

# SAFETY DATA SHEET

Revision Date 24.05.2013

## HYDROGEN PEROXIDE (Conc. 60 %)

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product identifiers

Product name : **HYDROGEN PEROXIDE (Conc. 60 %)**  
Chemical Name : Hydrogen peroxide  
Other names : Hydroperoxide, Hydrogen dioxide  
Molecular formula : H<sub>2</sub>O<sub>2</sub>  
Type of product : Mixture

#### Identified uses / Uses advised against

Identified uses : Bleaching agent  
Chemical industry  
Metal treatment  
Oxidising Agents  
Pulp and paper

#### Manufacturer or supplier's details

Company : SOLVAY PEROXYTHAI LIMITED  
Address : 16TH FL. WAVE PLACE, 55 WIRELESS RD  
T. 10330 BANGKOK  
Telephone : +6626106470  
Fax : +66662/3673272  
E-mail address : [manager.sds@solvay.com](mailto:manager.sds@solvay.com)  
Emergency telephone number : **001800 1 2066 6751 (internal) / +65 3158 1074 [Carechem24]**

### 2. HAZARDS IDENTIFICATION

#### GHS-Classification

This mixture is classified as dangerous according to Thai legislation.

#### Physical Hazard

Hazard class	Hazard category	Route of exposure	H Phrases
Oxidizing liquids	Category 2		H272

#### Health hazard

Hazard class	Hazard category	Route of exposure	H Phrases
Skin corrosion	Category 1		H314
Acute toxicity	Category 4	Oral	H302
Acute toxicity	Category 4	Inhalation	H332
Specific target organ toxicity - single exposure	Category 3	Inhalation	H335

#### Environmental hazards

Hazard class	Hazard category	Route of exposure	H Phrases
Acute aquatic toxicity	Category 2		H401
Chronic aquatic toxicity	Category 3		H412

#### GHS Label elements, including precautionary statements

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### Name(s) on label

Hazardous components : Hydrogen peroxide (<= 60 %)

### Signal word:

Danger

### Hazard symbols:



### Hazard statements:

May intensify fire; oxidiser.  
Causes severe skin burns and eye damage.  
Harmful if swallowed.  
Harmful if inhaled.  
May cause respiratory irritation.  
Toxic to aquatic life.  
Harmful to aquatic life with long lasting effects.

### Precautionary statements

**Prevention** Keep/Store away from clothing/ flammable /combustible materials.  
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
**Response** Wear protective gloves/ protective clothing/ eye protection/ face protection.  
Immediately call a POISON CENTER or doctor/ physician.  
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing.  
Rinse skin with water/ shower.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
In case of fire: Use Water, Water spray for extinction.

### **Other hazards which do not result in classification**

· none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name:	Concentration
<b>Hydrogen peroxide</b> CAS-No.: 7722-84-1	<= 60 %

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### Hazardous components

Substance name	Hazard class	Hazard category	Route of exposure	H Phrases
Hydrogen peroxide	Oxidizing liquids	Category 1		H271
	Acute toxicity	Category 4	Inhalation	H332
	Acute toxicity	Category 4	Oral	H302
	Skin corrosion	Category 1		H314
	Specific target organ toxicity - single exposure	Category 3	Inhalation	H335
	Acute aquatic toxicity	Category 2		H401
	Chronic aquatic toxicity	Category 3		H412

## 4. FIRST AID MEASURES

### Description of necessary first-aid measures

#### If inhaled

- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

#### In case of eye contact

- Call a physician or poison control centre immediately.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Take victim immediately to hospital.

#### In case of skin contact

- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control centre immediately.
- Wash contaminated clothing before re-use.

#### If swallowed

- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

### Most important symptoms/effects, acute and delayed

#### Inhalation

- Corrosive to respiratory system
- Symptoms: Breathing difficulties, Cough, pulmonary oedema, Nausea, Vomiting
- Repeated or prolonged exposure: Nose bleeding, chronic bronchitis

#### Skin contact

- Corrosive
- Causes severe burns.
- Symptoms: Redness, Swelling of tissue

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### Eye contact

- Corrosive
- Causes severe burns.
- Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
- Symptoms: Redness, Lachrymation, Swelling of tissue

### Ingestion

- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
- Symptoms: Nausea, Abdominal pain, Bloody vomiting, Diarrhoea, Suffocation, Cough, Severe shortness of breath
- Risk of: Respiratory disorder

### **Indication of immediate medical attention and special treatment needed, if necessary**

- Take victim immediately to hospital.
- Immediate medical attention is required.
- Consult with an ophthalmologist immediately in all cases.
- Burns must be treated by a physician.
- If swallowed
- Avoid gastric lavage (risk of perforation).
- Keep under medical supervision for at least 48 hours.

