

Pola Office Liquid

SDI Limited

Version No: 7.1

Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: 23/12/2022 Print Date: 21/11/2023 L.REACH.GB.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

1.1. Product Identifier

Product name	Pola Office Liquid
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
Chemical formula	Not Applicable
Other means of identification	Not Available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	To remove discoloration of teeth, to be performed by a dentist.
Uses advised against	No specific uses advised against are identified.

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	SDI Limited	SDI (North America) Inc.	SDI Germany GmbH
Address	3-15 Brunsdon Street Bayswater VIC 3153 Australia	1279 Hamilton Parkway Itasca IL 60143 United States	Hansestrasse 85 Cologne D-51149 Germany
Telephone	+61 3 8727 7111	+1 630 361 9200	+49 0 2203 9255 0
Fax	+61 3 8727 7222	Not Available	+49 0 2203 9255 200
Website	www.sdi.com.au	www.sdi.com.au	www.sdi.com.au
Email	info@sdi.com.au	USA.Canada@sdi.com.au	germany@sdi.com.au

Registered company name	SDI HOLDINGS PTY LTD DO
Address	Rua Dr. Reinaldo Schmithausen 3141 – Cordeiros Itajaí – SC – CEP 88310-004 Brazil
Telephone	+55 11 3092 7100
Fax	Not Available
Website	http://www.sdi.com.au/
Email	Brasil@sdi.com.au

1.4. Emergency telephone number

Association / Organisation	SDI Limited	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	131126 Poisons Information Centre	+44 20 3901 3542
Other emergency telephone numbers	+61 3 8727 7111	+44 808 164 9592

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]	H315 - Skin Corrosion/Irritation Category 2, H318 - Serious Eye Damage/Eye Irritation Category 1, H335 - Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3
Legend:	1. Classification by vendor; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567

2.2. Label elements

Hazard pictogram(s)





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Signal word	Danger
Sidnai word	Dander

Hazard statement(s)

H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.

Precautionary statement(s) 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/doctor/physician/first aider.	
P302+P352	IF ON SKIN: Wash with plenty of water.	
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.	
P332+P313	If skin irritation occurs: Get medical advice/attention.	
P362+P364	Take off contaminated clothing and wash it before reuse.	

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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2.3. Other hazards

Ingestion may produce health damage*.

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

SECTION 3 Composition / information on ingredients

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
1. 7722-84-1 2.231-765-0 3.008-003-00-9 4.01-2119485845-22- XXXX 01-2120763149-48-XXXX	35	hydrogen peroxide	Oxidizing Liquids Category 1, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 1A, Acute Toxicity (Inhalation) Category 4; H271, H302, H314, H332 [2]	Ox. Liq. 1; H271: C ≥ 70 %**** Ox. Liq. 2; H272: 50 % ≤ C < 70 % **** * Skin Corr. 1A; H314: C ≥ 70 % Skin Corr. 1B; H314: 50 % ≤ C < 70 % Skin Irrit. 2; H315: 35 % ≤ C < 50 % Eye Dam. 1; H318: 8 % ≤ C < 50 % Eye Irrit. 2; H319: 5 % ≤ C < 8 % STOT SE 3; H335: C ≥ 35 %	Not Available
Legend:			Classification drawn from GB-CLP Regulate: [e] Substance identified as having endocri	ation, UK SI 2019/720 and UK SI 2020/1567; 3. Clasine disrupting properties	ssification drawn fro

SECTION 4 First aid measures

4.1. Description of first aid measures

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact

Eye Contact

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

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If fumes or combustion products are inhaled remove from contaminated area Inhalation Seek medical attention. If swallowed do **NOT** induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Ingestion Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. • Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.

4.2 Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential. Immediate administration of an appropriate spray, by a doctor or a person authorised by him/her

(ICSC24419/24421

SECTION 5 Firefighting measures

5.1. Extinguishing media

FOR SMALL FIRE:

- ▶ USE FLOODING QUANTITIES OF WATER.
- ▶ DO NOT use dry chemical, CO2, foam or halogenated-type extinguishers.

