



**TNCHE Asia 2023 Conference  
Event Partner/ Exhibitor  
Presenter Bio data & Abstract**



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**Title of Presentation** : **Improve the Environmental Footprint while reducing cost by advanced Furnace Efficiency and Flare Control**

**Presentation Abstract** :

Higher energy cost and environmental regulations ensure that there is an increased focus on energy efficiency in refineries. Approximately 75% of energy consumption in petrochemical and refining industries is used by furnaces (or heaters) and boilers. Within a small to mid-size refinery with 80 MW Crude furnace duty and a capacity of 100 thousand barrels per day, estimated fuel gas cost range between \$5,000,000 and \$15,000,000 per year (depending on local fuel gas cost) for just the Crude unit.

In many refineries and petrochemical plants, furnaces and boilers are exposed to frequent and sudden changes in the fuel gas composition. These changes will immediately affect operating stability causing loss of efficiency and an increase in emissions.

In this presentation a solution is presented to efficiently monitor the thermal load and the air/fuel ratio and control it continuously to optimize the efficiency of the furnace. This is done by describing two cases in which this solution, a fast Wobbe Index analyzer is successfully implemented and has proven itself convincingly.

Also, a case study will be presented to use the same analyzer for flare gas applications. According to the US Environmental Protection Agency (EPA) regulations heating values less than 270 BTU/SCF (depending on the classification of the flare) are not ensured of achieving the required 98% destruction efficiency.

A solution is presented to use the analyzer for monitoring the efficiency of actual flare, and at the same time use the measurement to determine the overall plant efficiency as the heating value of the flare gas is a measure for energy wasted.

An integrated H<sub>2</sub> measurement enables the operator to use the so called "H<sub>2</sub> credit" to increase the BTU of the flare vent gas directly.