

## Chemical Safety Data Sheet MSDS / SDS

## Tetrazole

Revision Date:2026-05-31 Revision Number:1

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

## Product identifier

Product name : Tetrazole  
CBnumber : CB4230898  
CAS : 288-94-8  
EINECS Number : 206-023-4  
Synonyms : 1H-Tetrazole, Tetrazole

## Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

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

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

## Hazard statements

H303 May be harmful if swallowed

H312 Harmful in contact with skin

H225 Highly Flammable liquid and vapour

H302 Harmful if swallowed  
H319 Causes serious eye irritation  
H332 Harmful if inhaled

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## SECTION 3: Composition/information on ingredients

### Substance

Product name : Tetrazole  
Synonyms : 1H-Tetrazole, Tetrazole  
CAS : 288-94-8  
EC number : 206-023-4  
MF : CH<sub>2</sub>N<sub>4</sub>  
MW : 70.05

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## SECTION 4: First aid measures

### General advice

Show this safety data sheet to the doctor in attendance.

### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

### Protection of first-aiders

For personal protection see section 8.

### Notes to physician

No data available

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## SECTION 5: Firefighting measures

### **Suitable extinguishing media**

Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

### **Specific hazards during fire fighting**

Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

### **Hazardous combustion products**

Carbon oxides Nitrogen oxides (NO<sub>x</sub>)

### **Specific extinguishing methods**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### **Special protective equipment for fire-fighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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## SECTION 6: Accidental release measures

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.

### **Environmental precautions**

Do not let product enter drains. Risk of explosion.

### **Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## SECTION 7: Handling and storage

### **Handling**

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

**Avoidance of contact**

Reducing agents Alkali metals

**Storage****Further information on storage conditions**

Keep container tightly closed in a dry and wellventilated place. Keep away from heat and sources of ignition.

**Storage class**

3, Flammable liquids

**Recommended storage temperature**

Recommended storage temperature see product label.

**Further information on storage stability**

Hygroscopic. Store under inert gas. Handle and store under inert gas.

**Packaging material**

Suitable material: Poly-lined Steel Drum

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## SECTION 8: Exposure controls/personal protection

**control parameter****Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

**Engineering measures**

No data available

**Personal protective equipment****Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Recommended Filter type**

Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Safety glasses

**Skin and body protection**

Flame retardant antistatic protective clothing.

**Hand protection****Material**

butyl-rubber

**Break through time**

480 min

**Glove thickness**

0.3 mm

**Protective index**

Full contact

**Manufacturer**

Butoject® (KCL 897 / Aldrich Z677647, Size M)

**Material**

butyl-rubber

**Break through time**

480 min

**Glove thickness**

0.3 mm

**Protective index**

Splash contact

**Manufacturer**

Butoject® (KCL 897 / Aldrich Z677647, Size M)

**Manufacturer**

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

**Remarks**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9: Physical and chemical properties

**Information on basic physicochemical properties**

liquid

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**Color**

Cream to orange

**Odor**

No data available

**Odor Threshold**

No data available

**pH**

No data available

**Melting point/ range**

No data available

**Boiling point/boiling range**

84 °C (1,013 hPa)

**Flash point**

5 °C

Method: closed cup

**Evaporation rate**

No data available

**Flammability (solid, gas)**

No data available

**Flammability (liquids)**

No data available

**Burning rate**

No data available

**Upper explosion limit / Upper flammability limit**

No data available

**Lower explosion limit / Lower flammability limit**

No data available

**Vapor pressure**

No data available

**Relative vapor density**

No data available

**Relative density**

0.798 g/mL at 20 °C

**Density**

0.798 g/mL at 20 °C

**Water solubility**

Soluble

**Partition coefficient: n-octanol/water**

No data available

### **Autoignition temperature**

No data available

### **Decomposition temperature**

No data available

### **Viscosity, dynamic**

No data available

### **Viscosity, kinematic**

No data available

### **Flow time**

No data available

### **Explosive properties**

Not classified as explosive.

### **Oxidizing properties**

none

### **Molecular weight**

70.05 g/mol

### **Particle characteristics Particle size**

No data available

### **Solubility**

DMSO, Methanol

### **Physical state**

Liquid

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## SECTION 10: Stability and reactivity

### **Reactivity**

Vapours may form explosive mixture with air.

### **Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **Possibility of hazardous reactions**

No data available

## Conditions to avoid

Warming.

## Incompatible materials

Reducing agents Alkali metals

## Hazardous decomposition products

In the event of fire: see section 5

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# SECTION 11: Toxicological information

## 11.1 Information on toxicological effects

### Mixture Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - 632.82 mg/kg (Calculation method)

Acute toxicity estimate Inhalation - 4 h - 11.28 mg/l - vapour(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations

Acute toxicity estimate Dermal - 1,539 mg/kg (Calculation method)

### Skin corrosion/irritation

Classified based on available data. For more details, see section 2

### Serious eye damage/eye irritation

Remarks: Mixture causes serious eye irritation.

