

# SAFETY DATA SHEET

## Trimethylamine Anhydrous (TMA)

Version 1.1 PRD      Revision Date: 12.03.2021      SDS Number: 150000104095      Date of last issue: 11.12.2017  
SDSAU / EN / 0001      Date of first issue: 11.12.2017

### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Trimethylamine Anhydrous (TMA)  
Product code : 51015-00, P5101504, P5101510, P5101503

#### Manufacturer or supplier's details

Company : China Amines Co., Ltd  
Address : UNIT 1021, BEVERLEY COMMERCIAL CENTRE, 87-105 CHATHAM ROAD SOUTH, TSIM SHA TSUI, KOWLOON HONG KONG  
Telephone : +86 18938922889  
Emergency telephone : +86 18938922889

#### Recommended use of the chemical and restrictions on use

Recommended use : Intermediate  
Restrictions on use : None known.

### SECTION 2. HAZARDS IDENTIFICATION

#### GHS Classification

Flammable gases : Category 1  
Gases under pressure : Compressed gas  
Acute toxicity (Inhalation) : Category 4  
Skin corrosion/irritation : Category 2  
Serious eye damage/eye irritation : Category 1  
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

#### GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H220 Extremely flammable gas.  
H280 Contains gas under pressure; may explode if heated.  
H315 Causes skin irritation.

# SAFETY DATA SHEET



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H318 Causes serious eye damage.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.

### Precautionary Statements

:

#### Prevention:

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/ eye protection/ face protection.

#### Response:

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
P381 Eliminate all ignition sources if safe to do so.

#### Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

#### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards which do not result in classification

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Pure substance

# SAFETY DATA SHEET

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### Components

Chemical name	CAS-No.	Concentration (% w/w)
trimethylamine	75-50-3	> 99.5

### SECTION 4. FIRST AID MEASURES

- General advice : Show this safety data sheet to the doctor in attendance.  
Call a physician immediately.
- If inhaled : Move to fresh air.  
If symptoms persist, call a physician.
- In case of skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.  
Wash off immediately with plenty of water for at least 15 minutes.  
Wash contaminated clothing before re-use.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.  
Do not induce vomiting without medical advice.  
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Lung oedema  
Suffocation  
superficial burning sensation  
Lachrymation  
Shortness of breath  
Eye disease
- Notes to physician : Treat symptomatically.

### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Dry chemical  
Water spray  
Alcohol-resistant foam
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.  
Do NOT use water jet.
- Specific hazards during fire fighting : May displace oxygen and cause rapid suffocation.  
The product will float on water and can be reignited on surface water.  
Flash back possible over considerable distance.

# SAFETY DATA SHEET



## Trimethylamine Anhydrous (TMA)

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	12.03.2021	150000104095	11.12.2017
PRD		SDSAU / EN / 0001	Date of first issue: 11.12.2017

---

Hazardous combustion products	:	Nitrogen oxides (NOx) Carbon monoxide
Specific extinguishing methods	:	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Flammable gas, may cause flash fire. Cool containers/tanks with water spray. If the product release cannot be shut off safely, allow the product to burn itself out. Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.
Hazchem Code	:	2SE

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Wear appropriate personal protective equipment. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	:	Avoid release to the environment.
Methods and materials for containment and cleaning up	:	Evacuate personnel to safe areas. Prevent further leakage or spillage if safe to do so.

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### SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	None known.
Advice on safe handling	:	Do not get in eyes. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Wash thoroughly after handling. Sudden Release of Pressure Hazard Use equipment rated for cylinder pressure. Protect container from physical shock. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. May displace oxygen and cause rapid suffocation.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice.
Conditions for safe storage	:	Keep containers tightly closed in a cool, well-ventilated place. Do not enter areas where used or stored until adequately ventilated. Do not store together with oxidizing and self-igniting products. Protect from sunlight. Keep away from heat and sources of ignition. Store in upright position only.

