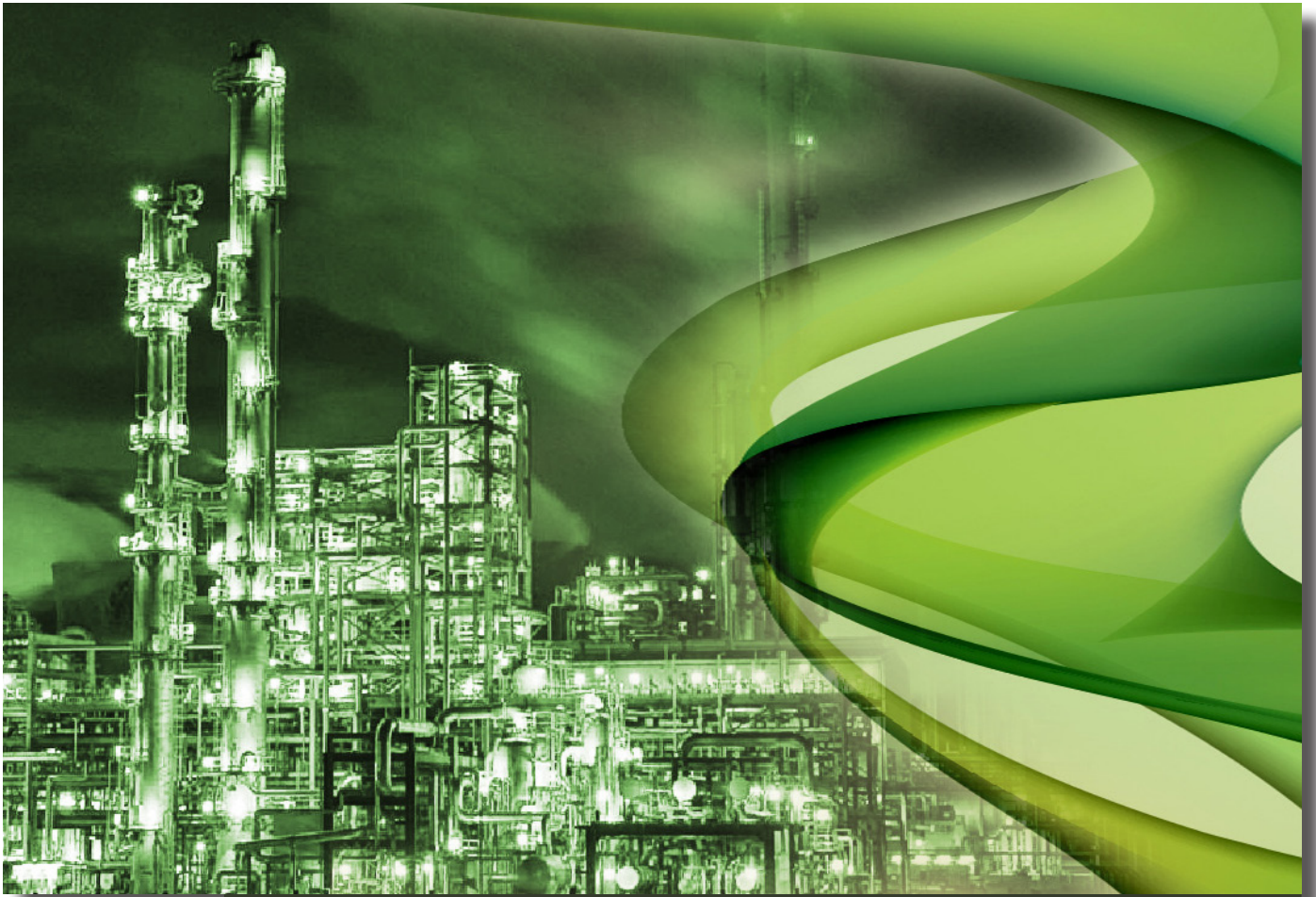


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TRANSFORMER OIL GAS ANALYZER



Time is Money.



Benjamin Franklin

Time is always a key factor in today's laboratories productivity.

Master your Time with the DANI Gas Analyzers.

