S A F E T Y  D A T A  S H E E T

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name: LERASEPT™ PAA
- Synonyms: PAA
- Molecular formula: CH₃-COOOH

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Cleaning agent
- Oxidizing Agents
- Manufacture of pulp, paper and paper products

1.3 Details of the supplier of the Safety Data Sheet

Company
LOEFFLER CHEMICAL CORPORATION
200 GREAT SOUTHWEST PARKWAY
ATLANTA, GEORGIA 30336-2308
USA
Tel: +1-800-769-5020; +1-404-629-0999
Fax: +1-404-629-0690

1.4 Emergency telephone

CHEMICAL EMERGENCY RESPONSE NUMBER:
SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
CALL CHEMTREC (24hrs): 1-800-424-9300
International Calls: +1-703-527-3887
Reference Code: CCN13310

SECTION 02 - HAZARDS IDENTIFICATION

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)

Organic peroxides, Type F
H242: Heating may cause a fire.
Corrosive to Metals, Category 1
H290: May be corrosive to metals.
Acute toxicity, Category 4
H302: Harmful if swallowed.
Acute toxicity, Category 4
H312: Harmful in contact with skin.
Skin corrosion, Category 1A
H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1
H318: Causes serious eye damage.
Specific target organ systemic toxicity - single
H335: May cause respiratory irritation. (Respiratory system
2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictograms

Signal Word
- Danger

Hazard Statements
- H242 Heating may cause a fire.
- H290 May be corrosive to metals.
- H302 + H312 Harmful if swallowed or in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.

Precautionary Statements
Prevention
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P220 Keep/Store away from clothing/combustible materials.
- P234 Keep only in original container.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- P305 + P351 + P338 + P310 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 or doctor/physician.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.

Storage
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
- P410 Protect from sunlight.
- P411 + P235 Store at temperatures not exceeding 30 °C/88 °F. Keep cool.
- P420 Store away from other materials.

Disposal
- P501 Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards which do not result in classification

- H401: Toxic to aquatic life.
- H411: Toxic to aquatic life with long lasting effects.
SECTION 03 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance
- Not applicable, this product is a mixture.

3.2 Mixture
- Synonyms PAA, Peroxyethanoïc acid, Peracetic acid
- Formula CH3-COOOH
- Chemical nature Mixture

<table>
<thead>
<tr>
<th>CAS NUMBER</th>
<th>CHEMICAL NAME</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-21-0</td>
<td>Peroxyacetic Acid</td>
<td>&lt; 17</td>
</tr>
<tr>
<td>7722-84-1</td>
<td>Hydrogen Peroxide</td>
<td>&lt; 31</td>
</tr>
<tr>
<td>64-19-7</td>
<td>Acetic Acid</td>
<td>&lt; 16</td>
</tr>
<tr>
<td>2809-21-4</td>
<td>Phosphonic Acid</td>
<td>&lt; 2</td>
</tr>
</tbody>
</table>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 04 - FIRST AID MEASURES

4.1 Description of first-aid measures

In case of inhalation
- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

In case of skin contact
- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control center immediately.
- Wash contaminated clothing before re-use.

In case of eye contact
- Call a physician or poison control center immediately.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Take victim immediately to hospital.

In case of ingestion
- Call a physician or poison control center immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.
4.2 Most important symptoms and effects, both acute and delayed

**In case of inhalation**

**Symptoms**
- Breathing difficulties
- Cough
- Chemical pneumonitis
- pulmonary edema

**Effects**
- Corrosive to respiratory system.

*Repeated or prolonged exposure*
- Nose bleeding
- chronic bronchitis

**In case of skin contact**

**Symptoms**
- Redness
- Swelling of tissue

**Effects**
- Corrosive
- Causes severe burns.

**In case of eye contact**

**Symptoms**
- Redness
- Lachrymation
- Swelling of tissue

**Effects**
- Corrosive
- Causes severe burns.
- May cause irreversible eye damage.
- May cause blindness.

**In case of ingestion**

**Symptoms**
- Nausea
- Abdominal pain
- Bloody vomiting
- Diarrhea
- Suffocation
- Cough
- Severe shortness of breath

**Effects**
- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
- Risk of respiratory disorder

4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician**
- Take victim immediately to hospital.
- Immediate medical attention is required.
- Consult with an ophthalmologist immediately in all cases.
- Burns must be treated by a physician.
- If swallowed
  - Avoid gastric lavage (risk of perforation).
  - Keep under medical supervision for at least 48 hours.
SECTION 05 - FIRE FIGHTING MEASURES

