

**SIGNS PRESENTS**  
**“THE SECURE STRATEGY” :**  
**THE STRENGTH OF MATERNAL PROTECTION**

**TECHNICAL**  
**BROCHURE**

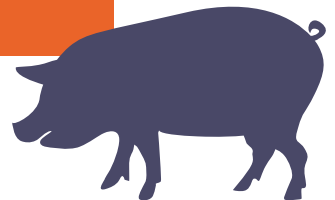
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Learn more about the maternal pheromones,  
the active compounds of our Secure Strategy  
and the way we created it.

# ABOUT

SIGNS supplies breeders with technical solutions adapted to the challenges of the 21st century. The most powerful means of communication of living beings, is odorous communication. Among these messages, appeasines produced by mothers, occupy an essential place for the balance of young people but also adults of the same species. The SECURE range, developed by the researchers of IRSEA (Research Institute in Semiochemistry and Applied Ethology), partner of SIGNS, gives the breeder the possibility to establish a positive and reassuring communication with his animals. The SECURE products allow to practice a breeding respectful of the quality of life of the animals, which promotes an optimal growth of healthy animals thanks to perfectly operational immune defences. The SECURE range, is the tool that was expected by the breeders concerned with an eco-responsible breeding that considers the animal as a respected partner.

PATRICK  
PAGEAT  
CEO SIGNS



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# DEFINITION

## WHAT IS A SEMIOCHEMICAL ?

A semiochemical is a secretion emitted by a living being and which is a communication signal for its congeners or for other species.

### INTRASPECIFICS SEMIOCHEMICALS, ALSO CALLED PHEROMONES

They are the ones that allow communication between individuals of the same species.

## WHERE DID THIS COME FROM?

Semiochemistry (from the Greek word "semios" the sign) studies chemical communication, the oldest and most widespread mode of information transmission in living beings.

**An idea :** Interacting with the living world using its codes, rather than trying to bend it to our requirements.

**A strategy :** Understand the adaptive process that leads the animal to adopt a behaviour that allows it to cope with the environment that Human proposes.

# THE APPEASINES

## HOW IT WORKS ?

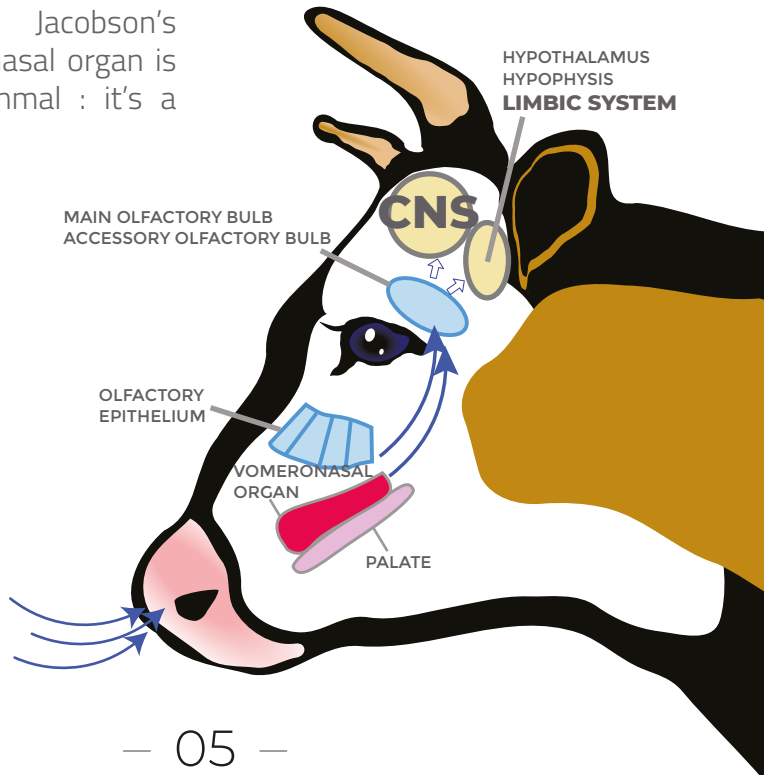
Semiochemical substances can be perceived by smell for volatile compounds, or taste for non-volatile compounds.

In the context of appeasines, where the compounds are very volatile, the treated subject detects the semiochemical by its vomeronasal organ which will process the message to the brain.

Otherwise called Jacobson's organ, the vomeronasal organ is present in all mammal : it's a

tubular organ located in the nasal cavities, just above the bony palate and connected with a channel connecting the oral cavity to the nasal cavity.

In birds, this organ does not exist. Its function is ensured by a portion of the olfactory mucosa.



# COMPOSITION

Semiochemicals are mixtures of molecules small enough to be volatile at body temperature, and which result from the metabolism of animals, but also from microorganisms normally present in the body. These are compounds that are very common in the environment, but their association makes it possible to form a specific message. Our entire range is manufactured in France by GMP certified and highly standardized production organizations.

