

Material Safety Data Sheets

1. IDENTIFICATION

Product Name	Hydrogen Peroxide 35% Laboratory Hydrogen Peroxide; Hydrogen peroxide (H2O2); Hydrogen Peroxide Solution
Code No	100-HP-4
Uses	For oxidation
Chemical Family	No Data Available
Chemical Formula	H2O2
Chemical Name	Hydrogen Peroxide
Product Description	No Data Available
Contact Information	info@armansina.com www.armansina.com

2. HAZARD IDENTIFICATION

Hazard Categories	Corrosive
Risk Phrases	Causes burns. Contact with combustible material may cause fire.
Safety Phrases	Keep away from combustible material. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Symbol



3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Water	No Data Available	7732-18-5	65%
Hydrogen Peroxide	No Data Available	7722-84-1	Balanced

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	<p>Do NOT induce vomiting.</p> <p>Only when patient fully conscious: Have the mouth rinsed with water. Have patient drink plenty of water in small sips. Keep patient warm and at rest. Notify ambulance immediately (keyword: chemical burn).</p> <p>Danger of penetration of the lungs (danger to breathing) when swallowed or vomited, due to gas evolution and foam formation.</p>
Eye	<p>With eye held open, thoroughly rinse immediately with plenty of water for at least 15 minutes. Continue rinsing process with eye rinsing solution. Protect unharmed eye. Call ambulance. (Cue: caustic burn of the eyes).</p> <p>Immediate further treatment in ophthalmic hospital/ ophthalmologist. Continue rinsing eye until arrival at ophthalmic hospital.</p>
Skin	<p>Immediately remove all contaminated clothing and shoes. After contact with skin, wash immediately with plenty of water. Consult a doctor in the event of permanent skin irritation. Immediately rinse contaminated or saturated clothing with water.</p>
Inhaled	<p>Take affected persons out into the fresh air. If breathing difficulties occur (e.g. severe continual coughing): Keep patient half sitting with upper body raised. Keep patient warm and at rest. Call a physician immediately.</p>
Advice to Doctor	<p>Therapy as for chemical burn.</p> <p>Following inhalation: Formation of a toxic lung edema is possible if product continues to be inhaled despite acute irritative effect (e.g. if it is not possible to leave the danger area).</p> <p>Prophylaxis of a toxic lung oedema with inhalative steroids (Dexamethasone aerosol dosing spray, f.ex. auxilosone).</p> <p>If substance has been swallowed: Risk of gaseous embolisms! In case of excessive strain on the stomach due to gas evolution, insert siphon tube. Early endoscopy in order to assess mucosa lesions in the oesophagus and stomach which may appear. If necessary, suck away leftover substance. Do NOT administer activated charcoal, since risk of release of large amounts of gas from hydrogen peroxide!</p>
Medical Conditions Aggravated by Exposure	<p>No information available on medical conditions aggravated by exposure to this product.</p>

5. FIRE FIGHTING MEASURES

General Measures	<p>Clear fire area of all non-emergency personnel.</p> <p>Stay upwind.</p> <p>Keep out of low areas.</p> <p>Eliminate ignition sources.</p> <p>Move fire exposed containers from fire area if it can be done without risk. Do NOT move cargo if cargo has been exposed to heat.</p>
Flammability Conditions	<p>Strong oxidising agent.</p> <p>Product is fire-stimulating.</p> <p>The product itself does not burn.</p> <p>Release of oxygen may support combustion.</p>
Extinguishing Media	<p>Water spray, foam, dry powder, carbon dioxide (CO₂). Do NOT use organic compounds.</p> <p>In the case of fire, cool the containers that are at risk with water or dilute with water (flooding).</p>
Fire and Explosion Hazard	<p>Risk of overpressure and burst due to decomposition in confined spaces and pipes.</p> <p>With large-scale fire, violent decomposition or even explosion is possible.</p>
Hazardous Products of Combustion	<p>Involved in fire, it may decompose yielding oxygen.</p>
Special Fire Fighting Instructions	<p>Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment. Dam fire control water for later disposal.</p>
Personal Protective Equipment	<p>Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.</p>
Flash Point	<p>Does not flash</p>
Lower Explosion Limit	<p>No Data Available</p>
Upper Explosion Limit	<p>No Data Available</p>
Auto Ignition Temperature	<p>No Data Available</p>
Hazchem Code	<p>2P</p>

