AQUAPULSE SYSTEMS
(888) 239-4447

# Fresh Cut Salads Water Treatment

## Total Water Quality Management for Food Safety

- Broad Spectrum antimicrobial
- 10x more soluble in water than Chlorine
- 2.5x more effective than Chlorine, Sodium Hypochlorite or Calcium Hypochlorite
- Does not hydrolyze in water like Chlorine, Sodium Hypochlorite and Calcium Hypochlorite
- Less corrosive than Chlorine, Sodium and Calcium Hypochlorite due to lower dosage
- Low Sodium, Low Chlorite
- Does Not form Trihalomethanes
- Does Not react with ammonia to form chloramines
- Environmentally Responsible
- Effective at wide pH ranges from 4 to 10
- Effective at very low dosage
- Excellent at removing bio-slime

## The APS Dioxide™ Treatment

- ☐ Advanced Breakthrough Chlorine Dioxide Technology
- ☐ Non Chlorine Method
- ☐ Cost Effective and Affordable
- ☐ Safe, Reliable and Efficient
- ☐ Very Powerful in very small dosage
- ☐ Environmentally Responsible

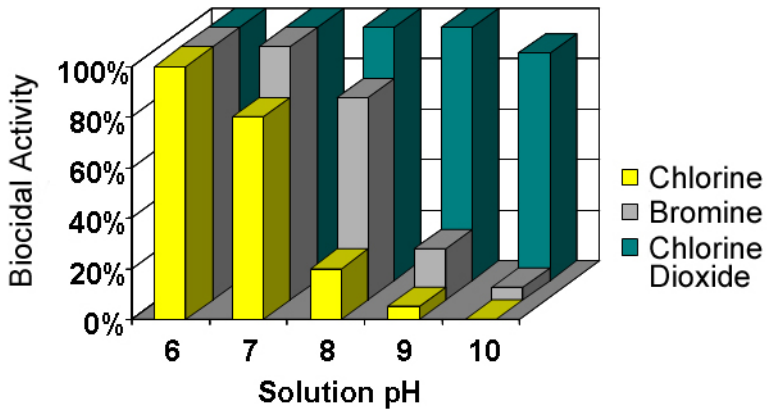
Raw fruits and vegetables, and minimally processed fresh cut salads are increasingly associated with outbreaks of foodborne illness across a variety of microbes. These include E. Coli, Listeria and Salmonella, and various product commodities including Serrano and Jalapeno peppers, Spinach, Tomatoes, Lettuce, Parsley, Romaine, Cilantro etc.

### Fresh Cut Salad Water

APS Chlorine Dioxide system is particularly effective in the challenging fresh cut salads re-circulated water systems, due to a rapid and dynamic wash process with very short contact time. Cut surfaces are exposed to microbial contamination, and it is critical to maintain potable water microbial standards at all times. Several variables such as equipment design, scrubbing action of the water across the washed product, water temperature, contact time while submerged underwater, the type of commodity, sanitizer levels and the type of sanitizer, all have a direct impact on the overall microbial reduction in the flume water. The water quality directly impacts the product quality and food safety.

### APS Dioxide™ Treatment

Chlorine Dioxide is 10x more soluble in water than chlorine, sodium hypochlorite or calcium hypochlorite, and is 2.5x more effective. It does not hydrolyze in water and is able to penetrate deep into the complex product surface. It is effective at wide pH ranges from pH 4 to pH 10. It disrupts protein synthesis and cell function,




APS Chlorine Dioxide is effective in a wide pH range

kills bacteria, virus, fungus, mold, mildew, algae and other spoilage pathogens. It is currently used in thousands of applications in potable drinking water treatment, food processing, pre-harvest and post harvest water treatment, legionella control in cooling towers, pulp and paper industry, fisheries, nurseries, greenhouses and other horticulture applications.

## Chlorine Comparison

Chlorine (Gas), Sodium Hypochlorite (Liquid) and Calcium Hypochlorite (Tablets) all work by the same principle of reaction and are more corrosive than Chlorine Dioxide. They form undesirable byproducts such as Trihalomethanes (THMs) and Chloramines that are known carcinogens and environmentally damaging. They have high phyto-toxicity, and cause high salt accumulation, that causes plant tissue damage. Hard water can react with Calcium to form hard scale deposits.

## APS Total Management System

Treatment of flume water is now effective and affordable with the APS Chlorine Dioxide that is produced onsite by a small and highly efficient generator. Effective at very small dosage, it reduces waterborne microorganisms and the risk of foodborne microbial contamination. Inline treatment is provided in response to the demand, and a sensor verifies that proper treatment has been applied in the water system. A built-in data logger maintains digital recording and provides daily reports of the treatment via ePulse® remote telemetry with charts, and graphs of the treatment level, including date and time of treatment.

## APS Dioxide™ Technology

The APS Chlorine Dioxide system utilizes advanced engineering design to ensure high safety, reliability, efficiency, and offers affordable and easy operation. Relying on vacuum induced hydraulics, pH control and "Dual-Tube" reaction technology, the precursor chemicals are pulled into a reaction zone by the water supply pressure. The regulated water dilution provides consistent concentration of chlorine dioxide production at safe levels. Secondary safety over-ride and switches provide increased reliability and equipment safety.

## APS Treatment Management

The advanced EP500 provides treatment injection via a proportional sensor and monitoring of Chlorine Dioxide treatment. An inline sensor verifies the treatment efficacy and a digital data logger records the data every few minutes. Chemical usage and inventory is tracked by ultrasonic level sensors on the chemical containers. A built-in alarm system alerts the operator via text message and email in case of any treatment process failure, including treatment levels, positive chemical injection verification, or low chemical levels. A data record with graphs and charts is compiled and transmitted to a central website via cell phone modem or Ethernet connectivity for easy access to information.

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