

SAFETY DATA SHEET (SDS)

SDS DATE : Aug, 2021

Section 1. Product And Company Identification

1. **Product identifier**
 - 1.1. Product Name : Oxitec™ Catalase Assay Kit
 - 1.2. Product Code : BO-CAT-400
2. **Details of the supplier of the safety data sheet**
 - 2.1. Company: BIOMAX, Inc.,
 - 2.2. Address : Keumkang Penterium IX Tower CORE-C 7F, 46, Galmaesunhwan-ro 166beon-gil, Guri-si, Gyeonggi-do, Republic of Korea
 - 2.3. Telephone: +82-2-3296-3158
 - 2.4. Emergency Phone : +82-2-3296-3159
 - 2.5. FAX: +82-2-973-2858
3. **Product use**
 - 3.1. For research use only.

Section 2. Hazard identification

Component	Description	Volume	Safety Information
Oxi-Probe	Contain DMSO	200 $\mu\ell$	See below
Horseradish peroxidase	Lyophilized	1 vial	No hazards
Hydrogen peroxide	Proprietary Buffer	500 $\mu\ell$	See below
5X Reaction Buffer	Proprietary Buffer	20 mL	No hazards
Catalase	Lyophilized	1 vial	No hazards

1.1 DMSO

Emergency Overview

OSHA Hazards: Combustible liquid, Target organ effect

Target Organs: Eyes, Skin

GHS Classification: : Flammable liquids (Category 4)

GHS Label elements, including precautionary statements

Pictogram:



Signal word: Warning

Hazard statement(s): H227 Combustible liquid

Precautionary statement(s): none

HMIS Classification

Health hazard: 0

Chronic Health Hazard: *

Flammability: *

Physical hazards: 0

NFPA Rating

Health Hazard: 0

Fire: 2

Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: May be harmful if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: May be harmful if swallowed.

Aggravated Medical Condition: Avoid contact w/DMSO solutions containing toxic materials or materials with unknown toxicological

properties. DMSO is readily absorbed through skin and may carry such materials into the body

1.2 Hydrogen peroxide:

Emergency Overview

OSHA Hazards: Skin irritation ,Serious eye damage

Target organs: Eyes, skin

GHS Classification: Skin irritation (category 2)
Serious eye damage (Category 1)

GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Warning

Hazard statement(s): H315: Causes skin irritation

H318: Causes serious eye damage

Precautionary statement(s): P264 - Wash exposed skin thoroughly after handling

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 - IF ON SKIN: Wash with plenty of soap and water

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/physician

P332+P313 - If skin irritation occurs: Get medical advice/attention

P362 - Take off contaminated clothing and wash before reuse

Section 3. Composition/Information on ingredients

Component	CAS Number	EC-No.	Molecular Weight	Formula
DMSO	67-68-5	200-664-3	78.13	C ₂ H ₆ OS
Hydrogen Peroxide	7722-84-1	231-765-0	34	H ₂ O ₂

Section 4. First Aid Measures

General Inhalation | Normal use of this product does not pose an inhalation hazard. However, should respiratory tract irritation develop, discontinue use and remove to fresh air. Get medical attention if irritation or other symptoms develop or persist.

Skin | Should irritation develop, discontinue use. Wash affected skin thoroughly with soap and water. Get medical attention if irritation or other symptoms develop or persist.

Eye | Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Ingestion | If swallowed, DO NOT induce vomiting. Get medical attention immediately.

Section 5. Fire-fighting Measures

DMSO:

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products: Hazardous decomposition products formed under fire conditions— see section 10.

Further information: Use water spray to cool unopened containers.

Section 6. Accidental Release Measures

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods for cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Section 7. Handling And Storage

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition (no smoking). Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: -20°C.

Section 8: Exposure Controls/Personal Protection

Components	CAS-No.	Value	Control parameters	Basls
Dimethyl sulfoxide	67-68-5	TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

Hydrogen peroxide	7722-84-1	TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks:	Eye, skin, & upper respiratory tract irritation.			
		TWA	1 mg/m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1: Limits for Air Contaminants
		TWA	1ppm, 1.4 mg/m ³	USA. NIOSH Recommended Exposure Limits

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face 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).

Hand 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.

