



## Fertilizer Additive for Nitrogen Stabilization

**NOT A PLANT FOOD INGREDIENT OR FERTILIZER**

**ACTIVE INGREDIENTS:**

N-Butyl-thiophosphoric triamide (NBPT), hydroxyphenolic acids, diols, and pyrrolidones. . . . . 100.00%

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**  
See Inside Panel for Additional Precautionary Statements

SN 100511/1111

WEIGHT PER GALLON: 8.8 lbs. (3.99 kg)

**F224**  
Manufactured For  
**HELENA CHEMICAL COMPANY**  
225 SCHILLING BOULEVARD, SUITE 300 • COLLIERVILLE, TENNESSEE 38017

**OPM #119115**

PEEL BACK BOOK HERE AND RESEAL AFTER OPENING ►

**NET CONTENTS:**

## PRECAUTIONARY STATEMENTS

### CAUTION

#### BEFORE USING THIS PRODUCT, READ ALL PRECAUTIONS, DIRECTIONS FOR USE, CONDITIONS OF SALE – LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES.

Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes, and clothing. Avoid breathing dust or spray mist. Wash thoroughly with soap and water after handling. Do not apply this product in such a manner as to directly expose workers or other persons. In addition, follow precautionary statements on accompanying product's label(s). This product contains N-methyl pyrrolidone, a chemical known to the State of California to cause birth defects or other reproductive harm.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment is recommended when handling this product. Applicators and other handlers should wear chemical-resistant gloves and protective eyewear. Also follow any other warnings included on this label.

#### WHAT TO DO IN CASE OF CONTACT:

**IF IN EYES:** Immediately flush eyes with clean water for at least 15 minutes. Call a physician if irritation persists.  
**IF ON SKIN:** Remove contaminated clothing and wash skin with soap and water. Call a physician if irritation persists.  
**IF INHALED:** Move to fresh air. See a physician if irritation persists.  
**IF SWALLOWED:** Give a large amount of water to drink, make person vomit and immediately call a physician. Do not induce vomiting or give anything by mouth to an unconscious person.

If contact is made with a spray solution containing pesticides, follow the "Statement of Practical Treatment/First Aid" statement on the product's label(s).

### STORAGE AND DISPOSAL

**N-FIXX®** should be stored in a temperature range of 32°–100°F. Store in original container only. Keep packages tightly closed and do not allow water to be introduced to the container contents. Do not store near heat or an open flame. Exposure of **N-FIXX®** to below freezing temperatures for an extended period of time may result in the formation of gel and/or crystals. If this occurs, expose the product to ambient temperatures greater than 55°F. This will result in reconstitution of the product, with no degradation of the active ingredient.

**CONTAINER DISPOSAL:** Empty packaging should be offered for recycling or disposed in accordance with Federal, State and local authorities. If packaging is burned, stay out of smoke.

**N-FIXX®** is not a fertilizer or pesticide product when considering applicable container disposal regulations. To assure proper rinse-out of containers prior to their disposal, a minimum of 2 pints of water should be added to each 2.5 gallon container for the first rinse cycle.

### GENERAL INFORMATION

**N-FIXX®** is a specialized fertilizer additive that reduces the loss of nitrogen that occurs when urea-based fertilizers are surface applied to crops. **N-FIXX®** inhibits the activity of urease – an enzyme that converts urea nitrogen into the more volatile ammonia form. By reducing the formation of ammonia nitrogen, the loss of nitrogen from surface-applied fertilizer is minimized. **N-FIXX®** is applicable for use with any nitrogen-consuming crop when used in conjunction with urea-based fertilizers.

**NOTE:** This product is not a fertilizer and should not be used as a substitute for one.

### USE RECOMMENDATIONS

A number of factors in the application environment contribute to the degree and rate of nitrogen loss due to volatility. When considering the appropriate use rate of **N-FIXX®**, consideration should be given to these factors that are known to increase urea-nitrogen volatility:

1. High levels of soil moisture
2. The degree of soil dryness, sunlight, wind, and humidity
3. Conditions of high heat (both air and soil)
4. Soil pH (higher pH soils have greater potential for volatility)
5. Soil organic matter and CEC (low levels increase volatility potential)
6. Crop residue/stubble: High amounts of these materials tend to increase volatility potential due to their higher levels of urease.

### APPLICATION RATES: (Per Ton Fertilizer)

Urea	3–4 quarts/ton
UAN	3–4 pints/ton

**NOTE:** When the conditions for increased nitrogen volatility exist, use the higher end of the rate range. If a higher length of nitrogen stabilization is needed, the rate may be increased by 25%.

### PREPARATION OF N-FIXX®/UREA BLENDS

For direct blending/impregnation on urea, a fertilizer blender or equipment capable of mixing urea directly with **N-FIXX®** is required. Rotary, auger, and paddle mixers are all applicable – but their surfaces must be clean, dry, and free of rust.

1. Personnel responsible for preparing **N-FIXX®/Urea** mixtures should wear the following personal protection:
  - a) Long sleeves and pants
  - b) Neoprene gloves
  - c) NIOSH/MSHA-approved organic mist vapor respirator should be worn in areas of poor ventilation and air-exchange. Avoid the generation of a mist when applying this product. If mist is generated, a full face piece respirator with supplied air is required.
  - d) Weigh the urea and transfer it directly to the blender. Measure the desired amount of **N-FIXX®**, and apply directly to the urea. **NOTE:** Make sure that the **N-FIXX®** is fully blended with the urea before applying any other types of fertilizer.
  - e) Blend the urea/**N-FIXX®** mixture until coverage is uniform. **N-FIXX®** contains a blue dye to help in the verification that blending is sufficient.
  - f) **N-FIXX®** stabilized urea may be stored for up to 6 weeks without significant degradation of active ingredient – provided the mixture is kept free from moisture.

Under certain temperature/humidity conditions, **N-FIXX®**-treated fertilizer may clump together in the blender due to excess moisture. This situation may be prevented by including other types of fertilizers (e.g., potash) or by adding drying agents based on attapulgite clay (e.g., AgSorb). Include the drying agent at the rate of 0.25–0.5% of the urea/**N-FIXX®** blend.



### PREPARATION OF N-FIXX® UREA-AMMONIUM-NITRATE (UAN) BLENDS

1. Personnel responsible for preparing N-FIXX®/UAN mixtures should wear the following personal protection:
  - a) Long sleeves and pants
  - b) Neoprene gloves
  - c) NIOSH/MSHA-approved organic mist vapor respirator should be worn in areas of poor ventilation and air-exchange.
  - d) Fill the spray application tank to 1/2 its volume with UAN. While maintaining agitation, add the desired amount of N-FIXX® and mix well. Complete the mixture by adding the remainder of the UAN.
  - e) It is recommended that UAN/N-FIXX® blends be applied soon after preparation. If necessary, the blend may be stored up to 10 weeks.

### COMPATIBILITY

N-FIXX®-treated fertilizers are compatible with most agricultural chemicals. Compatibility tests, however, are recommended prior to the preparation of spray mixtures that lack commercial history. It is also recommended that N-FIXX®/UAN spray mixtures with pesticides, adjuvants, and other products be applied to the soil as soon as possible after preparation.

### CONDITIONS OF SALE - LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

**Read the Conditions of Sale - Warranty and Limitations of Liability and Remedies before using this product. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded.**

This label is believed to be reliable and should be followed carefully. Injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of Helena Chemical Company (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law.

The exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at Helena Chemical Company's election, one of the following:

1. Refund of the purchase price paid by buyer or user for product bought, or
2. Replacement of the product used

To the extent allowed by law, the Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income. The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

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