

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

Printing date 05/25/2021

Reviewed on 05/25/2021

1 Identification

- **Product identifier**
- **Trade name: T-CAL Standard 4000 NTU**
- **Catalogue number:** 1941-6, 00194197
- **Application of the substance / the mixture:** Liquid standard in sealed vials for calibration purposes
- **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**



GHS08 Health hazard

Carc. 1B H350 May cause cancer.



GHS07

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

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



GHS07



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
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.
- **Other hazards** No further relevant information available.

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3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** aqueous solution
- **Composition and Information on Ingredients:**
Percent ranges are used due to the confidential product information.

CAS: 100-97-0 EINECS: 202-905-8 Index number: 612-101-00-2 RTECS: MN 4725000	methenamine ⚠ Flam. Sol. 2, H228; ⚠ Skin Sens. 1, H317	2.5–5%
CAS: 50-00-0 EINECS: 200-001-8 Index number: 605-001-00-5 RTECS: LP 8925000	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; Flam. Liq. 4, H227	0.1–<0.2%

- **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.
Get medical advice/attention.
- **After skin contact:**
Immediately 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 a doctor.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
Seek medical treatment.
- **Most important symptoms and effects, both acute and delayed**
allergic reactions
irritating effect possible
after inhalation:
mucosal irritations, cough, breathing difficulty
asthma attacks
after swallowing:
gastric or intestinal disorders
pain
- **Danger:** risk of skin sensitization
- **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:
Hydrogen cyanide (prussic acid HCN)
Nitrogen oxides (NO_x)
Ammonia (NH₃)
- **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
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:**
 - Do not allow product to reach sewage system or any water course.
 - Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
 - Ensure adequate ventilation.
 - 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:** No special precautions are 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 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 only in unopened original receptacles.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
 - Store under lock and key and with access restricted to technical experts or their assistants only.
 - Protect from frost.
 - Protect from heat and direct sunlight.
 - Protect from exposure to the light.
 - Protect from humidity and water.
- **Recommended storage temperature:** 5°C - 25°C (41°F - 77°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:**

CAS: 100-97-0 methenamine	
TLV (USA)	Long-term value: NIC-1* mg/m ³ *inhalable fraction, NIC-A4, NIC-DSEN
EV (Canada)	Short-term value: 2 mg/m ³ , 0.35 ppm
CAS: 50-00-0 formaldehyde	
PEL (USA)	Short-term value: 2 ppm Long-term value: 0.75 ppm see 29 CFR 1910.1048(c)
REL (USA)	Long-term value: 0.016 ppm Ceiling limit value: 0.1* ppm *15-min; See Pocket Guide App. A

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TLV (USA)	Short-term value: 0.37 mg/m ³ , 0.3 ppm Long-term value: 0.12 mg/m ³ , 0.1 ppm DSEN; RSEN
EL (Canada)	Short-term value: 0.3 ppm Long-term value: 0.1 ppm ACGIH A1; IARC 1; S(D), S(R)
EV (Canada) Ceiling limit value	Short-term value: 1.0 ppm 1.5 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 ABEK-P2
- **Protection of hands:**
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 through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Wear safety glasses in case of breakage / leakage.
- **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:** Suspension
- **Color:** milky
- **Odor:** Fish-like
- **Odor threshold:** Not determined.
- **pH-value at 20°C (68°F):** 7.5
- **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:** 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:** none
- **Vapor Pressure:** Not determined.
- **Density at 20°C (68°F):** ~ 1 g/cm³ (~ 8.35 lbs/gal)
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.
- **Solubility(ies)**
- **Water:** Fully miscible.

