

### 1. IDENTIFICATION

<b>Product Name</b>	<b>Hydrogen peroxide, 20-60% Solution</b>
<b>Other Names</b>	No Data Available
<b>Uses</b>	For industrial use; For oxidation.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	Unspecified
<b>Chemical Name</b>	Hydrogen peroxide, aqueous solution
<b>Product Description</b>	Aqueous solution, clear.

#### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

#### Emergency Contact Details


*For emergencies only; DO NOT contact these companies for general product advice.*

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

### 2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)** 6

#### Globally Harmonised System

<b>Hazard Classification</b>	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
<b>Hazard Categories</b>	Oxidising Liquids - Category 2 Acute Toxicity (Oral) - Category 4 Acute Toxicity (Inhalation) - Category 4 Skin Corrosion/Irritation - Category 1B Serious Eye Damage/Irritation - Category 1 Specific Target Organ Toxicity (Single Exposure) - Category 3 Acute Hazard To The Aquatic Environment - Category 2	
<b>Pictograms</b>		
<b>Signal Word</b>	Danger	
<b>Hazard Statements</b>	<b>H272</b>	May intensify fire; oxidizer.
	<b>H302 + H332</b>	Harmful if swallowed or if inhaled.
	<b>H314</b>	Causes severe skin burns and eye damage.
	<b>H335</b>	May cause respiratory irritation.
	<b>H401</b>	Toxic to aquatic life.
<b>Precautionary Statements</b>	Prevention	<b>P210</b> Keep away from heat. <b>P221</b> Take any precaution to avoid mixing with combustibles/organic material. <b>P260</b> Do not breathe mist/vapour/spray. <b>P280</b> Wear protective gloves/protective clothing/eye protection/face protection. <b>P273</b> Avoid release to the environment. <b>P270</b> Do not eat, drink or smoke when using this product. <b>P271</b> Use only outdoors or in a well-ventilated area.
	Response	<b>P370 + P378</b> In case of fire: Use water for extinction. <b>P303 + P361 + P353</b> IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. <b>P310</b> Immediately call a POISON CENTER or doctor/physician. <b>P305 + P351 + P338</b> IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. <b>P301 + P330 + P331</b> IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. <b>P363</b> Wash contaminated clothing before reuse. <b>P391</b> Collect spillage. <b>P304 + P340</b> IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Storage	<b>P403 + P233</b> Store in a well-ventilated place. Keep container tightly closed. <b>P405</b> Store locked up.
	Disposal	<b>P501</b> Dispose of contents/container in accordance with local / regional / national / international regulations.

### National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

**Dangerous Goods Classification** Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

## Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>HSNO Classifications</b>	Physical Hazards	<b>5.1.1B</b>	Oxidising substances that are liquids or solids: medium hazard
	Health Hazards	<b>6.1D</b>	Substances that are acutely toxic - Harmful
<b>6.9B</b>		Substances that are harmful to human target organs or systems	
<b>8.2B</b>		Substances that are corrosive to dermal tissue UN PGII	
<b>8.3A</b>		Substances that are corrosive to ocular tissue	
Environmental Hazards	<b>9.1D</b>	Substances that are slightly harmful to the aquatic environment or are otherwise designed for biocidal action	
	<b>9.3C</b>	Substances that are harmful to terrestrial vertebrates	

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Water	H <sub>2</sub> O	7732-18-5	40 - 80 %
Hydrogen peroxide	H <sub>2</sub> O <sub>2</sub>	7722-84-1	20 - 60 %

### 4. FIRST AID MEASURES

#### Description of necessary measures according to routes of exposure

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a Poison Centre or doctor/physician for advise.
<b>Eye</b>	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Immediately call a Poison Centre or doctor/physician for advise. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes.
<b>Skin</b>	IF ON SKIN: Remove contaminated clothing and shoes immediately. Flush skin with running water for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advise. Wash contaminated clothing and shoes before reuse.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a Poison Centre or doctor/physician for advise. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult.
<b>Advice to Doctor</b>	Keep victim calm and warm - Obtain immediate medical care. Do not leave victim unattended. Risk of pulmonary edema. Ensure that attending medical personnel are aware of identity and nature of the product(s) involved, and take precautions to protect themselves.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

