

**644 Thermal radiator protection N36441000AB**

Print date: 03.08.2021

Product code: 1103692

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

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**1.2. Relevant identified uses of the substance or mixture and uses advised against****Use of the substance/mixture**

Additive

**1.3. Details of the supplier of the safety data sheet****Manufacturer**

Company name: TUNAP GmbH & Co. KG  
Street: Bürgermeister-Seidl-Str. 2  
Place: D-82515 Wolfratshausen  
Telephone: + 49 (0) 8171/1600 - 0  
e-mail: [sdb@tunap.com](mailto:sdb@tunap.com)  
Internet: [www.tunap.com](http://www.tunap.com)

Telefax: + 49 (0) 8171/1600 - 40

**Supplier**

Company name: TUNAP UK Limited  
Street: Unit L4 Deacon Trading Estate, Morley Road  
Place: GB Tonbridge, Kent. TN9 1RA  
Telephone: +44 (0)1732 365163  
e-mail: [sdb@tunap.com](mailto:sdb@tunap.com)  
Internet: [www.tunap.co.uk](http://www.tunap.co.uk)

**1.4. Emergency telephone number:** 111 NHS (National Health Service)**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****GB CLP Regulation**

Hazard categories:  
Skin corrosion/irritation: Skin Irrit. 2  
Serious eye damage/eye irritation: Eye Dam. 1  
Specific target organ toxicity - repeated exposure: STOT RE 2  
Hazard Statements:  
Causes skin irritation.  
Causes serious eye damage.  
May cause damage to organs through prolonged or repeated exposure.

**2.2. Label elements****GB CLP Regulation****Hazard components for labelling**

ethanediol, ethylene glycol  
tetrasodium ethylene diamine tetraacetate  
Tolyltriazol Sodium salt

**Signal word:** Danger**Pictograms:**



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#### Hazard statements

- H315 Causes skin irritation.  
 H318 Causes serious eye damage.  
 H373 May cause damage to organs through prolonged or repeated exposure.

#### Precautionary statements

- P260 Do not breathe vapours.  
 P280 Wear eye protection.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P314 Get medical advice/attention if you feel unwell.

#### 2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

##### Hazardous components

CAS No	Chemical name	Quantity
	EC No	
	Index No	
	REACH No	
	GHS Classification	
107-21-1	ethanediol, ethylene glycol	10 - < 20 %
	203-473-3	01-2119456816-28
	Acute Tox. 4, STOT RE 2; H302 H373	
64-02-8	tetrasodium ethylene diamine tetraacetate	1 - < 3 %
	200-573-9	
	Acute Tox. 4, Acute Tox. 4, Eye Dam. 1, STOT RE 2; H332 H302 H318 H373	
64665-57-2	Tolyltriazol Sodium salt	1 - < 3 %
	265-004-9	
	Acute Tox. 4, Skin Corr. 1B, Aquatic Chronic 3; H302 H314 H412	
37971-36-1	2-phosphonobutane-1,2,4-tricarboxylic acid	1 - < 3 %
	253-733-5	01-2119436643-39
	Met. Corr. 1, Eye Irrit. 2; H290 H319	
5064-31-3	trisodium nitrilotriacetate	0.1 - < 1 %
	225-768-6	607-620-00-6
	Carc. 2, Acute Tox. 4, Eye Irrit. 2; H351 H302 H319	

Full text of H and EUH statements: see section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

##### General information

First aider: Pay attention to self-protection! Remove persons to safety. Never give anything by mouth to an unconscious person or a person with cramps.

##### After inhalation

Remove person to fresh air and keep comfortable for breathing. In all cases of doubt, or when symptoms persist, seek medical advice.

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**After contact with skin**

Wash with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. In all cases of doubt, or when symptoms persist, seek medical advice.

**After contact with eyes**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles or persistent symptoms, consult an ophthalmologist.

**After ingestion**

Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs. Call a physician in any case!

**4.2. Most important symptoms and effects, both acute and delayed**

Headache, nausea, dizziness, fatigue, skin irritation

**4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Call a POISON CENTER. Symptoms can occur only after several hours.

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

High power water jet.

**5.2. Special hazards arising from the substance or mixture**

The product itself does not burn.

**5.3. Advice for firefighters**

In case of fire and/or explosion do not breathe fumes. Move undamaged containers from immediate hazard area if it can be done safely. In case of fire: Wear self-contained breathing apparatus.

**Additional information**

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Wear breathing apparatus if exposed to vapours/dusts/aerosols. Remove all sources of ignition. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protection equipment.

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). Ensure all waste water is collected and treated via a waste water treatment plant.

**6.3. Methods and material for containment and cleaning up**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated articles and floor according to the environmental legislation.

