



Descon Oxychem Limited

MATERIAL SAFETY DATA SHEET

According to Regulation (EC) no.1907/2006, REACH

HYDROGEN PEROXIDE

Revision: 2 Last up date: February 18, 2017 Date issued: Dec 25, 2008

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Label no.5.1
Oxidizing substances



Label no.8
Corrosive substances



Oxidizer



Corrosive

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance/preparation

Trade name	Hydrogen Peroxide Solution (30 – 60 wt. %)
Chemical Name	Hydrogen Peroxide
Chemical family	Inorganic Peroxide
Common Synonyms	Hydrogen dioxide, Perhydrol, Hydro peroxide
Chemical Formula	H ₂ O ₂
Molecular weight	34.02

1.2. Uses of the substance/preparation

Industrial bleaching processing (such as pulp and paper, textile), pollution abatement and general oxidation reaction. Raw material in chemical synthesis. Disinfectant agent in food and pharmaceutical industries.

1.3. Company/undertaking identification

Descon Oxychem Ltd

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2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Acute toxicity – Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Oxidizing Liquids	Category 2

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements

H314 - Causes severe skin burns and eye damage

H302 - Harmful if swallowed

H332 - Harmful if inhaled

H335 - May cause respiratory irritation

H272 - May intensify fire; oxidizer



Precautionary Statements – Prevention

P271 - Use only outdoors or in a well-ventilated area

P260 - Do not breathe mist, vapors or spray.

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P220 - Keep/Store away from clothing/flammable materials/combustibles

P221 - Take any precaution to avoid mixing with combustibles/flammables

Precautionary Statements - Response

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER or doctor

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

P363 - Wash contaminated clothing before reuse

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P312 - Call a POISON CENTER or doctor if you feel unwell

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P310 - Immediately call a POISON CENTER or doctor

P370 + P378 - In case of fire: Use water for extinction

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information

Keep container in a cool place out of direct sunlight. Store only in vented containers. Do not store on wooden pallets. Do not return unused material to its original container. Avoid contamination - Contamination could cause decomposition and generation of oxygen which may result in high pressure and possible container rupture. Empty drums should be triple rinsed with water before discarding.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components/Constituents	Concentration % , wt.	CAS No.	EC No.	Annex I Index No.	Hazard Symbol	R phrases
Hydrogen Peroxide	30-60	7722-84-1	231-765-0	008-003-00-9	O C Xn	R8 R35 R 20/22
Water	balance	7732-18-5				

4. FIRST - AID MEASURES

Seek medical attention immediately in all cases of exposure!

Inhalation: Remove to fresh air. If breathing stops, give artificial respiration. If breathing is difficult administer oxygen. Seek medical attention if irritation persists.

Skin contact: Flush contaminated skin with large amounts of water. If the material penetrates clothing, immediately remove the clothing and wash the skin with plenty of water. Get medical attention if irritations occur.

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Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes; lifting upper and lower lids to ensure complete irrigation of all eye and lid tissue. Contact lenses should not be worn when working with this material

Ingestion: Rinse mouth with plenty of water. If person is conscious, immediately administer large quantities of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Get immediate medical attention.

General advice: Never give anything by mouth to an unconscious person. Keep airway clear. Remove contaminated clothing. Get medical attention immediately.

Note to physician: Hydrogen peroxide at this concentration is a strong oxidant. Direct contact with the eyes is likely to cause corneal damage, especially if not washed away immediately. Careful ophthalmologic evaluation is recommended and the possibility of the local corticosteroid therapy should be considered. Attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. In the event of severe distension of the stomach or esophagus due to gas formation, insertion of a gastric tube may be required. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort.

5. FIRE - FIGHTING MEASURES

Suitable extinguishing media: Use water or water fog only to fight fire where hydrogen peroxides is involved. Carbon dioxide and dry chemical may also be used.

Exposure hazard: Spontaneous combustion can occur if allowed to remain in contact with Oxidizable materials. Drying product on clothing or combustible material can cause fire. Do not allow temperature of storage tank to rise above 38°C. Do not heat solution to concentration of 74 % or greater. Mixtures with combustible materials may be explosive.

Hazardous combustion products: Oxygen, which supports combustion and may intensify fire.

Protection of fire-fighters: Any tank or container surrounded by fire should be flooded with plenty of water for cooling. Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep unnecessary and unprotected personnel away from entering. Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal equipment. Provide engineering control measures to keep airborne concentrations below exposure limits In case of accidental spills or airborne concentrations higher than 10 ppm, evacuate all personnel from the affected area.

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Environmental precautions: Prevent from contamination the ground and surface water by isolating the hazard area. Contain and recover when is possible. Dispose according to all applicable federal state or local environment regulations.

Methods of cleaning up: Dilute with a large volume of water and hold in a diked area until the Material is decomposed. Isolate the contaminated area with soil, sand or other absorbent material. The material may be destroyed with sodium met bisulfite and sodium sulfite after diluting to 5-10% hydrogen peroxide. Combustible materials exposed to hydrogen peroxide should immediately submerged in or rinsed with large amount of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustible material to ignite and result in a fire.