### 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	Evacuate personnel to safe areas; Keep unauthorised/unprotected personnel away. Keep upwind and to higher ground. If safe to do so, move undamaged containers from fire area. Do not move cargo if cargo has been exposed to heat. Hydrogen peroxide in the proximity of an ongoing fire must be diluted with large volumes of water. Cool containers with water spray until well after fire is out - If impossible, withdraw from area and let fire burn. Use water spray to knock down vapours or divert vapour clouds. Dam fire control water for later disposal.
<b>Flammability Conditions</b>	OXIDISING SUBSTANCE: The product itself does not burn; However, will accelerate burning when involved in a fire. Product is fire-stimulating.
<b>Extinguishing Media</b>	In case of fires involving substantial quantities of Hydrogen peroxide, use flooding quantities of water for extinction - Do NOT use organic compounds, i.e. dry chemicals, Carbon dioxide (CO <sub>2</sub> ) or foam. For fires involving small amounts

	of Hydrogen peroxide, adapt fire extinguishing measures to surroundings.
<b>Fire and Explosion Hazard</b>	Risk of violent reaction or explosion: May explode from heating, shock, friction or contamination. May ignite combustibles. Drying of product on clothing or combustible materials, such as paper, fabrics, leather or wood may cause fire. Mixtures of Hydrogen peroxide with flammable liquids (solvents) may possess explosive properties. Containers may explode when heated. Runoff may create fire or explosion hazard.
<b>Hazardous Products of Combustion</b>	Fire may produce irritating, toxic and/or corrosive gases.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may create fire or explosion hazard and may pollute waterways.
<b>Personal Protective Equipment</b>	Liquid-tight chemical protective clothing (splash suit) in combination with self-contained breathing apparatus (SCBA) should be used. Structural firefighter's uniform will provide limited protection.
<b>Flash Point</b>	Does not flash
<b>Lower Explosion Limit</b>	Hydrogen peroxide vapours (by weight): >40 %
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	2P

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Ensure adequate ventilation. Prevent exposure to heat. ELIMINATE all ignition sources. Do not contaminate - Keep combustibles (wood, paper, clothing, oil, etc.) away from spilled material.
<b>Clean Up Procedures</b>	Large spill: Collect (pump) product into suitable containers using appropriate equipment or use a non-combustible material (e.g. vermiculite, sand or earth) to soak up the product and place it in suitable, labelled containers for disposal (see SECTION 13). Small spill: Dilute product with lots of water and rinse away. - Do NOT seal defective containers or waste receptacles air-tight (danger of bursting due to product decomposition). NEVER return spilled product into original container for reuse (risk of decomposition).
<b>Containment</b>	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Isolate defective containers immediately and place into a plastic waste receptacle. Use water spray to knock down vapours or divert vapour clouds.
<b>Decontamination</b>	Rinse away residues with plenty of water - Dilute with large amounts of water to a concentration of about 5% Hydrogen peroxide; hold in diked area or pond until peroxide is completely decomposed or dispose of according to local regulations. Clean contaminated surface thoroughly. - Combustible materials exposed to Hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure all Hydrogen peroxide is removed. Residual Hydrogen peroxide that is allowed to dry on organic materials (such as wood, paper, clothing, etc.) can cause the material to ignite.
<b>Environmental Precautionary Measures</b>	Spillages and decontamination runoff may be washed to drains with large quantities of water. Due care must be exercised to avoid unnecessary pollution of watercourses.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground. Large spill: Consider downwind evacuation.
<b>Personal Precautionary Measures</b>	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

## 7. HANDLING AND STORAGE

<b>Handling</b>	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation - Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Do not breathe mist/vapours/spray and prevent contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8); Remove contaminated clothing immediately and rinse with large amounts of water. OXIDISING SUBSTANCE: Keep away from heat and sources of ignition - No smoking. Do not contaminate - Take any precaution to avoid mixing with combustibles/organic materials. Never return spilled product into its original container for reuse (risk of decomposition). Prior to first filling or operation of a tank installation, all parts of the facility, including all pipes, must be thoroughly cleaned and flushed through. Metal elements of the installation must first be pickled and passivated sufficiently. Avoid release to the environment.
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep/store container in upright position only and closed to avoid leakage when not in use. Do not confine product in un-vented vessels or between closed valves - Risk of over-pressure and bursting due to decomposition in confined spaces and pipes. Keep away from heat and sources of ignition - No smoking. Keep/store away from combustible/flammable substances. Keep away from organic and incompatible materials (see SECTION 10). Store locked up. - Maximum storage temperature: <= 40 °C.

