



# SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200 and ANSI standard Z400.1-2010

## IH-Papain

Material number 186028

Revision date: 5/30/2017

Version: 2

Language: en-US

Date of print: 12/21/2017

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## 1. Product and company identification

### Product identifier

Trade name: IH-Papain  
This safety data sheet pertains to the following products:  
813 540 100 IH-Papain

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

General use: Use as laboratory reagent.  
Only for industrial users.

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

Company name: Bio-Rad Medical Diagnostics GmbH  
Street/POB-No.: Industriestr. 1  
Postal Code, city: 63303 Dreieich  
Germany  
WWW: [www.medizinische-diagnostik-dreieich.de](http://www.medizinische-diagnostik-dreieich.de)  
E-mail: [contact.bmd@bio-rad.com](mailto:contact.bmd@bio-rad.com)  
Telephone: +49 (0)6103-3130-0  
Telefax: +49 (0)6103-3130-646  
Dept. responsible for information:  
Produktmanagement Transfusion  
Telephone: 06103 3130-611  
Telefax: 06103 3130-724

### Emergency phone number

GIZ-Nord, Göttingen, Germany,  
Telephone: +49 551-19240

## 2. Hazards identification

### Emergency overview

Appearance: Physical state at 68 °F and 101.3 kPa: solid  
Form: lyophilized powder  
Color: colorless  
Odor: No data available  
Classification: Skin Irritation - Category 2; Eye Irritation - Category 2A; Respiratory Sensitizer - Category 1; Specific Target Organ Toxicity (Single Exposure) - Category 3;

Hazard symbols:



Signal word: **Danger**

Hazard statements:  
Causes skin irritation.  
Causes serious eye irritation.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause respiratory irritation.

Precautionary statements: Avoid breathing dust.  
Use only outdoors or in a well-ventilated area.  
In case of inadequate ventilation wear respiratory protection.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If experiencing respiratory symptoms: Call a POISON CENTER/doctor.  
Store locked up.  
Dispose of contents/container to hazardous or special waste collection point.



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### Regulatory status

This material is considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada.

### Hazards not otherwise classified

see section 11: Toxicological information

## 3. Composition / Information on ingredients

Chemical characterization: lyophilized powder

Relevant ingredients:

CAS No.	Designation	Content	Classification
CAS 9001-73-4	Papain	< 50 %	Skin Irritation - Category 2. Eye Irritation - Category 2A. Respiratory Sensitizer - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 52-89-1	Cysteine hydrochloride	< 10 %	Skin Irritation - Category 2. Eye Irritation - Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 25102-12-9	Ethylenediaminetetraacetic acid, dipotassium salt dihydrate	< 10 %	Skin Irritation - Category 2. Eye Irritation - Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.

## 4. First aid measures

In case of inhalation:	Provide fresh air. Seek medical treatment in case of troubles.
Following skin contact:	Remove residues with water. Take off contaminated clothing and wash it before reuse. In case of skin irritation, consult a physician.
After eye contact:	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. In case of eye irritation consult an ophthalmologist.
After swallowing:	Rinse mouth with water. Do not induce vomiting without medical assistance. Observe risk of aspiration if vomiting occurs. Seek medical attention.

### Most important symptoms/effects, acute and delayed

May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.

### Information to physician

Treat symptomatically. Symptoms may occur with delay.

## 5. Fire fighting measures

Flash point/flash point range:

Not applicable

Auto-ignition temperature: No data available

Suitable extinguishing media:

Water mist. Use extinguishing material as appropriate for the surrounding area.



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Extinguishing media which must not be used for safety reasons:

Full water jet

### Specific hazards arising from the chemical

On heating or in case of fire toxic gases may form. In case of fire may be liberated:  
Nitrogen oxides (NOx), Carbon monoxide and carbon dioxide.

Protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus. Wear appropriate protective equipment.

Additional information:

Cool endangered containers with water spray and, if possible, remove from danger zone. Do not allow fire water to penetrate into surface or ground water.

## 6. Accidental release measures

Personal precautions:

Avoid contact with the substance. Provide adequate ventilation. Wear personal protection equipment. Keep unprotected people away. Do not breathe dust.

Environmental precautions:

Do not allow to penetrate into soil, waterbodies or drains.

Methods for clean-up:

Take up mechanically, placing in appropriate containers for disposal. Final cleaning.

## 7. Handling and storage

### Handling

Advices on safe handling:

Avoid contact with skin and eyes. Do not breathe dust. Wear appropriate protective equipment.  
Keep all containers, equipment and working place clean. Provide adequate ventilation, and local exhaust as needed.

### Storage

Requirements for storerooms and containers:

Keep container tightly closed in a dry and well-ventilated place.

Hints on joint storage:

Do not store together with acids/alkalies and oxidation agents. Keep away from food, drink and animal feedingstuffs.

## 8. Exposure controls / personal protection

### Engineering controls

Provide good ventilation and/or an exhaust system in the work area.  
See also information in chapter 7, section storage.

### Personal protection equipment (PPE)

Eye/face protection

Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection

Wear suitable protective clothing.