## 5. FIREFIGHTING MEASURES

### **Extinguishing media**

#### Suitable extinguishing media

- Water
- Water spray

#### Unsuitable extinguishing media

- None.

### **Specific hazards arising from the chemical**

- Oxidising
- Hazardous decomposition products formed under fire conditions.
- Oxygen
- Sustains combustion
- Contact with combustible material may cause fire.
- Contact with flammables may cause fire or explosions.
- Risk of explosion if heated under confinement.

### **Special protective actions for fire-fighters**

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit
- Cool containers / tanks with water spray.
- Keep product and empty container away from heat and sources of ignition.
- Approach from upwind.

## 6. ACCIDENTAL RELEASE MEASURES

### **Personal precautions, protective equipment and emergency procedures**

#### Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.
- Keep away from Incompatible products.

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### Advice for emergency responders

- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Use personal protective equipment.
- Drying of this product on clothing or combustible materials may cause fire.
- Keep wetted with water.

### **Environmental precautions**

- Do not flush into surface water or sanitary sewer system.
- If the product contaminates rivers and lakes or drains inform respective authorities.

### **Methods and materials for containment and cleaning up**

- Dam up.
- Do not mix waste streams during collection.
- Soak up with inert absorbent material.
- Dilute with plenty of water.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".
- Never return spills in original containers for re-use.

### **Reference to other sections**

- Refer to protective measures listed in sections 7 and 8.

## **7. HANDLING AND STORAGE**

### **Precautions for safe handling**

- Use only in well-ventilated areas.
- Before all operations, passivate the piping circuits and vessels according to the procedure recommended by the producer.
- Use only clean and dry utensils.
- Never return unused material to storage receptacle.
- May not get in touch with:
  - Organic materials
  - Keep away from Incompatible products.
- Keep away from heat.

### **Conditions for safe storage, including any incompatibilities**

#### Storage

- Keep only in the original container.
- Store in a receptacle equipped with a vent.
- Store in a well-ventilated place. Keep cool.
- Keep in properly labelled containers.
- Keep container closed.
- Keep in a banded area.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Electrical equipment should be protected to the appropriate standard.
- Keep away from Incompatible products.
- Regularly check the condition and temperature of the containers.

#### Packaging material

#### **Suitable material**

- aluminium 99,5 %
- stainless steel 304L / 316L
- Approved grades of HDPE.

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### Specific use(s)

- For further information, please contact: Supplier

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Limit Values

##### Hydrogen peroxide

- US. ACGIH Threshold Limit Values 03 2012  
time weighted average = 1 ppm

### Exposure controls

#### Appropriate engineering controls

- Provide adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.

#### Individual protection measures

##### Respiratory protection

- In case of insufficient ventilation, wear suitable respiratory equipment.
- Respirator with a vapour filter (EN 141)
- Recommended Filter type: NO
- Self-contained breathing apparatus in case of: 1) large uncontrolled emissions, 2) insufficient oxygen, 3) the mask and cartridge do not give adequate protection.

##### Hand protection

- Impervious gloves
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
- Suitable material: PVC, Natural Rubber, butyl-rubber, Nitrile rubber

##### Eye protection

- Chemical resistant goggles must be worn.
- If splashes are likely to occur, wear: Tightly fitting safety goggles, Face-shield

##### Skin and body protection

- Chemical resistant apron
- If splashes are likely to occur, wear: Apron, Boots
- Suitable material
- PVC
- Natural Rubber

##### Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

#### Environmental exposure controls

- Dispose of rinse water in accordance with local and national regulations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Physical and chemical properties

#### General Information

- **Appearance** liquid
- **Colour** colourless

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- **Odour** odourless
- **Molecular Weight** 34 g/mol

### Important health safety and environmental information

- **pH** 2,02 (H<sub>2</sub>O<sub>2</sub> 50 %); 21 °C
- **pKa** pKa1= 11,62 at 25 °C
- **Melting point/freezing point**  
-0,43 °C (Pure substance )  
-40,3 °C (H<sub>2</sub>O<sub>2</sub> 70 % )
- **Boiling point/boiling range**  
150,2 °C (Pure substance)  
125 °C (H<sub>2</sub>O<sub>2</sub> 70 %)
- **Flash point** not applicable
- **Evaporation rate** No data
- **Flammability (solid, gas)** not applicable
- **Flammability** The product is not flammable.
- **Explosive properties** Not explosive  
With certain materials (see section 10).
- **Vapour pressure**  
200 Pa (H<sub>2</sub>O<sub>2</sub> 70 %), at 30 °C  
214 Pa (Pure substance), at 20 °C
- **Vapour density** 1,02
- **Relative density**  
1,29 (H<sub>2</sub>O<sub>2</sub> 70 %)  
1,44 (Pure substance), at 25 °C
- **Bulk density** not applicable
- **Solubility(ies)** no data available
- **Solubility/qualitative** Soluble in:, Water
- **Partition coefficient: n-octanol/water** log Pow: -1,57, Method: calculated value
- **Auto-ignition temperature** not applicable
- **Decomposition temperature** >= 60 °C, Self-Accelerating decomposition temperature (SADT)  
< 60 °C, Slow decomposition
- **Viscosity**  
1,26 mPa.s (H<sub>2</sub>O<sub>2</sub> 70 %), at 20 °C  
1,249 mPa.s (Pure substance), at 20 °C
- **Oxidizing properties** Oxidizer

