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
clothing/ eye protection/ face protection.

**Response:**
IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Wash contaminated clothing before reuse. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**
Store locked up. Protect from sunlight. Store at temperatures not exceeding .? °C/.? °F. Keep cool. Store away from other materials.

**Disposal:**
Dispose of contents/ container to an approved waste disposal plant.

---

**Product AT USE DILUTION**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peroxyacetic acid</td>
<td>79-21-0</td>
<td>0.1444</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>0.1064</td>
</tr>
</tbody>
</table>

---

**Product AS SOLD**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>30 - 60</td>
</tr>
<tr>
<td>Peroxyacetic acid</td>
<td>79-21-0</td>
<td>15.2</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>11.2</td>
</tr>
</tbody>
</table>

**Other hazards**
Do not mix with bleach or other chlorinated products – will cause chlorine gas.

---

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**
SECTION 4. FIRST AID MEASURES

Product AS SOLD

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact: Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

If swallowed: Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled: Remove to fresh air. Treat symptomatically. Get medical attention immediately.

Protection of first-aiders: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician: Treat symptomatically.

Most important symptoms and effects, both acute and delayed: See Section 11 for more detailed information on health effects and symptoms.

Product AT USE DILUTION

In case of eye contact: Rinse with plenty of water.

In case of skin contact: Rinse with plenty of water.

If swallowed: Rinse mouth. Get medical attention if symptoms occur.

If inhaled: Get medical attention if symptoms occur.

SECTION 5. FIRE-FIGHTING MEASURES

Product AS SOLD

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: None known.

Specific hazards during fire fighting: Special protective equipment for fire-fighters
Oxidizer. Contact with other material may cause fire.
Oxidizer; material is an oxidizer which may readily react with other materials, especially upon heating.

Hazardous combustion products: Decomposition products may include the following materials:
Carbon oxides
Nitrogen oxides (NOx)
Sulfur oxides
Oxides of phosphorus

Special protective equipment: In case of fire, wear a full face positive-pressure self contained
SAFETY DATA SHEET

TSUNAMI 100

for fire-fighters

breathing apparatus and protective suit.

Specific extinguishing methods

Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Product AS SOLD

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up

Stop leak if safe to do so. Never soak up spilled or leaked acids and bases with sawdust, wood chips or similar materials. Isolate the waste do not allow it to come into contact with incompatible materials. For small spills contain with sand or vermiculite and dilute the contained product at least 10 times with water. Transfer to an open topped container and remove to a safe place for neutralization* / disposal. For large spills contain spill and evacuate the area, leave until the reaction subsides, then collect up for disposal. Obtain consent from the local water company / authority if considering discharge to sewer.

*NEUTRALIZATION : once diluted, neutralize with a suitable alkali such as sodium bicarbonate.

Product AT USE DILUTION

Personal precautions, protective equipment and emergency procedures

Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up

Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

SECTION 7. HANDLING AND STORAGE

Product AS SOLD

Advice on safe handling

Do not ingest. Do not get in eyes, on skin, or on clothing. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Use only with adequate ventilation. Wash hands thoroughly after handling. Do not mix with bleach or other chlorinated products – will cause chlorine gas.

Conditions for safe storage

Keep in a cool, well-ventilated place. Keep away from reducing agents. Keep away from strong bases. Keep away from combustible material. Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers. Pressure bursts may occur due to gas evolution if the container is not adequately vented.
SAFETY DATA SHEET

TSUNAMI 100

Storage temperature: -10 °C to 50 °C

Product AT USE DILUTION
Advice on safe handling: Do not ingest. Wash hands thoroughly after handling.
Conditions for safe storage: Keep out of reach of children. Store in suitable labeled containers.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Product AS SOLD
Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Form of exposure</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>TWA</td>
<td>10 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>15 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>15 ppm 37 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 ppm 25 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>Peroxyacetic acid</td>
<td>79-21-0</td>
<td>STEL</td>
<td>0.4 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>TWA</td>
<td>1 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 ppm 1.4 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 ppm</td>
<td>OSHA Z1</td>
</tr>
</tbody>
</table>

Engineering measures: Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Eye protection: Wear eye protection/face protection.
Hand protection: Wear the following personal protective equipment:
Standard glove type.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection: Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Product AT USE DILUTION
Engineering measures: Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.
SAFETY DATA SHEET

TSUNAMI 100

Personal protective equipment

- Eye protection: No special protective equipment required.
- Hand protection: No special protective equipment required.
- Skin protection: No special protective equipment required.
- Respiratory protection: No personal respiratory protective equipment normally required.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Product AS SOLD</th>
<th>Product AT USE DILUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>vinegar-like</td>
<td>vinegar-like</td>
</tr>
<tr>
<td>pH</td>
<td>1.8, (100 %)</td>
<td>2.8 - 4.6</td>
</tr>
<tr>
<td>Flash point</td>
<td>96 °C closed cup, Does not sustain combustion.</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>&gt; 100 °C</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>1.114</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>soluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Thermal decomposition</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

Product AS SOLD

- Chemical stability: pressure build-up

984484-12 6 / 12
 Possibility of hazardous reactions: Do not mix with bleach or other chlorinated products – will cause chlorine gas.

Conditions to avoid: Direct sources of heat. Exposure to sunlight.

Incompatible materials: Metals
Bases
Organic materials

Hazardous decomposition products: Decomposition products may include the following materials:
Carbon oxides
Nitrogen oxides (NOx)
Sulfur oxides
Oxides of phosphorus

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure: Inhalation, Eye contact, Skin contact

Potential Health Effects

Product AS SOLD

Eyes: Causes serious eye damage.

Skin: Causes severe skin burns.

Ingestion: Toxic if swallowed. Harmful if swallowed. Causes digestive tract burns.