Protective gloves according to OSHA Standard - 29 CFR: 1910.138.

Breakthrough time: >480 min.

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection:

In the case of the formation of dust: Use suitable breathing apparatus.

The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product.



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### General hygiene considerations:

Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product.  
Take off contaminated clothing and wash it before reuse. After work, wash hands and face.

Do not inhale substance. Have eye wash bottle or eye rinse ready at work place.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

Appearance:	Physical state at 68 °F and 101.3 kPa: solid Form: lyophilized powder Color: colorless
Odor:	No data available
Odor threshold:	No data available
pH value:	not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point/flash point range:	Not applicable
Evaporation rate:	No data available
Flammability:	No data available
Explosion limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Density:	No data available
Solubility:	soluble in: Ethanol
Water solubility:	soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Thermal decomposition:	No data available
Additional information:	No data available

## 10. Stability and reactivity

Reactivity:	No data available
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions known.
Conditions to avoid:	Protect from moisture contamination.
Incompatible materials:	Strong oxidizing agents, strong acids and alkalis.
Thermal decomposition:	No data available



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## 11. Toxicological information

### Toxicological tests

Toxicological effects: Acute toxicity (oral): Based on available data, the classification criteria are not met. The product has not been tested. The statement is derived from the properties of the single components.  
ATEmix (calculated): ATEmix > 2000 mg/kg.  
Acute toxicity (dermal): Based on available data, the classification criteria are not met. The product has not been tested. The statement is derived from the properties of the single components.  
ATEmix (calculated): ATEmix > 2000 mg/kg.  
Acute toxicity (inhalative): Lack of data.  
Skin corrosion/irritation: Skin Irritation - Category 2 = Causes skin irritation.  
Serious eye damage/irritation: Eye Irritation - Category 2A = Causes serious eye irritation.  
Sensitisation to the respiratory tract: Respiratory Sensitizer - Category 1 = May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
Skin sensitisation: Lack of data.  
Germ cell mutagenicity/Genotoxicity: Lack of data.  
Carcinogenicity: Lack of data.  
Reproductive toxicity: Lack of data.  
Effects on or via lactation: Lack of data.  
Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) - Category 3 = May cause respiratory irritation.  
Specific target organ toxicity (repeated exposure): Lack of data.  
Aspiration hazard: Lack of data.

### General remarks

Contains:  
Potassium dihydrogenorthophosphate  
LDLo Rat, oral 4640 mg/kg  
LD50 Rabbit, dermal > 4640 mg/kg  
Disodium hydrogenorthophosphate  
LD50 Rat, oral 17000 mg/kg

## 12. Ecological information

### Ecotoxicity

Further details: No data available

### Mobility in soil

No data available

### Persistence and degradability

Further details: No data available

### Additional ecological information

General information: Do not allow to penetrate into soil, waterbodies or drains.



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### 13. Disposal considerations

#### Product

Recommendation: Dispose of as hazardous waste in compliance with local and national regulations.

#### Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.  
Handle contaminated packages in the same way as the substance itself.  
Non-contaminated packages may be recycled.

### 14. Transport information

#### USA: Department of Transportation (DOT)

Proper shipping name: Not restricted

#### Sea transport (IMDG)

Proper shipping name: Not restricted

Marine pollutant: no

#### Air transport (IATA)

Proper shipping name: Not restricted

#### Further information

No dangerous good in sense of these transport regulations.

### 15. Regulatory information

#### National regulations - U.S. Federal Regulations

Papain:	TSCA Inventory: listed; EPA flags XU TSCA HPVC: not listed
Potassium dihydrogenorthophosphate:	TSCA Inventory: listed TSCA HPVC: not listed
Disodium hydrogenorthophosphate, anhydrous:	TSCA Inventory: listed TSCA HPVC: not listed Clean Water Act: Hazardous Substances: RQ 5000 lbs. Other Environmental Laws: CERCLA: RQ 5000 lbs.
Ethylenediaminetetraacetic acid, dipotassium salt dihydrate:	TSCA Inventory: not listed

#### National regulations - U.S. State Regulations

Disodium hydrogenorthophosphate, anhydrous: California Proposition 65 code: not listed  
Delaware Air Quality Management List:  
DRQ: 5000 - RQ State: Federal Regulations Apply  
Massachusetts Haz. Substance codes: F8  
New York List of Hazardous Substances:  
RQ-Air: 5000 - RQ-Land: 100 - Note: No Note  
Associated with this chemical.  
Pennsylvania Haz. Substance code: E

#### National regulations - Great Britain

Hazchem-Code: -



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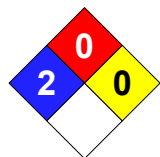
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### 16. Other information

Text for labeling: Contains < 50 % Papain, < 10 % Cysteine hydrochloride, < 10 % Ethylenediaminetetraacetic acid, dipotassium salt dihydrate. Safety data sheet available on request.

Hazard rating systems:



NFPA Hazard Rating:

Health: 2 (Moderate)

Fire: 0 (Minimal)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 2 (Moderate)

Flammability: 0 (Minimal)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
	X

Reason of change: General revision

Date of first version: 4/8/2015

#### Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.