

the techno
chemistry
d (mater
rode Analyzers
measurement ar



Ankersmid

Productoverview





Ankersmid

Analytical Solutions for Online & Lab Applications

Ankersmid Group Introduction

The Ankersmid Group has a long history in providing analytical solutions for gas measurement systems as well as laboratory instruments. The Ankersmid group's expertise ranges from providing reliable and rugged gas measurement systems and services for both process and emission measurements to cutting edge scientific instruments.

Ankersmid's expertise includes systems engineering, system integration service and maintenance for process gas applications. With BIEM the Ankersmid group also offers an ISO 17025 (scope L365) Dutch accreditation certified emission monitoring and reporting on contract basis.

In the R&D field Ankersmid offers expertise to support customers in product development

The Ankersmid Group is organized in three divisions:

- Ankersmid PROCESS/
Ankersmid SAMPLING
- Ankersmid LAB
- BIEM



Process Liquids– and Solids
Analyzers



- Process Gas Analyzers
- Emission Measurement



Laboratory Analyzers

MAINTENANCE SERVICE & SERVICE CONTRACTS

The Ankersmid team of engineers provides professional onsite or offsite service support. Ankersmid carries stock of the most widely used spare parts and has a quick response system in place with its suppliers. A service contract not only guarantees a fast service support response, but also the best way for customers to ensure an extended system lifetime and a minimize down time, as it guarantees preventive maintenance is carried out regularly. Periodical

inspection or calibration may also be beneficial to the manufacturing process.



GAS ANALYZERS & PERFORMANCE CHARACTERISTICS

Ankersmid Process has become a well known name on the (Gas) Sampling Systems/Solutions market, especially designed for use in industrial environments like:

refining, natural gas, gas-processing, petrochemical, chemical, coal-gasification, plastic, food, paper, power stations, water treatment and firms of consulting engineers.

We also handle complete instrumentation systems from specification and engineering phase, through procurement and Installation Supervision, Commissioning, Start-Up, Calibrations and Training on our systems On-Site.

- Guaranties on high availability,
- Sample integrity and repeatability of the systems,
- Low maintenance costs
- Low Costs Of Ownership (COO).



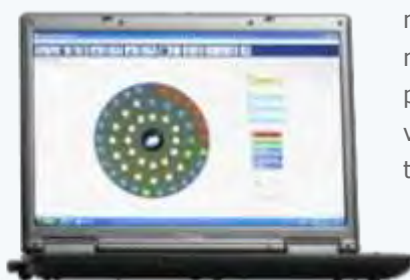
ANKERSMID



ANKERSMID PROCESS

The Ankersmid Group has a 25 year history in gas sampling, gas conditioning and system building. The Group has earned a reputation as a reliable provider of high quality products and professional services in and outside of the Benelux. In 2008 Ankersmid's new generation of in-house developed gas sampling and conditioning products was launched in order to equip our systems with components of greater functionality and higher quality. To highlight this change from first generation gas conditioning components to a second generation smart sampling solution, the Group changed the name from M&C Indumation to Ankersmid Process.

The Ankersmid Process portfolio includes besides the complete gas analysis range wet analysis such as online viscosity, turbidity and oil in water analyzers.



ANKERSMID PRODUCT OVERVIEW



ANALYSIS SYSTEMS

BUILDING & INTEGRATION

Ankersmid Process engineers and manufactures Continuous Emission Monitor Systems (CEM), Predictive Emission Monitoring Systems (PEM), Automated Monitoring System (ASM) that are designed and engineered to meet the exacting standards of (BS) EN 14181 and 15267-3, BVA, Activiteiten Besluit, and Mcert. Each system is built to customer specification and delivered with relevant documentation and certification. Ankersmid offers analyzer housing, outdoor shelters, and explosion proof systems according to ATEX standards.



LAB SOLUTIONS

With our complete package of process analyzers and conditioning systems we can offer a close link to the laboratory analysis instruments. With more than 25-years of experience in environmental, pharmaceutical, chemical, food and physical analysis we can be of great help in advising your lab the best techniques and applications.