FOR LARGE FIRE

Flood fire area with water from a protected position

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	 Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous Reacts vigorously with alkali metals
5.3. Advice for firefighters	
Fire Fighting	 Alert Fire Brigade and tell them location and nature of hazard. May be violently or explosively reactive. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water courses. Fight fire from a safe distance, with adequate cover. Extinguishers should be used only by trained personnel. Use water delivered as a fine spray to control fire and cool adjacent area. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. If fire gets out of control withdraw personnel and warn against entry. Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	 Will not burn but increases intensity of fire. May explode from friction, shock, heat or containment. Heating may cause expansion or decomposition leading to violent rupture of containers. Heat affected containers remain hazardous. Contact with combustibles such as wood, paper, oil or finely divided metal may produce spontaneous combustion or violent decomposition. May emit irritating, poisonous or corrosive fumes. Combustion/decomposition may produce acrid/toxic fumes of carbon monoxide (CO). Combustion products include: carbon dioxide (CO2) other pyrolysis products typical of burning organic material. sulfur oxides (SOx)

▶ Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous

SECTION 6 Accidental release measures

Minor Spills

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

6.3. Methods and material for containment and cleaning up

Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.

- ► Check regularly for spills and leaks.
- Clean up all spills immediately
- No smoking, naked lights, ignition sources. Avoid all contact with any organic matter including fuel, solvents, sawdust, paper or cloth and other incompatible materials, as ignition may

Avoid breathing dust or vapours and all contact with skin and eyes.

- ▶ Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with dry sand, earth, inert material or vermiculite.
- DO NOT use sawdust as fire may result
- Scoop up solid residues and seal in labelled drums for disposal.
- Neutralise/decontaminate area.

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Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. May be violently or explosively reactive. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation (or protect in place). No smoking, flames or ignition sources. Increase ventilation. Contain spill with sand, earth or other clean, inert materials. **Major Spills** NEVER use organic absorbents such as sawdust, paper, cloth; as fire may result. Avoid any contamination by organic matter. Use spark-free and explosion-proof equipment. Collect any recoverable product into labelled containers for possible recycling. DO NOT mix fresh with recovered material Collect residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. Decontaminate equipment and launder all protective clothing before storage and re-use. If contamination of drains or waterways occurs advise emergency services.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Fire and explosion protection

- ▶ Avoid all personal contact, including inhalation. Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- ▶ DO NOT enter confined spaces until atmosphere has been checked
- Avoid smoking, naked lights or ignition sources.
- Avoid generation of static electricity.
- DO NOT use plastic buckets
- Earth all lines and equipment. Safe handling
 - Use spark-free tools when handling.
 - Avoid contact with incompatible materials.
 - ► When handling, **DO NOT** eat, drink or smoke
 - ▶ Keep containers securely sealed when not in use.
 - Avoid physical damage to containers.
 - Always wash hands with soap and water after handling.
 - Work clothes should be laundered separately.
 - Use good occupational work practice.

Store between 2 and 8 deg C.

- ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Other information Do not store in direct sunlight.

See section 5

Store in a dry and well ventilated-area, away from heat and sunlight.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	DO NOT repack. Use containers supplied by manufacturer only.
Storage incompatibility	Avoid strong acids, bases.
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not Available
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not Available

7.3. Specific end use(s)

See section 1.2

SECTION 8 Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs PNECs Exposure Pattern Worker Compartment	
hydrogen peroxide	Inhalation 0.04 mg/m³ (Local, Chronic) Inhalation 3 mg/m³ (Local, Acute) Inhalation 0.21 mg/m³ (Local, Chronic) * Inhalation 1.93 mg/m³ (Local, Acute) *	0.013 mg/L (Water (Fresh)) 0.014 mg/L (Water - Intermittent release) 0.013 mg/L (Water (Marine)) 0.047 mg/kg sediment dw (Sediment (Fresh Water)) 0.047 mg/kg sediment dw (Sediment (Marine)) 0.002 mg/kg soil dw (Soil) 4.66 mg/L (STP)

^{*} Values for General Population

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Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	hydrogen peroxide	Hydrogen peroxide	1 ppm / 1.4 mg/m3	2.8 mg/m3 / 2 ppm	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
hydrogen peroxide	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
hydrogen peroxide	75 ppm	Not Available

MATERIAL DATA

8.2. Exposure controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

8.2.1. Appropriate engineering controls

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range	
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	
3: Intermittent, low production.	3: High production, heavy use	
4: Large hood or large air mass in motion	4: Small hood-local control only	

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

8.2.2. Individual protection measures, such as personal protective equipment









▶ Full

- Safety glasses with side shields.
 Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

Eye and face protection

Skin protection See Hand protection below

Hands/feet protection

- ► Wear chemical protective gloves, e.g. PVC.
- ▶ Wear safety footwear or safety gumboots, e.g. Rubber

Body protection

Overalls.

