

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

Printing date 27.10.2023

Version number 2 (replaces version 1)

Revision: 27.10.2023

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

· **1.1 Product identifier**

· **Product name:** T-CAL Standard 4000 NTU

· **Catalog number:** 1941-6, 00194197

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

· **Application of the substance / the preparation:** Liquid standard in sealed vials for calibration purposes

· **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**



GHS08 health hazard

Carc. 1B H350 May cause cancer.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

· **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**



GHS07



GHS08

· **Signal word** Danger

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Hazard-determining components of labelling:

 methenamine
 formaldehyde 0.12 %

Hazard statements

 H317 May cause an allergic skin reaction.
 H350 May cause cancer.

Precautionary statements

 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P308+P313 IF exposed or concerned: Get medical advice/attention.
 P405 Store locked up.

Additional information:

Restricted to professional users.

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: 100-97-0 EINECS: 202-905-8 Index No: 612-101-00-2 Reg.nr.: 01-2119474895-20-XXXX	methenamine ⚠ Flam. Sol. 2, H228; ⚠ Skin Sens. 1, H317	2.5–5%
CAS: 50-00-0 EINECS: 200-001-8 Index No: 605-001-00-5	formaldehyde ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; ⚠ Muta. 2, H341; Carc. 1B, H350; ⚠ Skin Corr. 1B, H314; ⚠ Skin Sens. 1, H317 Specific concentration limits: Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 5 % ≤ C < 25 % Eye Irrit. 2; H319: 5 % ≤ C < 25 % Skin Sens. 1; H317: C ≥ 0.2 % STOT SE 3; H335: C ≥ 5 %	0.1–<0.2%

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.
 Take off contaminated clothing and wash it before reuse.

After inhalation

 Supply fresh air.
 Get medical advice/attention.

After skin contact

 Instantly wash with water and soap and rinse thoroughly.
 Get medical advice/attention.

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:

 allergic reactions
 irritating effects possible
 after inhalation:
 mucosal irritations, cough, shortness of breath
 asthma attacks
 after swallowing:

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gastric or intestinal trouble
pain

- **Danger** risk of skin sensitization

- **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:

hydrogen cyanide (prussic acid HCN)

Nitrogen oxides (NOx)

Ammonia (NH₃)

- **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

- **Advice for emergency responders:** Protective equipment: see section 8

- **6.2 Environmental precautions:**

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

Dilute with much water.

- **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:** No special precautions necessary if used correctly.

- **Hygiene measures:**

Do not get in eyes, on skin, or on clothing.

Take off immediately all contaminated clothing.

Store protective clothing separately.

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 only in unopened original containers.

- **Information about storage in one common storage facility:** Store away from oxidising agents.

- **Further information about storage conditions:**

Store in a locked cabinet or with access restricted to technical experts or their assistants.

Protect from frost.

Protect from heat and direct sunlight.

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- Protect from the effects of light.
- Protect from humidity and keep away from water.
- **Recommended storage temperature:** 5°C - 25°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: 50-00-0 formaldehyde

WEL (Great Britain)	Short-term value: 2.5 mg/m ³ , 2 ppm Long-term value: 2.5 mg/m ³ , 2 ppm Carc
BOELV (European Union)	Short-term value: 0.74 mg/m ³ , 0.6 ppm Long-term value: 0.37 (0.62)* mg/m ³ , 0.3 (0.5)* ppm Skin sens;*health/funeral/embalming till 11/7/24

· Regulatory information

WEL (Great Britain): EH40/2020
BOELV (European Union): EU 2022/431

· DNELs

Derived No Effect Level (DNEL)

CAS: 100-97-0 methenamine

Dermal	DNEL	8.8 mg/kg (Worker / long-term /systemic effects)
Inhalative	DNEL	31 mg/m ³ (Worker / 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)

CAS: 100-97-0 methenamine

PNEC	100 mg/l (Sewage treatment plant)
	0.5 mg/l (Marine water)
	2.4 mg/l (Fresh water sediment)
	3 mg/l (Fresh water)

- **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** Wear safety glasses in case of breakage / leakage.

