

AMETEK[®]
PROCESS INSTRUMENTS

ANALYZER GUIDE

Find the right solution for your process application

ametekpi.com

ABOUT US

AMETEK Process Instruments is a worldwide manufacturer of process analyzers and instrumentation.

At AMETEK Process Instruments, we focus our experience on designing innovative analyzers that help our customers reach higher levels of productivity and quality. We achieve this by finding ways to overcome the limitations of current methods of process monitoring, control and quality assurance. Through this focus we have created some of the most capable technologies in the world.

Our primary focus in analyzer design is reliability. We understand that you must have confidence that the analyzer will provide the correct information when you need it. It is a documented fact that many of our analyzers have been in service for well over 20 years.

Markets Served:



Core Competencies

- Burner air/fuel mixing control
- Chemical composition analysis of gases and liquids
- Coal fired power generation
- Combustion and furnace atmosphere control
- Combustion/process heating
- Contamination monitoring of high and ultra-high purity gases
- Heat treating atmosphere monitoring/control
- Natural gas processing and transmission
- Pharmaceutical solvent drying processes
- Emissions monitoring
- Quality monitoring of gas and liquid feedstocks
- Refining and petrochemical processes
- Sulfur recovery processes
- Trace analysis
- Vacuum analysis/residual gas analysis

Analyzer Technologies

- Gas chromatographs (GC)
- Gas gravitometers
- Katharometers
- Manual and online chilled-mirror dew point analyzers
- Mass spectrometers
- Optical luminescent oxygen
- Quartz crystal microbalance (QCM) and electrolytic moisture analyzers
- Residual gas analyzers
- Tunable diode laser absorption spectroscopy (TDLAS)
- Ultraviolet and visible (UV-VIS) and infrared (IR) process analyzers
- X-ray transmission (XRT)
- Zirconium oxide analyzers

Unique Solutions – Custom Designs

No single solution fits all applications or processes. If a pre-engineered product does not meet your needs, we will work with you to custom-design an analyzer suited to your specific application. We pride ourselves on our technical applications knowledge and willingness to produce unique analyzers and solutions for our customers.

Service Commitment

Our customer commitment continues well beyond start-up and commissioning. We offer a wide variety of service plans and resources to support our customers' installations anywhere in the world.

Find the right analyzer for your application. We've made it simple with our at-a-glance listings, separated into the key markets we supply.

GLOSSARY

ABBREVIATION	DESCRIPTION
AMU	Atomic mass unit
BTU	British thermal unit
CCR	Continuous catalyst regeneration
CEM	Continuous emission monitoring
GC-FID	Gas chromatography with flame ionization detector
GC-RGD	Gas chromatography with reduction gas detector
IR	Infrared
LNG	Liquefied natural gas
LPG	Liquefied petroleum gas
MAU	Milli-absorbance unit
NDIR	Nondispersive infrared
NGL	Natural gas liquids
P ₂ O ₅	Phosphorus pentoxide
ppb	Parts per billion
ppbv	Parts per billion by volume
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
QCM	Quartz crystal microbalance
QL	Quenched luminescent
TCD	Thermal conductivity detector
TDLAS	Tunable diode laser absorption spectroscopy
TGTU	Tail gas treating unit
TRS	Total reduced sulfur
UV	Ultraviolet
ZrO ₂	Zirconium oxide


1 → **5100P** **MEASURES:** Moisture ← **5**

2 → **RANGE** **PROCESS**

0 to 2500 ppmv Dehydration, Transmission
Pipelines, Underground
Storage ← **6**

3 → **ACCURACY** **APPLICATION**

±4 ppmv, or ±2% of reading, Dehydration Efficiency,
whichever is greater Moisture in Sales Gas ← **7**



4 → **TECHNOLOGY:** TDLAS

- 1. MODEL** - Analyzer name
- 2. RANGE** - Valid measurement concentrations
- 3. ACCURACY** - Degree of measurement precision
- 4. TECHNOLOGY** - Measurement technology used
- 5. MEASURES** - Elements or compounds detected
- 6. PROCESS** - Chemical operation/operating unit
- 7. APPLICATION** - Particular function

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HYDROCARBON PROCESSING

Optimized process solutions

With decades of experience in this industry, AMETEK Process Instruments offers an extensive range of combustion, gas, and moisture analyzers for the hydrocarbon processing market.

Our unique technologies and advanced designs provide the critical measurements needed to optimize your process. This ensures a high-quality product produced in safe operating conditions.



HYDROCARBON PROCESSING

888

MEASURES: H₂S, SO₂

RANGE

Standard: 0 to 1% SO₂;
0 to 2% H₂S
High Range: 0 to 2% SO₂;
0 to 4% H₂S

ACCURACY

±1% of full scale

PROCESS

Sulfur Recovery

APPLICATION

Tail Gas/Air Demand Ratio,
Sulfur Pit Safety Monitoring



TECHNOLOGY: UV

900

MEASURES: H₂S, SO₂, COS, CS₂

RANGE

Species measured	Minimum full scale	Maximum full scale
H ₂ S	250 ppm	100%
SO ₂	250 ppm	100%
CS ₂	5000 ppm	100%
COS	5000 ppm	100%

ACCURACY

SO₂ and H₂S: ±1% of full scale of standard ranges
COS and CS₂: ±10% of full scale of standard ranges

PROCESS

Sulfur Recovery

APPLICATION

Tail Gas/Air Demand Ratio



TECHNOLOGY: UV

IPS-4

MEASURES: NH₃, H₂O, CO₂, SO₂,
H₂S, NO, NO₂, NO_x, THC, ASTM color standards, Ethylene Glycol

RANGE

ppmv/ppmw to 100%,
application dependent

ACCURACY

UV: ±1% of full scale range
IR: ±2% of full scale range
Dual Bench: ±2% of full scale typical

PROCESS

Sulfur Recovery, Emission Compliance, Ethylene Oxide, Sour Gas Treatment, SO₂ Recovery/H₂SO₄

APPLICATION

Feed Forward, Emissions, Ethylene Glycol QA/QC, Amine Efficiency, SO₂ Removal Efficiency



