

SAFETY DATA SHEET

Date: November 13, 2019

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: 1X Tyramide Amplification Buffer Plus
Catalog Number: 99832-25mL, 99832-100mL
Unit Size: 25 mL or 100 mL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: <http://www.biotium.com>

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS Classification
Signal word None
Health hazards None
Physical hazards None
Hazard statements None
Precautionary statements None
WHMIS classification None
GHS hazard pictogram None

HMIS Classification
Health hazard: 0
Flammability: 0
Physical hazards: 0
NFPA Rating
Health hazard: 0
Fire: 0
Reactivity Hazard: 0

Classification according to Regulation (EC) No 1272/2008[CLP] None
Classification according to Directive 1999/45/EC None

Labeling according to Regulation (EC) No 1272/2008[CLP]
Hazard pictogram None
Signal word None
Hazard statements None
Precautionary statements None

3. COMPOSITION/INFORMATION ON INGREDIENTS

No ingredients present at concentrations classified as hazardous to health or the environment.

4. FIRST-AID MEASURES**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES**Suitable extinguishing media**

Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

Special protective equipment for firefighters

Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Avoid breathing vapors, mist or gas. Remove all sources of ignition.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid inhalation of vapor or mist.
Avoid direct contact with substance.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.
Store at 4°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

None

Personal protective equipment**Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	1X Tyramide Amplification Buffer Plus
Appearance	Clear liquid
Odor	No data available
Odor threshold	No data available
pH	8.5
Melting point/freezing point	No data available
Boiling point	No data available

Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Water soluble
Partition coefficient:n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

No data available

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 None

Inhalation LC50 None

Dermal LD50 None

Other information on acute toxicity No data available

Skin corrosion/irritation No data available

Serious eye damage/eye irritation No data available

Respiratory or skin sensitization No data available

Germ cell mutagenicity No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.

Additional Information

RTECS: None

12. ECOLOGICAL INFORMATION

Toxicity No information available
Persistence and degradability No information available
Biodegradation No information available
Mobility in soil No information available
Results of PBT and vPvB assessment No information available
Other adverse effects No information available
Additional information No information available

13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation
UN number None
UN proper shipping name None
Transport hazard class None
Packing group None
Environmental hazards None
Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None
Special precaution for user None

15. REGULATION INFORMATION**US Federal Regulations**

US Toxic Substances Control Act (TSCA): Not listed
SARA 302: No chemicals were found.
SARA 313: No chemicals were found.
SARA 311/312 Hazards: No chemicals were found.

WHMIS Hazard Class None

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008
Refer to section 2 and section 3

Prepared by: Regulatory Department
Biotium Inc.

Version no. 1
Revision date (Initials) N/A
Reason for revision N/A

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.

SAFETY DATA SHEET

Date: November 13, 2019

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: 30% Hydrogen peroxide
Catalog Number: 99823-100uL, 99823-1mL
Unit Size: 100 uL, 1 mL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: <http://www.biotium.com>

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS Classification

Signal word Danger

Health hazards

Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

Physical hazards None

Hazard statements

H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

WHMIS classification

Oxidizing liquids - Grade 1
Acute toxicity - oral - Category 4
Skin corrosion / irritation - Category 1
Serious eye damage / eye irritation - Category 1
Health hazards not classified elsewhere (corrosion) - Category 1

GHS hazard pictograms



Classification according to Regulation (EC) No 1272/2008[CLP] None
Classification according to Directive 1999/45/EC None

HMIS Classification

Health hazard: 3
Flammability: 0
Physical hazards: 2
NFPA Rating
Health hazard: 3
Fire: 0
Reactivity Hazard: 2
Special Hazard: OX

Labeling according to Regulation (EC) No 1272/2008[CLP]

Hazard pictogram



Signal word Danger

Hazard statements

H318	Causes serious eye damage
H302	Harmful if swallowed
H332	Harmful if inhaled
H335	May cause respiratory irritation
H315	Causes skin irritation
H270	May cause or intensify fire; oxidizer

Precautionary statements

P271	Use only outdoors or in a well-ventilated area
P261	Avoid breathing mist/vapors/spray
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P221	Take any precaution to avoid mixing with combustibles/flammables
P220	Keep/Store away from clothing/flammable materials/combustibles
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
P310	Immediately call a POISON CENTER or doctor
P302 + P352	IF ON SKIN: Wash with plenty of water and soap
P332 + P313	If skin irritation occurs: Get medical advice/ attention
P362 + P364	Take off all contaminated clothing and wash it before reuse
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P370 + P378	In case of fire: Use water for extinction

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Index No.	Weight %	Classification according to 67/548/EEC	Classification according to regulation (EC)No1278/2008
Hydrogen peroxide	7722-84-1	231-765-0	008-003-00-9	30%	-	Ox. Liq. 1 Acute Tox. 4 Skin Corr. 1A

4. FIRST-AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

Special protective equipment for firefighters

Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid breathing vapors, mist or gas. Remove all sources of ignition.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid inhalation of vapor or mist.