· Hand protection

Wear gloves in case of breakage / leakage.
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:** Combination filter ABEK-P2

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 · **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:	Suspension
· Colour:	milky
· Odour:	Fish-like
· Odour threshold:	Not determined.
· 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:	Not determined.
· pH at 20°C	7.5
· Kinematic 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 g/cm ³
· 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	Void
· Other safety characteristics	
· Oxidising properties:	none
· Additional information	
· Solids content:	< 10 %
· Solvent content:	
· Organic solvents:	< 0.2 %
· Water:	> 90 %

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**
In contact with nitrites, nitrates or nitrous acid possible release of nitrosamines (carcinogenic)!
Reacts with peroxides
Reacts with oxidizing agents
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** metals
- **10.6 Hazardous decomposition products:** see section 5

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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: 100-97-0 methenamine		
Oral	LD50	9200 mg/kg (rat) (IUCLID)
Dermal	LD50.	>2000 mg/kg (rat) (OECD 402)
CAS: 50-00-0 formaldehyde		
Oral	LD50	100 mg/kg (rat)
Dermal	LD50	270 mg/kg (rabbit)
Inhalative	LC50/4h	3 mg/l (vapour)

· **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.

· Information on components:

CAS: 100-97-0 methenamine		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 492	(rabbit: no irritation)

· **Respiratory or skin sensitisation** May cause an allergic skin reaction.

· Information on components:

CAS: 100-97-0 methenamine		
Sensitisation	OECD 406	(guinea pig: positive)
	Patch test (human)	(positive) (IUCLID)

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

· **Carcinogenicity** May cause cancer.

· **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: 100-97-0 methenamine		
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)	
OECD 474	(negative) (Mammalian Erythrocyte Micronucleus Test) (IUCLID)	

· **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.

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

· 11.2 Information on other hazards

· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· Other information

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.

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SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

CAS: 100-97-0 methenamine

EC50	36 mg/l/48h (Daphnia magna) (IUCLID)
EC10	5 mg/l (fish)
LC50 (static)	41 mg/l/96h (bluegill) (US-EPA)

CAS: 50-00-0 formaldehyde

EC50	2 mg/l/48h (Daphnia magna)
LC50	100 mg/l/96h (bluegill) IUCLID 24 mg/l/96h (fathead minnow)

· Bacterial toxicity:

CAS: 100-97-0 methenamine

EC50 (static)	>5000 mg/l (Bacterial toxicity) (DIN 38412) (Merck, Vibrio fischeri)
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· 12.2 Persistence and degradability

CAS: 100-97-0 methenamine

OECD 302 C	39–47 % / 28 d (not readily biodegradable) (Modified MITI Test (II))
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CAS: 50-00-0 formaldehyde

OECD 301 D	99 % / 28 d (readily biodegradable) (Closed Bottle Test) (37% solution)
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· Other information:

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

· 12.3 Bioaccumulative potential

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

CAS: 100-97-0 methenamine

log Pow	-2.84 (.) (experimental) (IUCLID)
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CAS: 50-00-0 formaldehyde

log Pow	0.021 (.)
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· 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

 Avoid transfer into the environment.

· Water hazard:

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into soil.

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

SECTION 14: Transport information

<ul style="list-style-type: none"> · 14.1 UN number or ID number · ADR, IMDG, IATA 	Void
<ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR, IMDG, IATA 	Void
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR, IMDG, IATA · Class 	Void
<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	Void
<ul style="list-style-type: none"> · 14.5 Environmental hazards: 	Not applicable.
<ul style="list-style-type: none"> · 14.6 Special precautions for user 	Not applicable.
<ul style="list-style-type: none"> · 14.7 Maritime transport in bulk according to IMO instruments 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: 	Not dangerous according to the above specifications.

* SECTION 15: Regulatory information

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

- **Poisons Act UK**

- **Regulated explosives precursors**

CAS: 100-97-0 methenamine	Listed
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- **Regulated poisons**

None of the ingredients is listed.

- **Reportable explosives precursors**

None of the ingredients is listed.

- **Reportable poisons**

The concentration of the substance is less than the stated mass percentage and is therefore of no concern:

CAS: 50-00-0 formaldehyde	5%
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- **Regulation (EU) 2019/1148 on the marketing and use of explosives precursors** not regulated: article

- **explosives precursors - ANNEX II**

CAS: 100-97-0 methenamine

- **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.

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<ul style="list-style-type: none"> · REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)
None of the ingredients is listed.
<ul style="list-style-type: none"> · LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)
None of the ingredients is listed.
<ul style="list-style-type: none"> · 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). · 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, 28, 72 · Information about limitation of use: Employment restrictions concerning young persons must be observed (94/33/EC). Employment restrictions concerning pregnant and lactating women must be observed (92/85/EEC). · 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 Sheet 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**
H228 Flammable solid.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H331 Toxic if inhaled.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
- **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)
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
Flam. Sol. 2: Flammable solids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 1B: Carcinogenicity – Category 1B
- **Sources**
Data arise from safety data sheets, reference works and literature.
ECHA: European Chemicals Agency <http://echa.europa.eu>

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

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