ASSOCIAZIONE ITALIANA STRUMENTISTI

ISA Italy Section

BAGGI®

communication and measurement

you ask we solve

About us

Founded in 1947,
BAGGI was born from the passion of it's founder, Eugenio Baggi, for telecommunication, instrumentation and analysis.

In almost 50 years BAGGI's team grew to find the best measurement solution for any production process in plants, industries, construction sites.

BAGGI is now a company leading innovative solutions
in process measurement,
analysis and control systems
in most industrial fields,
in Italy and abroad

BAGGI®

About us

Our team provides
many different kinds of services including

consultancy
project and design
production
Installation and start up
maintenance

with a particular focus on the most technologically challenging and innovative instruments and measurerement solutions.

BAGGI®

Mission and values

Mission
Clients satisfaction
Innovative, reliable and safe solutions
Respecting environment
Improving the quality of life

Our values
Safety, integrity, flessibility,
Integration, innovation, quality,
Competitivity, team work

BAGGI®

Our service

Based on this experience, Baggi is able to offer
very reliable solutions in reasonable time
for many demanding applications.

Our products are tailor made according to customers needs
We offer a turn-key solution for any request.

Baggi service offers complete post-sales support
(periodical and spot maintenance, spares,
recalibration, and technical assistance)
in order to achieve full Customer satisfaction.

Baggi is also **ISO UNI EN 9001:2008** registered.

Other certifications: Social Responsability SA8000
ATEX and IECEX certification

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Our service

All Solutions are available in standard configuration and also in customized design to meet specific requirement by the customer and by the process.

The final design could be customized to satisfy the specific requirement saving cost during on-site installation and maintenance.

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Our service

- Engineering
- ITP – Inspection Test Plan
- FAT – Factory Acceptance Test
- SAT – Site Acceptance Test
- Training (English)
- Commissioning
- Maintenance
- Validation and Calibration
- Spare Parts

BAGGI®

Fields

food
pulp & paper
ceramic
chemical-petrochemical
pharmaceutical
power generation and distribution
incineration and disposal plants
industrial production and quality control
industrial emissions monitoring and control
refining and oil industry
textile

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Flow diagram

The image in next slide is a schematic flow diagram of a typical oil refinery that depicts the various unit processes and the flow of intermediate product streams that occurs between the inlet crude oil feedstock and the final end products.

It is in some of these processes that BAGGI operates.

