



# Ferro Bio

A new method  
desulfurization

How to fix a problem  
improving the environment.



 **FerroBio**  
A new method desulfurization



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## What is biogas?

**Biogas** is a combustible gas produced as a result of biodegradation reactions of organic matter through the action of microorganisms and other factors, in an anaerobic environment.

Its main components are methane  $\text{CH}_4$  (g), carbon dioxide ( $\text{CO}_2$ ) and hydrogen sulphide  $\text{H}_2\text{S}$  (g).

## Ferro Bio, an innovative product to desulphurise biogas

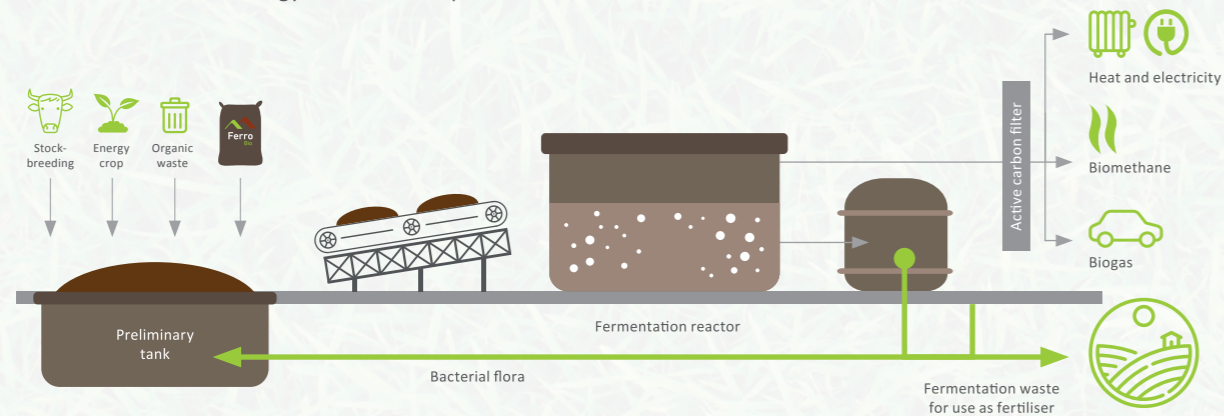
**Ferro Bio** is a compound of iron oxides-hydroxides, together with other functional oxides, and it has obtained following a long and complex study process and tests. This compound is specifically developed to be directly added to the fermentation reactor. Its successful application in biogas plants can be underlined.

**Ferro Bio** reacts with hydrogen sulphide to generate iron sulphide and sulphur, which are normal components of fertilisers, and used to improve their properties.

## How does a biogas plant operate?

A biogas production plant processes urban, forest and agricultural organic materials, among others, under anaerobic conditions (absence of oxygen).

The decomposition and fermentation of these materials produces a gas, whose main component is methane, which, depending on the organic materials used, also presents different levels of hydrogen sulphide ( $\text{H}_2\text{S}$ ). The presence of hydrogen sulphide ( $\text{H}_2\text{S}$ ) requires the execution of an additional process to minimise its toxicity and corrosiveness. Only then will the biogas production process and its use as an energy source be complete.



## Why is Ferro Bio the most adequate method to remove $\text{H}_2\text{S}$ from biogas?

● Good ● Bad

Comparative table on the effectiveness of different desulphurisation methods	Ferro Bio	Iron chloride	Biological desulphurisation
Corrosiveness	●●●	●●●	●●
Harmful substances	●●●	●●●	●●●
Methane concentration	●●●	●●	●●
Handling	●●	●●●	●●
Bacterial chain-friendly	●●●	●●	●●
Efficiency	●●●	●●●	●●
Explosion risk	●●●	●●●	●
Buffer effect	●●●	●●●	●●●
Undesired reaction effect	None	Hydrochloric acid	Sulphuric acid

## Benefits of Ferro Bio

- **Avoids toxicity and physical risks.**  
**Ferro Bio** is a product that is not harmful for people, for equipment, or for the environment.
- **Absence of risk of explosive mixtures.**  
Meaning that no injection of oxygen is necessary.
- **Compost with improved characteristics.**  
In addition to not generating any toxic by-products, **Ferro Bio** produces iron sulphide and sulphur, both of which improve the properties of fertilisers.
- **Minimised damage due to corrosion.**  
It reduces the cost of equipment maintenance.
- **More economical and efficient desulphurisation.**  
In addition to being an efficient way of removing  $\text{H}_2\text{S}$ , it improves the productivity of the reactor.
- **Efficient handling.**  
Its dispensing system is simple and easy.

## Also...

**Ferro Bio** does not require a special storage system, and no specific training in its use is necessary either, as it is not a hazardous substance.

**Ferro Bio** comes in 20 kg paper bags, which can be added directly to the process without having to open them, thus favouring fluid dispensing, and avoiding fluctuations in sulphide concentrations in the substrate.

