

Safety data sheet

Page: 1/13

BASF Safety data sheet
Date / Revised: 17.12.2022
Product: **Triethylamine anhydrous**

Version: 11.0

(30036819/SDS_GEN_TH/EN)

Date of print): 17.01.2023

1. Substance/preparation and manufacturer/supplier identification

Product name:
Triethylamine anhydrous

Use: Chemical used in synthesis and/or formulation of industrial products

Manufacturer/supplier:
BASF Antwerpen N.V.
Scheldelaan 600
2040 Antwerpen, BELGIUM
Telephone: +31 26 371 71 71
E-mail address: product-safety-benelux@basf.com

Emergency information:
International emergency number:
Telephone: +49 180 2273-112

2. Hazard identification

Classification according to UN GHS 2009

Classification of the substance and mixture:
Flammable liquids: Cat.2
Acute toxicity: Cat.3 (Inhalation - vapour)
Acute toxicity: Cat.4 (oral)
Acute toxicity: Cat.3 (dermal)
Skin corrosion/irritation: Cat.1A
Serious eye damage/eye irritation: Cat.1
Specific target organ toxicity — single exposure: Cat.3 (irritating to respiratory system)
Hazardous to the aquatic environment - acute: Cat.2

Label elements and precautionary statement:

Pictogram:

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Signal Word:
 Danger

Hazard Statement:

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H335	May cause respiratory irritation.
H314	Causes severe skin burns and eye damage.
H311 + H331	Toxic in contact with skin or if inhaled
H401	Toxic to aquatic life.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing and eye protection or face protection.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/gas/mist/vapours.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.
P242	Use only non-sparking tools.
P240	Ground and bond container and receiving equipment.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Remove or Take off immediately all contaminated clothing. Rinse skin with water or shower.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P370 + P378	In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.
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Other hazards which do not result in classification:

In the presence of nitrosating agents, it is possible that this substance forms nitrosamines.

3. Composition/information on ingredients

Chemical nature

Substance nature: Substance

tertiary, amine

Hazardous ingredients

triethylamine

Content (W/W): $\geq 99.5\%$ - $\leq 100\%$
 CAS Number: 121-44-8

Flam. Liq.: Cat. 2
 Acute Tox.: Cat. 3 (Inhalation - vapour)
 Acute Tox.: Cat. 4 (oral)
 Acute Tox.: Cat. 3 (dermal)
 Skin Corr./Irrit.: Cat. 1A
 STOT SE: Cat. 3 (irr. to respiratory syst.)
 Aquatic Acute: Cat. 2
 Eye Dam./Irrit.: Cat. 1

| butylamine

Content (W/W): $\geq 0\%$ - $\leq 0.2\%$
 CAS Number: 109-73-9

Flam. Liq.: Cat. 2
 Acute Tox.: Cat. 3 (Inhalation - vapour)
 Acute Tox.: Cat. 4 (oral)
 Acute Tox.: Cat. 3 (dermal)
 Skin Corr./Irrit.: Cat. 1A
 Eye Dam./Irrit.: Cat. 1
 STOT SE: Cat. 3 (irr. to respiratory syst.)
 Aquatic Acute: Cat. 2

diethylamine

Content (W/W): $\geq 0.001\%$ - $\leq 0.1\%$
 CAS Number: 109-89-7

Flam. Liq.: Cat. 2
 Acute Tox.: Cat. 4 (Inhalation - vapour)
 Acute Tox.: Cat. 3 (oral)
 Acute Tox.: Cat. 3 (dermal)
 Skin Corr./Irrit.: Cat. 1A
 Eye Dam./Irrit.: Cat. 1
 STOT SE: Cat. 3 (irr. to respiratory syst.)
 Aquatic Acute: Cat. 2

4. First-Aid Measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

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If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

On skin contact:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

On contact with eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:

Do not induce vomiting. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Note to physician:

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. Pulmonary edema prophylaxis. Medical monitoring for at least 24 hours.