Flash point: Not applicable, Flammable vapors may occur above the SADT
Autoignition temperature: No data available
Flammability / Explosive limit: No data available

5.1 Extinguishing media

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

Unsuitable extinguishing media:
- None.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting:
- Heating may cause a fire.
- Oxygen released in thermal decomposition may support combustion

Hazardous combustion products:
- Oxygen

5.3 Advice for firefighters

Special protective equipment for fire-fighters:
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit
- Cool containers/tanks with water spray.
- Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 06 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- Advice for non-emergency personnel
- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Advice for emergency responders
- Use personal protective equipment.
- Drying of this product on clothing or combustible materials may cause fire.
- Keep wetted with water.
- Prevent further leakage or spillage.
- Keep away from incompatible products

6.2 Environmental precautions

- Discharge into the environment must be avoided.
- Do not flush into surface water or sanitary sewer system.
- In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations.

6.3 Methods and materials for containment and cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Do not let product enter drains.
- Keep in suitable, closed containers for disposal.
- Keep in properly labeled containers.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.
6.3 Methods and materials for containment and cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Do not let product enter drains.
- Keep in suitable, closed containers for disposal.
- Keep in properly labeled containers.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 07 – HANDLING AND STORAGE

7.1 Precautions for safe handling

- Use only in well-ventilated areas.
- Before all operations, passivate the piping circuits and vessels according to the procedure recommended by the producer.
- Use only clean and dry utensils.
- Never return unused material to storage receptacle.
- May not get in touch with:
  - Organic materials
- Keep away from incompatible products
- Keep away from heat.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using, do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Store in original container.
- Keep tightly closed in a dry, cool and well-ventilated place.
- Keep in properly labeled containers.
- Keep in a contained area
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Electrical equipment should be protected to the appropriate standard.
- Keep away from incompatible products
- Organic Peroxide Storage (Burning Rate) Type IV according to the BGV B4 test method

Packaging material

Suitable material

- Approved grades of HDPE.
- Stainless steel cleaned and passivated

7.3 Specific end use(s)

- no data available
SECTION 08 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Value Type</th>
<th>Value</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide (H2O2)</td>
<td>TWA</td>
<td>1 ppm</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 mg/m3</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>Hydrogen peroxide (H2O2)</td>
<td>TWA</td>
<td>1 ppm</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 mg/m3</td>
<td>- Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>TWA</td>
<td>10 ppm</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25 mg/m3</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>ST</td>
<td>15 ppm</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37 mg/m3</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>TWA</td>
<td>10 ppm</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>STEL</td>
<td>15 ppm</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>TWA</td>
<td>10 ppm</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25 mg/m3</td>
<td>- Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>Ethaneperoxoic acid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Peroxide (H2O2)</td>
<td>7722-84-1</td>
<td>75 ppm</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>64-19-7</td>
<td>50 ppm</td>
</tr>
<tr>
<td>Hydrogen Peroxide (H2O2)</td>
<td>7722-84-1</td>
<td>75 ppm</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>64-19-7</td>
<td>50 ppm</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Control measures

Engineering measures
- Ensure adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.
Individual protection measures

**Respiratory protection**
- In case of insufficient ventilation, wear suitable respiratory equipment.
- Respirator with a vapor filter (EN 141)
- Recommended Filter type: ABEK-P2

**Hand protection**
- Impervious gloves
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

**Suitable material**
- butyl-rubber
- Break through time: > 480 min
- Glove thickness: >= 0.4 mm

**Eye protection**
- Chemical resistant goggles must be worn.
- If splashes are likely to occur, wear:
  - Tightly fitting safety goggles
  - Face-shield

