

Enhanced Nitrogen Products - Differences in Performance Aspects

Trade name	Type	Mode of action	Practical effect	Basic Producer	Additive or Total Product	Dry, Liquid, Gas	Reduces Losses by:			Benefits documented by research	Pros	Cons
							Volatilization	Leaching	Denitrification			
ESN	Polymer-coated urea	Diffusion through coating	Delays exposure/ availability of N for 60-90 days	Agrium Advanced Technologies	T	D	x	x	x	Y	Effective for all N loss mechanisms, easy to store and handle; no additional products to add; best agronomic performance among all other enhanced efficiency fertilizers	No liquid form, less effective in dry conditions with surface application
Agrotain®	Stabilizer	Inhibits urease enzyme	Slows conversion of urea to ammonia for 7-14 days	Agrotain Int.	A	D/L	x			Y	Buys insurance time for incorporation or rain; available in both dry and liquid treatments	Short period of efficacy; must add to fertilizer
N-Serve®	Stabilizer	Blocks Cu from active sites on enzyme	Slows conversion of ammonium to nitrate for a week to several weeks	Dow Chemical	A	G/L		x	x	Y	Only available treatment for ammonia	Corrosive, no dry application; short period of efficacy; must add to fertilizer; volatile - must be injected into soil; safety; high application cost
INSTINCT®	Stabilizer	Blocks Cu from active sites on enzyme	Slows conversion of ammonium to nitrate for a week to several weeks	Dow Chemical	A	L		x	x	Y	Only labeled for treatment with Liquid Nitrogens	No dry application; shorter period of efficacy; must be added to fertilizer
Nutrisphere N®	Stabilizer	Unknown, but theorized to be sequestration of enzyme metal cofactors (Cu, Ni)	Slows conversion of urea to ammonia and ammonium to nitrate; claimed to be effective for entire growing season	SFP	A	D/L	x	x	x	Not much data available	Combines two inhibitory actions; available for both dry and liquid treatments; small volume of product to handle	Unproven; science still unknown; must add to fertilizer
DCD	Stabilizer	Inhibits nitrification	Slows conversion of ammonium to nitrate for a week to several weeks		A	L/D		x	x	Y	Nitrification inhibitor available for dry products that may be surface applied	Requires mixing with fertilizer
Agrotain Plus®	Stabilizer	Inhibits urease enzyme and nitrification (Agrotain + DCD)	Slows conversion of urea to ammonia (7-14 days) and ammonium to nitrate (1 to several weeks)	Agrotain Int.	A	D/L	x	x	x	Y	Combines two inhibitory actions; available for both dry and liquid treatments; small volume of product to handle	Requires mixing with fertilizer
Super U®	Urea treated with stabilizer	Inhibits urease enzyme and nitrification (Agrotain + DCD)	Slows conversion of urea to ammonia (7-14 days) and ammonium to nitrate (1 to several weeks)	Agrotain Int.	T	D	x	x	x	Y	Combines two inhibitory actions	Product reportedly soft and somewhat difficult to handle
Ca, NH ₄ , or K thiosulfate	Stabilizer	Mild urease/nitrification inhibitor	<i>Not available</i>	Tessenderlo-Kerley	T	L		x	x	Y	<i>Not available</i>	<i>Not available</i>

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

Agrium Advanced Technologies
ESN Sales Representatives

John Niemeyer
Breese, Illinois
(618) 526-7728
(618) 792-5736 cell
jniemeyer@agriumat.com

Mark Mangin
Cedar Rapids, Iowa
(319) 294-4830
(303) 588-8333 cell
mmangin@agriumat.com

B.J. Bilas
DeWitt, Michigan
(517) 669-5499
(517) 230-4797 cell
bbilas@agriumat.com

Agrium Advanced Technologies
Agronomists

Ray Dowbenko
Senior Agronomist

Dr. Alan Blaylock
Senior Agronomist

(403) 225-7174
(403) 589-2305 cell
rdowbenk@agriumat.com

(303) 804-4479
(720) 201-3604 cell
ablayloc@agriumat.com