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Safety Data Sheet H₂O₂ Liquid Bleach

1. IDENTIFICATION

Synonyms none
 CAS# see listing in Part 3, below
 Material Use liquid oxygen bleach

IN AN EMERGENCY CALL: INFOTRAC 1-800-535-5053

2. HAZARD IDENTIFICATION

GHS Class (Category)	oxidizer (3)	skin irritant (2)	eye corrosive (1)	STOT (3)
Signal Words	WARNING	WARNING	DANGER	WARNING
Hazard Statements	may intensify fire, oxidizer (H272)	causes skin irritation (H315)	causes serious eye damage (H318)	may cause respiratory tract irritation (H335)



GHS Precautionary Statements for Labeling

P260, P262, P264 Do not breathe mist, vapors or spray. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling.
 P270, P280 Do not eat, drink or smoke when using this product. Wear eye protection, protective gloves and clothing of nitrile butyl or neoprene.
 P273, P391 Avoid release to the environment. Collect spillage.
 P313 & P333 If skin irritation or rash occurs, get medical advice/attention.
 P304 & P340 If inhaled, remove person to fresh air and keep comfortable for breathing.

3. COMPOSITION

	CAS NUMBER	%	TLV ppm / mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
Hydrogen Peroxide	7722-84-1	10-20%	1 / 1.4	376	690	1430
Anionic Surfactant	on request	<1%	not listed	990	1000	not known

4. FIRST AID

SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered. Seek medical help promptly if there is persistent itching or redness in the affected area.
 EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
 INHALATION: Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If victim's breathing stops, administer artificial respiration and seek medical aid promptly.
 INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Corrosive substance: first aid must be applied immediately! Inadvertent inhalation of vomited material may seriously damage the lungs. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

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5. FLAMMABILITY & FIRE-FIGHTING

Flash Point	cannot burn – oxidizing substance
Autoignition Temperature	cannot burn – oxidizing substance
Flammable Limits	cannot burn – oxidizing substance
Combustion Products	oxides of carbon, nitrogen & sulfur, part oxidised hydrocarbon fragments
Firefighting Precautions	as for materials sustaining fire; compatible with water spray/fog; firefighters must wear SCBA
Static Discharge	cannot accumulate a static charge

6. ACCIDENTAL RELEASE MEASURES

Leak Precaution	dike to control spillage and prevent environmental contamination
Handling Spill	recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for disposal

7. HANDLING & STORAGE

Oxidizing material; store in original containers, away from combustible substances & materials listed in Part 10. Never cut, drill, weld or grind on or near this container, whether empty or full. Always replace drum, pail or IBC cap prior to moving the container.

Avoid generating or breathing product vapor or mist. If mist or vapor form in use, install adequate ventilation to control airborne concentration to regulated limits (see Part 8, below). If dealing with a spill, and ventilation is impractical, wear a suitable respirator. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower should be available near the workplace.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

ACGIH TLV	1ppm / 1.4mg/m ³	ACGIH STEL	not listed
OSHA PEL	1ppm / 1.4mg/m ³	OSHA STEL	not listed
Ventilation	mechanical ventilation is probably not required		
Hands	butyl, nitrile or neoprene gloves – <i>always confirm suitability with supplier</i>		
Eyes	safety glasses with side shields or chemical goggles – <i>always protect eyes!</i>		
Clothing	impermeable (hands, above) apron, boots, long sleeves, if splashing is anticipated		

9. PHYSICAL AND CHEMICAL PROPERTIES

NOTE: for Flash Point, Autoignition Temperature & Flammable Limits see Part 5.

Odor & Appearance	clear, colorless liquid with slightly “sharp” odor
Odor Threshold	not known
Vapor Pressure	as for water
Evaporation Rate (<i>Butyl Acetate = 1</i>)	as for water
Vapor Density (air = 1)	0.6 (<i>water</i>), 1.2 (<i>hydrogen peroxide</i>)
Boiling Point	not measured; ~105°C / 221°F
Freezing Point	not measured; ~-10°C / 14°F
Decomposition Temperature	not known (<i>hydrogen peroxide</i>); above 300°C / 573°F (<i>surfactant</i>)
Specific Gravity	1.034-1.046 (20/20°C)
Water Solubility	complete
Log P _{o/w} (<i>Octanol/H₂O Partition Coefficient</i>)	not known
Viscosity	not known – thin, mobile liquid
pH	5.2-6.8
Molecular Weight	34grams/mole (<i>hydrogen peroxide</i>); 18grams/mole (<i>water</i>), 543 (<i>surfactant</i>)

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10. REACTIVITY

Dangerously Reactive With	flammable materials; may explode on contact with strong alkalis, sulphuric acid, nitric acid or potassium permanganate; may react violently with reducing agents such as metal hydrides
Also Reactive With	may be corrosive to some metals
Chemical Stability	will not polymerize; stable if kept pure
Decomposes in Presence of	various metals and some salts
Decomposition Products	oxygen – <i>partly as highly reactive oxygen radicals</i>
Mechanical Impact	not sensitive