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	<p>Avoid accidents, clean up immediately.</p> <p>Slippery when spilled.</p> <p>Eliminate all sources of ignition.</p> <p>Increase ventilation.</p> <p>Avoid generating dust.</p> <p>Use clean, non-sparking tools and equipment.</p> <p>Keep combustibles away from spilled material.</p> <p>Isolate defective containers immediately, if possible and safe to do.</p> <p>Place defective containers in waste receptacle (waste packaging receptacle) made of plastic (not metal).</p> <p>Do not seal defective containers or waste receptacles airtight (danger of bursting due to product decomposition).</p> <p>Never return spilled product into its original container for re-use. (Risk of decomposition.).</p>
Clean Up Procedures	<p>With small amounts: Dilute product with lots of water and rinse away.</p> <p>Absorb with liquid-binding material, e. g.: diatomaceous earth or universal binder.</p> <p>Pick up mechanically. Collect in suitable containers.</p>
Containment	<p>Stop leak if safe to do so. Isolate the danger area.</p> <p>Dam with sand or earth. Do not use: textiles, saw dust, combustible substances.</p>
Decontamination	<p>Clean contaminated surface thoroughly.</p> <p>Recommended cleaning agent: water.</p>
Environmental Precautionary Measures	<p>Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.</p>
Evacuation Criteria	<p>Evacuate all unnecessary personnel.</p>

7. HANDLING AND STORAGE

Handling	<p>Ensure an eye bath and safety shower are available and ready for use.</p> <p>Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling.</p> <p>Take precautionary measures against static discharges by bonding and grounding equipment.</p> <p>Avoid contact with eyes, skin and clothing.</p> <p>Do not inhale product vapours.</p> <p>Avoid prolonged or repeated exposure.</p> <p>Keep away from combustible material.</p> <p>Handle in accordance with good industrial hygiene and safety practice.</p> <p>Avoid impurities and heat effect.</p> <p>Ensure there is good room ventilation.</p> <p>Wear personal protective equipment. For personal protection see section 8.</p> <p>Immediately change moistened and saturated work clothes.</p> <p>Immediately rinse contaminated or saturated clothing with water.</p> <p>Provide for installation of emergency shower and eye bath.</p> <p>Set up safety and operation procedures.</p> <p>Never return spilled product into its original container for re-use. (Risk of decomposition.).</p>
Storage	<p>Store in a cool, dry, well-ventilated area.</p> <p>Packages, containers and tanks should regularly be checked by visual observation for any sign of abnormality, e.g. corrosion, exert pressure (bulging), temperature increase etc.</p> <p>Protect against physical damage.</p> <p>Store away from incompatible materials as listed in section 10.</p> <p>Jointless smooth concrete floor. Recommendation: Acid-proof floor.</p> <p>Only use containers which are specially permitted for: hydrogen peroxide and/or for transport, storage and tank installations only use suitable materials.</p> <p>Use adequate venting devices on all packages, containers and tanks and check correct operation periodically.</p> <p>Do not confine product in un-vented vessels or between closed valves.</p> <p>Risk of overpressure and burst due to decomposition in confined spaces and pipes.</p> <p>Transport and store container in upright position only.</p> <p>Do not keep the container sealed.</p> <p>Avoid residues of the product on the containers.</p> <p>Avoid sun rays, heat, heat effect.</p> <p>Keep away from sources of ignition - No smoking.</p> <p>Keep away from flammable substances.</p> <p>Keep away from incompatible substances.</p> <p>Measures for storing in tank installations should include at least: Compatible materials, adequate separation, adequate venting area, venting devices, temperature measurement, earthing (grounding), bund in case of leakage.</p> <p>Prior to the first filling and operation of a tank installation all parts of the facility including all pipes must be thoroughly cleaned and flushed through.</p>

Metal elements of the installation must first be pickled and passivated sufficiently.
 Regularly verify the availability of water to deal with emergencies (for cooling, tank flooding, fire fighting) and check correct operation periodically.
 Do not store together with: alkalis, reductants, metallic salts (risk of decomposition).
 Do not store together with: inflammable substances (risk of fire).
 Do not store together with: organic solvents.
 This product has a UN classification of 2014, a Dangerous Goods Class 5.1 (Oxidiser) and a Subsidiary Risk 8 (Corrosive) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
 Suitable materials polyethylene
 Suitable materials polypropylene
 Suitable materials polyvinyl chloride (PVC),
 Suitable materials polytetrafluoroethylene
 Suitable materials glass, ceramics.
 Unsuitable materials Iron, mild steel, copper, Bronze, brass, zinc, tin.

Container Store in original packaging as approved by manufacturer.
 Suitable materials vanadium steel: 1.4571 or 1.4541, passivated
 Suitable materials aluminium: min. 99.5 % passivated
 Suitable materials aluminium magnesium alloys, passivated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Hydrogen Peroxide Solution CAS 7722-84-1: TWA = 1ppm (1.13mg/m3)

NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.
 These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Exposure Limits No Data Available

Biological Limits No information available on biological limit values for this product.

Engineering Measures A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.

