SAFETY DATA SHEET (SDS)

SECTION 1: IDENTIFICATION OF PRODUCT (MIXTURE) AND SUPPLIER

Product Name:	**BioPlex® 2200 Sodium Hydroxide, 1N**
Product Number:	**660-0578** (1 L)
Intended Use:	This product is intended for use with the Bio-Rad BioPlex® 2200 System. Read and follow BioPlex® 2200 System Instrument Manual instructions.
Supplier's Name:	**Bio-Rad Laboratories, Inc.**
Address:	6565 185th Avenue NE Redmond, WA 98052-5039, USA
Website:	www.bio-rad.com
Phone Number:	1-800-2-BIORAD (1-800-224-6723); or 1-425-881-8300 (daytime PT)
SDS e-mail contact:	ro-sds@bio-rad.com
Technical Information Contacts:	Bio-Rad provides a toll free line for technical assistance, available 24 hours a day, 7 days a week. In the United States of America and Puerto Rico, call toll free 1-800-2-BIORAD (1-800-224-6723). Outside the U.S.A., please contact your regional Bio-Rad office for assistance. *Refer to section 16 for non-US local Bio-Rad agent contact information.*
Authorized Representative in the European Community:	***FRANCE:*** *Bio-Rad* 3 boulevard Raymond Poincaré 92430 Marnes-la-Coquette Phone: +33 (0) 1 47 95 60 00 / Fax: +33 (0) 1 47 41 91 33 [fds-msds.fr@bio-rad.com]
Emergency Phone Number:	**This SDS is listed with CHEMTREC 1-800-424-9300 / 1-703-527-3887.** Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT with this product. ***Refer to section 16 for non-US local Bio-Rad agent contact information.***

SECTION 2: HAZARDS IDENTIFICATION -- HAZARDOUS COMPONENTS

This test kit should be handled only by qualified personnel trained in laboratory procedures and familiar with their potential hazards. Specific warnings are given in the instructions for use. The absence of a specific warning should not be interpreted as an indication of safety. Refer to Section 16 for the full text of any *Risk (R)* and *Safety (S)* statement provided below.

Component	Content
BPX, Sodium Hydroxide, 1N, 1L  **Danger!**	- **1N Sodium hydroxide** [4% w/v NaOH], CAS# 1310-73-2, EC No 215-185-5 (pH ~ 14) [GHS \ US HCS \ 2008/1272/EC Classification: DANGER! GHS05; H314; P280; P303 + P361 + P353, P305 + P351 + P338, P309 + P310; P501.] [EU Classification: Corrosive: C; R 21/22-34-41; S 24/25-26-28-36/39-45-60 (Note: Per Directive 1999/45/EC, 4% NaOH is rated an Irritant: Xi, but was upgraded to Corrosive: C with the conservative application of 2001/60/EC.).] - **96% water** [H_20] CAS# 7732-18-5, EC No 231-791-2 [Not subject to GHS, US HCS and EU 2008/1272/EC regulatory requirements].

Markings according to the *United Nations* (UN) Globally Harmonized System (GHS), *United States* Hazard Communication Standard (US HCS) and *European Community* (EC) 2008/1272/EC guidelines:

This product has been conservatively classified and labeled in accordance with applicable *United Nations (UN)* GHS, *United States* Hazard Communication Standard (US HCS) and related *European Community (EC)* 2008/1272/EC guidelines. The following regulated hazardous chemical concentrations are found in product component(s):

1N Sodium hydroxide [4% v/v NaOH], CAS# 1310-73-2, EC No 215-185-5 (pH ~ 14).

Comprehensive Classification *[* denotes precautionary statements included on the product label]*: **Skin Corrosive Category 1B**

Label(s):	**GHS05**
Signal Word:	**DANGER!**
Label Hazard Statement:	**H314: Causes severe skin burns and eye damage.**
Supplemental Hazard – Statement:	*None Specified*
Precautionary Statement – Prevention:	**P260**: Do not breathe dust/fume/ gas/mist/vapours/spray. **P280**: Wear protective gloves/protective clothing/eye protection/face protection. *
Precautionary Statement – Response:	**P363**: Wash contaminated clothing before reuse. **P301** + **P330** + **P331:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. **P303** + **P361** + **P353:** IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. * **P304** + **P340:** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. **P305** + **P351** + **P338**: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing * **P309** + **P310**: If exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/ physician. *
Precautionary Statement – Storage:	**P405**: Store locked up.
Precautionary Statement – Disposal:	**P501**: This material and its container must be disposed of as hazardous waste. *

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS -- HAZARDOUS COMPONENTS

The following information is furnished for those product hazardous constituents that require regulatory control or disclosure at the concentration found in the product. Note that the information here is often based on data from the chemical raw material (LD_{50}, exposure limits, etc.) and that the product contains a significantly diluted concentration in an aqueous solution, thus this assessment below has taken hazard reduction processing into consideration when possible. The GHS, US HCS and EU classifications were made according to the latest editions and expanded upon from company and literature data. Refer to Section 16 for the Key / legend to abbreviations and acronyms.

