



HALAMID® IN AQUACULTURE

Aquaculture requires strict hygiene rules to prevent diseases resulting in fish welfare problems and heavy economical damages. Halamid®, also known under its generic name chloramine-T in this market, is the perfect product for hygiene in the aquaculture farm. Very effective against fish and shrimp pathogenic microorganisms, it has proven already for many years to be an indispensable product in any aquaculture operation, from the nursery and growing tanks to the fish processing plant.

HALAMID®, A UNIQUE PRODUCT

- Large activity spectrum
- Non corrosive in solution for materials
- Easy to use and versatile
- Stable
- Readily biodegradable
- No risk of building up resistant microorganisms

The safety margin between the concentration effective against microorganisms and the one toxic for fish makes Halamid® of special interest in aquaculture. Well known applications of Halamid® include use against pathogenic bacteria, such as the ones responsible for Bacterial Gill Disease (BGD) or external columnaris. Halamid® is also useful against many parasites related to the aquaculture industry, for example the Gyrodactylus and Neoparamoeba pemaquidensis (Amoebic Gill Disease) parasites.

Aquaculture needs a universal and versatile disinfectant in order to ensure the best health and hygiene status. Disinfection with Halamid® of tanks and ponds, nets, equipment, well boats and in the fish processing industry ensures that pathogenic microorganisms (bacteria, viruses and parasites) are rapidly and effectively destroyed.

EFFICACY

Halamid® is effective against many microorganisms related to aquaculture applications. **A few of them are indicated below, but the complete activity spectrum of Halamid® is much wider.**

Bacteria

- Aeromonas salmonicida* (Furunculosis)
- Flexibacter maritimus* (Marine columnaris)
- Flavobacterium branchiophilum* (BGD)
- Flavobacterium columnaris* (Columnaris)
- Vibrio anguillarum* (Vibriosis)
- Vibrio harveyi*
- Vibrio salmonicida*
- Yersinia ruckeri* (Redmouth disease)

Viruses

- Infectious Pancreatic Necrosis (IPN)
- Infectious Salmon Anaemia (ISA)

Fungi

- Saprolegnia*

Parasites

- Gyrodactylus salaris*
- Ichthyobodo necator* (Costia)
- Ichthyophthirius multifiliis* (White spot)
- Neoparamoeba pemaquidensis* (Amoebic Gill Disease)
- Trematodes

Halamid® is recommended by the OIE to disinfect equipment against *Gyrodactylus salaris* at 1% and is also recognized by the same organization to be effective against IPN and ISA viruses.

RECOMMENDED CONCENTRATIONS

Application	Concentration	Remark
Tank and pond disinfection	1% - 2%	
Equipment disinfection	1%	
Net disinfection	1%	
Well boat disinfection	1%-2%	
Footbath	2%	Renew as often as needed
Water treatment - Fresh water raceway ponds	10-20 mg for 1 hr	Can be repeated up to 4 times of consecutive or alternate days
Water treatment - Stagnant water ponds	3 ppm once a week	

APPLICATIONS

General disinfection in the aquaculture farm

Always remember that cleaning is a required preliminary step before disinfection to ensure the best results. Without proper cleaning, dirt and organic matter protect microorganisms against the killing effect of the disinfectant, resulting in an incomplete operation.

Start by dry cleaning to remove most of the organic matter, followed by cleaning with water or a detergent solution. Once it is done, disinfect with Halamid®.

Halamid® is always applied as an aqueous solution: simply dissolve the Halamid® in clean water at the required concentration.

Tanks and equipment disinfection

Tank disinfection

During the production stops, it is of major importance to thoroughly clean and disinfect the tanks and ponds when they are empty to avoid contamination of the next production lot. Start by cleaning to remove the organic matter and then disinfect by spraying or rinsing with a 1% Halamid® solution (or with a 2% in case of heavy contamination).

Equipment disinfection

Spray all equipment used in the aquaculture farm with a 1% Halamid® solution or dipped the equipment into the Halamid® solution for 30 min.

Net disinfection

Aquaculture nets should not only be cleaned between each production cycles but also disinfected. Compatibility of aquaculture net made of Polyamide 6 with a Halamid® solution was tested by a polyamide manufacturer and the results indicate that Halamid® does not have any negative effect on the net properties. A 1-2% Halamid® solution is used for net disinfection, with a contact time of 30 min.

Vehicle disinfection

Vehicles are an important way of disease transmission from farm to farm. Make sure all vehicles are well disinfected (not only the wheels) with a 1% Halamid® solution prior entrance to the farm.

Well boat disinfection

Insufficient well boat disinfection is believed to be responsible for spreading of several pathogenic microorganisms, including the IPN virus in Norway. This underlines the need to apply a strict hygiene management on well boats.

Well boats must be disinfected with a 1-2% Halamid® solution between each transport. Rinsing with water may be required to remove residual Halamid®.

Footbath

A footbath should be placed at the entrance of each building and you should make sure everybody is using it. A 2% Halamid® solution must be prepared and refresh as often as needed.

Water treatment

Halamid® reduces the pathogenic microorganisms level in ponds water and is especially useful against bacteria and parasites.

Fresh water raceway set up

Halamid® is added at a concentration of approximately 10-20 ppm (10-20 g/m³). After 1 hour, flush with fresh water to remove residual Halamid®. This can be repeated up to 4 times on consecutive or alternate days.

Stagnant fresh water ponds

Halamid® is added at a concentration of 3 ppm (3 g/m³) once a week.

Water pH and hardness are two important parameters to consider in order to optimize the Halamid® concentration. As a general rule, with acidic pH, a lower concentration should be used and with increasing water hardness, a higher Halamid® concentration is recommended.

Also, if using a biofilter in a recirculated water system, special attention must be taken. Please contact Axcentive or your distributor for more detailed information.

General disinfection in the fish processing plants

Halamid® is very useful for disinfection in the fish processing plants. For more information about this application, please refer to the specific bulletin on Halamid® in the food industry.

Artemia disinfection

Halamid® is recommended by the FAO (Food and Agriculture Organization) for disinfection of Artemia nauplii at the concentration of 60 ppm with a contact time of 3 min followed by rinsing with clean water. (Health management and biosecurity maintenance in white shrimp (*Penaeus vannamei*) hatcheries in Latin America, FAO, 2003)

Fish egg disinfection

To reduce surface contamination, fish eggs can be dipped in a 1 g/l Halamid® solution for 10 min followed by a clean water wash.

Fish hobbyists

Halamid® is widely used by fish hobbyists against external bacteria and parasites. It is for example particularly useful against external flukes in koi fish. Here again water hardness as well as pH are two important parameters to consider in order to adapt the concentration to your own conditions.

Use biocides safely. Always read the label and product information before use.

Halamid® is an Axcentive product available in various packages, from 2 kg buckets to 1000 kg big bags.

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