Personal Protection Equipment
 RESPIRATOR: If workplace exposure limit is exceeded apply Respiratory protective equipment. If open handling is unavoidable wear self- contained breathing apparatus: Respirator with A2B2E2K192 combination filter (Draeger); ABEK2P3 combination filter (3M); or OV/AG combination filter (3M) (AS1715/1716).
 EYES: Tight fitting chemical splash goggles and full face shield or basket shaped glasses (AS1336/1337).
 HANDS: Glove material Natural rubber (NR), Material thickness 1 mm. Break through time > 480 min. Method DIN EN 374
 Glove material Nitrile, Material thickness 0,33 mm. Break through time > 480 min. Method DIN EN 374
 Glove material butyl-rubber, Material thickness 0,7 mm. Break through time > 480 min. Method DIN EN 374 (AS2161).
 CLOTHING: Wear protective, acid proof clothing. Suitable materials are: PVC, Neoprene, Nitrile rubber (NBR), rubber. Rubber or plastic boots. (AS3765/2210).

Work Hygienic Practices
 Do not inhale vapour, aerosols, mist.
 Avoid contact with skin, eyes and clothing.
 Ensure there is good room ventilation.
 No eating, drinking, smoking, or snuffing tobacco at work.
 Wash face and/or hands before break and end of work.
 Preventive skin protection
 Avoid contaminating clothes with product.
 Immediately change moistened and saturated work clothes.
 Immediately rinse contaminated or saturated clothing with water.
 Any contaminated protective equipment is to be cleaned after use.
 Handle in accordance with good industrial hygiene and safety practice.
 Wear suitable protective clothing, gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid
 Appearance Liquid
 Odour Slightly Pungent
 Colour Colourless, Clear

Vapour Pressure	20 hpa
Relative Vapour Density	No Data Available
Boiling Point	110 °C
Melting Point	-24 °C
Freezing Point	No Data Available
Solubility	Completely Miscible
Specific Gravity	1.134
Flash Point	Does not flash
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1,132 g/cm ³
Specific Heat	No Data Available
Molecular Weight	34.02 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No Data Available
Potential for Dust Explosion	Product is a liquid.
Fast or Intensely Burning Characteristics	Risk of overpressure and burst due to decomposition in confined spaces and pipes. With large-scale fire, violent decomposition or even explosion is possible. Mixtures with organic materials (e.g. solvents) can display explosive properties.
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

General Information	Product is a(n) oxidizing agent and reactive.
Chemical Stability	Stable under recommended storage conditions. Commercial products are stabilised to reduce risk of decomposition due to contamination.
Conditions to Avoid	Sun rays, heat, heat effect.
Materials to Avoid	Impurities, decomposition catalysts, metals, metallic salts, alkalis, hydrochloric acid, reducing agents., (Risk of decomposition.). Flammable substances (Danger of fire). Organic solvents: Mixtures with organic materials (e.g. solvents) can display explosive properties.
Hazardous Decomposition Products	Decomposition products Under conditions of thermal decomposition: steam, oxygen. Release of oxygen may support combustion.
Hazardous Polymerisation	No Data Available