**Skin and body protection**
- Apron/boots of butyl rubber if risk of splashing.

**Hygiene measures**
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

---

**SECTION 09 – PHYSICAL AND CHEMICAL PROPERTIES**

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

**9.1 Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Form: liquid</td>
</tr>
<tr>
<td></td>
<td>Physical state: liquid</td>
</tr>
<tr>
<td></td>
<td>Color: colorless</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>pungent</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>no data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>&lt; 1.5</td>
</tr>
<tr>
<td></td>
<td>pKa: 8.2 (77 °F (25 °C))</td>
</tr>
<tr>
<td><strong>Freezing point</strong></td>
<td>ca. -44 °F (-42 °C)</td>
</tr>
<tr>
<td></td>
<td>Method: Calculation method</td>
</tr>
<tr>
<td><strong>Boiling point/boiling range</strong></td>
<td>ca. 221 °F (105 °C)</td>
</tr>
<tr>
<td></td>
<td>Method: Calculation method</td>
</tr>
</tbody>
</table>
FLASH POINT

Not applicable, Flammable vapors may occur above the SADT

EVAPORATION RATE (Butylacetaete = 1)

no data available

FLAMMABILITY (LIQUIDS)

Not applicable

FLAMMABILITY / EXPLOSIVE LIMIT

Explosiveness: Not explosive

AUTOIGNITION TEMPERATURE

no data available

VAPOR PRESSURE

cia. 24 mmHg (32 hPa) (77 °F (25 °C))
Method: Calculation method

VAPOR DENSITY

no data available

DENSITY

Relative density: 1.11 g/cm³

SOLUBILITY

Water solubility:
1,000 g/l (68 °F (20 °C))
completely miscible

Solubility in other solvents:
organic polar solvents: soluble
Aromatic solvents: slightly soluble

THERMAL DECOMPOSITION

>= 131 °F (>= 55 °C)
Self-Accelerating decomposition temperature (SADT)

VISCOOSITY

no data available

EXPLOSIVE PROPERTIES

Not explosive

OXIDIZING PROPERTIES

Oxidizer

9.2 Other information

CORROSION OF METALS

Corrosive to metals

PEROXIDES

The substance or mixture is an organic peroxide classified as type F.

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity

- Decomposes on heating.
- Heating may cause a fire.
- Potential for exothermic hazard

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Contact with combustible material may cause fire.
- Contact with flammables may cause fire or explosions.
- Risk of explosion if heated under confinement.
- Fire or intense heat may cause violent rupture of packages.

10.4 Conditions to avoid

- Contamination
- To avoid thermal decomposition, do not overheat.
10.5 Incompatible materials
- Acids
- Bases
- Metals
- Heavy metal salts
- Powdered metal salts
- Reducing agents
- Organic materials
- Flammable materials

10.6 Hazardous decomposition products
- Oxygen

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity  
LD50 : 652 mg/kg - Rat  
Test substance: 11.7 % PAA mixture

Acute inhalation toxicity  
LC50 - 4 h (aerosol) 1.3 mg/l - Rat  
Test substance: 15 % PAA mixture

Acute dermal toxicity  
LD50 Dermal 1,957 mg/kg - Rabbit  
Test substance: 11.7 % PAA mixture

Acute toxicity (other routes of administration)  
no data available

Skin corrosion/irritation
Rabbit  
Corrosive

Serious eye damage/eye irritation
Rabbit  
Causes serious eye damage.

Respiratory or skin sensitization
Guinea pig  
Did not cause sensitization on laboratory animals.

Mutagenicity

Genotoxicity in vitro  
In vitro tests have shown mutagenic effects.

Genotoxicity in vivo  
Animal testing did not show any mutagenic effects.

Carcinogenicity

Hydrogen peroxide (H2O2)
Mouse  
Oral  
Exposure time: Prolonged exposure  
Target Organs: duodenum  
carcinogenic effects

Mouse  
Dermal  
Exposure time: Prolonged exposure  
Animal testing did not show any carcinogenic effects.

Acetic acid  
Animal testing did not show any carcinogenic effects.  
Published data

This product does not contain any ingredient designated as probable or suspected human carcinogens by:
NTP
IARC
OSHA
Toxicity for reproduction and development

Toxicity to reproduction / fertility
No toxicity to reproduction

Developmental Toxicity/Teratogenicity

Acetic acid
Rat, female
Application Route: Oral
Method: according to a standardized method
Published data
Mouse
No effect observed on development
Published data
Rabbit
No effect observed on development
Published data

Acetic acid
Rat, female
Application Route: Oral
Method: according to a standardized method
Published data
Mouse
No effect observed on development
Published data
Rabbit
No effect observed on development
Published data

Experience with human exposure

Experience with human exposure: Ingestion
Acetic acid
On ingestion, may cause mucous membranes to bleed
Published data
Acetic acid
On ingestion, may cause mucous membranes to bleed
Published data

CMR effects

Carcinogenicity
Acetic acid
No evidence of carcinogenicity in animal studies.
Acetic acid
No evidence of carcinogenicity in animal studies.

