



# PROBLEM SUMMARY

Sample Rating Trend



## COMBUSTION



Machine Id  
**35958703-022-01 (S/N FZ6E148BFH)**  
 Component  
**Transformer Oil**  
 Fluid  
**NOT GIVEN (674 GAL)**

### COMPONENT CONDITION SUMMARY

No relevant graphs to display

### RECOMMENDATION

### PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	MARGINAL	ABNORMAL
DGA - Acetylene	ppm	*ASTM D3612(e)	▲ 6	▲ 8	▲ 7
DGA - Ethane	ppm	*ASTM D3612(e)	◆ 158	184	135
Interfacial Tension	mN/m	ASTM D971(e)	▲ 20.78	19.35	20.3

Customer Id: TORMOO  
 Sample No.: WC05119928  
 Lab Number: 05119928  
 Test Package: TRF 3



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 System Automation +1 905-569-8600 x230  
[Kevin.Marson@wearcheck.com](mailto:Kevin.Marson@wearcheck.com)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

There are no recommended actions for this sample.

## HISTORICAL DIAGNOSIS

### COMBUSTION



#### 30 Jan 2020 Diag: Doug Bogart

No corrective action is recommended at this time. Resample within 6 months for testing. These tests were conducted by a subcontracted laboratory with ISO Standard 17025 accreditation. {not applicable} Hydrogen within normal limits (112 µL/L) Methane within normal limits (20 µL/L) Ethane within normal limits (232 µL/L) Ethylene within normal limits (18 µL/L) Acetylene exceeds normal limits (1 µL/L). Indication of high temperature, high energy discharge, or arcing activity. Carbon Monoxide within normal limits (161 µL/L) Carbon Dioxide within normal limits (5000 µL/L) CO<sub>2</sub>/CO Ratio is only applicable when CO<sub>2</sub> greater than 5000 and CO greater than 500. Acetylene generation rate indicates an active fault. See Manufacturers Recommendation.. IFT: Diagnostic not applicable. AN: Acceptable for in-service oil (0.3 mg KOH/g max). Color acceptable for in-service oil (1.5 max). Dielectric: Diagnostic not applicable..

view report



### COMBUSTION



#### 10 Apr 2019 Diag: Doug Bogart

No corrective action is recommended at this time. Resample at earliest opportunity to establish gas generation rate. These tests were conducted by a subcontracted laboratory with ISO Standard 17025 accreditation. {not applicable} Acetylene at 7 uL/L exceeds normal limits (1 uL/L). Indication of high temperature, high energy discharge, or arcing activity. The water content is negligible. 2-FurylAldehyde < 10, 5-HydroxyMethylFuralde < 10, 5-Methyl-2-Furaldehyde 15, 2-ActeylFuran <10, 2-FurylAlcohol 23. The AN level is acceptable for this fluid. The condition of the transformer oil is suitable for further service.

view report

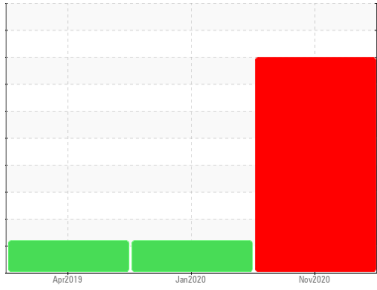




# OIL ANALYSIS REPORT

Sample Rating Trend

COMBUSTION



Machine Id  
**35958703-022-01 (S/N FZ6E148BFH)**

Component  
**Transformer Oil**  
Fluid  
**NOT GIVEN (674 GAL)**

## DIAGNOSIS

**Wear**  
(not applicable)

**Contamination**  
Hydrogen within normal limits (112 µL/L) Methane within normal limits (20 µL/L) Ethane within normal limits (232 µL/L) Ethylene within normal limits (18 µL/L) Acetylene exceeds normal limits (1 µL/L). Indication of high temperature, high energy discharge, or arcing activity. Carbon Monoxide within normal limits (161 µL/L) Carbon Dioxide within normal limits (5000 µL/L) CO2/CO Ratio is only applicable when CO2 greater than 5000 and CO greater than 500. Gas generation rates are normal. See Manufacturer's Recommendation.. (Furans) DP: >1003 , Age: <1.0 , 2FurylAldehyde: < 10 , 5-HydroxyMethylFuralde: < 10 , 2AcetylFuran: < 10 , 5-Methyl-2-Furaldehyde: 21 , 2-FurylAlcohol: < 10

**Fluid Condition**  
IFT: Diagnostic not applicable. AN: Diagnostic not applicable. Color: See Manufacturer's Recommendation. See Manufacturer's Recommendation..

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC05119928</b>	WC04901386	WCI2351229
Sample Date	Client Info		<b>02 Nov 2020</b>	30 Jan 2020	10 Apr 2019
Machine Age	yrs	Client Info	<b>0</b>	0	3
Oil Age	yrs	Client Info	<b>0</b>	0	3
Oil Changed	Client Info		<b>N/A</b>	N/A	Not Changd
Sample Status			<b>SEVERE</b>	MARGINAL	ABNORMAL

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Water	%	ASTM D6304	>0.0035	---	0.004	0.004
ppm Water	ppm	ASTM D6304	>35	<b>0</b>	38	36