TECHNOLOGY: UV/NDIR

9900 RM/WM

MEASURES: H₂S, SO₂, NO, NO₂,
ClO₂, NO_x, NH₃, Optional O₂

RANGE

Species Measured	Single Species Minimum Full Scale	Multi-Species Minimum Full Scale
SO ₂	10 ppm	20 ppm
H ₂ S	25 ppm	100 ppm
NO	50 ppm	50 ppm
NO ₂	100 ppm	100 ppm
NO _x	n/a	100 ppm
O ₂	0%	25%

ACCURACY

Better than ±1.0% of standard full scale range
O₂: ±0.1%

PROCESS

Emissions Control

APPLICATION

Continuous Emission Monitoring System



TECHNOLOGY: UV (opt. Paramagnetic/ZrO₂)

To find out more or request a quote, visit our website today

ametekpi.com

HYDROCARBON PROCESSING

909

MEASURES: H₂S, SO₂, NO, NO₂, NO_x, NH₃, Optional O₂

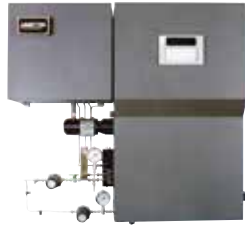
RANGE

Species measured	Minimum full scale	Maximum full scale
SO ₂	250 ppm	100%
NO	250 ppm	100%
NO ₂	250 ppm	100%
H ₂ S	250 ppm	100%
NH ₃	250 ppm	100%
Cl ₂	250 ppm	100%

ACCURACY
±1% full scale of standard ranges

PROCESS
Sulfur Recovery

APPLICATION
CEM, Mass Flow Single Gas



TECHNOLOGY: UV

919

MEASURES: H₂S, SO₂, NO, NO₂, NO_x, NH₃, Optional O₂

RANGE

Species measured	Minimum full scale	Maximum full scale
SO ₂	250 ppm	100%
NO	250 ppm	100%
NO ₂	250 ppm	100%
H ₂ S	250 ppm	100%
NH ₃	250 ppm	100%
Cl ₂	250 ppm	100%

ACCURACY
±1% full scale of standard ranges

PROCESS
Sulfur Recovery

APPLICATION
CEM Single Gas (no mass flow)



TECHNOLOGY: UV

910

MEASURES: H₂S, SO₂, NO, NO₂, NO_x, NH₃, Optional O₂

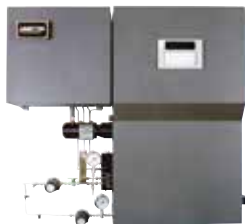
RANGE

Species measured	Minimum full scale	Maximum full scale
SO ₂	250 ppm	100%
NO	250 ppm	100%
NO ₂	250 ppm	100%
NO _x	250 ppm	100%
H ₂ S	250 ppm	100%
NH ₃	250 ppm	100%
Cl ₂	250 ppm	100%

ACCURACY
±1% full scale of standard ranges

PROCESS
Sulfur Recovery

APPLICATION
CEM, Mass Flow Multi Gas



TECHNOLOGY: UV

920

MEASURES: H₂S, SO₂, NO, NO₂, NO_x, NH₃, Optional O₂

RANGE

Species measured	Minimum full scale	Maximum full scale
SO ₂	250 ppm	100%
NO	250 ppm	100%
NO ₂	250 ppm	100%
NO _x	250 ppm	100%
H ₂ S	250 ppm	100%
NH ₃	250 ppm	100%
Cl ₂	250 ppm	100%

ACCURACY
±1% full scale of standard ranges
±2.0% full scale of standard ranges for H₂S + NH₃ application

PROCESS
Sulfur Recovery

APPLICATION
CEM Multi Gas (no mass flow)



TECHNOLOGY: UV

HYDROCARBON PROCESSING

931/932

MEASURES: H₂S, Optional COS, CS₂, NH₃, SO₂, H₂, CO₂

RANGE

H₂S: ppm ranges to high percent levels
H₂: 0 to 5% or 0 to 10%
Other components and ranges are available upon request

ACCURACY
Standard range (UV): ±1% of full scale of standard ranges
Optional (TCD) H₂ sensor for TGTU applications: ±2% on a 0 to 10% range

PROCESS
Sulfur Recovery

APPLICATION
Feed Forward/TGTU



TECHNOLOGY: UV/TCD

930

MEASURES: H₂S, SO₂

RANGE

Species measured	Maximum full scale
H ₂ S	0-4%
SO ₂	0-2%

(other ranges available on request)

ACCURACY
±1% full scale of standard ranges

PROCESS
Sulfur Recovery

APPLICATION
Sulfur Pit



TECHNOLOGY: UV

934

MEASURES: H₂

RANGE

0 to 5% or 0 to 10%

ACCURACY
±2% on a 0-10% range
±4% on a 0-5% range

PROCESS
Sulfur Recovery

APPLICATION
TGTU Efficiency



TECHNOLOGY: TCD

914

MEASURES: H₂S, SO₂, NO, NO₂, NO_x, CO₂, O₂

Designed to meet regulatory reporting requirements for CEM

ACCURACY
Designed to meet customer specifications

PROCESS
Emissions Control

APPLICATION
CEM (cold-dry)



TECHNOLOGY: UV, NDIR, Paramagnetic

HYDROCARBON PROCESSING

3050-OLV

MEASURES: H₂O

RANGE

0.1 to 2,500 ppmv
Readout capability in ppmv, lb./mmscf, mg/Nm³, and dew point temperature in °C or °F (requires process pressure as an input)

ACCURACY

±0.1 ppmv or ±10% of reading, whichever is greater

PROCESS

Continuous Catalyst Regeneration

APPLICATION

Hydrogen Recycle Gas

AVAILABLE OPTION:

AMEVision for 3050 series



TECHNOLOGY: QCM

5000

MEASURES: H₂O

RANGE

0 to 1000 ppmv, trend indication above 1000 ppmv
Output capability in lb./mmscf and dew point temperature (requires sample line pressure as analog input; single point systems only)

ACCURACY

±1 ppmv or ±5% of reading, whichever is greater

PROCESS

Continuous Catalyst Regeneration

APPLICATION

Hydrogen Recycle Gas



TECHNOLOGY: QCM

5100HD

MEASURES: CO, CO₂, O₂, H₂O, H₂S

RANGE

ppmv to % level, application dependent

ACCURACY

±2% of reading (typical)

