



**SOLVAY
INTEROX**



Seeler
industries
incorporated

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4542 4593

1. Chemical Product and Supplier Identification

Product Name: Hydrogen Peroxide, 20 - 60%

Chemical Name: Hydrogen peroxide, aqueous solution

Synonyms: Hydrogen dioxide, hydroperoxide, peroxide

**Grades/
Trade Names:** 31% Electronic Grade, UltraPure, Ultra High Purity, Ultra High Plus™, Pico-Pure™.
35% Cosmetic Grade, Textile Grade, Technical Grade, Food Grade, PFP Food Grade, Universal Food Grade, PC Grade, Chemical Grade.
40% Technical Grade.
50% Cosmetic Grade, Textile Grade, PeroxGard™ 50, Food Grade, PFP Food Grade, PC Grade, Chemical Grade, Technical Grade, Dilution Grade.

Manufacturer: Solvay Interox **Office:** 713/525-6500 (7:30 a-5:00 p CST M-F)
3333 Richmond Avenue **Emergency:** 713/479-2826 (24 hours every day)
Houston, Texas 77098 **CHEMTREC:** 800/424-9300 (24 hours every day)

MSDS Number: SI-65-HL0002-01 April 18, 1995

2. Composition/Information on Ingredients

Components	Formula	CASRN	Percent
Hydrogen peroxide	H ₂ O ₂	7722-84-1	20 - 60%
Water	H ₂ O	7732-18-5	balance

DISTRIBUTED BY:



1365 South River St.
Batavia, IL 60510
Phone: 630-878-2700
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3. Hazards Identification

Emergency Overview

- Toxicity effects principally related to its corrosive properties.
- Non-combustible, but may contribute to the combustion of other substances and causes violent and explosive reactions.
- May be fatal if swallowed, corrosive to gastrointestinal tract.

Potential Health Effects

General effects

- Corrosive to mucous membrane, eyes and skin.
- The seriousness of the lesions and the prognosis of intoxication depend directly on the concentration and duration of exposure.

Inhalation

- Slight nose and throat irritation.
- Cough.
- In case of repeated or prolonged exposure: risk of sore throat, nose bleeds, chronic bronchitis.

Eye contact

- Severe eye irritation, watering, redness and swelling of the eyelids.
- Risk of serious or permanent eye lesions.

Skin contact

- Irritation and temporary whitening at contact area.
- Risk of burns.

Ingestion

- May be fatal if swallowed.
- Corrosive to gastrointestinal tract.
- Paleness and cyanosis of the face.
- Severe irritation, burns, perforation of the gastrointestinal tract accompanied by shock.
- Excessive fluid in the mouth and nose, with risk of suffocation.
- Risk of throat edema and suffocation.
- Bloating of stomach, belching.
- Nausea and vomiting (bloody).
- Cough and difficulty breathing.
- Risk of chemical pneumonitis and pulmonary edema.



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4. First-Aid Measures

General recommendations

- Personal protective equipment for rescuers (see section 8).
- In case of product splashing into the eyes and face, treat eyes first.
- Submerge soiled clothing in water.
- Do not dry soiled clothing near an open flame or incandescent heat source.

First aid

Inhalation

- Remove the subject from the contaminated area.
- Consult with a physician in case of respiratory symptoms.

Eye contact

- Flush eyes as soon as possible with running water for 15 minutes, while keeping the eyelids open.
- Consult with an ophthalmologist immediately in all cases.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (e.g. oxybuprocaine).

Skin contact

- Remove shoes, socks and contaminated clothing, under the shower if necessary; wash the affected skin with running water.
- Cover the victim to avoid loss of body heat, provide clean clothing.
- Consult with a physician in all cases.

Ingestion

General recommendations

- Consult with a physician immediately in all cases.
- Take to hospital.

If the subject is completely conscious:

- Rinse mouth and administer fresh water.
- Do not induce vomiting.

If the subject is unconscious:

- Loosen collar and tight clothing, lay the victim on his/her left side.
- Pulmonary resuscitation and administer oxygen if necessary.
- Keep warm (blanket).

Medical treatment

General recommendations

- None

Inhalation

- None.

