



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

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

- **Product identifier**
- **Trade name:** 50% Hydrogen Peroxide
- **Applicable Models:** HPO50
- **Synonyms:** Hydrogen Peroxide, H₂O₂
- **CAS Number:** 7722-84-1
- **Relevant identified uses of the substance or mixture and uses advised against :**
- **Identified/Recommended uses:**
 - Chemical for synthesis
 - Bleaching agent
 - Disinfectant
 - Water treatment
 - Metal surface treatment
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 - Chang Chun Petrochemical Co. Ltd.
 - 7th Fl., No. 301, SongJiang Rd.
 - Taipei City, 10483, TAIWAN
 - Tel: +886-2-2500-1800 Fax: +886-2-2501-8018
 - WWW.CCP.COM.TW
- **Further information obtainable from:** SDS-info@ccp.com.tw
- **Emergency telephone number:** During normal opening times: +886 2 2500 - 1800 (8:30-17:30; GMT+8)

2 Hazards identification

- **Classification of the substance or mixture:**

Ox. Liq. 2	H272	May intensify fire; oxidiser.
Acute Tox. 4	H302	Harmful if swallowed.
Acute Tox. 5	H333	May be harmful if inhaled.
Skin Corr. 1B	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.
Aquatic Chronic 4	H413	May cause long lasting harmful effects to aquatic life.

- **Label elements:**
- **Hazard pictograms:**



GHS03 GHS05 GHS07

- **Signal word:** Danger
- **Hazard-determining components of labelling:**
 - hydrogen peroxide solution
- **Hazard statements:**
 - May intensify fire; oxidiser.
 - Harmful if swallowed.
 - May be harmful if inhaled.
 - Causes severe skin burns and eye damage.
 - May cause long lasting harmful effects to aquatic life.
- **Precautionary statements:**
 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - Do not breathe dusts or mists.
 - Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)

GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 1)

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 Immediately call a POISON CENTER/doctor.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

3 Composition/information on ingredients

- **Chemical characterisation: Mixtures**
- **Description:** Mixture: consisting of the following components.

- **Dangerous Components:**

7722-84-1	hydrogen peroxide solution Ox. Liq. 1, H271; Skin Corr. 1A, H314; Acute Tox. 4, H302; Acute Tox. 4, H332	50%
-----------	---	-----

- **Non-Hazardous Component(s):**

Substance Name:	CAS No:	%
Water	7732-18-5	50%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Rinse immediately with plenty of water, also under the eyelids, for at least 20 minutes.
Call a doctor immediately.
- **After swallowing:** Do not induce vomiting; call for medical help immediately.
- **Most important symptoms and effects, both acute and delayed:**
Irritant effects
Burning sensation
Breathing difficulty
mucosal irritations
Nausea
Gastric or intestinal disorders
Respiratory arrest
- **Indication of any immediate medical attention and special treatment needed**
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

—GHS_E—

(Contd. on page 3)



Safety Data Sheet according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 2)

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
Water
Use fire extinguishing methods suitable to surrounding conditions.
- **Special hazards arising from the substance or mixture**
Not combustible.
Has a fire-promoting effect due to release of oxygen.
Can form explosive gas-air mixtures.
- **Advice for firefighters**
- **Protective equipment:**
Wear protective fire fighting clothing (including fire fighting helmet, coat, trousers, boots, and gloves).
- **Additional information**
Avoid contact with skin, eye, and clothing.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Keep people at a distance and stay on the windward side.
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Pick up mechanically.
Ventilate the area.
Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Do not handle until all safety precautions have been read and understood.
Do not refill residue into storage receptacles.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Use only clean and dry utensils.
Ensure that eyewash stations and safety showers are close to the workstation location.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Wear protective gloves/protective clothing/eye protection/face protection.
- **Information about fire - and explosion protection:**
May form explosive peroxides.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Contd. on page 4)

—GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 3)

- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
 - Provide ventilation for receptacles.
 - Close containers in such way to enable internal pressure to escape (e.g. excess pressure valve).
 - Suitable material for receptacles and pipes: Stainless steel.
 - Suitable material for receptacles and pipes: Aluminium.
 - Approved grades of HDPE
 - Store in a cool location.
- **Further information about storage conditions:**
 - Protect from contamination.
 - Regularly check the condition and temperature of the containers/receptacles.
 - Keep container tightly sealed.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:**
 - Local exhaust ventilation may be necessary for some operations.
 - Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines.
 - Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

7722-84-1 hydrogen peroxide solution
TLV (Korea) Long-term value: 1.5 mg/m ³ , 1 ppm

- **Derived No Effect Levels (DNELs):**
- **Workers:**
 - DNEL (inhalation, acute effects local): 3 mg/m³; AF=1
 - DNEL (inhalation, chronic effects local): 1.4 mg/m³; AF=1
- **Consumers:**
 - DNEL (dermal, acute effects local): 1.93 mg/m³
 - DNEL (inhalation, chronic effects local): 0.21 mg/m³
- **Predicted No Effect Concentrations (PNEC):**
 - PNEC (fresh water): 0.0126 mg/L mg/l with assessment factor of 50
 - PNEC (marine water): 0.0126 mg/l with assessment factor of 50
 - PNEC (intermittent release): 0.0138 mg/l with assessment factor of 100
 - PNEC (sewage treatment plant; STP): 4.66 mg/l with assessment factor of 100
 - PNEC (freshwater sediments): 0.047 mg/kg sediment dw with assessment factor of N/A
 - PNEC (marine sediments): 0.047 mg/kg sediment dw with assessment factor N/A
 - PNEC (soil): 0.0023 mg/kg soil dw with assessment factor of N/A
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Ensure that eyewash stations and safety showers are close to the workstation location.
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes.
 - Be sure to clean skin thoroughly after work and before breaks.
 - Ensure that washing facilities are available at the work place.

(Contd. on page 5)

GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 4)

- **Respiratory protection:**

Use suitable respiratory protective device in case of insufficient ventilation.

Required when vapours/aerosols are generated.

Short term filter device:

Filter A/P2

Filter B

- **Protection of hands:**

The selected protective gloves have to satisfy the specifications of standard EN 374 or its equivalent.

Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

Nitrile rubber, NBR

PVC gloves

Neoprene gloves

Full Contact:

Recommended thickness of the material: ≥ 0.6 mm

Splash Contact:

Recommended thickness of the material: ≥ 0.11 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

Full Contact:

Break through time: > 480 min

Splash Contact:

Break through time: > 30 min

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

Face protection



Safety glasses with side shields conforming to EN166, ANSI 87.1-2010, or equivalent.

- **Body protection:**

Acid resistant protective clothing

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

- **Odour:**

Pungent

- **Odour threshold:**

Not determined.

(Contd. on page 6)

GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 5)

- pH-value at 20 °C: < 4
- Change in condition
 - Melting point/freezing point: -52 °C
 - Initial boiling point and boiling range: 114 °C
- Flash point: Not applicable.
- Flammability (solid, gas): Not applicable.
- Decomposition temperature: Not determined.
- Auto-ignition temperature: Product is not selfigniting.
- Explosive properties: Product does not present an explosion hazard.
- Explosion limits:
 - Lower: Not applicable
 - Upper: Not applicable
- Vapour pressure at 30 °C: 18.3 mm Hg
- Density: 1,19 g/cm³
- Relative density: Not determined.
- Vapour density: Not determined.
- Evaporation rate: Not determined.
- Solubility in / Miscibility with water: Fully miscible.
- Partition coefficient: n-octanol/water: Not determined.
- Viscosity:
 - Dynamic: Not determined.
 - Kinematic: Not determined.
- Solvent content:
 - Organic solvents: 0,0 %
 - Water: 50 %
 - VOC (EC) 0,00 %
- Other information: No further relevant information available.

10 Stability and reactivity

- **Reactivity:**
 - Vapour may form explosive mixture with air.
 - This product is a strong oxidizing agent and can be reactive.
 - When properly handled and stored, no dangerous reaction is known.
- **Chemical stability:**
 - Heat-sensitive
 - Sensitivity to light.
 - This product is stable under prescribed use and storage.
- **Thermal decomposition / conditions to be avoided:**
 - To avoid thermal decomposition do not overheat.
 - Exothermic thermal decomposition.
- **Possibility of hazardous reactions:**
 - Reacts with impurities.
 - Reacts with certain metals.
 - Photoreactive.

