G-Biosciences, St Louis, MO, USA ♦ 1-800-628-7730 ♦ 1-314-991-6034 ♦ technical@GBiosciences.com

A Geno Technology, Inc. (USA) brand name

Safety Data Sheet

OmniPrep™ for Yeast

Cat. # 786-400

2-mercaptoethanol

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 10/9/2015 Revision date: 10/31/2025 Supersedes: 1/17/2025 Version: 5.0

SECTION 1 Identification

1.1. Product identifier

Product form	:	Substance
Substance name	:	2-mercaptoethanol
Chemical name	:	2-Mercaptoethanol ; Mercaptoethanol
CAS-No.	:	60-24-2
Product code	:	P001_103M
Formula	:	C2H6OS
BIG No	:	10274

1.2. Other means of identification

Synonyms	:	1-ethanol-2-thiol / 1-hydroxy-2-mercaptoethane / 1-mercapto-2-hydroxyethane / 2-hydroxy-1-ethanethiol / 2-hydroxyethanethiol / 2-hydroxyethyl mercaptan / 2-ME / 2-mercapto-1-ethanol / 2-mercaptoethanol / 2-mercaptoethyl alcohol / 2-thioethanol / beta-hydroxyethanethiol / beta-hydroxyethylmercaptan / beta-mercaptoethanol / BME / emery 5791 / ethanol, 2-mercapto- / ethylene glycol, monothio- / ethylene thioglycol / hydroxyethyl mercaptan / mercapto-2 ethanol / METH / monothioethyleneglycol / monothioglycol / thioethylene glycol / thioglycol / thiomonoglycol / USAF EK-4196
Other means of identification	:	Ethanol, 2-mercapto-
EC-No.	:	200-464-6

1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture	:	Solvent,Pesticide: intermediate product

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number	:	Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquid, Category 4	H227	Combustible liquid.
Acute toxicity (oral), Category 3	H301	Toxic if swallowed.
Acute toxicity (dermal), Category 3	H311	Toxic in contact with skin.
Acute toxicity (inhalation), Category 3	H331	Toxic if inhaled.
Acute toxicity (inhalation:dust,mist), Category 4	H332	Harmful if inhaled.
Skin corrosion/irritation, Category 2	H315	Causes skin irritation.
Serious eye damage/eye irritation, Category 1	H318	Causes serious eye damage.
Skin sensitization, Category 1A	H317	May cause an allergic skin reaction.
Specific target organ toxicity — Repeated exposure, Category 2	H373	May cause damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment — Acute Hazard, Category 1	H400	Very toxic to aquatic life.

Full text of H statements : see section 16

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) : H227 - Combustible liquid
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 - Do not breathe dust, fume, gas, mist, vapors, spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves.
P301+P310 - If swallowed: Immediately call a poison center or doctor.
P302+P352 - If on skin: Wash with plenty of water.
P304+P340 - If inhaled: Remove person to fresh air and keep 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.
P310 - Immediately call a poison center or doctor.
P311 - Call a poison center or doctor.
P312 - Call a poison center or doctor if you feel unwell.
P314 - Get medical advice or attention if you feel unwell.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P330 - Rinse mouth.
P333+P313 - If skin irritation or rash occurs: Get medical advice or attention.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use appropriate media to extinguish.
P391 - Collect spillage.
P403 - Store in a well-ventilated place.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
2-mercaptoethanol (Main constituent)	1-ethanol-2-thiol / 1-hydroxy-2-mercaptoethane / 1-mercapto-2-hydroxyethane / 2-hydroxy-1-ethanethiol / 2-hydroxyethanethiol / 2-hydroxyethyl mercaptan / 2-ME / 2-mercapto-1-ethanol / 2-mercaptoethanol / 2-mercaptoethyl alcohol / 2-thioethanol / beta-hydroxyethanethiol / beta-hydroxyethylmercaptan / beta-mercaptoethanol / BME / emery 5791 / ethanol, 2-mercapto- / ethylene glycol, monothio- / ethylene thioglycol / hydroxyethyl mercaptan / mercapto-2 ethanol / METH / monothioethylene glycol / monothioglycol / thioethylene glycol / thioglycol / thiomonoglycol / USAF EK-4196	CAS-No.: 60-24-2	100	Flam. Liq. 4, H227 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1A, H317 STOT RE 2, H373 Aquatic Acute 1, H400

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Call a doctor.

First-aid measures after skin contact : Immediately call a poison center or doctor/physician. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Specific measures (see supplemental first aid instruction on this label). Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). Wash skin with plenty of water. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Immediately call a poison center or doctor/physician. Specific treatment (see supplemental first aid instruction on this label). Call a physician immediately.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Odour tolerance may develop. Toxic if swallowed. Causes skin irritation. Fatal in contact with skin. Toxic if inhaled. Causes serious eye damage. Based on available data, the classification criteria are not met. Harmful if inhaled. Toxic if swallowed. Toxic in contact with skin.

Symptoms/effects : Causes damage to organs.

Symptoms/effects after inhalation : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. Toxic if inhaled.