Other information: Do not absorb in saw-dust or other combustible absorbent.

7. HANDLING AND STORAGE

Handling: Protect containers against physical damage. When working personnel are required to handle hydrogen peroxide, complete protective clothing including self-contained breathing apparatus are provided. Avoid excessive heat and contamination. Contamination may cause decomposition and generating oxygen gas which could result in high pressure and possible container rupture. Hydrogen peroxide should be stored only in vented containers and should be transported only in prescribed manner. Never return unused hydro peroxide to original container. Empty drums should be triple reused with water before discarding. Utensils used for handling hydrogen peroxide should be made only of glassy, stainless steel, aluminum or plastic.

Storage: Store only if stabilized in vented containers. Store containers tightly closed in cool, dry, dark and well-ventilated area of non-combustible construction away from heat and incompatible substances: combustible and reducing substances, strong bases, metals.

The hydrogen peroxide is stored or transported only in dedicated containers/tanks. Do not deposit on wood panels containers/tanks with hydrogen peroxide.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits:

ACGIH (TWA)	1 ppm
OSHA (PEL)	1ppm

Engineering control: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emission of the contaminant at its source, preventing dispersion of it into the general work area.

Respiratory protection: If containers in excess of 10ppm are expected use approved self-contained breathing apparatus. Do not use oxidizable sorbents such as activated carbon.

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Hand protection: Wear chemical protective gloves (made from PVC, nitrile or neoprene).**Eye /face protection:** Chemical splash goggles and/or face shield must be worn when possibility exist for eye contact due to splashing or spraying liquid. Do not used contact lenses. Emergency wash fountains and quick-drench facilities in work area.**Skin protection:** Wear impervious clothing including boots, apron or coveralls as appropriate to prevent skin contact. Do not wear any form of boot or over boots made from nylon or nylon blends. Do not use cotton, wool or leather, as these materials react rapidly with higher concentration of hydrogen peroxide.**Other precaution:** Maintain shower, eye wash fountain facility in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties for	30%	35%	50%	60%
General information				
Appearance			Colorless liquid	
Odor			pungent	
Important health, safety and environmental information's				
pH	2,0-3,5	2,0-3,5	1,0-3,0	1,0-3,0
pH (1% solution)	5,0-6,0	5,0-6,0	5,0-6,0	5,0-6,0
Boiling point	106°C	108°C	114°C	125°C
Flammability	non-inflammable			
Oxidizing properties	Strong oxidizer			
Vapours pressure at 30°C	25mmHg	23mmHg	18mmHg	15mmHG
Relative density (H ₂ O=1)	1,11	1,13	1,19	1,23
Solubility in H ₂ O, %	100%	1 00%	100%	100%
Partition coeficient octanol -water (log K _{ow})		N/A		
Viscosity, at 20 °C	1,07 mPa s		1,17 mPa s	
Vapor density (aer=1)			1, 0	
Evaporate rate (butyl acetat e=1)	approx. 1	approx. 1	approx. 1	approx. 1
Other information				
Melting point	-26°C	-33°C	-52°C	-56°C
Autoignition temperature		N/A		

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10. STABILITY AND REACTIVITY

Chemical stability: Stable. Hydrogen peroxide of various concentrations is unstable in presence of catalytic contaminations, heat sources and UV light. Stability is reduce too when pH is above 4.0. For minimizing decomposition, commercial products are stabilized.

Condition to avoid: Heat, UV radiation, incompatible.

Material to avoid: Reducing agents, wood, paper and other combustible, iron, other heavy metals, copper alloys and caustic.

Hazardous decomposition products: Oxygen which support combustion.

11. TOXICOLOGICAL INFORMATION

Animal toxicity data

LD ₅₀	<i>oral-rat</i>	1232mg/kg fo H ₂ O ₂ 35%
LD ₅₀	<i>oral-rat</i>	841 mg/kg for H ₂ O ₂ 60 %
LD ₅₀	<i>dermal-rabbit</i>	>2000 mg/kgmg/kg for H ₂ O ₂ 35 %
LD ₅₀	<i>inhalation –rat</i>	2000mg/m ³ / _{4hr}

Inhalation: Corrosive and irritating to the upper and the lower respiratory tract and all mucosal tissue. Symptoms include caught, dizziness, headache, laboured breathing, nausea, shortness of breath, sore throat.

Skin contact: Corrosive and highly irritant to the skin and all living tissue. Hydrogen peroxide can cause serious burns exhibit severe pain, redness and possible swelling

Eye contact: Extremely irritating/corrosive. Contact with the liquid or vapors cause painful, redness, blurred vision and sever deep burns.

Chronic effects: Over exposure may cause dermatitis, eczema, conjunctivitis, keratitis.

Other effects: No carcinogenicity are reported (literature data).

CMR effects:

Carcinogenic: Not classifiable as carcinogenic by IARC.

Mutagenicity: No mutagenic effect.

Toxicity for Reproduction: Not affect reproductive parameters.

