

ENGINEERING FOR SPECIAL THERMAL PROCESSING

ATANOR is specialized in combustion installations and thermal equipment. It operates on new or revamping works. Due to its long experience in this field, ATANOR assists generalist engineering companies or piping and mechanical construction companies.

OUR SERVICES

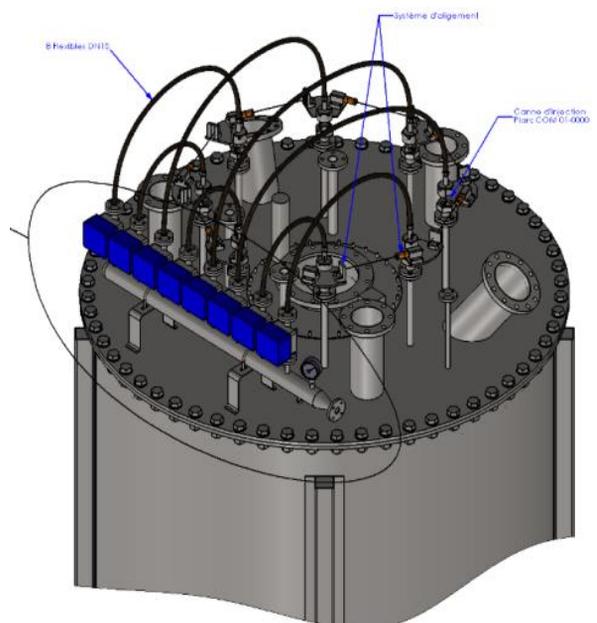
- **Conception and feasibility** studies for standard and specific solutions
- **Debottlenecking and capacity increase:** unavailability rate reduction, design optimization, control / command improvement, etc.
- **Basic engineering**
- **Detailed engineering**
- **EPC** for units up to several MW
- **Project management assistance**
- **Start-up and monitoring** of installations
- **Operator training** for an optimal operation of the units



Study of hot networks in a refinery

YOUR EQUIPMENTS

- **Industrial furnaces** of various types: heaters for refinery and petrochemistry, cement kiln, glass furnace, metallurgical furnace, waste treatment furnace, etc.
- **Industrial boilers** for various fuels (gas, fuel oils, coal and biomass) and with power from a few kW to several hundreds MW
- **Power stations**
- **Incinerators** for gaseous, liquid and/or solid wastes
- **Gas flares**
- **Thermoconversion units:** gasification, pyrolysis, carbonization, roasting, thermal desorption, etc.
- **Flue gas treatment:** DeNO_x, DeSO_x, DeHCl, VOC treatment and waste heat valorization
- Special **heat exchangers**



Dedicated combustion chamber for eliminating a process gas

OUR TOOLS

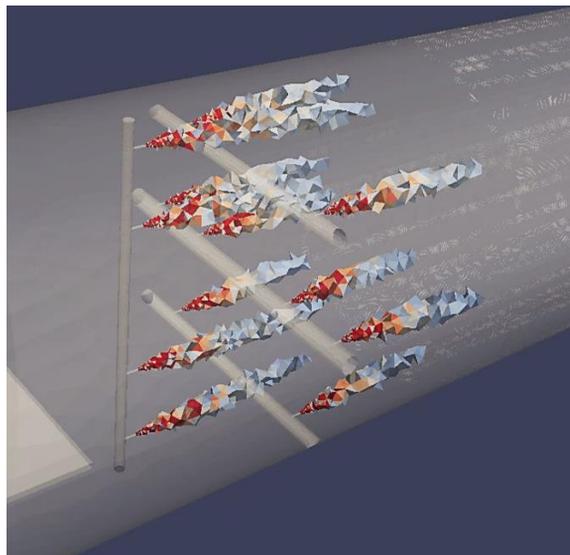
For its engineering work, ATANOR can implement:

→ Numerical tools:

- Commercial or in-house « process » software
- SOLIDWORKS FLOW SIMULATION numerical tool for CFD calculations (Computational Fluid Dynamics)
- SOLIDWORKS tool (for design and 3-D representation), TRACE PID, VISIO, etc.

→ Pilot units (self-owned or in partnership) for collecting experimental data further used to evaluate:

- Mass and energy balances
- Conversion yields
- Environmental performances



Gas jet velocities at the outlet of an ammonia injection grid

REFERENCES

→ **AREVA:** Process gas treatment on an uranium ore conversion furnace: conception, engineering and commissioning

→ **DEGREMONT:** Debottlenecking of a sludge incinerator: diagnosis of the troubles and engineering of the revamping

→ **MAILLOT:** 500t/yr demonstrator for Biochar production from biomass: conception, design and detailed engineering

→ **PHOTOCYCLE:** Recycling process for used photovoltaic panels: conception and basic engineering

→ **TECHNIP / DGA:** Destruction unit for missile engines: conception and basic engineering

→ **INSAVALOR / PROVADEMSE:** Remediation of banks polluted by chemical species: preliminary engineering

→ **BIO-EX:** Flue gas treatment on an « open fire » bench: conception and preliminary engineering

→ **GEOCYCLE:** Waste conversion treatment to feed a cement kiln with syngas and coke: basic engineering



Pyrolysis unit (1t/h) for MSW (Municipal Solid Waste) treatment in Japan

→ **AXENS:** Cogeneration unit for the valorization of petroleum residues: conception and basic engineering

→ **EDF:** Syngas treatment line for production of synthetic natural gas (SNG): conception

→ **KEM ONE:** Conversion of a natural gas burner of a VOC incinerator to hydrogen: detailed engineering