FLEXIBLE SOLUTIONS FOR YOUR NEEDS



Ankersmid

Analytical Solutions for Online & Lab Applications

SAMPLING & CONDITIONING SYSTEMS



Sampling Gas and Liquids in the most creative way

Since 2008 is Ankersmid Sampling a part of the Ankersmid Holding and especially the company manufactures of sample conditioning systems. We started since 1991 with M&C Products and developed with this experience some state of the art conditioning systems.

The new technologies like touch screen controlled displays, new and advances sample probes, really portable coolers (much lighter and ergonomic) are some of the few developments that makes Ankersmid Sampling the leading producer in this field.

Since we started in 2008 we have dealers throughout the world and collaborations from highly qualified companies and therefore we can assure that the Ankersmid Sampling products are worth your trust.

Industries:

- Power plants
- Waste incinerator
- Cement industry
- Chemical production industries
- Gas production platforms and processing
- Glass industry
- Wood processing
- Food processing industries
- And many more

Products

- Gas Sample Probes / Tubes
- Peltier- and Compressor Coolers
- Heated Sample Lines
- Universal Gas and Fluid Filters
- Sample Pumps
- Liquid Samplers
- Complete Sample Systems
- Online Analyzers
- Titration or Ion Selective method Analysers
- NOX Convertors
- Laserdiode Spectroscopy
- Refractometers
- Heavy Metal Analyzers
- And many more



Portable Cooler



ANKERSMID

Sampling & Gasconditioning equipment

Sampling Probes

- Modular design
- Heated or unheated versions
- Many options available



Peltier Coolers

- 3 types of heat exchangers available
- Different cool capacities
- Optional digital communication



Heated Sample Lines

- Self-limited or regulated up to 250°C
- Standard or ATEX approved
- Different options available

Compressor Coolers

- Up to 4 streams available
- With condensate pump and panel filter
- Optional flow meters incorporated



Gas Sample Tubes

- Length and material according to application
- Heated and unheated versions
- Many options available (prefilter, demister...)

Flow Meters

- Compact design
- Chemical resistant
- Adjustable flow



Sample Pumps

- Heated and non heated
- Diaphragm and peristaltic pumps
- Standard or ATEX approved versions



Filters and Wash Bottles

- Filtration of fluid particals (aerosols)
- With hydrophobic membrane
- Easy change of filter
- Optimum outwashing effect
- Optimum humidifying effect





Ankersmid

Analytical Solutions for Online & Lab Applications

EMISSION, PROCESS AND LAB GAS ANALYZERS

NDIR and Paramagnetic Analyzers

Analyzing air pollution is the first step towards preserving a clean atmospheric environment.

Simultaneous and continuous measurement of up to 5 gases

- CO • CO₂ • SO₂ • NO
- NO₂ • NO_x • CH₄ • O₂



Gas Converter NO – NO₂

- 19"-rack mount version
- Integrated by-pass valve
- Operating temperature 225°C with molybdenum filling
- Flow rate up to 90 NI/h

Chemiluminescence (CLD) Analyzer

- Precise measurement of NO, NO₂, NO_x and NH₃
- For process, environmental, R&D applications
- Optional O₂ paramagnetic sensor
- Heated or unheated inlet
- Dual or single channel inlet
- Different converters



Flame Ionisation Detectors (FID)

- Total hydrocarbons in gases, vapour,...
- Portable, 19" or table top version
- Methane, non-methane option
- C_xH_y

Mercury (Hg) Analyzers

- Laboratory analyzers
- Portable analyzers for measuring Hg in air
- Continuous gas analyzer for Hg in stack gases
- Automatic Hg monitoring system for air and other gases
- Also version for Hg in water and aqueous solutions available





ANKERSMID

IN-SITU EMISSION AND PROCESS GAS ANALYZERS

LaserGas Monitors

- Response time down to one second
- No cross interference from other gases
- No gas sampling – in-situ measurement
- Very low detection limits (ppb and low ppm)
- Wide range of process conditions possible
- Suitable for high dust environments
- Low cost of ownership
- ATEX and CSA certified
- SIL 2 for O₂ available

Available for following gasses (Others on request)