Chemical Ingredient	Data / Information
Sodium hydroxide, 1N [4% w/v in water]  **DANGER!**  *Continued on next page*	CAS#: 1310-73-2 (100%) + EC No: 215-185-5 (100%) + Chemical Formula: NaOH (100%) + LD_{50} (ipr-mouse): 40 mg/kg (100%) + IATA/DOT ID: UN1824, Class 8 (100%) + HMIS Codes: H=2, F=0, R=1 ++ RTECS#: WB4900000 (100%) + pH ~ 14 ++ Flash point: NE PEL/TLV: 2mg/m^3 (ceiling) (100%) + RCRA Code: D002 (if not neutralized) ++ EU Classification per 1999/45/EC and 2001/60/EC: Corrosive: C; R 21/22-34-41; S 24/25-26-28-36/39-45-60] ++ *GHS \ US HCS \ 2008/1272/EC Classification*: DANGER! GHS05; H314; P280; P303 + P361 + P353, P305 + P351 + P338, P309 + P310; P501 ++ **1N (4%) sodium hydroxide** (NaOH) alkaline solutions are irritating skin and severely irritating or corrosive to eyes, depending on the amount and length of exposure; greater exposures can cause eye damage, including permanent impairment of vision or blindness. Causes severe skin burns and eye damage [H314]. Harmful if swallowed, or in contact with skin or eyes. Do not breathe mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection [P280]. If exposed or if you feel unwell: Immediately call a POISON CENTER or doctor / physician [P309 + P310]. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/ physician. In case of contact with eyes, immediately rinse with copious water and seek medical attention. Remove contact lenses, if present and easy to do. Continue rinsing. [P305 + P351 + P338] IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower [P303 + P361 + P353]. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Keep away from strong acids. Store locked up. This material and its container must be disposed of as hazardous waste; it can typically be neutralized to pH 6-8 for disposal if trained and equipped to do so, however always dispose of dilute alkaline solutions as required by local, regional, national and international regulations [P501]. Handle appropriately with the requisite Good Laboratory Practices.

Chemical Ingredient	Data / Information
Sodium hydroxide 1N [4% w/v in water]  **DANGER!** *Continued*	EU Labeling Classification for 100% chemical concentration per Table 3.2 of 2008/1272/EC - *from Annex I to Directive 67/548/EEC*: Corrosive: C R 35: Causes severe burns. S (1/2-): Keep locked up and out of the reach of children. S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 36/39: Wear suitable protective clothing and eye/face protection. S 45: In case of accident or if you feel unwell, seek medical advice immediately.

+ The Kit Concentration was not tested; the values refer to the solution concentration as tested, designated by Percentage within parentheses.
++ The Kit Concentration was tested or the values given were estimated for the general diagnostic laboratory usage of the kit reagent dilution.
NE: Not Established or Unknown (unable to locate data); typically for concentrate form unless otherwise specified.
Abbreviations for component HMIS hazard ratings are as follows: H=Health, F=Flammability, R=Reactivity.

Related product information:

- Refer to section 2 for the full text of any GHS \ US HCS \ 2008/1272/EC statement coded above. Refer to section 16 for the full text of any Risk (R) and Safety (S) statement for the above kit component concentration.
- No significant adverse health effects are expected by any route for the water in the kit volumes and concentrations present [dilution not subject to US HCS, EU or GHS hazard labeling]:
- Do not eat, drink or smoke when using this product.
- Wear protective gloves/protective clothing/eye protection/face protection. Take off contaminated clothing and wash before reuse.