<b>Container</b>	Keep only in the original container or containers specifically permitted for Hydrogen peroxide, i.e. Stainless steel, 1.4571 or 1.4541, passivated; aluminium, min. 99.5% passivated; aluminium magnesium alloys, passivated; polyethylene, polypropylene, polyvinyl chloride (PVC); polytetrafluoroethylene; glass, ceramics. Do not store in Iron, Mild steel, Copper, Bronze, Brass, Zinc, Tin. Use adequate venting devices on all packages, containers and tanks; check correct operation periodically. Packages, containers and tanks should be regularly checked for any signs of abnormality, e.g. corrosion, bulging, temperature increase, etc.
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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	COMPONENT: Hydrogen peroxide (CAS No. 7722-): - Safe Work Australia Exposure Standard: TWA = 1 ppm (1.4 mg/m <sup>3</sup> ). - New Zealand WES: TWA = 1 ppm (1.4 mg/m <sup>3</sup> ). - NIOSH REL/OSHA PEL: TWA = 1 ppm (1.4 mg/m <sup>3</sup> ). - Immediately dangerous to life or health (IDLH) concentration: 75 ppm.
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
<b>Personal Protection Equipment</b>	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation and/or large amounts are released and workplace exposure limit may be exceeded. Recommended: Filter type SA - supplied air. - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical splash goggles and face-shield. - Hand protection: Wear protective gloves. Recommended: Impermeable gloves, e.g. Butyl rubber (0.7 mm), Break through time: >480 min; Natural rubber/NR (1 mm), Break through time: <120 min; Nitrile (0.33 mm), Break through time: <33 min. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use. - Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Acid-proof protective clothing, e.g. PVC, neoprene, nitrile rubber, rubber; Full chemical splash suit (PVC); Rubber or plastic boots. To identify additional PPE requirements, it is recommended that a hazard assessment be conducted before using this product.
<b>Special Hazards Precautions</b>	Avoid protective gloves, clothes and shoes made from Leather. Completely submerge Hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual Hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles, can cause the material to ignite.
<b>Work Hygienic Practices</b>	Do not eat, drink or smoke when using this product. Wash face and hands before breaks and end of work. Remove contaminated clothing and shoes immediately and rinse with large amounts of water.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Liquid
<b>Odour</b>	Stinging
<b>Colour</b>	Colourless
<b>pH</b>	>1 - 3
<b>Vapour Pressure</b>	2.99 hPa (Hydrogen peroxide, 100%) (@ 25 °C)
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	approx. 114 °C
<b>Melting Point</b>	-52.2 °C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	Miscible with water
<b>Specific Gravity</b>	1.1914
<b>Flash Point</b>	Does not flash
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available

<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	1.196 g/cm <sup>3</sup>
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	34.02 g/mol
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	log Pow: -1.57 (Hydrogen peroxide, 100%)
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	1.17 mPa.s (@ 20 °C)
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	Surface tension: approx. 75.68 mN/m (20 °C).
<b>Potential for Dust Explosion</b>	Not applicable.
<b>Fast or Intensely Burning Characteristics</b>	No Data Available
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No Data Available
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No Data Available
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	OXIDISING SUBSTANCE: The product itself does not burn; However, will accelerate burning when involved in a fire. Product is fire-stimulating.
<b>Reactions That Release Gases or Vapours</b>	Fire may produce irritating, toxic and/or corrosive gases.
<b>Release of Invisible Flammable Vapours and Gases</b>	No Data Available