### **Other information**

- **Surface tension**  
77,2 mN/m (H<sub>2</sub>O<sub>2</sub> 70 %) at 20 °C  
80,4 mN/m (Pure substance) at 20 °C

**10. STABILITY AND REACTIVITY****Reactivity**

- Strong oxidizer. Contact with other material may cause fire.
- Decomposes on heating.
- Potential for exothermic hazard

**Chemical stability**

- Stable under recommended storage conditions.

**Possibility of hazardous reactions**

- Contact with combustible material may cause fire.
- Contact with flammables may cause fire or explosions.
- Risk of explosion if heated under confinement.
- Fire or intense heat may cause violent rupture of packages.

**Conditions to avoid**

- Contamination
- To avoid thermal decomposition, do not overheat.

**Materials to avoid**

- Acids, Bases, Metals, Heavy metal salts, Powdered metal salts, Reducing agents, Organic materials, Flammable materials

**Hazardous decomposition products**

- Oxygen

**11. TOXICOLOGICAL INFORMATION****Acute toxicity**Acute oral toxicity

- LD50, rat, 801 - 872 mg/kg (H<sub>2</sub>O<sub>2</sub> 60 %)

Acute inhalation toxicity

- LC50, 4 h, rat, > 0,17 mg/l, vapour (H<sub>2</sub>O<sub>2</sub> 50 %)

Acute dermal toxicity

- LD50, rabbit, > 2.000 mg/kg (H<sub>2</sub>O<sub>2</sub> 70 %)

**Skin corrosion/irritation**

- rabbit, Corrosive (H<sub>2</sub>O<sub>2</sub> 50 %)

**Serious eye damage/eye irritation**

- rabbit, Corrosive (H<sub>2</sub>O<sub>2</sub> 50 %)

**Sensitisation**

- guinea pig, Did not cause sensitisation on laboratory animals.

**Mutagenicity**

- In vitro tests have shown mutagenic effects.
- In vivo tests did not show mutagenic effects

**Carcinogenicity**

- Oral, Prolonged exposure, mouse, Target Organs: duodenum, carcinogenic effects
- Dermal, Prolonged exposure, mouse, Animal testing did not show any carcinogenic effects.

**Toxicity for reproduction**

- Substance is totally biotransformed (metabolised).



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- study scientifically unjustified

### Specific target organ toxicity - single exposure

- Inhalation, mice, 665 mg/m<sup>3</sup>, Remarks: RD 50, Irritating to respiratory system., H<sub>2</sub>O<sub>2</sub> 50 %

### Repeated dose toxicity

- Oral, 90-day, mouse, Target Organs: Gastrointestinal tract, 300 ppm, LOAEL (Pure substance)
- Oral, 90-day, mouse, 100 ppm, NOAEL (Pure substance)
- Inhalation, 28-day, rat, Target Organs: Respiratory system, 10 ppm, LOAEL, vapour (Pure substance)
- Inhalation, 28-day, 2 ppm, NOAEL, vapour (Pure substance)

### Other information

- no data available

## 12. ECOLOGICAL INFORMATION

### Toxicity

- Fishes, Pimephales promelas, LC50, 96 h, 16,4 mg/l (Pure substance)
- Fishes, Pimephales promelas, NOEC, 96 h, 5 mg/l (Pure substance)
- Crustaceans, Daphnia pulex, EC50, 48 h, 2,4 mg/l, fresh water, semi-static test (Pure substance)
- Crustaceans, Daphnia pulex, NOEC, 48 h, 1 mg/l, fresh water, semi-static test (Pure substance)
- Crustaceans, Daphnia magna, NOEC, 21 Days, 0,63 mg/l, Reproduction Test (Pure substance)
- Algae, Skeletonema costatum, EC50, Growth rate, 72 h, 2,62 mg/l (Pure substance)
- Algae, Skeletonema costatum, NOEC, 72 h, 0,63 mg/l (Pure substance)
- Algae, Chlorella vulgaris, EC50, Growth rate, 72 h, 4,3 mg/l (Pure substance)
- Algae, Chlorella vulgaris, NOEC, 72 h, 0,1 mg/l (Pure substance)

