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

Printing date 01.12.2023 Version number 10 (replaces version 9) Revision: 01.12.2023

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

· **1.1 Product identifier**

· **Product name: Total Chlorine Indicator Solution**

· _SDS valid from Lot: YB0A

· **Catalog number:** 540222., 540225., 424475

· **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 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom
phone : +44 1980 664800
e-mail: SDS@lovibond.uk

· **Informing department:**
e-mail: sds@lovibond.com
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.

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

GHS05

· **Signal word** Warning
· **Hazard statements**
H290 May be corrosive to metals.
· **Precautionary statements**
P280 Wear protective gloves/protective clothing/eye protection.
P234 Keep only in original packaging.

(Contd. on page 2)

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

Printing date 01.12.2023 Version number 10 (replaces version 9) Revision: 01.12.2023

Product name: Total Chlorine Indicator Solution

(Contd. of page 1)

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.
· **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:** aqueous solution

· **Dangerous components:**

CAS: 6192-52-5 EINECS: 203-180-0 Index No: 016-029-00-7	p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4) Skin Corr. 1B, H314 Specific concentration limits: Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 %	5–<10%

· **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.
In case of symptoms consult doctor.
· **4.2 Most important symptoms and effects, both acute and delayed:** Irritation and corrosion
· **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

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.
Can be released in case of fire:
Sulphur dioxide (SO_2)
· **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.

(Contd. on page 3)

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

Printing date 01.12.2023 Version number 10 (replaces version 9) Revision: 01.12.2023

Product name: Total Chlorine Indicator Solution

(Contd. of page 2)

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
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.
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.
· **Hygiene measures:**
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes.
Avoid contact with the skin.
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**
· **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.
· **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.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**
Derived No Effect Level (DNEL)

CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)		
Oral	DNEL	2.5 mg/kg (Consumer / long-term / systemic effects)
Dermal	DNEL	7.6 mg/kg (Worker / long-term /systemic effects)
		2.5 mg/kg (Consumer / long-term / systemic effects)
Inhalative	DNEL	53.6 mg/m³ (Worker / long-term /systemic effects)
		8.7 mg/m³ (Consumer / long-term / 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)

(Contd. on page 4)

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

Printing date 01.12.2023 Version number 10 (replaces version 9) Revision: 01.12.2023

Product name: Total Chlorine Indicator Solution

(Contd. of page 3)

CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)	
PNEC	58 mg/l (Sewage treatment plant)
	0.0073 mg/l (Marine water)
	0.073 mg/l (Fresh water)
PNEC	0.016 mg/kg (Soil)
	0.00577 mg/kg (Marine sediment)
	0.0577 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.

· **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**
Safety glasses
Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.
· **Hand protection**
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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Other skin protection (body protection):** Protective work clothing.
· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
· **Recommended filter device for short term use:** Filter 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**	Fluid
· **Form:**	Solution
· **Colour:**	Colourless
· **Odour:**	Odourless
· **Odour threshold:**	Not applicable.
· **Melting point/Freezing point:**	Not determined.
· **Boiling point or initial boiling point and boiling range**	Not determined.
· **Flammability**	The product is not combustible.
· **Explosive properties:**	Product is not explosive.
· **Lower and upper explosion limit**	
Lower:	Not applicable.
Upper:	Not applicable.
· **Flash point:**	Not applicable.
· **Auto-ignition temperature:**	Not applicable.
· **Decomposition temperature:**	> 170°C (CAS 6192-52-5)
· **pH at 20°C**	1.3 Strongly acidic
· **Kinematic viscosity**	Not determined.
· **Solubility**	
· **Water:**	Fully miscible
· **Partition coefficient n-octanol/water (log value)**	-0.62 log POW (CAS 6192-52-5)
· **Vapour pressure:**	Not determined.

