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**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1 PRODUCT IDENTIFIER**Trade name: **BIOTOOLS 10X Reaction Buffer MgCl<sub>2</sub> Free**

Product Number: 20.035

Chemical Name: Not Applicable

**1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST.****Relevant identified uses: For research use only. Not for use in diagnostic procedures.****Uses advised against: Not for consumer use****1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET.****Manufacturer / Supplier**

Company: Biotools, B &amp; M Labs, S.A.

Valle de Tobalina – 52 – Nave 39

28021 Madrid

SPAIN

Tel: +34 91 710 00 74

Fax: +34 91 505 31 18

**1.4 EMERGENCY NUMBER**

Please contact Biotools distributor in your country. Spain only: 91 562 04 20

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**2. HAZARDS IDENTIFICATION****2.1 CLASSIFICATION OF THE MIXTURE****Hazard Ingredients**

<b>Hydrochloric acid</b>	Corrosive to Metals (Category 1), H290 Skin corrosion (Sub-category 1B), H314
<b>REGULATION (EC) No 1272/2008</b>	Serious eye damage (Category 1), H318 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

**2.2 LABEL ELEMENTS****Label elements****Hazard pictograms**

None

**Signal Word**

None

**Hazard Statements**

Not Applicable

**EU Specific Hazard Statements**

Not Applicable

**Precautionary Statements**

**Prevention**

Not Applicable

**Response**

Not Applicable

**Storage**

Not Applicable

**Disposal**

Not Applicable

**2.3 OTHER HAZARDS**

None known

**3.COMPOSITION OF THE PRODUCT/INFORMATION ON INGREDIENTS**

**3.1 SUBSTANCE**

Not applicable

**3.2 MIXTURE**

Chemical characterisation: Solutions in buffer. Volume of each product package: 1.8ml.

Active ingredients:

CAS-No	EC no	Name	Contents	Danger <sup>1</sup>	Risks
77-86-1	201-064-4	Trizma base	>0.1%	None	None
9005-64-5	500-018-3	TWEEN® 20	>0.1%	None	None
7786-20-2	231-984-1	Ammonium sulfate	≥0.1%	None	None
7647-01-0	231-595-7	Hydrochloric acid	≥0.1%		Met. Corr. 1; Skin Corr. 1B; Eye Dam. 1; STOT SE 3; H290, H314, H318, H335 Concentration limits: ≥ 0,1 %: Met. Corr. 1, H290; ≥ 25 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; ≥ 10 %: STOT SE 3, H335;

\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

**4. FIRST AID MEASURES**

**4.1 DESCRIPTION OF FIRST AID MEASURES**

**Skin contact**

Wash skin with water and soap and rinse thoroughly. Remove contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Get medical attention.

**Eye contact**

Rinse opened eyes for at least 15 min with copious amounts of water. Check for and remove any contact lenses. Call a ophthalmologist.

**Ingestion**

Caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

**Inhalation**

After inhalation remove to fresh air. If not breathing, give artificial respiration. Consult a physician.

**4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED**

Irritation and corrosion  
Vomiting, Dermatitis  
Drying-out effect resulting in rough and chapped skin  
Risk of corneal clouding  
Risk of serious damage to eyes

**4.3 INDICATION OF ANY IMMEDIATE ATTENTION AND SPECIAL TREATMENT NEEDED**

No information available

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**5. FIRE FIGHTING MEASURES**

**5.1 EXTINGUISHING MEDIA**

**Suitable extinguishing media**

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder.

**Unsuitable extinguishing media**

For this mixture no limitations of extinguishing agents are given.

**5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE**

Nature of decomposition products not known.  
Not combustible.

**5.3 ADVICE FOR FIREFIGHTERS**

**Special protective equipment for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing

**Further information**

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**6. ACCIDENTAL RELEASE MEASURES**

**6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

**Advice for non-emergency personnel:**

Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

**Advice for emergency responders:**

Protective equipment see section 8.

**6.2 ENVIRONMENTAL PRECAUTIONS**

Do not let product enter drains.  
Discharge into the environment must be avoided.

