

GPS Safety Summary

Substance Name:

Triethylamine

1. General Statement

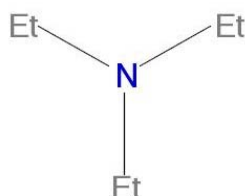
Triethylamine is a colourless liquid completely soluble in water. It is an amine commonly named TEA. It is a highly flammable liquid and a corrosive product.

The substance is mainly used as intermediate in the agrochemical and pharmaceutical industries, in formulations, in the Foundry Industry and as processing aid in polymerization.

Triethylamine is manufactured, used and formulated within industrial settings.

2. Chemical Identity

Name:	Triethylamine
Brand names:	TEA
Chemical name (IUPAC):	N,N-diethylethanamine
CAS number(s):	121-44-8
EC number:	204-469-4
Molecular formula:	C ₆ H ₁₅ N
Structure:	



3. Use and applications

Mains applications:

- Industrial application of casting resins
- Use as intermediate
- Use in gas treatment
- Use as processing aid (catalyst in polymerization reactions)
- Use on foundry industry
- Use in formulations
- Mining chemicals

4. Physical / Chemical properties

Triethylamine is a highly flammable liquid organic substance having the following characteristics and physical–chemical properties:

Property	Value
Physical state	liquid at 20°C and 1013 hPa
Colour	colourless
Odour	strong, ammoniacal
Molecular weight	101.19 g/mol
Density	0.73 g/cm ³ at 20°C
Vapour pressure	72 hPa at 20°C
Freezing / boiling points	-115°C / 90°C at 1013 hPa
Flammability	Highly flammable liquid and vapour
Flash point	-11°C
Self-ignition temperature	215°C at 1013 hPa
Explosive / oxidizing properties	Not relevant based on its structure
Water solubility	112.4 g/L at 20°C - completely soluble
Dissociation constant (pK _a)	11.43 at 0°C 10.75 at 25°C 10.45 at 35°C
Octanol-water partition coefficient (Log K _{ow})	1.45

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful by oral and inhalation routes and toxic by dermal and route
Irritation / corrosion Skin / eye/ respiratory tract	Corrosive for the skin and the eyes and irritating for the respiratory tract
Sensitisation	Not a skin sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Inhalation studies did not suggest a significant systemic toxicity following repeated exposure
Genotoxicity / Mutagenicity	No evidence of genetic toxicity
Carcinogenicity	Not anticipated to cause cancer under conditions of normal use
Reproductive / Developmental Toxicology	Studies analogue substances did not suggest toxic effects on the fertility and the development

6. Environmental Effects

The potential of triethylamine for bioaccumulation is low. This product will not persist in the environment. It is toxic to aquatic organisms.

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms

Fate and behaviour	Result
Biodegradation	Ready biodegradable
Other degradation (optional)	
Bioaccumulation potential	Not expected to bioaccumulate
PBT / vPvB conclusion	Not considered as PBT* or vPvB**

*: Persistent, Bioaccumulative and Toxic (PBT)

** : very Persistent and very Bioaccumulative (vPvB)

7. Exposure

7.1 Human health

Triethylamine is manufactured, used and formulated within industrial settings.

The primary routes of industrial exposure of triethylamine (TEA) are skin contact and inhalation, ingestion is not anticipated route of exposure. Workers may be exposed during cleaning, maintenance, transfer, sampling and analysis.

Based on the risk assessment, the exposure can be kept at a safe level (strictly below occupational exposure limits, when applied) when activities are carried out under conditions recommended in the Extended Safety Data Sheet (see Chap. 8 and Exposure Scenarios).

Procedures, controls, suitable collective and personal risk management measures, good industrial hygiene practices and risk and communication through appropriate training of workers should be implemented.

In case of exposure to the undiluted substance, workers should follow the first aid measures recommended in Safety Data Sheet.

7.2 Environment

Triethylamine is manufactured and used in continuous or batch processes within industrial settings.

All industrial aqueous releases that may contain the substance must be treated to avoid any exposure to the environment.

Disposal, treatment or recycling of industrial waste must comply with applicable regulations to preserve the environment.

Please see chap 6 of the Safety Data Sheet regarding environmental precautions.

8. Risk Management recommendations

Human health measures		
Organizational	Collect the latest available Safety Data Sheet. Implement good basic standards of occupational hygiene. Ensure operatives are well informed of the hazards and trained to minimise exposures. Handle and store according to the indications of the Safety Data Sheet.	
Engineering controls	Provide appropriate local exhaust ventilation at points of emission. Ensure that eye- and handwash stations and safety showers are close to workstation locations.	
Protection	Eye/Face protection:	Safety glasses with side-shields
	Skin and body protection:	Protective suit
	Hand protection:	Polyvinylchloride – neoprene rubber, tested to EN374:1
	Respiratory protection:	Respirator if ventilation insufficient Low concentrations or short activity: Mask with specific cartridge Recommended Filter type: A2B2E2K2P3 High concentrations or prolonged activity: Self contained Breathing Apparatus
Environment protective measures		
Do not release into the environment. Do not let product enter drains. Use waste water treatment systems. Do not spread sludge to soil.		

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information




This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according to CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification
According to REGULATION (EC) no 1272/2008: <ul style="list-style-type: none">– Flammable liquids: Category 2– Acute toxicity – Oral: Category 4– Acute toxicity – Dermal: Category 3– Acute toxicity – Inhalation: Category 4– Skin corrosion: Category 1A– Serious eye damage: Category 1– Specific target organ toxicity - single exposure (inhalation): Category 3
Signal word

Danger	
Pictogram	
— GHS02: flame	
— GHS05: corrosion	
— GHS06: skull and crossbones	
Hazard statement	
<ul style="list-style-type: none"> — H225: Highly flammable liquid and vapour. — H302: Harmful if swallowed. — H311: Toxic in contact with skin. — H332: Harmful if inhaled. — H314: Causes severe skin burns and eye damage. — H335: May cause respiratory irritation. 	
Alternative classification according to Globally Harmonized System (GHS)	
<ul style="list-style-type: none"> — Flammable liquids: Category 2, H225: Highly flammable liquid and vapour. — Acute toxicity – Oral: Category 4, H302: Harmful if swallowed. — Acute toxicity – Dermal: Category 3, H311: Toxic in contact with skin. — Acute toxicity – Inhalation: Category 4, H332: Harmful if inhaled. — Skin corrosion: Category 1A, H314: Causes severe skin burns and eye damage. — Serious eye damage: Category 1, H314: Causes severe skin burns and eye damage. — Specific target organ toxicity - single exposure (inhalation): Category 3, H335: May cause respiratory irritation. — Acute aquatic toxicity, Category 2, H401: Toxic to aquatic life 	

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

- arkema-thiochem-reach-uses@arkema.com
- **ICCA portal where the GPS Safety Summary is posted:**
<http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

11. Date of Issues / Revision

- Date of issue: 2014/07/10
- Date of revision:

12. Disclaimer

The information contained in this paper is intended as advice only and whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user's own risk.

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