(Contd. on page 5)

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

(Contd. of page 4)

· **Density and/or relative density**	
· **Density at 20°C:**	~1 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.
· **Metal corrosion rate:**	acc. to "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fifth revised Edition"
· **Corrosion rate (steel)**	~29 mm/a (5-10% solution)
· **Other safety characteristics**	
· **Oxidising properties:**	none
· **Additional information**	
· **Solids content:**	5-10 %
· **Solvent content:**	
· **Organic solvents:**	0 %
· **Water:**	90-100 %

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 acids, alkalis and oxidizing agents
· **10.4 Conditions to avoid** Strong heating (decomposition)
· **10.5 Incompatible materials:** metals
· **10.6 Hazardous decomposition products:** see section 5

SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

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

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

CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)

Oral	LD50	2750 mg/kg (rat) (RTECS)

· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.

· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

· **Information on components:**

CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)

Sensitisation	OECD 406	(guinea pig: negative)

· **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.

· **Information on components:**
OECD 414: Teratogenicity testing
OECD 473: Mutagenicity testing
OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)

OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)

(Contd. on page 6)

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

(Contd. of page 5)

· **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.

· **11.2 Information on other hazards**
· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· **Other information**
Other dangerous properties can not be excluded.
According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)	
EC50	>500 mg/l/96h (Daphnia magna) (anhydrous substance; IUCLID)
IC50	245 mg/l/96 h (Chlorella vulgaris) (anhydrous substance; IUCLID)
LC50	>500 mg/l/96h (bluegill) (anhydrous substance; IUCLID)

· **12.2 Persistence and degradability**	
CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)	
OECD 302 B	79 % / 25 d (readily eliminated from water) (Zahn-Wellens / EMPA Test) (anhydrous substance)

· **12.3 Bioaccumulative potential**
Pow = n-octanol/wasser partition coefficient
log Pow < 1 = Does not accumulate in organisms.

CAS: 6192-52-5 p-toluenesulphonic acid monohydrate (containing more than 5 % H_2SO_4)	
log Pow	-0.62 (.) (calculated)

· **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.
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 garbage. Do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.

· **European waste catalogue**	
16 05 06*	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals

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

(Contd. on page 7)

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

Printing date 01.12.2023 Version number 10 (replaces version 9) Revision: 01.12.2023

Product name: Total Chlorine Indicator Solution

(Contd. of page 6)

SECTION 14: Transport information

· **14.1 UN number or ID number**
· **ADR, IMDG, IATA** UN2586

· **14.2 UN proper shipping name**
· **ADR** 2586 ARYLSULPHONIC ACIDS, LIQUID
· **IMDG, IATA** ARYLSULPHONIC ACIDS, LIQUID

· **14.3 Transport hazard class(es)**

· **ADR**

· **Class** 8 (C3) Corrosive substances.
· **Label** 8

· **IMDG, IATA**

· **Class** 8 Corrosive substances.
· **Label** 8

· **14.4 Packing group**
· **ADR, IMDG, IATA** III

· **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** (SGG1) Acids
· **Stowage Category** B

· **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

· **Transport/Additional information:**

· **ADR**
· **Limited quantities (LQ)** 5L
· **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
· **Transport category** 3
· **Tunnel restriction code** E

· **IMDG**
· **Limited quantities (LQ)** 5L
· **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

SECTION 15: Regulatory information

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

· **Poisons Act UK**

· **Regulated explosives precursors**
None of the ingredients is listed.

· **Regulated poisons**
None of the ingredients is listed.

(Contd. on page 8)

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

(Contd. of page 7)

· **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** not regulated

· **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 exports of dual-use items and technology:**
None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
None of the ingredients is listed.

· **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 ≥ 0.1% (w / w).
· **Substances of very high concern (SVHC) according to UK REACH**
see item 3 SVHC
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

· **Directive 2012/18/EU (SEVESO III):**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Information about limitation of use:** Not required.

· **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.
This Safety Data Sheets is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**
H314 Causes severe skin burns and eye damage.

· **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 relatif au transport international 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 (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)

(Contd. on page 9)

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

(Contd. of page 8)

LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Met. Corr.1: Corrosive to metals – Category 1
Skin Corr. 1B: Skin corrosion/irritation – Category 1B

· **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.**