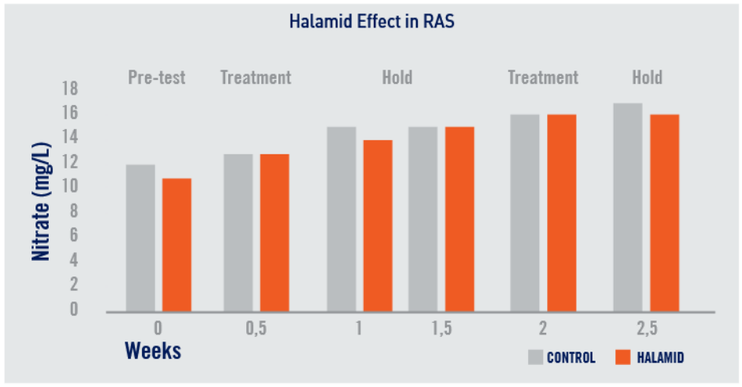
HALAMID® IN RAS

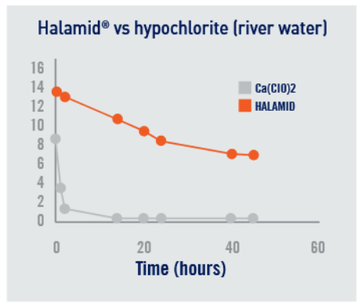


*Responses of Nitrifying Bacteria to Aquaculture Chemotherapeutic Agents (Amy Kathleen Cheatham), January 27, 2009, Blacksburg, Virginia.

Nitrifying bacteria are naturally present in the ecosystem and responsible for the natural cycle of cleaning / filtration of waste. In a farm, The same effect can only be achieved by placing a biofilter which keeps water clear. Study shows that even at a dosage of 20ppm Halamid®, the activity of the biofilter is maintained indicating that the nitrifying bacteria were not affected.

LIMITED INFLUENCE BY ORGANIC MATTER

The presence of organic matter has only a minor impact on the efficacy of Halamid®. For instance, Halamid® is significantly less affected by organic matter compared to hypochlorite. To demonstrate this, solutions of Halamid® and hypochlorite were prepared using river water. Within just a few hours, most of the hypochlorite is degraded due to reactions with the organic matter present. In contrast, after 2 days, about 50% of the original Halamid® concentration remains intact.



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Europe, Americas, Middle East and Africa
Axcentive SARL
593 Chemin de Champouse
13320 Bouc Bel Air, France
Phone: +33 4 42 69 40 90
E-mail: info@axcentive.com

Asia, India and Australasia
Axcentive Asia Pte Ltd
30 Prinsep Street,
#06-01, Income at Prinsep,
Singapore 188647
email: info@axcentive.com

Never use HALAMID® in combination with other biocides such as formaldehyde. The use of HALAMID® is subject to national registrations which might differ from the general protocols proposed in this brochure.

www.halamid.com

HALAMID®

THE UNIVERSAL DISINFECTANT

by axcentive

THE POWERFUL DISINFECTANT FOR SHRIMP FARMING

- ✓ Recommended against Gill diseases
- ✓ Effective treatment against shrimp pathogens
- ✓ Fish and shrimps are tolerant to HALAMID®
- ✓ For fresh water and marine environments

www.halamid.com

HALAMID®

THE UNIVERSAL DISINFECTANT

Halamid® A SOLUTION FOR SHRIMP FARMING Disease outbreaks can escalate in under five days, leading to high mortality rates and potentially devastating a farm. For farmers, this means a total loss of income, while the industry faces billions of dollars in lost revenue. Halamid® is a universal disinfectant that requires no rotation; it is non-toxic, non-corrosive, and biodegradable. It can be used to clean tools, equipment, and vehicles, even in the presence of shrimp. Halamid® has a wide range of effectiveness against bacteria, viruses, fungi, algae, yeast, and parasites.