### Respiratory or skin sensitization

Classified based on available data. For more details, see section 2

### Germ cell mutagenicity

Classified based on available data. For more details, see section 2

### Carcinogenicity

Classified based on available data. For more details, see section 2

### Reproductive toxicity

Classified based on available data. For more details, see section 2

### Specific target organ toxicity - single exposure

Classified based on available data. For more details, see section 2

### Specific target organ toxicity - repeated exposure

Classified based on available data. For more details, see section 2

### Aspiration hazard

Classified based on available data. For more details, see section 2

## 11.2 Additional Information

Nausea, Vomiting, Diarrhoea, Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness, impaired judgment, Lack of coordination, stupor

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

### Components Acetonitrile

### **Acute toxicity**

LD50 Oral - Mouse - male and female - 617 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Mouse - male and female - 4 h - 6.022 mg/l - vapour (OECD Test Guideline 403)

Acute toxicity estimate Dermal - 1,500 mg/kg (Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

### **Respiratory or skin sensitization**

Buehler Test - Guinea pig

Result: negative (OECD Test Guideline 406)

### **Germ cell mutagenicity**

Test Type: Ames test

Test system: *S. typhimurium*

Result: negative

Remarks: (ECHA)

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Result: Positive results were obtained in some in vitro tests.

Remarks: (National Toxicology Program)

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Result: negative

Remarks: Sister chromatid exchange

Test system: *Saccharomyces cerevisiae*

Result: positive

Remarks: Cytogenetic analysis (ECHA)

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female

Result: negative

### **Carcinogenicity**

No evidence of carcinogenicity in animal studies.

### **Reproductive toxicity**

Animal testing did not show any effects on fertility.

#### **Specific target organ toxicity - single exposure**

The substance or mixture is not classified as specific target organ toxicant, single exposure.

#### **Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

#### **Aspiration hazard**

No aspiration toxicity classification

#### **Tetrazole Acute toxicity**

Oral: No data available

Inhalation: No data available

Dermal: No data available

#### **Skin corrosion/irritation**

Classified based on available data. For more details, see section 2

#### **Serious eye damage/eye irritation**

Classified based on available data. For more details, see section 2

#### **Respiratory or skin sensitization**

Classified based on available data. For more details, see section 2

#### **Germ cell mutagenicity**

Classified based on available data. For more details, see section 2

#### **Carcinogenicity**

Classified based on available data. For more details, see section 2

#### **Reproductive toxicity**

Classified based on available data. For more details, see section 2

#### **Specific target organ toxicity - single exposure**

Classified based on available data. For more details, see section 2

#### **Specific target organ toxicity - repeated exposure**

Classified based on available data. For more details, see section 2

#### **Aspiration hazard**

Classified based on available data. For more details, see section 2

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## SECTION 12: Ecological information

### **Ecotoxicity**

#### **Components:**

#### **Acetonitrile:**

#### **Toxicity to fish**

LC50 (Pimephales promelas (fathead minnow)): 1,640 mg/l Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes

Remarks: (ECHA)

#### **Toxicity to algae/aquatic plants**

NOEC (Phaeodactylum tricornutum): 400 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: ISO 10253 GLP:

yes ErC50 (Phaeodactylum tricornutum): 9,696 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: ISO 10253

GLP: yes

#### **Toxicity to fish (Chronic toxicity)**

NOEC (*Oryzias latipes*): 102 mg/l End point: mortality Exposure time: 21 d Test Type: flow-through test Analytical monitoring: yes Method:

OECD Test Guideline 204 GLP: yes

#### **Toxicity to microorganisms**

EC50 (activated sludge): > 1,000 mg/l Exposure time: 30 min Test Type: static test Method: OECD Test Guideline 209 GLP: yes

#### **Persistence and degradability**

##### **Components:**

##### **Acetonitrile:**

##### **Biodegradability**

Inoculum: activated sludge, non-adapted Concentration: 684 mg/l Result: Readily biodegradable. Biodegradation: 70 % Exposure time: 21 d

Method: OECD Test Guideline 310 GLP: yes

##### **Stability in water**

Degradation half life (DT50): > 9,999 d pH: 7 Hydrolysis: at 25 °C Remarks: (calculated) Hydrolyses slowly.

##### **Bioaccumulative potential**

##### **Components:**

##### **Acetonitrile:**

##### **Bioaccumulation**

Remarks: No bioaccumulation is to be expected (log Pow <= 4).

##### **Partition coefficient: noctanol/water**

log Pow: -0.54 (25 °C) Remarks: Bioaccumulation is not expected.

##### **Tetrazole:**

##### **Partition coefficient: noctanol/water**

log Pow: -0.6

##### **Mobility in soil**

##### **Components:**

##### **Acetonitrile:**

##### **Distribution among environmental compartments**

Adsorption/Soil Koc: 16, log Koc: 1.21 Remarks: Mobile in soils (Lit.)

##### **Stability in soil**

Dissipation time: > 168 - < 672 h Method: (calculated) Remarks: Not expected to adsorb on soil.