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Product is a(n) oxidizing agent and reactive. Unstable in the presence of incompatible materials.
<b>Chemical Stability</b>	Stable under recommended storage conditions. Commercial products are stabilised to reduce risk of decomposition due to contamination.
<b>Conditions to Avoid</b>	Sun rays, heat, heat effect.
<b>Materials to Avoid</b>	<p>Reacts violently with reducing agents, alcohols, ammonia, carboxylic acids, acetic acid, cobalt oxides, copper(II) chloride, ethers, metal powder, permanganates, acetone, benzenesulfonic anhydride, 1,1-dimethylhydrazine, dimethylphenylphosphine, gadolinium hydroxide, hydrogen selenide, iron oxides, lithium tetrahydroaluminate, magnesium tetrahydroaluminate, manganese(II) oxide, mercury oxide, methyl hydrazine, nickel monoxide, nitrogenous bases, osmium tetroxide, alpha-phenylselenoketones, phosphorus, phosphorus(V) oxide, quinoline, tetrahydrothiophene, tin(II) chloride, thiodiglycol, thiophane, tin(II) chloride, unsaturated organic compounds, readily oxidisable and combustible materials; avoid contact with combustibles including lubricants and graphite. reacts with cobalt, copper and its alloys, chromium, iridium, iron, lead, manganese, Monel, osmium, palladium, platinum, gold, silver, zinc, and other catalytic metals, metal oxides and salts - avoid metallic bowls and stirrers. violent catalytic decomposition will occur in contact with certain metals such as iron, copper, chromium, brass, bronze, lead, silver, manganese or their salts.</p> <p>forms unstable and possible explosive materials with acetic anhydride, acetic acid, aniline, carboxylic acids, 1,4-diazabicyclo[2,2,2]octane, diphenyl diselenide, ethyl acetate, glycols, ketene, ketones, triethyltin hydroperoxide, 1,3,5-trioxane, vinyl acetate. Is incompatible with mercurous chloride decomposes in presence of alkalis and even ordinary dust or rust decomposes slowly at ordinary temperatures and builds up pressure in a closed container; the rate of decomposition doubles for each 10 deg C rise in temperature and decomposition becomes self-sustaining at 141 deg. C contact with rough surfaces can cause decomposition. Attacks and may ignite some plastics, rubber and coatings. Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous</p> <p>Solutions of hydrogen peroxide slowly decompose, releasing oxygen, and so are often stabilised by the addition of</p>

**Hazardous Decomposition Products**

acetanilide, etc.

**Hazardous Polymerisation**

Hazardous polymerisation will not occur.

**11. TOXICOLOGICAL INFORMATION****General Information**

dermal (rat) LD50: 3000-5480 mg/kg  
Inhalation (rat) LC50: 2 mg/L/4H  
Oral (rat) LD50: 75 mg/kg

Acute inhalation toxicity: LC50 rat: > 0.17 mg/l / 4 h. Method: literature. Test substance: hydrogen peroxide, 50%. The maximum dose attainable under experimental conditions no fatalities.

Acute dermal toxicity: LD50 rabbit: > 6500 mg/kg. Method: literature. Test substance: Hydrogen peroxide 70%.

Skin irritation rabbit: Slightly irritating. Method: literature

Eye irritation rabbit: Corrosive. Method: literature

Sensitization guinea pig: Not sensitising. Method: literature

Repeated dose toxicity:

Mouse(female): Testing period: 90 d. Subsequent observation period: 6 weeks.  
Target organ/effect: Changes of parameters of the blood, body weight development negative.  
Irritative effect: Gastrointestinal tract. Method: OECD TG 408. Drinking water analysis.

Mouse(male): Testing period: 90 d. Subsequent observation period: 6 weeks.  
Target organ/effect: Changes of parameters of the blood, body weight development negative.  
Irritative effect: Gastrointestinal tract. Method: OECD TG 408. Drinking water analysis

Gentoxicity in vitro

Microorganisms, cell cultures. Mutagenic/genotoxic effects. Method: literature. In the presence of metabolic systems no mutagenic effects were observed.

Gentoxicity in vivo

Micronucleus test mouse intraperitoneal (i.p.): Negative. Method: OECD TG 474  
Micronucleus test mouse Oral: Negative. Method: literature  
Unscheduled DNA synthesis -test (UDS) rat: Negative. Method: literature

Carcinogenicity assessment

Clues to possible carcinogenic effects in animal experiments: Up to date there is no evidence of increased tumour risk.

Hydrogen peroxide is not a carcinogenic substance according to MAK, IARC, NTP, OSHA, ACGIH.

