



Material Safety Data Sheet

Product: TOPBlunt PCR Cloning Vector (Not including competent cell)

Date: 06/13/2014

Product code: GTOP02-V20 / GTOP02-V40

Description	qty.		Symbols
	GTOP02-V20	GTOP02-V40	
TOPBlunt Vector (10 ng/µl)	1	2	-
6X TOPfast™ buffer	1	2	Xi
Control insert (1kb)	1	1	-
M13 Control primer mix	1	2	-
Nuclease-free Water	1	2	-

Note: There are added Material Safety Data Sheets only for hazardous components of the Kit.

Trade name: 6X TOPfast™ buffer

1 IDENTIFICATION OF SUBSTANCE

Application of the substance / the preparation: Laboratory chemicals

Manufacturer/Supplier:

GMbiolab Co., Ltd.

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2 COMPOSITION, INFORMATION ON INGREDIENTS

The following list shows components of this product classified as hazardous based on physical properties and health effects:

Component	CAS No.	Percent
Glycerol	56-81-5	1-50%
Ethylenediamine tetraacetic acid	139-33-3	<1

Other components:

Components not listed here are not hazardous or their concentrations do not exceed the limits specified in the OSHA Hazard Communication Standard 29 CFR 1910.1200.

3 HAZARDS IDENTIFICATION

Occupational exposure presents little or no health hazard.

Potential Health Effects:

Eye: May cause irritation of the eye.

Skin: May cause skin irritation.

Inhalation: No toxicity expected from inhalation.

NFPA ratings scale/HMIS Ratings scale

Health = 1

Fire = 1

Reactivity = 0

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4 FIRST AID MEASURES

Eye: Flush with water in an eyewash for at least 15 minutes, holding eyelids open. Remove contact lenses, clean before re-use. Obtain medical attention if symptoms develop (redness, itching, etc.).

Skin: Generally, the product does not irritate the skin. If symptoms of irritation after prolonged exposure occur, consult a doctor.

Inhalation: Remove person to fresh air. Obtain medical attention unless effects are mild and temporary.

Ingestion: Give plenty of water, if conscious. If vomiting occurs naturally, wash mouth out. Be prepared to induce vomiting upon a physician's advice. Obtain medical attention if symptoms develop.

5 FIRE FIGHTING MEASURES

Extinguishing Agents: Water spray, Carbon dioxide, dry chemical powder or appropriate foam.

Special fire fighting procedures: Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Special fire and explosions hazards: Not thoroughly investigated.

6 ACCIDENTAL RELEASE MEASURES

Accidental releases may be subject to special reporting requirements and other regulatory mandates. Refer to Section 8 for personal protection equipment recommendations.

Environmental Precautions: Do not let product enter drains.

Spill Cleanup: Absorb spill. Common absorbent materials should be effective. Deposit in appropriate containers for removal and disposal.

7 HANDLING AND STORAGE

Handling Procedures: No further requirements.

Storage Procedures: -20°C

8 EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure standard of chemical compound, biological exposure standard

Domestic regulations

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin TWA - 10 mg/m³

ACGIH regulation

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin TWA - 10 mg/m³

Biological release regulation

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin No information applicable

Proper engineering management: Keep air levels below the exposure guidelines

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Individual protection equipments: Use proper gloves

Respiratory system protection

Ethylenediamine tetra acetic acid, disodium salt Use respiratory protection equipments certified by Korea occupational safety and health agency in a release of gas/liquid according to their chemicophysical properties.

Glycerin Use respiratory protection equipments certified by Korea occupational safety and health agency in a release of gas/liquid according to their chemicophysical properties. Use proper filter or half-circled respiratory protection cartridge equipments if the concentration of release material is lower than 100mg/m³

Use proper filter or loose-fitting respiratory protection cartridge equipments such as hood/helmet shape motor operated equipments or continuous flow protection mask if the concentration of release material is lower than 250mg/m³

Use proper filter or full face cartridge or moter operated half-circled equipments or half circled continuous flow air supply respiratory protection equipments if the concentration of release material is lower than 500mg/m³

Use proper filter or full faced respiratory protection cartridge equipments or hood/helmet type, pressurized mask if the concentration of release material is lower than 10000mg/m³

Use proper filter or auto air supply (SCBA) equipments or pressurized auto air supply (SCBA) respiratory protection equipments if the concentration of release material is lower than 100000mg/m³

Eye Protection Use protective glasses and face protection

Install wash up and shower facilities near to working place

Hand protection Use proper chemical resistant glove

Body protection Use proper chemical resistant protection

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/physical state: Clear, colorless liquid.

Odor: No odor.

Boiling Point (C): 182°C

Melting Point (C): 0°C

Flash Point: 160°C.

Flammability/autoflammability: The preparation is not flammable/self-igniting.

Explosive properties: The preparation does not possess explosive properties.

Oxidizing properties: Not applicable.

Vapour pressure: Not applicable.

Relative density at 20°C: 1.13 g/cm³.

Solubility in/miscibility with water: Fully miscible.

Fat solubility: Not applicable.

Vapour density: Not applicable.

Evaporation rate: Not applicable.

Conductivity: Not applicable.

Viscosity: Viscous

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10 STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage. Storage at room temperature may result in lowering of the specific activity, but not result in any hazardous reactions.

Conditions to Avoid: No conditions which may cause dangerous reactions.

Hazardous Decomposition Products: No dangerous decomposition products known.

Hazardous Polymerization: Not expected to occur.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity: not available

Skin and Eye Contact: Generally, the product does not irritate the skin and eyes. Prolonged skin or eye contact may cause minor irritation.

Inhalation/Respiratory: Inhalation of enzyme aerosols may cause allergic type reactions in sensitized individuals.

Oral/Ingestion: Repeated ingestion or excessive dosage may cause irritation of the gastrointestinal tract.

12 Ecological Information

Ecotoxicity

Fish

Ethylenediamine tetra acetic acid, disodium salt

LC50 320 mg/l 96 hr *Poecilia reticulata*

Glycerin

LC50 5000 mg/l 24 hr *Carassius auratus*

Crustacean

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin

EC50 > 10000 mg/l 24 hr *Daphnia magna* (*Daphnia magna* EC50 (24HR)

10000mg/L (US EPA ECOTOX); *Daphnia magna* EC50 (24HR) >10000 mg/L (EU IUCLID))

Birds

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin (LC50(96hr) 77712.039 mg/L)

Residual fungicide and resolvability

Residual fungicide

Ethylenediamine tetra acetic acid, disodium salt

log Kow -11.70 ((Estimates))

Glycerin

No information available

Resolvability

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin

No information available

Biological condensability

Condensability

Ethylenediamine tetra acetic acid, disodium salt

BCF 3.162

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Glycerin

life enrichment is not expected

Biodegradability

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin

63 (%) 14 day Fast biodegradability, (OECD TG 301D) (IUCLID) 93% biodegradability in 30 days

Soil toxicity

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin

No information available

Other harmful influences

Ethylenediamine tetra acetic acid, disodium salt

No information available

Glycerin

Environmental summary: No information on toxicity on aquatic organisms

13 DISPOSAL CONSIDERATIONS

Appropriate method of disposal of substance or preparation:
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 TRANSPORT INFORMATION

RID/ADR: Non-hazardous for road transport.

IMDG: Non-hazardous for sea transport.

IATA: Non-hazardous for air-transport.

15 REGULATORY INFORMATION

Directives 67/548/EC, 1999/45/EC, and 88/379/ECC Not Listed

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

SARA Not Listed

DSL Not Listed

NDSL Not Listed

16 OTHER INFORMATION

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