



**NOVALEK, INC.**

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## **PRODUCT DATA SHEET**

### **Acriflavine®**

#### *Disease Treatment*

### **PRODUCT DESCRIPTION:**

Acriflavine is a preventative and treatment for the control of Oodinium (Velvet) in freshwater and marine fishes. It has a long history of usefulness for the control of fish diseases. Acriflavine is useful for fish egg disinfection, treatment of open wounds, and external protozoan infections. The drug is effective in the control of the bacterial infection "columnaris" (*Flexibacter columnaris*). Acriflavine may also be considered as an alternative to Malachite Green when it is known that a certain species of fish may be sensitive.

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### **GENERAL DIAGNOSIS OF PARASITIC DISEASES OF FISHES**

The following brief summary of clinical signs often associated with the parasitic protozoans discussed above is intended only as an aid for the beginning aquarist or pond keeper. It is not to be thought of as a definitive diagnostic key. It is important that the aquarist or pond keeper consult appropriate, accurate references for more specific information regarding the possible disease problem. In addition, if possible, skin and/or gill smears should be made and examined by a qualified fish diagnostician. Microscopic examination is recommended and is always essential for confirmation of a particular disease. In the clinical signs indicated below, a particular description may be followed by a specific disease causing organism in brackets. This indicates that there is a high probability that the cause of the disease observed on the fish is the organism indicated in the brackets. It should be qualified that different clinical signs can be seen during the disease process and that these can occur as the result of more than one disease causing organism.

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### **CLINICAL SIGNS**

Increased respiration, loss of normal body color, scratching on the tank bottom or on objects; lethargic behavior, randomly distributed powdery or dust-like spots on body, having a yellowish cast (*Oodinium*); frayed fins, body lesions with reddish color and diffuse white areas (*Flexibacter*).

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### **SPECIFICATIONS**

Contains Acriflavine, neutral (Typaflavine) NF. grade. Provided as a 3.84% solution. Dosage: Use 1 teaspoon (approximately 5 ml) per 5 to 10 gallons of water. This produces a concentration of 10 to 5 ppm. When used at this concentration. 4 ounces of Acriflavine will treat 240 gallons of water.

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### **MODE OF ACTION**

Acriflavine and other related acridines bind with nucleic acids of the disease causing organisms.

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### **STABILITY**

Decomposes in the presence of strong light. Stable in solution when kept in darkness.

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### **COMPATIBILITIES**

Kordon's Acriflavine is compatible for use with Methylene Blue, NovAqua® and PolyAqua®.

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### **CONTRAINDICATIONS**

Acriflavine is not indicated for the treatment of fungal infections nor for the control of flukes (monogenetic trematodes). While there is some evidence that Acriflavine can control trematode infections. Acriflavine is not indicated for the treatment of systemic bacterial infections. The recommended use of Acriflavine is for the control of *Oodinium* (Velvet), egg disinfection, and superficial skin infections.

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### **TOXICITY**

The toxicity of various acriflavines varies depending on their molecular structure. The acriflavine used in Kordon's Acriflavine is safer and more effective than the hydrochloride salt used in many other products on the market. While there has been some reports that acriflavine may damage the slime coating, or mucous producing cell of fish, at this time there is inadequate evidence to support such a claim. However, if there is some reason to believe that there might be a problem, this product can be used in combination with NovAqua or PolyAqua. Acriflavine is safe for use on various fish species, such as small Characins and Tetras, which may show sensitivity to malachite green therapy.

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### **SUGGESTED TREATMENT PROCEDURES**

The following procedures are suggested for general use in freshwater and marine aquariums and ponds. The literature should always be consulted for information or procedures for specific fish treatment problems.



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It should be noted that activated carbon will remove the drug from solution. In addition, acriflavine is sensitive to strong light and UV and will decompose in their presence. Treatment tanks should be kept under diffuse light and away from sunlight during treatment.

### **Prevention of bacterial infection of fish eggs**

#### **Method 1 (Bath)**

- (a) Remove carbon from the filter and continue to operate with new mechanical filter media throughout the treatment period.
- (b) Add 1 teaspoon of Acriflavine (3.84% solution per 5 gallons of water). This produces a concentration of 10 ppm. Only one application is necessary.
- (c) After hatching, the Acriflavine may be removed from the water by replacing the activated carbon in the filter and/or making water changes. Use Novaqua when making water changes.

#### **Method 2 (Dip)**

- (a) To a clean nonmetallic container add 1 gallon of hatchery water.
- (b) Add 1.8 ml of Acriflavine (3.8% solution) and stir to mix. This produces a concentration of 18.5 ppm. Note: if the pH is less than 7.0 adjust with sodium bicarbonate or another suitable buffer to 7.0 to 7.2 for fresh water and 8.0 to 8.3 for salt water. (see Special Note)
- (c) Add an air diffuser (Kordon's Mist-Air® airstone is recommended) and adjust for a moderate flow supply.
- (d) Collect eggs in a net, or the object on which the eggs have been attached and dip them for 5 to 10 minutes to insure that all eggs have been treated.
- (e) After the dip, transfer the eggs back to the hatchery tank.
- (f) Use this treatment procedure only once for each spawn. The solution should be discarded after 10 uses or every 2 weeks, whichever comes first.

### **Treatment for external fish parasites**

- (a) Transfer fish to a separate tank, if possible.
- (b) Remove carbon from filters and return to use with the addition of a clean mechanical filter media.
- (c) Make a partial water change of 25 to 50% if the treatment is being carried out in an established tank. Add NovAqua after replacing new water.
- (d) Calculate the actual volume of water to be treated taking into consideration the displacement of water by sand, gravel, rock, etc.
- (e) Add 1 teaspoon of Acriflavine (3.84% solution) per 5 to 10 gallons of water. This will produce a concentration of 10 to 5 ppm.
- (f) Repeat treatment daily with a partial water change of at least 25 to 50% before re-treating. Add NovAqua after replacing new water. Add only enough Acriflavine to replace that which was removed by the water change.
- (g) Upon completion of the treatment return fish to the original aquarium or pond (if treatment was done in an quarantine tank) and add PolyAqua or NovAqua. If the treatment was conducted in the original aquarium or pond, perform a partial water change of 35 to 50% and place new activated carbon into the filter.

Note: If the fish are heavily infected with external gill and/or skin parasites, it is advisable to modify the above procedure by adding 1 teaspoon of Methylene Blue (Kordon's 2.303% solution is recommended) per 10 gallons of water in combination with Acriflavine. Gill parasites such as Oodinium cause severe pathological damage to the host, which results in respiratory distress. Methylene Blue aids in reducing this distress by acting as an oxygen transporter. Refer to the product data sheet concerning the proper use of Methylene Blue in established aquariums and ponds before using this optional procedure.

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#### **SPECIAL NOTE**

Water conditions in which there is a notably acid pH (below 7.0) will inhibit the activity of this product.