PROCESS

Ethylene Production, Refining, Emission Compliance

APPLICATION

Acetylene Conversion Rate, CO and CO₂ Levels in Furnace Decoking, Moisture in Continuous Catalyst Regeneration, Moisture in Hydrogen Recycle Gas, Moisture in Olefins (UOP Catalytic Regeneration), H₂S in Flare and Refinery Fuel Gas

Consult AMETEK for more potential applications



TECHNOLOGY: TDLAS

ta3000R

MEASURES: CO

RANGE

0 to 3 ppmv

ACCURACY

±10 ppbv or ±10% of reading, whichever is greater

PROCESS

PE/PP Production, Ethylene/Propylene Feedstock

APPLICATION

Catalyst Protection



TECHNOLOGY: GC-RGD

HYDROCARBON PROCESSING

WDG-V

MEASURES: O₂, Combustibles (CO+H₂), Methane/ Hydrocarbons (CH₄+))

RANGE

O₂: From 0-1% to 0-100%
Combustibles: 0-2,000 ppmv
Hydrocarbon: 0-5%

ACCURACY

O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full-scale output range
Hydrocarbon: ±5% of full scale output range

PROCESS

Fired Heaters, Power Generation

APPLICATION

Combustion Control in Ethane Reformers, Steam Boilers, Process Heaters, Thermal Oxidizers



TECHNOLOGY: ZrO₂, Catalytic Sensors

WDG-V UOP

MEASURES: O₂

RANGE

From 0-1% to 0-100%

ACCURACY

±0.75% of measured value or ±0.05%, whichever is greater

PROCESS

Catalytic Reforming/Platforming, Continuous Catalyst Regeneration (CCR)

APPLICATION

Oxygen Monitoring in CCR



TECHNOLOGY: ZrO₂

WDG Insitu

MEASURES: O₂

RANGE

0-1% to 0-100%

ACCURACY

±1% of measured value or ±0.05%, whichever is greater

PROCESS

Fired Heaters, Power Generation

APPLICATION

Oxygen Monitoring in Power and Steam Boilers, Process Heaters, Thermal Oxidizers



TECHNOLOGY: ZrO₂

682T-HP

MEASURES: Sulfur

RANGE

Analysis range for sulfur of 0.02-6.0%

ACCURACY

Repeatability: Typical 1 sigma precision for (100 sec.):
10% relative at 0.04 wt. % sulfur
5% relative at 0.1 wt. % sulfur
0.1% relative at 3.24 wt. % sulfur

PROCESS

Blending Operations, Marine Fuel

APPLICATION

Sulfur Concentration in Crude Oil, Blending Operations, Marine Bunker Fuel



TECHNOLOGY: X-Ray Transmission

METALS & MINING

Ready to face the challenge

AMETEK Process Instruments' expertise delivers a solution that ensures safety, quality and efficiency in the high-heat environment of metals and mining.

Using our accurate technologies – including TDLAS lasers, mass spectrometers and UV analyzers – we provide the measurements you require, from furnace control to emissions reduction.

METALS & MINING

WDG-V

MEASURES: O₂, Combustibles (CO+H₂), Methane/Hydrocarbons (CH₄)

RANGE
O₂: From 0-1 to 0-100%
Combustibles: 0-2,000 ppmv
Hydrocarbon: 0-5%

ACCURACY
O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range
Hydrocarbon: ±5% of full scale output range

PROCESS
Foundry/Metals Production
Furnaces, Power Generation

APPLICATION
Combustion Control and Oxygen Monitoring in Reheat Furnaces and Power and Steam Boilers



TECHNOLOGY: ZrO₂, Catalytic Sensors

WDG-HPII

MEASURES: O₂, Combustibles (CO+H₂), Option for Excess Fuel

RANGE
O₂: From 0-1% to 0-100%
Combustibles: From 0-2,000 ppmv to 0-10,000 ppmv or from 0-1% to 0-5%

ACCURACY
O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range

PROCESS
Foundry/Metals Production
Furnaces, Kilns

APPLICATION
Combustion Control and Oxygen Monitoring in Blast Furnace Stoves, Reheat Furnaces and Lime Kilns; Excess Fuel Monitoring of Graphite Electrodes in Electric Arc Furnaces (with Excess Fuel Option)



TECHNOLOGY: ZrO₂, Catalytic Sensor

WDG Insitu

MEASURES: O₂

RANGE
0-1% to 0-100%

ACCURACY
±1% of measured value or ±0.05%, whichever is greater

PROCESS
Coke Ovens, Power Generation

APPLICATION
Process Oxygen Monitoring in Coke Ovens and Power and Steam Boilers



TECHNOLOGY: ZrO₂

9900RM

MEASURES: SO₂, F₂, Uranium

RANGE
ppmv/ppmw to 100%, application dependent

ACCURACY
Better than ±1.0% of standard full scale range

PROCESS
Emissions Compliance

APPLICATION
Emissions



TECHNOLOGY: UV

To find out more or request a quote, visit our website today

ametekpi.com

IPS-4

MEASURES: SO₂, F₂, Uranium

RANGE
ppmv/ppmw to 100%,
application dependent

PROCESS
Emission Compliance

ACCURACY
UV: ±1% of full scale range
IR: ±2% of full scale range
Dual Bench: ±2% of full
scale typical

APPLICATION
Emissions



TECHNOLOGY: UV/NDIR

5100HD

MEASURES: CO, CO₂, O₂, H₂O,
CH₄, H₂S

RANGE
ppmv to % level, application
dependent

PROCESS
Operations

ACCURACY
±2% of reading (typical)

APPLICATION
Safety, Emissions, Operational
Efficiency Monitoring



TECHNOLOGY: TDLAS

NATURAL GAS

Proven technologies for critical measurements

With extensive experience and continuous product development, AMETEK Process Instruments provides a comprehensive portfolio of specialized solutions, utilizing advanced technologies to provide vital analysis across the full range of natural gas processes.

From drilling to gas processing and transmission to the production of liquefied natural gas (LNG), we have the process instrumentation to ensure natural gas meets quality specifications and tariff requirements for gas treating, processing, transmission, and end use as a fuel or feedstock.

