</b>	NEG	NEG
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