

SAFETY DATA SHEET

North American Version

HYDROGEN PEROXIDE (20% =< Conc. < 35%)

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Identification of the substance or mixture

Product name : HYDROGEN PEROXIDE (20% =< Conc. < 35%)
Product grade(s) : Interlox® AG Spray 25-S
Interlox® 31% Standard EG Hydrogen Peroxide
Interlox® 31% UltraPure Hydrogen Peroxide
Interlox® 31% UltraPure LC Hydrogen Peroxide
Interlox® 31% UltraPure Plus Hydrogen Peroxide
Interlox® EG-1 Hydrogen Peroxide 31%
Interlox® EG-10 Hydrogen Peroxide 31%
Interlox® EG-ST Hydrogen Peroxide 31%
Interlox® PicoPure Hydrogen Peroxide 31%
Interlox® Technical Grade 27/D
Interlox® Food Grade 34% Hydrogen Peroxide

Chemical Name : Hydrogen peroxide
Synonyms : Hydroperoxide, Hydrogen dioxide
Molecular formula : H₂O₂
Molecular Weight : 34 g/mol

1.2. Use of the Substance/Mixture

Recommended use : - Bleaching agent
- Chemical industry
- Electronic industry
- Metal treatment
- Odour agents
- Oxidising Agents
- Textile industry
- Water treatment
- Pulp and paper
- Food additive

Recommended use : - Food additive

1.3. Company/Undertaking Identification

Address : SOLVAY CHEMICALS, INC.
3333 RICHMOND AVENUE
HOUSTON TX 77098-3099
United States

1.4. Emergency and contact telephone numbers

Emergency telephone number : 1 (800) 424-9300 CHEMTREC® (USA & Canada)
01-800-00-214-00 (MEX. REPUBLIC)

Contact telephone number (product information): US: +1-800-765-8292 (Product information)
US: +1-713-525-6500 (Product information)

2. HAZARDS IDENTIFICATION

2.1. Emergency Overview:

NFPA : H= 3 F= 0 I= 1 S= OX
HMIS : H= 3 F= 0 R= 1 PPE = Supplied by User; dependent on local conditions

General Information

Appearance : liquid
Colour : colourless
Odour : pungent

Main effects

- none

2.2. Potential Health Effects:

Inhalation

- At high concentrations, nose and throat irritation.
- Risk of: Nose bleeding, chronic bronchitis.

Eye contact

- Corrosive
- May cause irreversible eye damage.
- Symptoms: Redness, Lachrymation, Swelling of tissue.

Skin contact

- Prolonged skin contact may cause skin irritation.

Ingestion

- Severe irritation
- Symptoms: Nausea, Abdominal pain, Vomiting, Diarrhoea, Risk of chemical pneumonitis from product inhalation..

Other toxicity effects

- See section 11: Toxicological Information

2.3. Environmental Effects:

- See section 12: Ecological Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hydrogen peroxide

CAS-No. : 7722-84-1
Concentration : $\geq 20.0 - < 35.0 \%$

4. FIRST AID MEASURES

4.1. Inhalation

- Move to fresh air.
- If symptoms persist, call a physician.

4.2. Eye contact

- Call a physician or poison control centre immediately.
- In case of eye contact, remove contact lens and 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).

4.3. Skin contact

- Remove and wash contaminated clothing before re-use.
- Wash off with soap and water.
- If symptoms persist, call a physician.

4.4. Ingestion

- Rinse mouth with water.
- Do NOT induce vomiting.
- If accidentally swallowed obtain immediate medical attention.
- Oxygen or artificial respiration if needed.

4.5. Notes to physician

Exposure to decomposition products :

- 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.

5. FIREFIGHTING 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

- 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. Hazardous decomposition products

- Oxygen

5.5. Special protective equipment for firefighters

- 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.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.
- Keep away from Incompatible products.

6.1.2. Advice for emergency responders

- Evacuate personnel to safe areas.

