

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

Printing date 11/24/2022

Reviewed on 11/24/2022

1 Identification

- **Product identifier**
- **Trade name: Nitrite Titrant N2**
- **Catalogue number:**
56Z017298, 56L017230, 56U017230, 56L017265, 56U017265, 56L017272, 56U086595, 56Z086598, 56L086595, 56U017272, 56L0172, 56L017295, 56U017295, SDT073
- **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 1B H314 Causes severe skin burns and eye damage.
Eye Damage 1 H318 Causes serious eye damage.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **Label elements**

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

- **Hazard pictograms**



GHS05

- **Signal word** Danger

- **Hazard-determining components of labeling:**

Cerium(IV) sulfate

- **Hazard statements**

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H412 Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection.
P234 Keep only in original container.
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.
P310 Immediately call a doctor.
P391 Collect spillage.

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- **Other hazards** No further relevant information available.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:** sulfuric acid solution

- **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	5-10%
CAS: 13590-82-4 EINECS: 237-029-5 RTECS: WS 6960000	Cerium(IV) sulfate ⚠ Skin Corrosion 1B, H314; Eye Damage 1, H318; ⚠ Aquatic Acute 1, H400 (M=1); Aquatic Chronic 1, H410 (M=1)	1-<2.5%

- **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; consult doctor in case of complaints.

- **After skin contact:**

Immediately rinse with plenty of water.

Get medical advice/attention.

- **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.

Seek medical treatment.

- **Most important symptoms and effects, both acute and delayed**

Irritation and corrosion

after swallowing:

sickness

vomiting

diarrhoea

- **Danger:** Danger of circulatory collapse.

- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

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:

Sulfur oxides (SOx)

Cerium oxides

- **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.

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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.
 - Absorb with liquid-binding material (sand, diatomite, universal binders).
 - Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
 - Ensure good ventilation/exhaustion at the workplace.
 - Prevent formation of aerosols.
- **Advice on safe handling:** Open and handle receptacle with care.
- **Hygiene measures:**
 - Avoid contact with the skin.
 - Avoid contact with the eyes.
 - 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.
 - Keep only in original container.
- **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:**
 - 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.

* 8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
 - The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

CAS: 7664-93-9 sulphuric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 1 mg/m ³

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TLV (USA)	Long-term value: 0.2* mg/m ³ *as thoracic fraction, A2
EL (Canada)	Long-term value: 0.2 mg/m ³ thoracic, ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m ³

- **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:** Filter P2
- **Protection of hands:**
Protective 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:**
Safety glasses
Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).
- **Body protection:** Protective work 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:** Orange
- **Odor:** Odorless
- **Odor threshold:** Not applicable.
- **pH-value:** <2
- **Melting point/freezing point:** Not determined.
- **Initial boiling point and boiling range:** Not determined.
- **Flash point:** Not applicable.
- **Flammability (solid, gas):** The product is not combustible.
- **Ignition temperature:** Not applicable.
- **Decomposition temperature:** >340°C (>644°F) (CAS 7664-93-9)
- **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:** Oxidizing potential
- **Vapor Pressure:** Not determined.
- **Density at 20°C (68°F):** 1.1 g/cm³ (9.18 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).

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· Viscosity:	
· Kinematic:	Not determined.
· Other information	
· Solids content:	<2.5 %
· Solvent content:	
· Organic solvents:	0 %
· Water:	>85 %
· 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**
 - Corrosive action on metals.
 - Reacts with metals forming hydrogen (Danger of explosion in case of large amounts!)
 - Heating occurs when water is added.
 - Reacts with reducing agents.
 - Reacts with acids and alkali (lyes).
 - Reacts with ammonia (NH₃).
- **Conditions to avoid** Strong heating (decomposition)
- **Incompatible materials:**
 - metals
 - combustible materials
 - organic solvents
- **Hazardous decomposition products:**
 - Sulfur oxides (SO_x)
 - In case of fire: 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/m ³ /2h (rat) IUCLID

- **Primary irritant effect:**
 - **on the skin:** Causes severe skin burns.
 - **on the eye:** Causes serious eye damage. Risk of blindness!
- **Sensitization:** No sensitizing effects known.
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

CAS: 7664-93-9	sulphuric acid	1
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· NTP (National Toxicology Program)

CAS: 7664-93-9	sulphuric acid	K
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· 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.