Inhalation: Toxic if inhaled. May cause respiratory tract irritation. May cause nose, throat, and lung irritation.

Chronic Exposure: Health injuries are not known or expected under normal use.

Product AT USE DILUTION

Eyes: Causes eye irritation.

Skin: Health injuries are not known or expected under normal use.

Ingestion: Harmful if swallowed.

Inhalation: Health injuries are not known or expected under normal use.

Chronic Exposure: Health injuries are not known or expected under normal use.

Experience with human exposure

Product AS SOLD

Eye contact: Redness, Pain, Corrosion
Skin contact: Redness, Pain, Corrosion
Ingestion: Corrosion, Abdominal pain
Inhalation: Respiratory irritation, Cough

Product AT USE DILUTION
Eye contact: Redness, Irritation
Skin contact: No symptoms known or expected.
Ingestion: No information available.
Inhalation: No symptoms known or expected.

Toxicity

**Product AS SOLD**

**Product**

Acute oral toxicity: Acute toxicity estimate: 175 mg/kg
Acute inhalation toxicity: 4 h LC50 Rat: 6 mg/l
   4 h Acute toxicity estimate: 8.93 mg/l
Acute dermal toxicity: LD50 Rabbit: > 5,000 mg/kg
   Test substance: Product
Skin corrosion/irritation: No data available
Respiratory or skin sensitization: No data available
Carcinogenicity: No data available
Reproductive effects: No data available
Germ cell mutagenicity: No data available
Teratogenicity: No data available
STOT-single exposure: The substance or mixture is not classified as specific target organ toxicant, single exposure.
STOT-repeated exposure: No data available
Aspiration toxicity: No data available

**SECTION 12. ECOLOGICAL INFORMATION**

**Product AS SOLD**

Ecotoxicity

Environmental Effects: Toxic to aquatic life.

**Product**

Toxicity to fish: 96 h LC50: 10.3 mg/l
Toxicity to daphnia and other aquatic invertebrates: 48 h LC50 Daphnia magna (Water flea): 4.36 mg/l
Toxicity to algae: No data available

**Ingredients**

Toxicity to algae: Acetic acid
   72 h EC50 Skeletonema costatum (marine diatom): 1,000 mg/l
      Peroxyacetic acid
   72 h EC50: 0.7 mg/l
      Hydrogen peroxide
   72 h EC50: 1.38 mg/l
SAFETY DATA SHEET
TSUNAMI 100

Persistence and degradability
Product AS SOLD
Readily biodegradable.

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Product AS SOLD
Disposal methods
Do not contaminate ponds, waterways or ditches with chemical or used container. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations
Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers. Dispose of in accordance with local, state, and federal regulations.

D002 (Corrosive)

Product AT USE DILUTION
Disposal methods
Do not contaminate ponds, waterways or ditches with chemical or used container. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations
Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers. Dispose of in accordance with local, state, and federal regulations.

SECTION 14. TRANSPORT INFORMATION

Product AS SOLD
The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)
UN number
3109
Description of the goods
Organic peroxide type F, liquid (Peroxyacetic acid)
Class
5.2 (8)
Environmentally hazardous: no

Sea transport (IMDG/IMO)

UN number: 3109
Description of the goods: ORGANIC PEROXIDE TYPE F, LIQUID (Peroxyacetic acid)
Class: 5.2 (8)
Marine pollutant: yes

SECTION 15. REGULATORY INFORMATION

Product AS SOLD

EPA Registration number: 1677-164

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>5000</td>
<td>15924</td>
</tr>
</tbody>
</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peroxyacetic acid</td>
<td>79-21-0</td>
<td>500</td>
<td>3289</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
- Fire Hazard
- Reactivity Hazard
- Acute Health Hazard

SARA 302
- The following components are subject to reporting levels established by SARA Title III, Section 302:
  - Peroxyacetic acid 79-21-0 15.2 %
  - Hydrogen peroxide 7722-84-1 11.2 %

SARA 313
- The following components are subject to reporting levels established by SARA Title III, Section 313:
  - Peroxyacetic acid 79-21-0 15.2 %

California Prop 65
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

Switzerland. New notified substances and declared preparations:
On the inventory, or in compliance with the inventory

United States TSCA Inventory:
On TSCA Inventory

Canadian Domestic Substances List (DSL):
All components of this product are on the Canadian DSL

Australia Inventory of Chemical Substances (AICS) :
On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemical Substances :
On the inventory, or in compliance with the inventory

Japan. ENCS - Existing and New Chemical Substances Inventory :
On the inventory, or in compliance with the inventory

Korea. Korean Existing Chemicals Inventory (KECI) :
On the inventory, or in compliance with the inventory

Philippines Inventory of Chemicals and Chemical Substances (PICCS) :
On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances in China (IECSC) :
On the inventory, or in compliance with the inventory

Taiwan Chemical Substance Inventory :
On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Product AS SOLD
NFPA:

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Instability</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>1 OX</td>
</tr>
</tbody>
</table>

Special hazard.

HMIS III:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABILITY</td>
<td>1</td>
</tr>
<tr>
<td>PHYSICAL HAZARD</td>
<td>1</td>
</tr>
</tbody>
</table>

0 = not significant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme, * = Chronic

Product AT USE DILUTION
NFPA:

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Instability</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0 OX</td>
</tr>
</tbody>
</table>

Special hazard.

HMIS III:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABILITY</td>
<td>0</td>
</tr>
<tr>
<td>PHYSICAL HAZARD</td>
<td>0</td>
</tr>
</tbody>
</table>

0 = not significant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme, * = Chronic

Issuing date : 05/04/2017
Version : 1.7
SAFETY DATA SHEET

TSUNAMI 100

Prepared by: Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision are indicated by a bar in the left-hand margin of the SDS.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.