

02/27/2017

**Kit Components**

Product code	Description
<b>1954075</b>	<b>Homocysteine by HPLC, Reagent Kit</b>

## Components:

1954077	Homocysteine by HPLC, MP
1954078	Homocysteine by HPLC, BUF
1954079	Homocysteine by HPLC, REAG 1
1954080	Homocysteine by HPLC, REAG 2
1954081	Homocysteine by HPLC, REAG 3
1954083	Homocysteine by HPLC, CAL
1954084	Homocysteine by HPLC, INT STND

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**1 Identification**

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, MP
- **Article number:** 1954077
- **Application of the substance / the mixture** *In-Vitro-laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
*Bio-Rad Laboratories (Canada) Ltd.*  
*2403 Guenette Street*  
*Montreal, Quebec H4R 2E9*  
*Phone: (514) 334-4372*  
*Freephone: 1 (800) 361-1808*  
*Fax: (514) 334-0872*
- **Information department:**  
*Technical Support:*  
*E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)*
- **Emergency telephone number:**  
*GBK Gefahrgut Büro GmbH*  
*Tel.: 0049(0)6123-84463*

**2 Hazard(s) identification**

- **Classification of the substance or mixture**  
*Flammable Liquids - Category 4* *H227 Combustible liquid.*  
*Specific Target Organ Toxicity - Single Exposure - Category 2* *H371 May cause damage to organs.*

- **Label elements**
- **GHS label elements**  
*The product is classified and labeled according to the Globally Harmonized System (GHS).*
- **Hazard pictograms**



GHS08

- **Signal word** *Warning*
- **Hazard-determining components of labeling:**  
*methanol*
- **Hazard statements**  
*Combustible liquid.*  
*May cause damage to organs.*
- **Precautionary statements**  
*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*  
*Do not breathe dust/fume/gas/mist/vapours/spray.*  
*Wear protective gloves/protective clothing/eye protection/face protection.*  
*Store locked up.*  
*Store in a well-ventilated place.*  
*Dispose of contents/container in accordance with local/regional/national/international regulations.*
- **Hazard description:**
- **WHMIS-symbols:**  
*B3 - Combustible liquid*

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# Safety Data Sheet

acc. to OSHA HCS

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Trade name: Homocysteine by HPLC, MP

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D2B - Toxic material causing other toxic effects



- Classification system:
- NFPA ratings (scale 0 - 4)



Health = 2  
Fire = 2  
Reactivity = 0

- HMIS-ratings (scale 0 - 4)



Health = \*2  
Fire = 2  
Reactivity = 0

## 3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

### · Dangerous components:

67-56-1	methanol	3-5% w/w
	⚠ Flammable Liquids - Category 2, H225; ⚠ Acute Toxicity (Oral) - Category 3, H301; Acute Toxicity (Dermal) - Category 3, H311; Acute Toxicity (Inhalation) - Category 3, H331; ⚠ Specific Target Organ Toxicity - Single Exposure - Category 1, H370	

## 4 First-aid measures

- Description of first aid measures
- General information:  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation:  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- After swallowing: Immediately call a doctor.
- Information for doctor:  
Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed  
No further relevant information available.

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**Trade name: Homocysteine by HPLC, MP**

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## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
Carbon monoxide (CO)  
In case of fire, the following can be released:  
Sulphur dioxide (SO<sub>2</sub>)  
Nitrogen oxides (NO<sub>x</sub>)
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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## Safety Data Sheet

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Trade name: Homocysteine by HPLC, MP

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

**67-56-1 methanol**

EL	Short-term value: 250 ppm Long-term value: 200 ppm Skin
EV	Short-term value: 325 mg/m <sup>3</sup> , 250 ppm Long-term value: 260 mg/m <sup>3</sup> , 200 ppm Skin

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Goggles recommended during refilling.

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: Colorless

· **Odor:** Weak, characteristic

· **Odor threshold:** Not determined.

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Trade name: Homocysteine by HPLC, MP

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· <b>pH-value at 20 °C:</b>	4,5
· <b>Change in condition</b>	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C
· <b>Flash point:</b>	65 °C
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Ignition temperature:</b>	
Decomposition temperature:	Not determined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Not determined.
· <b>Explosion limits:</b>	
Lower:	Not determined.
Upper:	Not determined.
· <b>Vapor pressure at 20 °C:</b>	23 hPa
· <b>Density at 20 °C:</b>	1 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
Dynamic:	Not determined.
Kinematic:	Not determined.
· <b>Other information</b>	No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Reacts with oxidizing agents.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**  
Carbon monoxide and carbon dioxide  
Possible in traces.  
Sulfur dioxide  
Nitrogen oxides

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Trade name: Homocysteine by HPLC, MP

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## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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Trade name: Homocysteine by HPLC, MP

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## 14 Transport information

· UN-Number	
· DOT, TDG, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, TDG, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, TDG, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, TDG, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	Void

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

### · Section 355 (extremely hazardous substances):

None of the ingredient is listed.

