

## CASE STUDY

Elimination of corrosive  
polluting emissions in  
conditions of extreme  
humidity.



**Equipment:** Regenerative Thermal Oxidizer (RTO) + Quench + Scrubber.

**Installation:** 2017

**Customer:**

Casing manufacturing company.

**Project size:**

80.000 Nm<sup>3</sup>/h.

**Location:**

Spain.

**Industry:**

Food industry.

**Activity:**

Manufacture of casings for the food industry.

# MANUFACTURER OF MEAT CASINGS



## THE CHALLENGE

This Tecam customer needed to treat the polluting emissions generated by its viscose production plant in Spain.

The polluting gases that were generated were highly corrosive: hydrogen sulphide and carbon disulphide. They had a very high concentration of pollutants, at levels capable of causing acid rain in the area and affecting the factory's production equipment.

In addition, the activity of the plant generated conditions of extreme humidity of 80 %.

The **conditions**  
of the plant were  
of **extreme**  
**humidity: 80 %**

## SOME FIGURES

- Polluted air flow:  
80.000 Nm<sup>3</sup>/h.
- Hydrogen sulphide (H<sub>2</sub>S) concentration:  
758 – 1.820 mg/m<sup>3</sup>.
- Carbon disulphide concentration (CS<sub>2</sub>):  
1.695 – 4.068 mg/m<sup>3</sup>.
- Process air inlet temperature:  
50 °C.





# RTO Tecam + Quench + Scrubber



## THE TECAM SOLUTION

After analysing the customer's needs, Tecam proposed as a solution a system composed of a Regenerative Thermal Oxidation (RTO) + Quench + Scrubber equipment.

The RTO is designed to treat polluted gases at a temperature of 800 °C - 850 °C and ensure a residence time of the gases in the combustion chamber of only one (1) second. These conditions are enough to guarantee that 99.9 % of VOC (Volatile Organic Compounds) are eliminated.

Next to the RTO, the installation of a Quench was planned, to reduce the temperature of the gases, and of a Scrubber with a basic solution that would eliminate acidic pollutants (SO<sub>2</sub>). The washing liquid contained in the bottom of the Quench and Scrubber is recirculated through a high-performance centrifugal pump.

## THE RESULT

The result of the solution designed and installed by Tecam meant eliminating and reducing polluting gases even below the limits required by environmental authorities:

- VOC ≤ 20 mg/m<sup>3</sup>
- NO<sub>x</sub> ≤ 100 mg/m<sup>3</sup>
- SO<sub>2</sub> ≤ 40 mg/m<sup>3</sup>
- H<sub>2</sub>S ≤ 5 mg/m<sup>3</sup>
- CS<sub>2</sub> ≤ 20 mg/m<sup>3</sup>

Also, the guarantee of thermal efficiency is a minimum of 97 %. The vapors are collected in a steam collection system and pre-treated, thus obtaining a very high efficiency.

In addition, the guarantee of functional performance is 99 % during the permanent operation of the activity.



The equipment manufactured and installed by Tecam **avoided** the possibility of generating **acid rain in the region.**

## 99.9 % elimination of polluting emissions

## Advantages of the proposed solution:

- Adapts to highly variable airflows: low, medium and high
- Treats a wide range of pollutants
- Operation and maintenance low cost
- High thermal efficiency obtained
- Does not generate waste
- Energy recovery possibility

## THE BENEFITS

Thanks to Tecam's environmental technology, 99.9 % of the pollutant emissions have been eliminated at this production plant in Spain.

The hydrogen sulphide (H<sub>2</sub>S) concentration was reduced from a range of 758 – 1.820 mg/m<sup>3</sup> to less than 5 mg/m<sup>3</sup>.

The concentration of carbon disulphide (CS<sub>2</sub>) has dropped from 1.695 – 4.068 mg/m<sup>3</sup> to less than 20 mg/m<sup>3</sup>.

The project was carried out by adapting the design to the conditions of the factory, with especially high humidity, and Tecam's work was carried out without intervening nor stopping the operation of the production plant. The process was also carried out with rapid time management.

*An environment of corrosive gases has become a space that is healthy and safe for the environment, people and the equipment, and which more than meets the emission limits required locally and internationally.*

## ABOUT TECAM

Tecam is an environmental technology company focused on the development of customised solutions for emissions and hazardous waste treatment for large companies.

Tecam designs and implements customised projects aimed at minimizing the ecological footprint generated during production processes, with proven expertise in the Petrochemical and Oil & Gas sectors.

The company's work philosophy is based on long-term collaboration. With Tecam, there will always be a team of experts in environmental technology available to you to provide the solutions your business needs, wherever and whenever you need them.



If you are interested in obtaining further technical details on this project or learning more about Tecam engineering solutions for emissions treatment and waste valorization, please contact us - we will be happy to help you:

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**[tecamgroup.com](http://tecamgroup.com)**