## SIMILARE TO NATIVE SECRETIONS

The compounds used in the SECURE range are identical to those emitted by animals. For obvious health reasons, they are of plant origin or produced by semi-synthesis, from pure compounds extracted from plants. The purity and quality of each compound is very precisely controlled before it is allowed to be incorporated into the manufacturing process.

## ADDICTION AND RISKS OF RESIDUES

The vomeronasal organ is not continuously open, which prevents overstimulation, and it destroys the perceived message. These two characteristics prevent addiction but also the presence of residues. The compounds remain trapped in the vomeronasal organ and are destroyed there to leave only carbon dioxide and water.

## DURATION OF ACTION

The semiochemical message, once introduced into the vomeronasal organ, stimulates the neurons that are there. The message is transmitted directly to brain areas that control emotions and the different physiological mechanisms on which they influence. The action of the semiochemical is brief, but it induces physiological changes that will gradually allow the animal to use all its adaptive abilities without being overwhelmed by stress.



# DIFFUSION TECHNIQUE

The diffuser block is a recyclable plastic block containing a soothing pheromone analog.

It is placed at a height thanks to a system of attachment and diffuse pheromone on a surface mentioned on the recommendations of use, and specific to each breeding.

**This diffuser block is very simple to install, does not require electricity and lasts between 4 and 6 weeks on average according to several parameters to take into account: temperature, humidity, ventilation and hygrometry.**

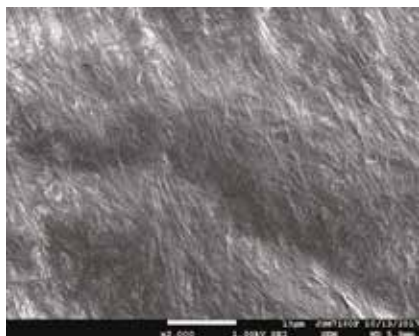
This diffuser block system corresponds to a use for chronic stress in breeding, with an installation 24 hours before the arrival of the herd in the building, and which has an effect on the long term.

Once set up, the good diffusion of the block is characterized by a progressive collapse of the matrix.

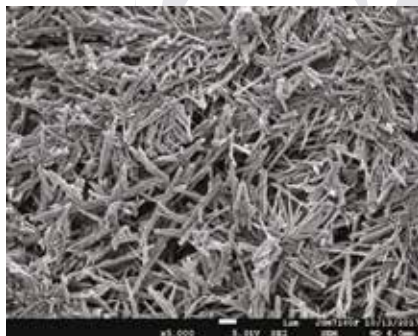
Once the orange line is reached, it is better to wait another week before changing the broadcast block.

## MICROSCOPE VIEWS OF THE DIFFUSION

Electronic microscope view of a Secure block at D0

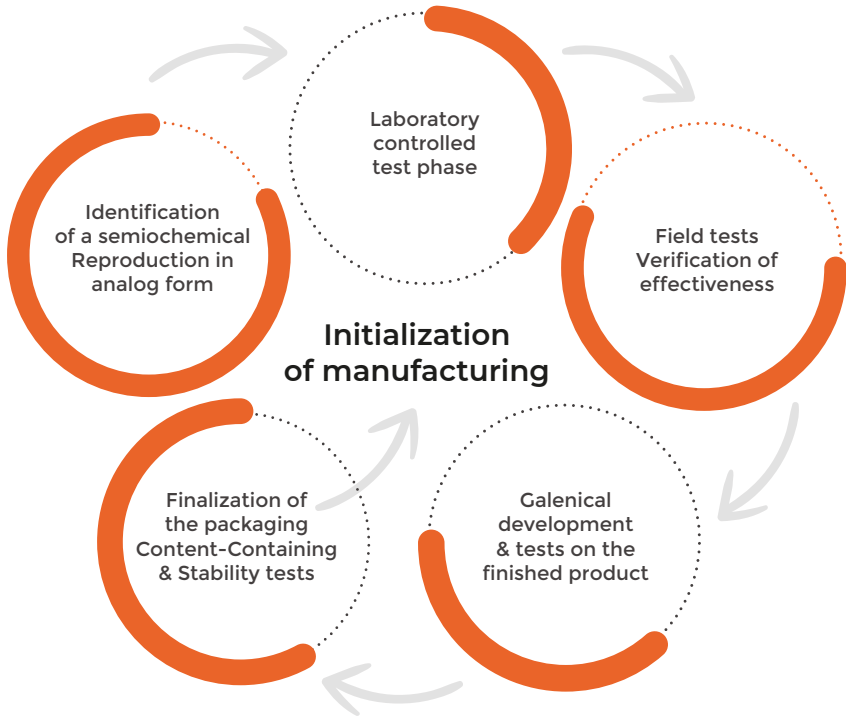


Electronic microscope view of a Secure block at D28



Desiccation and diffusion of active compounds, through the crystallin structure of the matrix.

# DEVELOPMENT OF SECURE PRODUCTS



## Galenical Development ?

We add ingredients (excipients) to the semiochemical (active ingredient) to give the product a "texture" and transform it into a commercial form.

When development is finalised, tests are carried out again to check whether the finished product still has the desired effects on the animal.

These tests are also an opportunity to see whether the chosen technique is suitable for the intended use.





