ESN FAQ

Frequently asked questions about ESN Smart Nitrogen.

What is ESN?
ESN is a controlled release nitrogen (N) fertilizer. It consists of a quality urea granule contained within a proprietary polyurethane coating. The N fertilizer is encapsulated and isolated from its surrounding environment which makes it unique from conventional N fertilizers. The analysis of ESN is 44-0-0.

How does ESN work?
The unique polymer coating allows water to diffuse into the granule, dissolving the N within. The N liquifies into a solution yet remains encapsulated within the coating.

Nitrogen release from the granule is driven by two factors; temperature and moisture. Moisture is required and the release rate of N remains relatively stable with increasing amounts of water. Increasing temperature is the principle factor that drives the rate of N release from the granule. The higher the temperature, the greater release of N.

How should ESN be handled?
Care should be taken to minimize granule abrasion. It is recommended to minimize excessive handling of the product. Belt conveyors are preferred, while screw augers, especially when operated at high speeds and low volumes, should be minimized.

Can ESN be blended with other fertilizers?
Yes. ESN blends well with other fertilizers. To help avoid abrasion, add ESN to the blend last and mix for the minimum time required to achieve uniformity. The blend will remain dry and flowable.

How long can ESN be stored before use?
Since ESN does not absorb moisture from the air, it will remain flowable throughout the season – regardless of temperature or humidity. ESN will not set-up in the bin and flows freely even after extended time in storage.
Should ESN be recommended for use on all your grower’s acres?
Not likely. ESN is designed for land that is at risk for N-loss and where nitrogen has been the limiting factor for growth in the past. The added value of ESN may not be realized in soils that have other limiting factors such as compaction, drought, flooding, imbalance of other nutrients, excessively high or low pH, etc. ESN does not correct existing problems in the soil other than the loss of N from traditional sources.

Does ESN have to be soil incorporated to work effectively?
No. Tests show that ESN works very well when surface applied. However, when applied to very dry soil, ESN will not release as adequate moisture is required to initiate the process. For that reason, if a soil is already being tilled, it is advisable to incorporate ESN during the last pass.

Will ESN work in no-till corn?
Yes. ESN performs very well in no-till corn. The ESN granules come to rest adjacent to and slightly under the crop residue. The ESN granules then begin to hydrate and in response to increasing temperature, will begin releasing N to the soil for crop uptake.

How should ESN be spread?
ESN can be applied using both spinner and air flow machines. ESN should be double spread for uniformity when using a spinner because fertilizer tapers off at the edges of the spread pattern. Always ensure the spreader is properly calibrated to deliver the desired N rate.

Can ESN be applied as pop-up or 2X2?
ESN is not recommended as a pop-up fertilizer as it will not release enough N early. The coating makes ESN safe on seedling corn when applied 2X2. ESN has been applied 2X2 in amounts up to the total crop requirement without crop injury.

Will ESN granules wash away with a pounding rain?
Any rain that results in surface water flow which is strong enough to erode soil in conventional-till, or erode residue in no-till, is strong enough to move ESN granules as well. ESN may be less prone to move during such a rain if they previously received a moderate rain that firmed soil or residue contact.