Eye protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

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

Section 9: Physical And Chemical Properties

Property	DMSO	Hydrogen peroxide
Appearance:	Clear colorless liquid	Clear colorless liquid
pH:	No data available	No data available
Water Solubility:	miscible	miscible
Other Solubility:	No data available	No data available
Boiling Point (°C):	189°C (372°F)	No data available
Melting Point (°C):	16-19°C (61-66°F)	No data available
Flash Point (°C):	87°C (189°F)	No data available
Ignition Temperature (°C):	301°C (574°F)	No data available
Density:	1.1 g/ml	No data available

Section 10: Stability And Reactivity

Property	DMSO	Hydrogen peroxide
Chemical Stability:	Stable under recommended storage conditions	
Conditions to Avoid:	Direct sunlight, Extreme temperatures	Heat. Flame, sparks
Materials to Avoid:	Reducing agents, strong bases, metals, combustible materials	Oxidizing agents
Hazardous decomposition: products:	oxygen	Carbon oxides, sulfur oxides

Section 11: Toxicological Information

DMSO:

Acute toxicity: LD50 Oral - rat - 14,500 mg/kg

LC50 Inhalation - rat - 4 h - 40250 ppm

LD50 Dermal - rabbit - > 5,000 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Genotoxicity in vitro - mouse – lymphocyte Cytogenetic analysis

Genotoxicity in vitro - mouse – lymphocyte Mutation in mammalian somatic cells.

Genotoxicity in vivo - rat – Intraperitoneal Cytogenetic analysis

Genotoxicity in vivo - mouse – Intraperitoneal DNA damage

Carcinogenicity:

Carcinogenicity – rat – Oral Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin & Appendages: Other: Tumors.

Carcinogenicity – mouse – Oral Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin & Appendages: Other: Tumors.

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 identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity:

Reproductive toxicity – rat – Intraperitoneal Effects on Fertility: Abortion.

Reproductive toxicity – rat – Intraperitoneal Effects on Fertility: Post-implantation mortality

(e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity – rat – Subcutaneous Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).

Reproductive toxicity – mouse – Oral Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific Developmental Abnormalities: Musculoskeletal system.

Teratogenicity: : Developmental Toxicity – mouse – Intraperitoneal Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific Developmental Abnormalities: Musculoskeletal system.

Signs and Symptoms of Exposure: Exposure via ingestion may cause nausea, fatigue, headache.

Additional Information: RTECS: PV6210000

Hydrogen peroxide:

Acute toxicity: LD50 Oral – rat > 90000 mg/kg

Skin corrosion/irritation: causes skin irritation

Serious eye damage/eye irritation: causes serious eye damage

Respiratory or skin sensitization: not classified

Germ cell mutagenicity: not classified

Carcinogenicity: not classified.

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 identified as a carcinogen or potential carcinogen by OSHA.

Specific target organ toxicity - single exposure (GHS): no data available

Specific target organ toxicity - repeated exposure (GHS): no data available

Aspiration hazard: no data available

Potential health effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: Causes skin irritation.

Eyes: Causes eye damage

Ingestion: Harmful if swallowed

Section 12: Ecological Information

DMSO:

Persistence and degradability: no data available

Toxicity: Toxicity to fish: LC50 – Pimephales promelas (fathead minnow) – 34,000 mg/l – 96 h

LC50 – Oncorhynchus mykiss (rainbow trout) – 35,000 mg/l – 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 – Daphnia pulex (Water flea) – 27,500 mg/l

Toxicity to algae: EC50 – Lepomis macrochirus (Bluegill) – >400,000 mg/l – 96 h

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

Hydrogen peroxide: No additional information available

Section 13: Disposal Considerations

Product: Observe all federal, state, and local environmental regulations. Contact licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

Section 14: Transport Information

DMSO:

DOT (US): UN-Number: 1993 Class: CBL Packing group: III

Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide)

Marine pollutant: No; Poison Inhalation Hazard: No

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

Hydrogen peroxide: No dangerous goods in sense of transport regulations

Section 15: Regulatory Information

1. **Regulation under the Occupational Safety and Health Act**
 - 1.1 Harmful Substances Required Permission for Manufacture - Not relevant
 - 1.2 Harmful Substances Prohibited from Manufacturing - Not relevant
 - 1.3 Carcinogenic Substances - Not relevant
 - 1.4 Controlled Substances Subject to Environment Monitoring - Not relevant
 - 1.5 Controlled Substances Subject to Health Examination - Not relevant
 - 1.6 Hazardous substances requiring management - Not relevant
2. **Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act**
 - 2.1 Toxic Chemicals - Not relevant
 - 2.2 Observational chemicals - Not relevant
 - 2.3 Restricted Chemicals - Not relevant
 - 2.4 Prohibited Chemicals - Not relevant
 - 2.5 Accident Precaution Chemicals - Not relevant
3. **Dangerous Substances Safety Management Act**
 - 3.1 Not relevant
4. **Wastes Control Act**
 - 4.1 Follow article 13 of the act to dispose the product waste
5. **Other regulations**

KECI Number
Not in compliance with the inventory

Section 16: Other information

OTHER INFORMATION:**PREPARATION INFORMATION:****DISCLAIMER:**

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 regard to appropriate safety precautions.

It does not represent any guarantee of the properties of the product. BIOMAX, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright BIOMAX, Inc., License granted to make unlimited paper copies for internal use only.