### · Section 313 (Specific toxic chemical listings):

67-56-1 methanol

### · TSCA (Toxic Substances Control Act):

67-56-1	methanol
77-92-9	citric acid
64-19-7	acetic acid
5324-84-5	sodium octane-1-sulphonate monohydrate
111-92-2	di-n-butylamine
7732-18-5	water, distilled, conductivity or of similar purity

### · Canadian substance listings:

#### · Canadian Domestic Substances List (DSL)

67-56-1	methanol
77-92-9	citric acid
64-19-7	acetic acid
5324-84-5	sodium octane-1-sulphonate monohydrate
111-92-2	di-n-butylamine
6381-92-6	Titriplex III (ethylendinitrilotetraacetic acid disodium salt dihydrat)
7732-18-5	water, distilled, conductivity or of similar purity

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Trade name: Homocysteine by HPLC, MP

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· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

67-56-1 | methanol

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS08

· **Signal word** Warning· **Hazard-determining components of labeling:**

methanol

· **Hazard statements**

Combustible liquid.

May cause damage to organs.

· **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

Store locked up.

Store in a well-ventilated place.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:**

Bio-Rad Laboratories GmbH

Heidemannstrasse 164

D-80939 Munich

· **Contact:**

Technical Support:

E-Mail: cts-ce@bio-rad.com

· **Abbreviations and acronyms:**

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

· **\* Data compared to the previous version altered.**

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/27/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, BUF
- **Article number:** 1954078
- **Application of the substance / the mixture** *In-Vitro-laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
Bio-Rad Laboratories (Canada) Ltd.  
2403 Guenette Street  
Montreal, Quebec H4R 2E9  
Phone: (514) 334-4372  
Freephone: 1 (800) 361-1808  
Fax: (514) 334-0872
- **Information department:**  
Technical Support:  
E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)
- **Emergency telephone number:**  
GBK Gefahrgut Büro GmbH  
Tel.: 0049(0)6123-84463

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
*The product is not classified according to the Globally Harmonized System (GHS).*
- **Label elements**
- **GHS label elements** *Void*
- **Hazard pictograms** *Void*
- **Signal word** *Void*
- **Hazard statements** *Void*
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



## 3 Composition/information on ingredients

- **Chemical characterization:** *Mixtures*
- **Description:** *Mixture of the substances listed below with nonhazardous additions.*

### Dangerous components:

10043-35-3	boric acid	0,3-≤1% w/w
	Reproductive Toxicity - Category 1A, H360;             Acute Toxicity (Dermal) - Category 4, H312	

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**Safety Data Sheet**  
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Trade name: *Homocysteine by HPLC, BUF*

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**4 First-aid measures**

- **Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**  
No dangerous substances are released.  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

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**Trade name: Homocysteine by HPLC, BUF**

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

**10043-35-3 boric acid**

EL Short-term value: 6 mg/m<sup>3</sup>  
Long-term value: 2 mg/m<sup>3</sup>

EV Short-term value: 6 mg/m<sup>3</sup>  
Long-term value: 2 mg/m<sup>3</sup>  
inorganic, inhalable

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

· **Breathing equipment:** Not required.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Goggles recommended during refilling.

**9 Physical and chemical properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: Colorless

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value at 20 °C:** 8,5

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

Decomposition temperature: Not determined.

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Trade name: Homocysteine by HPLC, BUF

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· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
Lower:	Not determined.
Upper:	Not determined.
· <b>Vapor pressure at 20 °C:</b>	23 hPa
· <b>Density at 20 °C:</b>	1,01 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
Dynamic:	Not determined.
Kinematic:	Not determined.
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product is not subject to classification according to internally approved calculation methods for preparations:  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

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Trade name: Homocysteine by HPLC, BUF

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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |                                                                                   |                 |
|-----------------------------------------------------------------------------------|-----------------|
| · <b>UN-Number</b>                                                                | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                                | Void            |
| · <b>UN proper shipping name</b>                                                  | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                                | Void            |
| · <b>Transport hazard class(es)</b>                                               |                 |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                                |                 |
| · <b>Class</b>                                                                    | Void            |
| · <b>Packing group</b>                                                            |                 |
| · <b>DOT, TDG, IMDG, IATA</b>                                                     | Void            |
| · <b>Environmental hazards:</b>                                                   |                 |
| · <b>Marine pollutant:</b>                                                        | No              |
| · <b>Special precautions for user</b>                                             | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>                                                   | Void            |

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Trade name: Homocysteine by HPLC, BUF

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### 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

#### · Section 355 (extremely hazardous substances):

None of the ingredient is listed.

#### · Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

#### · TSCA (Toxic Substances Control Act):

10043-35-3 boric acid

7732-18-5 water, distilled, conductivity or of similar purity

#### · Canadian substance listings:

##### · Canadian Domestic Substances List (DSL)

10043-35-3 boric acid

6381-92-6 Titriplex III  
(ethylendinitrilotetraacetic acid disodium salt dihydrat)

7732-18-5 water, distilled, conductivity or of similar purity

##### · Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

##### · Canadian Ingredient Disclosure list (limit 1%)

None of the ingredients is listed.

#### · GHS label elements Void

#### · Hazard pictograms Void

#### · Signal word Void

#### · Hazard statements Void

#### · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

#### · Department issuing SDS:

Bio-Rad Laboratories GmbH

Heidemannstrasse 164

D-80939 Munich

#### · Contact:

Technical Support:

E-Mail: cts-ce@bio-rad.com

#### · Abbreviations and acronyms:

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

PBT: Persistent, Bioaccumulative and Toxic

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**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 02/27/2017

Reviewed on 02/27/2017

**Trade name: Homocysteine by HPLC, BUF**

vPvB: very Persistent and very Bioaccumulative

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· **\* Data compared to the previous version altered.**

CA



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**1 Identification**

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, REAG 1
- **Article number:** 1954079
- **CAS Number:**  
91366-65-3
- **Application of the substance / the mixture** *In-Vitro-laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
Bio-Rad Laboratories (Canada) Ltd.  
2403 Guenette Street  
Montreal, Quebec H4R 2E9  
Phone: (514) 334-4372  
Freephone: 1 (800) 361-1808  
Fax: (514) 334-0872
- **Information department:**  
Technical Support:  
E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)
- **Emergency telephone number:**  
GBK Gefahrgut Büro GmbH  
Tel.: 0049(0)6123-84463

**2 Hazard(s) identification**

- **Classification of the substance or mixture**  

Skin Irritation - Category 2	H315 Causes skin irritation.
Specific Target Organ Toxicity - Single Exposure - Category 3	H335 May cause respiratory irritation.

- 
- **Label elements**
  - **GHS label elements**  
The substance is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**



GHS07

- **Signal word** *Warning*
- **Hazard-determining components of labeling:**  
ABD-F
- **Hazard statements**  
Causes skin irritation.  
May cause respiratory irritation.
- **Precautionary statements**  
Avoid breathing dust/fume/gas/mist/vapours/spray.  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a POISON CENTER/doctor if you feel unwell.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

CA

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, REAG 1**

(Contd. of page 1)

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
91366-65-3 ABD-F

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Pick up mechanically.
- **Reference to other sections**  
No dangerous substances are released.  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

CA  
(Contd. on page 3)

## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 1

(Contd. of page 2)

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Not required.

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Solid
Color:	Whitish
Odor:	Odorless
Odor threshold:	Not determined.
- **pH-value:** Not applicable.
- **Change in condition**

Melting point/Melting range:	140-149 °C
Boiling point/Boiling range:	Undetermined.

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**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, REAG 1**

(Contd. of page 3)

· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Product is not flammable.
· <b>Ignition temperature:</b>	
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Not determined.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
Lower:	Not determined.
Upper:	Not determined.
· <b>Vapor pressure:</b>	Not applicable.
· <b>Density:</b>	Not determined.
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with Water:</b>	Soluble.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

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# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 1

(Contd. of page 4)

· **NTP (National Toxicology Program)**

Substance is not listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |                                                                                   |                 |
|-----------------------------------------------------------------------------------|-----------------|
| · <b>UN-Number</b>                                                                |                 |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                                | Void            |
| · <b>UN proper shipping name</b>                                                  |                 |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                                | Void            |
| · <b>Transport hazard class(es)</b>                                               |                 |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                                |                 |
| · <b>Class</b>                                                                    | Void            |
| · <b>Packing group</b>                                                            |                 |
| · <b>DOT, TDG, IMDG, IATA</b>                                                     | Void            |
| · <b>Environmental hazards:</b>                                                   |                 |
| · <b>Marine pollutant:</b>                                                        | No              |
| · <b>Special precautions for user</b>                                             | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | Not applicable. |

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# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 1

(Contd. of page 5)

· UN "Model Regulation": Void

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

### · Section 355 (extremely hazardous substances):

Substance is not listed.