# SAFETY DATA SHEET

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Version 1.1 PRD      Revision Date: 12.03.2021      SDS Number: 150000104095      Date of last issue: 11.12.2017  
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Store locked up.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
trimethylamine	75-50-3	TWA	10 ppm 24 mg/m <sup>3</sup>	AU OEL
		STEL	15 ppm 36 mg/m <sup>3</sup>	AU OEL
		TWA	5 ppm	ACGIH
		STEL	15 ppm	ACGIH

**Engineering measures** : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

#### Personal protective equipment

Respiratory protection : Wear a positive-pressure supplied-air respirator.

Hand protection

Remarks : Nitrile rubber Neoprene gloves Protective gloves against cold  
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.

Eye protection : Safety glasses with side-shields  
Face-shield  
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

Skin and body protection : Complete suit protecting against chemicals

Protective measures : Remove respiratory and skin/eye protection only after vapors have been cleared from the area.  
Ensure that eye flushing systems and safety showers are located close to the working place.  
Use personal protective equipment as required.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquefied gas

# SAFETY DATA SHEET

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Version 1.1 PRD      Revision Date: 12.03.2021      SDS Number: 150000104095      Date of last issue: 11.12.2017  
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---

Color : colourless

Odor : ammoniacal

Odor Threshold : not determined

pH : 11.2  
Concentration: 40 %

Melting point/freezing point : -117.3 °C

Boiling point/boiling range : 2.9 - 3.5 °C

Flash point : -6.7 °C  
Method: closed cup

Evaporation rate : not determined

Self-ignition : 165 °C

Upper explosion limit / Upper flammability limit : 11.6 %(V)

Lower explosion limit / Lower flammability limit : 2.0 %(V)

Vapor pressure : 1,909 hPa (20 °C)

Relative vapor density : 2.03  
(Air = 1.0)

Relative density : No data available

Density : 0.63 - 0.67 g/cm<sup>3</sup> (20 °C)

Solubility(ies)  
Water solubility : completely soluble

Partition coefficient: n-octanol/water : log Pow: 0.245

Autoignition temperature : 165 °C

Decomposition temperature : not determined

Explosive properties : Not explosive

Oxidizing properties : Not applicable

# SAFETY DATA SHEET



## Trimethylamine Anhydrous (TMA)

Version	Revision Date:	SDS Number:	Date of last issue: 11.12.2017
1.1	12.03.2021	150000104095	Date of first issue: 11.12.2017
PRD		SDSAU / EN / 0001	

Surface tension : 14.2 mN/m, 20 °C

Molecular weight : 59.11 g/mol

### SECTION 10. STABILITY AND REACTIVITY

Reactivity : None reasonably foreseeable.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Hazardous decomposition products formed under fire conditions.

Conditions to avoid : Heat  
Keep under nitrogen.  
Take precautionary measures against static discharges.

Incompatible materials : Mercury  
Strong acids and oxidizing agents  
Halogenated compounds

Hazardous decomposition products : Carbon dioxide (CO<sub>2</sub>)  
Carbon monoxide  
Nitrogen oxides (NO<sub>x</sub>)

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

##### Components:

##### **trimethylamine:**

Acute oral toxicity : LD50 Oral (Rat): 766 mg/kg

Remarks: Harmful if swallowed.  
Causes digestive tract burns.

Acute inhalation toxicity : LC50 (Rat): > 5.91 mg/l  
Exposure time: 4 h

Remarks: Harmful by inhalation.

Acute dermal toxicity : LD50 Dermal (Rat): 5,000 mg/kg

Remarks: No significant adverse effects were reported

#### Skin corrosion/irritation

##### Components:

##### **trimethylamine:**

Remarks : Causes skin irritation.

# SAFETY DATA SHEET

## Trimethylamine Anhydrous (TMA)

Version  
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### Serious eye damage/eye irritation

#### Components:

##### trimethylamine:

Remarks : Causes serious eye damage.

### Respiratory or skin sensitization

#### Components:

##### trimethylamine:

Remarks : Not applicable

### Chronic toxicity

### Germ cell mutagenicity

#### Components:

##### trimethylamine:

Germ cell mutagenicity - Assessment : Did not show mutagenic effects in animal experiments.

