

## GPS Safety Summary

**Substance Name:**

**1,2,4 - Triazole**

### 1. General Statement

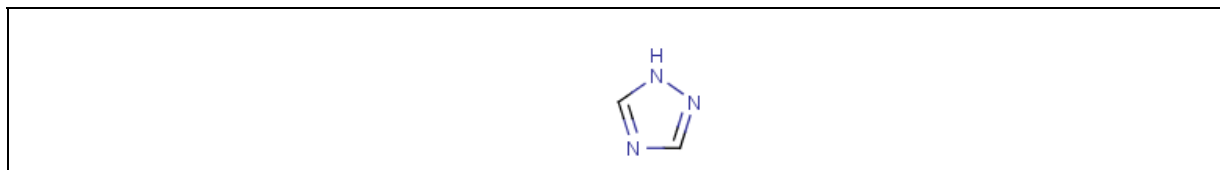
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1,2,4 -Triazole is produced for the use as intermediate for fine chemicals synthesis. The substance is manufactured and handled in industrial settings in closed systems.

### 2. Chemical Identity

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**Name:** 1,2,4-triazole  
**Brand names:** 1,2,4-triazole  
**Chemical name (IUPAC):** 1H-1,2,4-triazole  
**CAS number(s):** 288-88-0  
**ES number:** 206-022-9  
**Molecular formula:** C<sub>2</sub>H<sub>3</sub>N<sub>3</sub>  
**Structure:**



### 3. Use and applications

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1,2,4-Triazole is widely used as intermediate for the synthesis of active ingredients in agrochemicals and pharmaceuticals.

### 4. Physical / Chemical properties

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1,2,4-triazole is an organic substance having the following characteristics and physical-chemical properties:

Property	Value
Physical state	Solid, powder or flakes
Colour	White to light yellow
Odour	Ammonia-like
Density (rel.)	1,13 g/cm <sup>3</sup> (153°C)
Melting point	120-121°C
Boiling point	260°C (1013 hPa) (substance decomposes before boiling)

Flammability	Non flammable
Explosive properties	Non explosive
Ignition temperature	490°C
Vapour pressure	0.215 Pa at 20°C
Water solubility	700 g/l at 25°C
Flash point	139.1°C at 1013 hPa (refer method)
Octanol-water partition coefficient (log Kow)	-0.71

## 5. Health Effects

Absorption of 1,2,4-triazole is expected to mainly occur via oral and dermal routes, with limited or no potential for respiratory absorption. Upon absorption, 1,2,4-triazole is anticipated to be widely distributed with likelihood of transfer through the Blood brain barrier and placental barrier. 1,2,4-Triazole is shown to undergo limited metabolism as approximately 90% of an oral dose is eliminated unchanged in the urine. 1,2,4-triazole is not expected to bioaccumulate.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful if swallowed
Irritation Skin /eye / respiratory tract	Irritating to eyes Not irritating to skin
Sensitisation	Not sensitizing to skin
Toxicity after repeated exposure Oral / inhalation / dermal	No indication for toxicity after repeated exposure
Genotoxicity / mutagenicity	Not genotoxic / mutagenic
Carcinogenicity	No indication for carcinogenicity
Toxicity for reproduction	Suspected of damaging the unborn child

## 6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	Harmful to algae

Fate and behaviour	Result
Biodegradation	Not readily biodegradable
Bioaccumulation potential	No bioaccumulation expected
PBT / vPvB conclusion	Not expected to be either PBT or vPvB

## 7. Exposure

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### 7.1 Human health

1,2,4-triazole is manufactured, used and formulated within industrial settings. The primary routes of industrial exposure of 1,2,4-triazole 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

The assessment of the environmental exposure is made for all the uses and resulted life cycle stage of the substance from the manufacture to the waste stage.

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.

1,2,4-triazole is manufactured and used in continuous or batch processes within industrial settings.

Based on the risk assessment, environmental exposure can be kept at a safe level when activities are carried out under conditions recommended in the extended Safety Data Sheet (see Chap. 6, and Exposure Scenarios).

Procedures, controls and risk management measures should be implemented on industrial manufacturing and application sites, effluents that may contain the substance must be treated to avoid any exposure to the environment.

## 8. Risk Management recommendations

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Human health measures		
<b>Organizational</b>	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.	
<b>Engineering controls</b>	Provide appropriate local exhaust ventilation at points of emission. Ensure that eye- and handwash stations and safety showers are close to workstation locations.	
<b>Protection</b>	<b>Eye/Face protection:</b>	Safety glasses with side-shields, face-shield
	<b>Skin protection:</b>	Protective suit, boots
	<b>Hand protection:</b>	Polyvinylchloride – neoprene rubber, tested to EN374:1
	<b>Respiratory protection:</b>	Effective dust mask

### 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 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"><li>– Acute toxicity – Oral: Category 4</li><li>– Eye irritation: Category 2</li><li>– Reproductive Toxicity: Category 2</li></ul>	
Pictogram	
– GHS07: exclamation mark	
– GHS08: health hazard	
Hazard statement	
<ul style="list-style-type: none"><li>– H302: Harmful if swallowed</li><li>– H319: Causes serious eye irritation</li><li>– H361d: Suspected of damaging the unborn child</li></ul>	
Additional classification according to Globally Harmonized System (GHS)	
<ul style="list-style-type: none"><li>– Acute toxicity – Dermal: Category 5, H 313: May be harmful in contact with skin</li><li>– Acute aquatic toxicity, Category 3, H402: Harmful to aquatic life</li></ul>	

## 10. Contact Information within Company

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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

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- Date of issue: 2014/05/15
- Date of revision:

## 12. Disclaimer

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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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