The ability to provide the proper configuration to meet the most challenging analytical demands comes from a long and proven experience and a deep industry knowledge. As requirements are constantly changing, even a highly reliable instrumentation could not be enough to succeed in getting trustworthy results: complete and guaranteed solutions are essential to comply with the latest industry standards and specifications.

After a long working relationship with its customers to know and to best match their real needs, DANI Instruments has developed key analytical solutions that cover a broad array of applications, requirements and protocols in the environmental industry.

Master DANI Air Analyzers are **PRE-CONFIGURED, PRE-ASSEMBLED AND FACTORY-TESTED SYSTEMS** specifically designed for peculiar analyses. The analyzers include the **HARDWARE**, the **SOFTWARE**, **COLUMNS AND CONSUMABLES**, the **OPTIMIZED ANALYSIS METHOD**, the **ANALYTICAL CONDITIONS**, and the **DOCUMENTATION** to run up your analysis from day one.

PRE-CONFIGURED, PRE-ASSEMBLED AND FACTORY-TESTED SYSTEMS

The installation process is faster than ever before and all the startup procedure is oversimplified ensuring immediate analytical performance and results.

HARDWARE AND SOFTWARE

DAA Analyzers are pre-engineered systems based on the versatility, flexibility and robustness of the proven Master GC hardware. All the Master GC parameters are set prior the shipment.

COLUMNS AND CONSUMABLES

No more doubts about the proper column, parts and supplies. DAA Analyzers are delivered with all you may need for your analysis.*

OPTIMIZED ANALYSIS METHOD

Analytical methods are pre-loaded to be immediately used for the determination of pollutants in air. Whenever possible, reduction of analysis time and amounts of toxic solvents are considered. Method development time and costs are thus dramatically reduced.

ANALYTICAL CONDITIONS

DAA Analyzers are designed to perfectly accomplish the analytical conditions of interest.

DOCUMENTATION

A getting started manual, calibration and method files, and all the information for a quick startup are included.



* Chemicals are not supplied



DANI MASTER GC

- Intuitive and easy-to-use touchscreen interface.
- Complete range of injectors:
 - Split/Splitless Injector
 - Programmable Temperature Vaporizer (PTV)
 - Packed Injector
- Wide selection of detectors:
 - Flame Ionization Detector (FID)
 - Electron Capture Detector (ECD)
 - Nitrogen-Phosphorus Detector (NPD)
 - Flame Photometric Detector (FPD)
 - Thermal Conductivity Detector (TCD)
 - Pulse Discharge Detector (PDD)
 - Master TOF-MS Time of Flight Mass Spectrometer
- Extensive Choice of Dedicated Devices:
 - Auxiliary ovens
 - Gas sampling and switching valves
 - Liquid sampling valves
 - GC oven cryogenic cooling device
 - Methanizer

DANI MASTER AUX

Auxiliary Ovens for Isothermal Temperature

- Up to 7 valves (5 gas + 2 liquids)
- Up to 250° C
- Up to 2 auxiliary gas valves
- Up to 6 needle valves
- Extremely compact design
- Two models available with different capacities to house valves and columns for dedicated analyses



DANI MASTER SHS

Static Headspace Sampler

- A robust and flexible system to meet complex and versatile needs
- Reliable results and exceptional reproducibility
- Intuitive, powerful, and straightforward user interface
- Highest sample capacity with a 120-position vial tray
- Unlimited priority sample position
- Unmatched oven capacity: 18 vials simultaneously

DANI MASTER AS

Liquid Autosampler

- Superior flexibility, repeatability, and performance
- Easy-to-use
- 160 samples capacity
- No sample degradation or solvent evaporation
- up to 7 syringe capacity types
- unmatched injection capabilities



TRANSFORMER OIL GAS ANALYZER

DGA-005

Transformer Oil Gas Analyzer

This MASTER GC Analyzer enables the analysis of gaseous compounds dissolved in transformer oil samples which is performed using a Split/Splitless injector, capillary columns, a TCD and an FID detectors. The FID detector is also equipped with a catalytic converter (Methanizer) that allows the determination of CO and CO₂ with FID.

Moreover, the gas chromatograph is configured with one 6-port valve for gas switching located in the GC oven. The sample is introduced in the GC via an Head Space sampler that allows to extract the gases dissolved in the transformer oil samples.

