

In-situ multi-laser analyzers prove to reduce customer total cost of ownership

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ABSTRACT

In this paper we report, applications of in-situ, extractive and open path, multi-laser tunable laser analyzers for combustion control and optimization of flue gas cleaning processes. We will prove how this technology has allowed customers to reach tighter process control parameters at the same time minimizing maintenance and overall total cost of ownership. In 2019 we have reported for the first time application of a multi-laser-based in-situ technique for optimization of denitrification and de-sulfurization processes [1]. Since then, the method has been successfully proven in many coal and gas fired power plants and waste incinerator plants. In this paper we present application of the in-situ multi laser analyzers for combustion control and optimization of flue gas cleaning processes. The multi-laser technology has been extended to cover broader spectral range, incorporating both near-infrared diode laser devices with mid-infrared interband-cascade lasers in a single analyzer. The analyzer requires no calibration on-site thanks to built-in reference cell. The systems are operational 24/7 in continuous mode with very little maintenance required. Applications involving in-situ cross duct CO/O₂/CH₄/H₂O/temperature analyzers, SO₂/HCl/CO/H₂O analyzers, hydrogen and hydrogen purity analyzers as well as long range open path H₂S/CH₄/H₂O analyzers for refinery fence line monitoring will be presented.

REFERENCES

1. Pawel Kluczynski "Multi-laser in-situ analyzer for real time control of deSO_x and deNO_x processes in a waste incinerator plant", ISA AD Symposium, Galveston, USA (2019)