3050-OLV

MEASURES: H₂O

RANGE

0.1 to 2,500 ppmv
Readout capability in ppmw, lb/mmscf, mg/Nm³, and dew point temperature in °C or °F (requires process pressure as an input)

ACCURACY

±0.1 ppmv or ±10% of reading, whichever is greater

PROCESS

Dehydration, Transmission Pipelines, Underground Storage

APPLICATION

Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits

AVAILABLE OPTION:

AMEVision for 3050 series



TECHNOLOGY: QCM

3050-SLR

MEASURES: H₂O

RANGE

0.1 to 100 ppmv.
Readout capability in ppmw, lb/mmscf, mg/Nm³, and dew point temperature in °C or °F (requires process pressure as an input)

ACCURACY

±0.03 ppmv or ±10% of reading, whichever is greater

PROCESS

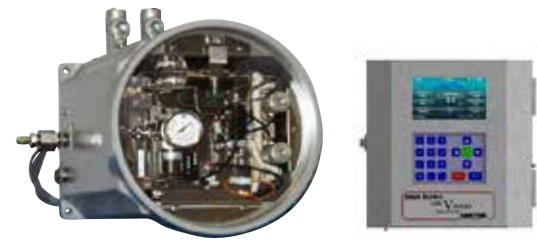
Dehydration, Transmission Pipelines, LNG

APPLICATION

Glycol Contactor Efficiency, Dryer Efficiency & Breakthrough, Custody Transfer Tariff Limits, Feed Gas Quality for LNG Liquefaction

AVAILABLE OPTION:

AMEVision for 3050 series



TECHNOLOGY: QCM

3050-DO

MEASURES: H₂O

RANGE

0.02 to 100 ppmv
Readout capability in ppmw, lb/mmscf, mg/Nm³, and dew point temperature in °C or °F (requires process pressure as an input)

ACCURACY

±0.02 ppmv or ±10% of reading, whichever is greater

PROCESS

Dehydration, LPG & NGL Fractionation, LNG

APPLICATION

Dryer Efficiency and Breakthrough

AVAILABLE OPTION:

AMEVision for 3050 series



TECHNOLOGY: QCM

3050-TE

MEASURES: H₂O

RANGE

0.01 to 100 ppmv
Readout capability in ppmw, lb/mmscf, mg/Nm³, and dew point temperature in °C or °F (requires process pressure as an input)

ACCURACY

±0.01 ppmv or ±10% of reading, whichever is greater

PROCESS

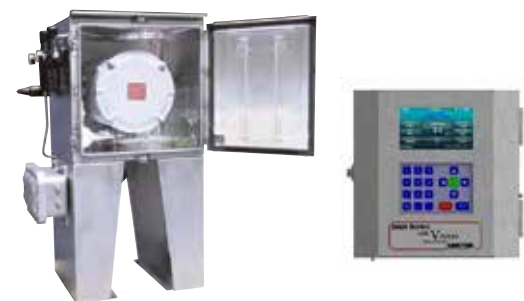
LNG, LPG & NGL Fractionation

APPLICATION

Feed Gas Quality to Turbo Expander

AVAILABLE OPTION:

AMEVision for 3050 series



TECHNOLOGY: QCM

5100

MEASURES: CO₂, H₂O, H₂S

RANGE

0.25-60 lb/MMscf/4-1900 mg/m³ (5 to 2500 ppmv)
Other ranges available

ACCURACY

±4 ppmv or ±2% of reading, whichever is greater

PROCESS

Sweetening, Dehydration, Transmission Pipelines, Underground Storage

APPLICATION

Amine and Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits



TECHNOLOGY: TDLAS

5100P

MEASURES: Moisture, CO₂

RANGE

Moisture: 0 to 2500 ppmv
CO₂: 0-2%

ACCURACY

±4 ppmv, or ±2% of reading, whichever is greater

PROCESS

Dehydration, Transmission Pipelines, Underground Storage

APPLICATION

Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits



TECHNOLOGY: TDLAS

5100HD

MEASURES: CO, CO₂, O₂, H₂O, H₂S

RANGE

H₂O: 0.25 to 60 lbs
CO₂: 0-50 ppmv to 0-100%
H₂S: 0-300 ppmv to 0-100%

ACCURACY

H₂O: ±4 ppmv or ±2% of reading, whichever is greater
CO₂: range dependent
H₂S: range dependent

PROCESS

Dehydration, Sweetening, Transmission Pipelines, Underground Storage, LNG

APPLICATION

Amine and Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits, Feed Gas Quality for LNG Liquefaction



TECHNOLOGY: TDLAS

933

MEASURES: H₂S, COS, CH₃SH

RANGE

H₂S: 0 to 3 ppmv min.; 0 to 100 ppmv max.
COS: 0 to 15 ppmv min.; 0 to 500 ppmv max.
MeSH: 0 to 9 ppmv min.; 0 to 250 ppmv max.

ACCURACY

Standard range: ±2% of full scale
Low range: ±5% of full scale

PROCESS

Sweetening, Transmission Pipelines, LNG, Underground Storage

APPLICATION

Amine and Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits, Feed Gas Quality for LNG Liquefaction



TECHNOLOGY: UV/IR

931/932

MEASURES: H₂S, Optional COS, CS₂, NH₃, SO₂, H₂, CO₂

RANGE

H₂S: ppmv ranges to high percent levels
H₂: 0 to 5% or 0 to 10%
Other components and ranges are available upon request

ACCURACY

Standard range (UV): ±1% of full scale
Optional (TCD) H₂ sensor for TGTU applications: ±2% on a 0 to 10% range; ±4% on a 0 to 5% range
Optional (IR) sensor for THC, CO₂: application specific, consult factory

PROCESS

Drilling Wells, Sweetening, Transmission Pipelines, Underground Storage, LNG

APPLICATION

Amine and Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits, Feed Gas Quality for LNG Liquefaction



TECHNOLOGY: UV/TCD/IR

241CE II

MEASURES: Hydrocarbon Dew Point Temperature

RANGE

Cooling capability: Typically 60°C below the temperature at the analyzer installation
Highest measurable dew point: Application dependent, typically 15°C below the temperature at the analyzer installation

