

Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE SUPPLIER

1.1 Product identifiers

Product name : HYDROGEN PEROXIDE 50% SOLUTION

1.2 Other means of identification

No data available

1.3 Recommended use of the product and restrictions on use

For industrial use, For oxidation, Manufacture of substances

1.4 Details of supplier of the safety data sheet

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1.5 Emergency telephone number

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2. HAZARDS IDENTIFICATION

2.1 GHS Classification

Oxidizing liquids (Category 1)
 Acute toxicity, Oral (Category 4)
 Skin corrosion (Category 1)
 Serious eye damage (Category 1)

2.2 GHS Label elements, including precautionary statements

Pictogram :   

Signal word : Danger

Hazard statement(s)

H271 May cause fire or explosion; strong oxidiser.
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H332 Harmful if inhaled.

Precautionary statement(s)

Prevention

P210 Keep away from heat.
 P221 Take any precaution to avoid mixing with combustibles.
 P280 Wear protective gloves / protective clothing / eye protection / face protection.

Response

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Remove / take off immediately all contaminated clothing. Rinse skin with water / shower.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P306 + P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P310 Immediately call a POISON CENTER or doctor / physician.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Storage

P410 + P403 Protect from sunlight. Store in well ventilated place.

Disposal

P501 Dispose of contents / container to an approved waste disposal plant.

2.3 Other hazards

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS Number	Classification	Concentration (%)
Hydrogen Peroxide	7722-84-1	Ox. Liq. 1; Acute Tox. 4; Skin Corr. 1; Eye Dam. 1; H271, H302, H314, H332	50
Water	7732-18-5	Not listed	50

For the full text of the H-Statements mentioned in this section, see Section 16

4. FIRST AID MEASURES

4.1 Description of First Aid measures

General advice

Contact the Poisons Information Centre (Phone: Australia 131 126; New Zealand 0800 764 766) or consult a doctor/physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician. Launder clothing before reuse.

In case of eye contact

In case of eye contact, check for and remove any contact lenses. Immediately rinse thoroughly with plenty of running water for at least 15 minutes, keeping eyelids open. Seek immediate medical assistance.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek immediate medical assistance.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in Section 2.2 and/or Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

4.4 First Aid facilities

Eye wash facilities and safety shower should be available.

5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Water spray, alcohol-resistant foam, dry powder, carbon dioxide (CO₂). Do NOT use organic compounds. In the case of fire, cool the containers that are at risk with water or dilute with water (flooding).

5.2 Special hazards arising from the chemical

Risk of overpressure and burst due to decomposition in confined spaces and pipes. With large-scale fire, violent decomposition or even explosion is possible. Strong oxidising agent. Product is

fire-stimulating. The product itself does not burn. Involved in fire, it may decompose to yield oxygen. Release of oxygen may support combustion.

5.3 Special protective equipment and precautions for fire fighters

Wear self-contained breathing apparatus and suitable protective clothing.

5.4 Hazchem code

2P

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see Section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. If contamination of sewers or waterways has occurred, advise local emergency services. Observe all local and national regulations.

6.3 Methods and materials for containment and cleaning up

Slippery when spilt. Avoid accidents, clean up immediately. Eliminate all sources of ignition. Use clean, non-sparking tools and equipment. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation.

With small spills – dilute product with lots of water and rinse away. Prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Do not use textiles, saw dust or combustible substances. Collect and seal in properly labelled containers or drums for disposal according to local regulations (see Section 13). Never return spilled product into its original container for re-use.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Keep away from sources of ignition - No smoking.

Wear personal protective equipment. For personal protection see section 8.

For precautions see Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area. Packages, containers and tanks should regularly be checked by visual observation for any sign of abnormality, e.g. corrosion, exert pressure (bulging), temperature increase etc. Protect against physical damage.

Store away from incompatible materials as listed in section 10.

Jointless smooth concrete floor. Recommendation: Acid-proof floor.

Only use containers which are specially permitted for: hydrogen peroxide and/or for transport, storage and tank installations.

Use adequate venting devices on all packages, containers and tanks and check correct operation periodically. Do not confine product in un-vented vessels or between closed valves. Risk of overpressure and burst due to decomposition in confined spaces and pipes.

Transport and store container in upright position only.

Avoid sunlight and heat. Keep away from sources of ignition - No smoking. Keep away from flammable substances. Keep away from incompatible substances.

Measures for storing in tank installations should include at least: Compatible materials, adequate separation, adequate venting area, venting devices, temperature measurement, earthing (grounding), bund in case of leakage. Prior to the first filling and 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.

Regularly verify the availability of water to deal with emergencies (for cooling, tank flooding, fire fighting) and check correct operation periodically.

Do not store together with: alkalis, reductants, metallic salts (risk of decomposition), organic solvents

This material is classified as a Dangerous Goods Class 5.1 (Oxidiser) and a Subsidiary Risk 8 (Corrosive) Substance by the criteria of the ADG Code and must be stored and handled in accordance with the relevant regulations.