- NH₃ • O₂ • NO • C₂H₂
- HCl • H₂O • N₂O • C₃H₃
- HF • CO • HCN • CH₃I
- H₂S • CO₂ • CH₄ • CH₃OH



Multi-component IR Emissions Analyzer

- Up to 6 components
- Direct in-situ measurements
- Auto zero/span
- Integral data logger
- Flange mounted analyzer
- Wet or dry (option)
- Can be used in hazardous areas



Multi-Component UV Emissions Analyzer

- Up to 6 gases (eg. Cl₂, SO₂, NO, NO₂, NH₃, H₂S, Hg, O₃)
- Spectral range: 180 nm - 400 nm
- Flange mounted analyzer



ZrO₂ Oxygen Analyzers

- Process temperature up to 1500°C
- Compact and reliable
- Low power consumption
- Universal electronics
- ATEX approved as an option



CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)



"Traditional" CEMs

- Measurement of CO, CO₂, SO₂, NO_x, O₂ and C_xH_y
- Measuring principles: CO, CO₂, SO₂, NO_x: NDIR
O₂: ZrO₂
C_xH_y: FID
- QAL 1 EN 14181, IN ISO 14956 and EN 15267
- Including gas conditioning system
- Heated sample probe and heated sample line
- Panel pc with touch screen
- Data acquisition

IR Absorption Multi-component Gas Analyzers

- Hot measurement (without gas cooler)
 - Measurement of max. 12 infrared components
 - Simple assembly in the analysis cabinet
 - Visualisation of measuring results and parameters via pc panel
 - Measuring principles: infrared absorption dual wavelength respectively gas filter correlation and Zr O₂ cell.
 - TÜV approval pending according to EN 15267
- CO • N₂O • NH₃ • HF
- NO • SO₂ • H₂O • O₂
- NO₂ • HCl • CO₂



FT-IR Multi-component Gas Analyser System

- Designed with an exclusive modular technology: the base unit containing interferometer, laser, source and electronics can be coupled with different accessories.
- The analyser performances are tested and in compliance with European directives EN14181 and EN14956
- High - Quality
 - Accuracy
 - Reliability
 - Strength
- Portable version available



PROCESS AND LAB GAS ANALYZERS



Electrochemical O₂ Analyzers

- Fixed and portable versions
- Oxygen analysis below 1ppb up to 100% O₂
- Process oxygen analyzers
- ATEX certified explosion proof oxygen analyzers

Ozone Analyzers and Generators

- Continuous process UV ozone analyzer in air and O₂
- Different ranges available (up to 300g/m³)
- Also for residual and dissolved O₃ in water available



Portable UV-DOAS

- Individual VOCs
- PPB Sensitivity
- Integrated Networking
- Automated Reporting
- Configurable Alarms
- Cannot be Poisoned
- Fully Portable

Tail Gas Analyzer

- Monitoring of Claus process efficiency in the Sulfur Recovery Unit
- UV-Vis full-spectrum spectrophotometer
- Patented DEMISTER Probe with internal sulfur vapor removal



UV-VIS/SW-NIR Absorbance Spectrophotometer

- Nova™ diode array detector
- Absorbance range from 190-1100 nm
- Measurement of up to 5 chemicals synchronously
- Over 100 different chemicals served
- Application on gas or liquid process stream



PROCESS GAS ANALYZERS



Wobbe Index Analyzer

- Calorific value measurement of mid-process fuel gases
- Measurement principle: residual oxygen measurement
- VCSEL tuneable diode laser sensing method
- General purpose or ATEX version

Total Sulfur Analyzers

- Direct measurement of 5 sulfur components or Pyrolysis method
- Customized sample conditioning system for gas and liquid streams
- Eg. H_2S , SO_2 , COS , CS_2 , $MeSH$



Chlorine Compound Analyzer

- From low ppm up to high % range of chlorine and chlorine based compounds
- Cl_2 and optional ClO_2 , $FeCl_3$, NCl_3 , $TiCl_4$, $VOCl_3$ and vanadium
- Custom sample conditioning per application
- UV/VIS full spectrum spectrophotometer

Biogas and Syngas Analyzers

- Portable and fixed versions
- Able to measure CO , CO_2 , CH_4 , O_2 , H_2 , C_nH_m and BTU
- NDIR, TCD and ECD technology
- Optional H_2S sensor



SO3 Reactive Gas Analyser

The Pentol SO3 monitor has been designed to meet a wide range of measuring requirements.

