

SAFETY DATA SHEET

SDS DATE: May 20, 2015

Cat# K795-100, Monoamine Oxidase Activity (Total MAO/MAO-A/MAO-B) Fluorometric Assay Kit

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Monoamine Oxidase Activity (Total MAO/MAO-A/MAO-B) Fluorometric Assay Kit

PRODUCT CODES: Cat# K795-100

MANUFACTURER: BioVision, Inc.

DIVISION:

ADDRESS: 155 S. Milpitas Boulevard, Milpitas, CA 95035

EMERGENCY PHONE: 858-373-8066

CHEMTREC PHONE:

OTHER CALLS: 408-493-1800

FAX PHONE: 408-493-1801

SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
MAO Assay Buffer	Proprietary Buffer	25 ml	No hazards
OxiRed™ Probe (in DMSO)	In DMSO	220 µl	See below
MAO Substrate	Lyophilized (Contains PROPRIETARY SUBSTRATE)	1 vial	See below
Developer	Lyophilized	1 vial	No hazards
Positive Control (MAO-A Enzyme)	Lyophilized	1 vial	No hazards
MAO-A Inhibitor	Lyophilized	1 vial	No hazards
MAO-B Inhibitor	Lyophilized	1 vial	No hazards
H2O2 Standard	Liquid (contains HYDROGEN PEROXIDE)	100 µl	See below

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: none

Signal word: Warning

Hazard statement(s): H227 Combustible liquid

Precautionary statement(s): none

HMIS Classification

Health hazard: 0

Chronic Health Hazard: *

Flammability: 2

Physical hazards: 0

NFPA Rating

Health hazard: 0

Fire: 2

Reactivity Hazard: 0

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.

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.

PROPRIETARY SUBSTRATE:

Emergency Overview

OSHA Hazards: Irritant

GHS Classification

Skin irritation (Category 2)

Eye irritation (Category 2A)

Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

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Pictogram



Signal word: Warning

Hazard statement(s)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ 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

Flammability: 0

Physical hazards: 0

NFPA Rating

Health hazard: 2

Fire: 0

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.

HYDROGEN PEROXIDE:

Emergency Overview

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) :

Oxidizing liquids (Category 1), H271

Acute toxicity, Oral (Category 4), H302

Skin corrosion (Category 1A), H314

Serious eye damage (Category 1), H318

Acute aquatic toxicity (Category 3), H402

Chronic aquatic toxicity (Category 3), H412

GHS Label elements, including precautionary statements

Pictogram:



Signal word:

Danger

Hazard statement(s):

H315 Causes skin irritation.

H318: Causes serious eye damage

Precautionary statement(s):

P210 Keep away from heat.

P220 Keep/Store away from clothing/ combustible materials.

P221 Take any precaution to avoid mixing with combustibles.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

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

P283 Wear fire/ flame resistant/ retardant clothing.

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P306 + P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P310 Immediately call a POISON CENTER or doctor/ physician.

P321 Specific treatment (see supplemental first aid instructions on this label).

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

P405 Store locked up.

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

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
DMSO	67-68-5	200-664-3	78.13	C ₂ H ₆ OS
PROPRIETARY SUBSTRATE	--	--	--	--
HYDROGEN PEROXIDE	--	--	--	--

SECTION 4: FIRST AID MEASURES

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

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

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing during transport to hospital.

If swallowed: DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5: FIRE-FIGHTING MEASURES

DMSO:

Suitable extinguishing media: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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

Hazardous combustion products: Hazardous combustion products formed under fire conditions – no data available.

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 inhalation of vapor or mist. Avoid contact with skin and eyes.

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

DMSO:

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

PROPRIETARY SUBSTRATE, HYDROGEN PEROXIDE:

Contains no substances with occupational exposure limit values.

