

SAFETY DATA SHEET

RENDITION™

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance or preparation

Product name : RENDITION™
Synonyms : Peracetic acid, Peroxyethanoic acid, PAA
Molecular formula : CH₃-COOOH
Molecular Weight : 76.05 g/mol

1.2. Use of the Substance/Preparation

Recommended use : - Agriculture industry

1.3. Company/Undertaking Identification

Address : Certis USA LLC
9145 Guilford Road, Suite 175
Columbia, MD 21046

Telephone: 301 604 7340

Fax: 301 604 7015

1.4. Emergency and contact telephone numbers

Emergency telephone : **800 255 3924**
Outside North America **813 248 0585 (Collect)**

E-mail address : MSDS@chemtelinc.com

2. HAZARDS IDENTIFICATION

Appearance : liquid
Colour : colourless
Odour : pungent

- The preparation is classified as dangerous in accordance with Directive 1999/45/EC.
- Oxidising
- Contact with combustible material may cause fire.
- Causes burns.
- Harmful by inhalation, in contact with skin and if swallowed.
- Contains a(many) dangerous product(s) for the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name (CAS-No. / EC-No. / Annex-1)	Concentration (W/W)	Classification	R-phrases(s)
Peracetic acid (79-21-0 / 201-186-8 / 607-094-00-8)	ca. 5 %	O Xn C N	R10 R 7 R20/21/22 R35 R50
Hydrogen peroxide (7722-84-1 / 231-765-0 / 008-003-00-9)	ca. 20 %	O C Xn	R 5 R 8 R35 R20/22
Acetic acid (64-19-7 / 200-580-7 / 607-002-00-6)	ca. 10 %	C	R10 R35
Alcohols, C6-12, ethoxylated (68439-45-2 / Exempt or not available / Exempt or not available)	ca. 1 %	Xn Xi	R22 R41

4. FIRST AID MEASURES

4.1. Inhalation

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

4.2. Eye contact

- 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).
- Consult with an ophthalmologist immediately in all cases.
- Take victim immediately to hospital.

4.3. Skin contact

- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Wash contaminated clothing before re-use.
- Call a physician immediately.

4.4. Ingestion

- Call a physician immediately.
- Take victim immediately to hospital.

If victim is conscious:

- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.

If victim is unconscious but breathing:

- Artificial respiration and/or oxygen may be necessary.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media

- Water
- Water spray

5.2. Extinguishing media which shall not be used for safety reasons

- None.

5.3. Special exposure hazards in a fire

- Oxidising
- Oxygen released in thermal decomposition may support combustion
- Contact with combustible material may cause fire.
- Contact with flammables may cause fire or explosions.
- Risk of explosion if heated under confinement.

5.4. Special protective equipment for fire-fighters

- Evacuate personnel to safe areas.
- In the event of fire, wear self-contained breathing apparatus.
- When intervention in close proximity wear acid resistant over suit.
- Clean contaminated surface thoroughly.

5.5. Other information

- Keep product and empty container away from heat and sources of ignition.
- Keep containers and surroundings cool with water spray.
- Approach from upwind.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions

- Keep people away from and upwind of spill/leak.
- Refer to protective measures listed in sections 7 and 8.
- Isolate the area.
- Keep away from Incompatible products.
- Prevent further leakage or spillage if safe to do so.
- In case of contact with combustible material, keep material wet with plenty of water.

6.2. Environmental precautions

- The product should not be allowed to enter drains, water courses or the soil.
- If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods for cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Dilute with plenty of water.
- Do not add chemical products.
- Treat recovered material as described in the section "Disposal considerations".
- Never return spills in original containers for re-use.

7. HANDLING AND STORAGE

7.1. Handling

- Use only in well-ventilated areas.
- Keep away from heat.
- Keep away from Incompatible products.
- May not get in touch with:
 - Organic materials
- Use only equipment and materials which are compatible with the product.
- Before all operations, passivate the piping circuits and vessels according to the procedure recommended by the producer.
- Never return unused material to storage receptacle.
- Use only in an area with adequate water supply
- Containers and equipment used to handle the product should be used exclusively for that product.

7.2. Storage

- Keep in a cool, well-ventilated place.
- Keep away from heat.
- Keep away from Incompatible products.
- Keep away from combustible material.
- Store in a receptacle equipped with a vent.
- Store in original container.
- Keep container closed.
- Keep in a banded area.
- Regularly check the condition and temperature of the containers.
- Information about special precautions needed for bulk handling is available on request.