**Eye/Irritant**

Hydrogen peroxide concentrations above 10% are corrosive to the eye and may cause corneal ulceration even days after exposure. The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.

**Ingestion**

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.  
Hydrogen peroxide may cause blistering and bleeding from the throat and stomach. When swallowed, it may release large quantities of oxygen which could hyper-distend the stomach and gut and may cause internal bleeding, mouth and throat burns and rupture of the gut. There may also be fever, nausea, foaming at the mouth, vomiting, chest and stomach pain, loss of consciousness, and movement disorders and death. Large amounts can also cause cessation of breath, dizziness, headache, tremors weakness or numbness in the extremities and convulsions. Hydrogen peroxide concentrate is corrosive and must not be taken undiluted.  
The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.

**Inhalation**

Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema.

Inhaling excessive levels of mist may result in headache, dizziness, vomiting, diarrhoea, irritability, sleeplessness and fluid in the lungs, and cause extreme irritation of the nose and chest, cough, discomfort, shortness of breath and inflammation of the nose and throat. Whole-body effects of hydrogen peroxide poisoning include tremor, numbness of the limbs, convulsions, coma and shock. Hydrogen peroxide has poor warning properties

<b>Skin/Irritant</b>	<p>Skin contact will result in rapid drying, bleaching, leading to chemical burns on prolonged contact. Reactions may not occur on exposure but response may be delayed with symptoms only appearing many hours later. Open cuts, abraded or irritated skin should not be exposed to this material.</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. The material can produce chemical burns following direct contact with the skin.</p>
<b>Chronic</b>	
<b>Other</b>	<p>Hydrogen peroxide as a human food additive is generally regarded as safe when used in certain limitations. In experimental animals, oral administration of hydrogen peroxide causes dental, liver, kidney, stomach, and intestinal damage. Inhalation exposure to hydrogen peroxide caused skin irritation and sneezing in dogs, and high mortality in mice.</p> <p>Hydrogen peroxide added to food is affirmed to be generally regarded as safe (GRAS) by the U.S. FDA when used to treat certain foods in specified limitations [FDA 21 CFR 184.1366 (4/1/93)].</p> <p>Hydrogen peroxide may be used as a component of articles for use in packaging, handling, transporting, or holding food in accordance with prescribed conditions [FDA 21 CFR 175.105 (4/1/93)].</p> <p>Dose-related growth retardation, induction of dental caries, and pathological changes in the periodontium were observed in young male rats receiving 1.5% hydrogen peroxide as their drinking fluid (equivalent to approximately 2.1 g/kg/day)<sup>2</sup> for 8 weeks.</p> <p>Effects observed in mice treated for 35 weeks with 0.15% hydrogen peroxide as their drinking fluid (equivalent to approximately 0.29 g/kg/day)<sup>3</sup> included degeneration of hepatic and renal tubular epithelial tissues, necrosis, inflammation, irregularities of tissue structure of the stomach wall, and hypertrophy of the small intestine wall.</p> <p>Concentrations in excess of 1% (equivalent to approximately 1.9 g/kg/day)<sup>4</sup> resulted in pronounced weight loss and death within two weeks. In a sequential study of mice treated with 0.4% hydrogen peroxide in drinking water (equivalent to approximately 0.76 g/kg/day)<sup>5</sup>, gastric erosion was observed at 30 days and was present consistently throughout the 108 week study period.</p> <p>Dogs exposed 6 hours/day, 5 days/week for 6 months at an average vapour concentration of 7 ppm (9.73 mg/3 ) of 90% hydrogen peroxide, developed skin irritation, sneezing, lacrimation, and bleaching of the hair. Autopsy disclosed pulmonary irritation and greatly thickened skin, but no hair follicle destruction. No significant changes in blood or urinary parameters were observed.</p> <p>Following eight 6-hour exposures to hydrogen peroxide at a concentration of 79 mg/m<sup>3</sup> (56.88 ppm), 7/9 mice died. Following exposure to hydrogen peroxide at 93 mg/m<sup>3</sup>, 6 hours/day, 5 days/week for 30 exposures, 1/10 rats died. Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.</p>
<b>Carcinogen Category</b>	No Data Available