Other protection

- PVC Apron.PVC protective suit may be required if exposure severe.
- ► Eyewash unit.

See Other protection below

Ensure there is ready access to a safety shower.

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Respiratory protection

Type B Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	B-AUS	-	B-PAPR-AUS / Class 1
up to 50 x ES	-	B-AUS / Class 1	-
up to 100 x ES	-	B-2	B-PAPR-2 ^

^{^ -} Full-face

 $A(A|I|Classes) = Organic \ vapours, \ B \ AUS \ or \ B1 = Acid \ gasses, \ B2 = Acid \ gas \ or \ hydrogen \ cyanide(HCN), \ B3 = Acid \ gas \ or \ hydrogen \ cyanide(HCN), \ E = Sulfur \ dioxide(SO2), \ G = Agricultural \ chemicals, \ K = Ammonia(NH3), \ Hg = Mercury, \ NO = Oxides \ of \ nitrogen, \ MB = Methyl \ bromide, \ AX = Low \ boiling \ point \ organic \ compounds(below \ 65 \ degC)$

8.2.3. Environmental exposure controls

See section 12

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Clear, colourless liquid; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	1.13
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available
Nanoform Solubility	Not Available	Nanoform Particle Characteristics	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	 Unstable in the presence of incompatible materials. Product is considered stable under normal handling conditions. Prolonged exposure to heat. Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Inhaled

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens,

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may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

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.

Inhalation of excessive levels of mist may result in headache, dizziness, vomiting, diarrhoea, irritability, insomnia and in extreme pulmonary oedema. Systemic poisoning due to hydrogen peroxide inhalation may cause tremors and numbness of the extremities, convulsions, pulmonary oedema, coma and shock. Hydrogen peroxide has poor warning properties. High concentrations of the vapour or mist are likely to cause extreme irritation of the nose and chest, cough, discomfort, shortness of breath, and inflammation of the nose and throat.

Ingestion

Accidental ingestion of the material may be damaging to the health of the individual.

Skin Contact

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

Eve

When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

Chronic

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

Pola Office Liquid	TOXICITY Not Available	IRRITATION Not Available		
hydrogen peroxide	TOXICITY Dermal (rabbit) LD50: >2000 mg/kg ^[1] Inhalation(Mouse) LC50; 2800 mg/L4h ^[2]	IRRITATION Not Available		
	Oral (Rat) LD50: >225 mg/kg ^[2]			

Legend:

HYDROGEN PEROXIDE

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

No significant acute toxicological data identified in literature search.

Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.

For hydrogen peroxide:

Hazard increases with peroxide concentration, high concentrations contain an additive stabiliser.

Pharmacokinetics

Hydrogen peroxide is a normal product of metabolism. It is readily decomposed by catalase in normal cells. In experimental animals exposed to hydrogen peroxide, target organs affected include the lungs, intestine, thymus, liver, and kidney, suggesting its distribution to those sites. Hydrogen peroxide has been detected in breath.

- Absorption: Hydrogen peroxide is decomposed in the bowel before absorption. When applied to tissue, solutions of hydrogen peroxide have poor penetrability.
- Distribution Hydrogen peroxide is produced metabolically in intact cells and tissues. It is formed by reduction of oxygen either directly in a two-electron transfer reaction, often catalysed by flavoproteins, or by an initial one-electron step to O2 followed by dismutation to hydrogen peroxide.
- Hydrogen peroxide has been detected in serum and in intact liver. based on the results of toxicity studies, the lungs, intestine, thymus, liver, and kidney may be distribution sites. In rabbits and cats that died after intravenous administration of hydrogen peroxide, the lungs were pale and emphysematous. Following intraperitoneal injection of hydrogen peroxide in mice, pyknotic nuclei were induced in the intestine and thymus (IARC 1985). Degeneration of hepatic and renal tubular epithelial tissue was observed following oral administration of hydrogen peroxide to mice.
- Metabolism Glutathione peroxidase, responsible for decomposing hydrogen peroxide, is present in normal human tissues (IARC 1985).
 When hydrogen peroxide comes in contact with catalase, an enzyme found in blood and most tissues, it rapidly decomposes into oxygen and water.
- Excretion Hydrogen peroxide has been detected in human breath at levels ranging from 1.0+/-.5 g/L to 0.34+/-0.17 g/L.