## DISSOLVED GAS ANALYSIS (DGA)

	method	limit/base	current	history1	history2
DGA - H2	ppm	*ASTM D3612(e)	<b>25</b>	35	38
DGA - O2	ppm	*ASTM D3612(e)	<b>185</b>	393	<500
DGA - N2	ppm	*ASTM D3612(e)	<b>59601</b>	67115	60322
DGA - CO	ppm	*ASTM D3612(e)	<b>62</b>	66	61
DGA - CO2	ppm	*ASTM D3612(e)	<b>629</b>	492	379
DGA - Methane	ppm	*ASTM D3612(e)	<b>5</b>	5	4
DGA - Acetylene	ppm	*ASTM D3612(e)	<b>6</b>	8	7
DGA - Ethylene	ppm	*ASTM D3612(e)	<b>11</b>	8	6
DGA - Ethane	ppm	*ASTM D3612(e)	<b>158</b>	184	135
DGA - Total Gas Content	%	*ASTM D3612(e)	<b>60682</b>	68306	0.193
DGA - Total Combustible Gas	ppm	*ASTM D3612(e)	<b>267</b>	306	---

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.05</b>	0.06	0.06

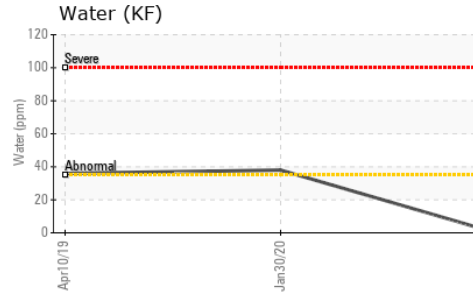
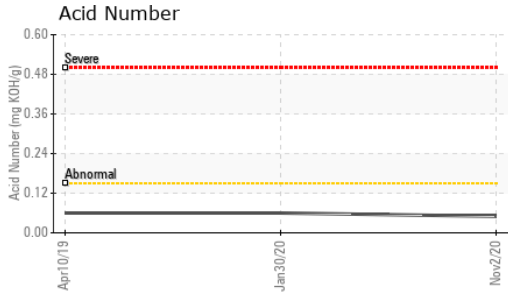
## VISUAL

	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.0035	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

## FLUID PROPERTIES

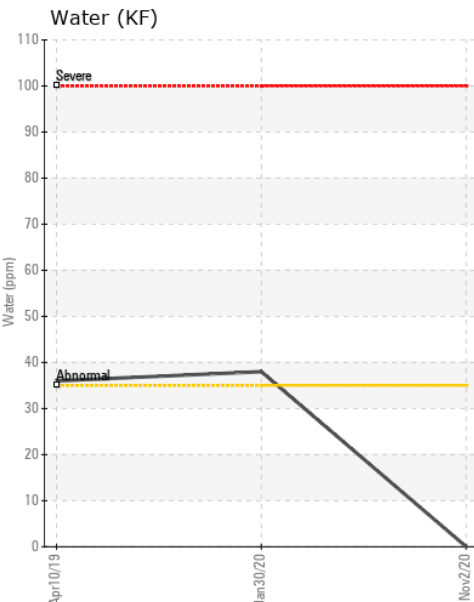
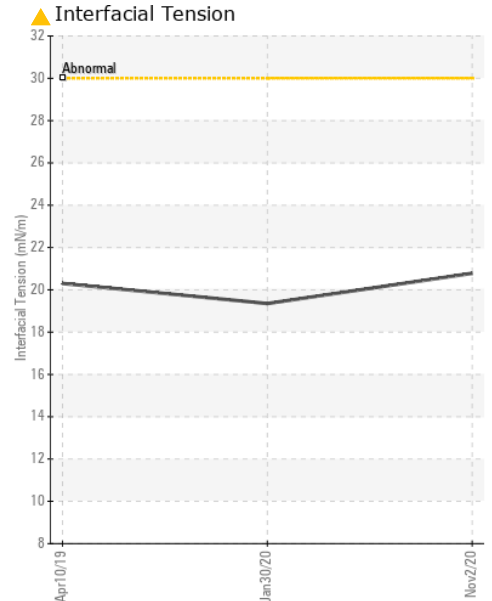
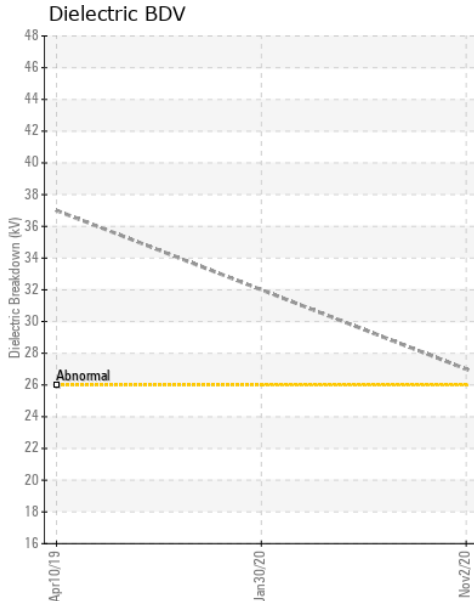
	method	limit/base	current	history1	history2
Specific Gravity	ASTM D4052(e)		<b>0.922</b>	0.921	0.922
Dielectric Breakdown	kV	ASTM D1816(e)	<b>27</b>	---	37
Interfacial Tension	mN/m	ASTM D971(e)	<b>20.78</b>	19.35	20.3
ASTM Color	scalar	ASTM D1500(e)	<b>L0.5</b>	L0.5	1.5

# OIL ANALYSIS REPORT



SAMPLE IMAGES	method	limit/base	current	history1	history2
Color			no image		no image
Bottom			no image		no image

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC05119928     **Received** : 19 Nov 2020  
**Lab Number** : **05119928**     **Diagnosed** : 02 Oct 2023  
**Unique Number** : 9260192     **Diagnostician** : System  
**Test Package** : TRF 3 ( Additional Tests: PrtCount )

**TORAY CARBON FIBERS AMERICA INC**  
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To discuss this sample report, contact Customer Service at 1-800-237-1369.  
 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.  
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)