- Keep people away from and upwind of spill/leak.
- Use personal protective equipment.

6.2. Environmental precautions

- Should not be released into the environment.
- If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and materials for containment and cleaning up

- Dam up.
- Do not mix waste streams during collection.
- Soak up with inert absorbent material.
- Keep in suitable, closed containers for disposal.
- Never return spills in original containers for re-use.

6.4. Reference to other sections

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

7. HANDLING AND STORAGE

7.1. Handling

- Use only in well-ventilated areas.
- Use only clean and dry utensils.
- Never return unused material to storage receptacle.
- Keep away from heat.
- Avoid inhalation, ingestion and contact with skin and eyes.
- Keep away from Incompatible products.

7.2. Storage

- Keep only in the original container.
- Store in a receptacle equipped with a vent.
- Store in a well-ventilated place. Keep cool.
- Keep container closed.
- Keep in a bunded area.
- Keep away from Incompatible products.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Regularly check the condition and temperature of the containers.
- Electrical equipment should be protected to the appropriate standard.

7.3. Packaging material

- aluminium 99,5 %
- stainless steel 304L / 316L
- Approved grades of HDPE.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure Limit Values

Hydrogen peroxide

- US. ACGIH Threshold Limit Values 2009
time weighted average = 1 ppm
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
Permissible exposure limit = 1 ppm
Permissible exposure limit = 1.4 mg/m³
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989
time weighted average = 1 ppm
time weighted average = 1.4 mg/m³

- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008
time weighted average = 1 ppm
time weighted average = 1.4 mg/m³

ACGIH® and TLV® are registered trademarks of the American Conference of Governmental Industrial Hygienists.

SAEL = Solvay Acceptable Exposure Limit, Time Weighted Average for 8 hour workdays. No Specific TLV STEL (Short Term Exposure Level) has been set. Excursions in exposure level may exceed 3 times the TLV TWA for no more than a total of 30 minutes during a workday and under no circumstances should they exceed 5 times the TLV TWA.

8.2. Engineering controls

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

8.3. Personal protective equipment

8.3.1. Respiratory protection

- Self-contained breathing apparatus in confined spaces/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.
- Use NIOSH approved respiratory protection.
- 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. Further information is available in a Solvay Chemicals, Inc. Technical Communication, located at <http://www.solvaychemicals.us/resource.htm> in the Peracetic Acid section.
- In case of insufficient ventilation, wear suitable respiratory equipment.

8.3.2. Hand protection

- Impervious gloves
- Suitable material: PVC, Natural Rubber, butyl-rubber, Nitrile rubber
- 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).

8.3.3. Eye protection

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

8.3.4. Skin and body protection

- Chemical resistant apron
- Suitable material
- PVC
- Natural Rubber
- If splashes are likely to occur, wear: Apron, Boots

8.3.5. Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General Information

Appearance : liquid
Colour : colourless

Odour : pungent

9.2. Important health safety and environmental information

pH : 2.02 (H₂O₂ 50 %)
pKa : pKa1= 11.62
Temperature: 25 °C (77 °F)

Boiling point/boiling range : 108 °C (226 °F) (H₂O₂ 35 %)

Flash point : *Remarks: not applicable*

Flammability : *Remarks: The product is not flammable.*

Explosive properties : *Explosion danger:*
Remarks: Not explosive

Oxidizing properties : *Remarks: Non oxidizer*

Vapour pressure : 1 mbar (H₂O₂ 50 %)
Temperature: 30 °C (86 °F)

Relative density / Density : 1.1

Bulk density : *Remarks: not applicable*

**Partition coefficient:
n-octanol/water** : *log Pow:*
-1.57
Method: calculated value

Viscosity : 1.07 mPa.s

Vapour density : 1 (H₂O₂ 50 %)

9.3. Other data

Freezing point: : -33 °C (-27 °F) (H₂O₂ 35 %)

Auto-flammability : *Remarks: The product is not flammable.*

Surface tension : 74 mN/m
Temperature: 20 °C (68 °F)

**Decomposition
temperature** : ≥ 60 °C (140 °F)
Remarks: Self-Accelerating decomposition temperature (SADT)
: < 60 °C (140 °F)
Remarks: Slow decomposition

10. STABILITY AND REACTIVITY

10.1. Stability

- Stable under recommended storage conditions.

