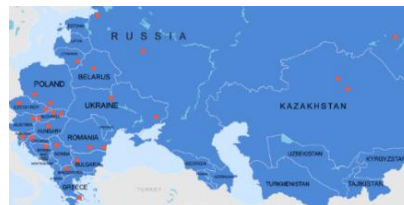


## Monitoring systems for oil refineries

The ECM Group, in close cooperation with leading manufacturers of analytical technology, supplies instrumentation solutions for monitoring of particles, gases and liquids.

Since 1991, ECM is active in several Central and Eastern European countries.



Applications for oil refineries belong to main activities of the ECM Group.

### Solutions for oil refineries and petrochemical industry

- Physical Property Analyzers
- Blending monitoring
- Claus Process
- Sulphur in gases
- Sulphur in liquids
- TOC / COD analysis
- Hydrocarbons in water
- Oil Layer Monitors
- Hydrocarbon Tank Draining
- Liquid analysis
- Gas analyzers
- Hydrogen analysis
- Natural gas
- Flow monitoring
- Stack gas emission monitoring
- Heat Tracing

### Analyzers of the physical properties of hydrocarbon Products

Continuous analyzers to determine distillation curve, fog points, freezing, flash, color, viscosity, ethanol addition and other components in accordance with ASTM and ISO standards.



### Monitoring of blends and ethylene processes

NIR, FTIR, Mass Spectrometer and RAMAN analyzers for monitoring blending processes including Chemometric modelling



### Claus Process

Analyzers for reliable monitoring of H<sub>2</sub>S, SO<sub>2</sub>, COS and other components required for Claus process control with minimal maintenance requirements.



## Sulphur in gases

Monitoring of H<sub>2</sub>S and other Sulphur components as well as total Sulphur in various gas mixtures and off-gases. Depending on the application, the analyzers work on the principle of chromatography, TDL, UV absorption or acetate strip.



## Monitoring of Liquids

### Hydrocarbon Tank Draining

Reliable capacitive system for automatic opening and closing of the release valve for tank draining



### TOC / COD Analysis

TOC and COD analyzers based on superoxidation at extremely high temperatures and pressures. All liquid and solid compounds are analysed allowing closest matching of laboratory results.



### Leakwise Oil Layer Monitors

to detect oil / hydrocarbon leakages, and layers on water

- Continuous **on-line monitoring** with self-diagnostics
- Certified for **operation in hazardous areas**. The sensors are Intrinsically Safe
- Proven **long-term reliability** – even if the sensor is coated with dirt or oil, variations in water salinity, temperature, liquid level or liquid turbulence
- **Low maintenance** – No parts to replace, almost maintenance free, no cleaning is required after a spill
- **Versatility** – can be easily installed in sumps, retaining tanks or other containments
- **Thin oil layers detection**, from 0.3 mm in all conditions
- **Immediate detection** - fully complies with 30 seconds requirement of FM Class 7745 standard
- **Ability to operate even without water**
- **Thickness measurement** – not only sheen detection
- **Oil layer trend** is indicated during spill buildup or cleanup
- **Alarms and controls** – visual or audible alarms, messages, and controls that activate skimmers, discharge pumps, valves, or other containment measures



## Monitoring hydrocarbons in water

Instruments for the analysis of the presence of hydrocarbons in process, cooling and waste waters as well as in condensate. A wide range of instruments designed to monitor both aromatic and aliphatic hydrocarbons.



## Sulphur in Liquids

Monitoring the Sulphur content of hydrocarbon liquids. The analyzers work on the principle of UV absorption or XRF.



## Water cut monitor

Reliable monitoring of water content in dielectric liquids



## Gas Analyzers

### Flare Gas Combustion Control

Heat value and WOBBE Index monitors for different gas mixtures



### Analysis of oxygen, hydrocarbons, CO and CO<sub>2</sub> in refineries and ethylene units

Analyzers based on tunable laser, RAMAN technology and IR absorption for reliable analysis in refinery processes and ethylene units.



### Compact analyzer of natural gas parameters

Portable and stationary analyzers to monitor WOBBE Index, calorific value, compressibility, methane number, CO<sub>2</sub>, but also H<sub>2</sub> content of natural gas.



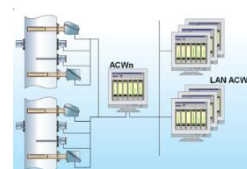
### Analysis of hydrogen in natural gas

H<sub>2</sub>SCAN instruments use a unique palladium-nickel measuring cell technology that selectively measures the hydrogen content in the monitored medium. It does not require any additional infrastructure, additional measurements, or auxiliary media.



### Stack Gas Emission Monitoring

Automatic emission monitoring systems with QAL1 certificate in accordance with EN14181.



## Trace Heating

Tank and pipe heaters with fixed or electric heating.

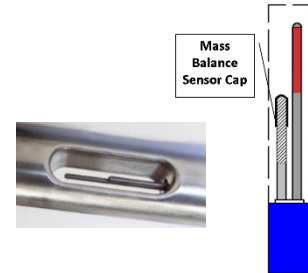


## Flow Monitors

### Flow Monitoring of Gases and Liquids

Thermal conductivity-based instruments for monitoring the flow of polluted gases with variable humidity and composition.

- Improved Constant Temperature technique
- Auto adjusts power to protect the sensor at high temperatures & enables fast return to service
- Eliminates sensor burnout



### Flow Monitoring of Solids

- Electromagnetic field in the sensor pipe (condensator).
- Field capacity is measured continuously.
- Bulk material in the sensor has a higher dielectric permittivity than air and increases the field capacity.
- The changing capacity is proportional to the concentration of the bulk material.
- Calibration by reference weighing (externally or in process)

#### Velocity

- Runtime measurement at two sensors with known distance
- Comparison of the signals with cross correlation function =  $Dt$
- $v = d / Dt$
- No calibration



## Portable and Stationary Cameras to monitor gas leaks, flares, heat and fires



With detailed information on solutions of your interest we are gladly available on our contact:

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