

SAFETY DATA SHEET (SDS)

SDS DATE : Aug, 2021

Section 1. Product And Company Identification

1. **Product identifier**
 - 1.1. Product Name : OxiTec™ TBARS Assay Kit
 - 1.2. Product Code : BO-TBR-200
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
Acid Reagent	Proprietary Buffer	20 mL X 3	No hazards
Indicator	Lyophilized	4 vials	No hazards
MDA Standard	Proprietary Buffer	100 µl	See below
100 X BHT	5% in ethanol	1 mL	See below

1.1 BHT:

GHS Classification: Acute aquatic toxicity (category 1); chronic aquatic toxicity (category 1)

GHS Label elements, including precautionary statements

Pictogram:



Signal word: Warning

Hazard statement(s): Very toxic to aquatic life with long lasting effects

Precautionary statement(s): P273 Avoid release to the environment.

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 0

Flammability: 1

Physical hazards: 0

NFPA Rating

Health Hazard: 2

Fire: 1

Reactivity Hazard: 0

1.2 Ethanol

Emergency Overview

OSHA Hazards: : Highly flammable liquid, Target organ effect, Irritant, Carcinogen

Target Organs: Nerves, Liver, Heart

GHS Classification: : Flammable liquids (Category 2)

Skin irritation (Category 2)

Eye irritation (Category 2B)

Specific target organ toxicity – single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram:





Signal word: Danger

Hazard statement(s): H225 Highly flammable liquid and vapor
H315+H320 Causes skin and eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s): P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

NFPA Rating

Health Hazard: 2
Fire: 3
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.

1.3 **1,1,3,3-Tetraethoxypropane:**

Emergency Overview

GHS Classification: flammable liquid (category 4), acute toxicity, oral (category 4)

GHS Label elements, including precautionary statements

Pictogram:



Signal word: warning

Hazard statement(s): H227 Combustible liquid.
H302 Harmful if swallowed.

Precautionary statement(s): P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P330 Rinse mouth.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 1
Flammability: 2
Physical hazards: 0

NFPA Rating

Health Hazard: 1
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.

Section 3. Composition/Information on ingredients

Component	CAS Number	EC-No.	Molecular Weight	Formula
BHT	128-37-0	204-881-4	220.36	C ₁₅ H ₂₄ O
Ethanol	64-17-5	200-578-6	46.07	C ₂ H ₆ O
1,1,3,3-Tetraethoxypropane	122-31-6	204-533-1	220.31	C ₁₁ H ₂₄ O ₄

Section 4. First Aid Measures

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Flush eyes with water as a precaution.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

Section 5. Fire-fighting Measures

Ethanol:

Condition of flammability: Flammable in the presence of a source of ignition when the temperature is above the flash point.

Keep away from heat/sparks/open flame/hot surface. No smoking.

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— carbon oxides, nitrogen oxides.

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

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage

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

Recommended storage temperature: 4°C.

Section 8: Exposure Controls/Personal Protection

Components	CAS-No.	Value	Control parameters	Basis
BHT	128-37-0	TWA	2 mg/m ³	USA. ACGIH (TLV)
			Upper respiratory tract irritation; Not classifiable as a human carcinogen	
		TWA	10 mg/m ³	USA. NIOSH Recommended Exposure Limits
Ethanol	64-17-5	TWA	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks: Upper respiratory tract irritation. Confirmed animal carcinogen with unknown relevance to humans.				
		TWA	1,000 ppm 1,900 mg/m ³	USA. OSHA: TABLE Z-1 Limits for Air Contaminants – 1910.1000
		TWA	1,000 ppm 1,900 mg/m ³	USA. Occupational Exposure Limits (OSHA): Table Z-1 Limits for Air Contaminants
The value in mg/m ³ is approximate				
		TWA	1,000 ppm 1,900 mg/m ³	USA. NIOSH recommended exposure limits

1,1,3,3-Tetraethoxypropane:

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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

Choose body protection in relation to its type, to the concentration and amount of dangerous substance, and to the specific work-place.