(Contd. on page 7)

—GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 6)

Risk of ignition or formation of flammable gases or vapours with:
&

Risk of explosion with:

Impurities

Decomposition catalysts

Metals

Metallic salts

Alkalis.

organic solvent

Concentrated sulfuric acid

Reducing agents.

· **Conditions to avoid:**

Heating

Contamination.

pH variations

Exposure to UV-rays

· **Incompatible materials:**

Oil, strong alkalis, hydrides, anhydride, impurities, decomposition catalyst, organic nitro compounds, acid, alkali salts, alkali hydroxide, reducing agents, powdered metals, heavy metals, combustible substances, activated charcoal, metallic salts, organic substances, hydrazine and derivatives, peroxi compounds, permanganates, alkali metals, acetaldehyde, phosphorous, metals, metal oxides, alcohols, aldehydes, strong oxidizing agents, acetic acid, ammonia, acetone, lead, nonmetals, potassium, iodides, alkaline earth metals, methanol, sodium, ether, oxides of phosphorus, organic solvent, concentrated sulfuric acid, nonmetallic oxides, brass, transition metal, anilines, oxygen

· **Hazardous decomposition products:**

Oxygen

Steam

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity**

Harmful if swallowed.

Harmful if inhaled.

Component: 70% H₂O₂ (CAS No 7722-84-1)

LD₅₀ (oral): 801- 872 mg/kg BW (US EPA Guideline PB82 -232984)

LC₅₀ (inhalation) : >0.17 mg/L (US-EPA Vol 50 (§798.1150))

· **Skin corrosion/irritation:**

Causes severe skin burns and eye damage.

Component: 35% Hydrogen Peroxide (CAS No 7722-84-1)

Rabbit: irritating to the skin (OECD 404)

Concentration limit triggering irritation classification is at ≥35% and corrosion classification is at 50≥%.

· **Serious eye damage/eye irritation:**

Causes serious eye damage.

Component: 8% H₂O₂ (CAS No 7722-84-1)

Non-corrosive but causes irreversible eye damage.

Cocentration limit triggering eye irritation is at ≥5% and serious eye damage is at ≥8%.

· **Respiratory or skin sensitization:** Not classified based on available data.

· **Germ Cell Mutagenicity:** Not classified based on available data.

· **Carcinogenicity:** Not classified based on available data.

· **Reproductive Toxicity:** Not classified based on available data.

· **Specific Target Organ Toxicity - Single Exposure (STOT SE):**

May cause respiratory irritation.

(Contd. on page 8)

—GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 7)

- Affected Organs: :
 Respiratory system
 Concentration limit triggering respiratory irritation is at $\geq 35\%$.
- **Specific Target Organ Toxicity - Repeated Exposure (STOT RE):**
 Not classified based on available data.
 - **Aspiration Hazard:**
 Not classified based on available data.
 Based on physical properties, not likely to be an aspiration hazard.
 - **Primary irritant effect:**
 - **Skin corrosion/irritation** Strong caustic effect on skin and mucous membranes.
 - **Serious eye damage/irritation**
 Strong caustic effect.
 Strong irritant with the danger of severe eye injury.
 - **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
 - **Additional toxicological information:**
 Harmful
 Corrosive
 Irritant
 Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:**
 May cause long lasting harmful effects to aquatic life.
 LC50 (96hr, freshwater fish): 16.4 mg/L (OECD N/A; USEPA Guideline; 50% H₂O₂)
 EC50 (Daphnia Magna, 48hr): 2.4 mg/L (OECD N/A; USEPA Guideline; 50% H₂O₂)
 NOEL (Daphnia Magna, 21d)=0.63 mg/L (OECD N/A; ASTM Designation E 1193-9)
 ErC50 (alga, 72hr): 1.38 mg/L (OECD N/A; Paris Commiss. guideline)
- **Persistence and degradability**
 Easily biodegradable
 Degradation : >99% (30 min, OECD 209)
- **Bioaccumulative potential**
 Bioaccumulation is unlikely.
 Partition coefficient, n-octanol/water (log Pow) : -1.57
 Source: External (M)SDS
- **Mobility in soil** Henry's Law Constant (H) : 0.00075 Pa m³/mol
- **Additional ecological information:**
- **General notes:**
 Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
 No mixing with other waste.
 Contact waste processors for recycling information.
 Must not be disposed together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 9)

GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 8)

Any disposal method should also comply with national, regional, provincial, and local laws.

- **Uncleaned packaging:**
- **Recommendation:**
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

- **UN-Number**
- **ADR, IMDG** UN2014
- **UN proper shipping name**
- **ADR** 2014 HYDROGEN PEROXIDE, AQUEOUS SOLUTION
- **IMDG** HYDROGEN PEROXIDE, AQUEOUS SOLUTION
- **Transport hazard class(es)**

- **ADR**



- **Class** 5.1 Oxidising substances.
- **Label** 5.1+8

- **IMDG**



- **Class** 5.1 Oxidising substances.
- **Label** 5.1/8
- **Packing group**
- **ADR, IMDG** II
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Warning: Oxidising substances.
- **Danger code (Kemler):** 58
- **EMS Number:** F-H,S-Q
- **Segregation groups** Peroxides

- **Transport/Additional information:**

- **ADR**
- **Limited quantities (LQ)** 1L
- **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
- **Transport category** 2
- **Tunnel restriction code** E

(Contd. on page 10)

GHS_E—



Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 9)

- **IMDG**
 - **Limited quantities (LQ)** 1.00L
 - **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
-
- **IATA**
 - **Remarks:** Forbidden for IATA when hydrogen peroxide concentration is greater than 40%
 - **UN "Model Regulation":** UN2014, HYDROGEN PEROXIDE, AQUEOUS SOLUTION, 5.1 (8), II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Status of global inventories:**
All component(s) within this product is listed or exempted from the following country's chemical inventory:
USA – TSCA
Australia – AICS
Canada – DSL
China – IECSC
EU – EINECS/NLP
Japan – ENCS
Korea – KECI
New Zealand – NZIoC
Philippines – PICCS
Taiwan – TCSI
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
Ox. Liq. 1: Oxidizing liquids – Category 1
Ox. Liq. 2: Oxidizing liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 5: Acute toxicity – Category 5
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4
- **Sources**
Most toxicological and eco-toxicological data are obtained from European Chemical Agency (ECHA)'s public dissemination website.
Registered Substance: <https://echa.europa.eu/registration-dossier/-/registered-dossier/15701/1>
EU Mandatory C&L Classification: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/53297>
The European Chemical Industry Council (CEFIC)'s Peroxygens Sector Group on classification & labeling: <http://www.cefic.org/Documents/Industry%20sectors/Peroxygen-SG/>

(Contd. on page 11)

GHS_E—



Safety Data Sheet
according to Globally Harmonized System (GHS)

Printing date 05.12.2017

Revision: 05.12.2017

Trade name: 50% Hydrogen Peroxide

(Contd. of page 10)

H2O2_classification%20and%20labelling.pdf

General Disclaimers:

CCP Group recommends that all the users/customers/recipients to study this Safety Data Sheet (SDS) carefully and understand all the data or any potential hazards associated with this product. Please consult with appropriate expert if necessary. The information herein is provided in good faith and is believed to be accurate on the date of issue. No warranty, expressed or implied, is given. It is the customer's/user's responsibility to ensure that they are complying with local, regional, state, provincial, and/or national laws in using this product, as regulatory requirement may differ at each level. It is also the customer's/user's responsibility to determine the necessary condition required for using this product safely, as actual operating or usage conditions are beyond CCP Group's control. CCP Group will not be responsible for any SDS obtained from elsewhere other than from CCP Group. If you are unsure whether the SDS you have is current or have obtained the SDS from another source; please contact us to obtain the latest version.

GHS_E—