Feed Hygiene

Pioneers in pathogen mitigation



Feed hygiene solutions that offer:

- Effective bacterial decontamination
- Assistance with enterobacterial reduction
- Cost effective decontamination when used with heat treatments

Perstorp

ProPhorce™ SA Solutions Efficacy

The ingenuity of nature... At Perstorp we are fascinated by the inventive solutions of Mother Earth. Did you know that some plant species have a unique way of protecting themselves? They defend themselves against bacterial infections by producing essential oils with an antibacterial effect.

However, in this modern world of animal nutrition, Mother Earth needs some help, and Perstorp loves to help.

ProPhorce™ SA is a powerful range of approved feed additives which work synergistically. These premixes help you to reduce the enterobacterial load in your feed.

The unique quality of ProPhorce™ SA in combination with our excellent knowledge and technical knowhow gives you the total package you need to keep your mind at ease, knowing that your company is in good hands.



Entero bacteria fact sheet

The cost of contamination

Cost to feed mills

Risk of contamination
- 1.8– 2.0% of feed materials Salmonella positive in EU.
- 0.6–0.9% of compound feed Salmonella positive in EU.

The total cost for a Salmonella-safe feed, is estimated at 1.8–2.3 € per tonne of feed
- 25% relates to prevention of Salmonella contaminated (mainly soybean meal and rapeseed meal) from entering feed mills.
- 75% for measures within the feed mills.

Associated costs
- Contamination ruins your reputation.
- Product recall costs millions.

Cost to society

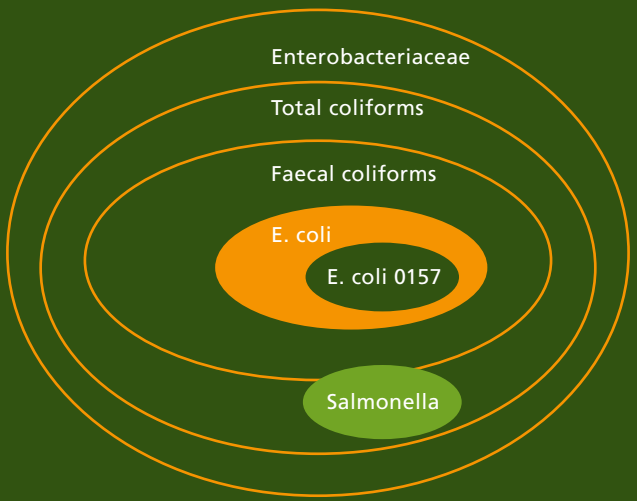
Hospitalizations
26,500 cases each year in the US; 2019.

Infections
Salmonella is 1 of 4 key global causes of diarrhoeal diseases.

Cost of life
In the EU, over 91,000 salmonellosis cases are reported each year. EFSA has estimated that the overall economic burden of human salmonellosis could be as high as € 3 billion per year.

The family of enterobacteria

The relationships between commonly-encountered bacterial indicators



ProPhorce™ SA Feed Hygiene Concept and Technical services

Enterobacteria and salmonella can be a potential risk to feed. The safety of feed is highly important as contaminated feed can lead to reduced performance. Feed safety is essential to all of us and begins with a clean production system. From the farmer to the feed producer, all partners need to operate in a safe and clean way. Each of the links in the chain may affect the safety of our feed. By systematically checking all production stages including purchasing, processing, and distribution, feed producers strive to reduce enterobacteria.

Research has shown that elimination of enterobacteria cannot be ensured despite precautions and systematic checking. Perstorp is a pioneer when it comes to feed hygiene. Our widespread experience and trials over the years have shown the synergy between heat treatment and the use of ProPhorce™ SA solutions.

According to international rules the feed industry is obligated to supply salmonella free feedstuffs. With this knowledge, we will guide you through your process of obtaining safe feed.

ProPhorce™ SA Products

Product	Product form	Contains	Target	Application
ProPhorce™ SA Exclusive	Liquid	Formic Acid Lactid Acid Essential Oils	Enterobacteria Salmonella	Feed mills, raw materials finished feeds, all species
ProPhorce™ SA Special	Liquid	Formic Acid Lactic Acid Propionic Acid Essential Oils	Enterobacteria Salmonella Mold control action	Feed mills, raw materials finished feeds, all species
ProPhorce™ SA Flexible	Liquid	Formic Acid Lactic Acid Propionic Acid	All round use	Feed mills, all species and organic feeds
ProPhorce™ SA Cleaning	Dry	Formic Acid Propionic Acid	Enterobacteria Salmonella	Feed mills, flushing, weekly decontamination

ProPhorce™ SA Technical Services

Feed Hygiene Essential

Modules:

- Support from local sales manager
- Product application advice
- Preliminary laboratory services
- Perstorp technical material support

Feed Hygiene Plus

Modules:

- Feed Hygiene Essential included
- Full Perstorp Technical Support
- Laboratory services with periodic controls
- Specific product application advice

Feed Hygiene Ultimate

Modules:

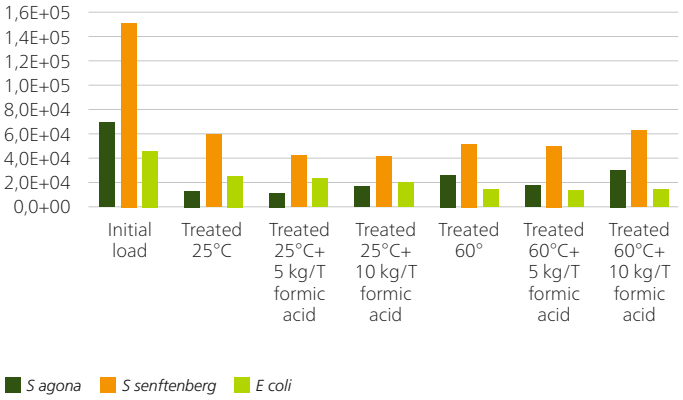
- Feed Hygiene Plus included
- Independent feed mill audit
- Extended analytical service and continuous control plan
- Advanced product application advice
- Equipment & installation support

ProPhorce™ SA Products

Salmonella contamination in the feed industry is always accidental. Salmonella and E coli are gram- bacteria belonging to the enterobacteria family and have structural similarities. Salmonella actually evolved from E. coli, about 100 million years ago. E coli is considered heterogeneous: they are widely found in the animals gastrointestinal system as well as external dry substrates.

Reconfirmed by a recent study (IFF, 2018), Salmonella and coliforms show similar behaviour under adverse conditions (Graph 1). Controlling total enterobacteria load is then the relevant strategy for salmonella load control.

Graph 1. Enterobacteria behavior on soya facing adverse conditions (temperature, formic acid)



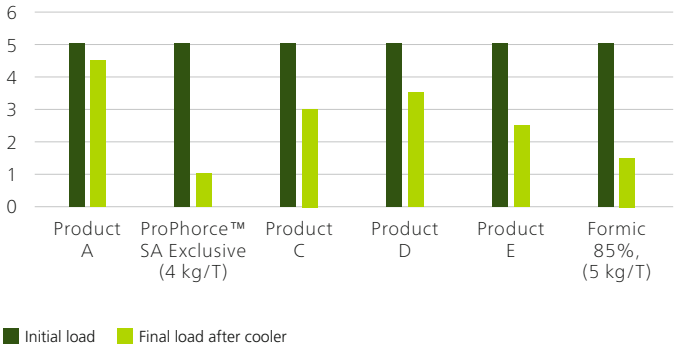
The considered acceptable enterobacteria load in any classical compound feed is <4log CFU/g and it is mandatory to fulfill <2log CFU/g in breeding layer feed.

For many years, heat conditioning (80°C, 2min) was considered the most efficient way to control the enterobacteria load in compound feed.

The SYTTAC study (Tecaliman, 2012) showed a synergy between reduced heat conditioning (65°C, 2min) and organic acid solutions, some organic acid recipes being more efficient than others. In this study, a very high enterobacteria inoculation was operated (>5log)(Graph 2).

Graph 2. Comparison between ProPhorce™ SA Exclusive vs 4 competition recipes and formic acid 85% in mash feed (entero load log CFU/g)

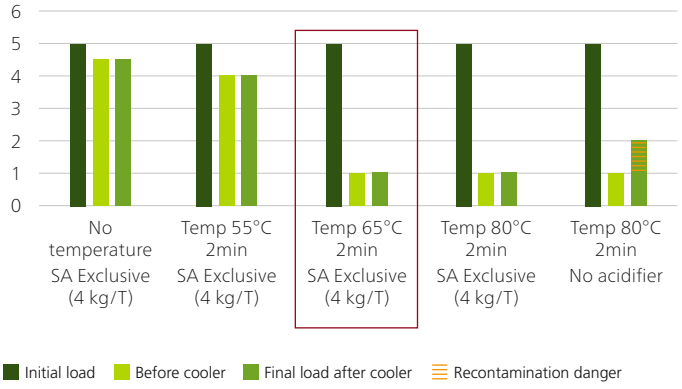
All samples treated at 65°C



In feed production, heat conditioning is common practice, while during the cooling-drying phase recontamination risks arise.

The SYTTAC study (Tecaliman, 2012) and our control plans show that ProPhorce™ SA solutions help to prevent the feed from being recontaminated by enterobacteria from unknown origin. (Graph 3)

Graph 3. Combined ProPhorce™ SA Exclusive and temperature efficiency in mash feed (entero load in log CFU/g)



Devoted to your success

Perstorp Animal Nutrition is a global specialist in acid-based solutions with almost 60 years of experience. We know the importance of gut health and feed preservation for the livestock industry. Therefore, we have focused our skills, knowledge and resources on finding new ways to improve gut health and preservation. Thanks to this dedication, we are the first in developing next generation solutions that exceed your expectations.

Swedish multinational

As Perstorp Animal Nutrition, we belong to the Swedish multinational Perstorp Group – a primary producer of organic acids such as propionic acid, formic acid and butyric acid. As a part of the Perstorp Group, we can take advantage of an extensive amount of knowledge accumulated since 1881, joint R&D facilities and our own production facilities in Europe, North America and Asia. As Perstorp Animal Nutrition we operate independently, flexibly and close to our markets.

Agricultural lifeline

Our highly knowledgeable and motivated team has an agricultural lifeline. Being in close contact with farmers and the feed industry drives our dedication in adding value to your business. We challenge ourselves constantly to enhance gut health and preservation for better performance, feed efficiency and daily weight gain for your business.

Perstorp Animal Nutrition:

Dedicated specialist in gut health and preservation. Devoted to success

Perstorp