Mutagenicity
Acetic acid
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Acetic acid
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Aspiration toxicity
Acetic acid
Not applicable, internal evaluation
Acetic acid
Not applicable, internal evaluation

Further information
no data available

SECTION 12 – ECOLOGICAL INFORMATION

12.1 Toxicity
Aquatic Compartment
Acute toxicity to fish
Hydrogen peroxide (H2O2)
LC50 - 96 h : 16.4 mg/l - Pimephales promelas (fathead minnow)
NOEC - 96 h : 4.3 mg/l - Pimephales promelas (fathead minnow)
Acetic acid
LC50 - 96 h : > 300 mg/l - Oncorhynchus mykiss (rainbow trout)
semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 203
Not harmful to fish (LC50 > 100 mg/L)
Unpublished reports

Ethaneperoxoic acid
LC50 - 96 h : 1.1 mg/l - Lepomis macrochirus (Bluegill sunfish)
NOEC - 33 d : 0.00094 mg/l - Danio rerio (zebra fish)
Early-life Stage

Hydrogen peroxide (H2O2)
LC50 - 96 h : 16.4 mg/l - Pimephales promelas (fathead minnow)
NOEC - 96 h : 4.3 mg/l - Pimephales promelas (fathead minnow)

Acetic acid
LC50 - 96 h : > 300 mg/l - Oncorhynchus mykiss (rainbow trout)
semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 203
Not harmful to fish (LC50 > 100 mg/L)
Unpublished reports

Ethaneperoxoic acid
LC50 - 96 h : 1.1 mg/l - Lepomis macrochirus (Bluegill sunfish)
NOEC - 33 d : 0.00094 mg/l - Danio rerio (zebra fish)
Early-life Stage

Acute toxicity to daphnia and other aquatic invertebrates.

Hydrogen peroxide (H2O2)
EC50 - 48 h : 2.4 mg/l - Daphnia pulex (Water flea)
semi-static test
Fresh water
NOEC - 48 h : 1 mg/l - Daphnia pulex (Water flea)
semi-static test
Fresh water

Acetic acid
EC50 - 48 h : > 300 mg/l - Daphnia magna (Water flea)
semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
Not harmful to aquatic invertebrates. (EC50 > 100 mg/L)
Unpublished reports

Ethaneperoxoic acid
EC50 - 48 h : 0.73 mg/l - Daphnia magna (Water flea)

Hydrogen peroxide (H2O2)
EC50 - 48 h : 2.4 mg/l - Daphnia pulex (Water flea)
semi-static test
Fresh water
NOEC - 48 h : 1 mg/l - Daphnia pulex (Water flea)
semi-static test
Fresh water

Acetic acid
EC50 - 48 h : > 300 mg/l - Daphnia magna (Water flea)
semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
Not harmful to aquatic invertebrates. (EC50 > 100 mg/L)
Unpublished reports

Ethaneperoxoic acid
EC50 - 48 h : 0.73 mg/l - Daphnia magna (Water flea)
Toxicity to aquatic plants

Hydrogen peroxide (H2O2)
- EC50 - 72 h : 2.6 mg/l - Skeletonema costatum (marine diatom)
- NOEC - 72 h : 0.63 mg/l - Skeletonema costatum (marine diatom)

Acetic acid
- EC10 - 72 h : 300 mg/l - Skeletonema costatum
- static test
- Analytical monitoring: yes
- Method: OECD Test Guideline 201
- Growth rate
  - No adverse chronic effect observed up to and including the threshold of 1 mg/L.
  - Unpublished reports
- ErC50 - 72 h : > 300 mg/l - Skeletonema costatum
- static test
- Method: OECD Test Guideline 201
- Not harmful to algae (EC50 > 100 mg/L)
- Unpublished reports

Ethaneperoxoic acid
- EC50 - 96 h : 0.16 mg/l - Pseudokirchneriella subcapitata (green algae)

