Safety Data Sheet
acc. to OSHA HCS (HazCom 2012)

Printing date 04/20/2022 Reviewed on 04/20/2022

* 1 Identification

· **Product identifier**

· **Trade name: H_2O_2 Reagent**

· **Catalogue number:** 424991, 2888102

· **Application of the substance / the mixture:** Reagent for water analysis

· **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany

· **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS05 Corrosion

Corrosive to Metals 1	H290 May be corrosive to metals.
Skin Corrosion 1A	H314 Causes severe skin burns and eye damage.
Eye Damage 1	H318 Causes serious eye damage.

GHS07

Specific Target Organ Toxicity - Single Exposure 3	H335 May cause respiratory irritation.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
· **Hazard pictograms**

GHS05 GHS07

· **Signal word** Danger
· **Hazard-determining components of labeling:**
Titanium oxide sulphate
hydrochloric acid 15 %
sulphuric acid 25 %
· **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
· **Precautionary statements**

P260	Do not breathe spray.
P280	Wear protective gloves / eye protection.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a doctor.

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· **Other hazards** Acid burns have to treated immediately, as it may otherwise cause badly curing wounds.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of inorganic compounds.
· **Composition and Information on Ingredients:**
Cancer Status IARC: Strong inorganic acid mists containing sulphuric acid can cause cancer.
Percent ranges are used due to the confidential product information.

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8 RTECS: WS5600000	sulphuric acid Corrosive to Metals 1, H290; Skin Corrosion 1A, H314	<25%
CAS: 13825-74-6 EINECS: 237-523-0	Titanium oxide sulphate Skin Corrosion 1A, H314; Eye Damage 1, H318	<20%
CAS: 7647-01-0 EINECS: 231-595-7 Index number: 017-002-01-X RTECS: MW 9620000	hydrochloric acid Corrosive to Metals 1, H290; Skin Corrosion 1B, H314; Specific Target Organ Toxicity - Single Exposure 3, H335	<15%

· **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:** Immediately remove any clothing soiled by the product.
· **After inhalation:**
Supply fresh air.
Call a doctor immediately.
· **After skin contact:**
Immediately rinse with plenty of water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
· **After eye contact:**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
· **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed**
strong caustic effect
pain
· **Danger:**
Danger of gastric perforation.
Danger of pulmonary edema.
· **Indication of any immediate medical attention and special treatment needed:**
If swallowed or in case of vomiting, danger of entering the lungs.
Later observation for pneumonia and pulmonary edema.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Hydrogen chloride (HCl)
Sulfur oxides (SOx)
smoke of metal oxide

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· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Suppress (knock down) gases/vapors/mists wit a water spray jet.
Ambient fire may liberate hazardous vapours.

6 Accidental release measures

· **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 respiratory protective device against the effects of fume/dust/aerosol.
· **Advice for emergency responders:** Protective equipment: see section 8

· **Environmental precautions:** Do not allow product to reach sewage system or any water course.
· **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Use neutralizing agent.
Neutralize with diluted sodium hydroxide solution or by throwing on lime sand, lime or sodium carbonate.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose contaminated material as waste according to item 13.
· **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **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 before breaks and at the end of work.
Do not eat, drink or smoke when using this product.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **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 receptacle tightly sealed.
Protect from heat and direct sunlight.
Protect from exposure to the light.
Protect from humidity and water.
· **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)

· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

CAS: 7664-93-9 sulphuric acid	
PEL (USA)	Long-term value: 1 mg/m³
REL (USA)	Long-term value: 1 mg/m³
TLV (USA)	Long-term value: 0.2* mg/m³ *as thoracic fraction, A2
EL (Canada)	Long-term value: 0.2 mg/m³ thoracic, ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m³
CAS: 7647-01-0 hydrochloric acid	
PEL (USA)	Ceiling limit value: 7 mg/m³, 5 ppm
REL (USA)	Ceiling limit value: 7 mg/m³, 5 ppm
TLV (USA)	Ceiling limit value: 2 ppm A4
EL (Canada)	Ceiling limit value: 2 ppm
EV (Canada)	Ceiling limit value: 2 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.

