



06/03/2015

Kit Components

Product code	Description
195-4075	Homocysteine by HPLC

Components:

1954077	Homocysteine Mobile Phase Mobile Phase (Homocysteine by HPLC)
195-4078	Reconstitution Buffer
195-4079	Derivatization Reagent
195-4081	Homocysteine Precipitation Buffer Precipitation Buffer (Homocysteine by HPLC)
195-4082	Serum Calibrator Set
195-4080	Reduction Reagent

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

1 Identification

- **Product identifier**
- **Trade name:** Homocysteine Mobile Phase
- **Catalog or product 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, Diagnostic Group
4000 Alfred Nobel Drive
Hercules, California 94547 1(510)724-7000
- **Information department:**
Technical services, customer support
TechsupportUSSD@bio-rad.com
- **Emergency telephone number:**
1(800) 424-9300 *Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.*

2 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
7732-18-5 water
- **Identification number(s):**
- **EC number:** 231-791-2
- **Chemical characterization: Mixtures**
- **Description:** *Mixture of the substances listed below with non-hazardous additions.*

Listing of dangerous and non-hazardous components:

7732-18-5	water	50-100%
67-56-1	methanol	2.5-5%
111-92-2	dibutylamine	0.01-0.1%

- **Additional information** *For the wording of the listed risk phrases refer to section 15.*

3 Hazard(s) identification

- **Classification of the substance or mixture**
STOT SE 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*

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Mobile Phase

(Contd. of page 1)

- **Hazard-determining components of labeling:**

methanol

- **Hazard statements**

H371 May cause damage to organs.

- **Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P308+P311 IF exposed or concerned: Call a poison center/doctor.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Emergency overview:**

- **Routes of exposure:**

Ingestion

Inhalation

Skin

4 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.

5 Fire-fighting measures

- **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Protective equipment:** Mount respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.

- **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.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Mobile Phase

See Section 13 for disposal information.

(Contd. of page 2)

7 Handling and storage

- **Handling**
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **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.

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

67-56-1 methanol

PEL (United States)	260 mg/m ³ , 200 ppm
REL (United States)	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
TLV (United States)	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI

64-19-7 acetic acid, glacial

PEL (United States)	25 mg/m ³ , 10 ppm
REL (United States)	Short-term value: 37 mg/m ³ , 15 ppm Long-term value: 25 mg/m ³ , 10 ppm
TLV (United States)	Short-term value: 37 mg/m ³ , 15 ppm Long-term value: 25 mg/m ³ , 10 ppm

111-92-2 dibutylamine

WEEL (United States)	Short-term value: C 5 ppm Skin
----------------------	-----------------------------------

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

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Mobile Phase

(Contd. of page 3)

- **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:** Safety glasses

9 Physical and chemical properties

- **General Information**
- **Appearance:**
 - Form: Liquid
 - Color: Whitish
- **Odor:** Acidic
- **Odour threshold:** Not determined.
- **pH-value at 20 °C:** 4.5
- **Change in condition**
 - Melting point/Melting range: 0 °C
 - Boiling point/Boiling range: 96 °C
- **Flash point:** > 55 °C
- **Flammability (solid, gaseous)** Not applicable.
- **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 at 20 °C:** 23 hPa
- **Density at 20 °C:** 0.98766 g/cm³
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with**
 - Water: Fully miscible
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - dynamic: Not determined.
 - kinematic: Not determined.
- **Solvent content:**
 - Organic solvents: 5.2 %
 - Water: 93.6 %

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Mobile Phase

(Contd. of page 4)

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

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values for hazardous components per OSHA criteria:**

67-56-1 methanol

Oral	LD50	5628 mg/kg (rat)
Dermal	LD50	20000 mg/kg (rat)

· **Primary irritant effect:**

- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
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.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Target organs:**

Skin.
Respiratory tract.