### · Section 313 (Specific toxic chemical listings):

Substance is not listed.

### · TSCA (Toxic Substances Control Act):

Substance is not listed.

### · Canadian substance listings:

#### · Canadian Domestic Substances List (DSL)

Substance is not listed.

#### · Canadian Ingredient Disclosure list (limit 0.1%)

Substance is not listed.

#### · Canadian Ingredient Disclosure list (limit 1%)

Substance is not listed.

### · GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS).

### · Hazard pictograms



GHS07

### · Signal word Warning

### · Hazard-determining components of labeling:

ABD-F

### · Hazard statements

Causes skin irritation.

May cause respiratory irritation.

### · Precautionary statements

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor if you feel unwell.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

### · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, REAG 1**

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**· Department issuing SDS:**

Bio-Rad Laboratories GmbH  
Heidemannstrasse 164  
D-80939 Munich

**· Contact:**

Technical Support:  
E-Mail: [cts-ce@bio-rad.com](mailto:cts-ce@bio-rad.com)

**· Abbreviations and acronyms:**

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organisation  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative

**· \* Data compared to the previous version altered.**

CA

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, REAG 2
- **Article number:** 1954080
- **Application of the substance / the mixture** *In-Vitro-laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
Bio-Rad Laboratories (Canada) Ltd.  
2403 Guenette Street  
Montreal, Quebec H4R 2E9  
Phone: (514) 334-4372  
Freephone: 1 (800) 361-1808  
Fax: (514) 334-0872
- **Information department:**  
Technical Support:  
E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)
- **Emergency telephone number:**  
GBK Gefahrgut Büro GmbH  
Tel.: 0049(0)6123-84463

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
*Skin Corrosion - Category 1B H314 Causes severe skin burns and eye damage.*  
*Serious Eye Damage - Category 1 H318 Causes serious eye damage.*
- **Label elements**
- **GHS label elements**  
*The product is classified and labeled according to the Globally Harmonized System (GHS).*
- **Hazard pictograms**



GHS05

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**  
*TRIS (2- carboxyethyl) phosphine hydrochloride*
- **Hazard statements**  
*Causes severe skin burns and eye damage.*
- **Precautionary statements**  
*Do not breathe dust/fume/gas/mist/vapours/spray.*  
*IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*  
*IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*  
*Immediately call a POISON CENTER/doctor.*  
*Store locked up.*  
*Dispose of contents/container in accordance with local/regional/national/international regulations.*
- **Hazard description:**
- **WHMIS-symbols:**  
*D2B - Toxic material causing other toxic effects*

(Contd. on page 2)

CA



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, REAG 2**

(Contd. of page 1)

E - Corrosive material



- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3  
Fire = 0  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3  
Fire = 0  
Reactivity = 0

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

51805-45-9	TRIS (2- carboxyethyl) phosphine hydrochloride	60-100% w/w
	⚠ Skin Corrosion - Category 1B, H314; Serious Eye Damage - Category 1, H318	

### 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

(Contd. on page 3)

## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 2

(Contd. of page 2)

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Thorough dedusting.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

(Contd. on page 4)

CA

## Safety Data Sheet

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Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 2

(Contd. of page 3)

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

### 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Solid
Color:	Whitish
Odor:	Odorless
Odor threshold:	Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:**

Decomposition temperature: Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure:** Not applicable.

Density:	Not determined.
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.

· **Solubility in / Miscibility with Water:**

Soluble.

(Contd. on page 5)

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, REAG 2**

(Contd. of page 4)

- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic:** Not applicable.
  - Kinematic:** Not applicable.
- **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
  - on the skin:** Caustic effect on skin and mucous membranes.
  - on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Corrosive  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.

(Contd. on page 6)

## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 2

(Contd. of page 5)

*Must not reach bodies of water or drainage ditch undiluted or unneutralized.*

*Danger to drinking water if even small quantities leak into the ground.*

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

· **UN-Number**

· **DOT, TDG, ADN, IMDG, IATA** Void

· **UN proper shipping name**

· **DOT, TDG, ADN, IMDG, IATA** Void

· **Transport hazard class(es)**

· **DOT, TDG, ADN, IMDG, IATA**

· **Class** Void

· **Packing group**

· **DOT, TDG, IMDG, IATA** Void

· **Environmental hazards:**

· **Marine pollutant:** No

· **Special precautions for user** Not applicable.

