

Raychem heat tracing solutions support energy transition to Sustainable Aviation Fluid (SAF) by French refinery

Mission Critical Solutions in the aviation fluid industry



PROJECT DETAILS

**Applications:**

- Electrical Heat Tracing (EHT) for freeze protection
- Temperature maintenance (25°C-60°C), with 60-160°C max. exposure temperature

**Location:**

France

**Contract Scope:**

Engineering, Procurement and site supervision services

**Technology:**

- Self-regulating heating cables (Raychem BTV, HTV, XTVR)
- Electronic thermostats (Raychem ETS-05) and panel

**Date:**

End of 2025

KEY CHALLENGES

The total investment of €500+ million for the entire refinery upgrade towards a net zero strategical platform was split into various sub-projects. These include the development of a 210,000-285,000MT/year biofuel plant for production of sustainable aviation fuel (SAF) from waste and residues, two plastic recycling plants, and renewable hydrogen, biomethane, PV solar power plant and electricity storage.

Chemelex was selected as heat tracing partner for the biofuel plant due to its unmatched product performance, reliability and expertise in mission critical applications for energy transition projects.

This project's main challenges are:

- The end user's stringent contractual requirements on the project's execution, demanding attention to detail and precision in every aspect.
- The variety of renewable feedstock to be processed. Different feedstock batches need a flexible heat-tracing solution that can efficiently handle wide variety of process temperatures and narrow temperature controls .

SOLUTION

To address these challenges, Chemelex engaged in extensive dialogue and collaboration with both the client and the EPC contractor.

Biofuel plants have very specific temperature requirements to handle a wide variety of feedstock (used cooking oil, vegetable oils, animal fat and other biomass), intermediates and end-products. Chemelex designed a complete heat-tracing system with high temperature self-regulating heating cables (Raychem BTV, XTVR and HTV) in combination with robust electronic controllers (Raychem ETS-05. Additionally, Chemelex applied a monitoring and maintenance system, integrating its RMM-DI modules (Remote Monitoring Module for Digital Inputs). This system allows monitoring of individual circuit breakers as well as an upstream wiring of a circuit breaker trip common alarm from the EHT panel to the client's Distributed Control System (DCS). This proactive approach to maintenance ensures early detection of potential issues, enabling timely intervention and minimizing downtime.

PROJECT FACTS

- **Equipment to be traced:** Process lines and instruments
- **Process maintain T°C:** Frost protection (+5°C) and line sensing at 25°C–60°C
- **Exposure T°C:** 60°C–160°C
- **Cable technologies used:** Self-regulating heating cables, including ranges with High Power Retention (HPR) technology
- **Circuits:** 75
- **Total cable lengths:** 1250m
- **Control:** ETS-05 electronic local controllers, individual circuit breaker (CB) trip monitoring, and common CB alarm wired to client's DCS

BENEFITS

The collaboration between Chemelex, the end-user and contractor resulted in the design of a high performance and flexible electrical heat tracing solution that handles the complexity of biofuel production, transport and storage in a safe and energy-efficient manner. Utilizing self-regulating technology and advanced control systems guarantee energy savings while ensuring optimal temperature maintenance for critical processes and sensitive fluids, aligning perfectly with the project's long-term operational requirements.

Furthermore, the utilization of XTVR and HTV cables with High Power Retention (HPR) technology further enhances product reliability, extending the design life of the systems to 30+ years and minimizing the risk of unplanned downtime. This reliability is crucial for the client, particularly in the context of sustainable aviation fuel (SAF) production and plastic waste recycling.

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