



Everywhere It Matters.™



TSUNAMI™ REDUCES  
**99.9%**  
OF DANGEROUS  
PATHOGENS  
IN FRUIT AND VEGETABLE  
PROCESSING WATERS

TSUNAMI: Oxidizing Agent Program  
**THE QUICKEST ROUTE  
TO THE CLEANEST PRODUCE**



# In the produce business, FOOD SAFETY is your first priority.

Tsunami™ 100 is the only EPA-registered\* antimicrobial water additive product on the market that dramatically reduces pathogens in process water.

\*EPA registration #1677-164

Tsunami reduces  
**99.9%**  
of Escherichia coli O157:H7;  
Listeria monocytogenes  
& Salmonella enterica  
in fruit and vegetable processing waters

## SPECIALIZED PRODUCT – BROAD APPLICATIONS

Tsunami products are specially formulated for the flume systems in fruit and vegetable processing plants, providing kill of a variety of species.

- **Completely soluble** in water – helps eliminate potential off-gassing in heavily soiled systems
- Effective across a **broad pH range** – no need to acidify
- **Taste neutral** – will not impart any odor, taste or discoloration to end products
- **Environmental implications** – will not place extra demands on wastewater systems (e.g. pH excursions and effluent concerns related to chlorine byproducts)

**FRESH CUT  
GREENS SHELF  
LIFE EXTENSION**  
with TSUNAMI 100:

collard  
& kale

**7-8  
additional days**

mustard  
& turnip

**1-2  
additional days**



# Solution Stories

Tsunami is an easy-to-use, cost-effective solution designed to help maximize operational efficiencies and improve product quality.

## 1. IMPROVED AIR QUALITY DUE TO INSOLUBILITY IN FLUME WATER

Improved the overall air quality at a Western food processor by entirely eliminating the threat of off-gassing and odor concerns.

## 2. CONSISTENT DOSAGE FOR MICROBIAL CONTROL

Tsunami has low reactivity with organics and soils in the wash water, maintaining a consistent dosage for microbial control.

Percent Total Available Chlorine or Peracetic Acid Remaining in Water 10 Minutes After Adding 10% (wt.) Cut Vegetable

| Vegetable    | Total Available Chlorine Remaining | Peracetic Acid Remaining |
|--------------|------------------------------------|--------------------------|
| Cauliflower  | 75%                                | 93%                      |
| Onion        | 27%                                | 88%                      |
| Potato       | 37%                                | 94%                      |
| Carrot       | 70%                                | 100%                     |
| Lettuce      | 70%                                | 96%                      |
| Green Pepper | 65%                                | 93%                      |
| Celery       | 75%                                | 93%                      |
| Broccoli     | 70%                                | 93%                      |
| Cabbage      | 70%                                | 87%                      |

## 3. IMPROVED PRODUCT QUALITY

Thanks to Tsunami™ 200, a food processor drastically reduced yeast, mold, coliform and total plate counts, resulting in significantly improved finished quality of its further processed potatoes.

## A SIMPLE, COST-EFFECTIVE SOLUTION

- Tsunami has low reactivity with organics and soils in wash water, maintaining a consistent dosage for microbial control
- Tsunami is ready to feed directly from the shipping container – no pH control, precursor chemicals or on-site generation equipment necessary