10.2. Conditions to avoid

- Contamination
- To avoid thermal decomposition, do not overheat.
- Keep at temperature not exceeding: 60 °C (140 °F)
- Keep at temperature not exceeding: 60 °C (140 °F)

10.3. Materials to avoid

- Acids, Bases, Metals, Heavy metal salts, Powdered metal salts, Reducing agents, Organic materials, Flammable materials

10.4. Hazardous decomposition products

- Oxygen

11. TOXICOLOGICAL INFORMATION

Toxicological data

Acute oral toxicity

- LD50, rat, 1,193 - 1,270 mg/kg (H2O2 35 %)

Acute inhalation toxicity

- LC50, 4 h, rat, > 0.17 mg/l, Remarks: vapour (H2O2 50 %)

Acute dermal irritation/corrosion

- LD50, rabbit, > 2,000 mg/kg (H2O2 35 %)

Skin irritation

- rabbit, Mild skin irritation (H2O2 10 %)
- rabbit, Skin irritation (H2O2 35 %)

Eye irritation

- rabbit, Severe eye irritation (H2O2 10 %)

Sensitisation

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

Chronic toxicity

- Oral, 90-day, mouse, Target Organs: Gastrointestinal tract, Lowest observable effect level: 300 ppm, LOAEL
- Oral, 90-day, mouse, NOEL: 100 ppm, NOAEL
- Inhalation, 28-day, rat, Target Organs: Respiratory system, Lowest observable effect level: 10 ppm, LOAEL, vapour
- Inhalation, 28-day, rat, NOEL: 2 ppm, NOAEL, vapour

Carcinogenicity

- Oral, Prolonged exposure, mouse, Target Organs: duodenum, carcinogenic effects
- Dermal, Prolonged exposure, mouse, 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.
- Not classified due to inconclusive data.

Reproductive toxicity

- Substance is totally biotransformed (metabolised).
- study scientifically unjustified

Remarks

- no data available

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity effects

Acute toxicity

- Fishes, Pimephales promelas, LC50, 96 h, 16.4 mg/l
- Fishes, Pimephales promelas, NOEC, 96 h, 4.3 mg/l

- Crustaceans, *Daphnia pulex*, EC50, 48 h, 2.4 mg/l
Remarks: fresh water, semi-static test
- Crustaceans, *Daphnia pulex*, NOEC, 48 h, 1 mg/l
Remarks: fresh water, semi-static test

Chronic toxicity

- Algae, *Skeletonema costatum*, EC50, growth rate, 72 h, 2.6 mg/l
- Algae, *Skeletonema costatum*, NOEC, 72 h, 0.63 mg/l
- Algae, *Chlorella vulgaris*, EC50, Growth rate, 72 h, 4.3 mg/l
- Algae, *Chlorella vulgaris*, NOEC, 72 h, 0.1 mg/l

12.2. Mobility

- Air, Volatility, Henry's law constant (H) = 0.75 kPa.m³/mol
Conditions: 20 °C
Remarks: not significant
- Water
Remarks: considerable solubility and mobility
- Soil/sediments, log KOC:0.2
Remarks: non-significant evaporation and adsorption

12.3. Persistence and degradability

Abiotic degradation

- Air, indirect photo-oxidation, t 1/2 24 h
Conditions: sensitizer: OH radicals
- Water, redox reaction, t 1/2 120 h
Conditions: mineral and enzymatic catalysis, fresh water, salt water
- Soil, redox reaction, t 1/2 12 h
Conditions: mineral and enzymatic catalysis

Biodegradation

- aerobic, t 1/2 < 2 min
Conditions: biological treatment sludge
Remarks: Readily biodegradable.
- aerobic, t 1/2 from 0.3 - 5 d
Conditions: fresh water
Remarks: Readily biodegradable.
- anaerobic
Conditions: Soil/sediments
Remarks: not applicable

12.4. Bioaccumulative potential

- Bioaccumulative potential: -1.57
Result: Does not bioaccumulate.