Symptoms/effects after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin. Causes skin irritation. Irritation. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Causes serious eye damage. Serious damage to eyes.

Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : Skin rash/inflammation.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : Combustible liquid.

Explosion hazard : May form flammable/explosive vapor-air mixture.

Hazardous decomposition products in case of fire : On burning: release of toxic and corrosive gases/vapours (sulphur oxides, carbon monoxide - carbon dioxide).

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	:	Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment	:	Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034). Large spills/in enclosed spaces: self-contained breathing apparatus (EN 136 + EN 137). Large spills/in enclosed spaces: gas-tight suit (EN 943).
Emergency procedures	:	Ventilate spillage area. Evacuate unnecessary personnel. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes and clothing. No open flames, no sparks, and no smoking.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.
Environmental precautions	:	Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.2. Methods and materials for containment and cleaning up

For containment	:	Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up	:	Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. Notify authorities if product enters sewers or public waters.
Other information	:	Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Always wash hands after handling the product.
Additional hazards when processed	:	Handle empty containers with care because residual vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

7.2. Conditions for safe storage, including incompatibilities

Technical measures	:	Proper grounding procedures to avoid static electricity should be followed.
Storage conditions	:	Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use. Keep in fireproof place. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Storage area	:	Store in a cool area. Keep out of direct sunlight. Store in a dry area. Ventilation at floor level. Fireproof storeroom. Keep locked up. Provide for a tub to collect spills. Provide the tank with earthing. Unauthorized persons are not admitted. Meet the legal requirements.
Incompatible products	:	Strong bases. Strong acids.
Incompatible materials	:	Sources of ignition. Direct sunlight. Heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) acids. (strong) bases. alcohols. water/moisture.
Maximum storage period	:	24 months
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Materials for protective clothing:
Excellent resistance: butyl rubber. Good resistance: Nitrile rubber. Polyvinylchloride (PVC). plastics. rubber. Poor resistance: neoprene (chloroprene rubber)

Hand protection:
Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Wear appropriate mask. [In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid.
Color	:	Colourless to light yellow
Odor	:	Repulsive odour
Odor threshold	:	No data available
pH	:	4.6 – 6 (50 %)
Melting point	:	< -100 °C
Freezing point	:	No data available
Boiling point	:	156 °C (1013 hPa)
Flash point	:	74 °C (Open cup, 1013 hPa)
Relative evaporation rate (butyl acetate=1)	:	< 1
Flammability (solid, gas)	:	Not applicable. Combustible liquid.
Vapor pressure	:	1.33 hPa (20 °C)
Vapor pressure at 50°C	:	11 hPa
Relative vapor density at 20°C	:	2.7
Relative density	:	1.11 (20 °C)
Relative density of saturated gas/air mixture	:	1
Density	:	1110 kg/m³ (20 °C)
Molecular mass	:	78.13 g/mol
Solubility	:	Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in other organic solvents. Water: 100 g/100ml (20 °C)
Partition coefficient n-octanol/water (Log Pow)	:	-0.056 -0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C
Auto-ignition temperature	:	295 °C (1013 hPa, T3)
Decomposition temperature	:	157 °C
Viscosity, kinematic	:	2.9 mm²/s (20 °C, Calculated)
Viscosity, dynamic	:	3.22 mPa·s (20 °C)
Explosion limits	:	2.3 – 18 % Source: National Institute of Technology and Evaluation
Particle characteristics	:	Particle size : Not applicable (liquid)

9.2. Data relevant with regard to physical hazard classes (supplemental)

VOC content	:	100 %
Other properties	:	Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Acid reaction.

SECTION 10 Stability and reactivity

10.1. Reactivity

Reacts violently with (strong) oxidizers: (increased) risk of fire. Reacts violently with many compounds e.g.: with (strong) bases and (strong) reducers. Decomposes slowly on exposure to water (moisture) with (some) acids.

10.2. Chemical stability

Combustible liquid. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks. Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Toxic if swallowed.
Acute toxicity (dermal) : Toxic in contact with skin.
Acute toxicity (inhalation) : Toxic if inhaled. Inhalation:dust,mist: Harmful if inhaled.

2-mercaptoethanol (60-24-2)	
LD50 oral rat	98 – 168 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Read-across, Oral, 14 day(s))
LD50 dermal rabbit	112 – 224 mg/kg body weight (Other, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	2.03 mg/l (Other, 4 h, Rat, Male, Experimental value, Inhalation (vapours), 14 day(s))
ATE US (oral)	98 mg/kg body weight
ATE US (dermal)	112 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	2 mg/l/4h
ATE US (dust, mist)	2.03 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
pH: 4.6 – 6 (50 %)
Serious eye damage/irritation : Causes serious eye damage.
pH: 4.6 – 6 (50 %)
Respiratory or skin sensitization : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified

2-mercaptoethanol (60-24-2)	
NOAEL (animal/male, F0/P)	75 mg/kg body weight Animal: rat, Animal sex: male, Guideline: other:, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (animal/female, F0/P)	15 mg/kg body weight Animal: rat, Animal sex: female, Guideline: other:, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : Not classified

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

2-mercaptoethanol (60-24-2)	
LOAEL (oral,rat,90 days)	50 mg/kg body weight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)
NOAEL (oral,rat,90 days)	15 mg/kg body weight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)

Aspiration hazard : Not classified

2-mercaptoethanol (60-24-2)	
Viscosity, kinematic	2.9 mm²/s (20 °C, Calculated)

Potential Adverse human health effects and symptoms : Odour tolerance may develop. Toxic if swallowed. Causes skin irritation. Fatal in contact with skin. Toxic if inhaled. Causes serious eye damage. Based on available data, the classification criteria are not met. Harmful if inhaled. Toxic if swallowed. Toxic in contact with skin.

