

# Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



## Capping-Reagent I for DNA synthesis with ABITM and PolyGen® Synthesizer

article number: **2255**  
Version: **1.0 en**

date of compilation: 25.01.2018

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

#### 1.1 Product identifier

Identification of the substance	<b>Capping-Reagent I</b>
Article number	2255
Registration number (REACH)	not relevant (mixture)

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Identified uses:** laboratory chemical

#### 1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:** +49 (0) 721 - 56 06 0

**Telefax:** +49 (0) 721 - 56 06 149

**e-mail:** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

**e-mail (competent person)** : [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

#### 1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
2.6	flammable liquid	(Flam. Liq. 2)	H225
3.10	acute toxicity (oral)	(Acute Tox. 4)	H302
3.11	acute toxicity (inhal.)	(Acute Tox. 4)	H332
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318
3.6	carcinogenicity	(Carc. 2)	H351
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	(STOT SE 3)	H335

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### Supplemental hazard information

Code	Supplemental hazard information
EUH019	may form explosive peroxides

## 2.2 Label elements

### Labelling according to Regulation (EC) No 1272/2008 (CLP)

#### Signal word

**Danger**

#### Pictograms



#### Hazard statements

H225	Highly flammable liquid and vapour
H302+H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H351	Suspected of causing cancer

#### Precautionary statements

##### Precautionary statements - prevention

P280 Wear protective gloves/eye protection.

##### Precautionary statements - response

P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.

For professional users only

#### Supplemental hazard information

EUH019 May form explosive peroxides.

**Hazardous ingredients for labelling:** pyridine, Acetic anhydride, Tetrahydrofuran

**Labelling of packages where the contents do not exceed 125 ml**

Signal word: **Danger**

Symbol(s)



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H318	Causes serious eye damage.
H351	Suspected of causing cancer.
P280	Wear protective gloves/eye protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
EUH019	May form explosive peroxides.
contains:	Pyridine, Acetic anhydride, Tetrahydrofuran

### 2.3 Other hazards









There is no additional information.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Description of the mixture

Composition/information on ingredients.

Name of substance	Identifier	wt%	Classification acc. to 1272/2008/EC	Pictograms	Specific Conc. Limits
Tetrahydrofuran	CAS No 109-99-9  EC No 203-726-8  Index No 603-025-00-0  REACH Reg. No 01-2119444314- 46-xxxx	≥ 50	Flam. Liq. 2 / H225 Eye Irrit. 2 / H319 Carc. 2 / H351 STOT SE 3 / H335 EUH019	  	Eye Irrit. 2; H319: C ≥ 25 % STOT SE 3; H335: C ≥ 25 %
Acetic anhydride	CAS No 108-24-7  EC No 203-564-8  Index No 607-008-00-9  REACH Reg. No 01-2119486470- 36-xxxx	10 – < 25	Flam. Liq. 3 / H226 Acute Tox. 4 / H302 Acute Tox. 4 / H332 Skin Corr. 1B / H314	  	Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 5 % ≤ C < 25 %
pyridine	CAS No 110-86-1  EC No 203-809-9  Index No 613-002-00-7  REACH Reg. No 01-2119493105- 40-xxxx	10 – < 25	Flam. Liq. 2 / H225 Acute Tox. 4 / H302 Acute Tox. 4 / H312 Acute Tox. 4 / H332 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319	 	

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### Remarks

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

#### Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

#### Following ingestion

Rinse mouth with water (only if the person is conscious). In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Call a doctor.

### 4.2 Most important symptoms and effects, both acute and delayed

After eye contact: Risk of serious damage to eyes, Risk of blindness,  
Following skin contact: Localised redness, oedema, pruritis and/or pain,  
After ingestion: Vomiting, Irritation, Cardiac arrhythmias, Circulatory collapse,  
Following inhalation: Cough, pain, choking, and breathing difficulties, Headache

### 4.3 Indication of any immediate medical attention and special treatment needed

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings  
water spray, foam, dry extinguishing powder, carbon dioxide (CO<sub>2</sub>)

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### Unsuitable extinguishing media

water jet

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

Combustible. Vapours can form explosive mixtures with air.

#### Hazardous combustion products

May produce toxic fumes of carbon monoxide if burning.

