

## MATERIAL SAFETY DATA SHEET

<b>Product</b>	
<b>Item #</b>	<b>Title</b>
FT-MG-Units	FlashTaq DNA Polymerase with 10X Reaction (MgCl <sub>2</sub> ) Buffer
<b>Components</b>	
FT-Units	FlashTaq DNA Polymerase
RB-MG-Volume	10X Reaction (MgCl <sub>2</sub> ) Buffer

## MATERIAL SAFETY DATA SHEET

**Product Title: FlashTaq DNA Polymerase**

## SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Title:** FlashTaq DNA Polymerase

**Item number:** FT-Units

**Document Number:** PC-MSDS-004 Version 001

**Relevant identified uses of the substance or mixture and uses advised against** No further relevant information available

**Application of the substance / the mixture** Laboratory Chemicals

**Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Empirical Bioscience

301 Michigan St. Rm. 521

Grand Rapids, MI 49503 U.S.A.

1-877.479.9949

MSDS author; customer.service@empiricalbioscience.com

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

<b>Hazardous Ingredients (specific)</b>	<b>%</b>	<b>CAS Number</b>
Glycerol	50	56-81-5

## SECTION 3 — HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

**Classification according to the Hazard Communication Standard (HCS).**

The product is not classified as hazardous according to the HCS regulation.

**Labelling according to Regulation (EC) No 1272/2008** Void

**Hazard pictograms** Void

**Signal word** Void

**Hazard statements** Void

**Classification system:**

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

Health = 0

Fire = 1

Reactivity = 0

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

Health = 0

Fire = 1

Reactivity = 0

**OSHA Hazard Overview (Criteria according to 29CFR1910.1200):** Not applicable

**Target Organ(s):** May affect Kidneys

**Other hazards:** This mixture has not been tested to determine the overall health hazard; therefore in accordance with 29CFR1910.1200, the data reported above pertains to the hazardous ingredients of this mixture.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

## MATERIAL SAFETY DATA SHEET

**Product Title:** FlashTaq DNA Polymerase

## SECTION 4 — FIRST AID MEASURES

**Description of first aid measures**

**General information:** No special measures required.

**After inhalation:** Supply fresh air; consult doctor in case of complaints.

**After skin contact:** Generally the product does not irritate the skin.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** If symptoms persist consult doctor.

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed** None

**Indication of any immediate medical attention and special treatment needed** No further relevant information available

## SECTION 5 — FIRE FIGHTING MEASURES

**Extinguishing media**

**Suitable extinguishing agents:** CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture** None known

**Advice for firefighters** No special advice

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

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures** Not required.

**Environmental precautions:** Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.

**Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

**Reference to other sections** No dangerous substances are released.

See Section 7 for information on safe handling.

See Section 13 for disposal information.

## SECTION 7 — HANDLING AND STORAGE

**Handling:**

**Precautions for safe handling** No special measures required.

**Information about protection against explosions and fires:** The product is not flammable.

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** None.

**Specific end use(s)** No further relevant information available.

## MATERIAL SAFETY DATA SHEET

**Product Title: FlashTaq DNA Polymerase**

## SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

**Control parameters****Components with limit values that require monitoring at the workplace:****56-81-5 glycerol**PEL () Long-term value: 15\* 5\*\* mg/m<sup>3</sup>

\*total dust \*\*respirable fraction

TLV () TLV withdrawn-insufficient data human occup. exp

**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:****General protective and hygienic measures:** The usual precautionary measures for handling chemicals should be followed.**Breathing equipment:** Not required.**Protection of hands:** Protective gloves. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:** Goggles recommended during refilling