Carcinogenicity

Gastric and duodenal lesions including adenomas, carcinomas, and adenocarcinomas have been observed in mice treated orally with hydrogen peroxide. Marked strain differences in the incidence of tumors have been observed. Papilloma development has been observed in mice treated by dermal application.

Genotoxicity

Hydrogen peroxide induced DNA damage, sister chromatid exchanges and chromosomal aberrations in mammalian cells *in vitro*. Hydrogen peroxide induced DNA damage in bacteria (*E. coli*), and was mutagenic to bacteria (*Salmonella typhimurium*) and the fungi, *Neurospora crassa* and *Aspergillis chevallier*i, but not to *Streptomyces griseoflavus*. It was not mutagenic to *Drosophila melanogaster* or to mammalian cells *in vitro*.

Developmental Toxicity

Malformations have been observed in chicken embryos treated with hydrogen peroxide, but experiments with mice and rats have been negative. Female rats that received 0.45% hydrogen peroxide (equivalent to approximately 630 mg/kg/day)7 as the sole drinking fluid for five weeks

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produced normal litters when mated with untreated males.

Doses of 1.4 to 11 mol/egg hydrogen peroxide (purity 30%) dissolved in water were injected into the airspace of groups of 20-30 white leghorn chicken eggs on day 3 of incubation.

Embryos were examined on day 14. The incidence of embryonic deaths and malformations was dose-related and detected at doses of 2.8 mol/egg and above. The combined ED50 was 2.7 mol/egg.

Reproductive Toxicity

A 1% solution of hydrogen peroxide (equivalent to 1900 mg/kg/day) given as the sole drinking fluid to three-month-old male mice for 7-28 days did not cause infertility.

The substance is classified by IARC as Group 3:

- Bioconcentration Data 8. Vendor Data

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Acute Toxicity	×	Carcinogenicity	×
Skin Irritation/Corrosion	✓	Reproductivity	×
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	×	STOT - Repeated Exposure	×
Mutagenicity	×	Aspiration Hazard	×

Leaend:

X - Data either not available or does not fill the criteria for classification

Data available to make classification

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

11.2.2. Other information

See Section 11.1

SECTION 12 Ecological information

12.1. Toxicity

Pola Office Liquid	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
	Endpoint	Test Duration (hr)	Species	Value	Source
hydrogen peroxide	EC50	72h	Algae or other aquatic plants	0.69mg/l	4
	EC50	48h	Crustacea	2mg/l	2
	EC50	96h	Algae or other aquatic plants	2.27mg/l	4
	NOEC(ECx)	72h	Algae or other aquatic plants	0.1mg/l	1
	LC50	96h	Fish	16.4mg/l	2

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air	
hydrogen peroxide	LOW	LOW	

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
hydrogen peroxide	LOW (LogKOW = -1.571)

12.4. Mobility in soil

Ingredient	Mobility
hydrogen peroxide	LOW (KOC = 14.3)

12.5. Results of PBT and vPvB assessment

	P	В	Т
Relevant available data	Not Available	Not Available	Not Available
PBT	X	×	×
vPvB	X	×	×
PBT Criteria fulfilled?			No
vPvB			No

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12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

SECTION 13 Disposal considerations

13.1. Waste treatment methods

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- ► Reduction
- ► Reuse
- ► Recycling
- ► Disposal (if all else fails)

Product / Packaging disposal

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- ▶ It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.

Waste treatment options

Not Available

Sewage disposal options Not Available

SECTION 14 Transport information

Labels Required





Marine Pollutant NO
HAZCHEM 2P

Land transport (ADR-RID)

14.1. UN number or ID number	2014			
14.2. UN proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)			
14.3. Transport hazard class(es)	Class Subsidiary Hazard	5.1		
14.4. Packing group				
14.5. Environmental hazard	Not Applicable			
	Hazard identification	(Kemler)	58	
	Classification code		OC1	
14.6. Special precautions for	Hazard Label		5.1 +8	
user	Special provisions		Not Applicable	
	Limited quantity		1 L	
	Tunnel Restriction Co	ode	E	

Air transport (ICAO-IATA / DGR)

