



ZEOLIT
Natural clinoptilolite



ARABLE • FERTILISER BLENDING • ORGANIC HOLDINGS

You buy the nitrogen. Keep it.

Between 40% and 70% of urea nitrogen never reaches the crop. Clinoptilolite holds ammonium where the roots are — blended into the fertiliser, not broadcast across the field.



Read more

Agriculture

Global measurements put nitrogen use efficiency at about 35%. The rest volatilises as ammonia, leaches as nitrate, or has sunk below the root zone by the time the crop wants it. Under a Danish nitrogen quota, every kilo lost is a kilo you cannot replace.

Clinoptilolite carries a permanent negative charge. Ammonium — NH_4^+ , the form nitrogen takes immediately after urea hydrolyses — binds to it, stays out of the soil water, and comes off again as the crop draws it down.

Blended 1:1 with urea in published trial work, ammonia volatilisation fell **47%** in one soil and 32% in another, and ammonium leaching fell 13–28%. In Mexico, substituting a quarter of the nitrogen fertiliser with clinoptilolite produced **686 kg/ha more wheat grain** than the full recommended nitrogen rate.

For a fertiliser blender it is a 25% inclusion that raises the value of the other 75%: 0.2–1.0 mm, free-flowing, non-hygroscopic, and it blends and spreads with granular urea and NPK without segregation at matched particle size.

What has actually been measured

- ✓ Ammonia volatilisation –47% and –32% in two soils, blended 1:1 with urea
peer-reviewed field and column work
- ✓ Ammonium leaching –13–28% in the same trial
same source
- ✓ +686 kg/ha wheat grain, replacing a quarter of the nitrogen fertiliser
Mexico
- ✓ Nitrogen use efficiency, unaided, is about 35%
global measurement

Specification

CLINOPTILOLITE CONTENT

93–100% (XRD)

BULK DENSITY

650–850 kg/m³

SPECIFIC SURFACE AREA

40 m²/g

HARDNESS (MOHS)

2–3

NA₂O

0.3–1.3%

CATION EXCHANGE CAPACITY

108–146 meq/100 g

PH

7.0–8.0

PORE DIAMETER

0.43 nm

LOSS ON IGNITION

6.4–15.8%

QUARTZ

0–2%

How to use it

- **Blend at around 25% by weight** into your nitrogen fertiliser — the point is to keep the mineral beside the nutrient, where the concentration is high enough to matter.
- **Or place it in the row** with the seed, 1–3 mm grade through the drill.
- **Not broadcast across the field.** At the rate that would take, the arithmetic does not work and neither does the effect.
- **Typical:** 40–60 kg/ha in a blend.
- Batch certificates for clinoptilolite content, CEC, moisture and heavy metals with every consignment.



What it will not do

The published trials are from Mexico, Thailand, Egypt and Florida. **There is no Danish field trial yet.** The chemistry does not depend on climate, but the size of the effect might, and we are not going to pretend otherwise. It holds ammonium — not nitrate, not phosphate. And on a heavy clay soil that already has plenty of cation exchange capacity it will do very little.

We will part-fund a replicated strip trial on your own farm and publish the result whichever way it goes. That offer is the point: nobody in this market has a Danish number yet, and we would rather generate one than argue about Mexican ones.

Products and pack sizes

PRODUCT	GRADE	PACK
AGR-BLEND-BB	0,2–1,0 mm	1.000 kg big bag
AGR-BLEND-BULK	0,2–1,0 mm	24 t bulk
AGR-ROW-BB	1–3 mm	600 kg big bag
AGR-25	1–3 mm	25 kg sack
AGR-ORG-25	1–3 mm	25 kg sack
AGR-TRIAL	0,2–1,0 mm	200 kg trial kit

Request products

Tell us the application and the volume. We answer with a written quotation.

zeolite.gratierne.com/en/contact.html



ZEOLIT — Natural clinoptilolite

Gratierne · mineral sources · South East Asia

Gratierne · zeolite.gratierne.com · Natural clinoptilolite from mineral sources in South East Asia, direct from the deposit.