SECTION 4: EMERGENCY FIRST AID MEASURES

Health Effects:	Symptoms of over exposure may include headache, dizziness, congestion and breathing difficulty. Causes severe skin burns and eye damage. Severely irritating or corrosive to eyes; greater exposures can cause eye damage, including permanent impairment of vision. Risk of serious damage to eyes. May cause ingestion corrosive effects, including burning throat, mouth and stomach.
Eye Contact:	Flush eyes with copious water for at least 15 minutes. Ensure adequate flushing by separating the eyelids with fingers while flushing with water. OBTAIN MEDICAL ATTENTION.
Skin Contact:	Remove contaminated clothing. Flush skin with copious water and wash affected area with soap and water. If blood-to-blood contact occurs, or if more severe symptoms develop, consult a physician.
Inhalation:	Remove person from exposure area to fresh air. If breathing becomes difficult, immediately call for emergency medical assistance. Treat symptomatically and supportively. Generally, this aqueous product is not a significant inhalation hazard in the kit volumes and concentrations present.
If Swallowed:	If ingested, rinse out mouth thoroughly with water, provided the person is conscious, and OBTAIN MEDICAL ATTENTION. Call a physician or the local poison control center. Treat symptomatically and supportively. If vomiting occurs, keep head lower than hips to prevent aspiration.
Notes to Physician:	According to the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030), Universal Precautions apply. Persons handling human blood source samples should be offered hepatitis B vaccination prior to working with human source material.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing Media:	Use extinguishing media appropriate for the surrounding fire.
Hazardous Combustion Products:	May release toxic oxides of carbon, nitrogen or sodium.
Special Firefighting Procedures:	Conventional firefighting full protective equipment (with NIOSH-approved self-contained breathing apparatus) and procedures appropriate for the surrounding fire should be sufficient.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- Avoid direct contact with skin, eyes, mucous membranes and clothing by wearing appropriate lab Personal Protective Equipment (PPE) including gloves, lab coat and eye/face protection.
- In the event of a hazardous material spill, contain the spill if it is safe to do so and immediately move to a safe area, free from potential aerosols, to decontaminate and/or safely remove any contaminated clothing, as necessary. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Isolate the hazard area and ventilate if appropriate. Ensure that appropriate spill cleanup materials and PPE are available and used.
- Follow established laboratory policy and applicable CDC/NIH biosafety and/or OSHA/WISHA hazardous material spill and/or NFPA/Fire Code guidelines for appropriate hazardous chemical and/or biological material spill response and cleanup. Avoid release to the environment.
- Wear appropriate PPE. Immediately, and on-site if possible: Neutralize corrosive alkaline spills with the appropriate *Base* neutralization / *adsorbent* product.
- Clean the spill area with water and wipe dry. Spills can also be absorbed with appropriate inert materials (e.g. spill pillows, absorbent pads, etc.), which are secured in an appropriate, labeled, sealed container. Material used to absorb the spill may require hazardous material waste disposal. Infectious, Chemical and Laboratory wastes must be handled and discarded in accordance with all local, regional, national and international regulations.
- Refer to Sections 8 and 13 for more specifics.

SECTION 7: HANDLING AND STORAGE INFORMATION

Handling:	This test kit should be handled only by qualified personnel trained in laboratory procedures and familiar with their potential hazards. Follow proper Good Laboratory Practices and safety guidelines for handling chemical, biological and laboratory hazards. Do not smoke, eat, or drink in areas where patient samples and kit reagents are handled. Wash your hands after use. Wear appropriate personal protective equipment (PPE) including gloves, lab coat or equivalent and eye/face protection. Keep containers tightly closed; avoid splashing, spills and the generation of aerosols. Handle all human source materials, specimens and equipment used to perform the operations as though they were capable of transmitting infectious disease, as per *Standard* and *Universal Precautions.* All personal protective equipment should be removed before leaving the work area. Refer to Section 8 for more specifics. Avoid release to the environment. Do not allow undiluted product hazardous chemical ingredient or large quantities of it to reach ground water or water course. Consult with your Environmental Health & Safety Office for assistance.
Storage:	Store the kit components as specified in the product instructions / package insert provided with the test kit or in the instrument operation manual.
Caution, consult accompanying documents. Read and follow *BioPlex® 2200 System Instrument Manual* instructions.	
This product is intended for use with the Bio-Rad BioPlex® 2200 System.	

SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION MEASURES

Control Parameters – *Component chemicals with limit values that require monitoring at the workplace*:

Sodium Hydroxide [CAS# 1310-73-2]:		
Spitzenbegrenzung (Austria) *TWA (Austria)*	*4 mg/m³* *2 mg/m³*	*[AUVA, 4 mg/m3 8 times per shift, 5 minute(s)., 1995]* *[AUVA, 8 hr, 1995]*
CEIL (Belgium) *VL (Belgium)*	*2 mg/m³* *2 mg/m³*	*[Belgium Minister of Labour, 1998]* *[Belgium Minister of Labour, 8 hr, 1998]*
Loftværdi (Denmark) *GV (Denmark)*	*2 mg/m³* *2 mg/m³*	*[DK-Arbejdstylsinet, 1996]* *[DK-Arbejdstylsinet, 8 hr, 1996]*
TWA (France)	*2 mg/m³*	*[INRS, 8 hr, 1998]*
Spitzenbegrenzung: (Germany) *TWA (Germany)*	*2 mg/m³* *2 mg/m³*	*[BAUA, 1997]* *[BAUA, 8 hr, 1997]*
KTV (Sweden)	*2 mg/m³*	*[AFS, 15 min., 1996]*
STEL (United Kingdom)	*2 mg/m³*	*[EH40-OES, 15 min., 1997]*

