

## MATERIAL SAFETY DATA SHEET

<b>Product</b>	
<b>Item #</b>	<b>Title</b>
RQ-Reactions	rEVALution 2X qPCR Master Mix with separate ROX
<b>Components</b>	
RQ-NR-Reactions	rEVALution 2X qPCR Master Mix
ROX-Reactions	ROX reference dye, 25 $\mu$ M

## MATERIAL SAFETY DATA SHEET

**Product Title: rEVALution 2X qPCR Master Mix**

## SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Title:** rEVALution 2X qPCR Master Mix  
**Item number:** RQ-NR-Reactions  
**Document Number:** PC-MSDS-007 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  
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	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 = 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):** 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

## MATERIAL SAFETY DATA SHEET

**Product Title: rEVALution 2X qPCR Master Mix**

## 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: rEVALution 2X qPCR Master Mix**

## 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:.****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):** 8.8

**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:** Not determined

**Upper:** Not determined

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

**Density at 20 °C (68 °F):** 1.203 g/cm<sup>3</sup> (10.039 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:** 0.6%

**Water:** 74.4%

**Solids content:** 25.0%

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

## MATERIAL SAFETY DATA SHEET

**Product Title:** rEVALution 2X qPCR Master Mix

## 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: rEVALution 2X qPCR Master Mix**

## 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: rEVALution 2X qPCR Master Mix**

## 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: ROX reference dye, 25µM

## SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Title: ROX reference dye, 25µM  
Item number: ROX-Reactions  
Document Number: PC-MSDS-013 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  
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
Void		

## 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 = 0  
Reactivity = 0  
HMIS-ratings (scale 0 - 4)  
Health = 0  
Fire = 0  
Reactivity = 0  
OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable  
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



## MATERIAL SAFETY DATA SHEET

**Product Title:** ROX reference dye, 25µM

## 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:** ROX reference dye, 25µM

## SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

**Control parameters**

**Components with limit values that require monitoring at the workplace:** The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**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:** Odorless

**Odour threshold:** Not Determined

**pH-value at 20 °C (68 °F):** 7

**Change in condition**

**Melting point/Melting range:** 0 °C

**Boiling point/Boiling range:** Not determined

**Flash point:** Not applicable

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

**Ignition temperature:** Not determined

**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):** 23 hPa

**Density at 20 °C (68 °F):** 1g/cm<sup>3</sup>

**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:** 100.0%

**Solids content:** 0.0%

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

**Product Title:** ROX reference dye, 25µM

## 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:** No irritant 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:** Generally not hazardous to water

#### 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:** ROX reference dye, 25µM

## 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:** Generally not hazardous for water.

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

## MATERIAL SAFETY DATA SHEET

**Product Title: ROX reference dye, 25µM**

## 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

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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.**