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Flow diagram

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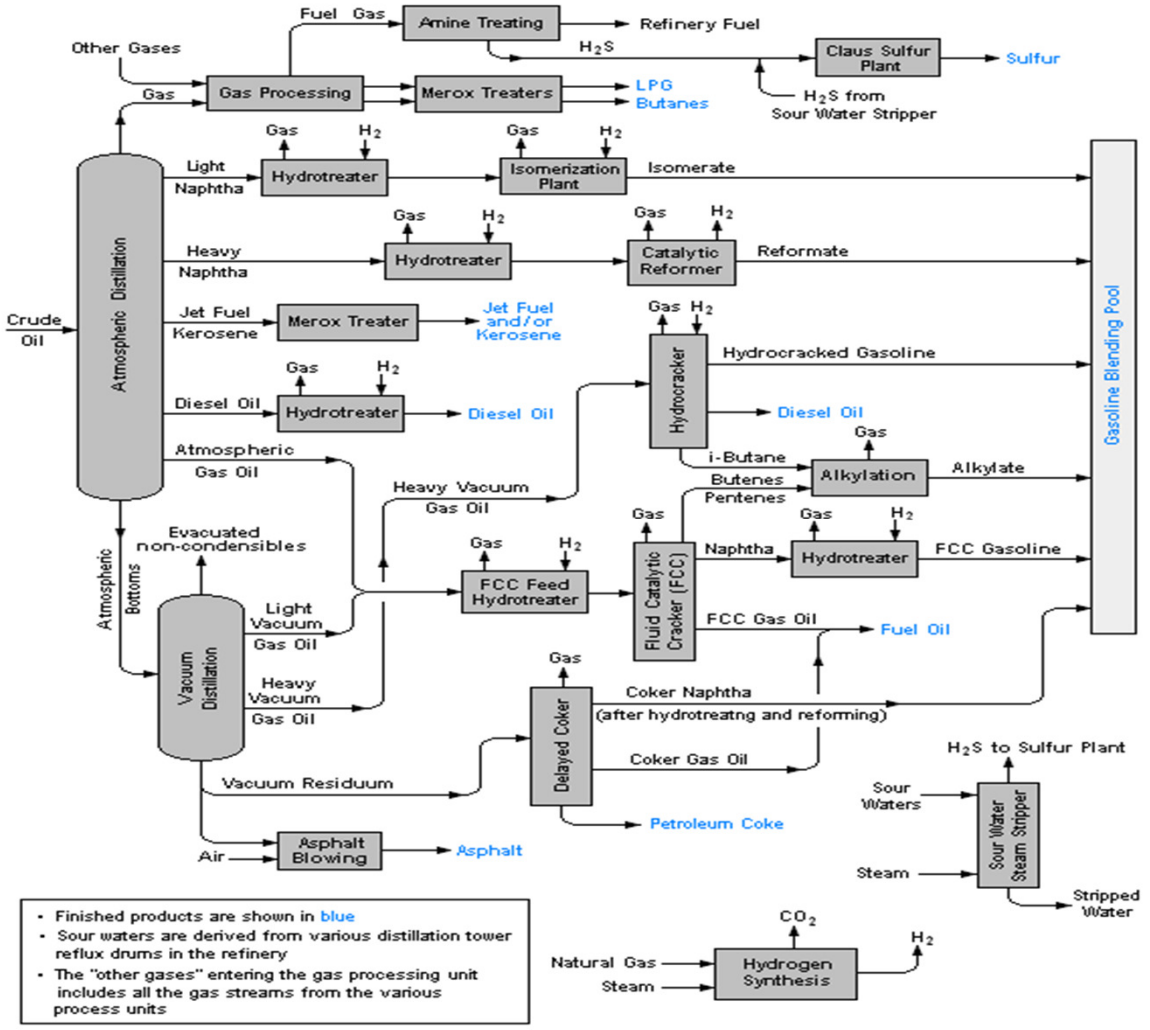

All around the world…

Our is a worldwide businnes:

Italy
France
Switzerland
Greece

Algeria
Egitto
Kuwait
Qatar
Saudi Arabia

Argentina

Cina
India

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References

Some of our clients in oil field:

BAGGI®

Measurement and analysis

The *SensEvolution®* division
has been developed for providing industrial analysis in many application fields.

It's product lines are the result of combining the newest technologies with Baggi's over 60 years of industry experience.
According to the customers' requirements, new analysis methods may be added to the product line.
The evolution, of course, does not mean revolution, as the principles used are based on well-proven industrial practice.

Baggi has developed a specific product line for different analyisis or measurement typologies:

BAGGI®

MOBI® SENTRI® SAMPLE® SHELT® BASE® SYSTEM® PLANT®

Water in Oil

Free Water Knock Outs, Desalters and Dehydrators are just some of the applications in the oil industry where it is necessary to separate water and oil.
The **density differences** between water and oil causes **water to drop to the bottom of a separation tank, and oil to rise to the top.** When a desired amount or level of water has separated, it is removed through a water draw-off dump valve.
In some applications, costly emulsion-breaking chemicals, electrostatic precipitation and/or fire tubes are required to assist the separation process.