12.5. Other adverse effects

- no data available

12.6. Remarks

13. DISPOSAL CONSIDERATIONS

13.1. Waste from residues / unused products

- Limited quantity
- Dilute with plenty of water.
- Flush into sewer with plenty of water.
- Maximum quantity

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

13.2. Packaging treatment

- 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.

13.3. RCRA Hazardous Waste

- Listed RCRA Hazardous Waste (40 CFR 302) - No
- Unlisted RCRA Hazardous Waste (40 CFR 302) - Yes
- D001 (ignitable waste)
- D002 (corrosive waste)

14. TRANSPORT INFORMATION

IATA-DGR

UN number	UN 2014
Class	5.1
Packing group	II
ICAO-Labels	5.1 - Oxidizing substances 8 - Corrosive

Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION

IMDG

UN number	UN 2014
Class	5.1
Packing group	II
IMDG-Labels	5.1 - Oxidizing substances 8 - Corrosive
EmS	F-H S-Q

Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION

U.S. Dept of Transportation

UN number	UN 2014
Class	5.1
Packing group	II
Label	5.1 - Oxidizing substances 8 - Corrosive
EmS	140
Remarks	UN 1066, NITROGEN COMPRESSED, 2.2

Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION

Canada (TDG)

UN number	UN 2014
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Class 5.1
Packing group II
Label 5.1 - Oxidizing substances
8 - Corrosive
EmS 140
Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION

Mexico (NOM-002-SCT)

UN number UN 2014
Class 5.1
Packing group II
Label 5.1 - Oxidizing substances
8 - Corrosive

15. REGULATORY INFORMATION

15.1. Inventory Information

Toxic Substance Control Act list (TSCA)	: -	In compliance with inventory.
Australian Inventory of Chemical Substances (AICS)	: -	In compliance with inventory.
Canadian Domestic Substances List (DSL)	: -	In compliance with inventory.
Korean Existing Chemicals Inventory (KECI (KR))	: -	In compliance with inventory.
EU list of existing chemical substances (EINECS)	: -	In compliance with inventory.
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	: -	In compliance with inventory.
Inventory of Existing Chemical Substances (China) (IECS)	: -	In compliance with inventory.
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	: -	In compliance with inventory.
New Zealand Inventory of Chemicals (NZIOC)	: -	In compliance with inventory.

15.2. Other regulations

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

- not regulated.

SARA Hazard Designation (SARA 311/312)

- Acute Health Hazard: Yes.
- Fire Hazard: Yes.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

- not regulated.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

- not regulated.

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

- yes.

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

- yes.

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

- not regulated.

16. OTHER INFORMATION

Ratings :

NFPA (National Fire Protection Association)

Health = 3 Flammability = 0 Instability = 1 Special =OX

HMIS (Hazardous Material Information System)

Health = 3 Fire = 0 Reactivity = 1 PPE : Supplied by User; dependent on local conditions

Further information

- New (SDS)
- Distribute new edition to clients
- 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.
- 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. Further information is available in a Solvay Chemicals, Inc. Technical Communication, located at <http://www.solvaychemicals.us/resource.htm> in the Peracetic Acid section.

Material Safety Data Sheets contain country specific regulatory information; therefore, the MSDS's provided are for use only by customers of the company mentioned in section 1 in North America. If you are located in a country other than Canada, Mexico or the United States, please contact the Solvay Group company in your country for MSDS information applicable to your location.

The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product).

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