This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters Occupational Exposure Limits

Chemical Name	Reference	TWA – Peak Limitation		STEL		Carcinogen Category	Notices
		ppm	mg/m ³	ppm	mg/m ³		
Hydrogen Peroxide (7722-84-1)	ASCC	1	1.4	-	-	-	-

As published in "Workplace Exposure Standards for Airborne Contaminants, December 2011" by SWA.

The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Biological Limits

None allocated for this product.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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. Adequate ventilation should be provided so that exposure limits are not exceeded. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Personal protective equipment (PPE)

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods and environmental factors.

Eye/face protection

Tight fitting chemical splash goggles and full face shield or basket shaped glasses. See Australian Standards (AS/NZS 1336 & 1337).

Skin protection

Wear protective gloves (Natural rubber: 1mm thickness. Break through time >480 min / Nitrile rubber: 0.33mm thickness. Break through time > 480 min / Butyl-rubber: 0.7mm thickness. Break through time > 480 min) and protective, acid-proof clothing (splash apron or equivalent chemical impervious outer garment and rubber boots) appropriate for the risk of exposure. See Australian Standards (AS 2161, AS 3765 & AS 2210). Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use. Wash and dry hands. Wash contaminated clothing and other protective equipment before storage or re-use.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination or type ABEK respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. See Australian Standards (AS 1715 & AS 1716).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Form : Liquid
	Colour : Clear, colourless
Odour:	Slight odour

Odour Threshold:	No data available
pH:	≤ 3.5
Melting Point:	-52.2°C
Boiling Point / Range	108°C
Decomposition Temperature:	114°C @ 1013 hPa
Evaporation Rate:	No data available
Flash Point:	Not applicable
Flammability Limits:	Not applicable
Specific Gravity:	1.195 @ 20°C
Vapour Density (air=1):	1
Vapour Pressure:	48 Pa (H ₂ O ₂) / 3070 Pa (H ₂ O ₂ & water) @ 30°C
% Volatiles:	No data available
Solubility in water:	Miscible

10. STABILITY AND REACTIVITY

10.1 Reactivity

Product is an oxidising agent and reactive.

10.2 Chemical stability

Stable under recommended storage conditions. Commercial products are stabilised to reduce risk of decomposition due to contamination.

10.3 Possibility of hazardous reactions

Hydrogen peroxide solutions (≥30%) are strong oxidizing agents capable of reacting explosively with many substances. The degree of hazard associated with hydrogen peroxide depends on concentration. Some organic compounds react with hydrogen peroxide to form unstable peroxides. Contact with combustible materials (e.g. wood, paper, textiles, oil, grease) may cause spontaneous fire or explosion. Drying of concentrated hydrogen peroxide on clothing or other combustible materials may cause fire. Reaction with strong bases (e.g. potassium hydroxide or sodium hydroxide) may be violently explosive. Mixtures with ≥35% hydrogen peroxide with nitric acid (>50%) or sulphuric acid can explode violently. Contact with organic compounds (e.g. carboxylic acids and anhydrides, nitrogen-containing bases, aldehydes, ketones, ethers, alcohols, charcoal, organic dust) may result in spontaneous combustion, violent decomposition and/or explosion. Contact with metals (powdered or metal surfaces), metal oxides, metal sulphides, metal salts, or iodates may cause violent decomposition. Reaction with reducing agents (e.g. metal hydrides) may be violent. May attack or ignite some forms of plastics, rubber, or coatings. Very concentrated hydrogen peroxide may react explosively when in contact with potassium permanganate. Soluble fuels (acetone, ethanol, glycerol) will detonate on admixture with peroxide of > 30% concentration, the violence increasing with concentration.

10.4 Conditions to avoid

Sunlight and heat

10.5 Incompatible materials

Metals (brass, copper, copper alloys, powdered metals, iron and iron salts), alkalis, hydrochloric acid, reducing agents, decomposition catalysts, impurities, flammable substances & organic solvents.

10.6 Hazardous decomposition products

Decomposition products under conditions of thermal decomposition: steam, oxygen. Release of oxygen may support combustion.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Hydrogen peroxide)

Reproductive toxicity

No data available

Specific target organ toxicity (STOT) - single exposure

No data available

Specific target organ toxicity (STOT) - repeated exposure

No data available

Aspiration hazard

No data available

Health Effects

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Eye contact : An eye irritant. Causes burns. Extreme irritation up to cauterisation. Can cause severe conjunctivitis, cornea damage or irreversible eye damage. Symptoms may occur with delay.

Skin contact : Causes burns. Causes caustic burns. With increasing contact time, local erythema or extreme irritation (whitening) up to blistering (caustic burn) can occur.

