

SAFETY DATA SHEET

Cat# K544-200, -500, -1000, Nitric Oxide Colorimetric Assay Kit

SDS DATE: Apr 11, 2018

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Nitric Oxide Colorimetric Assay Kit
PRODUCT CODES: Cat# K544-200, -500, -1000
MANUFACTURER: BioVision, Inc.
DIVISION:
ADDRESS: 155 S. Milpitas Blvd. 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
Nitrite Assay Buffer	Liquid	K544-200: 30 ml K544-500: 75 ml K544-1000: 150 ml	No hazards
Griess Reagent I	Solution (contains Phosphoric acid)	K544-200: 10 ml K544-500: 25 ml K544-1000: 50 ml	See below
Griess Reagent II	Liquid	K544-200: 10 ml K544-500: 25 ml K544-1000: 50 ml	No hazards
Nitrite Standard	Contains Sodium Nitrite	K544-200: 1 vial K544-500: 1 vial K544-1000: 1 vial	See below

Sodium nitrite:

Emergency Overview

OSHA Hazards: Oxidizer, Carcinogen, Target organ effect, Toxic by ingestion, Irritant

Target Organs: Blood, Cardiovascular system, Smooth muscle

GHS Classification: Oxidizing solids (Category 3)
Acute toxicity, Oral (Category 3)
Eye irritation (Category 2A)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram:



Signal word:

Danger

Hazard statement(s):

H272 May intensify fire; oxidizer.
H301 Toxic if swallowed.
H319 Causes serious eye irritation.
H400 Very toxic to aquatic life..

Precautionary statement(s):

P220 Keep/store away from clothing/combustible materials.
P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
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: 0

Physical hazards: 1

NFPA Rating

Health Hazard: 2

Fire: 0

Reactivity Hazard: 1

Special Hazard: OX

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: Toxic if swallowed.

SAFETY DATA SHEET

Cat# K544-200, -500, -1000, Nitric Oxide Colorimetric Assay Kit

SDS DATE: Apr 11, 2018

Phosphoric acid:

Emergency Overview

OSHA Hazards: Target organ effect, Highly toxic by inhalation, Harmful by ingestion, Corrosive

Target Organs: Liver, Blood, Bone marrow

GHS Classification: Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 5)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)

GHS Label elements, including precautionary statements

Pictogram:



Signal word:

Danger

Hazard statement(s):

H302 Harmful if swallowed.
H313 May be harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.

Precautionary statement(s):

P260 Do not breathe dust/fumes/gas/mist/vapors/spray.
P280 Wear protective gloves/eye protection/face protection.
P284 Wear respiratory protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
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.
P310 Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 3
Chronic health hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating

Health hazard: 3
Fire: 0
Reactivity hazard: 0

Potential Health Effects

Inhalation: May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin: Harmful if absorbed through skin. Causes skin burns.
Eyes: Causes eye burns.
Ingestion: Harmful if swallowed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula	Concentration
Sodium nitrite	7632-00-00	231-555-9	69.00	NNaO ₂	<10%
Phosphoric acid	7664-38-2	231-633-2	98.00	H ₃ PO ₄	<10%

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: 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.

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

Condition of flammability: Not flammable or combustible.

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.

SAFETY DATA SHEET

Cat# K544-200, -500, -1000, Nitric Oxide Colorimetric Assay Kit

SDS DATE: Apr 11, 2018

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 formation of dust and aerosols. 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: -20 °C.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Phosphoric acid:

Components	CAS-No.	Value	Control parameters	Basis
Phosphoric acid	7664-38-2	TWA	1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
Remarks:	Eye, skin, & upper respiratory tract irritation.			
		STEL	3ppm	USA. ACGIH Threshold Limit Values (TLV)
	Eye, skin, & upper respiratory tract irritation.			
		TWA	1 mg/m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1: Limits for Air Contaminants
		TWA	1 mg/m ³	USA. OSHA – Table Z-1: Limits for Air Contaminants – 1910.1000
		STEL	3 mg/m ³	USA. OSHA – Table Z-1: Limits for Air Contaminants – 1910.1000
		TWA	1 mg/m ³	USA. NIOSH Recommended Exposure Limits
		ST	3 mg/m ³	USA. NIOSH Recommended Exposure Limits

Sodium nitrite:

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

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	Sodium nitrite	Phosphoric acid
Appearance:	Solid	White crystalline
pH:	9	No data available
Water Solubility:	820 g/l at 20 °C (68 °F)	No data available
Other Solubility:	No data available	No data available
Boiling Point (°C):	320 °C (608 °F)	158 °C (316 °F)
Melting Point (°C):	271 °C (520 °F)	41-44 °C (106-111 °F)
Flash Point (°C):	No data available	No data available
Ignition Temp. (°C):	No data available	No data available
Density:	2.168 g/cm ³	1.685 g/ml