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties****General Information Appearance:****Form:** Fluid**Color:** Colorless**Odor:** Characteristic**Odour threshold:** Not determined.**pH-value at 20 °C (68 °F):** 7.4**Change in condition****Melting point/Melting range:** Undetermined.**Boiling point/Boiling range:** 100 °C (212 °F)**Flash point:** Not applicable.**Flammability (solid, gaseous):** Not applicable.**Ignition temperature:** 400 °C (752 °F)**Decomposition temperature:** Not determined.**Auto igniting:** Product is not self-igniting.**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:****Lower:** 0.9 Vol%**Upper:** Not Determined**Vapor pressure at 20 °C (68 °F):** 0.1 hPa**Density at 20 °C (68 °F):** 1.152 g/cm<sup>3</sup> (9.613 lbs/gal)**Relative density** Not determined.**Vapour density** Not determined.**Evaporation rate** Not determined.**Solubility in / Miscibility with Water:** Fully miscible.**Partition coefficient (n-octanol/water):** Not determined.**Viscosity:****Dynamic:** Not determined.**Kinematic:** Not determined.**Solvent content:****Organic Solvents:** 50%**Water:** 48.1%**Solids content:** 1.4%

## MATERIAL SAFETY DATA SHEET

**Product Title: FlashTaq DNA Polymerase**

## SECTION 10 — STABILITY AND REACTIVITY

**Reactivity****Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known

## SECTION 11 — TOXICOLOGICAL INFORMATION

**Information on toxicological effects****Acute toxicity:**

**LD/LC50 values that are relevant for classification:** No data available

**Primary irritant effect:**

**On the skin:** No irritant effect.

**On the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

**Additional toxicological information:** The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer):** None of the ingredients are listed.

**NTP (National Toxicology Program):** None of the ingredients are listed

## SECTION 12 — ECOLOGICAL INFORMATION

**Toxicity**

**Aquatic toxicity:** Not harmful to the aquatic environment

**Persistence and degradability** Not available

**Behavior in environmental systems:**

**Bioaccumulative potential** Not known

**Mobility in soil** No further relevant information available.

**Ecotoxicological effects:**

**Remark:** Not available

**Additional ecological information:**

**General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## MATERIAL SAFETY DATA SHEET

**Product Title: FlashTaq DNA Polymerase**

## SECTION 13 — DISPOSAL CONSIDERATIONS

**Waste treatment methods****Recommendation:**

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

**Uncleaned packagings:**

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

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

## SECTION 14 — TRANSPORT INFORMATION

**UN-Number** None

**DOT, ADR, ADN, IMDG, IATA** Void

**UN proper shipping name** None

**DOT, ADR, ADN, IMDG, IATA** Void

**Transport hazard class(es)** None

**DOT, ADR, ADN, IMDG, IATA Class** Void

**Packing group** None

**DOT, ADR, IMDG, IATA** Void

**Environmental hazards:**

**Marine pollutant:** No

**Special precautions for user** Not applicable

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC code** Not applicable

**UN "Model Regulation":** -

## SECTION 15 — REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation specific for the substance or mixture Sara**

**Section 355 (extremely hazardous substances):** None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):** None of the ingredients are listed.

**TSCA (Toxic Substances Control Act):** All ingredients are listed.

Proposition 65

**Chemicals known to cause cancer:** None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for females:** None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:** None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:** None of the ingredients are listed.

**Carcinogenicity categories**

**EPA (Environmental Protection Agency)** None of the ingredients are listed.

**TLV (Threshold Limit Value established by ACGIH)** None of the ingredients are listed.

**MAK (German Maximum Workplace Concentration)** None of the ingredients are listed.

**NIOSH-Ca (National Institute for Occupational Safety and Health)** None of the ingredients are listed.

**OSHA-Ca (Occupational Safety & Health Administration)** None of the ingredients are listed.

**National regulations:**

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

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## MATERIAL SAFETY DATA SHEET

**Product Title: FlashTaq DNA Polymerase**

## SECTION 16 — OTHER INFORMATION

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

Department issuing MSDS

Empirical Bioscience

301 Michigan St. Rm. 521

Grand Rapids, MI 49503 U.S.A.

