



# Water Talk

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## *Microbiological Control Utilizing Polyquats*

The control of microbiological contamination in commercial and industrial recirculating systems is a critical component in the success of a water treatment program. Choosing from the various biocides available can be a daunting task, and often comes down to working with the same narrow set of choices that have worked in the past. Most water treaters are thoroughly familiar with the various oxidizers, and rely upon them, sometimes exclusively, to ensure their systems are clean. While oxidizers are effective, they also have downsides. Stabilized bromines can be over-fed, and over-stabilized, leading to inactivity. Most oxidizers can also have an adverse impact on corrosion rates, or can consume copper inhibitors, polymers and scale inhibitors. Thus overuse and overfeeding can be detrimental to a water treatment program. Thus when a problem develops, non-oxidizers can be effective in assisting the oxidizers in the control of microbiological fouling. One good supplement to oxidizers, and an alternate to Isothiazoline or Gluteraldehyde is Polyquats. Polyquats have been shown to work great with halogens, have no odor, and are good biodispersants. These are available as an EPA registered standalone in our A-106, and in our EPA registered multi-functionals 7618 and 7619.

### General Uses

Polyquat is the common name for Poly(oxyethylene) (dimethylimino) ethylene (dimethylimino) ethylene dichloride), a liquid polymeric quaternary ammonium microbiocide that stops microbiological growth in commercial and industrial recirculating cooling water systems.

Polyquats are broad spectrum biocides, effective over a wide pH and temperature range. They work moderately quickly, 2 to 6 hours, and exhibit good staying power with a half-life measured in days. They are effective on aerobic and anaerobic organisms and are compatible with all types of corrosion and scale inhibitors.

Polyquats are effective not only on green algae, but on chlorine-resistant mustard algae, and even notoriously tough black algae. Unlike simple quats, which are used mainly for preventative purposes, polyquats are effective at destroying an existing algae infestation. Polyquats have been found to be especially effective, not only against Heavy Algae, but also against Bacteria and Fungi. The Polyquat we use in our products has performed extremely well in comprehensive health and safety testing, and

its impact on the environment has been shown to be minimal.

Polyquat containing products include A-106, 7618 and 7619. All of these are biocides, and registered with the EPA.

### **A-106**

A-106 contains 15% polyquat as the active ingredient. It is recommended at up to 80 ppm for an initial kill and at up to 80 ppm for the subsequent dosage, depending upon the application. For industrial air washers, an initial slug of 14.8 to 24.7 fl oz of A-106 per 1000 gallons of water is recommended. Repeat this until control is evident. A subsequent dose of 10.1 to 24.7 fl oz per 1000 gallons of water is recommended as a maintenance dose, every 1 to 5 days, or as needed to maintain control. For industrial and/or commercial recirculating tower systems, an initial slug dose of 4.0 to 10.0 fl oz per 1000 gallons of system volume is recommended, with a subsequent dose of 1.0 to 10.0 fl oz when control is evident.

### **7618**

7618 is an EPA registered microbiocide containing inert ingredients that are effective scale and corrosion control inhibitors. 7618 is designed as an all-in-one treatment to be fed continuously to the cooling water system. The active microbiocide in 7618 is 5% polyquat.

7618 is used to control scale, corrosion, algae and bacteria in recirculating commercial and industrial cooling tower systems. Prior to its use, systems must be cleaned to remove algal growth, microbiological slime, and other deposits. An initial slug addition is 12 to 30 fluid ounces of 7618 per 1000 gallons of water to provide a concentration of 96 to 240 ppm of product in the system. For optimum corrosion and scale control a dosage of 240 ppm is recommended on a continuous basis. 7618 is also approved for use in controlling scale, corrosion, and bacteria in industrial airwashing systems to maintain effective mist eliminating components. Prior to use, system should be cleaned

to remove bacterial slime and other deposits. An initial slug of 30.3 to 74.1 fluid ounces of 7618 per 1000 gallons of water is recommended.

7618 is recommended for use in open recirculating systems on a continuous basis to maintain 240 ppm in the system water. 7618 can be used without acid or with a partial pH trim, but is designed for an alkaline program with a pH of 8.3+. 7618 is particularly effective where high heat transfer rates are encountered.

### **7619**

7619 is an EPA registered microbiocide containing inert ingredients that are effective scale and corrosion control inhibitors. 7619 is designed as an all-in-one treatment to be fed continuously to the cooling water system. The active microbiocide in 7619 is 15% polyquat.

7619 is used to control scale, corrosion, algae and bacteria in recirculating commercial and industrial cooling tower systems. An initial slug addition is 4 to 10 fluid ounces of 7619 per 1000 gallons of water to provide a concentration of 32-80 ppm of product in the system. For optimum corrosion and scale control a dosage of 80 ppm is recommended on a continuous basis.

7619 is also approved for use in controlling scale, corrosion, and bacteria in industrial airwashing systems to maintain effective mist eliminating components. Prior to use, system should be cleaned to remove bacterial slime and other deposits. An initial slug of 14.8 to 24.7 fluid ounces of 7619 per 1000 gallons of water is recommended.

7619 is recommended for use in open recirculating systems on a continuous basis to maintain 80 ppm in the system water. 7619 can be used without acid or with a partial pH trim, but is designed for an alkaline program with a pH of 8.3+. 7619 is particularly effective where high heat transfer rates are encountered.