ACCURACY

Hydrocarbon dew point temperature ±1°C

PROCESS

Dehydration, Drilling/Wells, Transmission Pipelines, LPG & NGL Fractionation

APPLICATION

Glycol Contactor Efficiency, Dryer Efficiency & Breakthrough, Custody Transfer Tariff Limits, Liquids Separation



TECHNOLOGY: Chilled Mirror

303B

MEASURES: H₂O

RANGE

0 to 1000 ppmv
(0-2000 ppmv range with reduced sample flow)

ACCURACY

±0.5 ppmv or ±5.0% of reading, whichever is greater

PROCESS

Dehydration, Transmission Pipelines, Underground Storage, LNG

APPLICATION

Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits, Feed Gas Quality for LNG Liquefaction



TECHNOLOGY: P₂O₅

IPS-4

MEASURES: HC, NH₃, H₂O, CO₂, Cl₂, FeCl₃, CH₃I, SO₂, H₂S, NO, NO₂, ClO₂, NOx, H₂S in rich amine, ASTM color standards, Bisphenol-A, Ethylene Glycol

RANGE

ppmv/ppmw to 100%, application dependent

ACCURACY

UV: ±1% of full scale range
IR: ±2% of full scale range
Dual Bench: ±2% of full scale typical

PROCESS

Gas Sweetening

APPLICATION

Rich Amine



TECHNOLOGY: UV/NDIR

Chanscope II

MEASURES: H₂O and Hydrocarbon Dew Point Temperature

RANGE

Dew point temperature ranges: -29°C to ambient, with liquid propane; -62°C to ambient, with liquid carbon dioxide; -129°C to ambient, with optional liquid nitrogen chiller

ACCURACY

±0.2°C at 40°C to -90°C

PROCESS

Dehydration, Transmission Pipelines, LPG & NGL Fractionation, Underground Storage, Drilling/Wells

APPLICATION

Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits, Liquids Separation



TECHNOLOGY: Chilled Mirror

Model 13

MEASURES: H₂O and Hydrocarbon Dew Point Temperature

RANGE

Dew point temperature range dependent on which thermometer is chosen

ACCURACY

±0.25°C

PROCESS

Dehydration, Transmission Pipelines, LPG & NGL Fractionation, Underground Storage, Drilling/Wells

APPLICATION

Glycol Contactor Efficiency, Transmission Sales Gas Quality, Custody Transfer Tariff Limits, Liquids Separation



TECHNOLOGY: Chilled Mirror

OXYvisor

MEASURES: O₂

RANGE

Sensor dependent:
BOS1: 0-5% O₂
BOS2: 0-100% O₂
BOS3: 0-300 parts per million by volume (ppmv) with over-range of 1000 ppmv

ACCURACY

Sensor dependent:
BOS1: ±0.002% O₂ or ±3% of the measured value, whichever is greater
BOS2: ±0.4% O₂ at 20.9% O₂, ±0.05% O₂ at 0.2% O₂
BOS3: ±2 ppm or ±5% of measured value, whichever is greater

PROCESS

Pipeline quality and custody transfer, Inlet feed to gas plant, Wellhead piping leading to production manifold, Inlet and outlet on the amine absorber, Blanket gas on amine storage tank, Biomethane production

APPLICATION

Parts per million or percent measurements of O₂ in natural gas



TECHNOLOGY: Optical Luminescent Oxygen

PHARMACEUTICAL

The remedy for your process requirements

Pharmaceutical applications require outstanding sensitivity and stability combined with accurate real-time monitoring.

AMETEK Process Instruments delivers field-proven systems that provide the multi-component analysis required for fermentation process control and drying while offering compact designs and ease of operation.

PHARMACEUTICAL

WDG-V

MEASURES: O₂, Combustibles (CO+H₂), Methane/Hydrocarbons (CH₄+)

RANGE

O₂: From 0-1% to 0-100%
Combustibles: 0-2,000 ppmv
Hydrocarbon: From 0-1% to 0-5%

ACCURACY

O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range
Hydrocarbon: ±5% of full scale output range

PROCESS

Fired Heaters, Power and Steam Generation

APPLICATION

Combustion Control in Process Heaters, Power and Steam Boilers, Thermal Oxidizers



TECHNOLOGY: ZrO₂, Catalytic Sensors

WDG-HPII

MEASURES: O₂, Combustibles (CO+H₂)

RANGE

O₂: From 0-1% to 0-100%
Combustibles: From 0-2,000 ppmv to 0-10,000 ppmv or from 0-1% to 0-5%

ACCURACY

O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range

PROCESS

Lime Kilns

APPLICATION

Combustion Control



TECHNOLOGY: ZrO₂, Catalytic Sensor

5100HD

MEASURES: O₂, H₂O

RANGE

H₂O: ppmv to % level, application dependent
O₂: 0-5%; 0-25%

ACCURACY

O₂: ±0.2%

PROCESS

Drying Operations

APPLICATION

Moisture in Final Product, Oxygen Concentration in Dryers



TECHNOLOGY: TDLAS

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POWER & STEAM GENERATION

The power to control your process

Controlling the ratio of air and combustibles in combustion is key to safety, fuel efficiency and cost-effectiveness.

With a wealth of experience in providing power generation solutions, AMETEK Process Instruments has developed a range of products using proven zirconium oxide oxygen sensing for accurate combustion control.

To find out more or request a quote, visit our website today

[ametekpi.com](https://www.ametekpi.com)

POWER & STEAM GENERATION

WDG-V

MEASURES: O₂, Combustibles (CO+H₂), Methane/Hydrocarbons (CH₄+)

RANGE

O₂: From 0-1% to 0-100%
Combustibles: 0-2,000 ppmv

ACCURACY

O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range
Hydrocarbon: ±5% of full scale output range

PROCESS

Power and Steam Boilers

APPLICATION

Combustion Control



TECHNOLOGY: ZrO₂, Catalytic Sensors

WDG-V Blowback

MEASURES: O₂, Combustibles (CO+H₂), Methane/Hydrocarbons (CH₄+)

RANGE

O₂: From 0-1% to 0-100%
Combustibles: 0-2,000 ppmv
Hydrocarbon: 0-5%

ACCURACY

O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range
Hydrocarbon: ±5% of full scale output range