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Emulsion

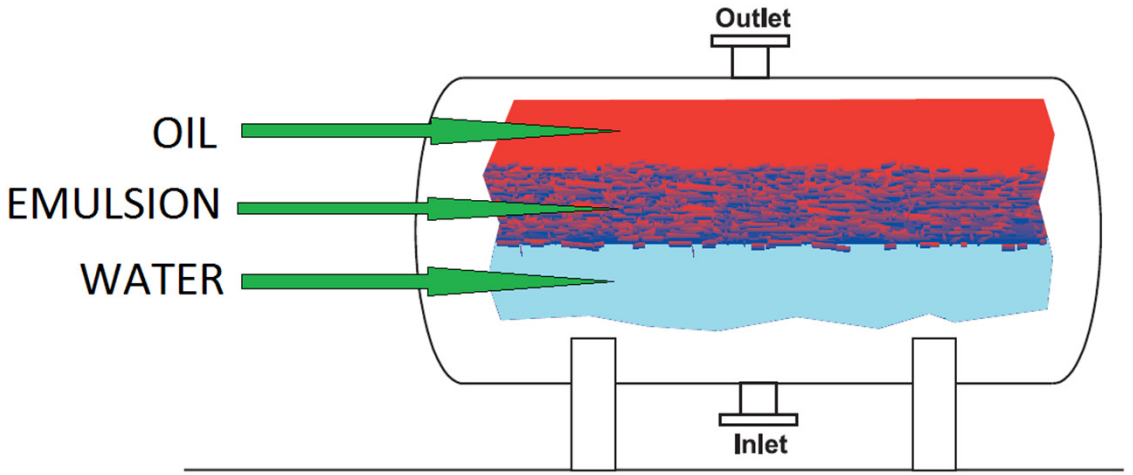
Emulsions are the most serious problem in oil/water separation.

SIZE

Emulsion build-up is caused by mixing valves, crude properties (surface tension, viscosity, density), contaminants, vessel temperature, and retention time. Emulsion droplets are mutually cohesive, and tend to form a growing pad.

DIRECTION

To **avoid dumping oil with the free water**, it is necessary to control emulsions such that they can only build above a control point. In other instances it might be desirable to force the emulsions to build below the control point.



BAGGI®

Solution

BAGGI Instrumentation gives a current output proportional to water content over the full scale of 0-100%. This enables operators to answer the two hardest questions in the industry: **“How big is the emulsion pad?”** and **“In which direction is it growing?”.**
It also enables operators to control their levels accurately, in the desired direction, and make informed decisions as to the types and quantities of emulsion-breaking techniques they should use.

MOBI®

SENTRI®

PLANT®

BAGGI®

Measurement and analysis

MOBI®

BAGGI®

ASSOCIAZIONE ITALIANA STRUMENTISTI

ISA Italy Section

- Portable analysis instruments designed to the highest quality standards.
- Rugged, reliable and realised to face the harshest work environments.
- Flexibility of monitoring in a variety of application fields.

Measurement and analysis

MOBI®

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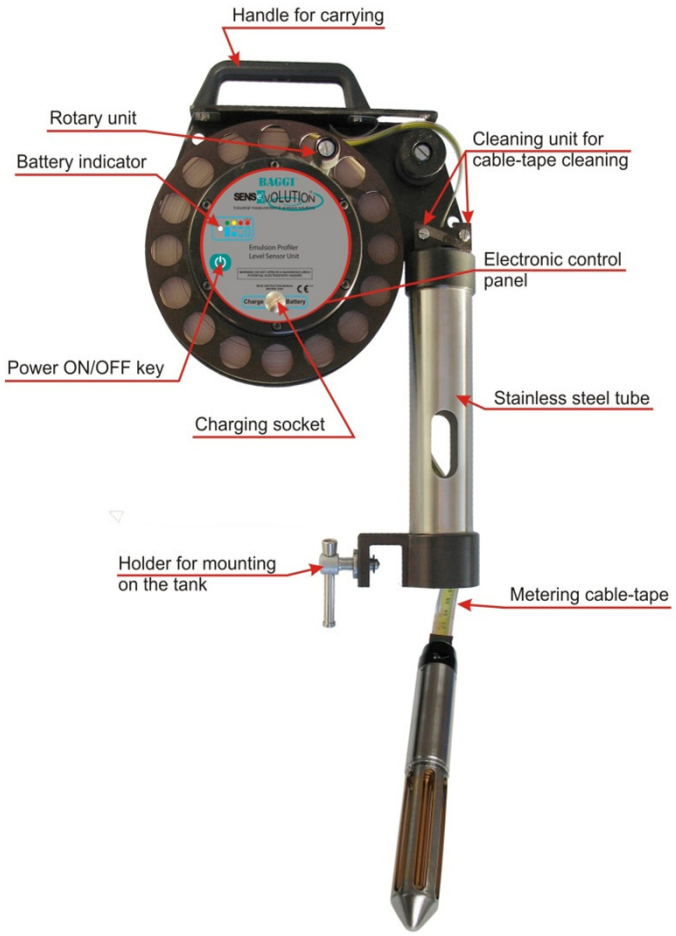

