

Tampa Armature Works	Serial#: C-03319-5-1	Mfr: MCGRAW EDISON	Control#: 7516650
	Location: BIG BEND 2	kV: 825	Order#: 669243
	Equipment: TRANSFORMER	kVA: 480000	Account: 614
LAKELAND, FL 33810 US	Compartment: MAIN(BOTTOM)	Year M'd:	Received: 01/21/2022
ATTN: LUKE DAHLBERG	Breathing: SEAL	Syringe ID: 3001819	Reported: 01/26/2022
PO#: 40410626-1	Bank: Phase: 3	Bottle ID:	
Project ID: 40314260	Fluid: MIN USGal: 14100	Sampled By: R ASSESSOR	
Customer ID: GSU-2			

	Lab Control Number:	7516650
	Date Sampled:	01/05/2022
	Order Number:	669243
	Oil Temp:	
Dissolved Gas Analysis (DGA)	O2/N2 Ratio:	0
ASTM	Transformer Age (yrs):	Unknown
D-3612 ¹	Hydrogen (H2) (µL/L):	<2
	Methane (CH4) (µL/L):	3
	Ethane (C2H6) (µL/L):	2
	Ethylene (C2H4) (µL/L):	<1
	Acetylene (C2H2) (µL/L):	<1
	Carbon Monoxide (CO) (µL/L):	9
	Carbon Dioxide (CO2) (µL/L):	225
	Nitrogen (N2) (µL/L):	66774
	Oxygen (O2) (µL/L):	<500

Dissolved Gas Analysis Diagnostics – IEEE Std C57.104-2019

	Absolute Gas Levels (µL/L)		Gas Level Deltas(µL/L) (2 most recent samples)		Gas Generation Rates (µL/L per yr) (3-6 most recent samples within 4-24 mos.)	
Gas	Level	Diagnostic	Delta	Diagnostic	Rate	Diagnostic
Hydrogen (H2)	<2	Normal (<= 80)				
Methane (CH4)	3	Normal (<= 90)				
Ethane (C2H6)	2	Normal (<= 90)				
Ethylene (C2H4)	0	Normal (<= 50)				
Acetylene (C2H2)	<1	Normal (<= 1)				
Carbon Monoxide (CO)	9	Normal (<= 900)				
Carbon Dioxide (CO2)	225	Normal (<= 9000)				

DGA Diagnostics	Roger's Ratio	Diagnostic not applicable - Gas levels normal.
Duval Triangles		Diagnostic not applicable – Triangle 1 gas levels normal. Diagnostic not applicable – Triangle 4 gas levels normal. Diagnostic not applicable – Triangle 5 gas levels normal.
Duval Pentagons		Diagnostic not applicable - Gas levels normal.
Cellulose insulation		CO and CO2 levels are normal. No indication of a fault involving paper.
DGA Status		Status 1 - Normal gas levels and no Indication of gassing. Continue routine DGA and normal transformer operation.
Resampling Protocol		Routine Screening
Weidmann Resampling Recommendation		Resample within 1 year.

Comment:	
General Oil Quality (GOQ)	

Notations: 1. Analysis is ISO/IEC 17025:2017 accredited, ANAB Accredited Certificate Number L2303.02 2. This test is conducted by a subcontracted laboratory. 3. Subcontracted laboratory has received ISO Standard 17025 accreditation for this test. 5. This test is conducted by Weidmann Laboratory other than Primary Lab. 6. Weidmann Laboratory has received ISO Standard 17025 accreditation for this test. 7. Imported Sample: WEIDMANN Electrical Technology accepts no responsibility for these results; accreditation status does not apply to these results. 8. Imported Equipment 10. mg/kg , µg/g, µg/mL, µL/L = ppm, µg/L = ppb, mN/m = dynes/cm, mm²/s = cSt

Accreditation applies to current analysis only. The analyses, opinions or interpretations contained in this report are based upon material and information supplied by the client. WEIDMANN Electrical Technology does not imply that the contents of the sample received by this laboratory are the same as all such material in the environment from which the sample was taken. Our test results relate only to the sample or samples tested. Any interpretations or opinions expressed represent the best judgment of WEIDMANN Electrical Technology. WEIDMANN Electrical Technology assumes no responsibility and makes no warranty or representation, expressed or implied as to the condition, productivity or proper operation of any equipment or other property for which this report may be used or relied upon for any reason whatsoever. This test report shall not be reproduced except in full, without written approval of the laboratory.

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Lab Control Number:		7516650
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Order Number:		669243
Oil Temp:		
ASTM D-1533 ¹	Moisture in Oil (mg/kg):	2
ASTM D-971 ¹	Interfacial Tension (mN/m):	37.2
ASTM D-974 ¹	Acid Number (mg KOH/g):	0.032
ASTM D-1500 ¹	Color Number (ASTM):	L3.0
ASTM D-1524 ¹	Visual Exam. (Relative):	PASS
		CLR&BRIGHT
ASTM D-1524 ¹	Sediment Exam. (Relative):	ND
ASTM D-877 ¹	Dielectric Breakdown (kV):	44
ASTM D-924 ¹	Power Factor @ 25°C (Routine) (%):	0.035
ASTM D-4052 ¹	Density @15°C (g/mL):	0.8842
GOQ Diagnostics		Moisture in Oil: Acceptable for in-service oil (20 mg/kg max).
PER IEEE C57.106-2015		Interfacial Tension: Acceptable for in-service oil (32 mN/m min).
(most recent sample)		Acid Number: Acceptable for in-service oil (0.1 mg KOH/g max).
		Color Number and Visual: Diagnostic not applicable. Diagnostic not applicable.
		Dielectric Breakdown ASTM D-877: Diagnostic not applicable.
		Power Factor @ 25°C (Routine): Acceptable for in-service oil (0.5% max).
Comment:		
PCB		Concentration (mg/kg): < 1.0 mg/kg
mod EPA Method 8082a ^{5,6}		PCB Type (Arocolor): ND
		Reporting Limit: 1.0
Comment:		

End of Test Report

Authorized By: 
ERIC MCANANY
CHEMIST

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