Eye contact

- Consult with an ophthalmologist.

Skin contact

- Usual treatment for burns.

Ingestion

- Oxygen therapy via intra-tracheal intubation.
- If necessary, tracheotomy.
- Placement of gastric catheter to release stomach gases.
- Avoid gastric washing (risk of perforation).
- In case of intense pain: inject an LM. morphomimetic analgesic drug (e.g. piritramide) before taking to hospital.
- Prevention or treatment for shock and pulmonary edema.
- Urgent digestive endoscopy with aspiration of the product.
- Treatment of gastrointestinal tract burns and resulting effects.

5. Fire-Fighting Measures

Flash point

- Non-flammable,

Flammability

- Non-flammable.

Auto-flammability

- Non-flammable.



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Danger of explosion

- With flammable liquids.
- With certain materials (see section 10).
- In case of rapid decomposition if inadequately vented
- In case of heating if inadequately vented.

Oxidizing properties

- Oxidizer.

Common extinguishing methods

- Large quantities of water, water spray.

Inappropriate extinguishing methods

- No restriction.

Specific hazards

- Oxidizing agent, may cause spontaneous ignition with combustible materials.
- Oxygen released on exothermic decomposition may support combustion in case of surrounding fire.
- Contact with organic products may cause fires or violent explosions.

Protective measures in case of intervention

- Evacuate all non-essential personnel.
- Wear self contained breathing apparatus when in close proximity or in confined spaces.
- When in close proximity or intervention wear acid resistant suit.
- Intervention only by capable personnel who are trained and aware of the hazards of the product.

Other precautions

- If safe to do so, remove the exposed containers, or cool with large quantities of water.
- Keep at a safe distance in a protected location sheltered from splashes.
- Approach down wind.
- Never approach containers which have been exposed to fire, without cooling them sufficiently.

6. Accidental Release Measures

Precautions

- If safe to do so, without exposing the personnel, try to stop the spillage.
- In case of leak, isolate the area.
- Observe the protection measures given in sections 5 and 8.
- Avoid materials and products which are incompatible with the product (see section 10).

Cleanup methods

- If possible, dike large quantities of liquid with sand or earth.
- Dilute with large quantities of water.
- Do not add chemical products.
- For disposal methods, refer to section 13.
- In order to avoid the risk of contamination, the recovered product must not be returned to the original tank/container.

Precautions for protection of the environment

- Small quantities can be discharged into the sewer with large quantities of water.
- Immediately notify the appropriate authorities in case of reportable spill.

7. Handling and Storage

Handling

- Never return product to container.
- Use only containers which are compatible with the substance.
- Operate in a well-ventilated area.
- Lockout piping circuits and equipment before any operation.
- Keep away from sources of ignition and heat.
- Keep away from reactive substances.
- Containers and equipment used to handle the product should be used exclusively for that product.
- Prevent all contact with organic materials.

Storage

- Containment berm for the packages and transfer installation.
- In a ventilated, cool area.
- Keep away from heat sources.
- Keep in original packaging, closed.
- Keep in container fitted with vent/safety vent.
- Keep away from reactive substances.
- Keep away from combustible substances.
- Regularly check the condition and temperature of the containers.
- For bulk storage, consult the producer.



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Other precautions

- Warn personnel of the dangers of the product.
- Observe the protective measures given in section 8.
- Do not confine the product in the circuit, between closed valves, or in a container without a vent.

Packaging

- Aluminum 99,5 %
- Stainless steel 304 L and 316 L.
- HDPE

8. Exposure Controls/Personal Protection

Engineering controls

- Local ventilation.
- Install apparatus to comply with to the limit values.

Authorized limit values

ACGIH TLV [®] :	1 ppm	8 hr TWA
	1.4 mg/m ³	8 hr TWA
OSHA PEL:	1 ppm	8 hr TWA

Respiratory protection

- NIOSH approved full-face supplied air respirator for excessive concentrations.

Hand protection

- Protective gloves - chemical resistant.
- Recommended materials: PVC, rubber.

Eye protection

- Wear protective goggles for all industrial operations.
- Chemical proof goggles/face shield, if risk of splashing.