Sodium Hydroxide [CAS# 1310-73-2]:		
STEL (Ireland)	*2 mg/m³*	*[National Authority for Occupational Safety/Health 8 hr, 1999]*
CEIL (United States)	*2 mg/m³*	*[ACGIH, 1994]*
CEIL (United States)	*2 mg/m³*	*[OSHA 29,1910.1000 Z-1, 1989]*
TWA (United States)	*2 mg/m³*	*[OSHA 29,1910.1000, 1993]*
CEIL (United States)	*2 mg/m³*	*[NIOSH REL, 1994]*
[Source: Raw Material Vendor Safety Data Sheet and regulatory websites]		

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

The following personal protective equipment (PPE) is recommended to prevent blood or other potentially infectious or hazardous materials from reaching the user's work or street clothes, skin, mouth, mucous membranes and eyes, or hazardous inhalation, under normal conditions of use and for the time during which the protective equipment is utilized**:**

Ventilation:	Adequate lab ventilation is required.
Eye / Face Protection:	Wear ANSI approved safety glasses, goggles or face shield with safety glasses or goggles. Contact lenses should not be worn when handling lab hazards.
Protective Gloves:	Suitable gloves must be worn at all times when handling kit reagents or patient samples to provide skin protection from splash and intermittent contact. Synthetic gloves, such as Nitrile, Neoprene and Vinyl, are recommended because they are sturdy, effective and contain no natural latex ingredients associated with latex glove allergic reactions. Disposable (single use) gloves should be changed often and never be reused. Wash hands thoroughly after removing gloves.
Protective Clothing:	Wear a lab coat, clinic jacket, gown, apron and/or smock. Disposable clothing is strongly recommended when handling biohazardous material.
Respiratory Protection:	Do not breathe mist / vapours / spray.
Other:	All personal protective equipment should be removed before leaving the work area and placed in an appropriately designated area or container for storage, processing, decontamination or disposal.
Note:	Occupational exposure limit values and health hazard data were given in Section 3. Environmental Controls are included in following sections.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear aqueous liquid.		
Odour:	Odorless. *	**Odour Threshold:**	Not Established.
pH:	pH ~ 14*.		
Boiling Point:	Approximately 102°C (216°F)*.	**Melting Point:**	Approximately -4°C (25 °F) *.
Flash Point:	Not Applicable. Flammable limits: LEL/LFL is Not applicable; UEL/UFL is Not applicable.		
Evaporation rate:	No applicable information was found.		
Fire Hazard:	Although the components have not been tested for fire hazard and explosion data, being water-based, they are not expected to be fire hazards, but some of the kit packaging materials may burn under fire conditions.		
Vapor Pressure:	No applicable information was found.		
Vapor Density:	No applicable information was found.		
Relative Density:	Approximately 1.04*.		
Solubility:	Miscible in water. Alkali solutions may release heat.		
Partition coefficient (n-octanol/water):	No applicable information was found.		
Auto Igniting:	Product is not known to be self-igniting.		

Decomposition temperature:	No applicable information was found.
Viscosity:	No applicable information was found.
Danger of Explosion:	Product is not known to present an explosion hazard.
Conversion Factor:	1 ppm = 2.45 mg/L; 1_ mg/L = 0.41 ppm (calculated).
No Other Standard Characteristics applicable to the identification or hazards of the product are known.	

** Source: Raw Material Vendor Safety Data Sheet*

SECTION 10: STABILITY AND REACTIVITY INFORMATION

NOTE: Chemical reactions that could result in a hazardous situation (e.g. generation of flammable or toxic chemicals, fire or detonation) are listed here. Many of these reactions can be done safely if specific control measures (e.g. cooling of the reaction) are in place. Although not intended to be complete, an overview of important reactions involving common chemicals is provided to assist in the development of safe work practices.

Chemical Stability / Reactivity:	Components are stable with no known inherent significant reactivity, except the basic solutions, which may have an exothermic reaction with certain chemicals, particularly strong acids organic materials, chlorinated solvents, and aluminum.
Conditions to Avoid:	None known when used as intended.
Incompatible Materials:	**Sodium hydroxide** in contact with acids and organic halogen compounds, especially trichloroethylene, may causes violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even a fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.
Hazardous Decomposition Products:	May release toxic oxides of carbon, nitrogen or sodium.
Hazardous Polymerization:	Has not been reported to occur.

