OPSIS®
Cancoppas LIMITED

opsis.se

Air Quality Monitoring
and Continuous Emissions Monitoring

Aluminium Smelters

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Process control and emissions monitoring in an aluminium smelter is a challenge due to the high concentrations of HF. To use an extractive system in this environment will demand a lot of maintenance.

The OPSIS DOAS system is different and provides aluminium smelters with an accurate analyser that will operate with a minimum of maintenance. The OPSIS DOAS system is based on a non-contact method using an optical measurement path that can operate across the duct.

The optical light is transported in an optical fibre to the analyser and one analyser can operate several paths.

A single OPSIS system will measure all relevant gas components such as HF, NO_x, SO_2, CO, CO_2, and others.

Opsis has three specific application possibilities in aluminium smelters.

1. One is monitoring in large indoor work areas, the potrooms, where the system provides a long, open light path. A benefit is that Opsis ignores the solid fluoride which often distorts analytical results obtained by other methods.
2. The second application is monitoring across a stack or duct. Being a non-contact method which does not require sample extractions, Opsis is well suited for aggressive stack environments.
3. The third application is background monitoring near the plant.

RETURN OF INVESTMENT

The cost of investing in an OPSIS system is small compared to the amount of money that are spent on maintaining exctractive measuring systems.

Many aluminium smelters will have to install monitoring systems to meet the environmental requirements. Using the Opsis system for process control will optimize the process and reduce costs.

TEST AND APPROVALS

The OPSIS System has been tested and approved by a number of internationally recognized institutes and authorities. The system meets the European directive for power plants and is approved by German TÜV, British MCERTS and U.S. EPA. Full details are available on request.

OPSIS PRODUCT PORTFOLIO

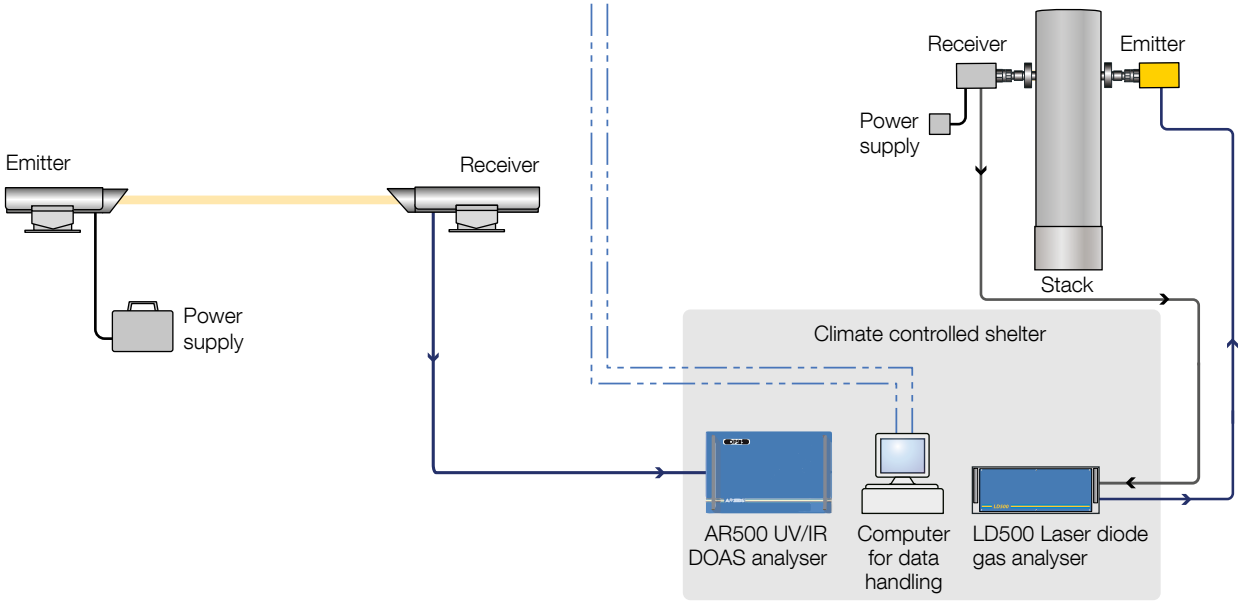
OPSIS has a full product portfolio for measurements of gases. It includes complete CEM systems according to the European waste directive, TDL systems for measuring NH_3 in NO_x scrubbers, Oxygen analysers and Hg analysers.