11. TOXICITY INFORMATION**i. ACUTE EXPOSURE**

Skin Contact	may be irritating; <i>hydrogen peroxide decomposes rapidly on contact with skin – if the oxygen & oxygen radicals cannot escape to the air, the irritation may be severe.</i>
Skin Absorption	yes, slowly; toxic effects unlikely by this route
Eye Contact	severely irritating, may damage eyes if not removed promptly
Inhalation	irritating to respiratory system
Ingestion	abdominal pain, foaming at the mouth, vomiting; large amounts are life-threatening – <i>not a route of industrial exposure</i>

ii. CHRONIC EXPOSURE

General	prolonged or repeated exposure may cause dermatitis
Sensitizing	not a sensitizer
Carcinogen/Tumorigen	hydrogen peroxide is an ACGIH animal carcinogen A3, not classifiable as to human carcinogenicity
Reproductive Effect	no known effect on humans or animals
Mutagen	not known to be a mutagen or teratogen in humans or animals
Synergistic With	not known
Calculated LD ₅₀ (oral)	3110mg/kg (rat)
Calculated LD ₅₀ (skin)	6670mg/kg (rabbit)
Calc. LC ₅₀ (inhalation)	14,300ppm (rat)

12. ECOLOGICAL INFORMATION**Hydrogen Peroxide:**

Bioaccumulation	decomposes rapidly in the environment and cannot bioaccumulate
Biodegradation	does not biodegrade, but does not persist in the environment; ½-life in ground water >1hr; ½-life in waste water depends on cleanliness – hours in clean water, minutes in dirty water; ½-life in sewage sludge is just seconds
Abiotic Degradation	reacts with many substances in the environment; ½-life in air 10-20hours
Mobility in soil, water	water soluble, but reacts with soil substances so rapidly that it cannot move readily <i>NOTE: H₂O₂ is toxic to sewage treatment organisms at levels above 200mg/liter</i>

Aquatic Toxicity

LC ₅₀ (Fish, 96hr)	16.4mg/liter (Pimephelas promelas), 37.4mg/liter (Ictalurus punctatus & melas)
EC ₅₀ (Crustacea, 24hr)	7.7mg/liter (Daphnia magna), 2.4mg/liter (Daphnia pulex, 48hr), 4.4mg/liter (Gammarus sp.)
EC ₅₀ (Algae)	2.5mg/liter (Chlorella vulgaris), 5mg/liter (Anabena variabilis), 17mg/liter (Chlorella emersonii)
EC ₅₀ (Bacteria)	30mg/liter (Escherichia coli)

Anionic Surfactant:

Bioaccumulation	low bioaccumulation ¹
Biodegradation	biodegrades slowly in the presence of oxygen; 21% - 51% in 21 days ¹
Abiotic Degradation	reacts with atmospheric hydroxyl (OH) radicals; estimated ½-life in air 7 hours ¹
Mobility in soil, water	water soluble; moves readily through soil & the water column

Aquatic Toxicity

LC ₅₀ (Fish 96 hr, mg/l)	1.93 (Pimephelas promelas) ¹ , 3.4 (Lepomis macrochirus) ¹ , 2.3 (Salmo gairdneri) ¹
LC ₅₀ (Crustacea, 48hr, mg/l)	2.3 (Daphnia magna) ¹
EC ₅₀ (Algae, 96hr, mg/l)	42 (Pseudokirchnerella subcapitata) ¹
LC ₅₀ (Microorganisms)	not known

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13. DISPOSAL CONSIDERATIONS

- Waste Disposal **do not flush to sewer**; may be incinerated in approved facility with flue gas monitoring & scrubbing, mix (carefully) with a suitable flammable waste before incineration
- Containers **Drums** should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.
Pails must be vented and thoroughly dried prior to crushing and recycling.
IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5 years). Steel containers must be inspected, pressure tested & recertified every 5 years.
Warning: never cut, drill, weld or grind on or near this container, even if empty.

14. TRANSPORT INFORMATION

USA 49 CFR & Canada/International TDG

Product Identification Number

UN – 2984

Shipping Name

hydrogen peroxide, aqueous solution with not less than 8 per cent but less than 20 per cent hydrogen peroxide

Classification

Class 5.1; Packing Group III

Marine Pollution*not a marine pollutant***Reportable Quantity (RQ)***none*

15. REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

U.S.A. Regulations:

Immediately Dangerous to Life or Health: 75 ppm

Allowable Tolerances: An exemption from the requirement of a tolerance is established for residues of hydrogen peroxide in or on all food commodities at the rate of less than or equal to 1% hydrogen peroxide per application on growing crops and post harvest potatoes when applied as an algacide, fungicide and bactericide.

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 1 ppm (1.4 mg/cu m).

NIOSH Recommendations: Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 1 ppm (1.4 mg/cu m).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 1 ppm Excursion Limit Recommendation: Excursions in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded. A3; Confirmed animal carcinogen with unknown relevance to humans.

CERCLA Reportable Quantities: Releases of CERCLA hazardous substances are subject to the release reporting requirement of CERCLA section 103, codified at 40 CFR part 302, in addition to the requirements of 40 CFR part 355. Hydrogen peroxide (Conc >52%) is an extremely hazardous substance (EHS) subject to reporting requirements when stored in amounts in excess of its threshold planning quantity (TPQ) of 1,000 lbs.

16. OTHER INFORMATION

Date of Preparation **March 2015**Date of Revision **-**Prepared for Tomco-Harwel, by **Peter Bursztyn**

With data from the Registry of Toxic Effects of Chemical Substances (RTECS), Hazardous Substance Data Base (HSDB), Cheminfo (CCOHS), OSHA, IUCLID Datasheets (European Chemical Substance Information System - ESIS), & others sources (below if used), as required/available

(1) U.S.A. E.P.A. Screening-Level Hazard Characterization; Alkyl Diphenyl Oxide Disulfonates, September 2010:

http://www.epa.gov/chemrtk/hpvis/hazchar/Category_ADPODS_September_2010.pdf

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