



ProPhorce™ AC 299

Making a difference during heat stress



Key benefits of sodium formate:

- ➔ Manages dietary electrolyte balance
- ➔ Supports the bird in coping with heat stress
- ➔ Inhibits growth of pathogenic bacteria*
- ➔ Improves performance and mineral absorption**
- ➔ Excellent free flowing properties and non-corrosive

Support layers during heat stress

Perstorp is well known as one of the global leading feed additive companies. As it is more important than ever to manage your costs without compromising on animal performance, Perstorp introduces ProPhorce™ AC 299: an innovative non-corrosive, dry product that enables you to manage the dietary electrolyte balance in a very economical way.

ProPhorce™ AC 299 consists of formate and sodium and is a free flowing product which is easy to handle. Formic acid and sodium have a number of unique properties, as they:

- ➔ Control the enterobacteria load
- ➔ Enhance the conversion of pepsinogen into pepsin, a major enzyme involved in protein digestion.
- ➔ Reduce the emptying rate of the stomach, resulting in an improved nutrient digestibility.
- ➔ Manage the electrolyte balance in a cost-effective way. Optimizing dEB has proven to enhance live weight gain.

The modern day poultry husbandry with its high production rates and stocking density is prone to problems with heat stress especially in high ambient temperatures. Heat stress occurs when birds experience difficulties in achieving a balance between body heat production and body heat loss. This means that birds are not capable of maintaining a constant body temperature without additional efforts. Heat stress interferes with the birds' comfort and suppresses production.

Decreased feed intake in hot weather conditions

For every temperature degree increase, the feed intake decreases;

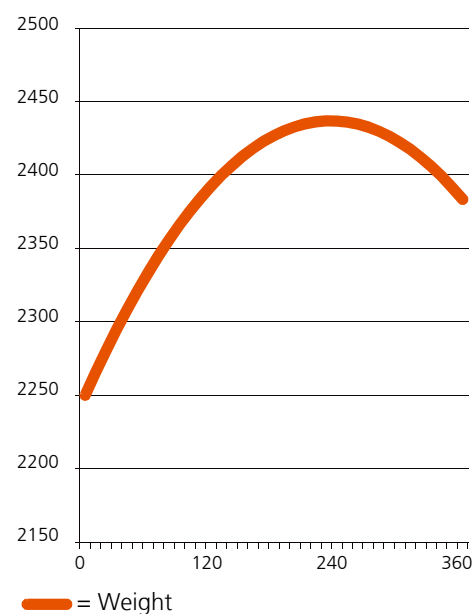
For every 1 °C increase	Feed intake decreases with
Between 20-25 °C	1.4%
Between 25-30 °C	1.6%
Between 30-35 °C	2.3%
Above 35 °C	4.8%

(source: Lohmann Management Guide)

To support daily feed intake, measures such as improving feed structure, feeding during cooler periods and minimizing heat increment of feeding are necessary. At the same time the daily requirement of minerals and vitamins should be taken into account. The daily intake of vitamins and other micronutrients should remain equal, despite the fact that feed intake decreases. Other dietary adjustments, such as managing the dEB can help as well.

The Power of Sodium

The dEB is the balance between Na⁺, K⁺ and Cl⁻ in feed. Sodium supplementation optimizes dEB to a level needed for poultry production. Many researchers have shown that diets with an optimized dEB have the potential to improve bird survival and production. The optimum level should be between 220-240, but differs between bird's physiological state and production level (Borges et al., 2003, Nobakht et al, 2006, 2007).



Impact of dEB on broiler performance. (Effect of dietary electrolyte balance (dEB) on performance of broilers from 0 to 42 days of age (Borges et al, 2003)).



Inhibiting the growth of harmful bacteria

Formic acid and its salts have a bacteriostatic effect on pathogenic bacteria (such as Salmonella and E. coli) in the feed. As such the passage of harmful bacteria into the small intestine is reduced. This effect along with improved feed nutrient absorption leads to an improved gut health and less chance of pathogenic bacterial growth.

Appearance	White, free flowing, crystalline powder
Dosage	1-5 kg/ton feed, depending on dEB of the feed
DEB-value	14.695 mEq/kg



*CCL 2002

**Kirchgessner and Roth, 1987



Your Winning Formula

The Perstorp Group is the world leader in several sectors of the specialty chemicals market. Few chemical companies in the world can rival its 130 years of success. Today we have a rich performance culture distilled from our long history and extensive knowledge in the chemical industry. That culture and knowledge base enables us to produce Winning Formulas for a wide variety of industries and applications.

Our products are used in the aerospace, marine, coatings, chemicals, plastics, engineering and construction industries. They can also be found in automotive, agricultural feed, food, packaging, textile, paper and electronics applications.

Our production plants are strategically located in Europe, North America and Asia and are supplemented by sales offices in all major markets. We can offer you speedy regional support and a flexible attitude to suit your business needs.

If you want a partner for feed additives who can offer you focused innovation to enhance your product or application, which is delivered reliably and responsibly, look no further. We have a winning formula waiting for you.