PROCESS

Coal Fired Boilers, High Particulate/Dusty Processes

APPLICATION

Combustion Control for Boilers



TECHNOLOGY: ZrO₂, Catalytic Sensors

POWER & STEAM GENERATION

WDG-HPII

MEASURES: O₂, Combustibles (CO+H₂)

RANGE

O₂: from 0-1% to 0-100%
Combustibles: from 0-2,000 ppmv to 0-10,000 ppmv or from 0-1% to 0-5%

ACCURACY

O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range

PROCESS

Coal Fired Boilers, Waste Wood Boilers, Biofuel Boilers, Recovery Boilers, High Particulate/Dusty Processes

APPLICATION

Combustion Control



TECHNOLOGY: ZrO₂, Catalytic Sensor

5100HD

MEASURES: CO, CH₄, O₂

RANGE

ppmv to % level, application dependent

ACCURACY

CH₄ and CO: ±2% of reading
O₂: ±0.2%

PROCESS

Combustion

APPLICATION

Safety and Operational Efficiency Monitoring



TECHNOLOGY: TDLAS

WDG Insitu

MEASURES: O₂

RANGE

From 0-1% to 0-100% O₂

ACCURACY

±1% of measured value or ±0.05%, whichever is greater

PROCESS

Power and Steam Boilers, Recovery Boilers

APPLICATION

Oxygen Monitoring in Boilers, Stratification



TECHNOLOGY: ZrO₂

WDG 1200/1210

MEASURES: O₂

RANGE

0-1% up to 0-25% v/v O₂

ACCURACY

Accuracy: ±1% of measured value or ±0.05%, whichever is greater

PROCESS

Power and Steam Boilers

APPLICATION

Oxygen Monitoring in Boilers



TECHNOLOGY: ZrO₂

3050-OLV

MEASURES: H₂O

RANGE

0.1 to 2,500 ppmv
Readout capability in ppmw, lb/mmscf, mg/Nm³, and dew point temperature in °C or °F (requires process pressure as an input)

ACCURACY

±0.1 ppmv or ±10% of reading, whichever is greater

PROCESS

Hydrogen Cooled Electric Generators

APPLICATION

Moisture Control

AVAILABLE OPTION:

AMEVision for 3050 series



TECHNOLOGY: QCM

PULP & PAPER, GLASS, CEMENT & LIME

Expertise in action

AMETEK Process Instruments' extensive knowledge of combustion control and emissions monitoring plays a key role in industries such as pulp and paper, glass, and cement and lime.

Our trusted zirconium oxide (ZrO₂) analyzers provide important oxygen measurements, while we offer critical measurements for sulfur dioxide and NOx waste products.



PULP & PAPER, GLASS, CEMENT & LIME

CMFA-P2000

MEASURES: Excess O₂ or Excess Fuel

RANGE
100% to 0.1% excess O₂ and 0.1% to 50% excess fuel

ACCURACY
Excess O₂: ±2% of measured value or ±0.1%, whichever is greater
Excess Fuel: ±5% of measured value or ±0.25%, whichever is greater
Specifications based on 0-15% range, natural gas

PROCESS
Fiberglass Strand and Glass Container Melt Tanks/Forehearths, Ribbon Burners on Flame Treating Lines, Brazing Machines (pre-heat, flux, and braze)

APPLICATION
Portable Oxygen and Air/Fuel Mixture Monitoring to Control Product Quality in Glass & Fiber Manufacturing



TECHNOLOGY: ZrO₂

WDG-V Blowback

MEASURES: O₂, Combustibles (CO+H₂), Methane/Hydrocarbons (CH₄+))

RANGE
O₂: From 0-1% to 0-100%
Combustibles: 0-2,000 ppmv
Hydrocarbon: 0-5%

ACCURACY
O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range
Hydrocarbon: ±5% of full scale output range

PROCESS
Fired Heaters, Process Generation, Process Furnaces, Kilns

APPLICATION
Combustion Control



TECHNOLOGY: ZrO₂, Catalytic Sensors

PreMix 2000

MEASURES: Excess O₂ or Excess Fuel

RANGE
All or selected portions of the range from 100% to 0.1% excess O₂ and 0.1% to 50% excess fuel

ACCURACY
Excess O₂: ±2% of measured value or ±0.1%, whichever is greater
Excess Fuel: ±5% of measured value or 0.25%, whichever is greater

PROCESS
Fiberglass Spinner Blowers/Day Pots, Technical Glass Forming Furnaces

APPLICATION
Control of Product Quality via Oxygen and Air/Fuel Mixture Monitoring in Glass and Fiber Manufacturing



TECHNOLOGY: ZrO₂

WDG-HPII

MEASURES: O₂, Combustibles (CO+H₂)

RANGE
O₂: From 0-1% to 0-100%
Combustibles: From 0-2,000 ppmv to 0-10,000 ppmv or from 0-1% to 0-5%

ACCURACY
O₂: ±0.75% of measured value or ±0.05%, whichever is greater
Combustibles: ±2% of full scale output range

PROCESS
Kilns, Power Generation, Process Furnaces

APPLICATION
Combustion Control and Oxygen Monitoring in Rotary Kilns, Power and Steam Boilers, Black Liquor Recovery Boilers, Multiple Hearth Furnaces, Glass Melting Tank Exhaust



TECHNOLOGY: ZrO₂, Catalytic Sensor

IPS-4

MEASURES: SO₂, NO_x, ClO₂, CO

RANGE
ppmv to 100%

PROCESS
Emission Compliance

ACCURACY
UV: ±1% of full scale range
IR: ±2% of full scale range
Dual Bench: ±2% of full scale typical

APPLICATION
Pulp Bleaching,
Emissions Compliance



TECHNOLOGY: UV/NDIR

9900RM

MEASURES: SO₂, NO_x, ClO₂

RANGE
ppmv/ppmw to 100%,
application dependent

PROCESS
Emission Compliance

ACCURACY
Better than ±1.0% of standard
full scale range

APPLICATION
Emissions



TECHNOLOGY: UV

5100HD

MEASURES: CO, CH₄, O₂

RANGE
ppmv to % level,
application dependent

PROCESS
Combustion

ACCURACY
±2% of reading

APPLICATION
Safety and Operational
Efficiency Monitoring



TECHNOLOGY: TDLAS

9900WM

MEASURES: SO₂, TRS, ClO₂

RANGE
ppmv/ppmw to 100%,
application dependent

PROCESS
Emission Compliance

ACCURACY
Better than ±1.0% of standard
full scale range

APPLICATION
Emissions



TECHNOLOGY: UV

**SEMICONDUCTOR, LCD/OLED DISPLAY
MANUFACTURING & INDUSTRIAL GASES**

**Accurate monitoring of
moisture and impurity
contamination**

Moisture contamination and the presence of trace impurities in semiconductor manufacturing are major causes of defects and process variations, significantly impacting yield.

