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AMASIL® FAQ

Product Information
and Handling

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Product Information and Handling

1. WHAT IS AMASIL?

Amasil is an organic acid used to acidify animal feed and drinking water for poultry. Through acidification, Amasil inhibits pathogenic bacteria such as salmonella, e. coli, and clostridium.

2. WHAT IS THE DIFFERENCE BETWEEN AMASIL 85 AND AMASIL NA?

Amasil 85 is an 85% solution of formic acid with a pH value of approximately 2.2. Amasil 85 is a concentrated product with no buffering to attenuate the acid, providing cost savings.

Amasil NA is a buffered form of the product and is composed of a mixture of formic acid and sodium formate with a total formate composition of 75% and a pH value of 2.5. The advantages of using Amasil NA include safer handling, less corrosion of equipment and a similar activity level to Amasil 85.

3. WHAT ARE THE RECOMMENDED DOSES?

Recommended dosages are listed on our technical information sheet available on request. Listed in the table below are the guidelines for poultry.

	Amasil 85 (kg/t)	Amasil NA (kg/t)
Piglets	5 – 8	6 – 12
Fattening pigs	3 – 5	4 – 6
Breeding sows	4 – 6	5 – 9
Broilers	2 – 3	3 – 4
Turkeys	3 – 5	4 – 6

4. WHERE WERE AMASIL TRIALS CONDUCTED?

BASF has trial research for Amasil extending over 25 years. While many of the original trials were held in European markets, BASF has conducted trials for Amasil all over the world.

5. HOW DOES AMASIL INTERACT WITH OTHER INGREDIENTS?

Acids that are not encapsulated are highly reactive. For this reason, it is not advised that Amasil be added to concentrated premixes, and should instead be added to the complete feed or to bulk ingredients like corn.

6. IS AMASIL A GOOD CHOICE FOR WATER ACIDIFICATION?

Amasil formic acid is ideal for drinking water acidification because it can effectively control pH values with minimal costs.

7. WHAT IS THE RECOMMENDED DOSE RATE FOR DRINKING WATER?

We recommend acidification of drinking water to a pH of around 4.0. However, the concentration necessary to achieve this target will vary by water source. For example, harder water will require more acidification. Therefore, BASF offers water sample testing to generate a specific recommendation to ensure effective and economical water acidification.

For reference, most U.S water samples require between 0.05% and 0.1% Amasil NA to achieve the recommended pH of 4.0.

8. IN WHAT ORDER SHOULD AMASIL BE ADDED TO THE FEED RELATIVE TO OTHER INGREDIENTS?

Amasil is intended to act primarily on the raw agricultural ingredients in the feed and not on the specialty ingredients. Therefore, it's recommended that Amasil be added to the mixer after bulk ingredients (corn, SBM, etc.) and before micro ingredients (vitamins, trace minerals, etc.) or other liquid ingredients (choline, lysine, methionine, etc.). Otherwise, it is recommended that Amasil be added after all the dry ingredients and before other liquid ingredients.

9. WHAT IS THE APPLICATION SYSTEM?

The full application system will include a base system, working tank and bulk tank. The needs of each of these aspects is customer dependent based on the availability of a viable system or tank. Unused piping, pumps, and tanks may be usable with minimal adjustments, cutting down the up-front costs.

In the interim, it's possible to borrow a small BASF-designed modular pump to enable trials with the liquid acid in the absence of dedicated equipment already at the mill. This system can be loaned for the duration of any evaluation trials and then easily removed to make way for a permanent installation, or removal if the customer does not want to continue using formic acid in that mill.

10. IS THERE A CHALLENGE WITH CORROSION? WHAT EQUIPMENT AND MAINTENANCE IS NEEDED?

Safe handling and storage information is listed on our safety data sheet for Amasil NA and Amasil 85. More specific information related to recommended materials is listed in our technical information on Formic Acid, including a more detailed sheet specifying storage facilities for formic acid.

11. WHAT ARE THE REQUIRED HEALTH AND SAFETY PRECAUTIONS?

Health and safety precautions are listed on our safety data sheet for Amasil NA and Amasil 85. Review of this information is necessary before handling.

Feed with a formic acid composition of 1.2% or less does not require different handling practices compared to non-treated feed with the exception of labelling based on the FDA requirements for feed containing formic acid.

12. IS THERE A DRY VERSION OF THE PRODUCT?

No, BASF does not currently offer a dry formulation of Amasil NA or Amasil 85.

13. DOES THE PRODUCT HAVE A STRONG ODOR?

The product initially produces an odor, but once it is applied to feed the smell is no longer noticeable. Our experience has shown that under our current dosage recommendations the feed intake of the animals is not negatively affected. In our research trials, the animal has shown a greater feed intake than the control.

