

## MATERIAL SAFETY DATA SHEET

**Product Title:** 4X InhibiTaq PLUS HotStart qPCR MasterMix/4X InhibiTaq HotStart qPCR MasterMix

## SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Title:** 4X InhibiTaq PLUS HotStart qPCR MasterMix/4X InhibiTaq HotStart qPCR MasterMix

**Item number:** ITP-MM-100-PC/IT-MM-100-PC

**Document Number:** MSDS-074 Version 001

**Relevant identified uses of the substance or mixture and uses advised against**

**Application of the substance / the mixture**

**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	<15%	56-81-5
Dimethyl Sulfoxide	<25%	67-68-5

## 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** Warning

**Hazard statements** Combustible liquid

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

**Health = 2**

**Fire = 4**

**Reactivity = 0**

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

**Health = 2**

**Fire = 4**

**Reactivity = 0**

**OSHA Hazard Overview (Criteria according to 29CFR1910.1200):** Flammable liquids (Category 4), H227

**Target Organ(s):** Not applicable or unknown

**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

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## SECTION 4 — FIRST AID MEASURES

**Description of first aid measures**

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

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

**After skin contact:** Wash off with soap and plenty of water.

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

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

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed** The most important known symptoms and effects are described in the labelling (see section 3) and/or in section 11

**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:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special hazards arising from the substance or mixture** Carbon oxides, Sulphur oxides

**Advice for firefighters** Wear self-contained breathing apparatus for firefighting if necessary

**Protective equipment:** Wear self-contained breathing apparatus for firefighting if necessary.

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures** Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

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

**Methods and material for containment and cleaning up:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

**Reference to other sections**

See Section 8 for information on exposure controls.

See Section 13 for disposal information.

## SECTION 7 — HANDLING AND STORAGE

**Handling:**

**Precautions for safe handling** Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

**Information about protection against explosions and fires:** Storage class (TRGS 510): 10: Combustible liquids.

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

**Storage:**

**Requirements to be met by storerooms and receptacles:** Storage class (TRGS 510): 10: Combustible liquids.

**Information about storage in one common storage facility:** Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Hygroscopic.

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

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

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## 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

**67-68-5 Dimethyl sulfoxide**

TWA 250ppm

**Additional information:**

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

**Personal protective equipment****Eye/face protection**

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

**Skin protection**

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

Splash contact; Material: Nitrile rubber, Minimum layer thickness: 0.2 mm, Break through time: 38 min, Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail

sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a fullface respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

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

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

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

**Appearance:** liquid, clear, colorless

**Odor** sulfurous

**pH:** Not applicable

**Melting point/freezing point Melting point/range:** 16 - 19 °C (61 - 66 °F)

**Initial boiling point and boiling range:** 189 °C 372 °F

**Flash point:** 87 °C (189 °F) - closed cup - ASTM D 93

**Evaporation rate:** No data available

**Flammability (solid, gas):** No data available

**Upper/lower flammability or explosive limits:** Upper explosion limit: 42 %(V); Lower explosion limit: 3.5 %(V)

**Vapor pressure/density:** 0.55 hPa at 20 °C (68 °F); 4 hPa at 50 °C(122 °F)/ : 2.70 - (Air = 1.0)

**Relative density:** 1.1 g/mL

**Water solubility:** completely miscible

**Partition coefficient:** n-octanol/water log Pow: -1.349

**Auto-ignition temperature:** 300 - 302 °C (572 - 576 °F)

**Decomposition temperature:** > 190 °C (> 374 °F) -

**Viscosity:** No data available

**Explosive properties:** Not explosive

**Oxidizing properties:** The substance or mixture is not classified as oxidizing.

**Other information** Solubility in other solvents: Alcohol – soluble, Diethylether - soluble

Surface tension 43.5 mN/m at 20 °C (68 °F)

Relative vapour density 2.70 - (Air = 1.0).

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## SECTION 10 — STABILITY AND REACTIVITY

**Reactivity**

**Chemical stability:** Stable under recommended storage conditions

**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:** Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents.

**Hazardous decomposition products:** Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides  
Other decomposition products - No data available.

## SECTION 11 — TOXICOLOGICAL INFORMATION

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

LD50 Oral - Rat - male and female - 28,300 mg/kg; (OECD Test Guideline 401); LC0 Inhalation - Rat - male and female - 4 h - > 5.33 mg/l; (OECD Test Guideline 403); LD50 Dermal - Rat - male and female - 40,000 mg/kg; Remarks: (ECHA); No data available

**Skin corrosion/irritation**

Skin – Rabbit; Result: slight irritation - 4 h; (OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes – Rabbit; Result: slight irritation - 24 h; (OECD Test Guideline 405)

**Respiratory or skin sensitisation**

Maximisation Test - Guinea pig; Result: negative; (OECD Test Guideline 406); Local lymph node assay (LLNA) – Mouse; Result: negative; (OECD Test Guideline 429)

**Germ cell mutagenicity**

Ames test Salmonella typhimurium Result: negative; sister chromatid exchange assay Chinese hamster ovary cells Result: negative; Mutagenicity (mammal cell test): chromosome aberration. Chinese hamster ovary cells Result: negative; OECD Test Guideline 474; Rat - male and female Result: negative

**Carcinogenicity**

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

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

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

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity:** No data available

**Specific target organ toxicity - single exposure:** No data available

**Specific target organ toxicity - repeated exposure:** No data available

**Aspiration hazard:** No data available

**Additional Information**

Repeated dose toxicity - Rat - male and female - Oral - 18 Months - No observed adverse effect level - 3,300 mg/kg - Lowest observed adverse effect level - 9,900 mg/kg. Repeated dose toxicity - Monkey - male and female - Dermal - 18 Months - No observed adverse effect level - >= 8,910 mg/kg - Lowest observed adverse effect level - 990 mg/kg. RTECS: PV6210000.

Exposure to large amounts can cause: redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Eyes - Eye disease - Based on Human Evidence

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## MATERIAL SAFETY DATA SHEET

## SECTION 12 — ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish static test LC50 - Danio rerio (zebra fish) - > 25,000 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - 24,600 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae: static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria: EC50 - activated sludge - 10 - 100 mg/l - 30 min (ISO 8192)

**Persistence and degradability**

Biodegradability: aerobic - Exposure time 28 d Result: 31 % - Not readily biodegradable. (OECD Test Guideline 301D)

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

No data available

Stability in water: - 0.12 - 1.2 h at 30 °C Remarks: Hydrolyses readily

## 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":** -

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## 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.

## 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

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**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.**