

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 23.01.2019

Version number 5

Revision: 23.01.2019

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

1.1 Product identifier**Product name:** Total Chlorine Indicator Solution**Catalog number:** 540222, 424490, 540225**1.2 Relevant identified uses of the substance or mixture and uses advised against****Application of the substance / the preparation:** Reagent for water analysis**1.3 Details of the supplier of the safety data sheet****Supplier:**

Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com

phone: +49 231 94510-0
e-mail: sales@tintometer.de

Tintometer GmbH
Division AQUALYTIC®
Schleefstr. 12
44287 Dortmund
Made in Germany
www.aqualytic.de

phone: +49 231 94510-755
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The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom

phone : +44 1980 664800
e-mail: SDS@tintometer.com

Informing department:

e-mail: sds@tintometer.de
Product Safety Department

1.4 Emergency telephone number:

+44 1235 239670
Languages: English

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture**Classification according to Regulation (EC) No 1272/2008**

GHS05 corrosion

Met. Corr.1 H290 May be corrosive to metals.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the CLP regulation.

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Hazard pictograms


GHS05

Signal word Warning

Hazard statements

H290 May be corrosive to metals.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements

P280 Wear protective gloves / eye protection.

P302+P352 IF ON SKIN: Wash with plenty of water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P311 Call a doctor.

P390 Absorb spillage to prevent material damage.

2.3 Other hazards No further relevant information available.

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Description: sulfuric acid solution

Dangerous components:

| | | | |
|--------------------------------|----------------|--|-------|
| CAS: 7664-93-9 | sulphuric acid | Met. Corr.1, H290; Skin Corr. 1A, H314 | 5-10% |
| EINECS: 231-639-5 | | | |
| Index No: 016-020-00-8 | | | |
| Reg.nr.: 01-2119458838-20-XXXX | | | |

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; consult doctor in case of symptoms.

After skin contact

Instantly rinse with water.

If skin irritation continues, consult a doctor.

After eye contact Rinse opened eye for several minutes (at least 15 min) under running water. Then consult doctor.

After swallowing

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed:

irritations

after inhalation:

mucosal irritations, Cough, Shortness of breath

after swallowing:

sickness

vomiting

diarrhoea

damage to the affected mucous membranes possible

Danger Danger of system failure.

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

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SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
 - **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
 - **5.2 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.
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.
Ensure adequate ventilation
 - **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.
Neutralize with diluted sodium hydroxide solution.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose of contaminated material as 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:**
Avoid contact with the skin.
Avoid contact with the eyes.
Take off immediately all contaminated clothing.
Wash hands during breaks and at the end of the work.
Do not eat, drink or smoke when using this product.
 - **7.2 Conditions for safe storage, including any incompatibilities**
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.
 - **Information about storage in one common storage facility:**
Store away from metals.
Do not store together with alkalis (caustic solutions).
 - **Further information about storage conditions:**
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.
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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with limit values that require monitoring at the workplace:

CAS: 7664-93-9 sulphuric acid

| | |
|------------------------|---|
| WEL (Great Britain) | Long-term value: 0.05* mg/m ³ *mist: defined as thoracic fraction |
| IOELV (European Union) | Long-term value: 0.05 mg/m ³ |

Regulatory information

WEL (Great Britain): EH40/2018

IOELV (European Union): (EU) 2017/164

Additional information: IOELV = Indicative Occupational Exposure Limit

DNELs

Derived No Effect Level (DNEL)

CAS: 7664-93-9 sulphuric acid

| | | |
|------------|------|--|
| Inhalative | DNEL | 0.1 mg/m ³ (Worker / acute / local effects) |
| | | 0.05 mg/m ³ (Worker / acute / systemic effects) |

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)

CAS: 7664-93-9 sulphuric acid

| | |
|------|------------------------------------|
| PNEC | 8.8 mg/l (Sewage treatment plant) |
| | 0.00025 mg/l (Marine water) |
| | 0.0025 mg/l (Fresh water) |
| PNEC | 0.002 mg/kg (Marine sediment) |
| | 0.002 mg/kg (Fresh water sediment) |

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 item 7.

