

### ผลทดสอบน้ำมันหม้อแปลง

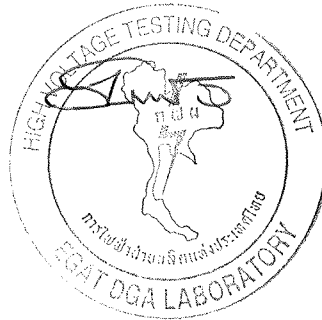
ได้ทดสอบน้ำมันหม้อแปลงของ DDK (Thailand) LTD. จำนวน 7 ตัวอย่าง ผลเป็นดังนี้

ผล DGA (Main tank 7 ตัวอย่าง) หม้อแปลงส่วนใหญ่เกิด Combustible gases จากการใช้งานตามปกติหม้อ ยกเว้นหม้อแปลง DDK1TR3 หมายเลข FE212226 พบก๊าซลักษณะ arcing ( $C_2H_2$ ,  $H_2$  key gas) ปริมาณสูง ควรทดสอบ DGA ตามผลอีกครั้งทันที เพื่อยืนยันผล สำหรับปริมาณ  $CO$ ,  $CO_2$  (ที่จะแสดงถึงการเสื่อมของ Solid insulation) ปกติ

ข้อเสนอแนะ หม้อแปลงขนาด >100 MVA สมควรทดสอบ DGA & Water Content เป็นวาระทุก 6 เดือน/ครั้ง , ขนาด <100 MVA สมควรทดสอบ DGA & Water Content ตามวาระทุก 1 ปี/ครั้ง ส่วนหม้อแปลงขนาดเล็ก (Station Service) ควรทดสอบตามวาระทุก 2-3 ปี/ครั้ง สำหรับหม้อแปลงใหม่สมควรทดสอบ DGA & Water Content ก่อนนำเข้าใช้งานและหลังใช้งาน 1 เดือน

หม้อแปลงชนิด Hermetically Sealed ไม่สมควรเก็บน้ำมันมาทดสอบตามวาระ เนื่องจากอาจทำให้ระดับน้ำมันต่ำกว่าเกณฑ์ หรือเกิด void เข้าไปในหม้อแปลงระหว่างการเก็บ ส่งผลให้เกิด Partial Discharge ขึ้นได้

หมายเหตุ ผลการทดสอบจะถูกต้องและรวดเร็วข้อมูลของหม้อแปลงที่ส่งมาทดสอบ ต้องครบตาม SAMPLE IDENTIFICATION ที่ห้องทดสอบกำหนด





HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

page 3/10

53 Moo 2 Charansanitwong Rd., Bang Krui, Nonthaburi 11130

No. HVT DGA T5160543-07

TEST REPORT

REGION	LOCATION	DDK1	NAME	TR1	
MENUFACTURER	CHAROENCHAI	SERIAL NO	FE215903	kV	22
MVA	3	OIL	YEAR		2012
REQUEST#	-----				CTMS
Sampling Date (dd/mm/yy)	-----				17-Oct-16
Test Date (dd/mm/yy)	-----				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	-----				7574
N2 (NITROGEN)	-----				34256
CO2 (CARBON DIOXIDE)	-----				1256
CO* (CARBON MONOXIDE)	-----				53
H2* (HYDROGEN)	-----				1
CH4* (METHANE)	-----				0
C2H2* (ACETYLENE)	-----				0
C2H4* (ETHYLENE)	-----				0
C2H6* (ETHANE)	-----				0
C3H6* (PROPYLENE)	-----				0
C3H8* (PROPANE)	-----				0
TOTAL COMBUSTIBLE GAS					54
Gas_content	-----				0.00
OIL TEMP	-----				
LOAD	-----				

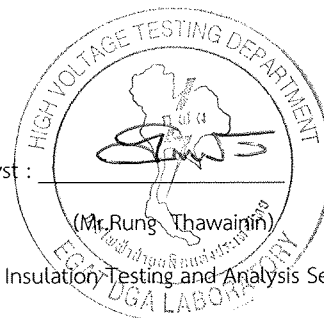
SAMPLING POINT  Main Tank

TEST RESULT  Normal

SITUATION OF FAILURE

Note :

Analyst :



Head, Insulation Testing and Analysis Section

The record of proving tests applies only to the specific sample tested.