DANI DGA-005 is the ready-to-go solution to attain the maximum performance in the shortest time for your Transformer Oil Gas Analysis.

Master **DGA-005**

SAMPLE TYPE:

Liquid

TYPICAL DETECTED COMPOUNDS:

H₂, O₂, CH₄, N₂, CO₂, C₂H₂, C₂H₄, C₂H₆;

OFFICIAL METHODS MET:

ASTM 3612C;

KEY FEATURES & BENEFITS:

TOGA analysis is performed using the channel C and A that includes a 6-port valve, capillary columns, a Methanizer, a TCD and an FID detector;

With this instrument it is possible to determine these compounds in an oil sample and separate them using a switch valve and a molesieve column;

The external valve gives the possibility to introduce liquid samples into the third channel.

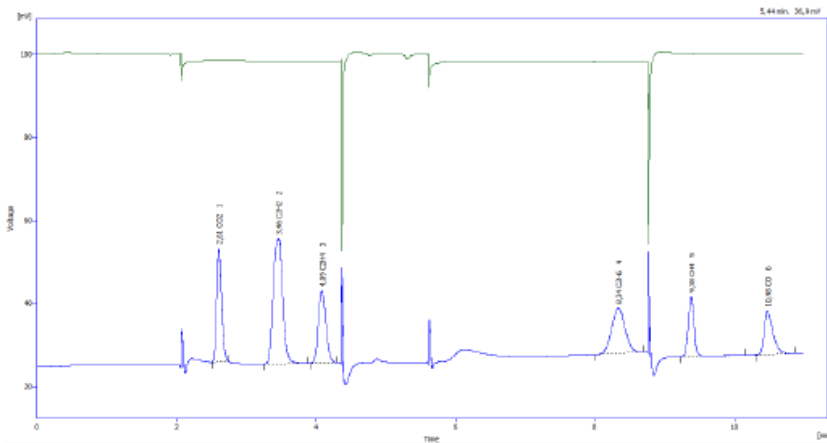


Figure 11. FID (blue) chromatograms

...rest of the chromatogram is presented below.

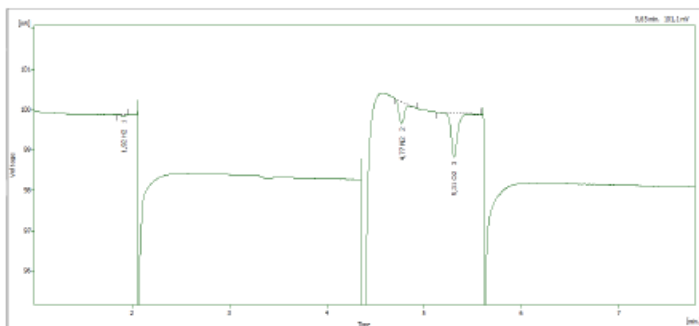


Table 3. Elution order and retention times of the standard mixture compounds.

