

lethal defence against mold and bacteria

propion®: a versatile, effective preservative

propion® premixtures are a family of antifungal and antibacterial liquid preservatives developed to ensure appropriate treatment in each situation. They are formulated with short-chain fatty acids, mainly formic acid, propionic acid and their respective salts.

Varying the proportions of its ingredients and its degree of neutralisation achieves a product suited to a mainly **antifungal** or **antibacterial** effect and a **shock** or **persistent** effect.

propion® premixtures also include a number of additives that supplement the effect of the acids and their salts: **wetting agents** and **anti-corrosion agents**.

antibacterial effect versus antifungal effect

Adding different organic acids in propion® premixtures gives them more antibacterial or more antifungal properties:

Antibacterial properties

Formic acid: this is the organic acid with the lowest molecular weight. Its small size enables it to cross the bacterial cell wall more easily, which makes it a powerful antibacterial agent.

Antifungal properties

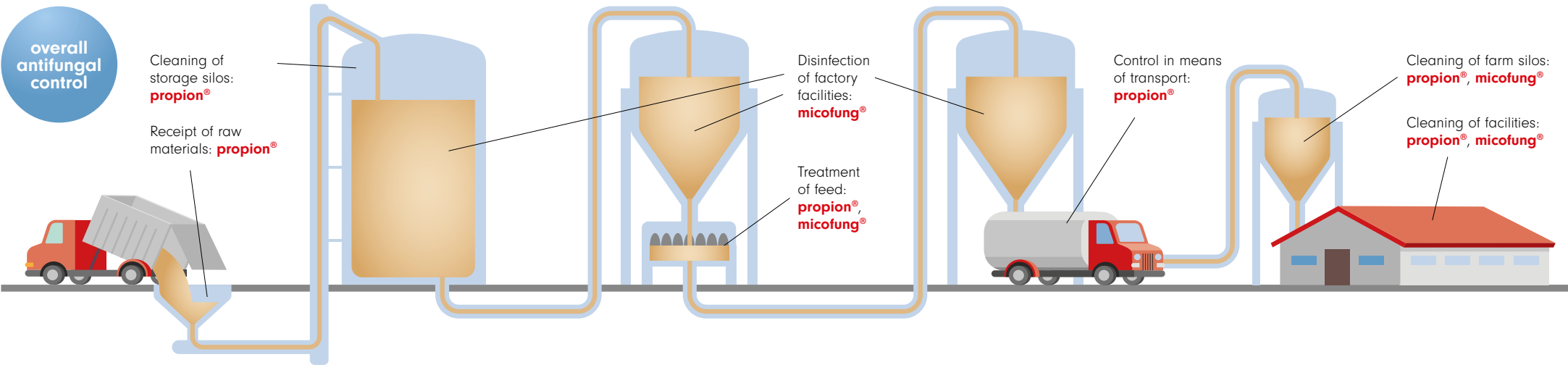
Propionic acid: due to its high pKa, it is ideal for penetrating inside microorganisms present in feed.

shock effect versus protective effect

The proportion between **free acid** and **salt** determines the pH of the product and gives it specific properties with respect to its “strength/persistence” ratio. This balance results in a greater “shock” or “protective” effect depending on the proportion chosen.

The greater the proportion of **free acid**, the greater the **strength** will be, and therefore the premixture will be indicated more for “shock” applications in contaminated feeds. The greater the proportion of **salts**, the greater the **persistence** will be, which will make the premixture more advisable if a preservative effect for extended periods is required.

	Strength	Persistence
mechanism	attack	defence
action	shock effect	protective effect
duration	short duration	long-lasting effect
indication	sanitisation of contaminated feeds	protection for extended storage
acid/salt balance	free acid $R-COO + H^+$	ammonium salt $R-COONH_4 + H_2O$



propion® premixtures allow “custom” antifungal treatments adapted to the specifics of each situation to be applied



standard premixtures

propion® 50E

Liquid

Sanitising agent that combines the shock effect and the persistent effect (50% neutralisation). **A broad-spectrum antifungal and antibacterial agent.**

Propionic Acid + Ammonium Propionate

propion® 50F

Liquid

Antibacterial and antifungal agent that combines the shock effect and the persistent effect (50% neutralisation). **Anti-salmonella.**

Formic Acid + Propionic Acid + Ammonium Formate + Ammonium Propionate.

custom premixtures

In addition to the most common standard premixtures, dex designs and prepares other propion® custom premixtures for clients using different combinations of acids and salts, in order to maximise the full range of possibilities of the sum of the actions and synergistic effects of their ingredients. This approach allows specific products and treatments adapted to each situation to be offered.

benefits of propion® in animals

In addition to ensuring healthy feed with no microorganisms, propion® provides the following benefits for animals:

- Improves the digestibility of feed as it has an acidifying effect.
- Provides inherent nutritional value due to its energy content.

overall antifungal control

The introduction of the **Hazard Analysis and Critical Control Points (HACCP)** system in the manufacture of animal feeds makes the combined use of propion® and micofung® in different stages of the process (transport, storage, manufacture and distribution) advisable for overall antifungal control that minimises the risk of microbiological contamination as well as “non-compliance” problems in production.

Dex ibérica offers consulting services for implementing **personalised HACCP systems** that address the specific difficulties of each client.