· **Stowage Category** A

· **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

· **UN "Model Regulation":** Void

### 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):**

*None of the ingredient is listed.*

· **Section 313 (Specific toxic chemical listings):**

*None of the ingredients is listed.*

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: Homocysteine by HPLC, REAG 2

(Contd. of page 6)

· **TSCA (Toxic Substances Control Act):**

None of the ingredients is listed.

· **Canadian substance listings:**· **Canadian Domestic Substances List (DSL)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients is listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS05

· **Signal word** Danger· **Hazard-determining components of labeling:**

TRIS (2- carboxyethyl) phosphine hydrochloride

· **Hazard statements**

Causes severe skin burns and eye damage.

· **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapours/spray.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER/doctor.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:**

Bio-Rad Laboratories GmbH

Heidemannstrasse 164

D-80939 Munich

· **Contact:**

Technical Support:

E-Mail: cts-ce@bio-rad.com

· **Abbreviations and acronyms:**

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

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**Trade name: Homocysteine by HPLC, REAG 2**

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*ELINCS: European List of Notified Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*NFPA: National Fire Protection Association (USA)*  
*HMIS: Hazardous Materials Identification System (USA)*  
*WHMIS: Workplace Hazardous Materials Information System (Canada)*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*

· **\* Data compared to the previous version altered.**

CA

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**1 Identification**

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, REAG 3
- **Article number:** 1954081
- **Application of the substance / the mixture** In-Vitro-laboratory reagent or component
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
Bio-Rad Laboratories (Canada) Ltd.  
2403 Guenette Street  
Montreal, Quebec H4R 2E9  
Phone: (514) 334-4372  
Freephone: 1 (800) 361-1808  
Fax: (514) 334-0872
- **Information department:**  
Technical Support:  
E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)
- **Emergency telephone number:**  
GBK Gefahrgut Büro GmbH  
Tel.: 0049(0)6123-84463

**2 Hazard(s) identification**

- **Classification of the substance or mixture**  
Acute Toxicity (Oral) - Category 2 H300 Fatal if swallowed.  
Skin Corrosion - Category 1A H314 Causes severe skin burns and eye damage.  
Serious Eye Damage - Category 1 H318 Causes serious eye damage.  
Carcinogenicity - Category 2 H351 Suspected of causing cancer.

---

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS05   GHS06   GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
trichloroacetic acid
- **Hazard statements**  
Fatal if swallowed.  
Causes severe skin burns and eye damage.  
Suspected of causing cancer.
- **Precautionary statements**  
Do not breathe dust/fume/gas/mist/vapours/spray.  
IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

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**Trade name: Homocysteine by HPLC, REAG 3**

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· **Hazard description:**

· **WHMIS-symbols:**

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects

E - Corrosive material



· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 4

Fire = 0

Reactivity = 0

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

76-03-9	trichloroacetic acid	5-<10% w/w
Carcinogenicity – Category 2, H351;  Skin Corrosion - Category 1A, H314		

### 4 First-aid measures

· **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### 5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Hydrogen chloride (HCl)

Phosgene gas

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Carbon monoxide (CO)

- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Keep receptacles tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· <b>Components with limit values that require monitoring at the workplace:</b>	
76-03-9 trichloroacetic acid	
EL	Long-term value: 1 ppm
	IARC 2B
EV	Long-term value: 6,7 mg/m <sup>3</sup> , 1 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

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Trade name: Homocysteine by HPLC, REAG 3

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· **Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

· **Body protection:** Protective work clothing

### 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:****Form:** Fluid**Color:** Colorless· **Odor:** Acidic· **Odor threshold:** Not determined.· **pH-value at 20 °C:** 1· **Change in condition****Melting point/Melting range:** Undetermined.**Boiling point/Boiling range:** 100 °C· **Flash point:** Not applicable.

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**Trade name: Homocysteine by HPLC, REAG 3**

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· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Ignition temperature:</b>	
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
Lower:	Not determined.
Upper:	Not determined.
· <b>Vapor pressure at 20 °C:</b>	23 hPa
· <b>Density at 20 °C:</b>	1,06 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
Dynamic:	Not determined.
Kinematic:	Not determined.
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
  - Reacts with alkali (lyes).
  - Reacts with metals forming hydrogen.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**
  - Hydrogen chloride (HCl)
  - Phosgene
  - Carbon monoxide
- **Additional information:**
  - As long as the prescribed application concentrations are maintained there is no danger that stable emulsions will form.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
  - on the skin:** Strong caustic effect on skin and mucous membranes.
  - on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.