## QUALITY ASSURANCE CYCLE

**01**

We put the finished product in contact with its potential packaging in order to check their good match. We then look to see if there are no chemical reactions.

**02**

We are undertaking a stability study under accelerated and actual conditions. We are simulating the aging of the product. We check that the physical appearance is not altered and we measure the good integrity of the active ingredient by chemical analysis methods.

**03**

We also place the products under normal storage conditions at room temperature for 2 years with a measurement every 3 months.

**04**

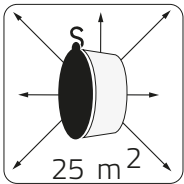
We check the effectiveness of the preservative in our finished product. To do this, we call on an external provider who will add microorganisms to our product and check whether the preservative eliminates them, these are "challenge tests"



After the product has successfully passed all these steps, we can start it in production. With a very specific specification. Once product development is complete, research is developed to determine the indications for use of the product. These tests are controlled and can be carried out by us or by those of the future distributor.

**Once the product is on the market, two tests are carried out on each lot manufactured to assess compliance:**

- 01** Microbiological analysis by the manufacturer or by an external company
- 02** Pheromone analysis conducted by IRSEA to assess whether the pheromone dosage is accurate for each batch.



Every product has been subjected to controlled studies, comparing with reference groups, and the results have been published in peer-reviewed journals. Those studies were managed in breeding conditions, according to European regulation. In an open building, the air and ventilation conditions do not allow pheromone to remain in the building and therefore the subjects cannot receive pheromone in good quantity.



**SecurePoultry**<sup>®</sup>  
Communiquer pour coopérer

**PREVENTS SOCIAL COMPETITION**

**OPTIMISATION OF LAYING  
AND GROWTH**

**REDUCTION OF PICKING**

**IMPROVE  
THE WELFARE**





# SecurePig<sup>®</sup>

## MATERNAL APPEASING PHEROMONE

PREVENTION OF SOCIAL STRESS, AGRESSIONS, FIGHTS

REDUCTION OF TAIL-BITING

BOOSTING IMMUNE RESPONSE

INCREASE PRODUCTION PERFORMANCE



# FAQ

## Remanence ?

Persistence is the duration of action of the product on the animal. This is measured by the presence or not of the molecules of the product in the air (diffusers and sprays version) or on the animal's skin (spray version)

## Difference sprays / blocs ?

The sprays correspond to uses for punctual stress with immediate effect. This version corresponds to a demand in breeding for short-lived stress peaks.

## Diffusion of the block ?

For the diffuser block, it is a continuous diffusion of the soothing message and each animal can detect pheromone in the air.

## Why this area ?

The area of use of the product is also very important: the inter-annual area (or between the shoulders) is an area filled with sebaceous glands that allow the product to diffuse ideally in the air once deposited on the animal. The pheromone in the air, the message will be detected by the treated animal but also by its congeners.

## FREQUENTLY ASKED

### 01 WHY IS IT THE SAME DOSAGE FOR ALL THE ANIMALS ?

The vomeronasal organ functions as a sensory system. The sensors it contains must receive the entire semiochemical message so that we can get the activation of brain areas that can facilitate adaptation and stress control. So the amount of message released has no influence, it's called the "all or nothing" law: either the message is there and it's recognized, or it's not there and nothing happens. The quantities of semiochemicals present in SECURE products used in dermal application have been determined so that each animal becomes diffused for its congeners of the same number and the probability of detection of the message, in the ambient air, is optimal.

## 02 WHY AN APPLICATION ON THE SKIN OF THE ANIMAL ?

The product is applied to an area filled with sebaceous glands that will allow the product to be released into the air. So, each animal can be a vector of treatment for another animal because the animals in industrial production system are very close to each other and sniff each other.

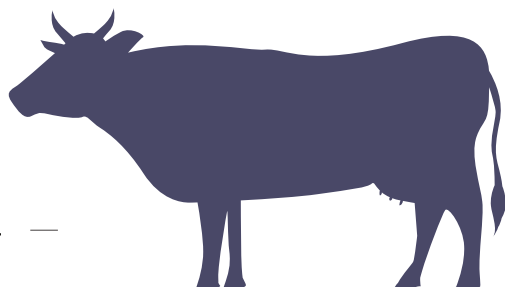
## 03 PREFERING PREVENTION, WHY ?

When a stress is already caused (for example by a start of transport, a handling), the brain areas in charge of hazard management are activated. It then becomes more complicated to put them under control by the ones that will be activated by the SECURE product.

This mechanism, that already exists with conventional drugs like tranquilizers, must therefore lead to anticipate the possible stress and thus administer the Secure product before stressing events or circumstances.

**A piglet such as a sow or boar will receive the same pheromone dosage recommended in the recommendations for use.**

**After a study at IRSEA our research institute, we demonstrated that in both bovine and porcine production, the ideal dosage for the animal to detect pheromone well and in good quantity was 5ml.**





# S'igns

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Communication with semiochemicals  
Imitating nature and natural behaviour  
Not forcing animals to meet our requirements  
but understand them to work together.