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	<p>Toxicity to fish:</p> <p>hydrogen peroxide LC50 96 Fish 0.020mg/L</p> <p>hydrogen peroxide EC50 3 Algae or other aquatic plants 0.27mg/L</p> <p>hydrogen peroxide EC50 48 Crustacea 2.32mg/L</p> <p>hydrogen peroxide EC50 72 Algae or other aquatic plants 0.71mg/L</p> <p>hydrogen peroxide NOEC 192 Fish 0.028mg/L</p>
<b>Persistence/Degradability</b>	<p>Photochemical degradation (air) takes place.</p> <p>Under ambient conditions quick hydrolysis, reduction or decomposition occurs. The following substances are formed: oxygen and water.</p>
<b>Mobility</b>	hydrogen peroxide LOW (KOC = 14.3)
<b>Environmental Fate</b>	Do NOT let product reach waterways, drains and sewers.
<b>Bioaccumulation Potential</b>	hydrogen peroxide LOW (LogKOW = -1.571)
<b>Environmental Impact</b>	No Data Available

## 13. DISPOSAL CONSIDERATIONS

<b>General Information</b>	<p>Dispose of in accordance with all local, state and federal regulations.</p> <p>All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.</p>
<b>Special Precautions for Land Fill</b>	Contact a specialist disposal company or the local waste regulator for advice.

## 14. TRANSPORT INFORMATION

### Land Transport (Australia)

ADG Code

<b>Proper Shipping Name</b>	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
<b>Class</b>	5.1 Oxidising Substances
<b>Subsidiary Risk(s)</b>	8 Corrosive Substances
<b>EPG</b>	31 Oxidizing Substances
<b>UN Number</b>	2014
<b>Hazchem</b>	2P
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

### Land Transport (French Polynesia)

<b>Proper Shipping Name</b>	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
<b>Class</b>	5.1 Oxidising Substances
<b>Subsidiary Risk(s)</b>	8 Corrosive Substances
<b>EPG</b>	31 Oxidizing Substances
<b>UN Number</b>	2014
<b>Hazchem</b>	2P
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

### Land Transport (Indonesia)

<b>Proper Shipping Name</b>	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
<b>Class</b>	5.1 Oxidising Substances
<b>Subsidiary Risk(s)</b>	8 Corrosive Substances
<b>EPG</b>	31 Oxidizing Substances
<b>UN Number</b>	2014
<b>Hazchem</b>	2P
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

### Land Transport (Malaysia)

ADR

<b>Proper Shipping Name</b>	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
<b>Class</b>	5.1 Oxidising Substances
<b>Subsidiary Risk(s)</b>	8 Corrosive Substances
<b>EPG</b>	31 Oxidizing Substances
<b>UN Number</b>	2014
<b>Hazchem</b>	2P
<b>Pack Group</b>	II

**Special Provision** No Data Available

### Land Transport (New Zealand)

NZS5433

**Proper Shipping Name** HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)

**Class** 5.1 Oxidising Substances

**Subsidiary Risk(s)** 8 Corrosive Substances

**EPG** 31 Oxidizing Substances

**UN Number** 2014

**Hazchem** 2P

**Pack Group** II

**Special Provision** No Data Available

### Land Transport (United States of America)

US DOT

**Proper Shipping Name** HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)

**Class** 5.1 Oxidising Substances

**Subsidiary Risk(s)** 8 Corrosive Substances

**ERG** 140 Oxidizers

**UN Number** 2014

**Hazchem** 2P

**Pack Group** II

**Special Provision** No Data Available

### Sea Transport

IMDG Code

**Proper Shipping Name** HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)

**Class** 5.1 Oxidising Substances

**Subsidiary Risk(s)** 8 Corrosive Substances

**UN Number** 2014

**Hazchem** 2P

**Pack Group** II

**Special Provision** No Data Available

**EMS** FH,SQ

**Marine Pollutant** Yes

### Air Transport

IATA DGR

**Proper Shipping Name** Hydrogen peroxide, aqueous solution with 20% or more but 40% or less hydrogen peroxide (stabilised as necessary)

**Class** 5.1 Oxidising Substances

**Subsidiary Risk(s)** 8 Corrosive Substances

**UN Number** 2014

**Hazchem** 2P

**Pack Group** II

**Special Provision** No Data Available

## Air Transport

IATA DGR

<b>Proper Shipping Name</b>	Hydrogen peroxide, aqueous solution with more than 40% but 60% or less hydrogen peroxide (stabilised as necessary)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	A2; A75
<b>Comments</b>	FORBIDDEN FOR AIR TRANSPORT