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

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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

Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

SECTION 10: STABILITY AND REACTIVITY

Property	PROPRIETARY SUBSTRATE	DMSO	HYDROGEN PEROXIDE
Chemical stability:	Stable under recommended storage conditions		
Conditions to avoid:	light	Heat, flames, sparks	Not data available
Materials to avoid:	Strong oxidizing agents, Acid chlorides, Acid anhydrides	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents	Zinc, Powdered metals, Iron, Copper, Nickel, Brass, Iron and iron salts
Hazardous decomposition products:	Carbon oxides, nitrogen oxides, hydrogen chloride gas	Carbon oxides, sulfur oxides	No data available

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: Skin – rabbit – no skin irritation – 4h

Serious eye damage/eye irritation: Eyes – rabbit – mild eye irritation

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 and appendages: other: tumors.

Carcinogenicity – mouse – Oral → Tumorigenic: equivocal tumorigenic agent by RTECS criteria. Leukemia skin and 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: post-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea). Effects on embryo/fetus: Fetotoxicity (except death, e.g. stunted fetus). Specific developmental abnormalities: musculoskeletal system.

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Teratogenicity: Developmental toxicity – mouse – Intraperitoneal: Effects on embryo/fetus: Fetotoxicity (except death, e.g. stunted fetus).

Specific developmental abnormalities: musculoskeletal system

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.

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.

Signs and Symptoms of Exposure: Effects due to ingestion may include: nausea, fatigue, and/or headache.

Additional information: RTECS: PV6210000

PROPRIETARY SUBSTRATE:

Acute toxicity: no data available

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

Mutation in microorganisms

Genotoxicity in vitro - mouse - lymphocyte

Mutation in mammalian somatic cells.

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 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 carcinogen or potential 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): Inhalation - May cause respiratory irritation.

Specific target organ toxicity – repeated exposure (GHS): 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: 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.

Additional information: RTECS: not available

HYDROGEN PEROXIDE:

Acute toxicity: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans

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

Additional information: RTECS: not available

SECTION 12: ECOLOGICAL INFORMATION

DMSO:

Elimination information (persistence and degradability): no data available

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Ecotoxicity effects: 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
Further information on ecology: no data available

SECTION 13: DISPOSAL CONSIDERATIONS

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

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.

PROPRIETARY SUBSTRATE:

DOT (US): Not dangerous goods.

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

HYDROGEN PEROXIDE:

DOT (US): UN number: 2014 Class: 5.1 (8) Packing group: II

Proper shipping name: Hydrogen peroxide, aqueous solutions

Reportable Quantity (RQ):

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG: UN number: 2014 Class: 5.1 (8) Packing group: II EMS-No: F-H, S-Q

Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION

Marine pollutant: No

IATA: UN number: 2014 Class: 5.1 (8) Packing group: II

Proper shipping name: Hydrogen peroxide, aqueous solution

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: SARA 302: The following components are subject to reporting levels established by SARA Title III, Section 302:

HYDROGEN PEROXIDE: CAS-No. -- Revision Date 1993-04-24

SARA 313 Components: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title II, Section 313.

SARA 311/312 Hazards: **PROPRIETARY SUBSTRATE:** Acute Health Hazard

DMSO: Fire Hazard, Chronic Health Hazard

HYDROGEN PEROXIDE: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components:

HYDROGEN PEROXIDE: CAS-No. -- Revision Date 1993-04-24

Pennsylvania Right To Know Components:

Dimethyl sulfoxide CAS-No. 67-68-5

PROPRIETARY SUBSTRATE, CAS-No. --

HYDROGEN PEROXIDE, CAS-No. --

New Jersey Right To Know Components:

Dimethyl sulfoxide CAS-No. 67-68-5

PROPRIETARY SUBSTRATE, CAS-No. --

HYDROGEN PEROXIDE, CAS-No. --

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

EU regulations:

Component	Risk Phrases	Safety Phrases
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45

SECTION 16: OTHER 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. BioVision, 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.