The instrument is portable and suitable for long- and short-term measurements

Range: 0.05 - 5000 mg/m³

Accuracy: $\pm 5\%$ of reading (in calibrated range)



AMBIENT AIR ANALYZERS / MISCELLANEOUS

NO_x and NH₃ Analyzers

- a broad range of NO_x analyzers for indoor, ambient, tropospheric and stratospheric monitoring.
- a sub-ppb Ammonia (NH₃) monitoring system dedicated to atmospheric pollution monitoring.



Mercury Analyzers

- Total Gaseous Mercury in Air and other Gases at Ultra Trace Levels
- Air quality studies
- Monitoring of indoor air pollution
- Environmental pollution source tracking, Pume profiling
- Studies of mercury dispersion in the atmosphere
- Studies of interaction between atmosphere and surfaces
- Pollution prevention
- Natural gas and derivatives

Laser Based Open Path Gas Analyzer

- Unaffected by dust, fog, or rain down to 1% transmission
- Up to 1000 m measurement path
- No cross interference from moisture (or other gases)
- Stable calibration, no zero drift
- No moving parts, no consumables
- ATEX and CSA certified
- Available for NH₃, HF, H₂S, CO, CH₄, CO₂ and many more



Zero Air Generators

- Suitable for use as: a zero reference calibration gas, ultra-pure combustion air for flame ionization detector (FID)
- Continuous delivery of up to 20 standard liters per minute
- Available with an optional dew point transmitter.
- Capable of delivering air free from water vapor, particulates, SO₂, H₂S, NO, NO₂, O₃, CO and HC)

Gas Mixers and Diluters etc.

- PLC-based Gas Delivery - Gas Blending System
- Ambient Monitor Calibrator w/Ozone Generator
- Gas Mixers and Gas Blenders
- Gas Diluters and Gas Dividers
- Gas Mixers/Gas Diluters





Ankersmid

Analytical Solutions for Online & Lab Applications

DUST, FLOW MONITORS



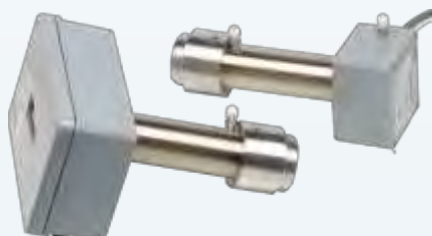
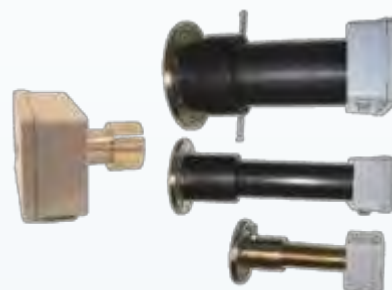
Tribo-electric Dust Measuring Devices

- Filter control
- Emission Monitoring
- Triboelectric or optical measuring principle
- Standard and wet applications
- Combined measuring device for dust, flow and T
- According to TI air, 13th, 17th and 27th BImSchV
- Mobile filter controller and measuring devices

Laserbased Dust Measuring Devices

- Real-time : Response time down to one second

"(for detailed scope information see www.rva.nl)

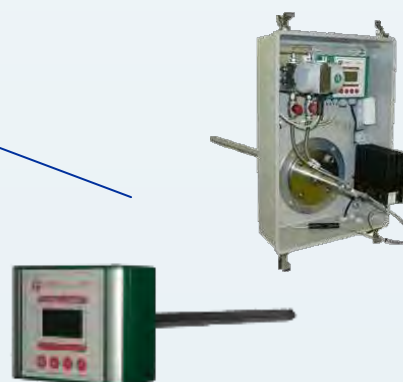


Laser Based H₂O Monitors

- Response time down to one second
- No cross interference from other gases
- Detection limit of 0,1 ppm for 1 m