The report shall not be reproduced except in full, without the written approval of EGAT's High Voltage Testing and Calibration Center.



HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

page 4/10

53 Moo 2 Charansanitwong Rd., Bang Kruai, Nonthaburi 11130

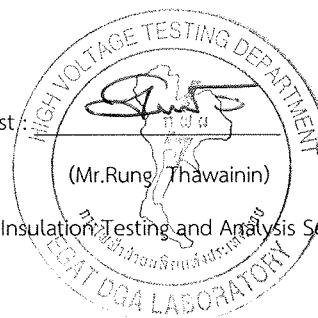
No. HVT DGA T5160543-07

TEST REPORT

REGION		LOCATION	DDK1	NAME	TR2
MANUFACTURER	CHAROENCHAI	SERIAL NO	FE215884	KV	22
MVA	1	OIL		YEAR	2012
REQUEST#	.....				CTMS
Sampling Date (dd/mm/yy)	.....				17-Oct-16
Test Date (dd/mm/yy)	.....				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	.....				5338
N2 (NITROGEN)	.....				38365
CO2 (CARBON DIOXIDE)	.....				2977
CO* (CARBON MONOXIDE)	.....				937
H2* (HYDROGEN)	.....				17
CH4* (METHANE)	.....				11
C2H2* (ACETYLENE)	.....				0
C2H4* (ETHYLENE)	.....				1
C2H6* (ETHANE)	.....				1
C3H6* (PROPYLENE)	.....				2
C3H8* (PROPANE)	.....				1
TOTAL COMBUSTIBLE GAS					970
Gas_content	.....				0.00
OIL TEMP	.....				50
LOAD	.....				
SAMPLING POINT	<input checked="" type="checkbox"/> Main Tank				
TEST RESULT	<input checked="" type="checkbox"/> Normal				
SITUATION OF FAILURE					

Note :

Analyst:



(Mr. Rung Thawainin)

Head, Insulation Testing and Analysis Section

The record of proving tests applies only to the specific sample tested.

The report shall not be reproduced except in full, without the written approval of EGAT's High Voltage Testing and Calibration Center.



HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

page 5/10


53 Moo 2 Charansanitwong Rd., Bang Krui, Nonthaburi 11130

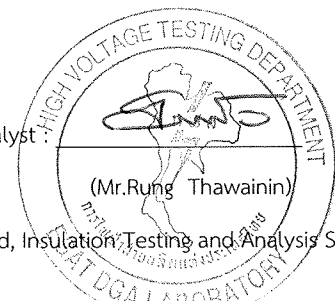
No. HVT DGA T5160543-07

TEST REPORT

REGION		LOCATION	DDK1	NAME	TR3
MENUFACTURER	CHAROENCHAI	SERIAL NO	FE212226	kV	22
MVA	3	OIL		YEAR	2012
REQUEST#	.....				CTMS
Sampling Date (dd/mm/yy)	.....				17-Oct-16
Test Date (dd/mm/yy)	.....				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	.....				7257
N2 (NITROGEN)	.....				34076
CO2 (CARBON DIOXIDE)	.....				3052
CO* (CARBON MONOXIDE)	.....				439
H2* (HYDROGEN)	.....				5338
CH4* (METHANE)	.....				18353
C2H2* (ACETYLENE)	.....				493
C2H4* (ETHYLENE)	.....				29966
C2H6* (ETHANE)	.....				4326
C3H6* (PROPYLENE)	.....				14772
C3H8* (PROPANE)	.....				1096
TOTAL COMBUSTIBLE GAS					74783
Gas_content	.....				0.00
OIL TEMP	.....				52
LOAD	.....				
SAMPLING POINT	<input checked="" type="checkbox"/> Main Tank				
TEST RESULT	<input checked="" type="checkbox"/> Abnormal <input checked="" type="checkbox"/> Overheat at High Temp <input checked="" type="checkbox"/> Arcing				
SITUATION OF FAILURE	<input checked="" type="checkbox"/> Serious <input checked="" type="checkbox"/> Increase Sampling Rate				

Note :

Analyst :   
(Mr. Rung Thawainin)  
Head, Insulation Testing and Analysis Section



The record of proving tests applies only to the specific sample tested.