12 Ecological information

- **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.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Mobile Phase

(Contd. of page 5)

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Dispose of waste in accordance to applicable national, regional, or local regulations.
- **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, ADR, ADN, IMDG, IATA** Void
- **UN proper shipping name**
- **DOT, ADR, ADN, IMDG, IATA** Void
- **Transport hazard class(es)**
- **ADR, ADN, IMDG, IATA**
- **Class** Void
- **Packing group**
- **DOT, ADR, 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":** -

15 Regulatory information

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

67-56-1 | methanol

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

67-56-1 | methanol

127-09-3 | sodium acetate

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Mobile Phase

(Contd. of page 6)

77-92-9	citric acid
64-19-7	acetic acid, glacial
5324-84-5	sodium octane-1-sulphonate monohydrate
111-92-2	dibutylamine
7732-18-5	water

· **California Proposition 65:**

· **Developmental Toxicity**

67-56-1 | methanol

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
I	2.5-5
II	0.1-1.0

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

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:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 06/03/2015 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

STOT SE 2: Specific target organ toxicity - Single exposure, Hazard Category 2

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

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

1 Identification

- **Product identifier**
- **Trade name:** Reconstitution Buffer
- **Catalog or product number:** 195-4078
- **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, Diagnostic Group
4000 Alfred Nobel Drive
Hercules, California 94547 1(510)724-7000
- **Information department:**
Technical services, customer support
TechsupportUSSD@bio-rad.com
- **Emergency telephone number:**
1(800) 424-9300 *Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.*

2 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
7732-18-5 water
- **Identification number(s):**
- **EC number:** 231-791-2
- **Chemical characterization: Mixtures**
- **Description:** *Mixture of the substances listed below with non-hazardous additions.*

· **Listing of dangerous and non-hazardous components:**

10043-35-3	boric acid	1.0-2.5%
------------	------------	----------

· **SVHC**

10043-35-3	boric acid
------------	------------

- **Additional information** *For the wording of the listed risk phrases refer to section 15.*

3 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*

4 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.*

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reconstitution Buffer

(Contd. of page 1)

- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

5 Fire-fighting measures

- **Suitable extinguishing agents**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **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.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **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.
- **Components with limit values that require monitoring at the workplace:**

10043-35-3 boric acid

TLV (United States)	Short-term value: 6* mg/m ³ Long-term value: 2* mg/m ³ *as inhalable fraction
---------------------	---

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

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reconstitution Buffer

(Contd. of page 2)

- **Material of gloves** Synthetic gloves
- **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:** Safety glasses

9 Physical and chemical properties

- **General Information**
- **Appearance:**
 - Form:** Liquid
 - Color:** Colorless
- **Odor:** Odorless
- **Odour threshold:** Not determined.
- **pH-value at 20 °C:** 8.6
- **Change in condition**
 - Melting point/Melting range:** 0 °C
 - Boiling point/Boiling range:** 100 °C
- **Flash point:** Not applicable
- **Flammability (solid, gaseous)** Not applicable.
- **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 at 20 °C:** 23 hPa
- **Density:** Not determined
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with**
 - Water:** Fully miscible
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - dynamic:** Not determined.
 - kinematic:** Not determined.
- **Solvent content:**
 - Organic solvents:** 0.0 %
 - Water:** 98.8 %
- **Solids content:** 1.2 %

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reconstitution Buffer

(Contd. of page 3)

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

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values for hazardous components per OSHA criteria:**

10043-35-3 boric acid

Oral	LD50	2660 mg/kg (rat)
------	------	------------------

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** No irritant effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

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.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Target organs:** Not applicable.

12 Ecological information

- **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.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.

DUS

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reconstitution Buffer

(Contd. of page 4)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Dispose of waste in accordance to applicable national, regional, or local regulations.
- **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 | Void |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · UN proper shipping name | Void |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · Transport hazard class(es) | |
| · ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · Packing group | |
| · DOT, ADR, 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. |
| · Transport/Additional information: | Not dangerous according to the above specifications. |
| · UN "Model Regulation": | - |

15 Regulatory information

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

None of the ingredients is listed.

- **Section 313 (40CFR372.65):**

None of the ingredients is listed.

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

10043-35-3 boric acid

7732-18-5 water

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reconstitution Buffer

(Contd. of page 5)

- **National regulations**
- **Water hazard class:** Generally not hazardous for water.

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:** Environmental Health and Safety.
- **Contact:**
Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000
- **Date of preparation / last revision** 06/03/2015 / -
- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
- *** Data compared to the previous version altered.**

DUS

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

1 Identification

- **Product identifier**
- **Trade name:** Derivatization Reagent
- **Catalog or product number:** 195-4079
- **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, Diagnostic Group
4000 Alfred Nobel Drive
Hercules, California 94547* 1(510)724-7000
- **Information department:**
*Technical services, customer support
TechsupportUSSD@bio-rad.com*
- **Emergency telephone number:**
1(800) 424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.

