REGAL GAS CHLORINATOR

APPLICATION / INSTALLATION DATA SHEET

IRRIGATION SYSTEMS USING WELL WATER OR SURFACE WATER SOURCES

GENERAL

Drip, overhead spray, and micro irrigation systems are widely used for a variety of agricultural crops. Irrigation systems are used by fruit and vegetable growers and throughout the citrus industry. They are also used by many growers of row crops and turf grass. Drip and micro irrigation are used in nurseries, tree farms, greenhouses, and even on reforestation projects.

To have a properly operating system, care must be taken to assure the system will remain CLEAN AND FREE OF BACTERIAL SLIMES AND ALGAE which if left unchecked, can and will;

1. Restrict water flow to various parts of the system, meaning some crop areas may not get enough **(or any)** water.

2. Create high expenditures in man hours and parts in order to continually unclog the irrigation system lines and/or emitter openings.

Depending on the product being irrigated and on the quality of the source water, additional treatment (not covered in this bulletin) may be required to control **suspended solids, pH, soluble salts, calcium, magnesium, manganese, potassium, etc.** This must be determined on a case by case basis.

This bulletin deals with the subject of controlling bacterial slimes, algae, and ochre (a formless red, sticky, iron sludge).

These bacteria grow within the system in the absence of light. They may produce a mass of slime or, they may cause iron or sulfur to precipitate out of the water.

If not controlled, these slimes can also act as an adhesive to bind fine silt, sand, dirt, and colloidal clay particles that pass through settling basins and filters into aggregated particles large enough to cause clogging.

THE NEED FOR GAS CHLORINATION

Gas chlorination is the most effective, and the least expensive form of chlorine to use for controlling bacterial slime and algae in all types of irrigation systems. Gas chlorination has also been used successfully in nurseries to control Phytophthora and Pythium.

1 . Gas chlorine, unlike the hypochlorites, is always at 100% strength.

2. Gas chlorine, unlike the hypochlorites, is 100% pure and therefore, DOES NOT add anything to the irrigation water that could damage crops or contribute to plugging problems **(Sodium Hypochlorite is ~31% Sodium and Calcium Hypochlorite is ~28% Calcium).**

3. Gas Chlorine, unlike the hypochlorites, cannot increase the irrigation water pH causing chemical and mineral precipitation

4. With gas chlorine, the cost per pound of available chlorine is generally 1/10 to 1/3 that of a hypochlorite solution.

5. A REGAL direct cylinder/container mounted gas chlorinator is safe and easy to use, operate, and maintain.

GAS CHLORINE APPLICATION

Gas chlorine applied correctly is EXCELLENT for preventive maintenance on a new and/or clean system. A system that is already clogged with bacterial slimes or deposits should be cleaned BEFORE chlorine is added.

Gas chlorine should be injected ahead of the filter(s). The best time to start the chlorination process is just after back flushing the filter(s). It is essential that the