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- **Partition coefficient (n-octanol/water):** Not applicable (mixture).
- **Viscosity:** Not determined.
- **Kinematic:** Not determined.
- **Other information**
- **Solids content:** < 10 %
- **Solvent content:**
- **Organic solvents:** < 0.2 %
- **Water:** > 90 %

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
In contact with nitrites, nitrates or nitrous acid possible release of nitrosamines (carcinogenic)!
Reacts with peroxides.
Reacts with oxidizing agents.
- **Conditions to avoid** Strong heating (decomposition)
- **Incompatible materials:** metals
- **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: 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)

· Primary irritant effect:

- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** 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 405	(rabbit: no irritation)

- **Sensitization:** May cause an allergic skin reaction.

· Information on components:

CAS: 100-97-0 methenamine

Sensitization	OECD 406	(guinea pig: positive)
	Patch test (human)	(positive) (IUCLID)

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

CAS: 50-00-0 formaldehyde

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· NTP (National Toxicology Program)

CAS: 50-00-0 formaldehyde

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• OSHA-Ca (Occupational Safety & Health Administration)	
CAS: 50-00-0	formaldehyde
• Other information: see section 8 / 15	
• Synergistic Products: None	
• CMR effects (carcinogeny, mutagenicity and toxicity for reproduction): The following statements refer to the mixture: Carc. 1B	
• 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.	
• 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.	
• 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)
• Additional toxicological information: Mists 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.	

12 Ecological information

• 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 (fathhead minnow)
• Bacterial toxicity:	
CAS: 100-97-0 methenamine	
EC50 (static)	>5000 mg/l (Bacterial toxicity) (DIN 38412) (Merck, Vibrio fischeri)
• Persistence and degradability	
CAS: 100-97-0 methenamine	
OECD 302 C	39–47 % / 28 d (not readily biodegradable) (Modified MITI Test (II))
CAS: 50-00-0 formaldehyde	
OECD 301 D	99 % / 28 d (readily biodegradable) (Closed Bottle Test) (37% solution)
• Bioaccumulative potential Pow = n-octanol/wasser partition coefficient log Pow < 1 = Does not accumulate in organisms.	

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CAS: 100-97-0 methenamine	
log Pow	-2.84 (.) (experimental) (IUCRID)
CAS: 50-00-0 formaldehyde	
log Pow	0.021 (.)
<ul style="list-style-type: none"> · Mobility in soil No further relevant information available. · Other adverse effects 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	none
· UN proper shipping name	
· DOT, IMDG, IATA	none
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	none
· Packing group	
· DOT, IMDG, IATA	none
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

*15 Regulatory information

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

· Section 355 (Extremely hazardous substances):	
CAS: 50-00-0	formaldehyde
· Section 313 (Specific toxic chemical listings):	
CAS: 7783-20-2	ammonium sulphate
CAS: 50-00-0	formaldehyde
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
CAS: 50-00-0	formaldehyde

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• Proposition 65

• Chemicals known to cause cancer:		
CAS: 50-00-0	formaldehyde	
• 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: 100-97-0	methenamine	
CAS: 50-00-0	formaldehyde	
• New Jersey Special Hazardous Substance List:		
CAS: 50-00-0	formaldehyde	
	CA, CO, MU, F4	
• Pennsylvania Right-to-Know List:		
CAS: 7783-20-2	ammonium sulphate	
CAS: 50-00-0	formaldehyde	
• Pennsylvania Special Hazardous Substance List:		
CAS: 7783-20-2	ammonium sulphate	E
CAS: 50-00-0	formaldehyde	ES
• EPA (Environmental Protection Agency)		
CAS: 50-00-0	formaldehyde	B1
• NIOSH-Ca (National Institute for Occupational Safety and Health)		
CAS: 50-00-0	formaldehyde	

• Information about limitation of use:

Employment restrictions concerning young persons must be observed.
Employment restrictions concerning pregnant and lactating women 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

H227 Combustible liquid.
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.

• **Recommended restriction of use:** professional/industrial use only

• **Date of preparation / last revision** 05/25/2021 / -

• 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
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

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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

Flam. Liq. 4: Flammable liquids – Category 4

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>

IUCLID (International Uniform Chemical Information Database)

• * Data compared to the previous version altered.

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