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A2 (Suspected for humans) by ACGIH

· **Synergistic Products:** None· **CMR effects (carcinogenicity, 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** Based on available data, the classification criteria are not met.· **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:**

Mists may be irritant to the mucous membranes and upper respiratory tract.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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.

· **Other information** Other dangerous properties can not be excluded.**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: 13590-82-4 Cerium(IV) sulfate**EC50 0.98 mg/l/48h (Daphnia magna) (OECD 202)
(Registrant, ECHA)NOEC 0.38 mg/l/72h (Pseudokirchneriella subcapitata) (OECD 201)
(Registrant, ECHA)EC50 0.541 mg/l/72h (Pseudokirchneriella subcapitata) (OECD 201)
(Registrant, ECHA)· **Bacterial toxicity:** sulfates toxic > 2.5 g/l· **Other information:**

Toxic for fish:

sulfates > 7 g/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.· **Remark:** neutralization possible· **Other adverse effects**

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Avoid transfer into the environment.

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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

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	UN3264
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA 	Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid, Cerium(IV) sulfate) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, Cerium(IV) sulfate)
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	
<ul style="list-style-type: none"> · Class · Label 	8 Corrosive substances 8
<ul style="list-style-type: none"> · IMDG, IATA 	
<ul style="list-style-type: none"> · Class · Label 	8 Corrosive substances 8
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	II
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	No
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category · Stowage Code · Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids B SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L

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<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
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* 15 Regulatory information

<ul style="list-style-type: none"> · Safety, health and environmental regulations/legislation specific for the substance or mixture · Sara
<ul style="list-style-type: none"> · Section 355 (Extremely hazardous substances):
CAS: 7664-93-9 sulphuric acid
<ul style="list-style-type: none"> · Section 313 (Specific toxic chemical listings):
CAS: 7664-93-9 sulphuric acid
<ul style="list-style-type: none"> · TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
<ul style="list-style-type: none"> · Hazardous Air Pollutants
None of the ingredients is listed.
<ul style="list-style-type: none"> · Proposition 65
<ul style="list-style-type: none"> · Chemicals known to cause cancer:
None of the ingredients is listed.
<ul style="list-style-type: none"> · Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
<ul style="list-style-type: none"> · Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
<ul style="list-style-type: none"> · Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
<ul style="list-style-type: none"> · New Jersey Right-to-Know List:
CAS: 7664-93-9 sulphuric acid
<ul style="list-style-type: none"> · New Jersey Special Hazardous Substance List:
CAS: 7664-93-9 sulphuric acid
CA, CO, R2
<ul style="list-style-type: none"> · Pennsylvania Right-to-Know List:
CAS: 7664-93-9 sulphuric acid
<ul style="list-style-type: none"> · Pennsylvania Special Hazardous Substance List:
CAS: 7664-93-9 sulphuric acid
E
<ul style="list-style-type: none"> · EPA (Environmental Protection Agency)
CAS: 13590-82-4 Cerium(IV) sulfate
II
<ul style="list-style-type: none"> · NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.
<ul style="list-style-type: none"> · Information about limitation of use:
Observe national regulations where applicable: Employment restrictions concerning young persons must be observed.
<ul style="list-style-type: none"> · 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.

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H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

· **Date of preparation / last revision** 11/24/2022· **Abbreviations and acronyms:**

EC50: effective concentration, 50 percent (in vivo)

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

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

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

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

· **Sources**

Data arise from safety data sheets, reference works and literature.

GESTIS- Stoffdatenbank (Substance Database, Germany)

ECHA: European Chemicals Agency <http://echa.europa.eu>

IUCLID (International Uniform Chemical Information Database)

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