Flow Measuring Devices

- For exhaust gas velocity
- Exhaust gas flow, pressure and temperature
- Compact device with differential pressure probe
- Application even in case of high dust contents
- According to TI air, 13th, 17th and 27th BImSchV





Through BIEM the Ankersmid Group offers customers the service of outsourcing the emission reporting that is required by law. BIEM's expertise ensures customers are always reporting to the latest requirements, while the flat-fee service eliminates both capital investment in analytical equipment and maintenance expenditure

BIEM is ISO-17025 accredited by RvA under RVA scope L365" and offers a complete range of services for the periodic control of energy, process or environmental measurements.

BIEM offers:

- Assessment of measurement systems (QAL1 calculations according ISO 14956)
- Calibration and annual control measurements for automatic measurement systems (QAL2-and AST-measurements, conforming to NEN-EN 14181)
- NeR (Nederlandse Emissie Richtlijnen)
- Activiteiten Besluit voor kleine-, middelgrote en grote Stookinstallaties
- BEMS (Besluit emissie-eisen middelgrote stookinstallaties)
- BVA (Besluit Verbranden Afvalstoffen)
- MCERT certification
- NO_x, CO₂ -emission trading
- Quality guarantee measurements on the efficiency of catalyst, converters and dust filters, etc
- Consultancy for emission related legislation and issues.

"(for detailed scope information see www.rva.nl)

Onsite measurement solutions

BIEM offers a variety of onsite measurement solutions. Portable analysis sets are available for short and longer measurement assignments. Measurements carried out by the fully equipped BIEM mobile analysis trucks are available for multiple-day onsite measurements. A porta-cabin analysis center is available for measurements over an extended period of time. BIEM is equipped and supported by Ankersmid Process' extensive gas sampling, gas conditioning, and analysis experience.

Instrument calibration, calibration gas certification

BIEM's Quality Assurance System (QAS) ensures emission monitoring systems are operating according to specification. During QAS tests the following performance characteristics of instruments are determined.

- Linearity
- Rate of interference of other components on the measurement
- Response times
- Instrument drift (zero - span)
- Converter efficiency (NO_x measurement)

The QAS is also suitable for the certification of calibration gases. All QAS results are completely traceable to trusted international standards.

Outsource emission monitoring

Outsource emission monitoring responsibilities to focus on core business
An emission monitoring service contract ensures our clients:

- Are guaranteed compliance to emission monitoring regulations
- Receive expert analytical and regulatory advice
- Report fully accredited emission measurements
- Require no capital investment in analytical instruments

BIEM Services

- Performing accredited emission measurements
- Consultation and implementation on process & energy measurements
- Consultation and implementation of NO_x and CO₂ trade legislation.
- Modeling of emissions based on process measurements
- Consultation and support on environmental regulations
- Process and energy measurements
- Emission modeling based on prior measurements
- Calibration of analysis systems



BIEM mobile analysis truck



Inside the mobile analysis truck



Ankersmid

Analytical Solutions for Online & Lab Applications

PROCESS LIQUIDS / SOLIDS / OZONE ANALYZERS

Mercury Analyzers

- Fully automatic system
- High flexibility of sample pretreatment procedure
- Automatic self diagnosis systems for reliable operation
- Low reagent consumption
- Mercury measuring ranges from 0.01 ppb to 100 ppm
- Laboratory and process applications
- Gas and liquid applications



Optical Process Analyzers

- Turbidity, colour, oil in water
- Water in oil, oil on water, suspended solids
- Reliable monitors to control critical liquid processes
- APHA - ASTM - Saybolt - Hazen - ppm - % - mg/l - EBC - NTU - TEF - AU - FTU - OD



Ultrasonic Turbidity Analyzers

- Particle concentration in a variety of liquids
- Product concentration
- Filtration control
- Oil in condensate
- Oil in water / Water in oil
- Insensitive to colour
- Insensitive to coatings
- Self cleaning effect due to ultra sonic pulses
- No wearing parts



Process Refractometers

- In-line measurement of concentration
- Brix, % Solids, RI
- Highest quality, absolute hardest Sapphire prism allows all calibration ranges with the same prism.