2 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
91366-65-3 4 fluoro-7-sulfamoylbenzofurazan
- **Additional information:** *For the wording of the listed risk phrases refer to section 15.*

3 Hazard(s) identification

- **Classification of the substance or mixture**
Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Simple Asphyxiant May displace oxygen and cause rapid suffocation.
- **Label elements**
- **GHS label elements** *The substance is classified and labeled according to the Globally Harmonized System (GHS).*
- **Hazard pictograms**



GHS06

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
4 fluoro-7-sulfamoylbenzofurazan
- **Hazard statements**
*H301+H311 Toxic if swallowed or in contact with skin.
May displace oxygen and cause rapid suffocation.*

(Contd. on page 2)

DUS

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: **Derivatization Reagent**

(Contd. of page 1)

- **Precautionary statements**

P280 Wear protective gloves / protective clothing.

P264 Wash thoroughly after handling.

P301+P310 If swallowed: Immediately call a poison center/doctor.

P321 Specific treatment (see on this label).

P312 Call a poison center/doctor if you feel unwell.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Emergency overview:**

- **Routes of exposure:**

Ingestion

Inhalation

Skin

- **Classification system**

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

Health = 4

Fire = 0

Reactivity = 0

4 First-aid measures

- **General information**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **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.

Immediately rinse with water.

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

- **After swallowing** Do not induce vomiting; immediately call for medical help.

5 Fire-fighting measures

- **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:** Dispose contaminated material as waste according to item 13.

- **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.

DUS

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: **Derivatization Reagent**

(Contd. of page 2)

7 Handling and storage

- **Handling**
- **Precautions for safe handling** Prevent formation of dust.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **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.
- **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.
- **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.
Store protective clothing separately.
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.
- **Material of gloves** Synthetic gloves
- **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:** Safety glasses

9 Physical and chemical properties

- **General Information**
- **Appearance:**

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

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	undetermined
- **Flash point:** Not applicable

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Derivatization Reagent

(Contd. of page 3)

· Flammability (solid, gaseous)	Product is not flammable.
· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· 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.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Organic solvents:	0.0 %
Solids content:	100.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

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

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

Substance is not listed.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Derivatization Reagent

(Contd. of page 4)

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Target organs:** Skin.

12 Ecological information

- **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.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (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.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, ADR, ADN, IMDG, IATA** Void
- **UN proper shipping name**
- **DOT, ADR, ADN, IMDG, IATA** Void
- **Transport hazard class(es)**
- **ADR, ADN, IMDG, IATA**
- **Class** Void
- **Packing group**
- **DOT, ADR, IMDG, IATA** Void
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: **Derivatization Reagent**

(Contd. of page 5)

- | | |
|--|-----------------|
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | - |

15 Regulatory information

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**
- **Section 302/304 (40CFR355.30 / 40CFR355.40):**
Substance not listed.
- **Section 313 (40CFR372.65):**
Substance is not listed.
- **TSCA (Toxic Substances Control Act):**
Substance is not listed.
- **National regulations**
- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

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:** Environmental Health and Safety.
- **Contact:**
Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

- **Date of preparation / last revision** 06/03/2015 / -

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

Acute Tox. 3: Acute toxicity, Hazard Category 3

- *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

1 Identification

- **Product identifier**
- **Trade name:** Homocysteine Precipitation Buffer
- **Catalog or product number:** 195-4081
- **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, Diagnostic Group
4000 Alfred Nobel Drive
Hercules, California 94547 1(510)724-7000
- **Information department:**
Technical services, customer support
TechsupportUSSD@bio-rad.com
- **Emergency telephone number:**
1(800) 424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.

2 Composition/information on ingredients

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

· **Listing of dangerous and non-hazardous components:**

7732-18-5	water	50-100%
76-03-9	trichloroacetic acid	5-10%

- **Additional information** *For the wording of the listed risk phrases refer to section 15.*

3 Hazard(s) identification

- **Classification of the substance or mixture**
Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.
STOT SE 3 H335 May cause respiratory irritation.

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



GHS05 GHS07

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
trichloroacetic acid
- **Hazard statements**
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Precipitation Buffer

(Contd. of page 1)

- **Precautionary statements**

P260 Do not breathe dusts or mists.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P321 Specific treatment (see on this label).

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system**

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

Health = 1

Fire = 0

Reactivity = 0

4 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.

