



**Decarbonisation:** 88 tonnes of CO<sub>2</sub> saved given an emission rate of 0.241 T of CO<sub>2</sub>/MWh consumed

**Energy gain:** 364 MWhth saved per year

**Productivity gain:** Estimated by the client at 5%.

**Location:** Meymac (19) - New Aquitaine - France

**Client:** Ceramics and Development - Tegulys

**Sector:** Ceramics

#### **Client's needs - requests:**

The feasibility study carried out for the Céramiques et Développement - Tegulys site in Meymac, which aimed to study the recovery of high-temperature waste heat from a kiln in order to use it in the factory's dryer, was positive, both in terms of CO<sub>2</sub> emissions and in terms of savings in natural gas consumption.

The study took into account a potential gain in productivity by studying in a second phase the implementation of a pre-cooking chamber fed exclusively by the available waste heat. This would reduce the firing cycle and allow more kiln cycles per year.

This part will be refined in a second study, the results presented take into account the current production and a complete valorisation of the waste heat towards the dryer.

#### **Project progress:**

Analysis of the fatal heat deposit of the kiln via a measurement campaign

Analysis of the energy needs of the dryer via the operation of its burner

Following this characterisation, Eco-Tech Ceram looked for the most relevant solutions to satisfy the energy requirement as much as possible. As this was out of phase with the heat source, a storage solution was chosen. In view of the temperature levels (>500°C), the Eco-Stock® solution was chosen.

Two solutions with or without taking into account the client's productivity gain were presented to the client via a complete report.

#### **Eco-Tech Ceram achievements:**

- Identification of the periods of the firing cycle where the waste heat is higher than 500°C
- Sizing of an Eco-Stock® solution: storage capacity of 1300 kWh
- Aeraulic study on the smokehouse network: sizing of the fans
- Thermal study on the smokehouse network: validation of the calculations with insulation specialists

- Study of the energy repercussions on the various stations in the plant following an increase in production
- Energy and environmental balance sheet for the entire plant
- Economic study of the solution and financial package
- Design of the solution and implementation of the proposed solution
- Site supervision, commissioning and performance monitoring

**Description of the proposed solution:**

The chosen solution is to use the waste heat contained in the fumes of the 8m<sup>3</sup> kiln via the Eco-Stock® technology in order to compensate for the time lag between the deposit and the need. The need served here is the drying of clay products upstream of the firing process, which no longer requires fossil energy to be carried out. Moreover, the dry heat produced by the Eco-Stock® allows a gain in productivity because it offers the possibility to dry the products more quickly.