- The portable emulsion profiler SL09SVEMP0001 is designed for water concentration in petroleum (oils, petroleum products).
- Measurements directly in tanks, without sampling, at the depth up to 30 meters.
- Optionally device can measure temperature.
- Measuring reel with built-in Bluetooth.
- Remote Controller with built-in Bluetooth channel for data receiving from the reel and data transfer to PC.

Measurement and analysis

MOBI®

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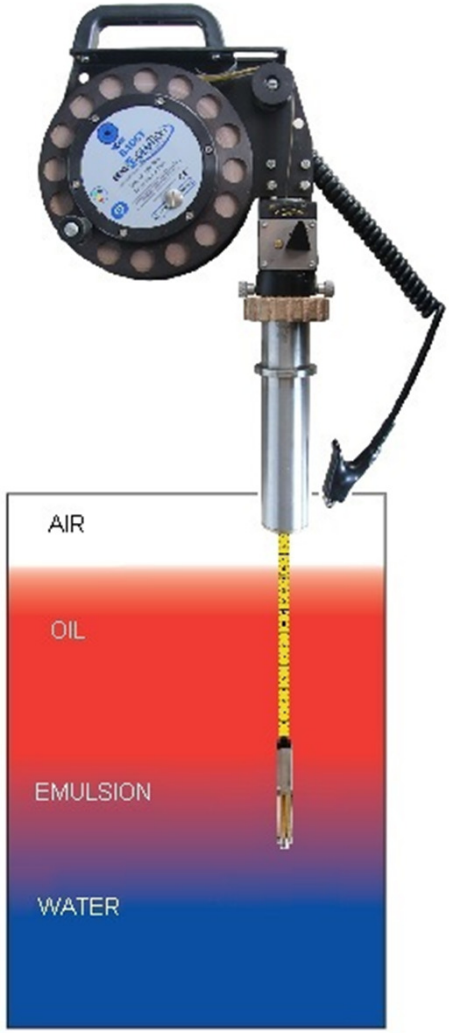

The **MOBI® SensEvolution Emulsion Profiler** is widely used for direct, rapid and accurate measurement in:

- Liquid products movement in tank-trucks, tank-wagon, barges.
- Storage capacities with heights up to 30 meters.
- Qualitative and quantitative control processes such as production, refining, transportation, storing and trading of petroleum products.
- Tanks where oil/water separation is critical to discharge effluent.

Measurement and analysis

SENTRI®

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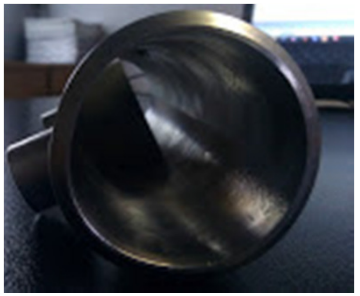
The *SensEvolution SenTrI®* product line (Sensor Transmitter Intelligence) has been developed to integrate state-of-the-art measuring technology with innovative solutions, in order to enhance modularity, fast configuration and adaptability to new process conditions, thanks to advanced, user-friendly human interfaces and intelligent sensors.



