

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

Printing date 30.10.2023

Version number 8 (replaces version 7)

Revision: 30.10.2023

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

· **1.1 Product identifier**

· **Product name: Isothiazolinone Reagent DK3**

· **Catalog number:** 56Z046398, 56L046330, 56U046330, 56L046391, 56U046391, 56L046365, 56U046365, 56L0463, SDT256

· **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.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.



GHS07

STOT SE 3 H335 May cause respiratory irritation.

· **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



GHS07

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- **Signal word** Danger
- **Hazard-determining components of labelling:**
ammonia 17 %
- **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
- **Precautionary statements**
P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection.
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.
P308+P310 IF exposed or concerned: Immediately call a POISON CENTER/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: 1336-21-6 EINECS: 215-647-6 Index No: 007-001-01-2 Reg.nr.: 01-2119488876-14-XXXX	ammonia Met. Corr. 1, H290; Skin Corr. 1B, H314; Aquatic Acute 1, H400 (M=1); STOT SE 3, H335 Specific concentration limit: STOT SE 3; H335: C ≥ 5 %	10–20%
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- **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.
Call a doctor immediately.
- **After skin contact**
Instantly wash with polyethylene glycol 400.
Instantly rinse with water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
- **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; instantly call for medical help.
- **4.2 Most important symptoms and effects, both acute and delayed:**
burns
absorption
after inhalation:
mucosal irritations, cough, shortness of breath
Possible damages: damage of respiratory tract
after swallowing:
strong caustic effect.
sickness
vomiting
gastric pain

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diarrhoea
cramps
Shock

- **Danger**

Danger of system failure.
Danger of gastric perforation.
Danger of pulmonary oedema.

- **4.3 Indication of any immediate medical attention and special treatment needed:**

If swallowed or in case of vomiting, danger of entering the lungs
Subsequent observation for pneumonia and pulmonary oedema
Monitor circulation

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**

Can form explosive gas-air mixtures.
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:
Nitrogen oxides (NO_x)
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
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.
Prevent formation of aerosols.

- **Hygiene measures:**

Do not inhale gases / fumes / aerosols.
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.
Wash hands during breaks and at the end of the work.

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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.

Unsuitable material for container: metals, metal alloys

Unsuitable material for container: aluminium.

Information about storage in one common storage facility:

Store away from metals.

Do not store together with acids.

Do not store together with alkalis (caustic solutions).

Store away from oxidising agents.

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: 1336-21-6 ammonia		
Oral	DNEL	6.8 mg/kg (Consumer / acute / systemic effects)
		6.8 mg/kg (Consumer / long-term / systemic effects)
Dermal	DNEL	6.8 mg/kg (Worker / acute / systemic effects)
		6.8 mg/kg (Worker / long-term / systemic effects)
		68 mg/kg (Consumer / acute / systemic effects)
		68 mg/kg (Consumer / long-term / systemic effects)
Inhalative	DNEL	36 mg/m ³ (Worker / acute / local effects)
		47.6 mg/m ³ (Worker / acute / systemic effects)
		14 mg/m ³ (Worker / long-term / local effects)
		47.6 mg/m ³ (Worker / long-term / systemic effects)
		7.2 mg/m ³ (Consumer / acute / local effects)
		23.8 mg/m ³ (Consumer / acute / systemic effects)
		2.8 mg/m ³ (Consumer / long-term / local effects)
		23.8 mg/m ³ (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

CAS: 1336-21-6 ammonia	
PNEC	0.00011 mg/l (Marine water)
	0.0068 mg/l (Aquatic intermittent release)
	0.0011 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.

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- **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**
Tightly sealed 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**
Fluorocarbon rubber (Viton)
Recommended thickness of the material: ≥ 0.4 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 K (acc. to DIN 3181) for NH₃
- **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:** Liquid
- **Colour:** Colourless
- **Odour:** Ammonia-like
- **Odour threshold:** CAS 1336-21-6: 0.02 - 71 ppm NH₃
- **Melting point/Freezing point:** Not determined.
- **Boiling point or initial boiling point and boiling range** 37°C (CAS 1336-21-6 / 25%)
- **Flammability** Ammonia solution itself is not flammable, but can form an ignitable ammonia/air mixture by outgassing.
- **Explosive properties:** Product is not explosive. However, formation of explosive air/steam mixtures is possible.
- **Lower and upper explosion limit**
- **Lower:** 15.4 Vol % (25%, CAS: 1336-21-6 ammonia)
- **Upper:** 33.6 Vol % (25%, CAS: 1336-21-6 ammonia)
- **Flash point:** Not applicable.
- **Auto-ignition temperature:** Not applicable.
- **Decomposition temperature:** Not determined.
- **pH at 20°C** 10.5
- **Kinematic viscosity** Strongly alkaline
- **Solubility** Not determined.
- **Water:** Fully miscible
- **Partition coefficient n-octanol/water (log value)** Not applicable (mixture).
- **Vapour pressure at 20°C:** 483 hPa (CAS 1336-21-6 / 25%)
- **Density and/or relative density**
- **Density at 20°C:** ~0.9 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.
- **Other safety characteristics**
- **Oxidising properties:** none