Personal protective equipment

Breathing equipment: Use breathing protection against the effects of fumes/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

Body protection: Protective work clothing.

Limitation and supervision of exposure into the environment: 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

Appearance:

Form / Physical state: Fluid

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| | |
|---|--|
| · Colour: | Colourless |
| · Odour: | Odourless |
| · Odour threshold: | Not applicable |
| · pH-value at 20°C: | < 1 |
| · Melting point/Freezing point: | Not determined |
| · Initial boiling point and boiling range: | Not determined |
| · Flash point: | Not applicable |
| · Flammability (solid, gas): | Not applicable. |
| · Decomposition temperature: | Not determined. |
| · Auto-ignition temperature: | Product is not self-igniting. |
| · Explosive properties: | Product is not explosive. |
| · Flammability or explosive limits: | |
| · Lower: | Not applicable |
| · Upper: | Not applicable |
| · Oxidising properties: | none |
| · Vapour pressure: | Not determined. |
| · Density at 20°C: | 1.06 g/cm ³ |
| · Relative density: | Not determined. |
| · Vapour density: | Not determined. |
| · Evaporation rate: | Not determined. |
| · Solubility(ies): | |
| · Water: | Fully miscible |
| · Partition coefficient: n-octanol/water: | Not determined. |
| · Viscosity: | Not determined. |
| · Solvent content: | |
| · Organic solvents: | 0.0 % |
| · Water: | > 90 % |
| · 9.2 Other information | No further relevant information available. |

SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
 - Corrosive action on metals
 - Reacts with metals forming hydrogen (--> Explosive!)
 - Heating occurs when water is added
 - Reacts with acids and alkali (lyes).
 - Reacts with ammonia (NH₃).
 - Reacts with reducing agents
- **10.4 Conditions to avoid** To avoid thermal decomposition do not overheat.
- **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 available data, the classification criteria are not met.

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| | | |
|---|-------|---|
| · LD/LC50 values that are relevant for classification: | | |
| CAS: 7664-93-9 sulphuric acid | | |
| Oral | LD50 | 2140 mg/kg (rat) (IUCLID) |
| | LC 50 | 510 mg/m ³ /2h (rat) IUCLID |

- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Information on components:**
Skin irritation testing performed on 10% sulfuric acid showed slight to no irritation effects (GESTIS).
CAS 7664-93-9: chronic: dermatitis
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **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:**
Vapours and aerosols may be irritant to the mucous membranes and upper respiratory tract.
Sulfuric acid: erosion of the teeth, cancer

SECTION 12: Ecological information

· 12.1 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) |

- **Bacterial toxicity:** sulphates toxic > 2.5 g/l
- **Other information:**
Toxic for fish:
sulphates > 7 g/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 Other adverse effects**
Forms corrosive mixtures with water even if diluted.
Harmful effect due to pH shift.
Neutralisation possible in waste water treatment plants.
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.

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SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. 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 | |
| ADR, IMDG, IATA | UN2796 |
| 14.2 UN proper shipping name | |
| ADR | 2796 SULPHURIC ACID |
| IMDG, IATA | SULPHURIC ACID |
| 14.3 Transport hazard class(es) | |
| ADR | |
|  | |
| Class | 8 (C1) Corrosive substances. |
| Label | 8 |

| | |
|---|-------------------------|
| IMDG, IATA | |
|  | |
| Class | 8 Corrosive substances. |
| Label | 8 |

- | | |
|---------------------------|----|
| 14.4 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 | B |

- | | |
|--|-----------------|
| 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |
|--|-----------------|

| | |
|--|---|
| Transport/Additional information: | |
| ADR | |
| 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 |
| Transport category | 2 |
| Tunnel restriction code | E |

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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 |
|--|---|

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

- **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**

None of the ingredients is listed.

- **Directive 2012/18/EU (SEVESO III):**

- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

- **Regulation (EU) No 649/2012**

None of the ingredients is listed.

- **National regulations**

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

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

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 for 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 européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international 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 System of Classification and Labelling of Chemicals

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)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Met. Corr. 1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

- **Sources**

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

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

GESTIS- Stoffdatenbank (Substance Database, Germany)

IUCLID (International Uniform Chemical Information Database)

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