Skin protection

- Coveralls.
- Chemical resistant slicker suit and boots of PVC or rubber if risk of splashing.

Other precautions

- Shower and eye wash stations.
- Consult your industrial hygienist or safety manager for the selection of personal protective equipment suitable for the working conditions.

9. Physical and Chemical Properties

Appearance:	Clear, colorless liquid
Odor:	Slightly pungent.
Freezing point:	-33° C (35% H ₂ O ₂) -52° C (52% H ₂ O ₂)
Boiling point:	108° C @ 1013 mbars (35% H ₂ O ₂) 115° C @ 1013 mbars (50% H ₂ O ₂)
Vapor pressure:	12 mbar at 20° C (total pressure, H ₂ O ₂ +H ₂ O) for 50% H ₂ O ₂ 72 mbar at 50° C (total pressure, H ₂ O ₂ +H ₂ O) for 50% H ₂ O ₂ 1 mbar at 30° C (partial pressure, H ₂ O ₂) for 50% H ₂ O ₂
Specific gravity (D 20/4):	1.10 (27.5% H ₂ O ₂) 1.20 (50% H ₂ O ₂)
Vapor density:	1 (air =1) for 50% H ₂ O ₂
Solubility:	Soluble in water in all proportions. Soluble in polar organic solvents.
Apparent pH:	1 - 4
Partition coefficient P (n-octanol/water):	No data
Viscosity:	1101 mPa.s @ 20° C (27.5% H ₂ O ₂) 1170 mPa.s @ 20° C (50 % H ₂ O ₂)
Decomposition temperature:	Self-accelerated decomposition temperature (SADT) ≥ 60° C
Surface tension:	74 mN/m @ 20° C (27.5% H ₂ O ₂) 75.6 mN/m @ 20° C (50% H ₂ O ₂)



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10. Stability and Reactivity

Stability

- Stable under normal conditions of use with slow gas release.

Conditions to avoid

- Heat/Sources of heat.

Materials to avoid

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

Hazardous decomposition products

- Oxygen, heat, steam.

11. Toxicological Information

Acute toxicity

- Oral route, LD 50, rat, 841 mg/kg.
Test Substance: Hydrogen peroxide 60%.
- Oral route, LD 50, rat, 1232 mg/kg.
Test Substance: Hydrogen peroxide 35%.
- Dermal route, LD 50, rabbit, >2000 mg/kg.
Test Substance: Hydrogen peroxide 35%.
- Inhalation, LC 50, 4 hour(s), rat, 2000 mg/kg.

Irritation

- Rabbit, corrosive (eyes).
Test Substance: Hydrogen peroxide 70%.
- Rabbit, irritant (skin).
Test Substance: Hydrogen peroxide 35%.
- Rabbit, corrosive (skin).
Test Substance: Hydrogen peroxide 50%

Sensitization

- Rat, Non sensitizing.

Chronic toxicity

- In vitro, without metabolic activation, mutagenic effect.
- In vivo, No genotoxic effect.
- Oral route, prolonged administration (> 6 months), mouse, Target organ: duodenum, carcinogenic effect.
- Dermal route, prolonged administration (> 6 months), mouse, no carcinogenic effect.
- Oral route, prolonged administration (> 6 months), rat, no carcinogenic effect.
- Oral route, prolonged administration (> 6 months), rat, gastro-intestinal effect.
Test Substance: Hydrogen peroxide 70 %.
- Oral route, prolonged administration (> 6 months), mouse, gastro-intestinal effect.
- Oral route, Effect on reproduction/insufficient data.
- Inhalation, irritating effect. (LOAEL: 7 ppm).

Comments

- Toxic effect linked with corrosive properties.
- The carcinogenic effect found in animals is not demonstrated in humans.

Route of entry: Inhalation and ingestion.



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12. Ecological Information

Acute ecotoxicity

- Fish, *Pimephales promelas*, LC 50, 96 hour(s), 16.4 mg/l.
- Fish, *Pimephales promelas*, NOEC, 96 hour(s), 5 mg/l.
- Crustaceans, *Daphnia pulex*, EC 50, 48 hour(s), 2.4 mg/l.
- Crustaceans, *Daphnia pulex*, NOEC, 48 hour(s), 1 mg/l.
- Algae, various species, EC 50, 72 to 96 hours, 3.7 to 160 mg/l.
Conditions: fresh water.
- Algae, *Nitzschia closterium*, EC 50, 72 to 96 hours, 0.85 mg/l.
Conditions: salt water.