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· Additional information	
· Solids content:	0 %
· Solvent content:	
· Organic solvents:	0 %
· Water:	> 80 %

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Fumes can combine with air to form an explosive mixture.
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
 - Corrosive action on metals
 - Reacts with various metals
 - Reacts with halogenated compounds
 - Reacts with acids and oxidising agents.
- **10.4 Conditions to avoid** strong heating
- **10.5 Incompatible materials:**
 - Various metals, metal alloys
 - aluminium
 - copper
 - zinc
- **10.6 Hazardous decomposition products:**
 - Ammonia (NH₃)
 - In case of fire: 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: 1336-21-6 ammonia		
Oral	LDo	43 mg/kg (human) (29% solution, RTECS)

- **Skin corrosion/irritation** Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
 - Causes serious eye damage.
 - Risk of blindness!
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **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** May cause respiratory irritation.
- **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 likely routes of exposure**
 - Main routes of exposure: occupational exposure to ammonia solution is likely to result mainly in inhalation of released gaseous ammonia or solution aerosol. [GESTIS]
- **Additional toxicological information:**
 - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

CAS: 1336-21-6 ammonia	
.	(source: GESTIS)
Main toxic effects:	
acute: Irritant and caustic effect on eyes and skin, respiratory tract irritation/damage from released gas/aerosol.	
Severe damage to the digestive tract if ingested	
chronic: chronic irritation of the respiratory tract/ respiratory diseases	

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- **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: 1336-21-6 ammonia

EC50	24 mg/l/48h (Daphnia magna)
	1.16 mg/l/48h (Daphnia pulex)
LC50	0.53 mg/l/96h (rainbow trout)

- **Other information:**

Toxic for fish:

NH₄⁺ > 0.3 mg/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**

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

CAS: 1336-21-6 ammonia

log Pow	-1.38 (.) (experimental)
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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**

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Avoid transfer into the environment.

- **Water hazard:**

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

Danger to drinking water if even 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 07*	discarded inorganic chemicals consisting of or containing hazardous substances
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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

- **14.1 UN number or ID number**

- **ADR, IMDG, IATA**

UN2672

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<ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR · IMDG, IATA 	<p style="text-align: center;">2672 AMMONIA SOLUTION AMMONIA SOLUTION</p>
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR 	<p style="text-align: center;">8 (C9) Corrosive substances. 8</p>
<ul style="list-style-type: none"> · IMDG, IATA 	<p style="text-align: center;">8 Corrosive substances. 8</p>
<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	III
<ul style="list-style-type: none"> · 14.5 Environmental hazards: 	Not applicable.
<ul style="list-style-type: none"> · 14.6 Special precautions for user · Kemler Number: · EMS Number: · Segregation groups · Stowage Category · Stowage Code · Segregation Code 	<p>Warning: Corrosive substances. 80 F-A,S-B (SGG18) Alkalis A SW2 Clear of living quarters. SW3 Shall be transported under temperature control. SG35 Stow "separated from" SGG1-acids</p>
<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: 	
<ul style="list-style-type: none"> · ADR · Limited quantities (LQ) · Excepted quantities (EQ) · Transport category · Tunnel restriction code 	<p>5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml 3 E</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</p>

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.

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· Reportable explosives precursors	
None of the ingredients is listed.	
· Reportable poisons	
The substance falls under reportable poisons due to the fact that the concentration is greater than/equal ($\geq x\%$) the stated mass percentage:	
CAS: 1336-21-6	ammonia 10%
· 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 $\geq 0.1\%$ (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	
· Information about limitation of use: Employment restrictions concerning young persons must be observed (94/33/EC).	
· 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.

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

· Relevant phrases

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

· Abbreviations and acronyms:

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

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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
Met. Corr. 1: Corrosive to metals – Category 1
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Sources

Data arise from safety data sheets, reference works and literature.
RTECS (Registry of Toxic Effects of Chemical Substances)
GESTIS- Stoffdatenbank (Substance Database, Germany)
ECHA: European CHemicals Agency <http://echa.europa.eu>

· * Data compared to the previous version altered.

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