
SAFETY DATA SHEET

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

1.1 Product identifier

- Product Name: HP1 - Hydrogen Peroxide Buffer
- Product Part Number: B100130, B102697, B101109

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

- Use of the substance/mixture: Reagent for water analysis

1.3 Details of the supplier of the safety data sheet

- Name of Supplier: LIA International Ltd
- Address of Supplier: Unit 9, Langley Business Court
Oxford Road
Beedon
Newbury
RG20 8RY
- Telephone: +44 (0)1488 686777
- Responsible Person: James Sugden

1.4 Emergency telephone number

- Emergency Telephone: +44 (0)1488 686777 (Office Hours)
- Email: admin@liainternational.co.uk

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

- CLP: Met. Corr. 1 H290 May be corrosive to metals, Skin Corr. 1A H314 - Causes severe skin burns and eye damage., Eye Dam. 1 H318 - Causes serious eye damage.

2.2 Label elements



GHS05

- Signal Word: Danger
- Labelling according to Regulation (EC) No 1272/2008: The product is labelled according to the GB CLP regulation.
- Hazard-determining components of labelling: sulphuric acid 61%

Hazard statements

H290 May be corrosive to metals
H314 Causes severe skin burns and eye damage

Precautionary statements

P260 Do not breathe mist/vapours/spray
P280 Wear protective gloves/protective clothing/eye protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P310 IF exposed or concerned: Immediately call a POISON CENTRE/doctor.

2.3 Other hazards

- Contact with skin and inhalation of aerosols/vapours of the preparation should be avoided

SECTION 2: Hazards identification (....)

- Acid burns have to be treated immediately, as it may otherwise cause badly curing wounds.
- Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
- Determination of endocrine-disrupting properties: The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients**3.2 Mixtures**

- Description: sulfuric acid solution

Dangerous components

	CAS EC Index REACH No	Classification	Concentration
Sulphuric Acid	7664-93-9 231-639-5 016-020-00-8 01-2119458838-20-XXXX	Met. Corr.1, H290 Skin Corr. 1A, H314 Specific concentration times Skin Corr. 1A - H314 - C \geq 15% Skin Irrit. 2 - H315 - 5% \leq C<15% Eye Dam. 1 - H318 - C \geq 15% Eye Irrit. 2 - H319 - 5% \leq C<15%	60-70%

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

SECTION 4: First aid measures**4.1 Description of first aid measures**

- General information: Instantly remove any clothing soiled by the product.
- After Inhalation: Supply fresh air, Call a doctor immediately
- After skin contact: Instantly wash with polyethylene glycol 400, Instantly rinse with water, Immediate medical treatment necessary, Failure to treat burns can prevent wounds from healing
- After eye contact: Rinse opened eye for several minutes under running water (at least 15 min), Call a doctor immediately
- After swallowing: Rinse out opened mouth and then drink 1-2 glasses of water, Do not induce vomiting, Instantly call for medical help

4.2 Most important symptoms and effects, both acute and delayed

- Strong caustic effect.
- After Inhalation: coughing, breathing difficulty, damage to the affected mucous membranes
- After swallowing: sickness, vomiting, diarrhoea, pain
- Danger: Danger of system failure, Danger of gastric perforation, Danger of pulmonary oedema

4.3 Indication of any immediate medical attention and special treatment needed

- If swallowed or in case of vomiting, danger of entering the lungs. Subsequent observation for pneumonia and pulmonary oedema.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

- Suitable extinguishing agents: Carbon dioxide (CO₂), sand, Fire extinguishing powder
- For safety reasons unsuitable extinguishing agents: Water > Exothermic Reaction

5.2 Special hazards arising from the substance or mixture

- Product is not combustible.
- Formation of toxic gases is possible during heating or in case of fire.

SECTION 5: Firefighting measures (....)

- Can be released in case of fire:
Sulphur oxides (SOx)

5.3 Advice for firefighters

- Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.
- Additional Information:
Collect contaminated fire fighting water separately. It must not enter drains. Dispose of fire debris and contaminated fire fighting water in accordance with official regulations. Ambient fire may liberate hazardous vapours.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

- Advice for non-emergency personnel: Wear protective equipment, Keep unprotected persons away, Avoid substance contact, Ensure adequate ventilation, Use breathing protection against the effects of fumes/dust/aerosol.
- Advice for emergency responders: Protective equipment: See section 8

6.2 Environmental precautions

- Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up

- Ensure adequate ventilation
- Use neutralising agent.
- Absorb with liquid-binding material (sand, diatomite, universal binders).
- Dispose of contaminated materials waste according to item 13

6.4 Reference to other sections

- See section 8 for information on personal protection equipment.
See section 13 for information on disposal.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