## IMPROVED OPERATIONAL EFFICIENCIES



PRODUCTIVITY

**Reduced labor** and water usage due to a cleaner flume



PRODUCT QUALITY

**Improved product quality;** less spoilage and rejected product

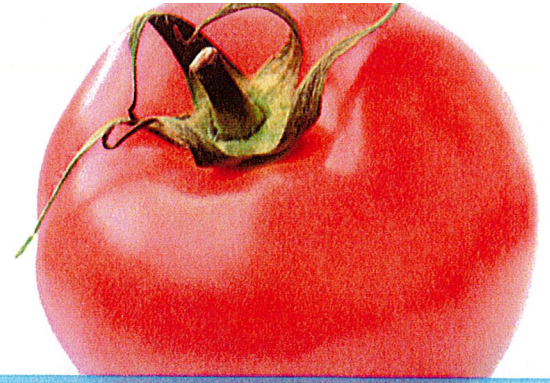


WASTE

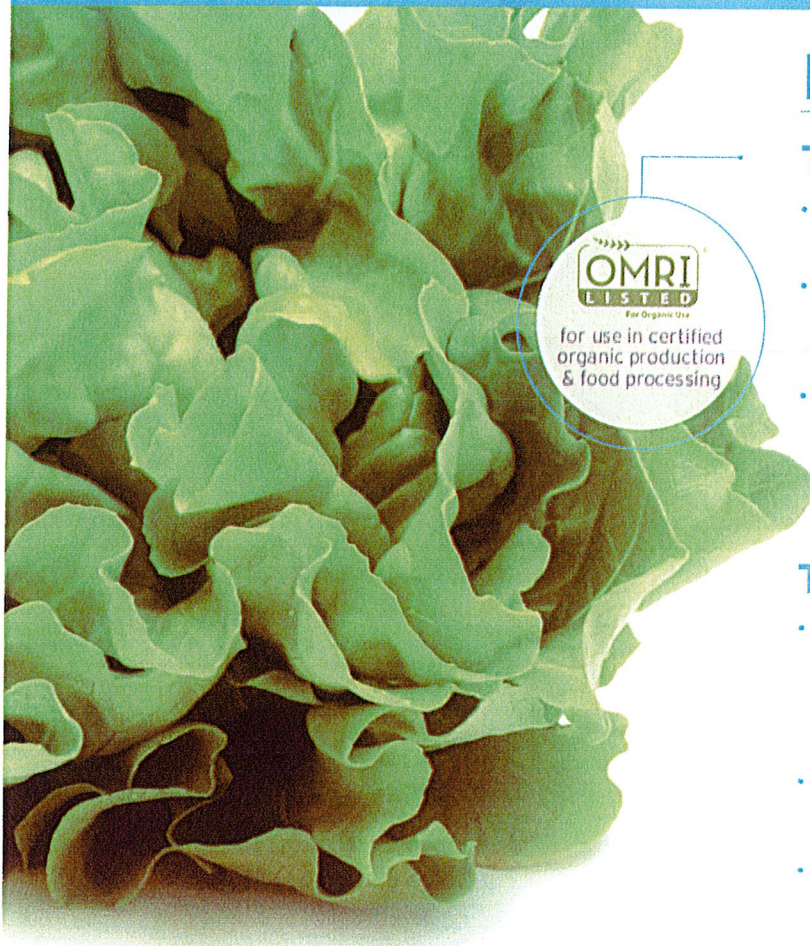
**Reduced use of ancillary chemicals** (e.g. acid, defoamer, waste treatment additives)



Improve product quality, drive efficiencies and reduce water usage when you implement the Tsunami program.



# Raise the food safety bar with Tsunami



## Product Overview

### Tsunami 100:

- Reduces the pathogenic and spoilage microorganisms in flume and wash water systems
- May be applied in all major **transport, storage and washing operations**, flumes, chillers/coolers and wash vessels
- Is the **only EPA-registered antimicrobial water additive product** on the market that reduces pathogens in process water

### Tsunami 200 (antimicrobial food additive):

- **Reduces spoilage** organisms including yeast, mold and bacteria on processed fruit and vegetable surfaces, and also reduces significant numbers of pathogenic bacteria on processed fruit and vegetable surfaces
- May be used in a variety of further-processed fruit and vegetable applications
- **Significantly reduces pathogenic and spoilage microorganisms** on processed fruit and vegetable surfaces, including those that can occur via cross contamination

Note: Tsunami 100 and 200 are not for use as hard food contact surface sanitizers.

TO LEARN MORE VISIT OR CALL:  
[WWW.ECOLAB.COM](http://WWW.ECOLAB.COM) 1.800.392.3392

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : TSUNAMI 100

Other means of identification : Not applicable

Recommended use : Sanitizer

Restrictions on use : Reserved for industrial and professional use.

Product dilution information : 0.0036 % - 0.95 %

Company : Ecolab Inc.  
1 Ecolab Place  
St. Paul, Minnesota USA 55102  
1-800-352-5326

Emergency health information : 1-800-328-0026 (US/Canada), 1-651-222-5352 (outside US)

Issuing date : 05/04/2017

**SECTION 2. HAZARDS IDENTIFICATION**

**GHS Classification**

**Product AS SOLD**

Oxidizing liquids : Category 3

Organic peroxides : Type F

Acute toxicity (Oral) : Category 3

Skin corrosion : Category 1A

Serious eye damage : Category 1

**Product AT USE DILUTION**

Acute toxicity (Oral) : Category 4

Eye irritation : Category 2B

**GHS label elements**

**Product AS SOLD**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : Heating may cause a fire.  
May intensify fire; oxidizer.  
Toxic if swallowed.  
Causes severe skin burns and eye damage.

Precautionary Statements : **Prevention:**  
Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Keep/Store away from clothing/ combustible materials. Take any  
precaution to avoid mixing with combustibles. Keep only in original  
container. Wash skin thoroughly after handling. Do not eat, drink or  
smoke when using this product. Wear protective gloves/ protective