Symptoms/effects : Causes damage to organs.

Symptoms/effects after inhalation : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. Toxic if inhaled.

Symptoms/effects after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin. Causes skin irritation. Irritation. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Causes serious eye damage. Serious damage to eyes.

Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : Skin rash/inflammation.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : Very toxic to aquatic life.

Ecology - air : Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573). Photolysis in the air. Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590).

Ecology - water : Very toxic to aquatic life.

Hazardous to the aquatic environment, short-term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Not classified

2-mercaptoethanol (60-24-2)	
LC50 - Fish [1]	37 mg/l (DIN 38412-15, 96 h, Leuciscus idus, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	0.4 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)

2-mercaptoethanol (60-24-2)	
ErC50 algae	19 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)
EC50 72h - Algae [1]	12 mg/l Source: International Uniform ChemicaL Information Database
LOEC (chronic)	0.1264 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	> 0.0632 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

12.2. Persistence and degradability

2-mercaptoethanol (60-24-2)	
Persistence and degradability	Non degradable in the soil. Biodegradable in water. Not established.
Biochemical oxygen demand (BOD)	0.105 g O_2/g substance
Chemical oxygen demand (COD)	1.894 g O_2/g substance

12.3. Bioaccumulative potential

2-mercaptoethanol (60-24-2)	
Partition coefficient n-octanol/water (Log Pow)	-0.056 -0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C
Bioaccumulative potential	Not bioaccumulative. Not established.

12.4. Mobility in soil

2-mercaptoethanol (60-24-2)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.28 – 0.403 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations.
Additional information : Handle empty containers with care because residual vapors are flammable. Do not re-use empty containers.
Ecological waste information : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

UN-No. (DOT) : UN2966
UN-No. (TDG) : UN2966
UN-No. (IATA) : 2966

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Thioglycol
Proper Shipping Name (TDG) : THIOGLYCOL
Proper Shipping Name (IATA) : thioglycol

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 6.1
Hazard labels (DOT) : 6.1

TDG

Transport hazard class(es) (TDG) : 6.1
Hazard labels (TDG) : 6.1

IATA

Transport hazard class(es) (IATA) : 6.1
Hazard labels (IATA) : 6.1

14.4. Packing group

Packing group (DOT) : II
Packing group (TDG) : II
Packing group (IATA) : II

14.5. Environmental hazards

Dangerous for the environment : Yes
Marine pollutant : Yes

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT

UN-No. (DOT)	:	UN2966
DOT Special Provisions (49 CFR 172.102)	:	IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	153
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	202
DOT Packaging Bulk (49 CFR 173.xxx)	:	243
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

TDG

UN-No. (TDG)	:	UN2966
Explosive Limit and Limited Quantity Index	:	0.1 L
Excepted quantities (TDG)	:	E4
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	5 L

IATA

Transport regulations (IATA)	:	Subject to the provisions
PCA Excepted quantities (IATA)	:	E4
PCA Limited quantities (IATA)	:	Y641
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	654
PCA max net quantity (IATA)	:	5L
CAO packing instructions (IATA)	:	662
CAO max net quantity (IATA)	:	60L
ERG code (IATA)	:	6L

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency’s Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
2-mercaptoethanol	60-24-2	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 10/31/2025
Date of issue : 10/9/2015
Other information : None.

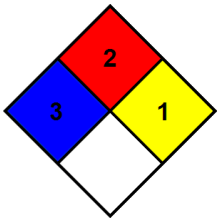
Full text of hazard classes and H-statements	
H227	Combustible liquid
H301	Toxic if swallowed
H311	Toxic in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H331	Toxic if inhaled
H332	Harmful if inhaled
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level

Abbreviations and acronyms	
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard	:	2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
NFPA reactivity	:	1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Precipitation Solution

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 5/17/2016 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : Precipitation Solution
Product code : 344P

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. Label elements

GHS US labeling

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria for section 3.2 of HCS

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : None under normal conditions.

Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.

Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Packaging materials : Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Odor	:	Odourless
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Potential Adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met.
Symptoms/effects	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	:	None under normal conditions.
Symptoms/effects after skin contact	:	None under normal conditions.
Symptoms/effects after eye contact	:	None under normal conditions.
Symptoms/effects after ingestion	:	None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	:	Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

Precipitation Solution	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Precipitation Solution	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.
Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not regulated
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated

TDG
Transport hazard class(es) (TDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not applicable
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not regulated

TDG
No data available

IATA
Not regulated

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):
No data available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 1/17/2025
Date of issue : 5/17/2016
Other information : None.