5 Fire-fighting measures

- **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment (See section 8). Keep unprotected persons away.

Wear protective clothing.

- **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).

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.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Precipitation Buffer

See Section 13 for disposal information.

(Contd. of page 2)

7 Handling and storage

- **Handling**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **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.

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

76-03-9 trichloroacetic acid

REL (United States) 7 mg/m³, 1 ppm

TLV (United States) 6.7 mg/m³, 1 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.
- **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.
- **Material of gloves** Synthetic gloves
- **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:**
Safety glasses
Tightly sealed goggles.

9 Physical and chemical properties

- **General Information**
- **Appearance:**
 - Form:** Liquid
 - Color:** Colorless
- **Odor:** Acidic
- **Odour threshold:** Not determined.
- **pH-value at 20 °C:** 1

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Precipitation Buffer

(Contd. of page 3)

· 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.
· 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 at 20 °C:	23 hPa
· Density at 20 °C:	1.03979 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 %
Water:	90.9 %
Solids content:	10.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:**
Strong caustic effect on skin and mucous membranes.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Precipitation Buffer

(Contd. of page 4)

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 the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

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)**

76-03-9 trichloroacetic acid

3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **Target organs:** Skin.

12 Ecological information

- **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.

· **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.

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.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation**

Hand over to hazardous waste disposers.

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

Dispose of waste in accordance to applicable national, regional, or local regulations.

· **Uncleaned packagings:**

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

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Precipitation Buffer

(Contd. of page 5)

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

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	UN2564
· UN proper shipping name · ADR · IMDG, IATA	2564 TRICHLOROACETIC ACID SOLUTION TRICHLOROACETIC ACID SOLUTION
· Transport hazard class(es) · Label	8
· ADR, IMDG, IATA · Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	III
· Environmental hazards: · Marine pollutant:	No
· Special precautions for user · Danger code (Kemler): · EMS Number: · Segregation groups	Warning: Corrosive substances 80 F-A,S-B Acids
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	UN2564, Trichloroacetic acid, solution, ENVIRONMENTALLY HAZARDOUS, 8, III

15 Regulatory information

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**
- **Section 302/304 (40CFR355.30 / 40CFR355.40):**
None of the ingredients is listed.
- **Section 313 (40CFR372.65):**
None of the ingredients is listed.
- **TSCA (Toxic Substances Control Act):**
All ingredients are listed.
- **National regulations**
- **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

DUS

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Homocysteine Precipitation Buffer

(Contd. of page 6)

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:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 06/03/2015 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

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

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

1 Identification

- **Product identifier**
- **Trade name:** Serum Calibrator Set
- **Catalog or product number:** 195-4082
- **EC number:**
268-338-3
- **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, Diagnostic Group
4000 Alfred Nobel Drive
Hercules, California 94547*
- 1(510)724-7000
- **Information department:**
*Technical services, customer support
TechsupportUSSD@bio-rad.com*
- **Emergency telephone number:**
1(800) 424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.

2 Composition/information on ingredients

- **Chemical characterization:** *Substances*
- **CAS No. Description:**
Human Source Material
- **Identification number(s):**
- **EC number:** 268-338-3
- **Additional information:** *For the wording of the listed risk phrases refer to section 15.*

3 Hazard(s) identification

- **Classification of the substance or mixture**
The substance 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*

4 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** *Induce vomiting and call for medical help.*

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Serum Calibrator Set

(Contd. of page 1)

5 Fire-fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **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.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **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.
- **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.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **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:** Safety glasses

DUS

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Serum Calibrator Set

(Contd. of page 2)

9 Physical and chemical properties

· General Information	
· Appearance:	
Form:	Solid
Color:	Opaque
· Odor:	Odorless
· Odour 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)	Product is not flammable.
· Ignition temperature:	
Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· 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.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible
· Partition coefficient (n-octanol/water): Not determined.	
· Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Organic solvents:	0.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Serum Calibrator Set

(Contd. of page 3)

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
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.
The substance is not subject to classification according to the latest version of the EU lists.
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
Substance is not listed.
- **NTP (National Toxicology Program)**
Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**
Substance is not listed.
- **Target organs:** Not applicable.

12 Ecological information

- **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.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (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.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Serum Calibrator Set

(Contd. of page 4)

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, ADR, 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.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	-

15 Regulatory information

- SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

· Section 302/304 (40CFR355.30 / 40CFR355.40):
Substance not listed.
- Section 313 (40CFR372.65):

Substance is not listed.