This makes the analysis of moisture and trace impurities essential, both for cleanroom areas where semiconductor wafers are produced and stored, and for the ultra-high purity gases used in manufacturing processes.

A variety of methods are available for measuring moisture and other impurities from high levels to trace amounts. Many manufacturing applications rely on trace measurements of water vapor and other impurities to ensure process quality is maintained.

5910

MEASURES: H₂O

RANGE
0 to 150 ppbv
Trend indication to 1000 ppbv

PROCESS
Gas Purification

ACCURACY
±100 ppbv or ±10% of the reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

5920

MEASURES: H₂O

RANGE
0 to 150 ppbv
Trend indication to 1000 ppbv

PROCESS
Gas Purification

ACCURACY
±1 ppbv or ±10% of the reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

5800

MEASURES: H₂O

RANGE
0.02 to 100 ppmv
Indicates trend to 1000 ppmv

PROCESS
Gas Purification

ACCURACY
±20 ppbv or ±5% of the reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

5830

MEASURES: H₂O

RANGE
0 to 100 ppmv
Indicates trend to 1000 ppmv

PROCESS
Gas Purification

ACCURACY
±20 ppbv or ±10% of the reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

3050-AMS

MEASURES: H₂O

RANGE
0.035 to 100 ppmv
Indicates trend to 1000 ppmv

PROCESS
Gas Purification

ACCURACY
±0.035 ppmv or ±10%, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

3050-AM

MEASURES: H₂O

RANGE
0.1 to 100 ppmv
Indicates trend to 1000 ppmv

PROCESS
Gas Purification

ACCURACY
±0.1 ppmv or ±10%, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

3050-RM

MEASURES: H₂O

RANGE
0.1 to 2,500 ppmv
Readout capability in ppmw, lb/mmscf, mg/Nm³, and dew point temperature in °C or °F

PROCESS
Gas Purification

ACCURACY
±0.1 ppmv or ±10%, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

2850

MEASURES: H₂O

RANGE
0.1 to 1000 ppmv

PROCESS
Gas Purification

ACCURACY
±0.05 ppmv or ±5% of the reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: QCM

ta7000

MEASURES: H₂, CO, CO₂, CH₄, NMHC

RANGE
0 to 199.9 ppbv

PROCESS
Gas Purification

ACCURACY
±1 x LDL or ±10% of reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: GC-RGD/FID

ta5000

MEASURES: CO, CO₂, H₂, CH₄, NMHC

RANGE
RGD: 0-3 ppmv
FID: 0-5 ppmv

PROCESS
Gas Purification

ACCURACY
±1 x LDL or ±10% of reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: GC-RGD/FID

ta3000

MEASURES: CO, CO₂, H₂, CH₄, NMHC

RANGE
RGD: 0-3 ppmv
FID: 0-5 ppmv

PROCESS
Gas Purification

ACCURACY
±10 ppbv or ±10% of reading, whichever is greater

APPLICATION
Quality



TECHNOLOGY: GC-RGD/FID

CEM O₂/TM

MEASURES: O₂

RANGE
1 ppm to 100% O₂

PROCESS
Specialty gas production, ultra-high purity of inert gases

ACCURACY
±0.75 of reading or 0.05% O₂, whichever is greater; ppm: ±2 of reading or 0.5 ppm O₂ absolute, whichever is greater

APPLICATION
Trace Oxygen Measurement



TECHNOLOGY: ZrO₂

LC-D

MEASURES: All components m/z 1-300

RANGE
Total Pressure ≤10⁻⁵ torr

PROCESS
Chemical Vapor Deposition, Physical Vapor Deposition, Rapid Thermal Processing

ACCURACY
Source sensitivity (Faraday cup): 2 x 10⁻⁴ amps per Torr at detector (measured with nitrogen at mass 28) with peak width = 0.5 at 10% height and 1 x 10⁻³ amps emission current

APPLICATION
Quality



TECHNOLOGY: Mass Spectrometer

Dymaxion

MEASURES: All components m/z 1-300

RANGE
1-100, 1-200, 1-300 AMU

PROCESS
Chemical Vapor Deposition, Physical Vapor Deposition, Rapid Thermal Processing

ACCURACY
Source sensitivity (Faraday cup): 2 x 10⁻⁴ amps per Torr at detector (measured with nitrogen at mass 28) with peak width = 0.5 at 10% height and 1 x 10⁻³ amps emission current

APPLICATION
Quality



TECHNOLOGY: Mass Spectrometer

CG1000

MEASURES: O₂

RANGE
0.1 ppmv O₂ to 100% O₂

PROCESS
Rapid Thermal Processing (RTP), Air Separation, Inert Gas Purity (N₂, Ar, CO₂, He, etc.), Blanket/Purge Gases, Glove Box Applications, Cryogenic Gas Generation, Atmospheric Oven/Furnace Control, UV Curing Ovens

ACCURACY
±2% of reading or 0.05% absolute, whichever is greater

APPLICATION
Trace Oxygen Monitoring for Quality Control of Inert Gas and High Purity Streams



TECHNOLOGY: ZrO₂

TM2000

MEASURES: O₂

RANGE
0.1 ppmv O₂ to 100% O₂

PROCESS
Air Separation, Inert Gas Purity (N₂, Ar, CO₂, He, etc.), Blanket/Purge Gases, Glove Box Applications, Cryogenic Gas Generation, Atmospheric Oven/Furnace Control, UV Curing Ovens

ACCURACY
± 1% of reading or 0.02% absolute, whichever is greater

APPLICATION
Trace Oxygen Monitoring for Quality Control of Inert Gas and High Purity Streams



TECHNOLOGY: ZrO₂

OTHER APPLICATIONS

Versatile, customized solutions

Our expertise and industry-leading technologies can be used in a range of applications across a variety of industries. If your process demands accurate, high-quality gas analysis, backed by global support and servicing, AMETEK Process Instruments delivers.