Measurement and analysis

SENTRI®

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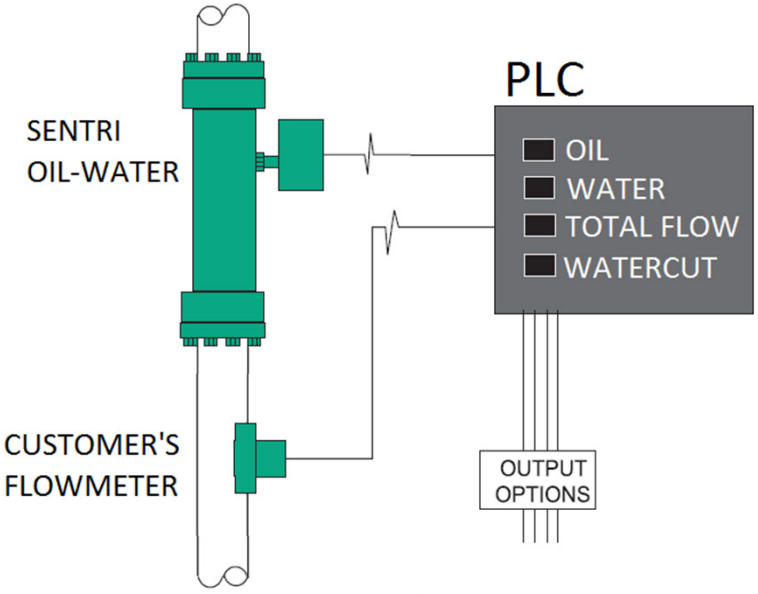
The SENTRI Oil-Water watercut monitor measures liquid-in-liquid concentrations using microwave technology. Typical applications include hydrocarbon/water measurement and other organic and inorganic mixtures. The sensor utilizes a microwave transmitter operating at frequencies up to 2.45 Gigahertz, and two receivers to measure bulk electrical properties of the liquid mixture. These properties are analyzed and translated into volumetric concentrations. Moreover, the SENTRI Oil-Water is capable of salinity output.



Measurement and analysis

SENTRI®

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The SENTRI Oil-Water measures **hydrocarbon/water mixtures over the full range of 0-100%,** regardless of which liquid is the continuous phase.

The accuracy of the measurement is **not affected** by the salinity, density, viscosity, temperature or velocity of the components being analyzed.

The SENTRI Oil-Water probe head houses the microwave transmitting and receiving antennas, which connect to the microwave electronics via the probe shaft and the junction box.
All mounted enclosures are explosion proof type, and provide the intrinsically safe microwave signal outputs/inputs to the antennas.
The SENTRI Oil-Water sensor is suitable for operation in Zone 1 hazardous areas and has the area classification Eex d [ia] IIB T4 / Class 1, Division 1, Group C&D.

Measurement and analysis

SENTRI®

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DETAILS

It is designed to find solutions for measurement and analysis in gases, solids, liquids, steam, multiphases of the following physical and chemical parameters:

- Temperature
- Humidity
- Velocity - flow
- Pressure
- Level - Interface

Accuracy and reliability are achieved with different principles of operation, like:

- Ultrasonic
- Differential pressure
- Vortex
- Thermal
- Turbines
- Semiconductor

Measurement and analysis

SENTRI®

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TUNABLE FREQUENCY

Thanks to its capability to work with different frequencies, our instrument is can be used for a lot of different applications.

When working with low frequencies (MHz) it acts as a **capacitive sensor**.