- Advice on safe handling: Ensure good ventilation/exhaustion at the workplace., Prevent formation of aerosols.
- Hygiene measures: Do not inhale gases/fumes/aerosols, Do not get in eyes, on skin or on clothing, Take off immediately all contaminated clothing, Wash hands during breaks and at the end of the work day, Do not eat, drink or smoke when using this product

7.2 Conditions for safe storage, including any incompatibilities

- Requirements to be met by storerooms and containers: Store in cool location, Keep only in original packaging
- Information about storage in one common storage facility: Store away from metals., Do not store together with alkalis (caustic solutions)., Store away from flammable substances.
- Further information about storage conditions: Keep container tightly closed, Protect from heat and direct sunlight, Protect from the effects of light, Protect from humidity and keep away from water
- Recommended storage temperature: 20°C ±5°C

7.3 Specific end use(s)

- No further relevant information available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Components with limit values that require monitoring at the workplace**

	CAS Number	WEL (Great Britain) Long-term value	IOELV (European Union) Long-term value

SECTION 8: Exposure controls/personal protection (....)

Sulphuric Acid	7664-93-9	0.05* mg/m ³ *mist - defined as thoracic fraction	0.05 mg/m ³
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- Regulatory information: WEL (Great Britain): EH40/2020, IOEVL (European Union): (EU) 2019/1831
- Additional information: IOELV = Indicative Occupational Exposure Limit
- DNELs
Derived No Effect Level (DNEL)

Derived No Effect Levels (DNELs)

	CAS Number	DNEL (Industry; inhalational, short term local effects)	DNEL (Industry; inhalational, short term systemic effects)
Sulphuric Acid	7664-93-9	0.1 mg/m ³	0.05 mg/m ³

- Recommended monitoring procedures: Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689
- PNECs
Predicted No Effect Concentration (PNEC)

Predicted No Effect Concentrations (PNECs)

	CAS Number	PNEC (Sewage treatment plant)	PNEC (Marine water)	PNEC (Fresh water)	PNEC (Sediment; marine water)	PNEC (Sediment; fresh water)
Sulphuric Acid	7664-93-9	8.8 mg/l	0.00025 mg/l	0.0025 mg/l	0.002 mg/kg	0.002 mg/kg

- Additional information: The lists that were valid during the compilation were used as basis

8.2 Exposure controls

- Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment., See section 7
- Individual protection measures, such as personal protective equipment: Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- Eye/face protection: Tightly sealed safety glasses, Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.
- Hand protection: Acid resistant gloves, Preventive skin protection by use of skin-protecting agents is recommended, After use of gloves apply skin-cleaning agents and skin cosmetics
- Material of gloves: Fluorocarbon rubber (Viton), Butyl rubber, BR, Recommended thickness of the material: , ≥ 0.35 mm
- Penetration time of glove material: Value for the permeation: Level = 1 (< 10 min), The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Other skin protection (body protection): Acid resistant protective clothing
- Breathing equipment: Use breathing protection against the effects of fumes/dust/aerosol.
- Recommended filter device for short term use: Combination filter B-P2
- Environmental exposure controls: Do not allow product to reach sewage system or water bodies.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

- Physical state: liquid
- Colour: yellow
- Odour: Odourless
- Odour threshold: Not applicable
- Melting point/Freezing point: Not determined
- Initial boiling point: Not determined
- Flammability: Product is not combustible.
- Explosive Properties: Product is not explosive
- Lower and upper explosion limit
- Lower Explosive Limit: Not applicable

SECTION 9: Physical and chemical properties (....)

- Upper Explosive Limit: Not applicable
- Flashpoint: Not applicable
- Autoignition temperature: Not applicable
- Decomposition temperature: Not applicable
- pH at 20°C: 1
- Kinetic Viscosity: Not determined
- Solubility
- Water: Fully miscible
- Partition coefficient n-octanol/water (log value): Not applicable (mixture)
- Vapour Pressure: Not determined
- Density and/or relative density
- Density at 20°C: 1.56 g/cm³
- Relative density: Not determined
- Relative gas density: Not determined
- Particle characteristics: Not applicable (liquid)

9.2 Other information

- Information with regard to physical hazard classes
- Corrosive to metals: May be corrosive to metals
- Metals that are corroded by the substance or mixture: Information on incompatible materials can be found in sections 7 and 10.
- Other safety characteristics
- Oxidising Properties: CAS: 7664-93-9
Oxidising potential
- Additional information
- Solids content: < 5 %
- Solvent content:
- Organic solvents: 0 %
- Water: 30-40 %