Hydrogen peroxide (H2O2)
- EC50 - 72 h : 2.6 mg/l - Skeletonema costatum (marine diatom)
- NOEC - 72 h : 0.63 mg/l - Skeletonema costatum (marine diatom)

Acetic acid
- EC10 - 72 h : 300 mg/l - Skeletonema costatum
- static test
- Analytical monitoring: yes
- Method: OECD Test Guideline 201
- Growth rate
  - No adverse chronic effect observed up to and including the threshold of 1 mg/L.
  - Unpublished reports
- ErC50 - 72 h : > 300 mg/l - Skeletonema costatum
- static test
- Method: OECD Test Guideline 201
- Not harmful to algae (EC50 > 100 mg/L)
- Unpublished reports

Ethaneperoxoic acid
- EC50 - 96 h : 0.16 mg/l - Pseudokirchneriella subcapitata (green algae)

Toxicity to microorganisms

Acetic acid
- static test
- NOEC - 16 h : 1,150 mg/l - Pseudomonas putida
- Published data

Acetic acid
- static test
- NOEC - 16 h : 1,150 mg/l - Pseudomonas putida
- Published data

Chronic toxicity to daphnia and other aquatic invertebrates.

Hydrogen peroxide (H2O2)
- NOEC: 0.63 mg/l - 21 Days - Daphnia magna (Water flea)
- Reproduction Test

Hydrogen peroxide (H2O2)
- NOEC: 0.63 mg/l - 21 Days - Daphnia magna (Water flea)
- Reproduction Test
12.2 Persistence and degradability

Biodegradation
Biodegradability: aerobic
Biodegradable

Effects on waste water treatment plants
Inhibitor

Method: Abiotic degradation

Degradability assessment
Acetic acid: The product is considered to be rapidly degradable in the environment

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water
Acetic acid: Not potentially bioaccumulable

Bioconcentration factor (BCF): Does not bioaccumulate.

12.4 Mobility in soil

Adsorption potential (Koc)
Water soluble
mobile

Soil/sediments
non-significant adsorption

Known distribution to environmental compartments
Acetic acid: Ultimate destination of the product: Water
Structure-activity relationship (SAR)
Air
Structure-activity relationship (SAR)

12.5 Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating, and toxic (PBT).
This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Ecotoxicity assessment

Acute aquatic toxicity
Acetic acid: Not harmful to aquatic life (LC/EC50 > 100 mg/L)

Chronic aquatic toxicity
Acetic acid: No adverse chronic effect observed up to and including the threshold of 1 mg/L.
SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product Disposal
- Contact manufacturer.
- Contact waste disposal services.
- In accordance with local and national regulations.

Waste Code
- Environmental Protection Agency
- Hazardous Waste – YES
- RCRA Hazardous Waste (40 CFR 302)
- D001 - Ignitable waste – (I)

Advice on cleaning and disposal of packaging
- Empty containers.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Where possible recycling is preferred to disposal or incineration.
- In accordance with local and national regulations.

SECTION 14 – TRANSPORT INFORMATION

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

DOT

14.1 UN number UN 3109

14.2 Proper shipping name ORGANIC PEROXIDE TYPE F, LIQUID (Peroxyacetic acid, Type F, stabilized)

14.3 Transport hazard class 5.2 Subsidiary hazard class 8 Label(s) 5.2 (8)

14.4 Packing group Packing group II ERG No 145

14.5 Environmental hazards Marine pollutant No

TDG

14.1 UN number UN 3109

14.2 Proper shipping name ORGANIC PEROXIDE TYPE F, LIQUID (Peroxyacetic acid, Type F, stabilized)

14.3 Transport hazard class 5.2 Subsidiary hazard class 8 Label(s) 5.2 (8)

14.4 Packing group Packing group II ERG No 145
14.5 Environmental hazards
Marine pollutant  NO

IMDG

14.1 UN number  UN 3109

14.2 Proper shipping name  ORGANIC PEROXIDE TYPE F, LIQUID (Peroxyacetic acid, Type F, stabilized)

14.3 Transport hazard class  5.2
Subsidiary hazard class 8
Label(s) 5.2 (8)

14.4 Packing group
Packing group  Not specified

14.5 Environmental hazards
Marine pollutant  NO

14.6 Special precautions for user
EmS F-J , S-R
For personal protection see section 8.

IATA

14.1 UN number  UN 3109

14.2 Proper shipping name  ORGANIC PEROXIDE TYPE F, LIQUID (Peroxyacetic acid, Type F, stabilized)

14.3 Transport hazard class  5.2
Subsidiary hazard class: HEAT, 8
Label(s): 5.2 (HEAT, 8)

14.4 Packing group
Packing instruction (cargo aircraft)  570
Max net qty / pkg  25.00 L
Packing instruction (passenger aircraft)  570
Max net qty / pkg  10.00 L

