



 **BioXytol**

Welcome to
BioXytol

Catalogue of services

Our company offers services to other companies which develop fermentation processes for the food and biotech industry. Bioxytol services allow several Technology applications in these fields:

In order to accelerate existing and new biobased technologies to the scale needed, Bioxytol offers a low-capital business answer for companies looking to achieve cost-competitive fermentation without the capital risks associated with building their own infrastructure.



Table of Contents

Sectors	01
Services	02
Quality	03
QbD	04
Output	05
Scale-up and optimization	06
Process development	07
Maintenance	08
Engineering	09

How can we help **our customers**

Our company offers services to other companies which develop fermentation processes for the food and biotech industry. Bioxytol services allow several Technology applications in these fields:

01

Nutrition

Functional foods, nutritional supplements, probiotics, starters, proteins...etc.

02

Waste recovery

Design, development and optimization of enzymatic or microbial catalysis processes.

03

Enzyme development

Characterization, validation and selection of high-performance industrial strains, valorization of waste and industrial by-products.

04

Biofuels

Design of strains and processes to obtain biofuels.

05

Bioplastics

Obtaining bacterial polymers (PHA), and APIs.

**We offer the
following services:**



Pilot plant



**Scale-up and
optimization**



**Process
development**

All our services are quality driven

Additionally we offer full maintenance support to fulfill all requirements of the process.

We take quality as our leading mantra. Having equipment that delivers, and a process which works according to specifications, is not enough when producing in a regulated industry. The compliance with such regulatory requirements has to be demonstrated through a qualification and validation process which involves different activities around the following areas:

01

Consultation and support in the requirements definition according to the specific regulatory landscape.

02

Supply of the required documentary evidence.



QbD (Quality by Design)

To be successful the project has to be executed under QbD (Quality by Design) philosophy.

QbD

For DQ (Design Qualification), as the quality gate ending the engineering stages, Bioxytol has the methodology and experience to deliver optimized engineering design which can be easily validated.

Productivity

That entails starting with URs (User Requirements) which are realistic, aligned with projects needs and regulatory requirements and guarantee a productive and easy to run facility. Bioxytol does help customers to create or review URs which comply with the above.

Engineering

We work in a full documented engineering environment, and we can provide our equipment with templates for DQ (Design Qualification), IQ (Installation Qualification) and OQ (Operation Qualification) tests.

Qualification

These qualification services can be adapted to customer demands, from just additional documentation to complete services including FAT (Factory Acceptance Tests) and execution at customer site of SAT (Site Acceptance Tests).

Experience

Once construction is over and testing is there, Bioxytol quality team has the experience to qualify our equipment according to GMP for the production of pharmaceutical products, paving the way to your process validation.

Bioxytol Services

In order to accelerate new and existing bio-based technologies to a new scale, Bioxytol offers a low-capital business answer for companies seeking to achieve cost-competitive fermentation without the capital risks associated with building their own infrastructure. .

1. Production

Our facilities offer customers a fast, cost-effective means of testing their technology at scale, thus avoiding the time, cost and expertise required to build and operate temporary non-commercial demonstration facilities.

With our pilot plant, the client eliminates the risks and extra costs of a temporary but necessary pilot installation, an intermediate step between laboratory and industrial scale:

Many productivity estimates are needed to estimate equipment needs.

It takes time to design, purchase and supply equipment.

It takes time to obtain the corresponding permits and licenses.

A human team with experience in commissioning is needed.

There is a significant cost in hiring staff, operating and maintaining facilities.

Our production activities are carried out by an experienced team in biochemical manufacturing, which is also well supported by other functions such as quality control, environment, health, safety and sustainability, engineering and maintenance, and supply chain management. supply.

2. Scaling and optimization

Our Fermentation Pilot Plant has been designed to allow the transition of production from laboratory scale to industrial scale.

We make available to our clients the material means and the experience of our experts, in order to help them to transfer the achievements obtained in laboratory work to an industrial level.

In most industrial fermentations, scaling up from innovations previously achieved in the laboratory is an important step, requiring pilot-scale trials.

In this way, the necessary data are obtained to extrapolate the fermentation and reach a large scale with the confidence that they will work correctly.

Our team will work to solve the key problems of optimization and control of the fermentation process, in order to obtain a high yield and a high substrate conversion rate. For this purpose, the pilot plant also has the support of the analytical laboratory and quality control team.



Our facilities allow scale-up for:

- ✓ Different processes, raw materials, etc.
- ✓ Flexible processes
- ✓ Being able to meet different objectives (technology transfer, demonstration, etc.)
- ✓ At different scales.

We have the following fermentation scales:

- ✓ Laboratory up to 50 L
- ✓ Pilot plant: 100L and 200 L (other under special request)

3. Process development:


Process development services play an important role in ensuring that a biological process is scalable from a model that offers optimal yields and productivities.

Investing time and money in process development services will allow a faster and safer progress towards the manufacturing process and therefore towards the commercialization of the bioproduct.

Scaling a fermentation process to an industrial level is a complex path, which becomes more difficult if the limitations of the scalability of the equipment are not considered and evaluated well from the beginning, hence the importance of making a good process development.

Therefore, in addition to our facilities, we offer our customers:

 *Operating experience*

 *Advice for the improvement of your processes.*

Some of the types of processes in which we can help our clients are:

- Comparison of different microorganisms.
- Optimization of fermentation media.
- Bench Marking
- Determination and optimization of process conditions.
- Technical-economic evaluation.
- Tests of different substrates.
- Demonstration of activity level, etc.

4. *Maintenance as an integrated service.*

Delivering a lab or pilot equipment or designing and building a Bioprocess Pilot or Industrial plant should be just the first phase of a fruitful relation between Supplier and Buyer.

-
- ✓ Maintenance plans for our equipment and plants and scheduled maintenance visits.
 - ✓ Prompt reactive services for corrective maintenance.
 - ✓ Assets availability, with a large post-sales stock of key components and spare parts for fast delivery.
 - ✓ Training for operation and maintenance.

A complete range of accesories and add-ons for adding new functionalities for existing equipment and the engineering resources and mental flexibility to implement them.





5. Engineering services

BIOXYTOL develops, designs, manufactures and installs process equipment and plants. For this, the needs of each client are analyzed, always offering, in each case, the best solution. However, at BIOXYTOL we are aware that our work does not end with the delivery of the installation, but rather by providing a personalized advice and maintenance service.

At BIOXYTOL we are complete project integrators. As a technology company specializing in all kinds of industrial processes, we take care of our own equipment manufacturing, hydraulic and electrical assembly, automation and control, etc.

BIOXYTOL also has an optional transport service for the equipment we manufacture, while our operators subsequently take care of unloading and installation.

01

National Transportation

02

International transport

03

Special packaging for sea or air shipment

Bioxytol's experience and our demonstration and pilot scale fermentation equipment will be your best help



Contact us:



+34 681 98 44 87
+(44) 7725 558549



info@bioxytol.es



BIOXYTOL
Calle Cañada Real Coruñesa 27
05200 Poligono Industrial Tierras de Arevalo
Arevalo.

SAINC ENERGY
75 Blackfriars Road
London SE1 8HA