- TSCA (Toxic Substances Control Act):

Substance is not listed.

- National regulations
- Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

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: Environmental Health and Safety.
- Contact:

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000
- Date of preparation / last revision 06/03/2015 / -

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Serum Calibrator Set

(Contd. of page 5)

· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

· * Data compared to the previous version altered.

DUS

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

1 Identification

- **Product identifier**
- **Trade name:** Reduction Reagent
- **Catalog or product number:** 195-4080
- **CAS Number:**
51805-45-9
- **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, Diagnostic Group
4000 Alfred Nobel Drive
Hercules, California 94547
- 1(510)724-7000
- **Information department:**
Technical services, customer support
TechsupportUSSD@bio-rad.com
- **Emergency telephone number:**
1(800) 424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.

2 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
51805-45-9 Tris (carboxyethyl) phosphine hydrochloride
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazard(s) identification

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



GHS05

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
Tris (carboxyethyl) phosphine hydrochloride
- **Hazard statements**
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
P260 Do not breathe dusts or mists.

(Contd. on page 2)

DUS

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reduction Reagent

(Contd. of page 1)

P303+P361+P353 *IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.*

P305+P351+P338 *If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*

P310 *Immediately call a poison center/doctor.*

P321 *Specific treatment (see on this label).*

P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

- **Classification system**

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

Health = 1

Fire = 0

Reactivity = 0

4 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.*

5 Fire-fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** *No further relevant information available.*
- **Protective equipment:** *No special measures required.*

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
*Wear protective equipment (See section 8). Keep unprotected persons away.
Wear protective clothing.*
- **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**
No special measures required.

(Contd. on page 3)

DUS

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reduction Reagent

(Contd. of page 2)

- Thorough dedusting.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **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.
- **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.
- **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.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **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:**
Safety glasses
Tightly sealed goggles.

9 Physical and chemical properties

- **General Information**
- **Appearance:**
 - Form:** Solid
 - Color:** White
- **Odor:** Odorless
- **Odour 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)** Product is not flammable.
- **Ignition temperature:**
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Not determined.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reduction Reagent

(Contd. of page 3)

· **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.*
· **Vapour density** *Not applicable.*
· **Evaporation rate** *Not applicable.*

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

· **Partition coefficient (n-octanol/water):** *Not determined.*

· **Viscosity:**
dynamic: Not applicable.
kinematic: Not applicable.
Organic solvents: *0.0 %*

Solids content: *100.0 %*
· **Other information** *No further relevant information available.*

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **Incompatible materials:** *No further relevant information available.*
- **Hazardous decomposition products:** *No dangerous decomposition products known*

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values for hazardous components per OSHA criteria:**

51805-45-9 Tris (carboxyethyl) phosphine hydrochloride

Oral	LD50	3500 mg/kg (rat)
Dermal	LD50	>3000 mg/kg (rab)

· **Primary irritant effect:**

· **on the skin:**

Strong caustic effect on skin and mucous membranes.
Caustic effect on skin and mucous membranes.

· **on the eye:** *Strong caustic effect.*

· **Sensitization:** *No sensitizing effects known.*

· **Additional toxicological information:**

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reduction Reagent

(Contd. of page 4)

· **Carcinogenic categories**

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Target organs:** Skin.

12 Ecological information

· **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.

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (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.

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

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation**

Hand over to hazardous waste disposers.

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

Dispose of waste in accordance to applicable national, regional, or local regulations.

· **Uncleaned packagings:**

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

14 Transport information

· **UN-Number**

· **DOT, IATA**

UN3261

· **ADR, ADN, IMDG**

Void

· **UN proper shipping name**

· **ADR, ADN, IMDG**

· **IATA**

Void

CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Tris (carboxyethyl) phosphine hydrochloride)

· **Transport hazard class(es)**

· **ADR, ADN, IMDG**

· **Class**

Void

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reduction Reagent

(Contd. of page 5)

· IATA	
· Class	8 Corrosive substances
· Packing group	
· DOT, IATA	II
· ADR, IMDG	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":	-

15 Regulatory information

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is not listed.

· **National regulations**

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

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:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 06/03/2015 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 06/03/2015

Reviewed on 06/03/2015

Trade name: Reduction Reagent

(Contd. of page 6)

Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B

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

DUS