### Persistence and degradability

#### Abiotic degradation

- Air, indirect photo-oxidation, t 1/2 24 h  
Conditions: sensitizer: OH radicals
- Water, redox reaction, t 1/2 120 h  
Conditions: mineral and enzymatic catalysis, fresh water, salt water
- Soil, redox reaction, t 1/2 12 h  
Conditions: mineral and enzymatic catalysis

#### Biodegradation

- aerobic, t 1/2, < 2 min  
Conditions: biological treatment sludge  
Readily biodegradable.
- aerobic, t 1/2, from 0,3 - 5 d  
Conditions: fresh water  
Readily biodegradable.
- anaerobic  
Conditions: Soil/sediments  
not applicable
- aerobic, t 1/2, 12 h  
Conditions: Soil  
Readily biodegradable.

### Bioaccumulative potential

- Bioaccumulative potential: log Pow -1,57,  
Result: Does not bioaccumulate.

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### Mobility in soil

- Water  
considerable solubility and mobility
- Soil/sediments, log KOC:0,2  
non-significant evaporation and adsorption
- Air, Volatility, Henry's law constant (H), = 0,75 kPa.m<sup>3</sup>/mol  
Conditions: 20 °C  
not significant

### Other adverse effects

- no data available

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

- Limited quantity
- Dilute with plenty of water.
- Flush into sewer with plenty of water.
- Maximum quantity
- Contact manufacturer.
- Contact waste disposal services.
- In accordance with local and national regulations.

### Contaminated packaging

- Empty containers.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Where possible recycling is preferred to disposal or incineration.
- In accordance with local and national regulations.

## 14. TRANSPORT INFORMATION

### International transport regulations

#### · IATA-DGR

UN number	UN 2014
Class	5.1
Packing group	II
Labels	5.1 - Oxidizing substances 8 - Corrosive
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION

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### · IMDG

UN number	UN 2014
Class	5.1
Packing group	II
Labels	5.1 - Oxidizing substances 8 - Corrosive
HI/UN No.	2014
EmS	F-H S-Q
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION

### · ADR

UN number	UN 2014
Class	5.1
Packing group	II
Labels	5.1 - Oxidizing substances 8 - Corrosive
HI/UN No.	58 / 2014
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION

### · RID

UN number	UN 2014
Class	5.1
Packing group	II
Labels	5.1 - Oxidizing substances 8 - Corrosive
HI/UN No.	58 / 2014
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION

### · ADN

UN number	UN 2014
Class	5.1
Packing group	II
Labels	5.1 - Oxidizing substances 8 - Corrosive
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION

- IATA: forbidden over 40 %

## 15. REGULATORY INFORMATION

### Applicable Laws or Regulations

- Expert judgement
- Safety Occupational Health and Environmental in Work Place B.E 2554, Jan 2011
- Notification of Ministry of Industry: List of Hazardous Substances B.E. 2538
- List of Hazardous Substances, Appendix A (Notification of Ministry of Industry Re: List of Hazardous Substances B.E. 2538 (1995), as amended through Notification No. 7, B.E. 2553 (2010))
- List of Hazardous Substances, Appendix B (Notification of Ministry of Industry Re: List of Hazardous Substances B.E. 2538 (1995), as amended through Notification No. 7, B.E. 2553 (2010))

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Hazardous Substances Prohibited from On-line Notification System - Notification of Ministry of Industry, B.E. 2547

### Notification status

Inventory Information	Status
USA. Toxic Substances Control Act (TSCA)	In compliance with inventory
Australia. Inventory of Chemical Substances (AICS)	In compliance with inventory
Canada. Domestic Substances List (DSL)	In compliance with inventory
Korea. Existing Chemicals Inventory (KECI (KR))	In compliance with inventory
EU list of existing chemical substances (EINECS)	In compliance with inventory
Japan. Inventory of Existing & New Chemical Substances (ENCS)	In compliance with inventory
Inventory of Existing Chemical Substances (China) (IECS)	In compliance with inventory
Philippine. Inventory of Chemicals and Chemical Substances (PICCS)	In compliance with inventory
New Zealand. Inventory of Chemicals (NZIOC)	In compliance with inventory
Mexico. National Inventory of Chemical Substances (INSQ)	In compliance with inventory

## 16. OTHER INFORMATION

### Full text of H-Statements referred to under section 3

H271	· May cause fire or explosion; strong oxidiser.
H302	· Harmful if swallowed.
H314	· Causes severe skin burns and eye damage.
H332	· Harmful if inhaled.
H335	· May cause respiratory irritation.
H401	· Toxic to aquatic life.
H412	· Harmful to aquatic life with long lasting effects.

### Other information

· Update

This data sheet contains changes from the previous version in section(s): 4

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

Print Date: 03.06.2013