

Version: 1.0  
Initial preparation date: 2023.02.23  
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## Material Safety Data Sheet

### SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: TRIS

Company: Suzhou YACOO Science Co., Ltd.

Address: No.128, FangZhou Road, Suzhou Industrial Park, China

Tel: 0512-87182055

Fax: 0512-87182056

### SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

2.2 Label elements

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

2.3 Other hazards

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### SECTION 3: Composition/information on ingredients

3.1 Substances Synonyms: 2-Amino-2-(hydroxymethyl)-1,3-propanediol

THAM

Trometamol

Tris base

Tris(hydroxymethyl)aminomethane

Formula: C<sub>4</sub>H<sub>11</sub>NO<sub>3</sub>

Molecular weight: 121,14 g/mol

CAS-No.: 77-86-1

EC-No.: 201-064-4

No components need to be disclosed according to the applicable regulations.

### SECTION 4: First aid measures

4.1 Description of first-aid measures If inhaled

After inhalation: fresh air.

In case of skin contact

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

In case of eye contact

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

If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

## **SECTION 5: Firefighting measures**

5.1 Extinguishing media Suitable extinguishing media

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

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

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

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## **SECTION 6: Accidental release measures**

6.1 Personal precautions, protective equipment and emergency procedures Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

#### 6.4 Reference to other sections

For disposal see section 13.

### **SECTION 7: Handling and storage**

#### 7.1 Precautions for safe handling

For precautions see section 2.2.

#### 7.2 Conditions for safe storage, including any incompatibilities Storage conditions

Tightly closed. Dry.

#### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

### **SECTION 8: Exposure controls/personal protection**

#### 8.1 Control parameters

Ingredients with workplace control parameters

#### 8.2 Exposure controls

Personal protective equipment

##### 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 protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please

contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatrill® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions

deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

Respiratory protection

required when dusts 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 P1

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.

Control of environmental exposure

Do not let product enter drains.

## **SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

a) Appearance Form: crystalline Color: white

b) Odor slight, characteristic

c) Odor Threshold No data available

d) pH 10,2 - 10,6 at 6 g/l at 20 °C

e) Melting point/freezing point

Melting point/range: 169 °C at ca.1.013 hPa - OECD Test Guideline 102

f) Initial boiling point and boiling range

288 °C at 1.013 hPa - OECD Test Guideline 103 - Decomposition at boiling point.

g)Flash point Not applicable

h)Evaporation rate No data available

i)Flammability (solid, gas) No data available

j)Upper/lower flammability or explosive limits No data available

k)Vapor pressure < 0,1 hPa at 20 °C

l)Vapor density No data available

m)Relative density 1,32 at 20,4 °C - OECD Test Guideline 109

n)Water solubility 678 g/l at 20 °C - completely soluble

- o) Partition coefficient: n-octanol/water  
log Pow: -2,31 at 20 °C - Bioaccumulation is not expected.
- p) Autoignition temperature  
The substance or mixture is not classified as self heating.
- q) Decomposition temperature 143 °C -
- r) Viscosity  
Viscosity, kinematic: Not applicable  
Viscosity, dynamic: No data available
- s) Explosive properties No data available
- t) Oxidizing properties No data available

## 9.2 Other safety information

### Solubility in other solvents

ethyl acetate at 20 °C

-slightly soluble Alcohol at 20 °C

-soluble Dimethylformamide at 20 °C

-soluble Acetone at 20 °C

-soluble Chloroform at 20 °C

-practically insoluble

Dissociation constant 8,22 at 25 °C

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

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

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Oxidizing agents

Bases

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

### 10.4 Conditions to avoid

no information available

## 10.5 Incompatible materials

No data available

## 10.6 Hazardous decomposition products

In the event of fire: see section 5

## **SECTION 11: Toxicological information**

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - female - > 5.000 mg/kg

(OECD Test Guideline 425)

LD50 Dermal - Rat - male and female - > 5.000 mg/kg

(OECD Test Guideline 402)

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Mutagenicity (mammal cell test): chromosome aberration.

Chinese hamster lung cells

Result: negative

In vitro mammalian cell gene mutation test

Chinese hamster ovary cells

Result: negative

#### Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

### 11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 250 mg/kg - LOAEL (Lowest observed adverse effect level) - 1.000 mg/kg

Remarks:  
Subchronic toxicity

The value is given in analogy to the following substances:

Repeated dose toxicity - Rabbit - male and female - 28 d - LOAEL (Lowest observed adverse effect level) - 500 mg/kg

Remarks:  
Subacute toxicity RTECS: TY2900000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After swallowing of large amounts:

Diarrhea

Nausea

Vomiting

Convulsions

The following applies to aliphatic amines in general: irritations after contact with eyes and skin.

Mucosal irritations, coughing, and dyspnoea after inhalation.

This substance should be handled with particular care.

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.

However, when the product is handled appropriately, hazardous effects are unlikely to occur.  
Handle in accordance with good industrial hygiene and safety practice.

## **SECTION 12: Ecological information**

### 12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - > 980 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to bacteria static test EC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)

### 12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 97,1 % - Readily biodegradable. (OECD Test Guideline 301F)

### 12.3 Bioaccumulative potential

No bioaccumulation is to be expected ( $\log P_{ow} \leq 4$ ).

### 12.4 Mobility in soil No data available

### 12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

Discharge into the environment must be avoided.

## **SECTION 13: Disposal considerations**

### 13.1 Waste treatment methods Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

## **SECTION 14: Transport information**

### 14.1 UN number

ADR/RID: -IMDG: -IATA: -

### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods



IMDG:Not dangerous goods

IATA:Not dangerous goods

14.3Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

14.4Packaging group

ADR/RID: - IMDG: - IATA: -

14.5Environmental hazards

ADR/RID: noIMDG Marine pollutant: noIATA: no

14.6Special precautions for user

Further information

Not classified as dangerous in the meaning of transport regulations.

## **SECTION 15: Regulatory information**

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. : Not applicable

15.2Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

## **SECTION 16:OTHER INFORMATION**

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.