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Trade name: Homocysteine by HPLC, REAG 3

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· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

76-03-9	trichloroacetic acid	2B
---------	----------------------	----

· **NTP (National Toxicology Program)**

None of the ingredients is listed.
------------------------------------

### 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Ecotoxicological effects:**

· **Remark:** Toxic for fish

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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Trade name: Homocysteine by HPLC, REAG 3

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## 14 Transport information

· UN-Number	UN2564
· DOT, TDG, IMDG, IATA	
· UN proper shipping name	Trichloroacetic acid, solution
· DOT	2564 Trichloroacetic acid, solution, ENVIRONMENTALLY HAZARDOUS
· TDG	TRICHLOROACETIC ACID SOLUTION, MARINE POLLUTANT
· IMDG	
· IATA	TRICHLOROACETIC ACID SOLUTION
· Transport hazard class(es)	
· DOT	
	
· Class	8 Corrosive substances
· Label	8
· TDG, IMDG	
 	
· Class	8 Corrosive substances
· Label	8
· IATA	
	
· Class	8 Corrosive substances
· Label	8
· Packing group	III
· DOT, TDG, IMDG, IATA	
· Environmental hazards:	Product contains environmentally hazardous substances: trichloroacetic acid
· Marine pollutant:	Yes
· Special marking (TDG):	Symbol (fish and tree)
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

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Trade name: Homocysteine by HPLC, REAG 3

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· **Transport/Additional information:**· **TDG**· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **IMDG**· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**UN 2564 TRICHLOROACETIC ACID, SOLUTION, 8, III,  
ENVIRONMENTALLY HAZARDOUS

## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Sara**· **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Canadian substance listings:**· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

76-03-9 | trichloroacetic acid

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS05



GHS06



GHS08

· **Signal word** Danger· **Hazard-determining components of labeling:**

trichloroacetic acid

· **Hazard statements**

Fatal if swallowed.

Causes severe skin burns and eye damage.

Suspected of causing cancer.

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**Trade name: Homocysteine by HPLC, REAG 3**

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**· Precautionary statements***Do not breathe dust/fume/gas/mist/vapours/spray.**IF SWALLOWED: Immediately call a POISON CENTER/ doctor.**IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].**IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***· Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.***16 Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**· Department issuing SDS:**

*Bio-Rad Laboratories GmbH  
Heidemannstrasse 164  
D-80939 Munich*

**· Contact:***Technical Support:**E-Mail: cts-ce@bio-rad.com***· Abbreviations and acronyms:***IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)**ICAO: International Civil Aviation Organisation**ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)**IMDG: International Maritime Code for Dangerous Goods**DOT: US Department of Transportation**IATA: International Air Transport Association**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)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**WHMIS: Workplace Hazardous Materials Information System (Canada)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative***· \* Data compared to the previous version altered.**

CA



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, CAL
- **Article number:** 1954083
- **Application of the substance / the mixture** *In-Vitro-laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
Bio-Rad Laboratories (Canada) Ltd.  
2403 Guenette Street  
Montreal, Quebec H4R 2E9  
Phone: (514) 334-4372  
Freephone: 1 (800) 361-1808  
Fax: (514) 334-0872
- **Information department:**  
Technical Support:  
E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)
- **Emergency telephone number:**  
GBK Gefahrgut Büro GmbH  
Tel.: 0049(0)6123-84463

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
*The product is not classified according to the Globally Harmonized System (GHS).*
- **Label elements**
- **GHS label elements** *Void*
- **Hazard pictograms** *Void*
- **Signal word** *Void*
- **Hazard statements** *Void*
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**  
*The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.*

## 3 Composition/information on ingredients

- **Chemical characterization:** *Mixtures*
- **Description:** *Human source material. Treat as potentially infectious.*
- **Dangerous components:** *Void*

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Trade name: Homocysteine by HPLC, CAL

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#### 4 First-aid measures

- **Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

#### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

#### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Pick up mechanically.
- **Reference to other sections**  
No dangerous substances are released.  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

#### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

#### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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Trade name: Homocysteine by HPLC, CAL

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- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Not required.

### 9 Physical and chemical properties

- |                                                                             |                 |
|-----------------------------------------------------------------------------|-----------------|
| · <b>Information on basic physical and chemical properties</b>              |                 |
| · <b>General Information</b>                                                |                 |
| · <b>Appearance:</b>                                                        |                 |
| Form:                                                                       | Solid           |
| Color:                                                                      | Yellowish       |
| · <b>Odor:</b> Odorless                                                     |                 |
| · <b>Odor threshold:</b> Not determined.                                    |                 |
| · <b>pH-value:</b> Not applicable.                                          |                 |
| · <b>Change in condition</b>                                                |                 |
| Melting point/Melting range:                                                | Undetermined.   |
| Boiling point/Boiling range:                                                | Undetermined.   |
| · <b>Flash point:</b> Not applicable.                                       |                 |
| · <b>Flammability (solid, gaseous):</b> Not determined.                     |                 |
| · <b>Ignition temperature:</b>                                              |                 |
| Decomposition temperature:                                                  | Not determined. |
| · <b>Auto igniting:</b> Product is not selfigniting.                        |                 |
| · <b>Danger of explosion:</b> Product does not present an explosion hazard. |                 |
| · <b>Explosion limits:</b>                                                  |                 |
| Lower:                                                                      | Not determined. |

