

NANO-ZEOAG

Silver Ion (Ag) Loaded Zeolite - Nanofertilizer

1. PRODUCT DESCRIPTION

Nano-ZeoAg is a natural crystalline aluminosilicate material, modified through ionic exchange with silver (Ag), which provides antimicrobial properties and adsorption capacity. Designed to eliminate bacteria, viruses, and unwanted compounds in drinking water.

2. CHEMICAL COMPOSITION

Component	Description/Concentration
Base	Clinoptilolite Zeolite ($\text{SiO}_2 \text{ Al}_2\text{O}_3 \text{ H}_2\text{O}$)
Silver Content (Ag)	0.1-5%
Other Elements	Na, K, Ca, Mg (exchangeable cations)

3. PHYSICAL PROPERTIES

COLOR Light greenish gray to whitish	FORM Granular or pellet (1.5-3.5 mm)
BULK DENSITY 0.8-1.2 g/cm ³	SURFACE AREA 25-40 m ² /g
CEC 1.5-2.5 meq/g	POROSITY 30-50%
PORE SIZE 0.3-0.5 nm (microporous)	

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4. ANTIMICROBIAL PROPERTIES

- 1 Controlled release of Ag⁺ ions upon contact with water acting as bactericides, fungicides, and viricides.
- 2 Effective against E. coli, Salmonella, Vibrio cholerae, Pseudomonas aeruginosa, among others.
- 3 Inhibits biofilm growth on filter surfaces.

5. USES AND APPLICATIONS

- 1 Domestic and community filters for drinking water.
- 2 Portable systems for emergencies.
- 3 Water treatment in food industries and hospitals.
- 4 Pre-treatment before reverse osmosis or UV.

6. RECOMMENDED OPERATING CONDITIONS

OPTIMAL PH

6.0-8.5

TEMPERATURE

5-60 °C

FLOW RATE

2-6 L/min per standard cartridge

MINIMUM CONTACT TIME

≥ 2 minutes

ESTIMATED LIFESPAN

6-12 months*

* Depending on water quality and microbial load.

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7. ADVANTAGES

- ✓ Prolonged bactericidal action without need for additional chemicals
- ✓ Does not significantly alter water color
- ✓ Partial regeneration possible with silver saline solutions
- ✓ Stable, non-toxic at controlled concentrations

8. PRECAUTIONS

Safety Warnings

- ⚠ Do not expose to pH < 4 or > 10 for prolonged periods (may excessively release silver or damage structure)
- ⚠ Avoid use with very turbid water without pre-filtration
- ⚠ Comply with silver limits in drinking water; WHO: ≤ 0.1 mg/L

9. APPLICABLE STANDARDS AND REGULATIONS

Certifications and Regulations

WHO: Guidelines for Drinking-water Quality

NSF/ANSI 42/53: Materials in contact with drinking water

ISO 22196: Evaluation of antibacterial activity

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10. PRESENTATION, STORAGE AND SALES

Storage and Distribution Information

Presentation:	40 lb bags or pre-loaded filter cartridges	Storage:	Cool, dry place, protected from light
Sales Channel:	Amazon with fast shipping	Shelf Life:	4 years in storage

11. IMPORTANT NOTES

Recommended Use: This product is specifically designed for purification and treatment of drinking water. It must be used in accordance with technical specifications and applicable regulations.

Quality Assurance: The manufacturer guarantees the antimicrobial quality of the product when stored and used according to established recommendations. Effectiveness may vary depending on treated water conditions.

Responsibility: The user is responsible for verifying that silver levels in treated water comply with local and international regulations for drinking water.