SECTION 11: TOXICOLOGICAL INFORMATION -- GENERAL COMPOSITE

Refer to Sections 2 and 3 for the kit component concentrations. The composite toxicological information for this product is:

Acute Health Effects

Toxicity:	Harmful in contact with skin and if swallowed. Harmful to eyes upon contact; in case of contact with eyes, immediately rinse with copious water and seek medical attention.
Primary Irritant Effect:	Irritating to skin and severely irritating or corrosive to eyes, and with greater exposures can cause eye damage, including permanent impairment of vision or blindness.
Corrosivity:	Causes severe skin burns and eye damage. Corrosive, able to cause severe burns of the mucous membranes, skin and eyes; can cause permanent eye damage or blindness. May cause ingestion corrosive effects, including burning throat, mouth and stomach.
Serious Eye Damage / Irritation:	Risk of serious damage to eyes. Irritating to skin and severely irritating or corrosive to eyes, and with greater exposures can cause eye damage, including permanent impairment of vision or blindness.
STOT-Single Exposure:	No applicable information was found.
STOT-Repeated Exposure:	No applicable information was found.
Aspiration Hazard:	No applicable information was found.
Other Acute Health Effects:	No significant other acute health effect known.

Chronic Toxicity

Sensitization:	No sensitization effect known.

Carcinogenicity:	No carcinogenic effect known. No component, mixture or constituent has been classified as a carcinogen by NTP, IARC or OSHA.
Germ Cell Mutagenicity:	No applicable information was found.
Reproductive hazard:	No reproductive toxic effect known.

Additional Toxicological Information: The chemical, physical and toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

This product was not tested. The following assessment is based on information for the ingredients.	
Ecotoxicity:	**Concentrated *Sodium Hydroxide* [CAS# 1310-73-2]*:** Toxicity to fish LC_{50} - Gambusia affinis (Mosquito fish) - 125 mg/l - 96 h Immobilization EC_{50} - Daphnia - 40.38 mg/l - 48 h * *Source: Raw Material Vendor Safety Data Sheet*
Persistence and degradability:	No information found.
Bioaccumulation potential:	This material is not expected to significantly bioaccumulate or to be toxic to aquatic life.
Mobility in soil:	No information found.
PBT and vPvB assessment:	No information found.
Other adverse affects:	Hazardous for drinking water and toxic to aquatic organisms by pH modification if not neutralized. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal of hazardous and/or laboratory wastes, product or packaging must be conducted in accordance with all applicable local, regional, national and international regulations. This section specifies the general and United States RCRA requirements. Processing, use or contamination of the kit components may change waste management requirements and options. Contact your Environmental Health & Safety Office for your specific disposal procedures.

Recommended Product Disposal: Dilute **1N NaOH Basic** Waste pH ~14 should to be neutralized to pH 6-8 for safe sewer disposal in many areas, check your local, regional, national and international ordinances accordingly. In addition, if the final pH measures ≥ 12.5, it requires disposal as a corrosive material in a RCRA approved dangerous waste facility (or equivalent); the US RCRA Waste disposal Code for this waste, if not neutralized, is D002, check your international, national, regional and local ordinances accordingly.

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

Recommended Unclean Packaging Disposal: Dispose in accordance with all applicable local, regional, national and international regulations.

SECTION 14: TRANSPORT INFORMATION

Shipping of product, packaging and waste must be conducted in accordance with all applicable local, regional, national and international regulations. Processing, use or contamination of the kit components may change shipping requirements and options. Contact your Environmental Health & Safety Office for your specific shipping procedures.

Recommended Product Multi-Modal Transportation: According to US DOT, IATA and UN "Model Regulations", the product must be transported as follows: Air and land transportation information for discarded kit components and waste from this product when used as intended is:

This kit contains **1N Sodium hydroxide (**4% w/v NaOH), thus any un-neutralized discarded kit component or waste generated from its use resulting in a corrosive liquid (pH ≤ 2 or an pH ≥ 12.5 per Method 9040 (USEPA Publication SW-846) or Corrodes Steel (NACE Standard TM-01-69)) must be transported as follows:

Proper Shipping name: **Sodium Hydroxide Solution**
UN Class: **8**
Packing group **II**
UN ID Number: **UN 1824**

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

SECTION 15: REGULATORY INFORMATION

Composite HMIS Rating: Health: 2 Flammability: 0 Reactivity: 1

California Proposition 65: The Product does not contain listed substances.