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Trade name: Homocysteine by HPLC, CAL

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<b>Upper:</b>	Not determined.
· <b>Vapor pressure:</b>	Not applicable.
· <b>Density:</b>	Not determined.
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with Water:</b>	Soluble.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not applicable.
<b>Kinematic:</b>	Not applicable.
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product is not subject to classification according to internally approved calculation methods for preparations:  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- **Carcinogenic categories**

### · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

### · NTP (National Toxicology Program)

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.

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Trade name: Homocysteine by HPLC, CAL

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- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 1 (Self-assessment): slightly hazardous for water*  
*Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |                                                                                  |                 |
|----------------------------------------------------------------------------------|-----------------|
| · <b>UN-Number</b>                                                               | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                               | Void            |
| · <b>UN proper shipping name</b>                                                 | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                               | Void            |
| · <b>Transport hazard class(es)</b>                                              | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                               | Void            |
| · <b>Class</b>                                                                   | Void            |
| · <b>Packing group</b>                                                           | Void            |
| · <b>DOT, TDG, IMDG, IATA</b>                                                    | Void            |
| · <b>Environmental hazards:</b>                                                  | No              |
| · <b>Marine pollutant:</b>                                                       | No              |
| · <b>Special precautions for user</b>                                            | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>                                                  | Void            |

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· <b>Section 355 (extremely hazardous substances):</b>
--------------------------------------------------------

None of the ingredient is listed.
-----------------------------------

(Contd. on page 6)

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, CAL**

(Contd. of page 5)

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

626-72-2 L- Homocysteine

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients is listed.

· **GHS label elements** Void

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:**

Bio-Rad Laboratories GmbH  
Heidemannstrasse 164  
D-80939 Munich

· **Contact:**

Technical Support:

E-Mail: cts-ce@bio-rad.com

· **Abbreviations and acronyms:**

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

· **\* Data compared to the previous version altered.**

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Homocysteine by HPLC, INT STND
- **Article number:** 1954084
- **Application of the substance / the mixture** *In-Vitro-laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**  
Bio-Rad Laboratories (Canada) Ltd.  
2403 Guenette Street  
Montreal, Quebec H4R 2E9  
Phone: (514) 334-4372  
Freephone: 1 (800) 361-1808  
Fax: (514) 334-0872
- **Information department:**  
Technical Support:  
E-mail: [cdg\\_canada\\_salesmarketing@bio-rad.com](mailto:cdg_canada_salesmarketing@bio-rad.com)
- **Emergency telephone number:**  
GBK Gefahrgut Büro GmbH  
Tel.: 0049(0)6123-84463

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
*The product is not classified according to the Globally Harmonized System (GHS).*
- **Label elements**
- **GHS label elements** *Void*
- **Hazard pictograms** *Void*
- **Signal word** *Void*
- **Hazard statements** *Void*
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**
- |            |   |                |
|------------|---|----------------|
| HEALTH     | 0 | Health = 0     |
| FIRE       | 0 | Fire = 0       |
| REACTIVITY | 0 | Reactivity = 0 |

## 3 Composition/information on ingredients

- **Chemical characterization:** *Mixtures*
- **Description:** *Mixture of the substances listed below with nonhazardous additions.*
- **Dangerous components:** *Void*

CA

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acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, INT STND**

(Contd. of page 1)

#### 4 First-aid measures

- **Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

#### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

#### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Pick up mechanically.
- **Reference to other sections**  
No dangerous substances are released.  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

#### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

#### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

(Contd. on page 3)



## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

Trade name: *Homocysteine by HPLC, INT STND*

(Contd. of page 2)

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Not required.

