

MATERIAL SAFETY DATA SHEET

Product	
Item #	Title
AT-HF-RB-Units	AlloyTaq Polymerase, High Fidelity with 10X Reaction Buffer
Components	
AT-Units-PC	AlloyTaq Polymerase, High Fidelity
AT-HF-RB-Volume-PC	10X AlloyTaq Reaction Buffer

MATERIAL SAFETY DATA SHEET

Product Title: AlloyTaq™ Polymerase, High Fidelity

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Title: AlloyTaq™ Polymerase, High Fidelity

Item number: AT-Units-PC

Document Number: PC-MSDS-029 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

2007 Eastcastle Dr. SE

Grand Rapids, MI 49508 U.S.A.

1-877.479.9949

MSDS author; customer.service@empiricalbioscience.com

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients (specific)	%	CAS Number
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: AlloyTaq™ Polymerase, High Fidelity

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: CO₂, 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: AlloyTaq™ Polymerase, High Fidelity

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/m³

*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/cm³ (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: AlloyTaq™ Polymerase, High Fidelity

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: AlloyTaq™ Polymerase, High Fidelity

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.

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: AlloyTaq™ Polymerase, High Fidelity

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

2007 Eastcastle Dr. SE

Grand Rapids, MI 49508 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 AlloyTaq™ Reaction Buffer

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Title: 10X AlloyTaq™ Reaction Buffer
Item number: AT-RB-Volume-PC
Document Number: PC-MSDS-030 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
2007 Eastcastle Dr. SE
Grand Rapids, MI 49508 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
Glycerol	10	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 = 2
Fire = 0
Reactivity = 0
HMS-ratings (scale 0 - 4)
Health = 2
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 AlloyTaq™ Reaction 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 15minutes.

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: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture Toxic fumes are produced during a fire

Advice for firefighters No special advice

Protective equipment:

Wear protective clothing to prevent skin and eye exposure. Wear a self contained breathing apparatus.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Avoid breathing or contact with vapors, mist or gas. Dispose of clothing after use.

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 Avoid prolonged exposure. Avoid contact with skin, eyes and clothing.

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

Conditions for safe storage, including any incompatibilities

Storage: Keep in a closed container at -20°C.

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 AlloyTaq™ Reaction 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: NIOSH/MSHA approved respirator.

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): Not determined

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

Flash point: Not determined.

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: Not determined

Solids content: Not determined

Other information No further relevant information available.

(Cont. on Pg 3)

MATERIAL SAFETY DATA SHEET

Product Title: 10X AlloyTaq™ Reaction Buffer

SECTION 10 — STABILITY AND REACTIVITY

Reactivity

Chemical stability: Stable

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

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid: Strong oxidizing reagents and strong bases.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: Carbon dioxide and carbon monoxide

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: Prolonged exposure may cause headache, vomiting, and nausea. No other information available.

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 AlloyTaq™ Reaction 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.

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: 10X AlloyTaq™ Reaction 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.

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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.**