14.1. UN number	2014		
14.2. UN proper shipping name	Hydrogen peroxide, aqueous solution with 20% or more but 40% or less hydrogen peroxide (stabilized as necessary); Hydrogen peroxide, aqueous solution with more than 40% but 60% or less hydrogen peroxide (stabilized as necessary)		
14.3. Transport hazard class(es)	ICAO/IATA Class ICAO / IATA Subsidiary Hazard ERG Code	5.1 8 5C	
14.4. Packing group	Ш		
14.5. Environmental hazard	Not Applicable		

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Special provisions A2 A75 Cargo Only Packing Instructions 554; Forbidden Cargo Only Maximum Qty / Pack 5 L; Forbidden 14.6. Special precautions for Passenger and Cargo Packing Instructions 550; Forbidden user Passenger and Cargo Maximum Qty / Pack 1 L; Forbidden Passenger and Cargo Limited Quantity Packing Instructions Y540: Forbidden

Passenger and Cargo Limited Maximum Qty / Pack

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	2014	2014		
14.2. UN proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)			
14.3. Transport hazard class(es)	IMDG Class IMDG Subsidiary Haz	5.1 zard 8		
14.4. Packing group				
14.5 Environmental hazard	Not Applicable			
14.6. Special precautions for user	EMS Number Special provisions Limited Quantities	F-H, S-Q Not Applicable 1 L		

0.5 L; Forbidden

Inland waterways transport (ADN)

14.1. UN number	2014	2014		
14.2. UN proper shipping name	HYDROGEN PEROXID	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)		
14.3. Transport hazard class(es)	5.1 8			
14.4. Packing group	II .			
14.5. Environmental hazard	Not Applicable			
	Classification code	OC1		
	Special provisions	Not Applicable		
14.6. Special precautions for user	Limited quantity	1L		
	Equipment required	PP, EP		
	Fire cones number	0		

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
hydrogen peroxide	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
hydrogen peroxide	Not Available

If packed as Chemical kits the following classification may be considered if all ICAO/IATA transport requirements are met: Chemical Kit UN3316 - Class 9, SP A44 & A163.

SECTION 15 Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

hydrogen peroxide is found on the following regulatory lists

Great Britain GB Biocidal Active Substances

Great Britain GB mandatory classification and labelling list (GB MCL)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

UK Workplace Exposure Limits (WELs).

Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable -: Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, -2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

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Information according to 2012/18/EU (Seveso III):

Seveso Category Not Available

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

National inventory Glatas			
National Inventory	Status		
Australia - AIIC / Australia Non-Industrial Use	Yes		
Canada - DSL	Yes		
Canada - NDSL	No (hydrogen peroxide)		
China - IECSC	Yes		
Europe - EINEC / ELINCS / NLP	Yes		
Japan - ENCS	Yes		
Korea - KECI	Yes		
New Zealand - NZIoC	Yes		
Philippines - PICCS	Yes		
USA - TSCA	Yes		
Taiwan - TCSI	Yes		
Mexico - INSQ	Yes		
Vietnam - NCI	Yes		
Russia - FBEPH	Yes		
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.		

SECTION 16 Other information

Revision Date	23/12/2022
Initial Date	25/09/2015

Full text Risk and Hazard codes

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

SDS Version Summary

Version	Date of Update	Sections Updated
6.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
7.1	23/12/2022	Classification review due to GHS Revision change.

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by SDI Limited using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

Definitions and abbreviations

- ▶ PC TWA: Permissible Concentration-Time Weighted Average
- ▶ PC STEL: Permissible Concentration-Short Term Exposure Limit
- ► IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- ► TEEL: Temporary Emergency Exposure Limit。
- ▶ IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- ▶ NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- ► TLV: Threshold Limit Value
- LOD: Limit Of Detection
- ► OTV: Odour Threshold Value

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- ► BCF: BioConcentration Factors
- ► BEI: Biological Exposure Index
- ► DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
- ▶ AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- ▶ NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
 EINECS: European Inventory of Existing Commercial chemical Substances
 ELINCS: European List of Notified Chemical Substances
- ► NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- ► NZIoC: New Zealand Inventory of Chemicals
- ► PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act
- ► TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- ▶ NCI: National Chemical Inventory
- ▶ FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

The information contained in the Safety Data Sheet is based on data considered to be accurate, however, no warranty is expressed or implied regarding the accuracy of the data or the results to be obtained from the use thereof.

Other information:

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