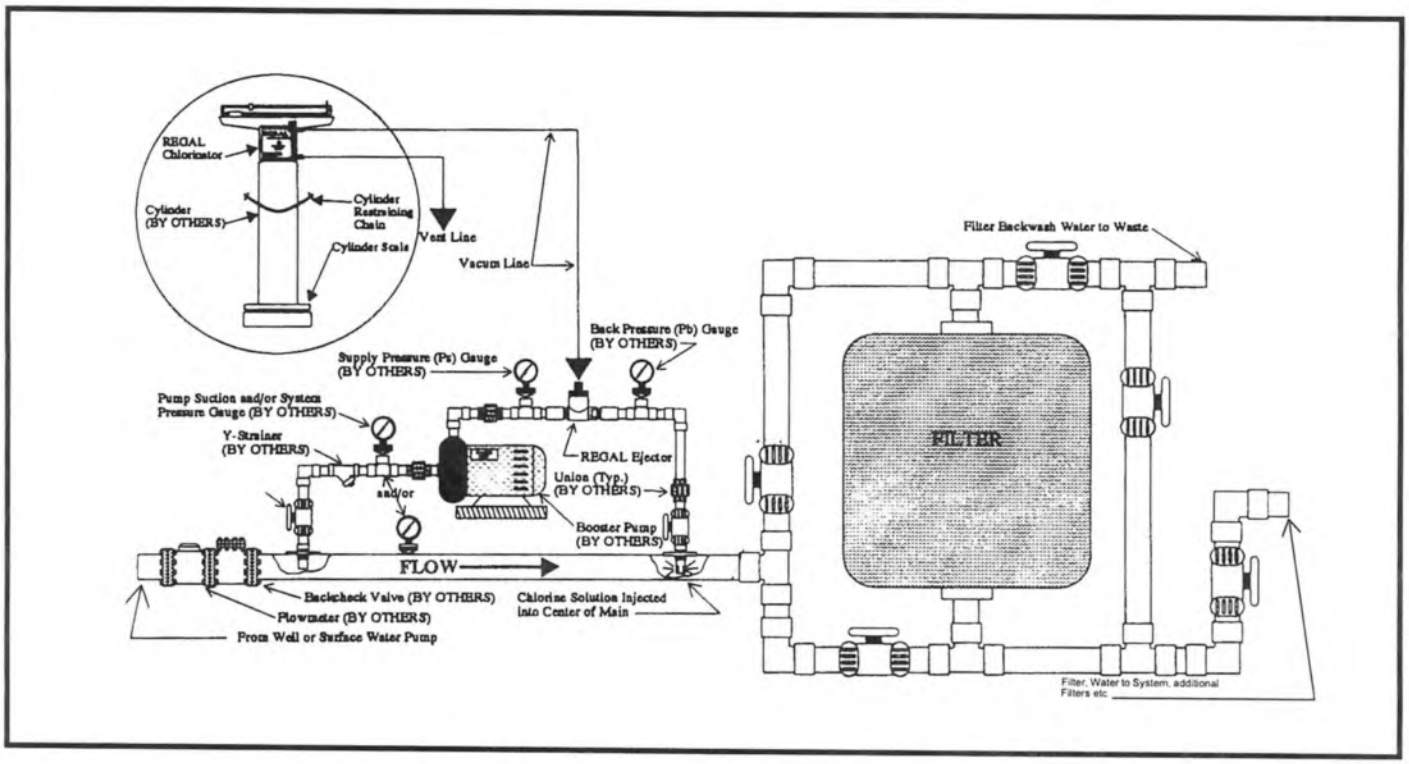
chlorine pass through the filter(s) to prevent bacterial growths from occurring inside each filter. Treating immediately after back flushing reduces the amount of chlorine required. It also minimizes sticking action of the slimes as they are trapped in the filter.

The application of gas chlorine can be done on a continuous or intermittent basis as preferred by the user. In either case, enough chlorine must be added to maintain the following FREE chlorine residual levels for the specified time period.

1 .When applied continuously **(most commonly used method,)** enough chlorine is added to maintain a maximum 1.0 PPM FREE chlorine residual as measured at several remote points in the system. This assumes the pH of the source water is below 7.0. If the pH of the source water is between 7.0 and 7.5, a minimum FREE residual of 1.5 is required. If the pH of the source water is between 7.5 and 8.0, a minimum FREE residual of 2.0 is needed.

2. When applied intermittently **(shock treatment,)** enough chlorine is added to maintain a maximum 10.0 PPM FREE chlorine residual as measured at several remote points in the system for a minimum of 40 minutes after which time, the chlorination system is turned off. This treatment is then repeated every 6 - 10 hours of total irrigation time.

At the end of an irrigation cycle, and before the irrigation system is shut down, the filters are again back flushed. The chlorination system is then turned on until a maximum of 10.0 PPM FREE residual is obtained throughout the system. The irrigation and the chlorination systems are then shut down leaving the chlorinated water in the lines. SEE TYPICAL INSTALLATION DRAWING BELOW.



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