## National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

<b>Dangerous Goods Classification</b>	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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## 15. REGULATORY INFORMATION

<b>General Information</b>	No Data Available
<b>Poisons Schedule (Aust)</b>	6

## Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>Approval Code</b>	HSR001326
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## National/Regional Inventories

<b>Australia (AICS)</b>	Listed
<b>Canada (DSL)</b>	Listed
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Listed
<b>Europe (EINECS)</b>	Not Determined
<b>Europe (REACH)</b>	Not Determined
<b>Japan (ENCS/METI)</b>	Not Determined
<b>Korea (KECI)</b>	Listed
<b>Malaysia (EHS Register)</b>	Not Determined
<b>New Zealand (NZIoC)</b>	Listed
<b>Philippines (PICCS)</b>	Listed
<b>Switzerland (Giftliste 1)</b>	Not Determined

Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Listed

## 16. OTHER INFORMATION

### Related Product Codes

HYPERA1000, HYPERA2000, HYPERA2001, HYPERA2500, HYPERA2600, HYPERA3000, HYPERA3400, HYPERA3500, HYPERA3600, HYPERB5000, HYPERB5001, HYPERB5050, HYPERB5100, HYPERB6000, HYPERB6001, HYPERB6002, HYPERC1000, HYPERC9900, HYPERD3500, HYPERD4900, HYPERD5000, HYPERD5001, HYPERD5002, HYPERD5003, HYPERD5004, HYPERD5005, HYPERD5006, HYPERD5007, HYPERD5008, HYPERD5009, HYPERD5100, HYPERD5101, HYPERD5200, HYPERD5201, HYPERD5500, HYPERD5501, HYPERD5502, HYPERD5503, HYPERD5504, HYPERD5505, HYPERD5506, HYPERD5507, HYPERD5508, HYPERD6000, HYPERD6001, HYPERD6003, HYPERD6100, HYPERD6200, HYPERD6400, HYPERD7000, HYPERD7001, HYPERD7010, HYPERD7100, HYPERD7150, HYPERD7200, HYPERD9000, HYPERE1000, HYPERE3500, HYPERE5000, HYPERE5001, HYPERE5500, HYPERF1000, HYPERF1500, HYPERF5000, HYPERF5500, HYPERF5501, HYPERL1800, HYPERL1900, HYPERL2000, HYPERL2600, HYPERL2700, HYPERL2701, HYPERL2750, HYPERL2800, HYPERL2900, HYPERL3000, HYPERL3500, HYPERL3501, HYPERL3502, HYPERL3503, HYPERL3504, HYPERL3505, HYPERL3506, HYPERL3507, HYPERO0400, HYPERO0500, HYPERO0501, HYPERO1000, HYPERO1001, HYPERO1002, HYPERO1003, HYPERO1004, HYPERO1005, HYPERO1006, HYPERO1007, HYPERO1008, HYPERO1009, HYPERO1010, HYPERO1011, HYPERO1012, HYPERO1013, HYPERO1014, HYPERO1015, HYPERO1016, HYPERO1017, HYPERO1018, HYPERO1019, HYPERO1020, HYPERO1021, HYPERO1022, HYPERO1023, HYPERO1024, HYPERO1025, HYPERO1026, HYPERO1027, HYPERO1028, HYPERO1029, HYPERO1030, HYPERO1031, HYPERO1032, HYPERO1033, HYPERO1034, HYPERO1500, HYPERO1800, HYPERO1801, HYPERO1802, HYPERO1803, HYPERO1804, HYPERO1805, HYPERO1806, HYPERO1807, HYPERO1808, HYPERO1809, HYPERO1810, HYPERO1811, HYPERO1812, HYPERO1813, HYPERO1814, HYPERO1815, HYPERO1816, HYPERO1817, HYPERO1818, HYPERO1819, HYPERO1820, HYPERO1821, HYPERO1822, HYPERO1823, HYPERO1824, HYPERO1825, HYPERO1826, HYPERO1827, HYPERO1828, HYPERO1829, HYPERO1830, HYPERO1831, HYPERO1832, HYPERO1833, HYPERO1834, HYPERO1835, HYPERO1836, HYPERO1837, HYPERO1838, HYPERO1839, HYPERO1840, HYPERO1841, HYPERO1842, HYPERO1843, HYPERO1844, HYPERO1845, HYPERO1846, HYPERO1847, HYPERO1848, HYPERO1849, HYPERO1850, HYPERO1851, HYPERO1852, HYPERO1853, HYPERO1854, HYPERO1855, HYPERO2000, HYPERO2001, HYPERO2050, HYPERO2055, HYPERO2056, HYPERO2200, HYPERO2500, HYPERO3000, HYPERO3500, HYPERO4000, HYPERO5000, HYPERO5001, HYPERO5002, HYPERO5003, HYPERO5004, HYPERO5005, HYPERO5006, HYPERO5007, HYPERO5008, HYPERO5009, HYPERO5010, HYPERO5100, HYPERO5500, HYPERO6000, HYPERO6001, HYPERO6003, HYPERO6060, HYPERO6100, HYPERO6200, HYPERO9506, HYPERT3500, HYPERT4000, HYPERT4100, HYPERT4500, HYPERT4900, HYPERT5000, HYPERT5001, HYPERT5100, HYPERT5200, HYPERT5300, HYPERT5400, HYPERT5500, HYPERT5600, HYPERT5700, HYPERT5800, HYPERT5900, HYPERT6000, HYPERT6001, HYPERT6002, HYPERT6003, HYPERT6100, HYPERT6200, HYPERT6201, HYPERT6202, HYPERT6205, HYPERT6206, HYPERT6500, HYPERT6501, HYPERT7000, HYPERV5000, HYPERV6000

