

**Description**

- An all-natural produce wash agent based on Phytology Technology.
- An exceptionally broad spectrum of anti-microbial and anti-mold activity.
- Extends the shelf life of fruit and vegetables by 2 to 3 times .
- Breaks down biofilm removing all contaminants.
- Highly effective in the presence of organic matter.
- Strong residual effect – continues to work for days after application.
- Safer and more effective than chlorine-based products.
- NSF-approved (3D).
- Bio-based, all-natural and biodegradable.
- All ingredients in Five Star Fresh Wash™ are GRAS-Listed.

**Testing Profile**

Organism Tested	Fresh Wash™ Concentration	Reduction %/LOG	Organism ID/ Testing Method
Legionella pneumophila	2%	>99.0000%	ATCC 33152
Serratia marcescens	2%	>98.0000%	ACM 5669
Staphylococcus aureus	2%	10 <sup>8</sup>	NCTC 6571
Escherichia coli	2%	10 <sup>4</sup>	NCTC 10418
Staphylococcus aureus	2%	10 <sup>4</sup>	NCTC 6571
Clostridium perfringens	4%	10 <sup>4</sup>	EN 13704
Listeria monocytogenes	2%	10 <sup>5</sup>	EN 1276
Salmonella typhimurium	2%	10 <sup>5</sup>	EN 1276

**Technical Information**

Usage	Dilution Ratio	1:64
Physical Properties	Appearance	Liquid
	Color	Amber
	Fragrance	None
	pH	5
	Shelf Life	Minimum 1 Year
Packaging	9400-002	4/1g.

**Technology Profile**

Five Star Fresh Wash™ has been specifically formulated as a viable alternative to the use of chlorine for the cleansing of fruit and vegetables. Five Star Fresh Wash™ can also be used in post-harvest applications to protect produce from pathogenic damage during storage and transport.

It is well established that pathogenic microorganisms associated with whole or fresh-cut produce can cause disease outbreaks, thereby demonstrating the need for improved mitigation efforts associated risks. Safety concerns about the production of chlorinated organic compounds, such as trihalomethanes and their impact on human and environmental safety, have been raised in recent years. Since chlorine reacts with organic matter, components leaching from tissues of cut produce surfaces may neutralize some of the chlorine before it reaches microbial cells thereby reducing its effectiveness.

Additionally, crevices, cracks and small fissures in produce, along with the hydrophobic nature of the waxy cuticle on the surface of many fruit and vegetables, may prevent chlorine and other sanitizers from reaching the microorganisms. Spray treatment of lettuce with 200 ppm chlorine was no more effective at removing E. coli than treatment with deionized water.

**Application**

For general decontamination of fresh produce (fruit and vegetables), it can be applied via dipping, spraying or fogging at a concentration of 2% with water.