Ingestion : Causes burns. Swallowing can lead to bleeding of the mucosa in the mouth, oesophagus and stomach. The rapid releasing of oxygen can cause distension and bleeding of the mucosa in the stomach and lead to severe damage of the internal organs, especially in the event of greater intake of the product.

Inhalation : Causes burns. Inhalation of vapour/aerosols can lead to irritation of the respiratory tract and cause inflammation of the respiratory tract and pulmonary oedema. Symptoms may occur with delay.

11.2 Information on possible routes of exposure

The substance can be absorbed into the body by skin & eye contact, ingestion and by inhalation.

11.3 Additional Information

RTECS: MX0899500

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Avoid contaminating waterways.

Toxicity to fish:

C. carpio, LC₅₀: 42 mg/L/48h

Pimephales promelas, LC₅₀: 16.4 mg/L/96h

Toxicity to daphnia & other aquatic invertebrates

Daphnia magna, EC₅₀: 7.7 mg/L/24h

Chlorella vulgaris, IC₅₀: 2.5 mg/L/72h

Crustaceans, EC₅₀: 2.4 mg/L/48h

12.2 Persistence and degradability

Readily biodegradable. Decomposition products : water and oxygen.

Abiotic degradation:

- air, indirect photo-oxidation, t 1/2 from 16 - 20 h, sensitizer: OH radicals;
- water, redox reaction, t 1/2 from 25 - 100 h, mineral and enzymatic catalysis, fresh water;
- water, redox reaction, t 1/2 from 50 - 70 h, mineral and enzymatic catalysis, salt water;
- Soil, redox reaction, t 1/2 from 0.05 - 15 h, mineral catalysis.

Biodegradation:

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

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Other adverse effects

Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods and containers

Ensure waste disposal conforms to relevant local, state and federal authority waste disposal regulations. All empty packaging should be disposed of as unused product.

13.3 Special precautions for landfill or incineration

Contact a specialist disposal company or the local waste regulator for advice. Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility.

14. TRANSPORT INFORMATION

Classified as **DANGEROUS GOODS** by the criteria of the ADG Code for transport by road or rail.

Classified as **DANGEROUS GOODS** by the criteria of the IMDG Code for transport by sea.

Classified as **DANGEROUS GOODS** by the criteria of the IATA Code for transport by air.

14.1 UN number

ADG : 2014

IMDG : 2014

IATA : 2014

14.2 Proper shipping name

ADG : HYDROGEN PEROXIDE, AQUEOUS SOLUTION

IMDG : HYDROGEN PEROXIDE, AQUEOUS SOLUTION

IATA : HYDROGEN PEROXIDE, AQUEOUS SOLUTION

Not permitted for air transport

14.3 Transport hazard class

ADG : 5.1 (Sub-Risk 8)

IMDG : 5.1 (Sub-Risk 8)

IATA : 5.1 (Sub-Risk 8)

14.4 Packing group

ADG : II

IMDG : II

IATA : II

14.5 Environmental hazards

ADG : No

IMDG Marine Pollutant : No

IATA : No

14.6 Special precautions for users

No data

14.7 Hazchem code

ADG : 2P

IMDG EMS : F-H, S-Q

14.8 Dangerous goods initial emergency response guide (SAA/SNZ HB76:2010)

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15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Poisons Schedule : 6

Carcinogen classification under WHS Regulations 2011, Schedule 10

Not listed

Notification status

AICS On the inventory, or in compliance with the inventory.

16. OTHER INFORMATION

Key / legend to abbreviations and acronyms used in the MSDS

ADG	Australian Dangerous Goods
ASCC	Australian Safety and Compensation Council
DEC	Department of Environment and Conservation
IARC	International Agency for Research on Cancer
NOHSC	National Occupational Health and Safety Commission
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
Acute Tox.	Acute toxicity
Eye Dam.	Serious eye damage
Ox. Liq.	Oxidising liquids
Skin Corr.	Skin corrosion
TWA	Time weighted average
STEL	Short term exposure level
SWA	Safe Work Australia
Peak Limitations	A ceiling concentration that should not be exceeded over a measurement period, which should be as short as possible, but not exceeding 15 minutes
LD ₅₀	Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation
IC ₅₀	Inhibitory concentration that inhibits 50% of a specific biological or biochemical function within a specified time
LC ₅₀	Lethal concentration that kills 50% of an animal population within a specified time
TD Lo	The lowest dose of a substance known to have produced signs of toxicity
RTECS	Registry of Toxic Effects of Chemical Substances
g/L	Grams per litre
g/cm ³	Grams per cubic centimetre
mg/m ³	Milligrams per cubic metre
mg/kg	Milligrams per kilogram
pH	Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline
WHS	Work Health and Safety

Literature references

"Workplace Exposure Standards for Airborne Contaminants, December 2011" by SWA
Work Health and Safety Regulations 2011

Reason(s) for Issue:

Update contact details

Disclaimer

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