

VEGAR SOLUTIONS FOR IMPROVING YOUR ENERGY BALANCE BY USING WASTED PROCESS GASES AND LIGHT DISTILLATES

ATANOR, as acknowledged specialist of combustion of all types of fuel and flue gas treatment, designs, manufactures and commissions full solutions for valorizing wasted gases as well as light distillates, released with time-varying flowrate and/or composition.

YOUR BY-PRODUCTS

- Gases with hydrocarbons (vapors from storage tanks, flaring gases from onshore wells, coal mine methane, venting gases from soils remediation, etc.)
- Gaseous by-products from organic synthesis
- Syngas or pyrogas from gasification or pyrolysis of biomass and wastes
- Process gases with high concentration of nitrogen compounds (NO_x, NH₃, etc.)
- Biogas issued from methanization units (for heat production)
- Landfill gases especially those unusable in reciprocating engines or turbines due to too low methane concentration
- Air with VOC
- Solvents or other light by-products with low vaporization temperature (< 100 °C)

OUR SOLUTIONS

- Turn-key boilers or heat generators with output from 50 kW to 20 MW, containerized or not
- Large range of fuel heating value from less 5 to 50 MJ/kg
- 10/1 turndown ratio
- Production of hot water, superheated water, steam or thermal oil
- Cogeneration option by ORC cycle up to 100 kWe or by hot air cycle between 100 and 500 kWe
- Very high energy and environmental performance



250 kW boiler for valorizing syngaz produced by a biomass gasification unit

OUR TECHNOLOGY

- Metal fiber burner operating in premix mode
- Polycombustible (possibility to mix wasted gas and natural gas in all proportions)
- Able to burn low-BTU wasted gases which are not usable in conventional combustion systems
- 2 operating modes: "radiant mode" for favorizing radiative heat transfer as well as to achieve very low NOx emission or "blue flame mode" for high thermal fluxes and high turndown ratio
- Very low CO and NOx emission (single digit emissions achievable under specific conditions)
- Accurate control of the heat fluxes delivered by the burner
- Low thermal inertia (very quick start-up) and low pressure drop (few hundreds of Pa)
- Noise emissions lower than those of conventional diffusion flame burners



Visualization of the VEGAR burner operating in open air

EXAMPLE OF PERFORMANCE

- Process gas with very high concentration of nitrogen components and combustible gases (several thousands mg/Nm³)
- Burner output: 2 MW
- Technology: VEGAR burner combined to SCR DeNOx system
- Performance: More than 99.5% of NOx emission reduction



View of a 18 MW VEGAR flare

EXAMPLES OF REFERENCES

- ORANO: Destruction of a process gas produced by furnaces converting uranium ore into UF₄ (as intermediate product for the production of nuclear fuel)
- CEA: Valorization of by-product gases generated by gasification or pyrolysis or roasting of biomass
- LERMAB: Valorization of a syngas produced by a biomass gasification unit for University buildings heating
- LUNDIN: Flaring of wells off-gas associated to crude production with 18 MW equipment



View of the upper side of a combustion chamber equipped with a VEGAR burner