

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**  
Version: **2.0 en**  
Replaces version of: 2015-08-26  
Version: (1)

date of compilation: 2015-08-26  
Revision: 2018-10-17

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

### 1.1 Product identifier

Identification of the substance	<b>HEPES</b>
Article number	9105
Registration number (REACH)	This information is not available.
EC number	230-907-9
CAS number	7365-45-9

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

**Identified uses:** laboratory chemical  
laboratory and analytical use

### 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)**

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

### 2.2 Label elements

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

not required

**Signal word** not required

### 2.3 Other hazards

There is no additional information.

# Safety data sheet

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



HEPES PUFFERAN® ≥99,5 %, p.a.

article number: 9105

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	HEPES
EC number	230-907-9
CAS number	7365-45-9
Molecular formula	C <sub>8</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> S
Molar mass	238,3 g/mol

## 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 all cases of doubt, or when symptoms persist, seek medical advice.

#### Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

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

Symptoms and effects are not known to date

### 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>)

#### Unsuitable extinguishing media

water jet

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

## 5.2 Special hazards arising from the substance or mixture

Combustible.

### Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), sulphur oxides (SO<sub>x</sub>)

## 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

Control of dust.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water.

### 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

Take up mechanically.

#### Other information relating to spills and releases

Place in appropriate containers for disposal.

### 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.

#### Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.

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

Store in a dry place.

#### Incompatible substances or mixtures

Observe hints for combined storage.

#### Consideration of other advice

##### • Ventilation requirements

Use local and general ventilation.

# Safety data sheet

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



HEPES PUFFERAN® ≥99,5 %, p.a.

article number: 9105

- **Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 – 25 °C.

### 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 [mg/m <sup>3</sup> ]	STEL [mg/m <sup>3</sup> ]	Source
GB	dust		i	WEL	10		EH40/2005
GB	dust		r	WEL	4		EH40/2005

#### Notation

i Inhalable fraction

r Respirable fraction

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 (unless otherwise specified)

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

- **human health values**

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	23,5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	3,33 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

### 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.

- **type of material**

NBR (Nitrile rubber)

# Safety data sheet

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



## HEPES PUFFERAN® ≥99,5 %, p.a.

article number: 9105

- **material thickness**

>0,11 mm

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

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

### Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P1 (filters at least 80 % of airborne particles, colour code: White).

### 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	solid (powder, crystalline)
Colour	white
Odour	odourless
Odour threshold	No data available

#### Other physical and chemical parameters

pH (value)	4,7 – 5,3 (water: 10 g/l, 25 °C)
Melting point/freezing point	212,6 °C at 1 atm
Initial boiling point and boiling range	This information is not available.
Flash point	124 °C
Evaporation rate	no data available
Flammability (solid, gas)	These information are not available
<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	these information are not available
Vapour pressure	0 Pa at 25 °C
Density	This information is not available.
Vapour density	This information is not available.
Relative density	Information on this property is not available.

# Safety data sheet

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



## HEPES PUFFERAN® ≥99,5 %, p.a.

article number: 9105

### Solubility(ies)

Water solubility 637,2 g/l at 10 °C

### Partition coefficient

n-octanol/water (log KOW) <-3,85 (20 °C) (ECHA)

Soil organic carbon/water (log KOC) <1,32 (ECHA)

Auto-ignition temperature >400 °C at 1 atm

Decomposition temperature 211 °C at 1 atm (ECHA)

Viscosity not relevant (solid matter)

Explosive properties Shall not be classified as explosive

Oxidising properties none

## 9.2 Other information

There is no additional information.

Surface tension 63,98 mN/m (20 °C)

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

### 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: Strong oxidiser

### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

### 10.5 Incompatible materials

There is no additional information.

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Source
oral	LD50	>2.000 mg/kg	rat	ECHA
dermal	LD50	>2.000 mg/kg	rat	ECHA

#### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

## Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

## Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

## Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

### • Specific target organ toxicity - single exposure

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

### • 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

data are not available

### • If in eyes

data are not available

### • If inhaled

data are not available

### • If on skin

data are not available

## 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)

Endpoint	Value	Species	Source	Exposure time
LC50	>100 mg/l	fish	ECHA	96 h
EC50	>0,1 g/l	aquatic invertebrates	ECHA	24 h

#### Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	>1.000 mg/l	microorganisms	ECHA	3 h
growth (EbCx) 20%	>1.000 mg/l	microorganisms	ECHA	3 h

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

## 12.2 Process of degradability

Theoretical Oxygen Demand with nitrification: 1,695 mg/mg

Theoretical Oxygen Demand: 1,41 mg/mg

Theoretical Carbon Dioxide: 1,477 mg/mg

Process	Degradation rate	Time
oxygen depletion	-2 %	28 d

## 12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) <-3,85 (20 °C)

## 12.4 Mobility in soil

The Organic Carbon normalised adsorption coefficient <1,32

## 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



Consult the appropriate local waste disposal expert about waste disposal.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Sewage disposal-relevant information

Do not empty into drains.

### 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	(not subject to transport regulations)
14.2	UN proper shipping name	not relevant
14.3	Transport hazard class(es)	not relevant
	Class	-
14.4	Packing group	not relevant



# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

**14.5 Environmental hazards** none (non-environmentally hazardous acc. to the dangerous goods regulations)

**14.6 Special precautions for user**  
There is no additional information.

**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)**  
Not subject to ADR, RID and ADN.
- **International Maritime Dangerous Goods Code (IMDG)**  
Not subject to IMDG.
- **International Civil Aviation Organization (ICAO-IATA/DGR)**  
Not subject to ICAO-IATA.

## 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)**  
Not listed.
- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**  
Not listed.
- **Regulation 850/2004/EC on persistent organic pollutants (POP)**  
Not listed.
- **Restrictions according to REACH, Annex XVII**  
not listed
- **Restrictions according to REACH, Title VIII**  
None.
- **List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list**  
not listed
- **Seveso Directive**

<b>2012/18/EU (Seveso III)</b>			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

**Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II**  
not listed

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

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

not listed

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

not listed

**Regulation 98/2013/EU on the marketing and use of explosives precursors**

not listed

**Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

not listed

## National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

### Legend

AICS	Australian Inventory of Chemical Substances
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
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

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### 16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
8.1		Relevant DNELs/DMELs/PNECs and other threshold levels	yes
8.1		• human health values	yes
8.1		• human health values: change in the listing (table)	yes

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8		• International Civil Aviation Organization (ICAO-IATA/DGR): Not subject to ICAO-IATA.	yes

## Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
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)
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
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
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)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
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
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)
STEL	short-term exposure limit
SVHC	Substance of Very High Concern
TWA	time-weighted average
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

# Safety data sheet

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



**HEPES PUFFERAN® ≥99,5 %, p.a.**

article number: **9105**

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## **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)**

not relevant.

## **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.