N.	R _t (min)	Compound
1	1,91	H ₂
2	4,7	N ₂
3	5,03	O ₂

EXPERIMENTAL PARAMETERS

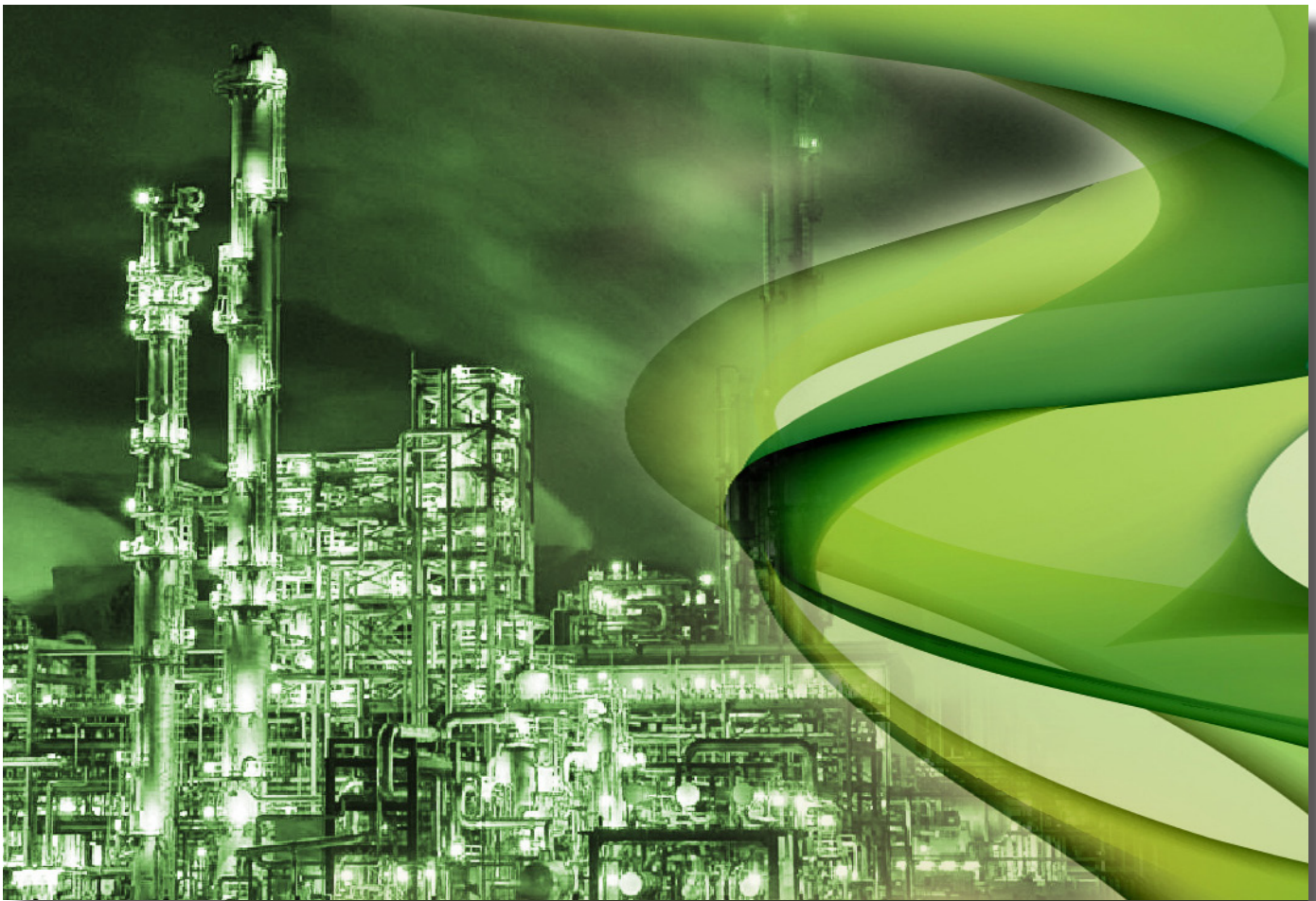
Master GC Analyzer	
Columns	Carboxen 1006 (30m, 0.53mm ID) Molsieve 5A (10m, 0.53mm ID, 50 μm) Tmax (isot.) : 225°C
GC Oven	
Temperature	At 10 min from 35°C to 200°C at 20°C/min for 7 min
Injector B: SL/IN	
Temperature	200°C
Carrier Gas	Helium
Split Ratio	Splitless
Flow	20 ml/min
Detector A : FID	
Temperature	300°C
AUX Gas Flow	25 ml/min
H ₂ flow	40 ml/min
Air Flow	280 ml/min
AUX Gas Type	Nitrogen
Detector C: TCD	
Temperature	150°C
Voltage	7 Volt
Polarity	Negative (-)
Max Current	180 mA
Filament Safety	Injector B
Filament Safety	Aux Gas 3
Auxiliary Pressure	
AUX Gas 1	0.20 bar
Aux Gas	n/a
Aux Gas 3	0.40 bar
Auxiliary Temperature	
Aux temp 1 (°C) - methanizer	380°C

EXPERIMENTAL PARAMETERS

Master SHS	
Vials Volume	20 ml
Temperatures	
Oven Temperature	70°C
Manifold Temperature	70°C
Tube Temperature	80°C
Pressures	
AUX Gas Pressure	1 bar
Incubation Time	
Gas Samples	2 min
Oil Samples	20 min

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TRANSFORMER OIL GAS ANALYZER

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