Additionally, to ensure accurate and reliable process measurements, a representative sample of the process fluid must be delivered to the analyzer. A well-designed sample conditioning system will consider filtration, temperature, pressure, flow rate and environmental conditions. Installations may require a full analyzer shelter including analyzers, sample systems, calibration gases, HVAC controls, and power distribution.

Contact AMETEK Process Instruments or your local AMETEK representative for more information on our analyzers.

CABINETS, SHELTERS & HOUSES



OTHER APPLICATIONS

WDG-VRM

MEASURES: Hot/Wet O₂ or Cold/Dry O₂

RANGE
From 0-1% to 0-100%

PROCESS
Emission Monitoring

ACCURACY
±0.75% of measured value or ±0.05%, whichever is greater

APPLICATION
Net Oxygen Measurement for CEM



TECHNOLOGY: ZrO₂

CEM/O₂

MEASURES: Wet O₂ or Dry O₂

RANGE
0.1% to 0-100%
FID: 0-5 ppmv

PROCESS
Emission Monitoring

ACCURACY
±0.75% of measured value or ±0.05%, whichever is greater

APPLICATION
Net Oxygen Measurement for CEM



TECHNOLOGY: ZrO₂

CEM Humox

MEASURES: Wet & Dry O₂, H₂O

RANGE
O₂: 0.1% to 100%
Moisture: 5% to 85% by volume

PROCESS
Emission Monitoring

ACCURACY
O₂: ±0.75% of reading or ±0.05% absolute
Moisture: ±3% of reading or ±1% absolute, whichever is greater

APPLICATION
Net Oxygen Measurement for CEM



TECHNOLOGY: ZrO₂

120HD

MEASURES: H₂

RANGE
0 to 25% H₂ in water-saturated air

PROCESS
Turbine halls

ACCURACY
±4% full scale (±1% H₂ v/v)

APPLICATION
Lead-acid Battery Charging



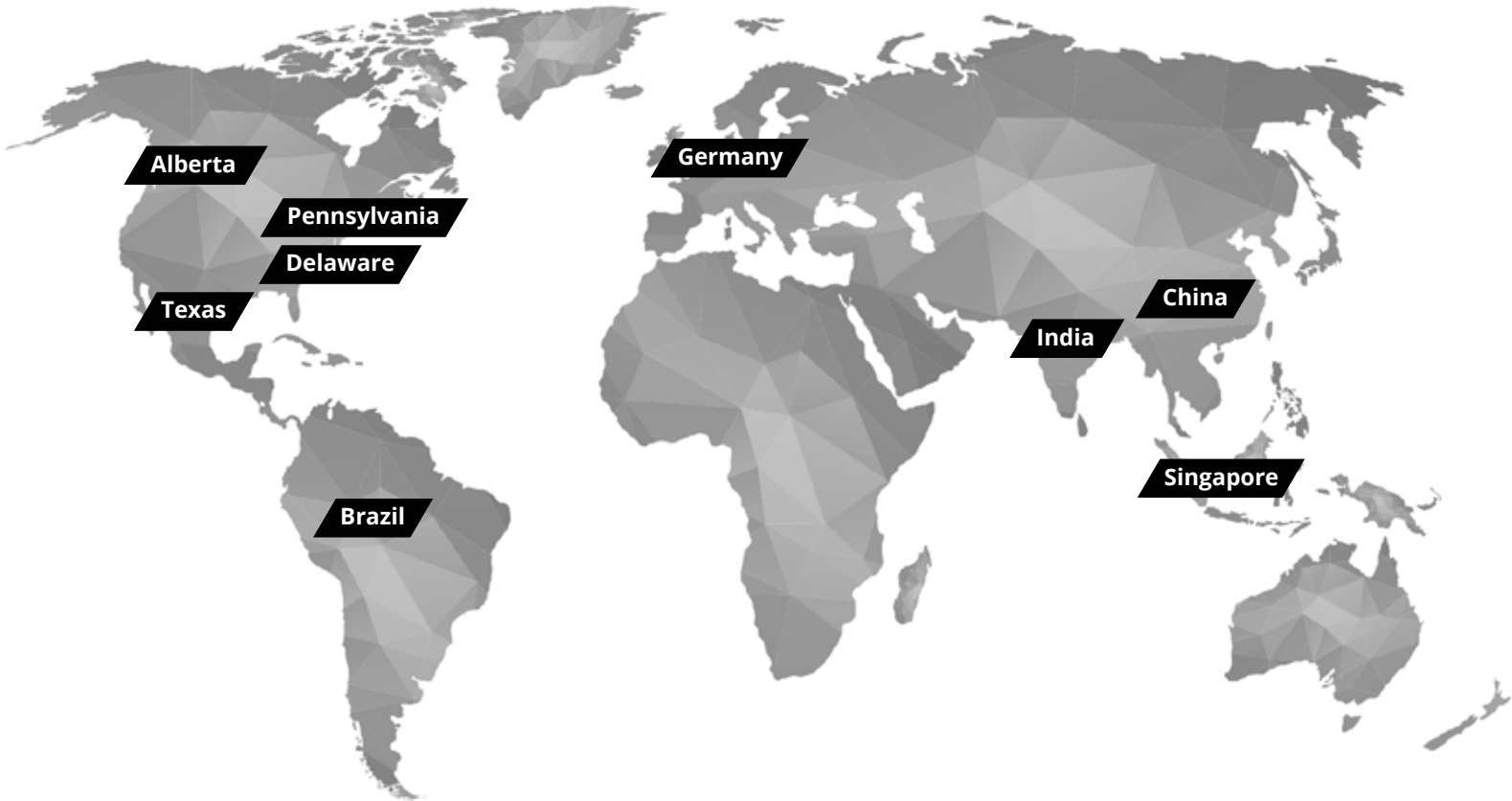
TECHNOLOGY: Katharometer

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Through process application consulting, we create custom-designed solutions that meet the needs of your specific application or process.



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