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road

Abbreviations and acronyms	
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

Abbreviations and acronyms	
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

DNA Stripping Solution

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 5/19/2016 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : DNA Stripping Solution
Product code : 189D

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation, Category 2	H315	Causes skin irritation.
Serious eye damage/eye irritation, Category 2	H319	Causes serious eye irritation.

Full text of H statements : see section 16

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning
Hazard statements (GHS US) : H315 - Causes skin irritation
H319 - Causes serious eye irritation
Precautionary statements (GHS US) : P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves.
P302+P352 - If on skin: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P332+P313 - If skin irritation occurs: Get medical advice or attention.
P337+P313 - If eye irritation persists: Get medical advice or attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification

sodium dodecyl sulphate, bulk density <400g/l	AI3-00356 / akyposal SDS / aquare<400ME / aquare<400methyl / avirol 101 / avirol 118 conc / berol 452 / carsonol SLS / carsonol SLS paste B / carsonol SLS special / casonol SLS pasta B / conco sulfate WA / conco sulfate WA1200 / conco sulfate WA-1200 / conco sulfate WA1245 / conco sulfate WA-1295 / conco sulfate WAG / conco sulfate WAN / conco sulfate WAS / conco sulfate WN / cycloryl 21 / cycloryl 31 / cycloryl 580 / cycloryl 585N / dehydag sulfate GL emulsion / dehydag sulphate GL emulsion / detergent 66 / dodecyl alcohol,hydrogen sulfate, sodium salt / dodecyl sodium sulfate / dodecyl sulfate sodium / dodecyl sulfate sodium salt / dodecylhydrogensulfate sodium salt / dreft / duponal / duponal WAQE / duponol / duponol C / duponol ME / duponol METHYL / duponol QX / duponol WA / duponol WA dry / duponol WAQ / duponol WAQA / duponol WAQE /	CAS-No.: 151-21-3	< 15	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319

	duponol WAQM / EMAL 0 / EMAL 10 / emersal 6400 / empicol LPZ / empicol LS 30 / empicol LX / emulsifier n° 104 / finasol osr(sub 2) / gaedinol / hexamol SLS / incronol SLS / irium / jordanol SL-300 / lanette wa<400S / lauryl sodium sulfate / lauryl sulfate sodium / lauryl sulfate sodium salt / maprobi<400neu / maprofi<400563 / maprofi<400LK / maprofi<400WAC / maprofi<400wac LA / melanol CL / melanol CL 30 / monododecyl sodium sulfate / monogen Y 100 / montopol la paste / n-dodecyl sulfate sodium / neutrazyme / nikkol SLS / odoripon AL 95 / orvus WA paste / P and G emulsifier 104 / perklankrol ESD 60 / perlandrol L / perlankrol L / product n° 161 / product n° 75 / quolac EX-UB / rewopol NLS 30 / richonol A / richonol AF / richonol C / SDS (= sodium dodecyl sulphate) / silfopon WA 1 special / silfopon WA 2 / sinnopon LS 100 / sinnopon LS 95 / sintapon L / sipe<400OP / sipe<400SB /			

	sipe<400SD / sipe<400SP / sipe<400UB / sipon LS / sipon LS 100 / sipon LSB / sipon PD / sipon WD / SLS (= sodium lauryl sulfate) / sodium dodecyl sulphate / sodium lauryl sulfate / sodium lauryl sulfate, powder / sodium lauryl sulphate / sodium monododecyl sulfate / sodium monolauryl sulfate / sodium N-dodecyl sulfate / solsol needles / standapol 112 conc / standapol NLS 90 / standapol WA-AC / standapol WAQ / standapol WAQ special / standapol WAS100 / steinapol NLS 90 / stepanol ME / stepanol ME DRY / stepanol ME DRY AW / stepanol methyl / stepanol METHYL DRY AW / stepanol T28 / stepanol WA / stepanol WA paste / stepanol WA-100 / stepanol WAC / stepanol WAQ / sterling WA paste / sterling WAQ-CH / sterling waq-cosmetic / sulfetal L 95 / sulfopon WA3 / sulfopon WAL / sulfote<400WA / sulfote<400WALA / sulfuric acid monododecyl			

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
	ester, sodium salt / sulfuric acid, monododecyl ester, sodium salt / swascol 1P / swascol 3L / swascol 4L / syntapon L / syntapon L pasta / tarapon K12 / texapon DL conc / texapon K12 / texapon K-1296 / texapon L100 / texapon V HC / texapon V HC powder / texapon Z high conc. needles / texapon ZHC / trepenol WA / TVM 474 / ultra sulfate SL-1 / WAQE (= sodium dodecyl sulfate) / witcolate A / witcolate A powder / witcolate C			

Full text of hazard classes and H-statements : see section 16

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : Causes skin irritation. Irritation.
Symptoms/effects after eye contact : Eye irritation.
Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.
Explosion hazard : No direct explosion hazard.
Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures	:	Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed	:	Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures	:	Keep in a cool, well-ventilated place away from heat.
Storage conditions	:	Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	:	Strong bases. Strong acids.
Incompatible materials	:	Sources of ignition. Direct sunlight.
Packaging materials	:	Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.
Eye protection:
Chemical goggles or safety glasses. Safety glasses
Skin and body protection:
Wear suitable protective clothing
Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colourless
Odor	:	Odourless
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
LD50 oral rat	1200 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	< 2000 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 2000 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Read-across, Dermal, 14 day(s))
ATE US (oral)	1200 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight

Skin corrosion/irritation : Causes skin irritation.