1-877.479.9949

**Abbreviations and acronyms:**

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent

**LD50:** Lethal dose, 50

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

## MATERIAL SAFETY DATA SHEET

**Product Title:** 10X Reaction (MgCl<sub>2</sub>) Buffer

## SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Title:** 10X Reaction (MgCl<sub>2</sub>) Buffer

**Item number:** RB-MG-Volume

**Document Number:** PC-MSDS-010 Version 001

**Relevant identified uses of the substance or mixture and uses advised against** No further relevant information available.

**Application of the substance / the mixture** Laboratory Chemicals

**Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Empirical Bioscience

301 Michigan St. Rm. 521

Grand Rapids, MI 49503 U.S.A.

1-877.479.9949

MSDS author; customer.service@empiricalbioscience.com

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients ( <i>specific</i> )	%	CAS Number
1. Potassium Chloride	3.7	7447-40-7
2. Tris buffered with HCl	1.6	77-86-1

## SECTION 3 — HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

**Classification according to the Hazard Communication Standard (HCS).**

The product is not classified as hazardous according to the HCS regulation.

**Labelling according to Regulation (EC) No 1272/2008** Void

**Hazard pictograms** Void **Signal word** Void

**Hazard statements** Void

**Classification system: NFPA ratings (scale 0 - 4)**

**Health** = 1

**Fire** = 0

**Reactivity** = 0

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

**Health** = 1

**Fire** = 0

**Reactivity** = 0

**OSHA Hazard Overview (Criteria according to 29CFR1910.1200):** Not applicable

**Target Organ(s):** Skin, eyes, respiratory tract

**Other hazards** This mixture has not been tested to determine the overall health hazard; therefore in accordance with 29CFR1910.1200, the data reported above pertains to the hazardous ingredients of this mixture.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable



## MATERIAL SAFETY DATA SHEET

**Product Title:** 10X Reaction (MgCl<sub>2</sub>) Buffer

## SECTION 4 — FIRST AID MEASURES

**Description of first aid measures**

**General information:** No special measures required.

**After inhalation:** Supply fresh air; consult doctor in case of complaints.

**After skin contact:** Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** If symptoms persist consult doctor.

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed** None

**Indication of any immediate medical attention and special treatment needed**

## SECTION 5 — FIRE FIGHTING MEASURES

**Extinguishing media**

**Suitable extinguishing agents:** CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture** None known

**Advice for firefighters** No special advice

**Protective equipment:**

No special measures required.

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures** Avoid breathing or contact with vapors, mist or gas.

**Environmental precautions:** Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

**Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

**Reference to other sections** No dangerous substances are released.

See Section 7 for information on safe handling.

See Section 13 for disposal information.

## SECTION 7 — HANDLING AND STORAGE

**Handling:**

**Precautions for safe handling** No special measures required.

**Information about protection against explosions and fires:** The product is not flammable.

**Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** None.

**Specific end use(s)** No further relevant information available.

## MATERIAL SAFETY DATA SHEET

**Product Title:** 10X Reaction (MgCl<sub>2</sub>) Buffer

## SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

**Control parameters**

**Components with limit values that require monitoring at the workplace:** Not Applicable

**Additional information:**

**Exposure controls**

**Personal protective equipment:** General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.

**Breathing equipment:** Not required.

**Protection of hands:**

**Protective gloves** Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves** The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:** Goggles recommended during refilling.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties****General Information****Appearance:**