### Carcinogenicity

#### Components:

##### trimethylamine:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

### Reproductive toxicity

#### Components:

##### trimethylamine:

Reproductive toxicity - Assessment : No toxicity to reproduction  
Did not show teratogenic effects in animal experiments.

### STOT - single exposure

#### Components:

##### trimethylamine:

Routes of exposure : Inhalation  
Target Organs : Respiratory system

### Repeated dose toxicity

#### Components:

##### trimethylamine:

Species : Rat



# SAFETY DATA SHEET

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PRD		SDSAU / EN / 0001	

NOAEL : 40 mg/kg bw/day  
Application Route : Oral  
Test atmosphere : vapour  
Exposure time : 42 d  
Target Organs : Eyes, Skin, Respiratory system

### Aspiration toxicity

**Product:**

No aspiration toxicity classification

### Routes of exposure

**Product:**

Inhalation : Remarks: May cause respiratory irritation.  
Harmful if inhaled.

Skin contact : Remarks: Causes skin irritation.

Eye contact : Remarks: Causes serious eye damage.

Ingestion : Remarks: None known.

### Further information

**Product:**

Remarks : None known.

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Components:**

**trimethylamine:**

Toxicity to fish : LC50 (golden orfe): 610 mg/l  
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 139 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Chlorella pyrenoidosa (aglae)): 150 mg/l  
Exposure time: 72 h

Toxicity to microorganisms : (Bacteria): 208 mg/l

### Persistence and degradability

**Components:**

**trimethylamine:**

Biodegradability : Remarks: Readily biodegradable

# SAFETY DATA SHEET



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Version	Revision Date:	SDS Number:	Date of last issue: 11.12.2017
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PRD		SDSAU / EN / 0001	

### Bioaccumulative potential

#### Components:

##### trimethylamine:

Bioaccumulation : Bioconcentration factor (BCF): < 1

### Mobility in soil

#### Components:

##### trimethylamine:

Distribution among environmental compartments : Koc: 14.68

### Other adverse effects

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1083

Proper shipping name : Trimethylamine, anhydrous

Class : 2.1

Packing group : Not assigned by regulation

Labels : Flammable Gas

Packing instruction (cargo aircraft) : 200

Packing instruction (passenger aircraft) : Not permitted for transport

#### IMDG-Code

UN number : UN 1083

Proper shipping name : TRIMETHYLAMINE, ANHYDROUS

Class : 2.1

Packing group : Not assigned by regulation

Labels : 2.1

EmS Code : F-D, S-U

Marine pollutant : no

# SAFETY DATA SHEET



## Trimethylamine Anhydrous (TMA)

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1.1	12.03.2021	150000104095	Date of first issue: 11.12.2017
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### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### Domestic regulation

#### ADG

UN number	:	UN 1083
Proper shipping name	:	TRIMETHYLAMINE, ANHYDROUS
Class	:	2.1
Packing group	:	Not assigned by regulation
Labels	:	2.1
Hazchem Code	:	2SE

### 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.

## SECTION 15. REGULATORY INFORMATION

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

Standard for the Uniform Scheduling of Medicines and Poisons : No poison schedule number allocated

Prohibition/Licensing Requirements : There is no applicable prohibition, authorisation and restricted use requirements, including for carcinogens referred to in Schedule 10 of the model WHS Act and Regulations.

### The ingredients of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory
AIC	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

# SAFETY DATA SHEET



## Trimethylamine Anhydrous (TMA)

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	12.03.2021	150000104095	11.12.2017
PRD		SDSAU / EN / 0001	Date of first issue: 11.12.2017

NZIoC : On the inventory, or in compliance with the inventory

### SECTION 16. OTHER INFORMATION

Revision Date : 12.03.2021

Date format : dd.mm.yyyy

#### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
AU OEL : Australia. Workplace Exposure Standards for Airborne Contaminants.

ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
AU OEL / TWA : Exposure standard - time weighted average  
AU OEL / STEL : Exposure standard - short term exposure limit

AICS - Australian Inventory of Chemical Substances; AIIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

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---

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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