### 9 Physical and chemical properties

- |                                                                             |                 |
|-----------------------------------------------------------------------------|-----------------|
| · <b>Information on basic physical and chemical properties</b>              |                 |
| · <b>General Information</b>                                                |                 |
| · <b>Appearance:</b>                                                        |                 |
| Form:                                                                       | Solid           |
| Color:                                                                      | Whitish         |
| · <b>Odor:</b> Odorless                                                     |                 |
| · <b>Odor threshold:</b> Not determined.                                    |                 |
| · <b>pH-value:</b> Not applicable.                                          |                 |
| · <b>Change in condition</b>                                                |                 |
| Melting point/Melting range:                                                | Undetermined.   |
| Boiling point/Boiling range:                                                | Undetermined.   |
| · <b>Flash point:</b> Not applicable.                                       |                 |
| · <b>Flammability (solid, gaseous):</b> Not determined.                     |                 |
| · <b>Ignition temperature:</b>                                              |                 |
| Decomposition temperature:                                                  | Not determined. |
| · <b>Auto igniting:</b> Product is not selfigniting.                        |                 |
| · <b>Danger of explosion:</b> Product does not present an explosion hazard. |                 |
| · <b>Explosion limits:</b>                                                  |                 |
| Lower:                                                                      | Not determined. |

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## Safety Data Sheet

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Trade name: *Homocysteine by HPLC, INT STND*

(Contd. of page 3)

<b>Upper:</b>	<i>Not determined.</i>
· <b>Vapor pressure:</b>	<i>Not applicable.</i>
· <b>Density:</b>	<i>Not determined.</i>
· <b>Relative density</b>	<i>Not determined.</i>
· <b>Vapor density</b>	<i>Not applicable.</i>
· <b>Evaporation rate</b>	<i>Not applicable.</i>
· <b>Solubility in / Miscibility with Water:</b>	<i>Soluble.</i>
· <b>Partition coefficient (n-octanol/water):</b>	<i>Not determined.</i>
· <b>Viscosity:</b>	
<b>Dynamic:</b>	<i>Not applicable.</i>
<b>Kinematic:</b>	<i>Not applicable.</i>
· <b>Other information</b>	<i>No further relevant information available.</i>

### 10 Stability and reactivity

- **Reactivity** *No further relevant information available.*
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **Possibility of hazardous reactions** *No dangerous reactions known.*
- **Conditions to avoid** *No further relevant information available.*
- **Incompatible materials:** *No further relevant information available.*
- **Hazardous decomposition products:** *No dangerous decomposition products known.*

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** *No irritant effect.*
- **on the eye:** *No irritating effect.*
- **Sensitization:** *No sensitizing effects known.*
- **Additional toxicological information:**  
*The product is not subject to classification according to internally approved calculation methods for preparations.*  
*When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.*
- **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>
-------------------------------------------------------------

<i>None of the ingredients is listed.</i>
-------------------------------------------

· <b>NTP (National Toxicology Program)</b>
--------------------------------------------

<i>None of the ingredients is listed.</i>
-------------------------------------------

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** *No further relevant information available.*

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## Safety Data Sheet

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Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, INT STND**

(Contd. of page 4)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 1 (Self-assessment): slightly hazardous for water*  
*Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |                                                                                  |                 |
|----------------------------------------------------------------------------------|-----------------|
| · <b>UN-Number</b>                                                               | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                               | Void            |
| · <b>UN proper shipping name</b>                                                 | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                               | Void            |
| · <b>Transport hazard class(es)</b>                                              | Void            |
| · <b>DOT, TDG, ADN, IMDG, IATA</b>                                               | Void            |
| · <b>Class</b>                                                                   | Void            |
| · <b>Packing group</b>                                                           | Void            |
| · <b>DOT, TDG, IMDG, IATA</b>                                                    | Void            |
| · <b>Environmental hazards:</b>                                                  | No              |
| · <b>Marine pollutant:</b>                                                       | No              |
| · <b>Special precautions for user</b>                                            | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>                                                  | Void            |

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

 · **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

(Contd. on page 6)

## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/27/2017

Reviewed on 02/10/2017

**Trade name: Homocysteine by HPLC, INT STND**

(Contd. of page 5)

**· Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

**· TSCA (Toxic Substances Control Act):**

None of the ingredients is listed.

**· Canadian substance listings:**
**· Canadian Domestic Substances List (DSL)**

None of the ingredients is listed.

**· Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

**· Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients is listed.

**· GHS label elements** Void

**· Hazard pictograms** Void

**· Signal word** Void

**· Hazard statements** Void

**· Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**· Department issuing SDS:**

Bio-Rad Laboratories GmbH  
Heidemannstrasse 164  
D-80939 Munich

**· Contact:**

Technical Support:  
E-Mail: [cts-ce@bio-rad.com](mailto:cts-ce@bio-rad.com)

**· Abbreviations and acronyms:**

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organisation  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
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EINECS: European Inventory of Existing Commercial Chemical Substances  
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HMIS: Hazardous Materials Identification System (USA)  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative

**· \* Data compared to the previous version altered.**

CA