Carcinogenicity Categories: No component, mixture or constituent has been classified as a carcinogen by NTP (National Toxicity Program), IARC (International Agency for Research on Cancer), TLV-CAR (Threshold Limit Value established by ACGIH) or OSHA (Occupational Health and Safety Administration, U.S. Department of Labor).

National Regulations:

WHMIS Classification: This SDS contains the required information in accordance with the **Workplace Hazardous Materials Information System (WHMIS) Canadian Standard** for the hazard classification criteria for this product.

Composite WHMIS Hazard Class: **Class E - Corrosive material**

Mexican Standard: This SDS contains the required information for preparation in accordance with the **Mexican Standard** (NMX-R-019-SCFI-2011) *SISTEMA ARMONIZADO DE CLASIFICACIÓN Y COMUNICACIÓN DE PELIGROS DE LOS PRODUCTOS QUÍMICOS GLOBALLY HARMONIZED SYSTEM (GHS)*.

Australian Code: This SDS contains the required information for preparation in accordance with the *Australian Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals* under Section 274 of the **Work Health and Safety Act**. *Australian Inventory of Chemical Substances*: All pertinent ingredients are listed.

Korean* Code*: This SDS contains the required information in accordance with the **Korean Public Notice 2008-26** for the hazard classification criteria for this product.

Markings according to *European Community* 1999/45/EC, 2001/59/EC, 2001/60/EC, 2006/102/EC guidelines:

This product has been classified and labeled in accordance with applicable *European Community (EC) Directives* 1999/45/EC, 2001/59/EC, 2001/60/EC and 2006/102/EC.

Hazard Designation of Composite Product: CORROSIVE: C 

Hazard Determining Substance(s) of Labeling: **1N Sodium hydroxide** (4% NaOH), CAS# 1310-73-2, EC No 215-185-5 [Corrosive: C; R 21/22-34-41; S 24/25-26-28-36/39-45-60.]

SECTION 16: OTHER INFORMATION

Risk Phrases:

R 21/22	Harmful in contact with skin and if swallowed.
R 34	Causes burns.
R 41	Risk of serious damage to eyes.

Safety Phrases:

S 24/25	Avoid contact with skin and eyes.
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 28	After contact with skin, wash immediately with plenty of *soap and water*.
S 36/39	Wear suitable protective clothing and eye/face protection.
S 45	In case of accident or if you feel unwell, seek medical advice immediately.
S 60	This material and its container must be disposed of as hazardous waste.

This test kit should be handled only by qualified personnel trained in laboratory procedures and familiar with their potential hazards. Specific warnings are given in the instructions for use. The absence of a specific warning should not be interpreted as an indication of safety.

This product is intended for use with the Bio-Rad BioPlex® 2200 System.

Sources of key data used to compile the Safety Data Sheet:
Raw Material Vendor Safety Data Sheets
United Nations (UN) Globally Harmonized System (GHS)
United States OSHA Hazard Communication Standard (US HCS) 1910.1200
Canadian Workplace Hazardous Materials Information System (WHMIS)
European Community (EC) Regulations 2008/1272/EC, 2010/453/EC, 2006/1907/EC
Mexican Standard *(NMX-R-019-SCFI-2011)*
Australian Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals (Section 274 of the Work Health and Safety Act)
EU Directives 1999/45/EC, 2001/59/EC, 2001/60/EC, 2006/102/EC
Registry of Toxic Effects of Chemical Substances (RTECS)
International Agency for Research on Cancer (IARC)
American Conference of Governmental Industrial Hygienists (ACGIH)
Occupational Safety and Health Administration, U.S. Department of Labor (OSHA)
National Toxicity Program (NTP)
National Institute for Occupational Safety and Health (NIOSH)
World Health Organization. *Laboratory Biosafety Manual*
CDC/NIH *Biosafety in Microbiological and Biomedical Laboratories*
Australian Inventory of Chemical Substances (ACIS) [7-27-2012]
California Proposition 65

Chemical safety assessment: Mixtures covered in this SDS were classified using the US HCS, EU Regulation 1272/2008/EC and/or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Fourth edition unless otherwise specified.