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

Hygiene measures

General industrial hygiene practice

Section 9: Physical And Chemical Properties

Property	BHT	Ethanol	1,1,3,3- Tetraethoxypropane
Appearance:	white crystals	Clear liquid	Clear liquid
pH:	No data available	No data available	No data available

Water Solubility:	No data available	Completely soluble	No data available
Other Solubility:	No data available	No data available	No data available
Boiling Point (°C):	265.0 °C	78-80°C (172.4-176°F)	265.0 °C
Melting Point (°C):	69.0 - 70.0 °C	-144°C (-227.2°F)	- 90 °C
Flash Point (°C):	127.0 °C	14°C (57.2°F)	88 °C
Ignition Temperature (°C):	No data available	363°C (685°F)	No data available
Density:	No data available	0.79 g/cm ³	0.919 g/cm ³

Section 10: Stability And Reactivity

Property	BHT	Ethanol	1,1,3,3- Tetraethoxypropane
Chemical Stability:	Stable under recommended storage conditions		
Conditions to Avoid:	No data available	Heat, flames, sparks, extreme temperatures, direct sunlight	Heat, flames, sparks
Materials to Avoid:	Acid chlorides, Acid anhydrides, Oxidizing agents, Bases, Brass, Copper	Oxidizing agents, alkali metals, ammonia, peroxides	Strong oxidizing agents, Strong acids
Hazardous decomposition products:	No data available	Carbon oxides	No data available

Section 11: Toxicological Information

BHT:

Acute toxicity: LD50 Oral - Rat - male and female - > 6,000 mg/kg

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no eye irritation

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Ames test S. typhimurium Result: negative

Carcinogenicity:

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,6-di-tert-Butyl-p-cresol)

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: no data available

Teratogenicity: no data available

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. May cause respiratory tract irritation

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

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional information: RTECS: GO7875000

Ethanol:

Acute toxicity: LD50 Oral – rat – 7,060 mg/kg Remarks: Lungs, thorax, or respiration: other changes

LC50 Inhalation – rat – 10 h – 20000 ppm

Skin corrosion/irritation: Skin – rabbit – irritating to skin – 24 h

Serious eye damage/eye irritation: Eyes – rabbit – mild eye irritation – 24 h (Draize test)

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:

Carcinogenicity – mouse – oral -> Tumorigenic: equivocal tumorigenic agent by RTECS criteria. Liver: tumors. Blood: Lymphomas including Hodgkin's disease.

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 – human – female – oral -> Effects on newborn: apgar score (human only), other neonatal measures or effects, and drug dependence.

Teratogenicity: no data available

Specific target organ toxicity – single exposure (GHS): Inhalation – may cause respiratory irritation.

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

Eyes: Causes eye irritation.

Ingestion: May be harmful if swallowed.

Signs and Symptoms of Exposure:

Exposure may cause central nervous system depression, narcosis, and/or damage to the heart. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional information: RTECS: KQ6300000

1,1,3,3-Tetraethoxypropane:

Acute toxicity: LD50 Oral - Rat - 1,610 mg/kg

Remarks: Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Dyspnea. Cyanosis

Skin corrosion/irritation: Skin - Rabbit: Mild skin irritation - 24 h

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Rat: Morphological transformation.

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: no data available

Teratogenicity: no data available

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. May cause respiratory tract irritation

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

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional information: RTECS: ON8750000

Section 12: Ecological Information

BHT:

Persistence and degradability: no data available

Toxicity: fish: LC50 - Oryzias latipes - 5.3 mg/l - 48 h

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13: Disposal Considerations

Product: Observe all federal, state, and local environmental regulations.

Contaminated packaging: Dispose of as unused product.

Section 14: Transport Information

BHT:

DOT (US) : Not dangerous goods

IMDG : UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,6-di-tert-Butyl-p-cresol)

Marine pollutant:yes

IATA : UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (2,6-di-tert-Butyl-p-cresol)

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing

inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

Ethanol:

DOT (US): UN-number: 1170 Class: 3 Packing group: II

Proper shipping name: Ethanol

Marine pollutant: No; Poison inhalation hazard: No

IMDG: UN-number: 1170 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: Ethanol

Marine pollutant: No

IATA: UN-number: 1170 Class: 3 Packing group: II

Proper shipping name: Ethanol

1,1,3,3-Tetraethoxypropane:

DOT (US) : NA-Number: 1993 Class: NONE Packing group: III

Proper shipping name: Combustible liquid, n.o.s. (1,1,3,3-Tetraethoxypropane)

Poison Inhalation Hazard: No

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

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.

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