



ZEOLIT
Natural clinoptilolite



PONDS • AQUARIA • RECIRCULATING FISH FARMS • SLURRY AND BIOGAS

Ammonia is the thing that kills fish. This takes it out.

Clinoptilolite removes ammonium from water directly, by ion exchange, in hours rather than days — and once your biofilter is established, the bacteria recharge the mineral in place.



Read more

Water treatment and aquaculture

Every fish excretes ammonia and every uneaten pellet decays into more of it. A biofilter converts it eventually. In the meantime — in warm water, after a feed, after a grading, or in a young system whose bacteria are not established — ammonia climbs faster than the bacteria can handle.

In laboratory measurement, clinoptilolite removed **80.8% of total ammonia nitrogen in 24 hours** at 1 ppm, outperforming activated carbon. In a European recirculating system growing Arctic charr it cut ammonium by 22.7% and nitrite by 16.7% during a period of elevated feed rate. In a granular biofilter, total nitrogen removal reached 94% against 79% for activated carbon.

It is also the medium that maintains itself. Nitrifying bacteria colonise the outside of the grains and strip the ammonium off as fast as it binds — measured as roughly three times more effective than chemical regeneration, with no chemicals at all. The bed does not need replacing on a schedule.

In slurry and digestion the same chemistry pays differently. Stored pig slurry lost 59% of its supernatant ammonium nitrogen and 88% of its chemical oxygen demand, most of it within two hours. In published work on poultry-manure digestion, 10 g of natural zeolite per litre raised methane production by 109.75% by relieving ammonia inhibition.

What has actually been measured

- ✓ 80.8% of total ammonia nitrogen removed in 24 hours, at 1 ppm, outperforming activated carbon
laboratory measurement
- ✓ Ammonium –22.7%, nitrite –16.7% in a cold-water recirculating system growing Arctic charr
Lithuania, at elevated feed rate
- ✓ 94% total nitrogen removal in a granular biofilter, against 79% for activated carbon
published comparison
- ✓ +109.75% methane from poultry-manure digestion at 10 g/L
Kougias 2013

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

- **Pond:** rinse, put the 8–16 mm chips in a net bag and place it in the flow of the filter. Roughly 1 kg per 1,000 L as a starting point.
- **Aquarium:** 1–3 mm in the filter chamber, or the ready-made 2 kg mesh bag if you would rather not measure.
- **Recirculating fish farm:** 1–3 mm as filter media, sized on your peak total ammonia nitrogen load. Ask us and we will size it with you.
- **Slurry store:** <0.2 mm powder, 1–4% by weight, stirred in.
- **Biogas:** <0.2 mm powder. Trial first — see below.



What it will not do

It does **not** remove nitrate and it does **not** remove phosphate. You will find both claims on European pond listings, including ones we compete with, and they are wrong: clinoptilolite is a *cation* exchanger and nitrate and phosphate are negatively charged — they are repelled, not attracted. Nitrate means water changes, plants or a denitrifying filter; phosphate means a phosphate binder, which is a different mineral. And in **full-salinity seawater**, sodium competes for the same exchange sites and the effect is much weaker — this is a freshwater and low-salinity product.

We have not reproduced the biogas result at plant scale and we will not claim it until we have. What we offer instead is a trial: material, a protocol and a shared write-up. If it works on your substrate you will have a number nobody else in this market has.

Products and pack sizes

PRODUCT	GRADE	PACK
AQ-CHIP-1	8-16 mm	1 kg net bag
AQ-CHIP-3	8-16 mm	3 kg net bag
AQ-CHIP-10	8-16 mm	10 kg sack
AQ-CHIP-25	8-16 mm	25 kg sack
AQ-FINE-1	1-3 mm	1 kg net bag
AQ-BAG-2	5-10 mm	2 kg mesh filter bag
WTR-MEDIA-BB	1-3 mm	1.000 kg big bag
WTR-MEDIA-25	1-3 mm	25 kg sack
RAS-MEDIA-BB	1-3 mm	1.000 kg big bag
BIOGAS-BULK	<0,2 mm	24 t bulk

Request products

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

zeolite.gratierne.com/en/contact.html



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