When working with higher frequencies (GHz) it measures **microwave absorption.**

Measurement and analysis

- Tank dewatering
- Desalters
- Two or three phase separators

Measurement and analysis

PLANT®

BAGGI®

Desalters with automatic control

- BAGGI® delivers the whole desalting process plant.
- Design and manufacture of the vessel.
- Electrostatic grid.
- Remotely operated control valves.
- Insertion probes for water concentration measurement in preset points within the vessel.
- Sensors, electronics and actuators are ATEX certified.
- Embedded computer and application software for the overall plant monitoring and control:
  - Brine outlet valve control.
  - Emulsion growth control under the grid.
  - Water phase control for detecting reverse emulsion.

Measurement and analysis

PLANT®

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Desalters with automatic control

The desalter plant provides extensive information and control capabilities, allowing to optimize the overall desalting process.

Other typical applications for water in oil measurement are:

- UV fluorescence
- Density measurement
- Spectrophotometry:
  - NIR multiple wavelength analysis
  - UV/Vis absorption

BAGGI®

Measurement and analysis

BASE®

BAGGI®

All of these technologies can be implemented in our BASE analyzer that is able to handle multiple measurement methods in order to solve every kind of analytical challenge.

Measurement and analysis

BASE®

BAGGI®

UV FLUORESCENCE (ppm of oil in water)

- Using UV-radiation to stimulate the oil to fluoresce.
- A highly sensitive detector recognizes the oil's fluorescence.

Even this method can be affected by:

- Ambient light with extreme high intensity.
- Strong movement of the surface (waves, variations in water level, etc.).
- Swimming debris at the surface.

The technical conception of our analytical model minimizes these effects.

Measurement and analysis

BASE®

BAGGI®

OPERATIONAL EXPERIENCE

The device can be used for various kinds of application, like:

- Turbine Oil in power stations.
- Hydraulic oil.
- Oil in cooling water.
- Oil of heat exchangers.
- Oil in produced water.
- Oil in water detention basins.
- Water return plants to rivers/lakes.
- Water return public water systems.

Measurement and analysis

BASE®

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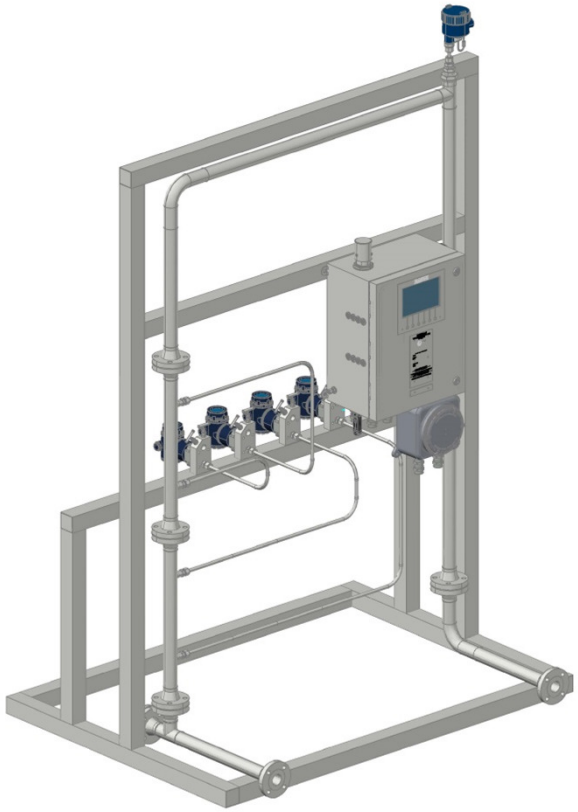
DENSITY MEASUREMENT

Measuring the overall density of a stream sample is an easy and reliable method to compute the water/oil ratio.

This is one of the solutions we provide for our Multi Phase Flow Meter.



Pressure is measured at two places on a vertical tract.

$$p_1 - p_2 = \rho g h$$

Knowing specific weight of water and oil, it is possible to compute their ratios.

Thank you
for your attention

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