The report shall not be reproduced except in full, without the written approval of EGAT's High Voltage Testing and Calibration Center.



HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

page 6/10


53 Moo 2 Charansanitwong Rd., Bang Krui, Nonthaburi 11130

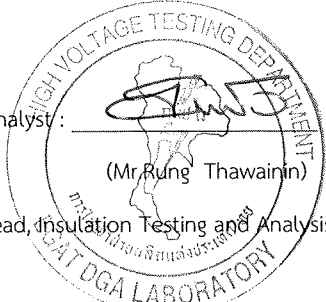
No. HVT DGA T5160543-07

TEST REPORT

REGION	LOCATION	DDK1	NAME	TR4	
MENUFACTURER	CHAROENCHAI	SERIAL NO	FE215885	kV	22
MVA	1	OIL	YEAR		2012
REQUEST#	-----				CTMS
Sampling Date (dd/mm/yy)	-----				17-Oct-16
Test Date (dd/mm/yy)	-----				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	-----				5597
N2 (NITROGEN)	-----				39286
CO2 (CARBON DIOXIDE)	-----				2497
CO* (CARBON MONOXIDE)	-----				872
H2* (HYDROGEN)	-----				7
CH4* (METHANE)	-----				8
C2H2* (ACETYLENE)	-----				0
C2H4* (ETHYLENE)	-----				0
C2H6* (ETHANE)	-----				1
C3H6* (PROPYLENE)	-----				1
C3H8* (PROPANE)	-----				0
TOTAL COMBUSTIBLE GAS					889
Gas_content	-----				0.00
OIL TEMP	-----				48
LOAD	-----				
SAMPLING POINT	<input checked="" type="checkbox"/> Main Tank				
TEST RESULT	<input checked="" type="checkbox"/> Normal				
SITUATION OF FAILURE					

Note :

Analyst:   
(Mr. Rung Thawainin)  
Head, Insulation Testing and Analysis Section



The record of proving tests applies only to the specific sample tested.

The report shall not be reproduced except in full, without the written approval of EGAT's High Voltage Testing and Calibration Center.



HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

53 Moo 2 Charansanitwong Rd., Bang Krui, Nonthaburi 11130

No. HVT DGA T5160543-07

TEST REPORT


REGION	LOCATION	DDK2	NAME	TR01	
MENUFACTURER	CHAROENCHAI	SERIAL NO	FE215524	KV	22
MVA	1	OIL	YEAR		2012
REQUEST#	-----				CTMS
Sampling Date (dd/mm/yy)	-----				17-Oct-16
Test Date (dd/mm/yy)	-----				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	-----				6039
N2 (NITROGEN)	-----				47301
CO2 (CARBON DIOXIDE)	-----				4015
CO* (CARBON MONOXIDE)	-----				1027
H2* (HYDROGEN)	-----				6
CH4* (METHANE)	-----				10
C2H2* (ACETYLENE)	-----				0
C2H4* (ETHYLENE)	-----				12
C2H6* (ETHANE)	-----				0
C3H6* (PROPYLENE)	-----				14
C3H8* (PROPANE)	-----				2
TOTAL COMBUSTIBLE GAS					1071
Gas_content	-----				0.00
OIL TEMP	-----				56
LOAD	-----				