Key / legend to abbreviations and acronyms used in the safety data:
ACGIH – American Conference of Governmental Industrial Hygienists
ACIS – Australian Inventory of Chemical Substances
ANSI – American National Standards Institute
CAS – Chemical Abstracts Service
CDC – Centers for Disease Control, USA
CNS – Central Nervous System
DOT – Department of Transportation
EC_{50} – half maximal effective concentration
EU – European Union
GHS – Globally Harmonized System
IARC – International Agency for Research on Cancer
IATA – International Air Transport Association
ICAO - International Civil Aviation Organization
IDLH – Immediately Dangerous to Life or Health
IMDG – International Maritime Dangerous Goods
IPCS – International Programme on Chemical Safety
LC_{50} – median lethal concentration, 50%
LD_{50} – median lethal dose, 50%
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicity Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
RTECS – Registry of Toxic Effects of Chemical Substances

SDS – Safety Data Sheet
STEL – Short Term Exposure Limit
TLV/TWA – Threshold Limit Value / Time-Weighted Average
UN – United Nations
US EPA – United States Environmental Protection Agency
US HCS – Hazard Communication Standard, USA
US OSHA – Occupational Safety and Health Administration, U.S. Department of Labor
WHMIS –Workplace Hazardous Materials Information System (Canadian)
WHO – World Health Organization (United Nations)

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

This Revision: Updated, reformatted and added new US HCS/GHS information.

Department issuing SDS: Environmental Health and Safety.

Contact for general SDS information: Seattle Operations, Environmental Health & Safety, 6565 185th Ave. NE, Redmond, WA 98052, USA, Phone: 425-881-8300 (8 am to 5 pm PT), ro-sds@bio-rad.com

Customer support contact: Clinical Diagnostics Group, 4000 Alfred Nobel Drive, Hercules, CA 94547, USA Phone: 1-800-224-6723, FAX: 510-741-6373, www.bio-rad.com/diagnostics

Contact** Local Bio-Rad Agents **for general information:

