

CASE STUDY

Total elimination (99.9 %) of  
polluting emissions from a  
pharmaceutical plant in Spain.

Equipment: RTO + Quench + Scrubber.

Installation: 2019

Customer:

International pharmaceutical laboratory.

Project size:

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

Location:

Spain.

Sector:

Pharmaceutical industry.

Activity:

Manufacture of active ingredients.

# PHARMA LAB



## ABOUT THE CUSTOMER

This Tecam customer is an important pharmaceutical laboratory in Spain with international presence.

Its products have an important and growing presence throughout Europe, the United States and in emerging countries. In addition, this laboratory has offices in the main European countries and owns numerous patents on different pharmaceutical derivatives, marketing them in more than 50 countries.

## THE SECTOR

In general, the pharmaceutical sector is a complex sector when it comes to environmental issues. One of the main problems is that several chemical processes tend to coexist in order to obtain a single product and moreover they are carried out at the same plant at the same time.

It is during the production of active pharmaceutical ingredients (API) where this industry has the greatest negative impact on the environment. In order to address this issue there are solutions such as equipment for the elimination of polluting emissions.

This pharmaceutical company needed to eliminate the polluting emissions generated during the production processes at its plant and comply with the increasingly demanding environmental legislation.



This pharmaceutical company needed to **eliminate the polluting emissions** generated during its production process.



## THE CHALLENGE

The concentration of contaminated compounds was significantly high: 210 g/Nm<sup>3</sup> and a contaminated air flow of 320 Nm<sup>3</sup>/h, coming from its production system.

One of the main components to be eliminated was methylene chloride, which is very harmful to human health, the environment and the equipment.

### Some figures:

Process air polluted data:

|   |                            |
|---|----------------------------|
| Minimum volume of polluted air          | 10 Nm <sup>3</sup> /h      |
| Maximum polluted air volume             | 320 Nm <sup>3</sup> /h     |
| Maximum volume of polluted air          | 15 - 210 g/Nm <sup>3</sup> |
| Maximum HCl concentration at RTO outlet | < 67,2 kg/h                |

## THE SOLUTION

After analyzing the environmental challenges of this pharmaceutical plant, Tecam proposed a Regenerative Thermal Oxidation (RTO) equipment together with a Quench and a Scrubber. Due to the high concentration of pollutants contained in the process air, a dilution of 15,000 Nm<sup>3</sup>/h of fresh air was implemented, which allowed to work safely and, in addition, to maintain the equipment autothermal.

This emissions treatment system is designed to eliminate polluted gases at a temperature of 1,000-1,100 °C and ensure a residence time of the gases in the combustion chamber of one (1) second. These conditions are sufficient to guarantee that 99.9 % of VOCs are removed. This solution is the most convenient for applications with high concentrations of gases to be treated. The Quench and the Scrubber are responsible for cleaning the acid gases produced in the combustion of the halogenated compounds.



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## THE RESULT

The result of this Tecam technology solution meant eliminating polluting gases even below the levels required by current environmental legislation.

The emission limit values after the Tecam solution are:

- VOC and halogenated  $\leq 20 \text{ mg/m}^3$
- VOC in risk phase R45, R46, R49, R60, R61  $\leq 2 \text{ mg/m}^3$
- Halogenated VOC in risk phase R400  $\leq 20 \text{ mg/m}^3$
- CO  $\leq 100 \text{ mg/m}^3$
- NOx  $\leq 150 \text{ mg/m}^3$
- HCl  $\leq 23 \text{ mg/m}^3$

Likewise, the guarantee of thermal efficiency is a minimum of 97 % and the guarantee of functional performance is 99 % during the operation of the plant.

Elimination of **99,9 %** of the polluting emissions of this pharma production plant.

## THE BENEFITS

Tecam's work was carried out adapting to the customer's needs and timing, and at no time did Tecam stop nor intervene in the operation of the plant.

Tecam has achieved the elimination of 99.9 % of pollutants in this production plant, complying with the most restrictive requirements regarding environmental legislation.

*This pharmaceutical plant has been transformed into a site that is healthy for employees and responsible with the environment.*

## 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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