· **Personal protective equipment:**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
· **Recommended filter device for short term use:** Combination filter E-P2
· **Protection of hands:**
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**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 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.
· **Eye protection:**
Tightly sealed goggles
Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).
· **Body protection:** Acid resistant protective clothing

· **Limitation and supervision of exposure into the environment:**
Do not allow product to reach sewage system or any water course.

* 9 Physical and chemical properties

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

· **Appearance:**	
· **Form / Physical state:**	Solution
· **Color:**	Colorless
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value at 20°C (68°F):**	<1 Strongly acidic
· **Melting point/freezing point:**	Not determined.
· **Initial boiling point and boiling range:**	Not determined.

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· **Flash point:**	Not applicable.
· **Flammability (solid, gas):**	The product is not combustible.
· **Ignition temperature:**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not self-igniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Flammability or explosive limits:**	
· **Lower:**	Not applicable.
· **Upper:**	Not applicable.
· **Oxidizing properties:**	CAS 7664-93-9 : Oxidizing potential
· **Vapor Pressure:**	Not determined.
· **Density at 20°C (68°F):**	~1.44 g/cm³ (~12.02 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility(ies)**	
· **Water:**	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not applicable (mixture).
· **Viscosity:**	
· **Kinematic:**	Not determined.
· **Other information**	
· **Solids content:**	< 20 %
· **Solvent content:**	
· **Organic solvents:**	0 %
· **Water:**	> 40 %

· **Information with regard to physical hazard classes** May be corrosive to metals.

10 Stability and reactivity

· **Reactivity** see section "Possibility of hazardous reactions"
· **Chemical stability** Stable at ambient temperature (room temperature).
· **Possibility of hazardous reactions**
Reacts with metals forming hydrogen (Danger of explosion!)
Corrosive action on metals.
Diluting or dissolving in water always causes rapid heating.
When diluting, always add acid to water, never vice versa.
Reacts with acids, alkalis and oxidizing agents.
Reacts with reducing agents.
Reacts with peroxides.
· **Conditions to avoid** Strong heating (decomposition)
· **Incompatible materials:**
metals
light metals
alkali metals
combustible materials
organic solvents
· **Hazardous decomposition products:** see section 5

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**

CAS: 7664-93-9 sulphuric acid

Oral	LD50	2140 mg/kg (rat) (IUCLID)
Inhalative	LC 50	510 mg/m³/2h (rat) IUCLID

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CAS: 7647-01-0 hydrochloric acid		
Inhalative	LC50	3124 ppm / 1h (rat) (RTECS,V, pure)

· **Primary irritant effect:**

· **on the skin:** Causes severe skin burns.
· **on the eye:**
Causes serious eye damage.
Risk of blindness!

· Information on components:		
CAS: 7647-01-0 hydrochloric acid		
Irritation of skin	OECD 404	(rabbit: burns)
Irritation of eyes	OECD 405	(rabbit: burns)

· **Sensitization:** Based on available data, the classification criteria are not met.

· Information on components:		
CAS: 7647-01-0 hydrochloric acid		
Sensitization	OECD 406	(negative) (EPA OPP 81-6: Guinea pig maximisation test)

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
CAS: 7664-93-9	sulphuric acid	1
CAS: 7647-01-0	hydrochloric acid	3

· NTP (National Toxicology Program)		
CAS: 7664-93-9	sulphuric acid	K

· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

· **Other information:**
see section 8 / 15
Cancer Status of Sulfuric acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.
A2 (Suspected for humans) by ACGIH

· **Synergistic Products:** None

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:

· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.

· **STOT (specific target organ toxicity) -single exposure** May cause respiratory irritation.
· **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

· **Aspiration hazard** Based on available data, the classification criteria are not met.

· **Additional toxicological information:**
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.