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12. ECOLOGICAL INFORMATION

Ecotoxicity

Fish	<i>Pimephales promelas</i>	LC ₅₀ =16,4 mg/l/96h
	<i>Channel catfish</i>	LC ₅₀ = 37,4 mg/l/96h
Daphnia	<i>Daphnia magna</i>	EC ₅₀ = 7,7mg/l/24h
	<i>Daphnia pulex</i>	EC ₅₀ = 2,4mg/l /4h
Algae	<i>Nitzschia closterium</i>	EC ₅₀ = 0,85mg/l/96 h ([n ap` s`rat

Mobility: Due to high water solubility and low vapour pressure hydrogen peroxide will be found mostly in aquatic environment.

Persistence and degradability: Accidental release in soils or waters causes organic material oxidation. In fresh water half life is 8 hours from to 20 days; in air is 10-20 hours ; in soil the half life depend on microbiological activity and metallic impurities, varying between several minutes to several hours.

Bioaccumulative potential: Hydrogen peroxide does not bioaccumulate. PBT assessment: Not applicable.

13. DISPOSAL CONSIDERATION

Waste treatment: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

Packaging treatment: The empty containers, tank cars and tank trucks are washed with plenty of water and finally with demineralized water.

14. TRANSPORT INFORMATION

Hydrogen Peroxide, packaged in tank cars and tank trucks made from aluminum, stainless steel 304 L or 316 L type, in containers or drums made from high density polyethylene, equipped with vent valve. Hydrogen Peroxide solution can be shipped according to transport regulations for dangerous goods, hazard class 5.1, Oxidizing substances

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Transport Labeling



Label no.5.1
Oxidizing substances



Label no.8
Corrosive substances

RID/ADR

UN No.	2014
Proper shipping name	Hydrogen Peroxide, Aqueous Solution, with not less than 20% but not more than 60% hydrogen peroxide (Stabilized as necessary)
Hazard class	5.1
Subsidiary risk	8
UN Packing Group	II
Classification code	OC1
<i>Danger panel</i>	<i>58/2014</i>
	(Hazard Identification No. 58)
	(UN Identification No 2014)

IMDG/IMO

UN No.	2014
Hazard class	5.1
Subsidiary risk	8
UN Packing Group	II
Proper shipping name	Hydrogen Peroxide, Aqueous Solution, with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
EmS No.	F-H, S-Q

IATA/IT-ICAO

Proper shipping name	Hydrogen Peroxide, Aqueous Solution, with not less than 20% but not more than 60% hydrogen peroxide (Stabilized as necessary)
UN No.	2014
Hazard class	5.1
Subsidiary risk	8
UN Packing Group	II
IATA Label	Oxidizer, Corrosive
Packaging Note Passenger	501
Packaging Note Cargo	506
Max. Quantity Passenger	11
Max. Quantity Cargo	51

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15. REGULATORY INFORMATION

Hydrogen Peroxide is classified and labeled under Directive 67/548/EEC, Annex I. This product is listed on EINECS, EC No: 231-765-0.

EC Classification EC Index No. 008-003-00-9
R5
O; R8
C; R35
Xn; R20/22

Labeling

Hazard Symbol	O, C	Oxidizer, Corrosive
Risk phrases	R5	Heating may cause an explosion.
	R 8	Contact with combustible material may cause fire.
	R 35	Cause severe burns.
	R20/22	Harmful by inhalation and if swallowed.
Safety phrases	S 17	Keep away from combustible material.
	S 26	In case of contact with eye, rinse immediately with plenty of water.
	S 28	After contact with skin, rinse immediately with plenty of water and soap.
	S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16. Other information's

List of relevant R-phrases (see chapter 3)

R 8 Contact with combustible material may cause fire.
R 35 Cause severe burns.
R20/22 Harmful by inhalation and if swallowed.

Precautions to be taken in handling and storing: Keep well ventilated the areas where solution of hydrogen peroxide is stored and handled.

Work hygienic practices: Avoid direct contact of substance with skin/eyes. Avoid the exposure of personnel with dermatological affections.

Interdictions: **Do not drink or eat** in working area.
Do not smoke in or near working area.

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The use of open flame in working areas is prohibited.

MSDS Revisions: This Material Safety Data Sheet is made in accordance to Regulation (EC) no.1907/2006 REACH and will replace the previous version 1 dated April 08, 2015.

Uses and Restrictions: Advice in this document relates only to product as originally supplied. Other derivative chemicals will have different properties and hazard.

Sources of key data uses to compile the data sheet:

EC Directive 67/548/EC resp. 99/45/EC as amended in each case. EC Directive 2001/58/EC as amended in each case.

EC Directive 2000/39/EC as amended in each case.

Transport regulations according to ADR, RID, IMDG, and ATA as amended in each case.

This MSDS has been elaborated in accordance with Regulation (EC) No.1907/2006 REACH.

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

This MSDS cannot cover all possible situations which the user may experience during handling and processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained within this MSDS should be provided to the user's employees or customers.