	Quats	Aldehydes	Peroxygens	Chlorine	HALAMID®
All-round efficacy	-	-	V	V	V
Stability	V	-	-	-	V
Longevity	V	-	-	-	V
Non-corrosive	V	-	-	-	V
No need for rotation	-	-	V	V	V
Safe to environment	-	-	-	-	V
Safe to use	-	-	-	-	V

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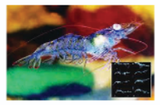
Axcentive, the producer of HALAMID®, supplies and services HALAMID® worldwide through dedicated distributors. Apart from the aqua industry, Axcentive delivers HALAMID® to poultry farms, pig farms, the dairy industry, pharmaceutical companies, and many other sectors. The production site is ISO 9001 certified. Axcentive holds a US FDA drug registration to treat a number of salmonid-related diseases. HALAMID® is registered under the EU Biocidal Product Regulation.

"The Difference with all other water treatment products is this combination of good efficacy and low toxicity to fish and shrimp." *- a major aquaculture distributor -*

PERFORMANCE OF HALAMID® AGAINST DISEASES

Halamid® exhibits a broad spectrum of activity and is highly effective against bacteria, viruses, fungi, algae, yeast, and parasites

Diseases	Pathogen	Pictures	Dosage
White Spot	White Spot Syndrome Virus (WSSV)		10ppm 24hrs
Early Mortality Syndrome (EMS)	Vibrio paraheamo-lyticus		10ppm 24hrs
White Feces	Entero-cytozoon hepatope-naei (EHP)		20ppm (15min)
Yellow Head	Yellow Head Virus		10ppm (1hour) Once a week
Luminescent	Vibrio harveyi bacteria		10ppm (24hrs)

APPLICATION	TREATMENT PERIOD/ PROCEDURE	DOSAGE
SURFACE DISINFECTION		
Tank and basin	Spray, flush or mop surface, rinse with clean water after 30minutes	20 g/L
Tools & Equipment	Before and after using	3 g/L
Footbaths	Twice per day	20 g/L
Transport Vehicles	Spray, flush or mop surface, rinse after 30 minutes if necessary	3 g/L
SHRIMP WATER TREATMENT		
Hatchery (Shrimp eggs)	Alternate Days/ 5mins	3-5 mg/L
Nursery (Post- Larvae)	Once per week	3-5 mg/L
Broodstock	Once per week	3-5 mg/L
Artemia	Wash for 3minutes and rinse after	60 mg/L
Water Pre-conditioning	Depends on water quality, rest for 24hrs before further treatment	5-15 mg/L
Water (Quality maintenance)	Twice per week	3 mg/L
Disease Outbreak	Complete elimination of diseases eg. Vibrio parahaemolyticus (>24hrs contact time)	10 mg/L

RESPONSIBLE CHOICE FOR DISINFECTION COMPARED TO OTHER DISINFECTANTS

HALAMID® contributes to several Sustainable Development Goals (SDGs) outlined by the United Nations (https://sdgs.un.org/goals). These include clean water, sustainable food production, and the protection of aquatic and land life.

CLEAN WATER & SANITATION

Already at low dosage HALAMID® is an efficient disinfectant for drinking water installations in livestock farms. It keeps the water clear and clean whether it is sourced from wells, ground or city water. HALAMID® contributes to keep the livestock healthy by providing potable water.

RESPONSIBLE CONSUMPTION & PRODUCTION

HALAMID® is an environmentally friendly disinfectant which is less hazardous than traditional disinfectants in production, transportation, and use, minimizing potential environmental contamination. While very effective in killing pathogens, it's safer for workers and less harmful to the animals. Its versatility reduces the need for multiple products, promoting resource efficiency.

LIFE BELOW WATER

Farm disinfectants still often end up in surface water. The environmental effects of these products are therefore important to consider. HALAMID® is readily biodegradable, does not accumulate in riverbeds and is not toxic to the aquatic environment in the concentrations usually found in farm effluents, unlike for example phenolic based disinfectants. Extensive studies have shown that the ecotoxicity of HALAMID® is low.

LIFE ON LAND

HALAMID® is readily biodegradable and will decompose in time whenever remnants of material end up in the environment. As such HALAMID® has low effect on the land life and promotes plant and fauna diversity. HALAMID®'s biodegradability minimizes its impact on land life and promotes biodiversity.

THE POWERFUL DISINFECTANT FOR SHRIMP FARMING