For further information, please visit www.opsis.se.

QAL 1 CERTIFICATION:
BEST PERFORMANCE
LONGEST CALIBRATION INTERVAL

SYSTEM OVERVIEW

An OPSIS installation monitoring in the potroom and in the stack in an aluminium smelter



PERFORMANCE DATA

(typical data which may vary depending on application)

Potroom and/or Ambient Environmental Monitoring[1]

Compound	Max. measurement range (500 m path)	Lowest measurement range according to EN 15267	Min. detectable quantities (monitoring path 500 m, measurement time 1 min.)[1]
AR500/AR520 UV/IR DOAS Series Analyser			
HF	0–20 mg/m³	—	20 µg/m³
NO_2	0–2000 µg/m³	0–400 µg/m³	1 µg/m³
SO_2	0–2000 µg/m³	0–700 µg/m³	1 µg/m³
AR550 FTIR DOAS Series Analyser			
HF	0–20 mg/m³	—	0.1 µg/m³
LD500 Laser Diode Gas Analyser			
HF	0–20 mg/m³	—	0.1 µg/m³
H_2O	0–500 g/m³	—	0.1 g/m³
CH_4	0–100 mg/m³	—	0.1 mg/m³

Emissions Monitoring[2]

Compound	Max. measurement range (1 m path)[3]	Lowest measurement range according to EN 15267	Min. detectable quantities (monitoring path 1 m, measurement time 30 sec.)
UV/IR DOAS Analyser Models AR600 / AR602Z / AR602Z/Hg / AR602Z/N / AR602Z/NHg / AR620			
SO_2	0–5000 mg/m³	0–75 mg/m³	0.5 mg/m³
H_2O	0–100% Vol.	0–30% Vol.	0.1% Vol.
HF	0–1000 mg/m³	—	5 mg/m³
CO_2	0–100% Vol.	—	0.5% Vol.
FTIR DOAS Analyser Models AR650 / AR650/N			
H_2O	0–100% Vol.	0–30% Vol.	0.1% Vol.
HF	0–1000 mg/m³	0-1.5 mg/m³	0.1 mg/m³
CH_4	0–10000 mg/m³	0-20 mg/m³	0.5 mg/m³
CO_2	0–100% Vol.	0-20% Vol.	0.1% Vol.
LD500 Laser Diode Gas Analyser			
H_2O	0–100% Vol.	—	0.1% Vol.
HF	0–5000 mg/m³	—	0.1 mg/m³

(1) Recommended monitoring path length: 100 to 1000 m.
(2) Recommended monitoring path length: 1 to 5 m.
(3) This data refers to a light path of 1 m. For longer paths the maximum range is proportionally smaller. Products are available to create shorter paths in very wide stacks.

- After wet scrubbers or when particulate concentration averaged over 1 m is higher than 5 g/m³, the monitoring path length may have to be reduced.
- Accuracy is better than 2% of measured value or equal to the detection limit (whichever is the greater).
- For span and zero drift, please refer to QAL1 documents.
- Linearity error (of measurement range, better than): ±1%.
- Max. length of fibre optic cable: please refer to product sheet P9 and P16.

Air Quality Monitoring and Continuous Emissions Monitoring by OPSIS

Automatic optical alignment

Multi-gas and multi-path system

Combines the benefits of UV/FTIR DOAS and TDL technology

Best performance according to QAL 1 certification

Longest calibration interval according to QAL 1 certification

Automatic QAL 3 check as option

No sampling required, non-contact measurement system

Operates with a minimum of maintenance

Low energy consumption

Gas calibration only once per year

Internationally approved

Thousands of systems installed worldwide

Serviced by highly skilled service network

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Please contact your OPSIS supplier to discuss your particular system requirements, including the compounds you wish to monitor. Separate product and other industrial application sheets are available. Specifications subject to change without notice.

OPSIS AB

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