



# New Technology in Gas analysis

# A presentation of the CO2 quality Analyzer Line for CIB (Consorzio Italiano Biogas) – Ecomondo 2023

ETG Risorse e Tecnologia S.r.l.

*Products for every analysis needed*

Tel: +39 011 19270890 | [www.etgrisorse.com](http://www.etgrisorse.com) | LinkedIn: @etgrisorse.com

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# ETG present and future

- ETG designs and manufactures advanced and innovative gas analysers for Industrial market, University and R&D Institutes
- Advanced technology and Innovative solutions (production and distribution)
- Complete project management
- Planning, start up and service

# ETG Quality

Working with a quality system means an insurance to the end user.

Morgan Lloyd has certified  
ETG RISORSE E TECNOLOGIA

Complies to the standard

UNI EN ISO 9001: 2015 (ISO 9001: 2015)

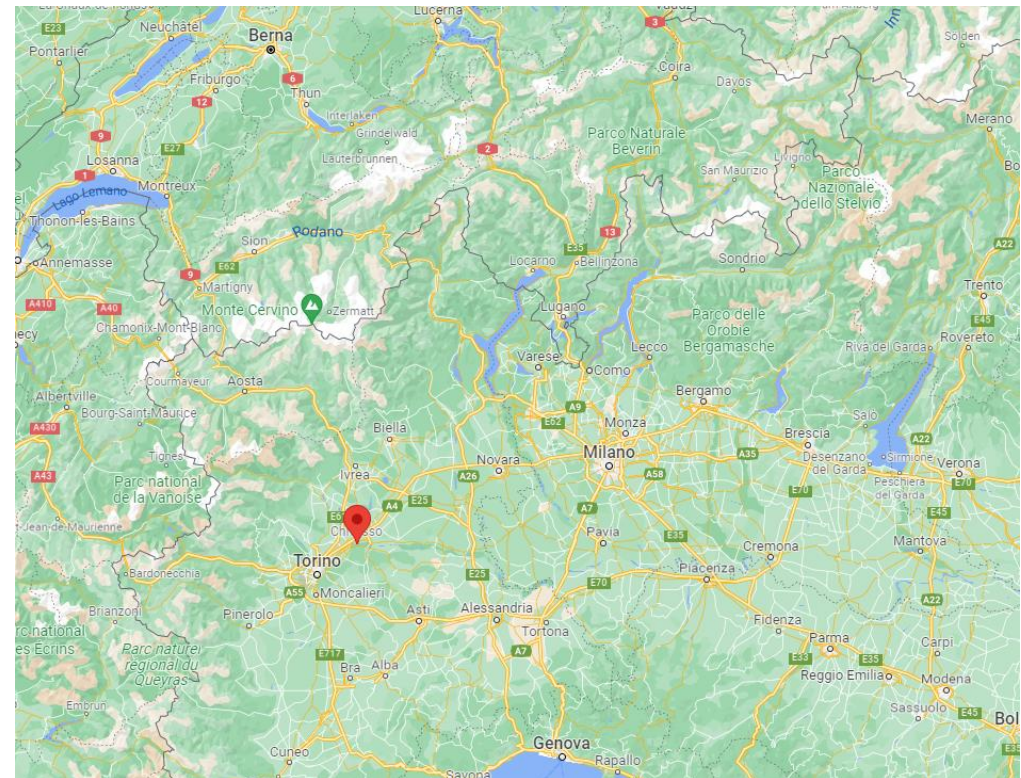


# Where ETG is located

ETG New location  
New Laboratories  
Bigger production area (> 400 m<sup>2</sup>)



ETG location Chivasso (Turin)



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# ETG Production and distribution

## Production :

- Biogas and Syngas Analysers (ETG6500/MCA100/MCA100 P)
- TDL gas analysers (ETG 6900) / ETG Drone for CH<sub>4</sub> leak
- Calibrators (CAL G100)
- FTIR ETG9500
- Portable Emission Analysers (ETG7600)
- ETG QE-PAS Ambient Gas Analysers (ETG 8900 QEPAS)
- Special products (ETG7500, SEMICONDUCTOR SYSTEM)
- Others projects running

# Distribution Network



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# ETG References (some)

- Università di Ferrara
  - CNR (different)
  - VTT Technical center
  - ENEA (different)
  - Universities (different in italy and all over the world)
  - Politecnico (different in italy and all over the world)
  - And many others
- ST Microelectronics
  - SOLVAY
  - DOW
  - Samsung
  - Hynix
  - Ecospray
  - Acea
  - Ansaldo
  - Lucchini
  - And others all over the world



# ETG 9500 FTIR product line

Portable CEM's (by NDUV & NDIR technologies)

## MAIN FEATURES

- Cell length: 5m
- User-friendly
- High level math algorithm included in the software
- Multipoint analysis available
- Auto-background acquisition available
- Different possible configurations



ETG 9500  
Rack 19" version



ETG 9500 P  
Portable version

# CO2 in Biogas

- Biogas 60% CH<sub>4</sub> / 40% CO<sub>2</sub>
- Biomethane 100 %CO<sub>2</sub>
- Co<sub>2</sub> recovery for Industrial or FOOD Use
- Needed quality monitoring
- ETG response is Carbonic 4401

# Impurities and parameter monitored

## ■ Impurities monitored

Aldehydes FTIR

Ammonia FTIR

Carbon Monoxide FTIR

Ethanol FTIR

Methanol FTIR

Mercaptan (PFUV)

Benzene (GC PID)

Total Sulfur (PFUV)

H<sub>2</sub>S (PFUV)

H<sub>2</sub>O (FTIR)

Xylene (GC PID)

Phosphine FTIR

NO FTIR

NO<sub>2</sub> FTIR

Acetone FTIR

HCN FTIR

Ethane TIR

Propane FTIR

Pentane FTIR

Benzene (GC PID)

O<sub>2</sub> (ECD)

## ■ CO<sub>2</sub>% purity FTIR

# CO2 Quality

- Food CO2 quality (Carbonic 4401)
- Industrial CO2 quality (carbonic 4401)
- Carbon capture application
- Calibrated/verified at ETG Laboratory
- FTIR (produced in ETG in Italy)
- PFUV (H2S and total sulfur)
- GC PID (Benzene)

# Carbonic 4401

- Sw for automatic calculation of the gas concentration compounds
- Spectroscopic post processing of the data
- Multipoint control possible (1/2/4/8 sample line)
- Automatic calibration (with Standard)
- Gas pressure regulators/liquid control trough vaporization



# Carbonic 4401

- Data output on Intuitive Acquisition SW
- Multicomponent analysis (FTIR)
- Single component analysis for O<sub>2</sub>, Total sulfur and Benzen
- Multipoint control possible
- Gas/liquid control trough vaporization



# CO2 Quality

- Regulation to be followed
- EIGA
- ISBT

# Advantage

- Lower Operating Costs
  - Post process Possible
  - Calibration facility and production in Europe
  - Sw development in Italy
  - Personalization possible
- Upgrading of technology
  - Sw upgrading from remote



# Future development

- Other technology for monitoring CO<sub>2</sub> quality contaminants in Horizon 2024:2027 project (EVOQUE)

Thanks for the attention