##### **Other adverse effects**

##### **Components:**

## **Acetonitrile:**

### **Additional ecological information**

Avoid release to the environment.

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Waste from residues**

Offer surplus and non-recyclable solutions to a licensed disposal company.

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## **SECTION 14: Transport information**

### **International Regulations**

#### **IATA-DGR**

UN/ID No. : UN 1993

Proper shipping name : Flammable liquid, n.o.s.

(Acetonitrile)

Class : 3

Packing group : II

Labels : Class 3 - Flammable liquids

Packing instruction (cargo aircraft) : 364

Packing instruction (passenger aircraft) : 353

#### **IMDG-Code**

UN number : UN 1993

Proper shipping name : FLAMMABLE LIQUID, N.O.S.

(Acetonitrile)

Class : 3

Packing group : II

Labels : 3

EmS Code : F-E, S-E

Marine pollutant : no

### **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

### **National Regulations**

#### **JT/T 617**

UN number : UN 1993

Proper shipping name : FLAMMABLE LIQUID, N.O.S.

(Acetonitrile)

Class : 3

Packing group : II

Labels : 3

Environmentally hazardous : no

### **Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## **SECTION 15: Regulatory information**

### **National regulatory information**

#### **Law on the Prevention and Control of Occupational Diseases**

#### **Regulations on Safety Management of Hazardous Chemicals**

#### **Catalogue of Hazardous Chemicals**

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

#### **No. / Code Chemical name / Category Threshold quantity**

#### **W5.3 Flammable liquids 1,000 t**

#### **Hazardous Chemicals for Priority Management**

Not applicable under SAWS

#### **Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

#### **China Severely Restricted Toxic Chemicals for Import and Export**

Not applicable

#### **Regulation on the Administration of Precursor Chemicals**

#### **Catalogue and Classification of Precursor Chemicals**

Not listed

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## **SECTION 16: Other information**

### **Full text of other abbreviations**

ACGIH

USA. ACGIH Threshold Limit Values (TLV)

## **GBZ 2.1-2007**

Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

### **ACGIH / TWA**

8-hour, time-weighted average

**GBZ 2.1-2007 / PC-TWA AIC - Australian Invent Transport by Land of Bra bw - Body weight; CMR Standard of the German List (Canada); ECx - Conc associated with x%respo Chemical Substances (Jap response; ERG - Emerge GLP - Good Laboratory P cer; IATA - International Construction and Equipm Half maximal inhibitory c tion; IECSC - Inventory o tional Maritime Dangerou Industrial Safety and H Standardization; KECl - K tration to 50 % of a test (Median Lethal Dose); MA lution from Ships; n.o.s. No Observed (Adverse) E fect Level; NOELR - No Norm; NTP - National Toxi icals; OECD - Organizatio fice of Chemical Safety a and Toxic substance; PIC stances; (Q)SAR - (Quant (EC) No 1907/2006 of th Registration, Evaluation, Accelerating Decompositi Chemical Substance Inve Thailand Existing Chemica States); UN - United Nat Transport of Dangerous WHMIS - Workplace Hazar**

Permissible concentration - time weighted average ry of Industrial Chemicals

ANTT - National Agency for il

ASTM - American Society for the Testing of Materials

- Carcinogen, Mutagen or Reproductive Toxicant

DIN nstitute for Standardisation

DSL - Domestic Substances ntration associated with x% response

ELx - Loading rate se

EmS - Emergency Schedule

ENCS - Existing and New n)

ErCx - Concentration associated with x% growth rate cy Response Guide

GHS - Globally Harmonized System

actice

IARC - International Agency for Research on Canir Transport Association

IBC - International Code for the nt of Ships carrying Dangerous Chemicals in Bulk

IC50 ncentration

ICAO - International Civil Aviation Organiza- Existing Chemical Substances in China

IMDG - Interna- Goods

IMO - International Maritime Organization

ISHL alth Law (Japan)

ISO - International Organisation for rea Existing Chemicals Inventory

LC50 - Lethal Concenopulation

LD50 - Lethal Dose to 50% of a test population POL - International Convention for the Prevention of Pol- Not Otherwise Specified

Nch - Chilean Norm

NO(A)EC fect Concentration

NO(A)EL - No Observed (Adverse) Efbserveable Effect Loading Rate

NOM - Official Mexican ology Program

NZIoC - New Zealand Inventory of Chemfor Economic Co-operation and Development

OPPTS - Ofd Pollution Prevention

PBT - Persistent, Bioaccumulative S - Philippines Inventory of Chemicals and Chemical Subtative) Structure Activity Relationship

REACH - Regulation European Parliament and of the Council concerning the uthorisation and Restriction of Chemicals

SADT - Selfn Temperature

SDS - Safety Data Sheet

TCSI - Taiwan tory

TDG - Transportation of Dangerous Goods

TECI s Inventory

TSCA - Toxic Substances Control Act (United ons

UNRTDG - United Nations Recommendations on the oods

vPvB - Very Persistent and Very Bioaccumulative

ous Materials Information System

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.