11. TOXICOLOGICAL INFORMATION

General Information	<p>Acute oral toxicity: LD50 rat: 1193 mg/kg. Method: literature</p> <p>Acute inhalation toxicity: LC50 rat: > 0.17 mg/l / 4 h. Method: literature. Test substance: hydrogen peroxide, 50%. The maximum dose attainable under experimental conditions no fatalities.</p> <p>Acute dermal toxicity: LD50 rabbit: > 6500 mg/kg. Method: literature. Test substance: Hydrogen peroxide 70%.</p> <p>Skin irritation rabbit: Slightly irritating. Method: literature</p> <p>Eye irritation rabbit: Corrosive. Method: literature</p> <p>Sensitization guinea pig: Not sensitising. Method: literature</p> <p>Repeated dose toxicity: Mouse(female): Testing period: 90 d. Subsequent observation period: 6 weeks. Target organ/effect: Changes of parameters of the blood, body weight development negative. Irritative effect: Gastrointestinal tract. Method: OECD TG 408. Drinking water analysis.</p> <p>Mouse(male): Testing period: 90 d. Subsequent observation period: 6 weeks. Target organ/effect: Changes of parameters of the blood, body weight development negative. Irritative effect: Gastrointestinal tract. Method: OECD TG 408. Drinking water analysis</p> <p>Gentoxicity in vitro Microorganisms, cell cultures. Mutagenic/genotoxic effects. Method: literature. In the presence of metabolic systems no mutagenic effects were observed.</p> <p>Gentoxicity in vivo Micronucleus test mouse intraperitoneal (i.p.): Negative. Method: OECD TG 474 Micronucleus test mouse Oral: Negative. Method: literature Unscheduled DNA synthesis -test (UDS) rat: Negative. Method: literature</p> <p>Carcinogenicity assessment Clues to possible carcinogenic effects in animal experiments: Up to date there is no evidence of increased tumour risk. Hydrogen peroxide is not a carcinogenic substance according to MAK, IARC, NTP, OSHA, ACGIH.</p>
EyeIrritant	Causes burns. Extreme irritation up to cauterisation. Can cause severe conjunctivitis, cornea damage or irreversible eye damage. Symptoms may occur with delay.
Ingestion	Causes burns. Swallowing can lead to bleeding of the mucosa in the mouth, oesophagus and stomach. The rapid releasing of oxygen can cause distension and bleeding of the mucosa in the stomach and lead to severe damage of the internal organs, especially in the event of greater intake of the product.
Inhalation	Causes burns. Inhalation of vapour/aerosols can lead to irritation of the respiratory tract and cause inflammation of the respiratory tract and pulmonary oedema. Symptoms may occur with delay.
SkinIrritant	Causes burns.Causes caustic burns. With increasing contact length, local erythema or extreme irritation (whitening) up to blistering (caustic burn) can occur..
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	<p>Toxicity to fish: LC50 Ictalurus punctatus: 37,4 mg/l / 96 h. Method: literature. related to substance: hydrogen peroxide 100 % LC0 Ictalurus punctatus: 17 mg/l / 96 h. Method: literature. related to substance: hydrogen peroxide 100 % LC50 Oncorhynchus mykiss: 31,3 mg/l / 24 h. Method: literature. related to substance: hydrogen peroxide 100 %</p> <p>Toxicity to daphnia: EC50 Daphnia magna: 7,7 mg/l / 24 h. Method: literature. related to substance: hydrogen peroxide 100 % EC0 Daphnia magna: 3,8 mg/l / 24 h. related to substance: hydrogen peroxide 100 %</p> <p>Toxicity to algae: IC 50 Chlorella vulgaris: 2,5 mg/l / 72 h. Method: OECD TG 201. related to substance: hydrogen peroxide 100 % NOEC Chlorella vulgaris: 0,1 mg/l / 72 h. Method: OECD TG 201. related to substance: hydrogen peroxide 100 % IC 94 blue-green algae: 1,7 mg/l / 48 h. Method: literature. related to substance: hydrogen peroxide 100 %</p> <p>Toxicity to bacteria: EC 10 Pseudomonas putida: 11 mg/l / 16 h. Method: DEV, DIN 38412, T. 8.</p>
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Toxicity in terrestrial plants:
EC 80 Ceratophyllum demersum: 34 mg/l Test period: 7 d

The product does not contain any organically bonded halogen.

Persistence/Degradability	Photochemical degradation (air) takes place. Under ambient conditions quick hydrolysis, reduction or decomposition occurs. The following substances are formed: oxygen and water.
Mobility	Completely Miscible
Environmental Fate	Do NOT let product reach waterways, drains and sewers.
Bioaccumulation Potential	None. Hydrogen peroxide quickly decomposes to oxygen and water.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	8 Corrosive Substances
EPG	31 Oxidizing Substances
UN Number	2014
Hazchem	2P
Pack Group	II
Special Provision	No Data Available

Sea Transport

IMDG

Proper Shipping Name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	8 Corrosive Substances
UN Number	2014
Hazchem	2P
Pack Group	II
Special Provision	No Data Available
EMS	FH,SQ
Marine Pollutant	No

**Air Transport
IATA**

Proper Shipping Name	Hydrogen peroxide, aqueous solution with 20% or more but 40% or less hydrogen peroxide (stabilised as necessary)
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	8 Corrosive Substances
UN Number	2014
Hazchem	2P
Pack Group	II
Special Provision	No Data Available

15. OTHER INFORMATION

Revision	1
Key/Legend	< Less Than > Greater Than atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm Square Centimetres CO2 Carbon Dioxide COD Chemical Oxygen Demand Degrees Celcius Degrees Fahrenheit g Grams g/cm Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH2O Inch of Water K Kelvin kg Kilogram kg/m Kilograms per Cubic Metre lb Pound LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH2O Millimetres of Water mPa.s Millipascals per Second N/A Not Applicable NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Health and Safety Commission OECD Organisation for Economic Co-operation and Development Oz Ounce PEL Permissible Exposure Limit Pa Pascal ppb Parts per Billion ppm Parts per Million ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours psi Pounds per Square Inch R Rankine RCP Reciprocal Calculation Procedure STEL Short Term Exposure Limit TLV Threshold Limit Value tne Tonne TWA Time Weighted Average ug/24H Micrograms per 24 Hours UN United Nations wt Weight