Australia, Bio-Rad Laboratories Pty. Ltd., Level 5, 446 Victoria Road, Gladesville NSW 2111 • Phone 61-2-9914-2800 • Telefax 61-2-9914-2888
Austria, Bio-Rad Laboratories Ges.m.b.H., Hummelgasse 88/3-6, A-1130 Vienna • Phone 43-1-877-8901 • Telefax 43-1-876-5629
Belgium, Bio-Rad S.A.-N.V. Begoniastraat 5, B-9810 Nazareth Eke • Phone 32-9-385-5511 • Telefax 32-9-385-6554
Brazil, Bio-Rad Laboratórios Brasil Ltda, Rua Alfredo Albano da Costa, 100, sl 1, 2 e 3, Lagoa Santa, CEP 33.400-000 • Phone +55 (31) 3689-6600 • Telefax +55 (31) 3689-6611
Canada, Bio-Rad Laboratories, Ltd., 2403 Guénette Street, Montréal, Québec H4R 2E9 • Phone 1-514-334-4372 • Telefax 1-514-334-4415
China, Bio-Rad Laboratories Shanghai Ltd. 3rd Floor, #18 Dong Fang Road, Bldg E, Poly Plaza, Pudong, Shanghai, PRC 200120 • Phone 86-21-61698500 • Telefax 86-21-61698599
Czech Republic, Bio-Rad spol. s r.o., Nad ostrovem 1119/7, 147 00 Prague 4 • Phone 420-241-430-532 • Telefax 420-241-431-642
Denmark, Bio-Rad Laboratories, Symbion Science Park, Fruebjergvej 3, DK-2100 Copenhagen East • Phone +45-4452-1000 • Telefax +45-4452-1001
Finland, Bio-Rad Laboratories, Linnanherrankuja 16, FIN-00950 Helsinki • Phone 358-9-804-22-00 • Telefax 358-9-7597-5010
France, Bio-Rad, 3 boulevard Raymond Poincaré, 92430 Marnes-la-Coquette • Phone 33-1-47-95-60-00 • Telefax 33-1-47-41-91-33
Germany, Bio-Rad Laboratories GmbH, Heidemannstrasse 164, D-80939 Munich • Phone +49 (0)89-318-840 • Telefax +49 (0)89-318-84100
Greece, Bio-Rad Laboratories M E.P.E, 2-4 Mesogeion Street, Fourth Floor 115 27 Athens • Phone 30-210-7774396 • Telefax 30-210-7774376
Hong Kong, Bio-Rad Pacific Ltd., Unit 1101, 11/F DCH Commercial Centre, 25 Westlands Road, Quarry Bay • Phone 852-2789-3300 • Telefax 852 2789-1290
Hungary, Bio-Rad Hungary Ltd., H-1082 Budapest, Futo Street 47-53, Hungary • Phone +36-1-459-6100 • Telefax +36-1-459-6101
India, Bio-Rad Laboratories (India) Pvt. Ltd., Bio-Rad House, 86-87, Udyog Vihar Phase - IV, Gurgaon, Haryana 122 015 • Phone 1800-180-1224 • Telefax 91-124-2398115
Israel, Bio-Rad Laboratories Ltd., 14 Homa Street, New Industrial Area, Rishon Le Zion 75655 • Phone 972-3-9636050 • Telefax 972-3-9514129
Italy, Bio-Rad Laboratories S.r.l., Via Cellini 18/A, 20090 Segrate, Milan • Phone +39-02-216091 • Telefax +39-02-21609553
Japan, Bio-Rad Laboratories K.K., Tennoz Central Tower 20F, 2-2-24 Higashi-Shinagawa, Shinagawa-ku, Tokyo 140-0002 • Phone 81-3-6361-7070 • Telefax 81-3-5463-8481
Korea, Bio-Rad Korea Ltd., 10th Floor, Hyunjuk Building, 832-41, Gangnam-gu, Seoul 135-080 • Phone 82-2-3473-4460 • Telefax 82-2-3472-7003
Mexico, Bio-Rad, S.A., Avenida Eugenia 197, Piso 10-A, Col. Narvarte, C.P. 03020 Mexico, D.F. • Phone +52 (55)5488-7670 • Telefax +52 (55)1107-7246
The Netherlands, Bio-Rad Laboratories B.V., Fokkerstraat 2-8, 3905 KV Veenendaal • Phone +31-318-540666 • Telefax +31-318-542216
New Zealand, Bio-Rad New Zealand, 189 Bush Road Unit B, Albany, Auckland • Phone 64-9-415-2280 • Telefax 64-9-415-2284
Norway, Bio-Rad Laboratories, Nydalsveien 33, 0484 Oslo • Phone +47-23-38-41-30 • Telefax +46(0)8-5551-2780, Email: Michael_Kissi@bio-rad.com
Poland, Bio-Rad Polska Sp. z o.o., Nakielska Str. 3, 01-106 Warsaw • Phone 48-22-3319999 • Telefax 48-22-3319988
Portugal, Bio-Rad Laboratories, Lda., Edificio Prime, Ave. Quinta Grande, 53 – Fracção 3B Alfragide 26114-521 Amadora • Phone 351-21-472-7700 • Telefax 351-21-472-7777
Russia, Bio-Rad Laboratorii, Business Centre "West Bridge", Leningradsky pr-t H.37A Bld. 14, 125167 Moscow • Phone 7-495-721-14 04 • Telefax 7-495-721-14-12
Singapore, Bio-Rad Laboratories (Singapore) Pte. Ltd., 27 International Business Park, #01-02 iQuest @IBP, Singapore 609924 • Phone 65-6415-3170 • Telefax 65-6415-3189
South Africa, Bio-Rad Laboratories (Pty) Ltd., 34 Bolton Road, Parkwood, Johannesburg 2193 • Phone 27-11-442-85-08 • Telefax 27-11-442-85-25
Spain, Bio-Rad Laboratories, S.A., C/ Caléndula, 95, Edificio M. Miniparc II, El Soto de la Moraleja, 28109 Madrid • Phone 34-91-590-5200 • Telefax 34-91-590-5211
Sweden, Bio-Rad Laboratories A.B., Box 1097, Solna Strandväg 3, SE-171 54, Solna • Phone +46-8-555-127-00 • Telefax +46-8-555-127-80
Switzerland, Bio-Rad Laboratories AG, Pra Rond 23 CH-1785 Cressier • Phone +41 (0)26-674-55-05/06 • Telefax +41 (0)26-674-52-19 • Email: swiss@bio-rad.com
Taiwan, Bio-Rad Laboratories Taiwan Ltd., 14F-B, No. 126 Nan-King East Road, Sec. 4, Taipei, Taiwan 10546 R.O.C. • Phone 886-2-2578-7189 • Telefax 886-2-2578-6890
Thailand, Bio-Rad Laboratories Ltd., 1st & 2nd Floor, Lumpini I Bldg., 239/2 Rajdamri Rd., Lumpini, Pathumwan, Bangkok 10330 • Phone 662-651-8311 • Telefax 662-651-8312
United Kingdom, Bio-Rad Laboratories Ltd., Bio-Rad House, Maxted Road, Hemel Hempstead, Herts HP2 7DX • Phone +44 (0)20-8328-2000 • Telefax +44 (0)20-8328-2550

This document was developed from information obtained from reputable sources, but does not purport to be all-inclusive. The data contained herein, which is based on our present knowledge and is intended for information purposes only, shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. Regulatory requirements are subject to change and vary from one location to another thus, it is the buyer's responsibility to ensure that its activities comply with international, national, regional and local laws and regulations. Bio-Rad Laboratories makes no warranty, expressed or implied, regarding the accuracy or completeness of these data or the results to be obtained from the use thereof. Since the use of this information and the conditions of use of the product are not within the control of Bio-Rad Laboratories, it is the user's obligation to determine the suitability of the information for the intended application and use appropriate safety procedures.