5. Fire-Fighting Measures

Suitable extinguishing media:

water spray, dry powder, foam, carbon dioxide

Specific hazards:

carbon monoxide, carbon dioxide, nitrous gases

The substances/groups of substances mentioned can be released in case of fire. Under certain conditions in case of fire other hazardous combustion products may be generated.

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. If exposed to fire, keep containers cool by spraying with water.

6. Accidental Release Measures

Personal precautions:

Breathing protection required. Do not breathe vapour/aerosol/spray mists. Keep people away and stay on the upwind side. Avoid contact with the skin, eyes and clothing. Sources of ignition should be kept well clear.

Environmental precautions:

Do not discharge into drains/surface waters/groundwater.

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Methods for cleaning up or taking up:

For small amounts: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder).

For large amounts: Pick up with suitable appliance and dispose of.

Cleaning operations should be carried out only while wearing breathing apparatus. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Collect waste in suitable containers, which can be labeled and sealed. Incinerate or take to a special waste disposal site in accordance with local authority regulations.

7. Handling and Storage

Handling

Product should be worked up in closed equipment as far as possible. Ensure thorough ventilation of stores and work areas. Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

Vapours may form explosive mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Storage

Segregate from acids and acid forming substances.

Unsuitable materials for containers: Aluminium, Paper/Fibreboard, List does not exclude further unsuitable materials.

Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place. Keep under nitrogen. Avoid all sources of ignition: heat, sparks, open flame.

Storage stability:

Storage temperature: < 35 °C

Storage duration: 24 Months

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

8. Exposure controls and personal protection

Components with occupational exposure limits

butylamine, 109-73-9;

CLV 5 ppm (ACGIHTLV)

CLV 5 ppm (OEL (TH))

Skin Designation (ACGIHTLV)

Danger of cutaneous absorption

Skin Designation (ACGIHTLV)

Danger of cutaneous absorption

diethylamine, 109-89-7;

TWA value 5 ppm (ACGIHTLV)
STEL value 15 ppm (ACGIHTLV)
Skin Designation (ACGIHTLV)
Danger of cutaneous absorption
Skin Designation (ACGIHTLV)
Danger of cutaneous absorption

triethylamine, 121-44-8;

TWA value 0.5 ppm (ACGIHTLV)
STEL value 1 ppm (ACGIHTLV)
TWA value 25 ppm (OEL (TH))
Skin Designation (ACGIHTLV)
Danger of cutaneous absorption
Skin Designation (ACGIHTLV)
Danger of cutaneous absorption

Personal protective equipment

Respiratory protection:

Respiratory protection in case of vapour/aerosol release. Suitable respiratory protection for higher concentrations or long-term effect: Self-contained breathing apparatus. Suitable respiratory protection for lower concentrations or short-term effect: Combination filter for gases/vapours of organic compounds and solid and liquid particles (f.e. EN 14387 Type A-P2) Consider the risk management measures as outlined in the exposure scenario.

Hand protection:

Chemical resistant protective gloves (EN ISO 374-1)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):

fluoroelastomer (FKM) - 0.7 mm coating thickness

Polyethylene-Laminate (PE laminate) - ca. 0.1 mm coating thickness

nitrile rubber (NBR) - 0.4 mm coating thickness

Suitable materials for short-term contact (recommended: At least protective index 2, corresponding > 30 minutes of permeation time according to EN ISO 374-1)

chloroprene rubber (CR) - 0.5 mm coating thickness

Suitable materials against splashes (recommended: At least protective index 1, corresponding > 10 minutes of permeation time according to EN ISO 374-1)

butyl rubber (butyl) - 0.7 mm coating thickness

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Tightly fitting safety goggles (cage goggles) (e.g. EN 166) and face shield.

