

# SAFETY DATA SHEET

Revision Date 08.05.2014

## HYDROGEN PEROXIDE (35% =< Conc. < 50%)

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product identifiers

Product name : **HYDROGEN PEROXIDE (35% =< Conc. < 50%)**  
Chemical Name : Hydrogen peroxide  
Other names : Hydroperoxide, Hydrogen dioxide, Hydrogen peroxide, aqueous solution  
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  
Electronic industry  
Metal treatment  
Odour agents  
Oxidising Agents  
Textile industry  
Water treatment  
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.

#### Health hazard

Hazard class	Hazard category	Route of exposure	H Phrases
Acute toxicity	Category 4	Oral	H302
Serious eye damage	Category 1		H318
Skin irritation	Category 2		H315
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

#### GHS Label elements, including precautionary statements

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Name(s) on labelHazardous components : Hydrogen peroxide ( $\geq 35 - < 50 \%$ )Signal word:

Danger

Hazard symbols:Hazard statements:

Harmful if swallowed.  
 Causes serious eye damage.  
 Causes skin irritation.  
 May cause respiratory irritation.  
 Toxic to aquatic life.

Precautionary statements

## Prevention

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
 Wear protective gloves/ protective clothing/ eye protection/ face protection.

## Response

IF ON SKIN: Wash with plenty of soap and water.  
 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

- None known.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance name:	Concentration
<b>Hydrogen peroxide</b> CAS-No.: 7722-84-1	$\geq 35 - < 50 \%$

**Hazardous components**

Substance name	Hazard class	Hazard category	Route of exposure	H Phrases
<b>Hydrogen peroxide</b>	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

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## 4. FIRST AID MEASURES

### Description of necessary first-aid measures

#### If inhaled

- Move to fresh air.
- If symptoms persist, call a physician.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a POISON CENTER or doctor/ physician if you feel unwell.

#### 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

- Remove and wash contaminated clothing before re-use.
- Wash off with soap and water.
- If symptoms persist, call a physician.

#### 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

- irritation of the upper respiratory tract
- Symptoms: Nose bleeding, sore throat, Cough

#### Skin contact

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

#### Eye contact

- Corrosive
- May cause irreversible eye damage.
- 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.
- 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

- Oxygen released in thermal decomposition may support 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.
- Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 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.

#### Advice for emergency responders

- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Use personal protective equipment.

### Environmental precautions

- Should not be released into the environment.
- 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.
- Keep in suitable, closed containers for disposal.
- 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.
- Use only clean and dry utensils.
- Never return unused material to storage receptacle.
- Keep away from heat.

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- Avoid inhalation, ingestion and contact with skin and eyes.
- Keep away from Incompatible products.

### 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 container closed.
- Keep in a bunded area.
- Keep away from Incompatible products.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Regularly check the condition and temperature of the containers.
- Electrical equipment should be protected to the appropriate standard.

#### Packaging material

#### Suitable material

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

#### 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 2013  
time weighted average = 1 ppm

### Exposure controls

#### Appropriate engineering controls

- Ensure 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.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Recommended Filter type: NO, P3

##### Hand protection

- Impervious gloves
- Suitable material: PVC, Natural Rubber, butyl-rubber, Nitrile rubber
- 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).

##### 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
- Suitable material
- PVC

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- Natural Rubber
- If splashes are likely to occur, wear: Apron, Boots

### Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- 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
- **Odour** pungent
- **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** -33 °C (H<sub>2</sub>O<sub>2</sub> 35 % )
- **Boiling point/boiling range** 108 °C (H<sub>2</sub>O<sub>2</sub> 35 %)
- **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** 1 mbar (H<sub>2</sub>O<sub>2</sub> 50 %), at 30 °C
- **Vapour density** 1(H<sub>2</sub>O<sub>2</sub> 50 %)
- **Relative density** 1,1 - 1,2
- **Bulk density** not applicable
- **Solubility(ies)** no data available
- **Solubility/qualitative** completely miscible, Water
- **Partition coefficient: n-octanol/water** log Pow: -1,57, Method: calculated value
- **Auto-ignition temperature** The product is not flammable.
- **Decomposition temperature** >= 60 °C, Self-Accelerating decomposition temperature (SADT)

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- **Viscosity** < 60 °C, Slow decomposition  
1,17 mPa.s (H<sub>2</sub>O<sub>2</sub> 50 %), at 20 °C
- **Oxidizing properties** Non oxidizer

### Other information

- Surface tension 75,6 mN/m (H<sub>2</sub>O<sub>2</sub> 50 %) at 20 °C

## 10. STABILITY AND REACTIVITY

### Reactivity

- 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

- LD<sub>50</sub>, rat, 1.193 - 1.270 mg/kg (H<sub>2</sub>O<sub>2</sub> 35 %)

#### Acute inhalation toxicity

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

#### Acute dermal toxicity

- LD<sub>50</sub>, rabbit, > 2.000 mg/kg (H<sub>2</sub>O<sub>2</sub> 35 %)

### Skin corrosion/irritation

- rabbit, Skin irritation (H<sub>2</sub>O<sub>2</sub> 35 %)

### Serious eye damage/eye irritation

- rabbit, Severe eye irritation (H<sub>2</sub>O<sub>2</sub> 10 %)

### 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).
- 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, rat, 2 ppm, NOAEL, vapour (Pure substance)

**Other information**

- no data available

**12. ECOLOGICAL INFORMATION****Toxicity**

- Fishes, Pimephales promelas, LC<sub>50</sub>, 96 h, 16,4 mg/l (Pure substance)
- Fishes, Pimephales promelas, NOEC, 96 h, 4,3 mg/l (Pure substance)
- Crustaceans, Daphnia pulex, EC<sub>50</sub>, 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, EC<sub>50</sub>, Growth rate, 72 h, 2,6 mg/l (Pure substance)
- Algae, Skeletonema costatum, NOEC, 72 h, 0,63 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



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- aerobic, t 1/2, 12 h  
Conditions: Soil  
Readily biodegradable.

### Bioaccumulative potential

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

### 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 mPa.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
China. Inventory of Existing Chemical Substances (IECSC)	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 INSQ (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): 2, 12
- Distribute new edition to clients

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.

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