14. WHAT IS THE APPROVAL STATUS OF FORMIC ACID?

Formic acid and Sodium Formate are approved as feed acidifiers at up to 1.2% of complete poultry feed and can be found in the Code of Federal Regulations (21 CFR §573.480 and 21 CFR §573.696, respectively) as well as the AAFCO Official Publication.

The sodium hydroxide used to buffer the formic acid in Amasil NA can be found in the Code of Federal Regulations under the listing for Sodium Formate (21 CFR §573.696) as well as in the AAFCO Official Publication.

Supply Chain

15. WHERE IS AMASIL PRODUCED?

BASF has a reliable supply of Formic Acid coming from a local producer in Geismar, LA. Additionally, the product can be imported from Germany.

16. WHAT TYPE OF PACKAGING DOES AMASIL COME IN AND WHAT IS THE LEAD TIME?

Commercial sizes: Product will be sourced from the Geismar, LA.

- Amasil 85: 1200KG containers, bulk
- Amasil NA: 240KG 31HA, 1200KG 31HA, bulk

Trial sizes: Product will be available immediately from our US warehouse

- Amasil 85: 1kg
- Amasil NA: 1kg, 240kg

Trial

17. WHEN CAN I START A TRIAL?

Product for trials is available upon request and dependent on volume. We have a dedicated partner for installation of temporary pump systems, if needed.

18. HOW LONG DOES INSTALLING THE EQUIPMENT TAKE?

Installation speed will vary based on the capability of the installer and their knowledge of your mill.

The pumping system is fairly straightforward. The more difficult part is the planning and installation of the bulk storage tanks, and determining the placement of piping from the storage tank to the pump and then the mixer.

19. HOW CAN BASF ASSIST WITH A TRIAL?

BASF can provide material, portable liquid application system, trial design recommendations, product expertise, and statistical expertise. BASF can also offer analytical services to monitor and confirm that the acid dosing is accurate and consistent.

20. WHAT ARE BASF'S EXPECTATIONS FOR A TRIAL?

BASF expects trials to be a collaboration with the customer. Both companies have a vested interest in a fair and accurate demonstration of the product's potential benefits and ROI. It is BASF's expectation to be involved in the design of the trial, interpretation of the results, and dissemination of those results should that be deemed appropriate.

Organic acid mixtures must be evaluated based on the value proposition for each individual acid at a particular inclusion rate. Due to their unique chemistries, each acid has its own strengths and weaknesses. Mixtures work best when each acid is intended to address a different problem, not when they are intended to solve the same problem. This is because synergy between acids is rarely proven in combinations, and as a result more effective acids are diluted with less effective acids, resulting in an overall loss of impact or increase in price. Therefore, based on the limited space allotted in the feed for acids, Amasil will provide the best value.

22. HOW DOES AMASIL COMPARE TO FORMALDEHYDE?

Formic acid is an effective, safer alternative to formaldehyde. Furthermore, in comparison to formaldehyde, Amasil has been shown to improve overall nutrient availability and digestibility.

23. CAN AMASIL REPLACE OR REDUCE THE NEED FOR ANTIBIOTICS?

Amasil can be a strong contributor to any biosecurity program, regardless of the use of antibiotics.

24. WHAT IS THE MODE OF ACTION OF FORMIC ACID? HOW DOES IT COMPARE TO OTHER ACIDS?

Formic acid, like other organic acids, partially dissociates within an aqueous environment. In the dissociated state, formic acid reduces the extracellular pH, which can cause damage to microbial cell membranes from outside the cell. In the non-dissociated state, formic acid can cross the cell membrane to access the interior of the cell and then dissociate, reducing the intracellular pH and inhibiting microbial enzymatic processes, damaging DNA.

Strong inorganic acids like nitric, sulfuric, and hydrochloric completely dissociate in an aqueous environment, which is why organic acids are generally preferred. Strong inorganic acids are only capable of altering the extracellular environment.

Product Alternatives

21. HOW DOES AMASIL COMPARE TO BLENDED ACIDS?

Amasil is best in class for the acidification of poultry feed and the resulting elimination of microbes in the feed.

25. HOW DOES THE COST OF AMASIL COMPARE TO OTHER ACIDS?

BASF cannot reliably comment on the best price you might reasonably consider for other acids, particularly if the acids will be formulated into acid blends, or in a proprietary protected form. However, we do believe that formic acid will be the least expensive organic acid on a molar basis.

Cost and ROI

26. WHAT IS THE CUSTOMER PRICE FOR AMASIL 85 & AMASIL NA?

Please contact BASF for estimates on pricing.

27. WHAT IS THE ROI?

The ROI will be customer dependent and relies on achieved benefits such as feed efficiency, reduced mortality, reduction of pathogens such as Salmonella. Furthermore, feed cost and inclusion level of formic acid should be considered.

Based on a recently conducted review of published European feed efficiency data, we have modeled an average improvement (increase) in gain-to-feed ratio of 2 to 4-points per up to 1% inclusion of formic acid. Producers can typically expect an ROI around 3:1 or higher.

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