7.3. Specific use(s)

- For further information, please contact: Supplier

7.4. Other information

- Refer to protective measures listed in sections 7 and 8.
- Do not confine the product in a circuit, between closed valves, or in a container without a vent.
- In industrial installations, apply the rules for the prevention of major accidents (consult an expert).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure Limit Values

Peracetic acid

- SAEL (Solvay Acceptable Exposure Limit) 2008
TWA = 0.2 ppm

Hydrogen peroxide

- UK. EH40 Workplace Exposure Limits (WELs) 2005
time weighted average = 1 ppm
time weighted average = 1.4 mg/m³
- UK. EH40 Workplace Exposure Limits (WELs) 2005
Short term exposure limit = 2 ppm
Short term exposure limit = 2.8 mg/m³
- US. ACGIH Threshold Limit Values 01 2006
time weighted average = 1 ppm

Acetic acid

- US. ACGIH Threshold Limit Values 01 2006
time weighted average = 10 ppm
- US. ACGIH Threshold Limit Values 01 2006
Short term exposure limit = 15 ppm
- EU. Indicative Exposure and Directives relating to the protection of risks related to work exposure to chemical, physical, and biological agents. 02 2006
time weighted average = 10 ppm
time weighted average = 25 mg/m³

Alcohols, C6-12, ethoxylated

- US. ACGIH Threshold Limit Values
Remarks: none established

8.2. Exposure controls

- Ensure adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.
- Refer to protective measures listed in sections 7 and 8.

8.2.1. **Occupational exposure controls**

8.2.1.1. **Respiratory protection**

- In the case of dust or aerosol formation use respirator with an approved filter.
- Recommended Filter type:
- ABEK-P2
- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.

8.2.1.2. **Hand protection**

- Wear suitable 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

8.2.1.3. **Eye protection**

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

8.2.1.4. **kin and body protection**

- Protective suit
- Apron/boots of butyl rubber if risk of splashing.

8.2.1.5. **Hygiene measures**

- Use only in an area equipped with a safety shower.
- Eye wash bottle with pure water
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

8.2.2. **Environmental exposure controls**

- Dispose of rinse water in accordance with local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General Information (appearance, odour)

Appearance	: liquid
Colour	: colourless
Odour	: pungent

9.2. Important health safety and environmental information

pH	: < 1
Boiling point/boiling range	: <i>Remarks: not applicable, Thermal decomposition</i>
Flash point	: <i>Remarks: not applicable, Flammable vapours may occur above the SADT</i>
Flammability	: <i>Remarks: not applicable</i>
Explosive properties	: <u>Lower explosion limit.</u> <i>Remarks: not applicable</i> <u>Explosion danger.</u> <i>Remarks: not applicable</i>
Oxidizing properties	: <i>Remarks: Oxidising</i>
Relative density / Density	: 1.1

Solubility	:	Water <i>Remarks: completely miscible</i>
	:	Polar organic solvents <i>Remarks: soluble</i>
	:	Aromatic solvents <i>Remarks: slightly soluble</i>
Partition coefficient: n-octanol/water	:	<i>log Pow:</i> -1.25

9.3. Other data

Melting point/range	:	ca. -30 °C
Decomposition temperature	:	>= 60 °C <i>Remarks: Self-Accelerating decomposition temperature (SADT)</i>

10. STABILITY AND REACTIVITY

10.1. Stability

- Potential for exothermic hazard
- Stable under recommended storage conditions.

10.2. Conditions to avoid

- Contamination
- To avoid thermal decomposition, do not overheat.

10.3. Materials to avoid

- Acids, Bases, Metals, Salts of metals, Reducing agents, Organic materials, Flammable materials

10.4. Hazardous decomposition products

- Oxygen
- The release of other hazardous decomposition products is possible.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicological data

Acute oral toxicity

- LD50, 330 mg/kg (7 % solution)

Acute inhalation toxicity

- LC50, 4 h, rat, 4.080 mg/m³

Acute dermal toxicity

- LD50, rabbit, 1.147 mg/kg

Skin irritation

- rabbit, Corrosive

Eye irritation

- rabbit, Risk of serious damage to eyes. (4 % solution)

Irritation (other route)

- Inhalation, rat, Irritating to respiratory system., RD 50 = 22 - 24 mg/m³, (Peracetic acid)

Sensitisation

- guinea pig, Did not cause sensitization on laboratory animals.

Chronic toxicity

- Oral, Repeated exposure, rat, no systemic effect
- Dermal, Repeated exposure, guinea pig, irritant effects

Carcinogenicity

- Animal testing did not show any carcinogenic effects.

Genetic toxicity in vitro

- In vitro tests have shown mutagenic effects.

Genetic toxicity in vivo

- Animal testing did not show any mutagenic effects.

Possible hazards (summary)

- corrosive effects

11.2. Health effects

Main effects

- The product causes burns of eyes, skin and mucous membranes.

Inhalation

- Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.
- Breathing difficulties
- Repeated or prolonged exposure: Risk of sore throat, nose bleeds, chronic bronchitis.

Eye contact

- Severe eye irritation
- Redness
- Lachrymation
- Swelling of tissue
- Risk of serious damage to eyes.
- May cause permanent eye injury.

Skin contact

- Severe skin irritation
- Redness
- Swelling of tissue
- Causes burns.