**6.4. Reference to other sections**

Safe handling: see section 7  
Personal protection equipment: see section 8  
Disposal: see section 13

**SECTION 7: Handling and storage****7.1. Precautions for safe handling****Advice on safe handling**

Observe instructions for use.



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Dust must be exhausted directly at the point of origin. Vapours/aerosols must be exhausted directly at the point of origin. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

When using do not eat, drink, smoke, sniff.

Wear personal protection equipment (refer to section 8).

#### Advice on protection against fire and explosion

No special fire protection measures are necessary.

#### Further information on handling

Avoid contact with skin and eyes.

#### 7.2. Conditions for safe storage, including any incompatibilities

##### Requirements for storage rooms and vessels

Keep container tightly closed. Observe legal regulations and provisions.

##### Hints on joint storage

Do not store together with: Oxidizing agents. Pyrophoric or self-heating substances. Food and feedingstuffs.

##### Further information on storage conditions

Protect from frost. Store in a cool dry place. Observe legal regulations and provisions.

#### 7.3. Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limits (EH40)

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
107-21-1	Ethane-1,2-diol, vapour	20	52		TWA (8 h)	WEL
		40	104		STEL (15 min)	WEL

#### Additional advice on limit values

a no restriction

b End of exposure or end of shift

c at long-term exposure:

d before next shift

blood (B)

Urine (U)

### 8.2. Exposure controls

#### Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used.

#### Protective and hygiene measures

Avoid exposure. Wear suitable protective clothing. Draw up and observe skin protection programme.

#### Eye/face protection

Suitable eye protection: Tightly sealed safety glasses.

DIN EN 166

#### Hand protection

Protect skin by using skin protective cream. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.


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Suitable material: NBR (Nitrile rubber) Breakthrough time: 480min  
 Thickness of the glove material 0,45 mm  
 EN ISO 374

**Skin protection**

Wear suitable protective clothing. Take off immediately all contaminated clothing and wash it before reuse.

**Respiratory protection**

Wear breathing apparatus if exposed to vapours/dusts/aerosols.  
 When exceeding the relevant workplace exposure limits, note the following:  
 Suitable respiratory protective equipment: Combination filter device (DIN EN 141)..  
 Filtering device with filter or ventilator filtering device of type: P2  
 Observe the wear time limits as specified by the manufacturer.  
 Observe legal regulations and provisions.

**Environmental exposure controls**

Observe legal regulations and provisions.

**SECTION 9: Physical and chemical properties**
**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	pink
Odour:	mild

	Test method
pH-Value (at 20 °C):	9,25 DIN 19268

**Changes in the physical state**

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	100 °C
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
Flash point:	111 °C ISO 3679

**Flammability**

Solid:	not applicable
Gas:	not applicable

Lower explosion limits:	3,2
Upper explosion limits:	28
Auto-ignition temperature:	not applicable

**Self-ignition temperature**

Solid:	not applicable
Gas:	not applicable

Decomposition temperature:	not determined
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**Oxidizing properties**

Not oxidising.	
Vapour pressure:	not determined
Density (at 20 °C):	1,08 g/cm <sup>3</sup> DIN 51757
Water solubility:	easily soluble

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**Solubility in other solvents**

not determined

Partition coefficient n-octanol/water:

not determined

Viscosity / dynamic:

DIN 53019-1

Viscosity / kinematic:  
(at 40 °C)

DIN EN ISO 3104

Flow time:  
(at 20 °C)

DIN EN ISO 2431

Relative vapour density:

not determined

Evaporation rate:

not determined

**9.2. Other information**

Solid content:

not determined

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Reacts with : Acid, Oxidizing agents.

**10.2. Chemical stability**

The product is stable under normal conditions.

**10.3. Possibility of hazardous reactions**

No hazardous reaction when handled and stored according to provisions.

**10.4. Conditions to avoid**

Protect from frost.

**10.5. Incompatible materials**

Oxidizing agents. Pyrophoric or self-heating substances.

**10.6. Hazardous decomposition products**Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO<sub>2</sub>, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.**Further information**

Do not mix with other chemicals.

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Toxicokinetics, metabolism and distribution**

There are no data available on the mixture itself.

**Acute toxicity**

Based on available data, the classification criteria are not met.


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CAS No	Chemical name			
	Exposure route	Dose	Species	Source
107-21-1	ethanediol, ethylene glycol			
	oral	LD50 1600 mg/kg	Rat	
	dermal	LD50 >3500 mg/kg	Rabbit	
64-02-8	tetrasodium ethylene diamine tetraacetate			
	oral	LD50 1780 mg/kg	Rat	
	inhalation vapour	ATE 11 mg/l		
	inhalation aerosol	ATE 1,5 mg/l		
64665-57-2	Tolyltriazol Sodium salt			
	oral	LD50 735 mg/kg	Rat.	
	dermal	LD50 >2000 mg/kg	Rabbit	
37971-36-1	2-phosphonobutane-1,2,4-tricarboxylic acid			
	oral	LD50 >6500 mg/kg	Rat	
	dermal	LD50 >4000 mg/kg	Rat	
5064-31-3	trisodium nitrilotriacetate			
	oral	ATE 500 mg/kg		

**Irritation and corrosivity**

Causes skin irritation.