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
pH	9.1 (1 %)

Serious eye damage/irritation : Causes serious eye irritation.

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
pH	9.1 (1 %)

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
Viscosity, kinematic	Not applicable

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : Causes skin irritation. Irritation.
Symptoms/effects after eye contact : Eye irritation.
Symptoms/effects after ingestion : None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
LC50 - Fish [1]	29 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	6 mg/l Source: ECOTOX
EC50 - Other aquatic organisms [1]	11.1 mg/l Test organisms (species): other aquatic crustacea:Pseudosida ramosa
EC50 72h - Algae [1]	> 120 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	53 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 96h - Algae [1]	1.2 mg/l Source: ECOTOX
ErC50 algae	> 120 mg/l (DIN 38412-9, 72 h, Scenedesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)
NOEC chronic fish	≥ 1.357 mg/l Test organisms (species): Pimephales promelas Duration: '42 d'

12.2. Persistence and degradability

DNA Stripping Solution	
Persistence and degradability	Not established.

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

DNA Stripping Solution	
Bioaccumulative potential	Not established.

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
Partition coefficient n-octanol/water (Log Pow)	≤ -2.03 (Calculated, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)
Bioaccumulative potential	Not established.

12.4. Mobility in soil

sodium dodecyl sulphate, bulk density <400g/l (151-21-3)	
Surface tension	25.2 mN/m (23 °C, 1 g/l, EU Method A.5: Surface tension)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.5 – 2.7 (log Koc, Calculated value)
Ecology - soil	Low potential for adsorption in soil.

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste)	:	Disposal must be done according to official regulations.
Waste treatment methods	:	Waste treatment methods.
Sewage disposal recommendations	:	Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	:	Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information	:	Do not re-use empty containers.
Ecological waste information	:	Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT)	:	Not regulated
Proper Shipping Name (TDG)	:	Not applicable
Proper Shipping Name (IATA)	:	Not regulated

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : Not regulated

TDG

Transport hazard class(es) (TDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT)	:	Not regulated
Packing group (TDG)	:	Not applicable
Packing group (IATA)	:	Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT

Not regulated

TDG

No data available

IATA

Not regulated

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
sodium dodecyl sulphate, bulk density <400g/l	151-21-3	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 1/17/2025
Date of issue : 5/19/2016
Other information : None.

Full text of hazard classes and H-statements	
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)

Abbreviations and acronyms	
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative

Abbreviations and acronyms	
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Suspension Buffer (Yeast)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 11/4/2016 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : Suspension Buffer (Yeast)
Product code : 121Y

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. Label elements

GHS US labeling

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria for section 3.2 of HCS

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : None under normal conditions.

Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.

Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Packaging materials : Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Odor	:	characteristic
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Potential Adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met.
Symptoms/effects	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	:	None under normal conditions.
Symptoms/effects after skin contact	:	None under normal conditions.
Symptoms/effects after eye contact	:	None under normal conditions.
Symptoms/effects after ingestion	:	None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	:	Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

Suspension Buffer (Yeast)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Suspension Buffer (Yeast)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.
Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

UN-No. (DOT) : Not applicable
UN-No. (TDG) : Not applicable
UN-No. (IATA) : Not applicable

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not applicable
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not applicable

TDG
Not applicable

IATA
Not applicable

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):
No data available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 1/17/2025
Date of issue : 11/4/2016
Other information : None.

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment

Abbreviations and acronyms	
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Longlife Zymolyase

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 6/3/2013 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : Longlife Zymolyase
Product code : 085L

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. Label elements

GHS US labeling

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria for section 3.2 of HCS

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : None under normal conditions.

Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.
Packaging materials : Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Cloudy
Odor	:	None
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Potential Adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met.
Symptoms/effects	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	:	None under normal conditions.
Symptoms/effects after skin contact	:	None under normal conditions.
Symptoms/effects after eye contact	:	None under normal conditions.
Symptoms/effects after ingestion	:	None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	:	Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

Longlife Zymolyase	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Longlife Zymolyase	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.
Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not regulated
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated

TDG
Transport hazard class(es) (TDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not applicable
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not regulated

TDG
No data available

IATA
Not regulated

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):
No data available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 1/17/2025
Date of issue : 6/3/2013
Other information : None.