Body protection:

chemical-protection suit (f.e. according to EN 14605)

General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Contact with eyes and skin must be avoided. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Avoid inhalation of vapour. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Remove contaminated clothing immediately and dispose of safely. Wash contaminated clothing before reuse. Store work clothing separately.

9. Physical and Chemical Properties

Form:	liquid	
Colour:	colourless to yellow	
Odour:	strong, ammonia-like	
Odour threshold:	Not determined since toxic by inhalation.	
pH value:	12.7 (100 g/l, 15 °C)	
pKA:	10.78 (25 °C)	
Melting point:	-114.7 °C Literature data.	(other)
Boiling point:	89.3 °C (1,013.25 hPa) Literature data.	
Flash point:	-11 °C	(ISO 13736, closed cup)
Flammability (solid/gas):	Highly flammable liquid and vapour.	(derived from flash - and boiling point)
Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Ignition temperature:	249 °C Literature data.	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Self ignition:	Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
Self heating ability:	It is not a substance capable of spontaneous heating.	
Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	

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Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	
Vapour pressure:	72 hPa (20 °C)	(internal method)
Density:	0.7275 g/cm ³ (20 °C, 1,013 hPa) Literature data.	(other)
	0.695 g/cm ³ (55 °C, approx. 1,013 hPa)	(calculated)
Relative density:	0.73 (20 °C)	
Relative vapour density (air):	> 1 (20 °C) Heavier than air.	(estimated)
Solubility in water:	Literature data. 112,400 mg/l (20 °C)	
Partitioning coefficient n-octanol/water (log Pow):	1.45 (25 °C)	(calculated)
Volatility/water - air:	Literature data.	(calculated)
	The substance will slowly evaporate into the atmosphere from the water surface.	
Adsorption/water - soil:	KOC: 107; log KOC: 2.03 Adsorption to solid soil phase is not expected. The data refer to the uncharged form of the substance.	(calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	
Viscosity, dynamic:	0.363 mPa.s (25 °C) Literature data.	
Molar mass:	101.19 g/mol	

10. Stability and Reactivity

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge.

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.

Substances to avoid:

copper, aluminium, zinc, nickel, alcohols, aldehydes, ketones, strong acids, copper alloys, halogenated hydrocarbons, nitrosating agents, strong oxidizing agents

Corrosion to metals: Corrosive effects to metal are not anticipated.
In the presence of water or moisture metal corrosion cannot be excluded.

Hazardous reactions:
Strong exothermic reaction with acids. Some plastics, rubber or coatings can be corroded.

Hazardous decomposition products:
carbon dioxide, carbon monoxide, nitric acid, ammonia, aqueous solution
nitrogen oxides, nitrosamines

11. Toxicological Information

Routes of exposure

Acute oral toxicity

Experimental/calculated data:
LD50rat (oral): 730 mg/kg (similar to OECD guideline 401)

Acute inhalation toxicity

LC50 rat (by inhalation): 7.22 mg/l 4 h (OECD Guideline 403)
The vapour was tested.

Acute dermal toxicity

LD50 rabbit (dermal): 580 mg/kg (similar to OECD guideline 402)
Literature data.

Assessment of acute toxicity

Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term skin contact. The substance can be absorbed through the skin. Of pronounced toxicity after short-term inhalation. The inhalation of a highly enriched/saturated vapor-air-mixture represents a severe acute hazard.

Symptoms

Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Irritation

Assessment of irritating effects:
Highly corrosive! Damages skin and eyes.

Experimental/calculated data:
Skin corrosion/irritation rabbit: Corrosive. (BASF-Test)

Serious eye damage/irritation rabbit: irreversible damage (similar to OECD guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:
Mouse ear swelling test (MEST) mouse: Non-sensitizing.

Germ cell mutagenicity

Assessment of mutagenicity:

No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in studies with mammals. Literature data.

Carcinogenicity

Assessment of carcinogenicity:

No data available concerning carcinogenic effects. Under certain conditions the substance can form nitrosamines. Nitrosamines are carcinogenic in animal studies.