Causes serious eye damage.

**Sensitising effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

No indications of human carcinogenicity exist.

No indications of human germ cell mutagenicity exist.

No indications of human reproductive toxicity exist.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure. (ethanediol, ethylene glycol)

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Specific effects in experiment on an animal**

No information available.

**Additional information on tests**

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

**SECTION 12: Ecological information**
**12.1. Toxicity**

There are no data available on the mixture itself.


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CAS No	Chemical name				
	Aquatic toxicity	Dose	[h]   [d]	Species	Source
107-21-1	ethanediol, ethylene glycol				
	Acute fish toxicity	LC50 72860 mg/l	96 h	Pimephales promelas	
	Acute algae toxicity	ErC50 6500 - 13000 mg/l	96 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50 > 100 mg/l	48 h	Daphnia magna	
	Fish toxicity	NOEC 72860 mg/l	7 d	Pimephales promelas	
	Crustacea toxicity	NOEC 8590 mg/l	7 d	Ceriodaphnia spec	
64-02-8	tetrasodium ethylene diamine tetraacetate				
	Acute fish toxicity	LC50 121 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	
	Acute algae toxicity	ErC50 2,7 mg/l	72 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50 600 mg/l	48 h	Daphnia magna (Big water flea)	
64665-57-2	Tolyltriazol Sodium salt				
	Acute fish toxicity	LC50 25 mg/l	96 h	salmo gairdneri	
	Acute algae toxicity	ErC50 26,2 mg/l	96 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50 280 mg/l	48 h	Daphnia magna	
37971-36-1	2-phosphonobutane-1,2,4-tricarboxylic acid				
	Acute fish toxicity	LC50 >1042 mg/l	96 h	Danio rerio (zebrafish)	
	Acute crustacea toxicity	EC50 >1071 mg/l	48 h	Daphnia magna	

**12.2. Persistence and degradability**

There are no data available on the mixture itself. AOX (mg/l): 0

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
107-21-1	ethanediol, ethylene glycol	-1,36
64665-57-2	Tolyltriazol Sodium salt	2,1

**12.4. Mobility in soil**

No information available.

**12.5. Results of PBT and vPvB assessment**

This substance does not meet the criteria for classification as PBT or vPvB.

**12.6. Other adverse effects**

No information available.

**Further information**

Do not allow uncontrolled discharge of product into the environment.

**SECTION 13: Disposal considerations**
**13.1. Waste treatment methods**
**Disposal recommendations**

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

**List of Wastes Code - residues/unused products**





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070701 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fine chemicals and chemical products not otherwise specified; aqueous washing liquids and mother liquors; hazardous waste

#### List of Wastes Code - used product

070701 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fine chemicals and chemical products not otherwise specified; aqueous washing liquids and mother liquors; hazardous waste

#### List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

#### Contaminated packaging

Water (with cleaning agent). Completely emptied packages can be recycled.

## SECTION 14: Transport information

### Land transport (ADR/RID)

**14.1. UN number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

### Inland waterways transport (ADN)

**14.1. UN number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

### Marine transport (IMDG)

**14.1. UN number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.  
 Marine pollutant: no

### Air transport (ICAO-TI/IATA-DGR)

**14.1. UN number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

### 14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No dangerous good in sense of this transport regulation.

## SECTION 15: Regulatory information

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



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#### EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

2010/75/EU (VOC):	No information available.
2004/42/EC (VOC):	No information available.
Information according to 2012/18/EU (SEVESO III):	Not subject to 2012/18/EU (SEVESO III)

#### Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

#### National regulatory information

Water hazard class (D): 2 - obviously hazardous to water

### SECTION 16: Other information

#### Changes

This data sheet contains changes from the previous version in section(s): 2,4,5,6,7,8,9,10,11,12,13,15,16.

#### Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA: International Air Transport Association

IMDG: International Maritime Code for Dangerous Goods

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL/DMEL: Derived No Effect Level / Derived Minimal Effect Level

WEL (UK): Workplace Exposure Limits

TWA (EC): Time-Weighted Average

ATE: Acute Toxicity Estimate

STEL (EC) Short Term Exposure Limit

LC50: Lethal Concentration

EC50: half maximal Effective Concentration

ErC50: means EC50 in terms of reduction of growth rate

#### Relevant H and EUH statements (number and full text)

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to kidneys through prolonged or repeated exposure in contact with skin.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

#### Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be



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transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*