GUT HEALTH TRIPLE CHECK: KNOCK OUT

The Kemin Gut Health Triple Check program helps establish intestinal integrity and protection. Kemin offers products to CLEAN UP contaminants in feed and water prior to animal exposure, BUILD UP intestinal strength to reduce leaky gut and KNOCK OUT harmful pathogens for healthier poultry. FORMYL Na was developed for the KNOCK OUT category to support intestinal balance to inhibit or eliminate harmful pathogens from infiltrating the body.

FORMYL™ Na is a safe, proven source of pathogen-fighting formic acid for use in poultry.

References:
1. The inhibitory effect of encapsulated sodium formate and sodium acetate on the growth of Salmonella, E. Coli and Campylobacter spp. 19-436.
**Proven Performance in Poultry**

Pathogen control is and will continue to be a crucial management practice in any poultry operation. Salmonella and Campylobacter highly impact the feed and food chain, contaminating meats and eggs — causing illness and mortality in humans. Formic acid can reduce the prevalence of Salmonella and Campylobacter in poultry, providing a new tool for your production program and reducing the need for chemical treatments at the processing plant. Previous research has shown that formic acid has a higher efficacy (lower minimum inhibitory concentration) against Salmonella than propionic acid and lactic acid.¹

**Materials and methods**

A microtiter assay was used to evaluate Salmonella and Campylobacter growth by culturing it with treatment levels of 1, 5 or 10 lb/ton* of the active ingredients of FORMYL Na.

At the 20-hour time point, colony enumeration was performed for the Salmonella species. At the 48-hour time point, colony enumeration was performed for the Campylobacter.

**Formyl Na**

FORMYL Na is a safe, proven source of pathogen-fighting formic acid for use in poultry. A proprietary blend of organic acids and sodium formate is encapsulated in a fatty matrix for release into the GI tract for maximum efficacy.

FORMYL Na is a dry feed product that can be added to poultry diets. Formic acid can decrease Salmonella, Campylobacter and Escherichia coli prevalence in the animal, resulting in improved efficiency and profitability — adding another tool to your production program or reducing chemical treatments at the processing plant.

**Active ingredient:** Formic acid

Formic acid is widely recognized as an effective feed acidifier and antimicrobial agent and was one of the first acidifiers used to combat pathogens in poultry.

**Delivery method:** Encapsulation technology

Manufactured using a proprietary encapsulation process developed from more than 10 years of research by Kemin scientists and engineers, FORMYL Na is an encapsulate containing formic acid, protected by a fatty matrix.

**Advantages of Formyl Na**

- Proprietary blend of organic acids offers a unique source of pathogen-fighting formic acid for use in poultry.
- Unlike liquid formic acid, FORMYL Na is easier to handle and is stable in feed to deliver in-animal gut acidification and pathogen inhibition. As a volatile substance, unprotected formic acid can damage skin, corrode equipment and negatively affect digestion.
- Encapsulation allows for a release in the digestive tract for maximum efficacy and minimum gastric irritation.
- Formic acid has been shown to decrease Salmonella and Campylobacter load in poultry, which provides a new tool for your poultry production program.¹²

**Mode of Action for Poultry**

1. Formic acid fights pathogens by damaging their cell membranes and mitochondria, ultimately leading to the death of the pathogen.
2. Acidification of the gut creates an environment that’s hostile to bacterial growth and prevents bacteria from crossing the intestinal barrier.
3. FORMYL Na ingredients are encapsulated, allowing for release to the gastrointestinal (GI) tract for maximum efficacy on pathogens.

**Pathogen-Fighting Formic Acid**

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**Figure 1**: The log₁₀ counts of each treated sample x Salmonella spp.

**Figure 2**: The log₁₀ counts of each treated sample x Campylobacter jejuni.