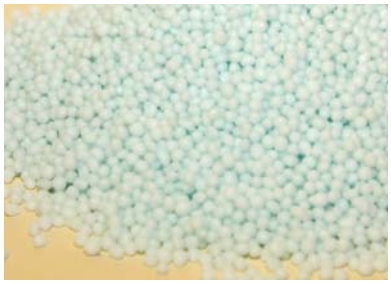
Agrium Advanced Technologies

ESN Handling



ESN Controlled Release Fertilizer

A *smarter* source of nitrogen. A *smarter* way to grow.

ESN from Agrium is a premium polymer-coated nitrogen (N) fertilizer designed to improve N-use efficiency and reduce losses of N to the environment. ESN encapsulates N inside a patented coating to supply N to agricultural crops in a controlled manner. The integrity of this durable but thin coating is essential to realize the maximum benefit of the ESN technology.

An important part of getting the greatest value from ESN for yourself and your customers is to do as much as possible to protect the quality of ESN through handling, blending, and application. ESN's physical properties (lower angle of repose, low hygroscopicity, less bridging in the bin, more free flowing than conventional fertilizers) result in several notable differences pertaining to storage and application.

The guidelines below are based on testing with different types of blending and handling equipment as well as dealer experience and common sense.

General Guidelines

- ESN is a premium product and should be treated as such.
- ESN can be damaged and its value reduced by improper and excessive handling.
- The primary cause of damage is generally abrasion from contact with equipment parts and other fertilizer materials.
- Equipment should be in good repair and properly adjusted.
- Use common sense and handle as you would handle seed.

Handling:

- Belt conveyers are the preferred conveyance systems.
- Screw augers and drag chains should be run as full as possible and, where possible, run at slower speeds to reduce ESN abrasion.
- Screw augers should be minimized to the extent possible. Small diameter augers are more abrasive than large augers because a greater percentage of product contacts moving parts.
- Drag chains and bucket elevators are intermediate between belts and augers.

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Storage:

- Bin capacity will be less than for conventional urea, usually around 80% of urea capacity.
- ESN is a more fluid than other dry fertilizers and has a tendency to flow out of bin doors into alleyways, even thru small openings. Consider bulkheads to prevent outward flow from bins.
- ESN exerts more pressure on the lower sidewalls of bins.
- Bin sidewalls should be reinforced concrete where possible.
- Older, weaker, and/or wooden sidewalls should either be braced or ESN should be placed in center bins with product in adjacent bins to support the bin wall.
- ESN can be stored for longer time than conventional fertilizers because it does not absorb water from humidity in the air and cake in the bin.

Blending:

- Avoid excessive blending. Blending times should be limited to the minimum necessary for uniform mixing.
- ESN should be added to the blender last to minimize physical contact.
- Blenders should be run as full as possible to minimize surface contact with ESN.
- Inclined-axis blenders (cement-mixer type) cause minimal product damage followed by vertical-auger blenders (Doyle type). Horizontal-auger blenders (Ranco type) are generally the most damaging.
- If using horizontal-auger blenders, ESN should be loaded in the last bin before blender exit to minimize the time in contact with the blending augers.
- Blenders should not be used as a loading system for tender trucks other than when actually blending.

Field Application:

- Applicators should be properly maintained and in good repair.
- The physical properties of ESN are different from other conventional fertilizers, which may produce different spread patterns.
- All spreaders – new and old, both spinners and airflow – must be properly calibrated and adjusted for ESN and ESN blends for proper product distribution.
- Double spreading is highly recommended for spinner spreaders.

Protect your investment in ESN and your grower's by observing these common sense principles. By doing so we are sure you will find that ESN is a great value in nitrogen management.

How can we help?

To make ESN a part of your spring nitrogen program, contact an authorized retailer or Agrium representative. For technical information, our agronomists can be reached during business hours.

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