### 5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

## SECTION 6: Accidental release measures

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

#### For non-emergency personnel

Ventilate affected area. Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Explosive properties.

### 6.3 Methods and material for containment and cleaning up

#### Advices on how to contain a spill

Covering of drains.

#### Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

#### Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Provision of sufficient ventilation. Use extractor hood (laboratory).

#### • Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

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### Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

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

Keep container tightly closed.

#### Incompatible substances or mixtures

Observe hints for combined storage.

#### Consideration of other advice

Ground/bond container and receiving equipment.

#### • Ventilation requirements

Use local and general ventilation.

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Source
EU	tetrahydrofuran	109-99-9		IOELV	50	150	100	300	2017/164/EU
EU	pyridine	110-86-1		IOELV	5	15			2017/164/EU
MT	tetrahydrofuran	109-99-9		OELV	50	150	100	300	L.N. 227
MT	pyridine	110-86-1		OELV	5	15			L.N. 227

#### Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

#### Relevant DNELs/DMELs/PNECs and other threshold levels

##### • relevant DNELs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Tetrahydrofuran	109-99-9	DNEL	72,4 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Tetrahydrofuran	109-99-9	DNEL	96 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
Tetrahydrofuran	109-99-9	DNEL	150 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
Tetrahydrofuran	109-99-9	DNEL	300 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects

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Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Tetrahydrofuran	109-99-9	DNEL	12,6 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Acetic anhydride	108-24-7	DNEL	12,6 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects
Acetic anhydride	108-24-7	DNEL	4,2 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
Acetic anhydride	108-24-7	DNEL	4,2 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
pyridine	110-86-1	DNEL	2,5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
pyridine	110-86-1	DNEL	7,5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
pyridine	110-86-1	DNEL	0,14 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
pyridine	110-86-1	DNEL	0,42 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects

### • relevant PNECs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment	Exposure time
Tetrahydrofuran	109-99-9	PNEC	67 mg/kg	water	short-term (single instance)
Tetrahydrofuran	109-99-9	PNEC	4,32 mg/l	freshwater	short-term (single instance)
Tetrahydrofuran	109-99-9	PNEC	0,432 mg/l	marine water	short-term (single instance)
Tetrahydrofuran	109-99-9	PNEC	4,6 mg/l	sewage treatment plant (STP)	short-term (single instance)
Tetrahydrofuran	109-99-9	PNEC	23,3 mg/kg	freshwater sediment	short-term (single instance)
Tetrahydrofuran	109-99-9	PNEC	2,33 mg/kg	marine sediment	short-term (single instance)
Tetrahydrofuran	109-99-9	PNEC	2,13 mg/kg	soil	short-term (single instance)
Acetic anhydride	108-24-7	PNEC	30,58 mg/l	water	intermittent release
Acetic anhydride	108-24-7	PNEC	3,058 mg/l	freshwater	short-term (single instance)
Acetic anhydride	108-24-7	PNEC	0,306 mg/l	marine water	short-term (single instance)
Acetic anhydride	108-24-7	PNEC	115 mg/l	sewage treatment plant (STP)	short-term (single instance)
Acetic anhydride	108-24-7	PNEC	11,36 mg/kg	freshwater sediment	short-term (single instance)
Acetic anhydride	108-24-7	PNEC	1,136 mg/kg	marine sediment	short-term (single instance)

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Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment	Exposure time
Acetic anhydride	108-24-7	PNEC	0,47 mg/kg	soil	short-term (single instance)
pyridine	110-86-1	PNEC	3 mg/l	water	intermittent release
pyridine	110-86-1	PNEC	0,3 mg/l	freshwater	short-term (single instance)
pyridine	110-86-1	PNEC	0,03 mg/l	marine water	short-term (single instance)
pyridine	110-86-1	PNEC	2 mg/l	sewage treatment plant (STP)	short-term (single instance)
pyridine	110-86-1	PNEC	3,2 mg/kg	freshwater sediment	short-term (single instance)
pyridine	110-86-1	PNEC	0,32 mg/kg	marine sediment	short-term (single instance)
pyridine	110-86-1	PNEC	0,46 mg/kg	soil	short-term (single instance)

### 8.2 Exposure controls

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection.