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road

Abbreviations and acronyms	
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

Abbreviations and acronyms	
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

LongLife™ RNase

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 4/22/2016 Revision date: 10/31/2025 Supersedes: 1/17/2025 Version: 10.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : LongLife™ RNase
Product code : 079L

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Respiratory sensitization, Category 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Full text of H statements : see section 16

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger
Hazard statements (GHS US) : H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
Precautionary statements (GHS US) : P261 - Avoid breathing dust, fume, gas, mist, vapors, spray.
P284 - Wear respiratory protection.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
ribonuclease	alkaline ribonuclease / E.C. 2.7.7.16 / E.C. 3.1.27.5 / E.C. 3.1.4.22 / gigantin / interleukin 2 mRNA-selective ribonuclease / keratinocyte-derived RNase-like factor / lactoribonuclease / nuclease, ribo / nuclease, ribo- / onconase / pancreatic ribonuclease / pancreatic RNase / ribonuclease A / ribonuclease A from bovine pancreas / Ribonuclease A type I-AS from - bovine pancreas / ribonuclease A, bovine pancreas / ribonuclease I / ribonucleases / ribonucleate 3'-pyrimidinooligonucleotidohydrolase / ribonucleic phosphatase / RNase / S-RNase	CAS-No.: 9001-99-4	< 5	Resp. Sens. 1, H334

Full text of hazard classes and H-statements : see section 16

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. If experiencing respiratory symptoms: Call a poison center or a doctor.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : None under normal conditions.

Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment	:	Wear recommended personal protective equipment.
Emergency procedures	:	Ventilate spillage area. Evacuate unnecessary personnel. Avoid breathing dust/fume/gas/mist/vapors/spray.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.
Environmental precautions	:	Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment	:	Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up	:	Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information	:	Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid breathing dust/fume/gas/mist/vapors/spray.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed	:	Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures	:	Keep in a cool, well-ventilated place away from heat.
Storage conditions	:	Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	:	Strong bases. Strong acids.
Incompatible materials	:	Sources of ignition. Direct sunlight.
Storage temperature	:	-20 °C
Packaging materials	:	Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. In case of inadequate ventilation wear respiratory protection. [In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Odor	:	characteristic
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified
Skin corrosion/irritation : Not classified

ribonuclease (9001-99-4)	
pH	No data available in the literature

Serious eye damage/irritation : Not classified

ribonuclease (9001-99-4)	
pH	No data available in the literature

Respiratory or skin sensitization : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

ribonuclease (9001-99-4)	
Viscosity, kinematic	Not applicable

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : None under normal conditions.
Symptoms/effects after ingestion : None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

LongLife™ RNase	
Persistence and degradability	Not established.

ribonuclease (9001-99-4)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

LongLife™ RNase	
Bioaccumulative potential	Not established.

ribonuclease (9001-99-4)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

ribonuclease (9001-99-4)	
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Other adverse effects

Ozone : Not classified

Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Waste treatment methods.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations.

Additional information : Do not re-use empty containers.

Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not regulated
Proper Shipping Name (TDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated

TDG
Transport hazard class(es) (TDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not regulated

TDG
Not regulated

IATA
Not regulated

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
ribonuclease	9001-99-4	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 10/31/2025

Date of issue : 4/22/2016

Other information : None.

Full text of hazard classes and H-statements	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level

Abbreviations and acronyms	
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Longlife Proteinase K (5mg/ml)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 10/28/2015 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 10.0

SECTION 1 Identification

1.1. Product identifier

Product form	:	Mixture
Product name	:	Longlife Proteinase K (5mg/ml)
Product code	:	073L
BIG No	:	37946

1.2. Other means of identification

Synonyms	:	proteinase K / proteinase K, Glyc, PCR-Grade SL / proteinase, tritirachium album serine / tritirachium album serine / tritirachium alkaline proteinase
EC Index No. (Report)	:	647-014-00-9
EC-No.	:	254-457-8

1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture	:	Chemical substance for research,Enzyme

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number	:	Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. Label elements

GHS US labeling

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria for section 3.2 of HCS

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

First-aid measures after inhalation : Remove victim into fresh air. In case of respiratory problems, consult a doctor/medical service.

First-aid measures after skin contact : If possible, wipe up/dry remove chemical. Then rinse/shower immediately with (lukewarm) water. If irritation persists, consult a doctor/medical service.

First-aid measures after eye contact : Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult a doctor/medical service.

First-aid measures after ingestion : Rinse mouth with water. If you feel unwell, consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : AFTER INHALATION OF DUST/MIST: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

Symptoms/effects after skin contact : Tingling/irritation of the skin.

Symptoms/effects after eye contact : Irritation of the eye tissue.

Symptoms/effects after ingestion : No effects known.

Chronic symptoms : Respiratory difficulties.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.

Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

Fire hazard : DIRECT FIRE HAZARD: Not classified as flammable. Most organic solids may burn if strongly heated. INDIRECT FIRE HAZARD: Heating increases the fire hazard.

