



## Safety Data Sheet

according to UK REACH Regulation

### 145 Kühlsystem Sicherung 500 ml AB

Revision date: 20.02.2024

Product code: 1102339

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#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### 1.1. Product identifier

145 Kühlsystem Sicherung 500 ml AB

##### 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	Telefax: + 49 (0) 8171/1600 - 40
E-mail:	sdb@tunap.com	
Internet:	www.tunap.com	

###### Supplier

Company name:	TUNAP (UK) Limited
Street:	Unit 12 Tonbridge Trade Park, Ingot Way
Place:	GB Tonbridge, Kent. TN9 1GN
Telephone:	+44 (0)1732 365163
E-mail:	sdb@tunap.com
Internet:	www.tunap.co.uk

1.4. Emergency telephone number: 111 NHS (National Health Service)

#### SECTION 2: Hazards identification

##### 2.2. Label elements

###### GB CLP Regulation

###### Special labelling of certain mixtures

EUH210 Safety data sheet available on request.

##### 2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII. This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

#### SECTION 3: Composition/information on ingredients

##### 3.2. Mixtures



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### Relevant ingredients

CAS No	Chemical name	Quantity		
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
107-21-1	ethanediol, ethylene glycol			5 - < 10 %
	203-473-3		01-2119456816-28	
	Acute Tox. 4, STOT RE 2; H302 H373			
110-91-8	morpholine			0.1 - < 1 %
	203-815-1		01-2119496057-30	
	Flam. Liq. 3, Repr. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1; H226 H361fd H331 H311 H302 H314 H318			

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

### Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity	
	Specific Conc. Limits, M-factors and ATE			
107-21-1	203-473-3	ethanediol, ethylene glycol	5 - < 10 %	
	dermal: LD50 = >3500 mg/kg; oral: LD50 = 1600 mg/kg			
110-91-8	203-815-1	morpholine	0.1 - < 1 %	
	inhalation: LC50 = 8 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = ca. 500 mg/kg; oral: LD50 = ca. 1900 mg/kg			

## 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.

#### 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

Water fog. Foam. Carbon dioxide (CO2). Extinguishing powder.



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#### Unsuitable extinguishing media

High power water jet.

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

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.

#### 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.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### General advice

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.

##### For non-emergency personnel

First aider: Pay attention to self-protection!

##### For emergency responders

Fight fire with normal precautions from a reasonable distance.

#### 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

##### For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

##### For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

##### Other information

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.

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

Keep away from sources of ignition - No smoking.

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**Advice on general occupational hygiene**

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

**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**

Protect from frost.

**Further information on storage conditions**

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
110-91-8	Morpholine	10	36		TWA (8 h)	WEL
		20	72		STEL (15 min)	WEL

**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
110-91-8	morpholine			
	Worker DNEL, long-term	inhalation	systemic	91 mg/m <sup>3</sup>
	Worker DNEL, long-term	inhalation	local	36 mg/m <sup>3</sup>
	Worker DNEL, acute	inhalation	local	72 mg/m <sup>3</sup>
	Worker DNEL, long-term	dermal	systemic	1,04 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	6,3 mg/kg bw/day

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**PNEC values**

CAS No	Substance	Value
Environmental compartment		
110-91-8	morpholine	
Freshwater		0,163 mg/l
Freshwater (intermittent releases)		0,09 mg/l
Marine water		0,016 mg/l
Freshwater sediment		1,83 mg/kg
Marine sediment		0,183 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,269 mg/kg

**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.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Suitable eye protection: Tightly sealed safety glasses.  
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.  
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.



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#### SECTION 9: Physical and chemical properties

##### 9.1. Information on basic physical and chemical properties

Physical state: Liquid  
Colour: cloudy  
Odour: Zitrone

	Test method
Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	100 °C
Flammability:	not applicable not applicable
Flash point:	ISO 3679
Decomposition temperature:	not determined
pH-Value (at 20 °C):	8,83 DIN 19268
Viscosity / kinematic: (at 40 °C)	DIN EN ISO 3104
Water solubility:	easily soluble
Solubility in other solvents not determined	
Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Density (at 20 °C):	1,005 g/cm <sup>3</sup> DIN 51757
Relative vapour density:	not determined

##### 9.2. Other information

###### Information with regard to physical hazard classes

###### Explosive properties

The product is not: Explosive.

###### Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

###### Oxidizing properties

Not oxidising.

###### Other safety characteristics

Evaporation rate:

not determined

Solid content:

not determined

Viscosity / dynamic:

DIN 53019-1

Flow time:

DIN EN ISO 2431

(at 20 °C)

#### SECTION 10: Stability and reactivity

##### 10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

##### 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.

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**10.4. Conditions to avoid**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Take precautionary measures against static discharges.

**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 hazard classes as defined in GB CLP Regulation****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.

**ATEmix calculated**

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
107-21-1	ethanediol, ethylene glycol				
	oral	LD50 mg/kg	1600	Rat	
	dermal	LD50 mg/kg	>3500	Rabbit	
110-91-8	morpholine				
	oral	LD50 mg/kg	ca. 1900	Rat	Study report (1967) OECD Guideline 401
	dermal	LD50 mg/kg	ca. 500	Rabbit	Arch. Ind. Hyg Occup. Med. 10 61-68 (195) OECD Guideline 402
	inhalation (4 h) vapour	LC50	8 mg/l	Rat	
	inhalation dust/mist	ATE	0,5 mg/l		

**Irritation and corrosivity**

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

**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.

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**STOT-repeated exposure**

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

**Aspiration hazard**

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

**Information on likely routes of exposure**

Ingestion, Inhalation, Skin contact, Eye contact.

Reference to other sections: 2.1, 4.2.

**Specific effects in experiment on an animal**

No information available.

**11.2. Information on other hazards****Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

**Other information**

No information available.

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

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
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		
110-91-8	morpholine					
	Acute fish toxicity	LC50 380 mg/l	96 h	Oncorhynchus mykiss	Chemosphere 9: 753-762 (1980)	other: IRSA
	Acute algae toxicity	ErC50 28 mg/l	96 h	Pseudokirchneriella subcapitata	Chemosphere 9: 753-762 (1980)	other: EPA, National Eutrophication Rese
	Acute crustacea toxicity	EC50 44,5 mg/l	48 h	Daphnia magna	Study report (1997)	OECD Guideline 202
	Algae toxicity	NOEC 10 mg/l	4 d	Desmodesmus subspicatus		
	Crustacea toxicity	NOEC 5 mg/l	21 d	Daphnia magna	Study report (1997)	OECD Guideline 211

**12.2. Persistence and degradability**

The product has not been tested.



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CAS No	Chemical name	Method	Value	d	Source
		Evaluation			
110-91-8	morpholine				
	OECD 301E		93%	25	
	Easily biodegradable (concerning to the criteria of the OECD)				

**12.3. Bioaccumulative potential**

The product has not been tested.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
107-21-1	ethanediol, ethylene glycol	-1,36
110-91-8	morpholine	-2,55

**BCF**

CAS No	Chemical name	BCF	Species	Source
110-91-8	morpholine	0	Cyprinus carpio	Review article or ha

**12.4. Mobility in soil**

The product has not been tested.

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

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

The product has not been tested.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

**12.7. Other adverse effects**

No information available.

**Further information**

Avoid release to 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**

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

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**Contaminated packaging**

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

**SECTION 14: Transport information****Land transport (ADR/RID)**

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

**Inland waterways transport (ADN)**

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

**Marine transport (IMDG)**

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

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

<b>14.1. UN number or ID number:</b>	No dangerous good in sense of this transport regulation.
<b>14.2. UN proper shipping name:</b>	No dangerous good in sense of this transport regulation.
<b>14.3. Transport hazard class(es):</b>	No dangerous good in sense of this transport regulation.
<b>14.4. Packing group:</b>	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. Maritime transport in bulk according to IMO instruments**

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****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 75

Directive 2010/75/EU on industrial emissions: No information available.

Directive 2004/42/EC on VOC in paints and varnishes: No information available.

Information according to Directive 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): 1 - slightly hazardous to water

**SECTION 16: Other information**

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**Abbreviations and acronyms**

Flam. Liq: Flammable liquids  
Acute Tox: Acute toxicity  
Skin Corr: Skin corrosion  
Eye Dam: Eye damage  
Repr: Reproductive toxicity  
STOT RE: Specific target organ toxicity - repeated exposure  
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: Workplace Exposure Limits  
TWA (EC): Time-Weighted Average  
ATE: Acute Toxicity Estimate  
ATEL (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)**

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
EUH210	Safety data sheet available on request.

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