SAFETY DATA SHEET

Cat# K544-200, -500, -1000, Nitric Oxide Colorimetric Assay Kit

SDS DATE: Apr 11, 2018

SECTION 10: STABILITY AND REACTIVITY

Property	Sodium nitrite	Phosphoric acid
Chemical stability:	Stable under recommended storage conditions	
Conditions to avoid:	Exposure to moisture	No data available
Materials to avoid:	Acids, powdered metals, ammonia, cyanides, amines, activated carbon	Strong bases, powdered metals
Hazardous decomposition products:	Nitrogen oxides, sodium oxides	Oxides of phosphorus

SECTION 11: TOXICOLOGICAL INFORMATION

Sodium nitrite:

Acute toxicity: LD50 Oral – rat – 157.9 mg/kg

LD50 Oral – mouse – 175 mg/kg → Remarks: Vascular: BP lowering not characterized in autonomic section. Vascular: Regional or general arteriolar or venous dilation.

Skin corrosion/irritation: Skin – rabbit – no skin irritation – 48 h – OECD Test Guideline 404

Serious eye damage/eye irritation: Eyes – rabbit – moderate eye irritation – 24 h – OECD Test Guideline 405

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity: Limited evidence of carcinogenicity in animal studies.

IARC: 2A – Group 2A: Probably carcinogenic to humans (Sodium nitrite).

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

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

Eyes: Causes eye irritation.

Ingestion: Toxic 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: RA1225000

Phosphoric acid:

Acute toxicity: LD50 Dermal – rabbit – 2,740 mg/kg → Remarks: Behavioral: Somnolence (general depressed activity). Behavioral: Excitement.

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: 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

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 fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin: Harmful if absorbed through skin. Causes skin burns.

Eyes: Causes eye burns.

Ingestion: Harmful if swallowed.

Signs and Symptoms of Exposure: Exposure may cause a burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, and/or cyanosis.

Additional information: RTECS: TB6300000

SECTION 12: ECOLOGICAL INFORMATION

SAFETY DATA SHEET

Cat# K544-200, -500, -1000, Nitric Oxide Colorimetric Assay Kit

SDS DATE: Apr 11, 2018

Sodium nitrite:

Persistence and degradability: no data available

Toxicity: Toxicity to fish: flow-through test LC50 – Oncorhynchus mykiss (rainbow trout) – 0.94-1.92 mg/l – 96.0 h

Mortality NOEC – Oncorhynchus mykiss (rainbow trout) – 0.54 mg/l – 96.0 h

Toxicity to daphnia and other aquatic invertebrates: EC50 – Daphnia magna (Water flea) – 12.5 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.

Very toxic to aquatic life.

Phosphoric acid:

Persistence and degradability: no data available

Toxicity: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: May be harmful to aquatic organisms due to the shift of the pH.

SECTION 13: DISPOSAL CONSIDERATIONS

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

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Sodium nitrite:

DOT (US): UN-number: 1500, Class: 5.1(6.1), Packing group: III; Proper shipping name: Sodium nitrite; Reportable Quantity (RQ): 100 lbs.;

Marine pollutant: No; Poison Inhalation Hazard: No

IMDG: UN-number: 1500, Class: 5.1(6.1), Packing group: III; EMS-No: F-A, S-Q; Proper shipping name: SODIUM NITRITE; Marine pollutant: No

IATA: UN-number: 1500, Class: 5.1(6.1), Packing group: III; Proper shipping name: Sodium nitrite

Phosphoric acid:

DOT (US): UN-number: 3453, Class: 8, Packing group: III; Proper shipping name: Phosphoric acid, solid; Reportable Quantity (RQ): 5000

lbs.; Marine pollutant: No; Poison Inhalation Hazard: No

IMDG: UN-number: 3453, Class: 8, Packing group: III; EMS-No: F-A, S-B; Proper shipping name: PHOSPHORIC ACID, SOLID; Marine pollutant: No

IATA: UN-number: 3453, Class: 8, Packing group: III; Proper shipping name: Phosphoric acid, solid

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313:

Sodium nitrite, CAS-No. 7632-00-0; Revision Date: 2007-07-01

SARA 311/312 Hazards:

Sodium nitrite: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Phosphoric acid: Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components:

Sodium nitrite, CAS-No. 7632-00-0; Revision Date: 2007-07-01

Phosphoric acid, CAS-No. 7664-38-2; Revision Date: 1993-04-24

Pennsylvania Right To Know Components:

Sodium nitrite, CAS-No. 7632-00-0; Revision Date: 2007-07-01

Phosphoric acid, CAS-No. 7664-38-2; Revision Date: 1993-04-24

New Jersey Right To Know Components:

Sodium nitrite, CAS-No. 7632-00-0; Revision Date: 2007-07-01

Phosphoric acid, CAS-No. 7664-38-2; Revision Date: 1993-04-24

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
Sodium nitrite	R8, R25, R50	S45, S61
Phosphoric acid	R22, R26, R34	S26, S45

SECTION 16: OTHER INFORMATION:

DISCLAIMER:

SAFETY DATA SHEET

Cat# K544-200, -500, -1000, Nitric Oxide Colorimetric Assay Kit

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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.