Explosion hazard : DIRECT EXPLOSION HAZARD: Most organic solids are liable to dust explosion hazard. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water.
Protection during firefighting	:	Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment	:	Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034). Dust cloud production: self-contained breathing apparatus (EN 136 + EN 137). Dust cloud production: dust-tight suit (EN 13982).
Emergency procedures	:	Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.
Environmental precautions	:	Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment	:	Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	:	Stop dust cloud by humidifying. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
Other information	:	Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Avoid raising dust. Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep container tightly closed. Powdered form: no compressed air for pumping over.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed	:	Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures	:	Keep in a cool, well-ventilated place away from heat.
Storage conditions	:	Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Storage area	:	Keep container in a well-ventilated place. To be kept quick-frozen. Meet the legal requirements.
Incompatible products	:	Strong bases. Strong acids.
Incompatible materials	:	Sources of ignition. Direct sunlight.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents.
Storage temperature	:	< 0 °C
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

Longlife Proteinase K (5mg/ml)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH® TLV® C	0.00006 mg/m³

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves against chemicals (EN 374)

Eye protection:
Face shield (EN 166). In case of dust production: protective goggles (EN 166)

Skin and body protection:
Protective clothing (EN 14605 or EN 13034). In case of dust production: head/neck protection. In case of dust production: dustproof clothing (EN 13982)

Respiratory protection:
Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus (EN 136 + EN 137)

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Solid.
Color	:	Colorless
Odor	:	characteristic
Odor threshold	:	No data available
pH	:	No data available in the literature
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available in the literature
Flash point	:	Not applicable (solid)
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available in the literature
Relative vapor density at 20°C	:	Not applicable (solid)
Relative density	:	No data available in the literature
Density	:	No data available in the literature
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available in the literature
Decomposition temperature	:	No data available in the literature
Viscosity, kinematic	:	Not applicable (solid)
Viscosity, dynamic	:	Not applicable (solid)
Explosion limits	:	No data available
Explosive properties	:	Not classified.
Oxidizing properties	:	Not classified.
Particle characteristics	:	Particle size : No data available in the literature

9.2. Data relevant with regard to physical hazard classes (supplemental)

VOC content	:	0 %

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified pH: No data available in the literature
Serious eye damage/irritation	:	Not classified pH: No data available in the literature
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

Longlife Proteinase K (5mg/ml)	
Viscosity, kinematic	Not applicable (solid)

Potential Adverse human health effects and symptoms	:	Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.
Symptoms/effects	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	:	AFTER INHALATION OF DUST/MIST: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	:	Tingling/irritation of the skin.
Symptoms/effects after eye contact	:	Irritation of the eye tissue.
Symptoms/effects after ingestion	:	No effects known.
Chronic symptoms	:	Respiratory difficulties.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - air	:	Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573). Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590).
Hazardous to the aquatic environment, short-term (acute)	:	Not classified
Hazardous to the aquatic environment, long-term (chronic)	:	Not classified

12.2. Persistence and degradability

Longlife Proteinase K (5mg/ml)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

Longlife Proteinase K (5mg/ml)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

Longlife Proteinase K (5mg/ml)	
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Do not discharge into drains or the environment. Dispose of at authorized waste collection point. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals.
Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not applicable
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
No data available

TDG
No data available

IATA
Transport regulations (IATA) : Not subject

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):
No data available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 1/17/2025
Date of issue : 10/28/2015
Other information : None.

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value

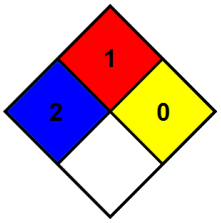
Abbreviations and acronyms	
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)

Abbreviations and acronyms	
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Genomic Lysis Buffer

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 5/18/2016 Revision date: 10/31/2025 Supersedes: 1/17/2025 Version: 10.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : Genomic Lysis Buffer
Product code : 068G

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Serious eye damage/eye irritation, Category 2	H319	Causes serious eye irritation.
Specific target organ toxicity — Repeated exposure, Category 1	H372	Causes damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment — Acute Hazard, Category 2	H401	Toxic to aquatic life.
Hazardous to the aquatic environment — Chronic Hazard, Category 3	H412	Harmful to aquatic life with long lasting effects.

Full text of H statements : see section 16

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger
Hazard statements (GHS US) : H319 - Causes serious eye irritation
H372 - Causes damage to organs through prolonged or repeated exposure
H401 - Toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects
Precautionary statements (GHS US) : P260 - Do not breathe dust, fume, gas, mist, vapors, spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, and hearing

protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 - Get medical advice or attention if you feel unwell.
P337+P313 - If eye irritation persists: Get medical advice or attention.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification

CTAB (Hexadecyltrimethylammonium bromide)	(1-hexadecyl)trimethylammonium bromide / 1-hexadecanaminium, N,N,N-trimethyl-, bromide / acetoquat CTAB / ammonium, hexadecyltrimethyl-, bromide / bromat / CEE DEE / centimide / cetarol / cetrimonium bromide / cetyl trimethylammonium bromide / cetylamine / cetyltrimethylammonium bromide / cirrasol-OD / CTAB / CTABr / ctmab / cycloton V / hexadecyltrimethylammonium bromide / hexadecyltrimethylazanium bromide / LAUROSEPTOL / lissolamine / lissolamine A / lissolamine V / micol / N,N,N-trimethyl-1-hexadecanaminium bromide / N,N,N-trimethylhexadecan-1-aminium bromide / N,N,N-trimethyltetradecylammonium bromide / N-cetyl-N,N,N-trimethylammonium bromide / N-cetyltrimethylammonium bromide / N-hexadecyl trimethylammonium bromide / N-hexadecyl-N,N,N-trimethylammonium bromide /	CAS-No.: 57-09-0	< 2	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
	palmityltrimethylammonium bromide / pollacid / quamonium / SOFTEX KW / suticide / trimethylcetylammonium bromide / trimethylhexadecylammonium bromide			

Full text of hazard classes and H-statements : see section 16

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Get medical advice/attention if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Causes damage to organs through prolonged or repeated exposure.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Sand. Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard	:	No direct explosion hazard.
Hazardous decomposition products in case of fire	:	Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	:	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	:	Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment	:	Wear recommended personal protective equipment.
Emergency procedures	:	Ventilate spillage area. Evacuate unnecessary personnel. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.
Environmental precautions	:	Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment	:	Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up	:	Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information	:	Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures	:	Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed	:	Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures	:	Keep in a cool, well-ventilated place away from heat.
Storage conditions	:	Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	:	Strong bases. Strong acids.
Incompatible materials	:	Sources of ignition. Direct sunlight.
Packaging materials	:	Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Odor	:	Odourless
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available

Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
LD50 oral rat	465 – 891 mg/kg (OECD 401: Acute Oral Toxicity, 14 day(s), Rat, Male / female, Read-across, Oral, 14 day(s))
LD50 dermal rabbit	2150 mg/kg body weight (Other, 24 h, Rabbit, Male / female, Read-across, Skin, 14 day(s))
ATE US (oral)	465 mg/kg body weight
ATE US (dermal)	2150 mg/kg body weight

Skin corrosion/irritation	:	Not classified

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
pH	No data available in the literature

Serious eye damage/irritation : Causes serious eye irritation.

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
pH	No data available in the literature

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
LOAEL (dermal,rat/rabbit,90 days)	10 mg/kg body weight Animal: rabbit, Guideline: OECD Guideline 410 (Repeated Dose Dermal Toxicity: 21/28-Day Study)
NOAEL (oral,rat,90 days)	10 mg/kg body weight Animal: rat
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
Viscosity, kinematic	Not applicable

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects : Causes damage to organs through prolonged or repeated exposure.
Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : Eye irritation.
Symptoms/effects after ingestion : None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.
Ecology - water : Toxic to aquatic life. Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute) : Toxic to aquatic life.
Hazardous to the aquatic environment, long-term (chronic) : Harmful to aquatic life with long lasting effects.

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
LC50 - Fish [1]	0.2 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	26 µg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, GLP)
EC50 72h - Algae [1]	4.11 µg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
NOEC (chronic)	0.023 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

12.2. Persistence and degradability

Genomic Lysis Buffer	
Persistence and degradability	May cause long-term adverse effects in the environment.

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

Genomic Lysis Buffer	
Bioaccumulative potential	Not established.

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
BCF - Fish [1]	407 – 741 (8 week(s), Cyprinus carpio, Experimental value)
Partition coefficient n-octanol/water (Log Pow)	3.18 (Calculated, KOWWIN, 25 °C)
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).

12.4. Mobility in soil

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
Surface tension	39 mN/m (25 °C, 0.8 mmol/l, Wilhelmy plate method: surface tension)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.49 (log Koc)
Ecology - soil	Low potential for mobility in soil.

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.
Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not regulated
Proper Shipping Name (TDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated

TDG
Transport hazard class(es) (TDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not regulated

TDG
Not regulated

IATA
Not regulated

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
CTAB (Hexadecyltrimethylammonium bromide)	57-09-0	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 10/31/2025
Date of issue : 5/18/2016
Other information : None.

Full text of hazard classes and H-statements	
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration

Abbreviations and acronyms	
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

TE Buffer

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 4/22/2016 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : TE Buffer
Product code : 036T_T041

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. Label elements

GHS US labeling

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria for section 3.2 of HCS

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : None under normal conditions.

Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.
Packaging materials : Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Hand protection:
Protective gloves. Wear protective gloves.

Eye protection:
Chemical goggles or safety glasses. Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):

Other information:
Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Color	:	Clear
Odor	:	None
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not applicable. Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Potential Adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met.
Symptoms/effects	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	:	None under normal conditions.
Symptoms/effects after skin contact	:	None under normal conditions.
Symptoms/effects after eye contact	:	None under normal conditions.
Symptoms/effects after ingestion	:	None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	:	Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

TE Buffer	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

TE Buffer	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified
Fluorinated greenhouse gases : No

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Waste treatment methods.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.
Ecological waste information : Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not applicable
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
No data available

TDG
No data available

IATA
No data available

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):
No data available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 1/17/2025
Date of issue : 4/22/2016
Other information : None.

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road

Abbreviations and acronyms	
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

Abbreviations and acronyms	
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.