SECTION 10: Stability and reactivity**10.1 Reactivity**

- See Section 10.3

10.2 Chemical stability

- Stable at room temperature

10.3 Possibility of hazardous reactions

- Reacts with metals forming hydrogen (Explosive)
- Corrosive action on metals.
- When diluting, always add acid to water, never vice versa
- Diluting or dissolving in water always causes rapid heating
- Reacts with reducing agents
- Reacts with peroxides
- Reacts with halogenated compounds
- Reacts with oxidising agents
- Reacts with acids and alkalis
- Reacts with ammonia (NH₃)

10.4 Conditions to avoid

- Strong heating

10.5 Incompatible materials

- Metals
- Combustible substances
- organic solvents

10.6 Hazardous decomposition products

- See section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: Based on the available data, the classification criteria are not met

LD/LC50 Values That Are Relevant For Classification

	CAS Number	LD ₅₀ (oral, rat)	LC ₅₀ (inhalation, rat)
Sulphuric Acid	7664-93-9	2140 mg/kg (IUCLID)	510 mg/m ³ /2h IUCLID

- Skin corrosion/irritation: Causes severe skin burns and eye damage
- Serious eye damage/irritation: Causes serious eye damage, Risk of blindness!
- Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.
- Germ cell mutagenicity: Based on the available data, the classification criteria are not met
- Carcinogenicity: Based on the available data, the classification criteria are not met
- Reproductive toxicity: Based on the available data, the classification criteria are not met
- STOT (specific target organ toxicity) - single exposure: Based on the available data, the classification criteria are not met
- STOT (specific target organ toxicity) - repeated exposure: Based on the available data, the classification criteria are not met
- Aspirational hazard: Based on the available data, the classification criteria are not met
- Information on likely routes of exposure: The intake of sulfuric acid is mainly to be expected via the inhalative pathway in the form of aerosols. No studies on absorbability are available., Generally, local reactions cause the main effects., Following impact to the skin strong local effects are the main issue. There is no indication of absorption of relevant amounts of S. via the intact skin., Main routes of exposure:
At workplaces, intake of potassium iodide (KI) is most likely to occur via the respiratory tract.
Outside the workplace, iodides are ingested with food (essential) and sometimes with medications.
Respiratory tract
KI can be inhaled as dust or aerosol from solutions.
Inhalation studies were conducted with particulate aerosols containing sodium iodide using various animal species (monkey, mouse, sheep). Rapid and effective absorption via the respiratory tract was observed.
This is also assumed for KI as its solubility is comparable.
Skin
From tests on volunteers who had an aqueous KI solution applied to their forearms (12.5 cm²), the amount of iodine absorbed was estimated at 0.1%. Absorption through the skin is therefore considered to be of little relevance.
Gastrointestinal tract
Soluble iodide is absorbed almost entirely via the gastrointestinal tract.
This has been proven by results of studies with KI on adult volunteers., Absorbability via the gastrointestinal tract is assumed. However, no studies on the kinetics of uptake are available (GESTIS)
- Additional toxicological information: In case of an acute molybdenum(VI) intoxication: diarrhoea, anaemia, fatigue, loss of appetite. , Toxic effect on liver and kidneys after high doses., Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach., The aerosol is corrosive to the eyes, the skin and the respiratory tract., Inhalation of aerosols may cause lung oedema

Additional toxicological information

	CAS Number	Main toxic effects Acute	Main toxic effects Chronic	Further information
Sulphuric Acid	7664-93-9	Irritation up to chemical burns to the mucous membranes and skin, danger of serious damage to the eyes and lungs	Irritation to the eyes and airways, erosion of the teeth, damage to the skin	Concentrated S. differs considerably from dilute Sulfuric acid with regard to chemical properties and effects. With increased dilution Sulfuric acid acts less aggressively.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Toxicity

SECTION 12: Ecological information (....)

	CAS Number	EC ₅₀ (Daphnia magna)	LC ₅₀ (bluegill sunfish)
Sulphuric Acid	7664-93-9	>100 mg/l/48h (OECD 202) (ECHA)	16-29 mg/l/96h (Merck)

- Bacterial toxicity: sulphates toxic > 2.5 g/l
- Other Information:
- Toxic for fish: sulphates > 7 g/l
- molybdenum compounds in general: > 25 mg/l
- NH₄⁺ > 0.3 mg/l

12.2 Persistence and degradability

- Other information: Mixture of inorganic compounds, Methods for the determination of biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

- No further relevant information available.

12.4 Mobility in soil

- No further relevant information available.

12.5 Results of PBT and vPvB assessment

- This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

12.6 Endocrine disrupting properties

- The product does not contain substances with endocrine disrupting properties.