Avoid direct contact with substance.

Conditions for safe storage

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

Store at 4 °C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Substance Hydrogen peroxide

CAS no. 7722-84-1

Country	Australia	Austria	Belgium	Canada	Denmark	Finland
Limit value, 8hours	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm	1.5 mg/m ³ 1 ppm
Limit value, short term	--	2.8 mg/m ³ 2 ppm	--	--	2.8 mg/m ³ 2 ppm	4.2 mg/m ³ (1) 3 ppm (1)

Country	France	Germany (DFG)	Ireland	People's Republic of China	Singapore	South Korea
Limit value, 8hours	1.5 mg/m ³ 1 ppm	0.71 mg/m ³ 0.5 ppm	1.5 mg/m ³ 1 ppm	1.5 mg/m ³	1.4 mg/m ³ 1 ppm	1.5 mg/m ³ 1 ppm
Limit value, short term	--	0.71 mg/m ³ 0.5 ppm	3 mg/m ³ (1) 2 ppm (1)	--	--	--

Country	Spain	Sweden	Switzerland	United Kingdom	USA-NIOSH	USA-OSHA
Limit value, 8hours	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm	0.71 mg/m ³ 0.5 ppm	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm	1.4 mg/m ³ 1 ppm
Limit value, short term	--	3 mg/m ³ (1) 2 ppm (1)	0.71 mg/m ³ 0.5 ppm	2.8 mg/m ³ 2 ppm	--	--

Finland (1) 15 minutes average value
Ireland (1) 15 minutes reference period
Sweden (1) 15 minutes average value

Personal protective equipment

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	30% Hydrogen peroxide
Appearance	Liquid
Odor	No information available
Odor threshold	No information available
pH	<3.7
Melting point/freezing point	-33°C
Boiling point	108°C
Flash point	Not flammable
Evaporate rate	> 1 (n-butyl acetate=1)
Flammability	No information available
Explosive limits	No information available
Vapor pressure	23 mm Hg @ 30 °C

Vapor density	No information available
Relative density	No information available
Solubility	Soluble
Partition coefficient:n-octanol/water	log Kow = -1.5 @ 20 °C
Auto-ignition temperature	No information available
Decomposition temperature	100 °C (adiabatic)
Viscosity	No information available
Explosive properties	No information available
Oxidizing properties	Strong oxidizer

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Combustible materials. Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides
 Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 1193 mg/kg bw (rat)

Inhalation LC50 Hydrogen Peroxide vapors: LC50 > 2160 mg/m³ (mouse)

Dermal LD50 > 2000 mg/kg bw (rabbit)

Other information on acute toxicity no data available

Skin corrosion/irritation Moderately irritating (rabbit)

Serious eye damage/eye irritation Corrosive. Risk of serious damage to eyes.

Respiratory or skin sensitization no data available

Germ cell mutagenicity no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
 no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

Eyes, Respiratory System, Skin

Aspiration hazard

Aspiration risk: may cause lung damage if swallowed

Potential health effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Additional Information

RTECS: None

17. ECOLOGICAL INFORMATION

Toxicity	Freshwater Algae-- EC50 2.5 mg/L/72h Freshwater Fish-- LC50: 16.4 mg/L/96h (P.promelas)
Persistence and degradability	no information available
Biodegradation	no information available
Mobility in soil	Mobile
Results of PBT and vPvB assessment	no information available
Other adverse effects	no information available
Additional information	no information available

12. DISPOSAL CONSIDERATIONS**Product**

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

13. TRANSPORT INFORMATION

Not hazardous good during shipping

IATA, IMDG, DOT (US), TDG**UN number** 2014**UN proper shipping name** Hydrogen peroxide, aqueous solutions**Transport hazard class** 5.1 (8)**Packing group** II**Environmental hazards** None**Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code** None**Special precaution for user** None

14. REGULATION INFORMATION**US Federal Regulations**

US Toxic Substances Control Act (TSCA): Hydrogen peroxide CAS No. 7722-84-1

SARA 302: Hydrogen peroxide CAS No. 7722-84-1

SARA 313 Components: No chemicals were found.

SARA 313: No chemicals were found.

SARA 311/312 Hazards: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

WHMIS Hazard Class

15. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008
Refer to section 2 and section 3

Prepared by: Regulatory Department
Biotium Inc.
Version no. 3
Revision date (Initials) 11/13/19 (LR)
Reason for revision Change to unit size.

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.