14.5 Environmental hazards  NO

14.6 Special precautions for user
For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.
TSCA Inventory List: Yes.

CERCLA Hazardous Substance (40 CFR § 302)
Listed Substance: Yes (acetic acid).

Unlisted Substance: Yes.

Characteristic: Ignitability, corrosivity.

RCRA Waste Number: D001, D002.

Reportable Quantity: 100 pounds, 5,000 pounds (acetic acid).

SARA Title III, Sections 311/312 (40 CFR § 370)
Hazard Category: Fire Hazard
Immediate Health Hazard
Reactive

Planning Threshold: 500 pounds.

SARA Title III, Section 313 (40 CFR § 372)
Listed Toxic Chemical: Yes.

SARA Title III, Sections 302/303 (40 CFR § 355)
Extremely Hazardous Substance: Yes.

Reportable Quantity: 500 pounds.

Planning Threshold: 500 pounds.

Canadian WHMIS Classification
C - Oxidizing
E - Corrosive
F - Dangerously Reactive

Canadian Domestic Substances List (DSL)
Listed Substance: Yes.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Occupational Safety and Health Administration (OSHA) requirements for process safety management must be followed anytime at least 1,000 lbs. of peracetic, (> 60% acetic acid) is used or stored. Refer to 29CFR1910.119 for specific details.

Environmental Protection Agency (EPA) requirements for a Risk Management Plan (RMP) must be followed anytime at least 10,000 lbs. of peracetic acid is used or stored. Refer to 40CFR68.150 for specific details.

Loeffler Chemical Corporations Peracetic Acid formulations as packaged have a partial pressure of Peracetic Acid less than 10 mm of mercury (mmHg) up to 60°C (140°F) and therefore need not be considered when determining threshold quantities for RMP. Refer to 40CFR68.115 (b) (1) for details.
SECTION 16 – OTHER INFORMATION

NFPA (National Fire Protection Association) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>Health</td>
<td>3 serious</td>
</tr>
<tr>
<td>Flammability</td>
<td>1 slight</td>
</tr>
<tr>
<td>Instability or Reactivity</td>
<td>2 moderate</td>
</tr>
<tr>
<td>Special Notices</td>
<td>OX Oxidizer</td>
</tr>
</tbody>
</table>

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

<table>
<thead>
<tr>
<th>Category</th>
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</tbody>
</table>

PPE Determined by User; dependent on local conditions

Further information

- Environmental Protection Agency (EPA) requirements for a Risk Management Plan must be followed anytime at least 10000 lbs. of Peracetic acid are used or stored. Refer to 40 CFR 68.150 for specific details.
- Wear an approved full-face air supplied respirator for excessive or unknown concentrations. Selected chemical cartridges for respirators, i.e. OV, OV/AG, GME have been tested successfully under lab conditions to remove hydrogen peroxide and peracetic acid vapors in concentrations exceeding the applicable exposure limits.
- The National Transportation Safety Board (NTSB) and Federal Aviation Administration (FAA) have requested the following information be provided: Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.
- Product evaluated under the US GHS format.

Date Prepared: 08/20/2015
Last Revision:

Key or legend to abbreviations and acronyms used in the safety data sheet

- ST  STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
- STEL  Short-term exposure limit
- TWA  8-hour, time-weighted average
- ACGIH  American Conference of Governmental Industrial Hygienists
- OSHA  Occupational Safety and Health Administration
- NTP  National Toxicology Program
- IARC  International Agency for Research on Cancer
- NIOSH  National Institute for Occupational Safety and Health

Note:
The above information is believed to be correct with respect to the formula used to manufacture the product in the country of origin. As data, standards, and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.