Reproductive toxicity

Assessment of reproduction toxicity:

The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening test (OECD 421/422). The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Specific target organ toxicity (single exposure)

Causes temporary irritation of the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

After repeated exposure the prominent effect is local irritation.

Aspiration hazard

No aspiration hazard expected.

12. Ecological Information

Ecotoxicity

Assessment of aquatic toxicity:

Acutely toxic for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:

LC50 (96 h) 24 mg/l, *Oryzias latipes* (OECD Guideline 203)

Aquatic invertebrates:

LC50 (48 h) 17 mg/l, Ceriodaphnia dubia (Daphnia test acute, semistatic)

The statement of the toxic effect relates to the analytically determined concentration.

EC50 (48 h) 34 mg/l, Daphnia magna (OECD Guideline 202, part 1)

The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants:

EC50 (72 h) 9.8 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201)

The statement of the toxic effect relates to the analytically determined concentration.

EC10 (72 h) 5.05 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201)

The statement of the toxic effect relates to the analytically determined concentration.

Microorganisms/Effect on activated sludge:

EC50 (17 h) 95 mg/l, Pseudomonas putida (DIN 38412 Part 8, aerobic)

The product is highly volatile. Tested in a closed test system. The details of the toxic effect relate to the nominal concentration. After neutralization, it is no longer toxic.

Chronic toxicity to fish:

No observed effect concentration (60 d) 3.2 mg/l, Oncorhynchus mykiss (OECD Guideline 210, semistatic)

Chronic toxicity to aquatic invertebrates:

No observed effect concentration (21 d), 11 mg/l, Daphnia magna (OECD Guideline 211)

The statement of the toxic effect relates to the analytically determined concentration.

Assessment of terrestrial toxicity:

No data available.

Study not necessary due to exposure considerations.

Mobility**Assessment transport between environmental compartments:**

The substance will slowly evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

Persistence and degradability**Assessment biodegradation and elimination (H₂O):**

Readily biodegradable (according to OECD criteria).

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Elimination information:

80.3 % CO₂ formation relative to the theoretical value (29 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Assessment of stability in water:

According to structural properties, hydrolysis is not expected/probable.

Information on Stability in Water (Hydrolysis):

According to structural properties, hydrolysis is not expected/probable.

Bioaccumulation potential

Assessment bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

Bioaccumulation potential:
Bioconcentration factor: 0.5 (42 d), *Cyprinus carpio* (OECD Guideline 305 C)
Significant accumulation in organisms is not to be expected.

Other adverse effects

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

Additional information

Add. remarks environm. fate & pathway:
Treatment in biological waste water treatment plants has to be performed according to local and administrative regulations.

13. Disposal Considerations

Incinerate in suitable incineration plant, observing local authority regulations.
A waste code in accordance with the European waste catalog (EWC) cannot be specified, due to dependence on the usage.
The waste code in accordance with the European waste catalog (EWC) must be specified in cooperation with disposal agency/manufacturer/authorities.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Domestic transport:

UN number or ID number: UN 1296
UN proper shipping name: TRIETHYLAMINE
Transport hazard class(es): 3, 8
Packing group: II
Environmental hazards: no

Special precautions for user: None known

Sea transport

IMDG

UN number or ID number: UN 1296
UN proper shipping name: TRIETHYLAMINE
Transport hazard class(es): 3, 8
Packing group: II

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Environmental hazards: no
Marine pollutant: NO
Special precautions for user: EmS: F-E; S-C

Air transport

IATA/ICAO

UN number or ID number: UN 1296
UN proper shipping name: TRIETHYLAMINE
Transport hazard class(es): 3, 8
Packing group: II
Environmental hazards: No Mark as dangerous for the environment is needed
Special precautions for user: None known

15. Regulatory Information

Other regulations

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Vertical lines in the left hand margin indicate an amendment from the previous version.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.