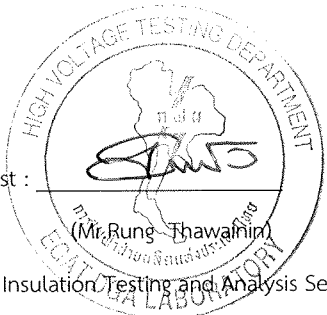
SAMPLING POINT  Main Tank

TEST RESULT  Normal

SITUATION OF FAILURE

Note :

Analyst :   
(Mr. Rung Thawalin)  
Head, Insulation Testing and Analysis Section





HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

page 8/10

53 Moo 2 Charansanitwong Rd., Bang Krui, Nonthaburi 11130

No. HVT DGA T5160543-07

TEST REPORT

REGION		LOCATION	DDK2	NAME	TR02
MENUFACTURER	CHAROENCHAI	SERIAL NO	FE215525	kV	22
MVA	1	OIL		YEAR	2012
REQUEST#	-----				CTMS
Sampling Date (dd/mm/yy)	-----				17-Oct-16
Test Date (dd/mm/yy)	-----				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	-----				6341
N2 (NITROGEN)	-----				39301
CO2 (CARBON DIOXIDE)	-----				4316
CO* (CARBON MONOXIDE)	-----				842
H2* (HYDROGEN)	-----				10
CH4* (METHANE)	-----				13
C2H2* (ACETYLENE)	-----				0
C2H4* (ETHYLENE)	-----				47
C2H6* (ETHANE)	-----				5
C3H6* (PROPYLENE)	-----				49
C3H8* (PROPANE)	-----				5
TOTAL COMBUSTIBLE GAS					971
Gas_content	-----				0.00
OIL TEMP	-----				62
LOAD	-----				

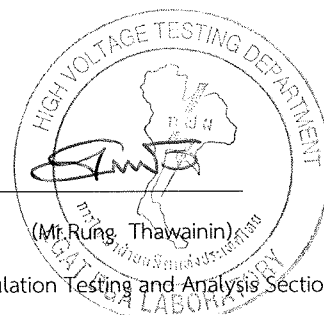
SAMPLING POINT  Main Tank

TEST RESULT  Normal

SITUATION OF FAILURE

Note :

Analyst :



(Mr. Rung Thawginin)  
Head, Insulation Testing and Analysis Section

The record of proving tests applies only to the specific sample tested.

The report shall not be reproduced except in full, without the written approval of EGAT's High Voltage Testing and Calibration Center.




HIGH VOLTAGE TESTING AND CALIBRATION CENTER  
ELECTRICITY GENERATING AUTHORITY OF THAILAND

page 4/10

53 Moo 2 Charansanitwong Rd., Bang Krui, Nonthaburi 11130

No. HVT DGA	T5160543-07	TEST REPORT			
REGION		LOCATION	DDK2	NAME	TR03
MENUFACTURER	CHAROENCHAI	SERIAL NO	FE215523	kV	22
MVA	1	OIL		YEAR	2012
REQUEST#	.....				CTMS
Sampling Date (dd/mm/yy)	.....				17-Oct-16
Test Date (dd/mm/yy)	.....				01-Nov-16
COMPONENT GAS (ppm)					
O2 (OXYGEN)	.....				5400
N2 (NITROGEN)	.....				35587
CO2 (CARBON DIOXIDE)	.....				3472
CO* (CARBON MONOXIDE)	.....				761
H2* (HYDROGEN)	.....				18
CH4* (METHANE)	.....				14
C2H2* (ACETYLENE)	.....				0
C2H4* (ETHYLENE)	.....				34
C2H6* (ETHANE)	.....				4
C3H6* (PROPYLENE)	.....				14
C3H8* (PROPANE)	.....				3
TOTAL COMBUSTIBLE GAS					848
Gas_content	.....				0.00
OIL TEMP	.....				52
LOAD	.....				
SAMPLING POINT	<input checked="" type="checkbox"/> Main Tank				
TEST RESULT	<input checked="" type="checkbox"/> Normal				
SITUATION OF FAILURE					

Note :

Analyst   
(Mr. Rung Thawainin)  
Head, Insulation Testing and Analysis Section