**Form:** Fluid

**Color:** Colorless

**Odor:** Characteristic

**Odour threshold:** Not Determined

**pH-value at 20 °C (68 °F):** 8.4

**Change in condition**

**Melting point/Melting range:** Undetermined

**Boiling point/Boiling range:** Undetermined

**Flash point:** Not applicable

**Flammability (solid, gaseous):** Not applicable

**Ignition temperature:**

**Decomposition temperature:** Not determined

**Auto igniting:** Product is not self-igniting

**Danger of explosion:** Product does not present an explosion hazard

**Explosion limits:**

**Lower:** Not determined

**Upper:** Not determined

**Vapor pressure at 20 °C (68 °F):** Not determined

**Density at 20 °C (68 °F):** Not determined

**Relative density:** Not determined

**Vapour density:** Not determined

**Evaporation rate:** Not determined

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

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

**Viscosity:**

**Dynamic:** Not determined

**Kinematic:** Not determined

**Solvent content:**

**Organic Solvents:** 0.0%

**Water:** 43.5%

**Solids content:** 56.5%

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

## MATERIAL SAFETY DATA SHEET

**Product Title:** 10X Reaction (MgCl<sub>2</sub>) Buffer

## SECTION 10 — STABILITY AND REACTIVITY

**Reactivity****Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known.

## SECTION 11 — TOXICOLOGICAL INFORMATION

**Information on toxicological effects****Acute toxicity:**

**LD/LC50 values that are relevant for classification:** No data available

**Primary irritant effect:**

**on the skin:** May cause irritating effect

**on the eye:** May cause irritating effect

**Sensitization:** No sensitizing effects known.

**Additional toxicological information:** The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

**Carcinogenic categories IARC (International Agency for Research on Cancer)**

None of the ingredients are listed

**NTP (National Toxicology Program)**

None of the ingredients are listed.

## SECTION 12 — ECOLOGICAL INFORMATION

**Toxicity**

**Aquatic toxicity:** Not available

**Persistence and degradability** Not available

**Behavior in environmental systems:**

**Bioaccumulative potential** Not known

**Mobility in soil** No further relevant information available.

**Ecotoxicological effects: Remark:** Not available

**Additional ecological information:****General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## MATERIAL SAFETY DATA SHEET

**Product Title:** 10X Reaction (MgCl<sub>2</sub>) Buffer

## SECTION 13 — DISPOSAL CONSIDERATIONS

**Waste treatment methods**

Recommendation: Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

**Uncleaned packagings:**

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

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

## SECTION 14 — TRANSPORT INFORMATION

**UN-Number** None

**DOT, ADR, ADN, IMDG, IATA** Void

**UN proper shipping name** None

**DOT, ADR, ADN, IMDG, IATA** Void

**Transport hazard class(es)** None

**DOT, ADR, ADN, IMDG, IATA Class** Void

**Packing group** None

**DOT, ADR, IMDG, IATA** Void

**Environmental hazards:**

**Marine pollutant:** No

**Special precautions for user** Not applicable

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC code** Not applicable

**UN "Model Regulation":** -

## SECTION 15 — REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation specific for the substance or mixture** Sara

**Section 355 (extremely hazardous substances):** None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):** None of the ingredients are listed.

**TSCA (Toxic Substances Control Act):** All of the ingredients are listed.

Proposition 65

**Chemicals known to cause cancer:** None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for females:** None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:** None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:** None of the ingredients are listed.

**Carcinogen categories**

**EPA (Environmental Protection Agency)** None of the ingredients are listed.

**TLV (Threshold Limit Value established by ACGIH)** None of the ingredients are listed.

**MAK (German Maximum Workplace Concentration)** None of the ingredients are listed.

**NIOSH-Ca (National Institute for Occupational Safety and Health)** None of the ingredients are listed.

**OSHA-Ca (Occupational Safety & Health Administration)** None of the ingredients are listed.

**National regulations:**

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

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## MATERIAL SAFETY DATA SHEET

**Product Title: 10X Reaction (MgCl<sub>2</sub>) Buffer**

## SECTION 16 — OTHER INFORMATION

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

Department issuing MSDS  
Empirical Bioscience  
301 Michigan St. Rm. 521  
Grand Rapids, MI 49503 U.S.A.  
1-877.479.9949

**Abbreviations and acronyms:**

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

**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent

**LD50:** Lethal dose, 50

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