Ingestion

- Paleness and cyanosis of the face.
- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
- Risk of shock.
- Excessive fluid in the mouth and nose, with risk of suffocation.
- Risk of throat (o)edema and suffocation.
- Bloating of stomach, belching.
- Nausea
- Bloody vomiting
- Cough
- Breathing difficulties
- Risk of chemical pneumonitis and pulmonary (o)edema.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity effects

Acute toxicity

- Fishes, *Salmo gairdneri*, LC50, 96 h, 13 mg/l
Remarks: fresh water
- Fishes, *Salmo gairdneri*, NOEC, pigmentation, < 10 mg/l
- Fishes, *Pleuronectes platessa*, LC50, 96 h, 89.1 mg/l (12 % solution)
Remarks: salt water
- Fishes, *Pleuronectes platessa*, NOEC, 56 mg/l
- Crustaceans, *Daphnia magna*, EC50, 48 h, 3.3 mg/l
Remarks: fresh water

- Crustaceans, Daphnia magna, NOEC, 1 mg/l
- Crustaceans, Crangon crangon, EC50, 96 h, 126.8 mg/l (12 % solution)
Remarks: salt water
- Crustaceans, Crangon crangon, NOEC, 56 mg/l

Chronic toxicity

- Fishes, various species, LC50
Remarks: no data available
- NOEC
Remarks: no data available
- Algae, various species, EC50, 72 - 96 h, 0.7 - 16 mg/l

Further information on ecology

- Bacteria, Pseudomonas aeruginosa, EC100, 5 min, 5 mg/l
- Terrestrial plants, various species, Lowest observable effect level, 10 mg/l
Remarks: phytotoxic effect

12.2. Mobility

- Air, Volatility
Remarks: not significant
- Water, Solubility, Mobility
- Soil/sediments, adsorption
Remarks: not significant

12.3. Persistence and degradability

Abiotic degradation

- Air
Result: The product can be degraded by abiotic (e.g. chemical or photolytic) processes.
- Water, t 1/2 (Hydrolysis) ca. 120 h
Result: Chemical degradation
- Soil, 99 %, < 0.5 h (1 % solution)
Result: Chemical degradation

Biodegradation

- aerobic, Tested according to: Closed Bottle test, 28 d
Remarks: non-biodegradable
- aerobic, Tested according to: ready biodegradability/MITI, from 2 mg/l, > 70 %, 28 d
Remarks: Readily biodegradable.
- anaerobic
Remarks: no data available
- Effects on waste water treatment plants, 90 mg/l
Remarks: inhibitory action
- Effects on waste water treatment plants
Remarks: BOD increase of treated effluent by acetic acid formation

12.4. Bioaccumulative potential

- log Pow -1.25
Result: Does not bioaccumulate.

12.5. Other adverse effects

- no data available

12.6. Possible hazards (summary)

- Toxic to aquatic organisms.
- Nevertheless, hazard for the environment is limited due to product properties:
- . considerable abiotic and biotic degradability.
- . weak persistence of degradation products.
- Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

13.1. Waste from residues / unused products

- In accordance with local and national regulations.
- Small quantities:
 - Dilute with plenty of water.
 - Flush into sewer with plenty of water.
- Large quantities:
 - Contact manufacturer.

13.2. Packaging treatment

- Empty containers.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Do not rinse the dedicated containers.
- The empty and clean containers are to be reused in conformity with regulations.

14. TRANSPORT INFORMATION

UN-Number

3149

IATA-DGR

Class	5.1
Sub-risks	Corrosive
Packing group	II
ICAO-Labels	OXIDIZER + CORROSIVE

Proper shipping name: HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED

IMDG

Class	5.1
Sub-risks	Corrosive
Packing group	II
IMDG-Labels	OXIDIZING AGENT + CORROSIVE
HI/UN No.	3149
EmS:	F-H, S-Q

Proper shipping name: HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED

ADR

Class	5.1
Sub-risks	8
Packing group	II
ADR/RID-Labels	5.1 + 8
HI/UN No.	58/3149

Proper shipping name: HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED

RID

Class	5.1
Sub-risks	8
Packing group	II
ADR/RID-Labels	5.1 + 8
HI/UN No.	58/3149

Proper shipping name: HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED

15. REGULATORY INFORMATION

15.1. EC Label

- Hazardous components which must be listed on the label: Peracetic acid / Hydrogen peroxide / Acetic acid

- .

Symbol(s)	O C	Oxidising Corrosive
R-phrase(s)	R 8 R20/21/22 R34	Contact with combustible material may cause fire. Harmful by inhalation, in contact with skin and if swallowed. Causes burns.
S-phrase(s)	S 1/2 S 3/7 S14 S36/37/39 S45 S61	Keep locked up and out of the reach of children. Keep container tightly closed in a cool place. Keep away from Combustible material;Acids;Reducing agents;Salts of metals. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/ Safety data sheets.

15.2. Other information

- The percentage concentration of the solution has to be indicated next to the product name.

16. OTHER INFORMATION

16.1. Administrative information

- Update
- Distribute new edition to clients

16.2. Text of R phrases mentioned in Section 3

- R 5: Heating may cause an explosion.
- R 7: May cause fire.
- R 8: Contact with combustible material may cause fire.
- R10: Flammable.
- R20/22: Harmful by inhalation and if swallowed.
- R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
- R22: Harmful if swallowed.
- R35: Causes severe burns.
- R41: Risk of serious damage to eyes.
- R50: Very toxic to aquatic organisms.
- R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This SDS is only intended for the indicated country to which it is applicable.

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.