**6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

## 6.4 REFERENCE TO OTHER SECTIONS

Indications about waste treatment see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance

### 7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

#### Storage conditions:

Tightly closed.

Recommended storage temperature see product label

### 7.3 SPECIFIC END USE(S)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### 8.1 CONTROL PARAMETERS

### 8.2 EXPOSURE CONTROLS

#### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

#### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

#### Eye/face protection

Tightly fitting safety goggles

Use equipment for eye protection tested and approved under appropriate government standards

#### Hand protection

full contact:

Glove material: butyl-rubber

Glove thickness: 0,7 mm

Break through time: > 480 min

splash contact:

Glove material:butyl-rubber

Glove thickness:0,7 mm

Break through time:> 480 min

#### Other protective equipment

protective clothing

#### Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

Do not let product enter drains.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

**Form:** Liquid

**Colour:** Colorless

**Odour:** Odorless

**Boiling point:** no data available.

**Flash point:** no data available

**Explosive properties:** no data available

**Vapor pressure:** no data available

**pH:** 7-9

**9.2 OTHER DATA**

No information available

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**10. STABILITY AND REACTIVITY**

**10.1 REACTIVITY**

No data available

**10.2 CHEMICAL STABILITY**

Stable under normal handling and storage conditions

**10.3 POSSIBILITY OF HAZARDOUS REACTIONS**

No data available

**10.4 CONDITIONS TO AVOID**

No data available

**10.5 INCOMPATIBLE MATERIALS**

Strong acids, strong bases, Amines, Alkali metals, Metals, permanganates, for example potassium permanganate, Fluorine, metal acetylides, hexalithium disilicide Metals

**10.6 HAZARDOUS DECOMPOSITION PRODUCTS**

In the event of fire: See section 5.

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**11. TOXICOLOGICAL INFORMATION**

**11.1 INFORMATION ON TOXICOLOGICAL EFFECTS**

**Trizma base**

*Acute toxicity*

LD50 Oral - Rat - female - > 5.000 mg/kg

(OECD Test Guideline 425)

LD50 Dermal - Rat - male and female - > 5.000 mg/kg

(OECD Test Guideline 402)

*Skin corrosion/irritation*

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

*Serious eye damage/eye irritation*

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

*Respiratory or skin sensitization*

No data available

*Germ cell mutagenicity*

Mutagenicity (mammal cell test): chromosome aberration.

Chinese hamster lung cells

Result: negative

In vitro mammalian cell gene mutation test

Chinese hamster ovary cells

Result: negative

*Carcinogenicity*

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

*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

**Hydrochloric acid**

*Acute toxicity*

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

No data available

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract

Inhalation: Cough Difficulty in breathing (Hydrochloric Acid)

Inhalation: absorption (Hydrochloric Acid)

Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:., damage of respiratory tract, tissue damage

*Skin corrosion/irritation*

Mixture causes burns.

Skin - reconstructed human epidermis (RhE) (Hydrochloric Acid)

Result: Corrosive

(OECD Test Guideline 431)

*Serious eye damage/eye irritation*

Mixture causes serious eye damage. Risk of blindness!

Eyes - Bovine cornea (Hydrochloric Acid)

Result: Corrosive

(OECD Test Guideline 437)

*Respiratory or skin sensitization*

Maximization Test - Guinea pig (Hydrochloric Acid)

Result: negative

(OECD Test Guideline 406)

*Germ cell mutagenicity*

Chromosome aberration test in vitro (Hydrochloric Acid)

Chinese hamster ovary cells

Result: Conflicting results have been seen in different studies.

*Carcinogenicity*

Carcinogenicity - Did not show carcinogenic effects in animal experiments. (IUCLID)  
(Hydrochloric Acid)

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

*Reproductive toxicity*

No data available

*Specific target organ toxicity - single exposure*

Mixture may cause respiratory irritation.

Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, damage of respiratory tract, tissue damage (Hydrochloric Acid)

*Specific target organ toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

No aspiration toxicity classification (Hydrochloric Acid)

**Ammonium sulphate**

*Acute toxicity*

LD50 Oral - Rat - male and female - 4.250 mg/kg

(OECD Test Guideline 401)

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 434)

**Tween® 20**

*Acute toxicity*

LD50 Oral - Rat - 38.900 mg/kg

Remarks: (External MSDS)

LC50 Inhalation - Rat - male and female - 4 h - > 5,1 mg/l

(OECD Test Guideline 403)

Remarks: Limit Test (highest concentration to be prepared)

**11.2 FURTHER INFORMATION**

After absorption:

We have no description of any symptoms of toxicity.

Other dangerous properties cannot be excluded.

Handle in accordance with good industrial hygiene and safety practice

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**12. ECOLOGICAL INFORMATION**

**12.1 TOXICITY**

**Trizma base**

*Toxicity to daphnia and other aquatic invertebrates*

static test EC50 - Daphnia magna (Water flea) - > 980 mg/l - 48 h

(OECD Test Guideline 202)

*Toxicity to bacteria*

static test EC50 - activated sludge - > 1.000 mg/l - 3 h

(OECD Test Guideline 209)

**Hydrochloric Acid**

*Toxicity to fish*

LC50 - Gambusia affinis (Mosquito fish) - 282 mg/l - 96 h

Remarks: (IUCLID)

#### **Ammonium sulphate**

##### *Toxicity to fish*

LC50 - Oncorhynchus mykiss (rainbow trout) - 53 mg/l - 96 h

Remarks: (ECHA)

##### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 - Ceriodaphnia (water flea) - 121,7 mg/l - 48 h

(US-EPA)

##### *Toxicity to algae*

static test ErC50 - Chlorella vulgaris (Fresh water algae) - 2.700 mg/l

- 18 Days

Remarks: (ECHA)

##### *Toxicity to bacteria*

static test EC50 - activated sludge - 1.618 mg/l - 30 min

(OECD Test Guideline 209)

#### **Tween® 20**

##### *Toxicity to fish*

static test LL50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h

(OECD Test Guideline 203)

##### *Toxicity to daphnia and other aquatic invertebrates*

EC50 - Daphnia - > 10 mg/l - 48 h

Remarks: (above the solubility limit in the test medium)(Lit.)

Toxicity to bacteria microtox test EC50 - Bacteria - 146 - 774 mg/l - 5 min

Remarks: (Lit.)

### **12.2 PERSISTENCE AND DEGRADABILITY**

No data available

### **12.3 BIOACCUMULATIVE POTENTIAL**

No data available

### **12.4 MOBILITY IN SOIL**

No information available.

### **12.5 RESULTS OF PBT AND vPvB ASSESSMENT**

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not Conducted.

### **12.6 OTHER ADVERSE EFFECTS**

#### **Hydrochloric Acid**

May be harmful to aquatic organisms due to the shift of the pH. Do not empty into drains.

Harmful effect due to pH shift.

Discharge into the environment must be avoided.

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### **13. DISPOSAL CONSIDERATIONS**

Controlled disposal in waste system. Product disposal (leftovers or residues resulting from normal use) does not pose any serious hazards in the adequate proportion.

The product and packaging should be disposed of in accordance with the instructions of the local authorities.

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#### 14. TRANSPORT INFORMATION

##### 14.1 UN number

ADR/RID: - IMDG: - IATA: -

##### 14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

##### 14.3 Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

##### 14.4 Packaging group

ADR/RID: - IMDG: - IATA: -

##### 14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

##### 14.6 Special precautions for user

##### Further information

Not classified as dangerous in the meaning of transport regulations.

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#### 15. REGULATORY INFORMATION

##### 15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

##### 15.2 CHEMICAL SAFETY ASSESMENT

For this product a chemical safety assessment was not carried out.

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#### 16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

**H290 MAY BE CORROSIVE TO METALS.**

**H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE**

**H315 CAUSES SKIN IRRITATION.**

**H318 CAUSES SERIOUS EYE DAMAGE.**

**H319 CAUSES SERIOUS EYE IRRITATION.**

**H335 MAY CAUSE RESPIRATORY IRRITATION.**

##### Training advice

Provide adequate information, instruction and training for operators.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge, and is applicable to the product with regards to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Biotools, B & M Labs, S.A. shall not be held liable for any damage resulting from handling or from contact with the above product.

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