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

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CAS: 7647-01-0 hydrochloric acid

. (source: GESTIS)
Main toxic effects
Acute: Irritation and corrosion to the eyes, airways and skin, danger of severe damage to the eyes and lungs, following ingestion, concentration-dependent damage to the gastrointestinal tract
Chronic: Airway diseases, damage to the teeth, gastrointestinal disorders

Further Information:
The acute action of hydrochloric acid is based on the locally damaging effects on contacted tissues which are primarily dependent on the concentration. Following repeated contact with the skin, even diluted hydrochloric acid can cause skin damage (reddening, drying, fissures, dermatitis). The critical effect following repeated inhalative exposure is irritation to the respiratory tract.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

CAS: 7664-93-9 sulphuric acid

EC50	>100 mg/l/48h (Daphnia magna) (OECD 202) (ECHA)
LC50	16–29 mg/l/96h (bluegill) (Merck)

CAS: 7647-01-0 hydrochloric acid

EC50	20.5 mg/l/96h (bluegill) (OECD 203) (Merck)

· **Bacterial toxicity:** sulfates toxic > 2.5 g/l
· **Other information:**
Toxic for fish:
sulfates > 7 g/l
HCl > 25 mg/l
· **Persistence and degradability** .
· **Other information:**
Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Other adverse effects**
Harmful effect due to pH shift.
Forms corrosive mixtures with water even if diluted.
Avoid transfer into the environment.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to hazardous waste disposers.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**
· **DOT, IMDG, IATA** UN3264

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· **UN proper shipping name**	
· **DOT**	Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid, Sulfuric acid)
· **IMDG, IATA**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, SULPHURIC ACID)
· **Transport hazard class(es)**	
· **DOT**	
	
· **Class**	8 Corrosive substances
· **Label**	8
· **IMDG, IATA**	
	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	Acids
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· **IMDG**	
· **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

*15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (Extremely hazardous substances):**	
CAS: 7664-93-9	sulphuric acid
CAS: 7647-01-0	hydrochloric acid

· **Section 313 (Specific toxic chemical listings):**	
CAS: 7664-93-9	sulphuric acid
CAS: 7647-01-0	hydrochloric acid

· **TSCA (Toxic Substances Control Act):**
All components have the value ACTIVE.

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· **Hazardous Air Pollutants**	
CAS: 7647-01-0	hydrochloric acid

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **New Jersey Right-to-Know List:**	
CAS: 7664-93-9	sulphuric acid
CAS: 7647-01-0	hydrochloric acid

· **New Jersey Special Hazardous Substance List:**		
CAS: 7664-93-9	sulphuric acid	CA, CO, R2
CAS: 7647-01-0	hydrochloric acid	CO, R1

· **Pennsylvania Right-to-Know List:**	
CAS: 7664-93-9	sulphuric acid
CAS: 7647-01-0	hydrochloric acid

· **Pennsylvania Special Hazardous Substance List:**		
CAS: 7664-93-9	sulphuric acid	E
CAS: 7647-01-0	hydrochloric acid	E

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this 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.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

· **Date of preparation / last revision** 04/20/2022 / 5

· **Abbreviations and acronyms:**
OECD: Organisation for Economic Co-operation and Development
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: hallf maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ACGIH® - American Conference of Governmental Industrial Hygienists
•A1 - Confirmed human carcinogen
•A2 - Suspected human carcinogen
•A3 - Confirmed animal carcinogen with unknown relevance to humans
•A4 - Not classifiable as a human carcinogen
•A5 - Not suspected as a human carcinogen
IARC - International Agency for Research on Cancer
•Group 1 - Carcinogenic to humans
•Group 2A - Probably carcinogenic to humans
•Group 2B - Possibly carcinogenic to humans
•Group 3 - Not classifiable as to carcinogenicity to humans
•Group 4 - Probably not carcinogenic to humans

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NTP - National Toxicology Program, U.S. Department of Health and Human Services
•Group K - Known to be Human Carcinogens
•Group R - Reasonably Anticipated to be Human Carcinogens
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Corrosive to Metals 1: Corrosive to metals – Category 1
Skin Corrosion 1A: Skin corrosion/irritation – Category 1A
Skin Corrosion 1B: Skin corrosion/irritation – Category 1B
Eye Damage 1: Serious eye damage/eye irritation – Category 1
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**
Data arise from safety data sheets, reference works and literature.
IUCLID (International Uniform Chemical Information Database)
RTECS (Registry of Toxic Effects of Chemical Substances)

· *** Data compared to the previous version altered.**