Anseros Water- & Gas analyser, Ozone test kits.

- NDUV or chemiluminescence; solid cartridge system, no ethylene
- Ozone generators, low or high volume
- Sterilisation
- Complete systems
- Water cleaning
- Ozone test chambers





Electrochemical Analysis

- Portable and benchtop
- New Orion Star A !
- Colour Graphic LCD
- IP67
- pH
- ISE
- ORP
- Conductivity
- DO



XRF Analysis

- Compact and easy to operate
- Best price-quality
- Benchtop, portable and inprocess analysis.
- Large memory storage capacity
- Communication with PDA and computer
- Accurate and reliable
- Easy operation

Analysis of:

- | | |
|-------------------|-------------------|
| • Gold | • Layer thickness |
| • Platina | • Sulfur analysis |
| • Mercury | • Alloys |
| • Lead | • Minerals |
| • Stainless steel | • Many more |



Krüss

- Polarimeters
- Refractometers
- Microscopes
- Densitymeters
- Melting point meters
- Flame photometers

Mercury Analysis

- Fully automated flow analysis system
- Modular construction
- Proven and reliable detection method: cold vapor atomic absorption (CVAAS)
- Integrated GoldTrap feature for maximum sensitivity of <1 ng/l
- Automated Sample Digester Module (ASD) as an optional accessory



CHNS-O Analysis

- CHNS-O elemental analysis and Nitrogen/Protein determination
- Represents an evolution in the technique of elemental analysis by "flash combustion/chromatographic separation and multi-detector techniques"



Particle Size & Shape Analyzer Eyetech

- Particle size 0,5µm—3mm
- Powders, liquids, sludge and creams applications
- 6 different measurement cells for every application with easy change of cell
- No callibration needed, Ever!
- 58 shape parameters
- Laser measurement & video measurement in one!
- Small system only 58cm bench space





Process Liquids– and Solids
Analyzers



- Process Gas Analyzers
- Emission Measurement



Laboratory Analyzers

Ankersmid Process
Samuel Morsestraat 4
7442 DH Nijverdal
Netherlands
Tel: (+31)-548 59 59 69
Fax: (+31)-548 62 19 72

www.ankersmid.com
info@ankersmid.com

Ankersmid LAB
Samuel Morsestraat 4
7442 DH Nijverdal
Netherlands

Tel: (+31)-548 59 59 69
Fax: (+31)-548 62 19 72

www.ankersmid-lab.com
info@ankersmid-lab.com

BIEM
Samuel Morsestraat 4
7442 DH Nijverdal
Netherlands

Tel: (+31)-548 59 59 69
Fax: (+31)-548 62 19 72

www.biem.nl
info@biem.nl

Ankersmid M&C bvba
Neerlandweg 21
B-2610 Wilrijk
Belgium
Tel: +32(0)3/820.80.00
Fax: +32(0)3/230.98.58

www.ankersmid-mc.be
info@ankersmid-mc.be

Ankersmid Sampling
Neerlandweg 22
2610 Wilrijk
Belgium

Tel: +32(0)3/820.80.02
Fax: +32(0)3/230.98.58

www.ankersmidsampling.com
info@ankersmidsampling.com

Apollo Instruments
3, Rue Clément Ader
ZAC Mercières - Zone 2
F-60200 Compiègne
France
Tel: (+33) 03 44426619
Fax: (+33) 03 44852472

www.apolloinstruments.fr
info@apolloinstruments.fr

Ankersmid China
Suite 5F1, Zhong Shan Road
West 1800
200235 PR of China
Tel.: +86-21-6440 3331
Fax: +86-21 6440 1102

www.ankersmid.cn
info@ankersmid.cn

Ankersmid Romania
4 Emil Botta Street
Bucharest,
Romania

Tel.: 021.326 26 25
Fax: 021.326 26 25

www.ankersmid.ro
info@ankersmid.co.ro



Ankersmid
Samuel Morsestraat 4
7442 DH Nijverdal

tel: +31-548-59 59 69
fax: +31-548 62 19 72

www.ankersmid.com
info@ankersmid.com