Chronic ecotoxicity: No data.

Mobility:

- Air, Henry's law constant (H) = 1 mPa.m³/mol.
Result: non-significant volatility.
Conditions: 20° C.
- Air, condensation on contact with water droplets..
Result: rain washout.
- Water.
Result: non-significant evaporation.
- Soil/sediments
Result: non-significant evaporation and adsorption.

Abiotic degradation:

- Air, indirect photo-oxidation, $t_{1/2}$ 10 to 20 hour(s).
Conditions: sensitizer: OH radical.
- Water, oxidation/reduction, $t_{1/2}$ 2.5 day(s), 10,000 ppm.
Conditions: mineral and enzymatic catalysis/fresh water.
- Water, oxidation/reduction, $t_{1/2}$ 20 day(s), 100 ppm.
Conditions: mineral and enzymatic catalysis/fresh water.
- Water, oxidation/reduction, $t_{1/2}$ 60 hour(s).
Conditions: mineral and enzymatic catalysis/salt water.
- Soil, oxidation/reduction, $t_{1/2}$ 15 hour(s).
Conditions: mineral catalysis.

Biotic degradation:

- Aerobic, $t_{1/2} < 1$ minute(s).
Result: rapid and considerable biodegradation.
Conditions: biological treatment sludge.
- Aerobic, $t_{1/2}$ between 0.3 to 2 day(s).
Result: rapid and considerable biodegradation.
Conditions: fresh water.
- Anaerobic.
Result: not applicable.
- Effects on biological treatment plants, > 200 mg/l.
Result: inhibitory action.

Potential for bioaccumulation

- Result: non-bioaccumulable (enzymatic metabolism).

Comments

- Toxic for aquatic organisms. Nevertheless, hazard for the environment is limited due to product properties.
- No bioaccumulation.
- Considerable abiotic and biotic degradability.
- No toxicity of degradation products (H_2O and O_2).

13. Disposal Considerations

Waste treatment

- Comply with all federal, state, and local regulations.

Packaging treatment

- Rinse the empty containers with plenty of water and treat the effluent in the same way as waste.
- Do not rinse the dedicated containers.
- The empty and clean containers are to be recycled or disposed of in conformity with local regulations.



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14. Transport Information

Proper Shipping Name: Hydrogen peroxide aqueous solutions.

UN Number: 2014

Hazard Class: 5.1

Hazard label: Oxidizer, Corrosive

Packing Group: II

Shipping containers: Aluminum and stainless steel tank cars and cargo tanks, IM-101 portable tanks, Intermediate Bulk Containers, polyethylene drums.

15. Regulatory Information

TSCA Inventory List: Yes

**CERCLA Hazardous Substance
(40 CFR 302)**

Listed substance: No

Unlisted substance: Yes

Characteristic: Ignitability, corrosivity

RCRA Waste Number: D001, D002

Reportable Quantity: 100 lbs.

**SARA Title III, Sections 311/312
(40 CFR 370)**

Hazard Category: Fire Hazard
Immediate Health Hazard

Planning Threshold: 10,000 lbs. (500 lbs. for H₂O₂ > 52%).

**SARA Title III, Section 313
(40 CFR 372)**

Listed Toxic Chemical: No

**SARA Title III, Section 302/303
(40 CFR 355)**

Listed Substance: Yes, Hydrogen Peroxide >52%

Reportable Quantity: 1 lb. (for H₂O₂ > 52%).

Planning Threshold: 1,000 lbs. (for H₂O₂ > 52%).

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

Canadian Domestic Substance List (DSL): Listed

16 Other Information

NFPA Rating: Health - 2 Flammability - 0 Reactivity - 3 Special - OXY
HMIS Rating: Health - 3 Flammability - 0 Reactivity - 1 PPE - required

Refer to Solvay Interlox Safety and Health brochure and Safety Video for additional information and guidance.