

# Certified Analytical Laboratories

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The **Analysis and Characterization Laboratories** are able to run more than 300 standardized tests, including the determinations required by **European specifications on fuels**, with an average of about 10,000 samples per year, for a total of 70000 tests.

A distinctive feature is the presence of more than **30 test methods SINAL accredited under ISO 17025**. **Over 50 internal analysis methods for specific applications** have been developed.

Many of the established techniques of analytical chemistry are available in the labs:

- Gas chromatography (various configurations depending on application)
- Spectrometry (IR and UV, ICP-OES plasma emission, AAS atomic absorption)
- HPLC
- Gas chromatography coupled with mass spectrometry (GC-MS)
- Elemental analysis (C, H, N, S)
- Dispersive X-ray spectrometry
- Ion chromatography
- Polarography
- Colorimetric, potentiometric, coulometric, conductivity titration



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Along with the general instrumentation, the labs have also **many instruments typical for oil & gas analysis**, that are used for specific characterizations. Among them:

- Distillers at atmospheric pressure and vacuum, including crude distillation columns.
- Rotational and kinematics viscometers, low or high temperature and high shear
- Equipment for flash point and ignition.
- Determination of properties of cold cuts oil (CFPP, pour point, cloud, freezing point).
- Stability to oxidation (various methods / equipment for multiple products)
- Determination of cetane number - DCN
- Corrosion evaluation
- Peptization number
- Tribological equipment for evaluation of wear, resistance to extreme pressures, etc..
- Carbon residue
- Determination of cleaning and filterability degree
- De-emulsivity
- Foam and air retention
- Specific tests for fats and emulsions

Analytical determinations are of fundamental support for the **characterization of prototype products** from pilot plants, motor tests and formula studies.



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Moreover the laboratories directly manage analytical activities related to the business of Eni R&M, being the reference for the headquarters functions:

## **Crude and semi-processed oils**

Evaluation of the quality of crude oil for processing the economic feasibility, supply planning and production optimization to market needs.

## **Eni Customer service on fuels, intermediate products, lubricants and specialty products**

Compositional investigation of the properties of oil products by target determinations, to better understand the phenomena and the application issues

## **Monitoring and problem solving of the production, logistics and commercial chain**

Verification of compliance with the specifications for the fuels produced by refineries, both purchased or swapped. Logistics support for all issues related to handling quality products, including aviation business and specific analysis of Jet Fuel.

Quality verification of the products delivered to stores by statistical basis and analysis of gasoline and diesel (especially BluSuper and BluDieselTech).

Control of the evolution of rules and analysis specifications through participation in working groups at national and international level.



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## Emission Trading Analysis

The current regulations require that tests should be performed by **ISO 17025 accredited laboratories**; for this reason it was necessary to extend the *accreditation* of the Testing Center in San Donato Milanese, including the analysis required for activity pro-Emission Trading.

Likewise, the laboratory of the Research Center of Milazzo is credited for these methods.

For some methods these laboratories are the only currently accredited in Italy.



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