



## PRODUCT SALES SHEET

9400-002

Five Star Fresh Wash™

Food Service Systems



### Description

- An all-natural produce wash agent based on Phytology Technology.
- An exceptionally broad spectrum of anti-microbial and anti-mold activity.
- Extends the shelflife 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 Info

|                     |                |                |
|---------------------|----------------|----------------|
| 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.

# Five Star Fresh Wash™

## Material Safety Data Sheet

Bioremediation INC.  
CORPORATE: 574-850-3112  
820 NILES AVE. SUITE E  
SOUTH BEND, IN 46617

DATE PREPARED: 6/8/04  
DATE REVISED: 6/8/04  
DATE OF ORIGINATION: 11/12/03

CHEMTREC: 800-424-9300

HAZARD RATING

1= Slight  
2= Moderate  
3= High  
4= Extreme  
0= Insignificant

|            |   |
|------------|---|
| HEALTH     | 1 |
| FIRE       | 0 |
| REACTIVITY | 0 |
| P.P.E      | B |

### I. PRODUCT IDENTIFICATION:

Five Star Fresh Wash™

**COMMON NAME:** CLEANING COMPOUND  
**GENERIC NAME:** CLEANER  
**CHEMICAL:** MIXTURE

### II. HAZARDOUS INGREDIENTS:

| Ingredients              | CAS | % | OSHA PEL | ACGIH TLV |
|--------------------------|-----|---|----------|-----------|
| No Hazardous Ingredients |     |   |          |           |

### III. PHYSICAL/CHEMICAL CHARACTERISTICS:

|                               |         |                       |        |
|-------------------------------|---------|-----------------------|--------|
| <b>BOILING POINT:</b>         | 212     | <b>APPEARANCE:</b>    | CLEAR  |
| <b>SPECIFIC GRAVITY:</b>      | 1.0031  | <b>FORM:</b>          | LIQUID |
| <b>MELTING POINT:</b>         | N/D     | <b>ODOR:</b>          | BLAND  |
| <b>EVAPORATION RATE:</b>      | N/D     | <b>VAPOR DENSITY:</b> | N/D    |
| <b>SOLUBILITY (H2O, 25C):</b> | Soluble | <b>pH:</b>            | 7      |
| <b>VOLATIZES CONTENT:</b>     | 0       | <b>VOC (g/L)</b>      | 0      |

### IV. FIRE AND EXPLOSION HAZARD DATA:

**FLASH POINT:** DEGREES More than 300F  
**LEL:** N/D  
**UEL:** N/D

**Autoignition Temperature:** N/D

**Extinguishing Media:** Product is water-based and will not support flames.  
Unusual Fire/Explosion Hazards: Closed containers exposed to heat may rupture due to pressure buildup.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon oxides, hydrocarbons, steam.

### V. REACTIVITY:

**STABILITY:** Stable  
**CONDITIONS TO AVOID:** None known

### VI. HEALTH HAZARDS:

#### ROUTES AND INDICATIONS OF EXPOSURE

**EYES:** May cause irritation to eyes.  
**SKIN:** Good industrial hygiene recommended.  
**INHALATION:** N/A  
**INGESTION:** May cause irritation.  
**TOXICITY DATA:** None as listed by OSHA, NTP, IARC or EPA

#### EMERGENCY FIRST AID:

**EYES:** Flush eyes for fifteen minutes with water.  
**SKIN:** Wash exposed areas with soap and water.  
**INHALATION:** Remove victim to fresh air or oxygen supply. Seek medical attention if breathing difficulty persists.  
**INGESTION:** If conscious, give victim two glasses of water to dilute ingested material. Do not induce vomiting.

### VII. SPILL, DISPOSAL PROCEDURES AND PRECAUTIONS:

**HANDLING:** Keep closed when not in use. Store at room temperature. Prevent product from freezing. Follow MSDS and Label warnings even after package is empty.

**Material Spillage:** Contain, retrieve spilled materials (absorb, pump, vacuum)

**WASTE DISPOSAL:** This material is NOT defined as hazardous by the Resource Conservation and Recovery Act. It is the product users responsibility to determine at the time of disposal, whether a material containing the product or derived form the product should be classified as a hazardous waste. (40 FR 261020-40). Spill and releases of this material are not reportable under S.A.R.A. (III) Sec. 313.

### VIII. PERSONAL PROTECTIVE EQUIPMENT (P.P.E.):

**PROTECTIVE EQUIPMENT:** Wear safety glasses and gloves.  
**RESPIRATORY PROTECTION:** General ventilation recommended.  
**ENGINEERING CONTROLS:** Keep containers closed when not in use. Do not handle or store near strong oxidants.  
**PERSONAL HYGIENE:** Cleanse skin thoroughly after contact.

### IX. REGULATORY INFORMATION:

D.O.T. SHIPPING NAME: NON-REGULATED  
D.O.T. HAZARD CLASSIFICATION: N/A  
S.A.R.A. III Sec. 311 & 312: N/A  
S.A.R.A. III Sec. 313: NOT covered under Sara 313  
R.C.R.A.: NO  
TSCA Registry: YES

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