### Revision

3

### Revision Date

12 Apr 2016

### Reason for Issue

SDS updated

### Key/Legend

< Less Than

> Greater Than

**AICS** Australian Inventory of Chemical Substances

**atm** Atmosphere

**CAS** Chemical Abstracts Service (Registry Number)

**cm<sup>2</sup>** Square Centimetres

**CO<sub>2</sub>** Carbon Dioxide

**COD** Chemical Oxygen Demand

**deg C (°C)** Degrees Celcius

**EPA (New Zealand)** Environmental Protection Authority of New Zealand

**deg F (°F)** Degrees Farenheit

**g** Grams

**g/cm<sup>3</sup>** Grams per Cubic Centimetre

**g/l** Grams per Litre

**HSNO** Hazardous Substance and New Organism

**IDLH** Immediately Dangerous to Life and Health

**immiscible** Liquids are insoluable in each other.

**inHg** Inch of Mercury

**inH<sub>2</sub>O** Inch of Water

**K** Kelvin

**kg** Kilogram  
**kg/m<sup>3</sup>** Kilograms per Cubic Metre  
**lb** Pound  
**LC50** LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.  
**LD50** LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.  
**ltr** or **L** Litre  
**m<sup>3</sup>** Cubic Metre  
**mbar** Millibar  
**mg** Milligram  
**mg/24H** Milligrams per 24 Hours  
**mg/kg** Milligrams per Kilogram  
**mg/m<sup>3</sup>** Milligrams per Cubic Metre  
**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.  
**mm** Millimetre  
**mmH<sub>2</sub>O** Millimetres of Water  
**mPa.s** Millipascals per Second  
**N/A** Not Applicable  
**NIOSH** National Institute for Occupational Safety and Health  
**NOHSC** National Occupational Health and Safety Commission  
**OECD** Organisation for Economic Co-operation and Development  
**Oz** Ounce  
**PEL** Permissible Exposure Limit  
**Pa** Pascal  
**ppb** Parts per Billion  
**ppm** Parts per Million  
**ppm/2h** Parts per Million per 2 Hours  
**ppm/6h** Parts per Million per 6 Hours  
**psi** Pounds per Square Inch  
**R** Rankine  
**RCP** Reciprocal Calculation Procedure  
**STEL** Short Term Exposure Limit  
**TLV** Threshold Limit Value  
**tne** Tonne  
**TWA** Time Weighted Average  
**ug/24H** Micrograms per 24 Hours  
**UN** United Nations  
**wt** Weight