##### Skin protection



##### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

##### • type of material

Butyl caoutchouc (butyl rubber)

##### • material thickness

0,7mm

##### • breakthrough times of the glove material

>30 minutes (permeation: level 2)



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### • other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Flame-retardant protective clothing.

### Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C, colour code: Brown).

### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid (fluid)
Colour	colourless - light yellow
Odour	stinging
Odour threshold	No data available

#### Other physical and chemical parameters

pH (value)	This information is not available.
Melting point/freezing point	not determined
Initial boiling point and boiling range	65 °C
Flash point	-21 °C
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)
<u>Explosive limits</u>	
• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	not relevant
Vapour pressure	This information is not available.
Density	0,925 g/cm <sup>3</sup>
Vapour density	This information is not available.
Bulk density	Not applicable
Relative density	Information on this property is not available.

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### Solubility(ies)

Water solubility miscible in any proportion

### Partition coefficient

n-octanol/water (log KOW) This information is not available.

Auto-ignition temperature Information on this property is not available.

Decomposition temperature no data available

Viscosity not determined

Explosive properties Shall not be classified as explosive

Oxidising properties none

### 9.2 Other information

There is no additional information.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Risk of ignition. Vapours can form explosive mixtures with air. May form explosive peroxides.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

Violent reaction with: Alkali (lye), concentrated, Alkali hydroxide (caustic alkali), Ammonia (NH<sub>3</sub>), Nitrate, Oxygen, Strong oxidiser

### 10.4 Conditions to avoid

Keep away from heat.

### 10.5 Incompatible materials

Rubber articles, different plastics, metals

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

#### • Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Acetic anhydride	108-24-7	oral	630 mg/kg
Acetic anhydride	108-24-7	inhalation: vapour	11 mg/l/4h
pyridine	110-86-1	oral	1.600 mg/kg
pyridine	110-86-1	dermal	2.000 mg/kg
pyridine	110-86-1	inhalation: vapour	11 mg/l/4h

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### Skin corrosion/irritation

Causes skin irritation.

### Serious eye damage/eye irritation

Causes serious eye damage.

### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

### Summary of evaluation of the CMR properties

#### Carcinogenicity:

Suspected of causing cancer

- **Specific target organ toxicity - single exposure**

May cause respiratory irritation.

- **Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

### Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**

nausea, vomiting, circulatory collapse

- **If in eyes**

Causes serious eye damage, risk of blindness

- **If inhaled**

cough, pain, choking, and breathing difficulties, headache, vertigo, cardiac arrhythmias

- **If on skin**

Prolonged or repeated contact with skin or mucous membrane result in irritation symptoms such as redness, blistering, dermatitis, etc, causes skin irritation

### Other information

None

## SECTION 12: Ecological information

### 12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

#### Aquatic toxicity (acute)

#### Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Tetrahydrofuran	109-99-9	LC50	2.160 mg/l	fish	96 h
Tetrahydrofuran	109-99-9	EC50	1.930 mg/l	fish	96 h
Acetic anhydride	108-24-7	LC50	>1.000 mg/l	fish	96 h
Acetic anhydride	108-24-7	EC50	>1.000 mg/l	aquatic invertebrates	48 h

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Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Acetic anhydride	108-24-7	ErC50	>1.000 mg/l	algae	72 h
pyridine	110-86-1	EC50	<1.000 mg/l	fish	96 h
pyridine	110-86-1	ErC50	320 mg/l	algae	72 h

### Aquatic toxicity (chronic)

#### Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
pyridine	110-86-1	EC50	<320 mg/l	aquatic invertebrates	24 h

## 12.2 Process of degradability

Data are not available.

#### Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time
Tetrahydrofuran	109-99-9	biotic/abiotic	39 %	28 d
Tetrahydrofuran	109-99-9	oxygen depletion	39 %	28 d
Acetic anhydride	108-24-7	biotic/abiotic	>95 %	5 d
pyridine	110-86-1	DOC removal	97 %	19 d
pyridine	110-86-1	oxygen depletion	0 %	30 d

## 12.3 Bioaccumulative potential

Data are not available.

#### Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Tetrahydrofuran	109-99-9		0,45 (pH value: 7, 25 °C)	
Acetic anhydride	108-24-7	3,16	-0,577 (pH value: 7, 25 °C)	
pyridine	110-86-1		0,64 (pH value: 7, 20 °C)	

## 12.4 Mobility in soil

Data are not available.

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### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.


### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

14.1	UN number	2924
14.2	UN proper shipping name Hazardous ingredients	<b>FLAMMABLE LIQUID, CORROSIVE, N.O.S.</b> Acetic anhydride, Tetrahydrofuran
14.3	Transport hazard class(es)  Class	 3 (flammable liquids)
14.4	Packing group	II (substance presenting medium danger)
14.5	Environmental hazards	NONE (non-environmentally hazardous acc. to the dangerous goods regulations)

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### 14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

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

The cargo is not intended to be carried in bulk.

### 14.8 Information for each of the UN Model Regulations

#### • Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	2924
Proper shipping name	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Particulars in the transport document	UN2924, FLAMMABLE LIQUID, CORROSIVE, N.O.S., (Acetic anhydride, Tetrahydrofuran, solution), 3 (8), II, (D/E)
Class	3
Classification code	FC
Packing group	II
Danger label(s)	3+8



Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	338

#### • International Maritime Dangerous Goods Code (IMDG)

UN number	2924
Proper shipping name	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Particulars in the shipper's declaration	UN2924, FLAMMABLE LIQUID, CORROSIVE, N.O.S., (contains: Acetic anhydride, Tetrahydrofuran), 3 (8), II, -21°C c.c.
Class	3
Subsidiary risk(s)	8
Marine pollutant	-
Packing group	II
Danger label(s)	3+8

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Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-C
Stowage category	B
<b>• International Civil Aviation Organization (ICAO-IATA/DGR)</b>	
UN number	2924
Proper shipping name	Flammable liquid, corrosive, n.o.s.
Particulars in the shipper's declaration	UN2924, Flammable liquid, corrosive, n.o.s., (contains: Acetic anhydride, Tetrahydrofuran), 3 (8), II
Class	3
Subsidiary risk(s)	8
Packing group	II
Danger label(s)	3+8

Special provisions (SP)	A3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	0,5 L

## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

None of the ingredients are listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

None of the ingredients are listed.

- **Regulation 850/2004/EC on persistent organic pollutants (POP)**

None of the ingredients are listed.

- **Restrictions according to REACH, Annex XVII**

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Name of substance	CAS No	Wt%	Type of registration	No
Capping-Reagent I		100	1907/2006/EC annex XVII	3
Acetic anhydride		11,8	1907/2006/EC annex XVII	3
Acetic anhydride		11,8	1907/2006/EC annex XVII	40
Tetrahydrofuran		77,5	1907/2006/EC annex XVII	3
Tetrahydrofuran		77,5	1907/2006/EC annex XVII	40
pyridine		10,7	1907/2006/EC annex XVII	3
pyridine		10,7	1907/2006/EC annex XVII	40

### • List of substances subject to authorisation (REACH, Annex XIV)

None of the ingredients are listed.

### Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

None of the ingredients are listed.

### Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed.

### Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

None of the ingredients are listed.

### National inventories

Country	National inventories	Status
AU	AICS	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

#### Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China



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### Legend

INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/164/EU	Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
Acute Tox.	acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
BCF	bioconcentration factor
BOD	Biochemical Oxygen Demand
Carc.	carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
COD	chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	seriously damaging to the eye
Eye Irrit.	irritant to the eye
Flam. Liq.	flammable liquid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)

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Abbr.	Descriptions of used abbreviations
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
L.N. 227	Occupational Health and Safety Authority Act (CAP. 424)
log KOW	n-octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	corrosive to skin
Skin Irrit.	irritant to skin
STEL	short-term exposure limit
STOT SE	specific target organ toxicity - single exposure
TWA	time-weighted average
vPvB	very Persistent and very Bioaccumulative

### Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

### List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H225	highly flammable liquid and vapour
H226	flammable liquid and vapour
H302	harmful if swallowed
H312	harmful in contact with skin
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
H335	may cause respiratory irritation

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Code	Text
H351	suspected of causing cancer

### Disclaimer

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.