12.7 Other adverse effects

- Harmful effect due to pH shift.
Forms corrosive mixtures with water, even if diluted.
- Avoid transfer into the environment.
- Water hazard: Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system., Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

- Recommendation: Must not be disposed of together with household waste. do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.
- European waste catalogue: 16 05 07* - discarded inorganic chemicals consisting of or containing hazardous substances.
- Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.
- Recommended cleaning agent: Water, if necessary with cleaning agent.

SECTION 14: Transport information**14.1 UN number or ID number**

- UN No.: ADR, IMDG, IATA: UN1830

14.2 UN proper shipping name

- Proper Shipping Name: ADR: 1830 SULPHURIC ACID mixture, IMDG, IATA: SULPHURIC ACID mixture

14.3 Transport hazard class(es)

- Hazard Class:
- Class: 8 (C1) Corrosive substances
- Label: 8

14.4 Packing group

SECTION 14: Transport information (....)

- Packing Group: ADR, IMDG, IATA: II

14.5 Environmental hazards

- Not applicable

14.6 Special precautions for user

- Warning: Corrosive substances
- Kemler Number: 80
- EMS Number: F-A,S-B
- Segregation groups: Acids
- Stowage category: E
- Stowage Code: SW15 For metal drums, stowage category B

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- Transport/Additional information:
- ADR
- Limited Quantities (LQ): 1 L
- 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
- IMDG

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

- Regulated explosives precursors: The substance falls under regulated explosive precursors due to the fact that the concentration is greater than/equal (\geq x%) the stated mass percentage:
- CAS Number: 7664-93-9 - Sulphuric acid
- Regulated Poisons: None of the ingredients is listed.
- Reportable explosives precursors: None of the ingredients is listed.
- Reportable Poisons: None of the ingredients is listed.
- Regulation (EU) 2019/1148 on the marketing and use of explosives precursors: Acquisition, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point., Please see <https://ec.europa.eu>
- Explosives precursors - ANNEX I: CAS: 7664-93-9 Sulphuric Acid
- Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC): None of the ingredients is listed.
- Regulation (EC) No 1334/2000 setting up a community regime for the control of the exports of dual-use items and technology: None of the ingredients is listed.
- Regulation (EC) No 273/2004 on drug precursors: CAS: 7664-93-9 Sulphuric Acid
- Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the community and third countries in drug precursors: CAS: 7664-93-9 Sulphuric Acid
- Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: None of the ingredients is listed.
- Regulation (EU) 2019/1021 on persistent organic pollutants (POP): None of the ingredients is listed.
- LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV): None of the ingredients is listed.
- Substances of very high concern (SVHC) according to REACH, Article 57: This product does not contain any substances of very high concern above the legal concentration limit of \geq 0.1% (w/w).
- Substances of very high concern (SVHC) according to UK REACH: This product does not contain any substances of very high concern above the legal concentration limit of \geq 0.1% (w/w).
- Named dangerous substances - ANNEX I: None of the ingredients is listed
- Regulation (EC) No 1907/2006 ANNEX XVII: Conditions of restriction: 3
- Information about limitation of use: Employment restrictions concerning young persons must be observed (94/33/EC)

15.2 Chemical safety assessment

- A chemical safety assessment (CSA) for this product has not yet been completed

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant Phrases

H290 May be corrosive to metals

H314 Causes severe skin burns and eye damage

- Training hints: Provide adequate information, instruction and training for operators.

- Abbreviations and acronyms:

OECD: Organisation Economic Co-operation and Development.

STOT: Specific Target Organ Toxicity.

: SE: Single Exposure.

: RE: Repeated Exposure.

EC50: Half Maximal Effective Concentration.

IC50: Half Maximal Inhibitory Concentration.

NOEL or NOEC: No Observed Effect Level or Concentration.

ADR: Accord relatif au transport international des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: règlement concernant le transport des marchandises dangereuses par chemin de fer (Regulations concerning the international transport of dangerous goods by rail.

IMDG: International Maritime Code for Dangerous Goods.

IATA: International Air Transport association.

GHS: Globally Harmonised Classification and Labelling of Chemicals.

EINECS: European Inventory of Existing Commercial Chemical Substances.

ELINCS: European List of Notified Chemical Substances.

CAS: Chemical Abstract Service (Division of the American Chemical Society).

DNEL: Derived No-Effect Level (REACH)

LC50: Lethal Concentration, 50 Percent.

LD50: Lethal Dose, 50 Percent.

PBT: Persistent, Bioaccumulative and Toxic.

vPvB: Very Persistent and Very Bioaccumulative.

Sources: Sources - Data arise from safety data sheets, reference works and literature., ECHA: European Chemicals Agency <http://echa.europa.eu>, GESTIS (stoffdatenbank) (Substance Database, Germany)