

# SAFETY DATA SHEET

Cat# K761 Glutathione Reductase Assay Kit

SDS DATE: May 28, 2015

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Glutathione Reductase Assay Kit  
**PRODUCT CODES:** Cat# K761-200  
**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
GR Assay Buffer	Proprietary Buffer	100 ml	No hazard
3 % H <sub>2</sub> O <sub>2</sub>	Contains Hydrogen peroxide	1 ml	See below
Catalase (lyophilized)	Lyophilized	1 vial	No hazard
TNB Standard (lyophilized)	Lyophilized (contains DTNB)	1 vial	See below
DTNB (lyophilized)	Lyophilized (contains DTNB)	1 vial	See below
NADPH-GNERAT™	Lyophilized	2 vials	No hazards
GSSG	Lyophilized	1 vial	No hazards
GR Positive Control	Lyophilized (contains NP40)	1 vial	No hazards

### Hydrogen peroxide:

#### Emergency Overview

**OSHA Hazards:** Oxidizer, Target organ effect, Harmful by ingestion, Corrosive

**Target Organs:** Eyes, Skin, Respiratory system

**GHS Classification:** Oxidizing liquids (Category 1)  
Acute toxicity, Oral (Category 4)  
Acute toxicity, Inhalation (Category 5)  
Skin corrosion (Category 1A)  
Serious eye damage (Category 1)  
Acute aquatic toxicity (Category 3)

#### 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):** P264 Wash skin thoroughly after handling.

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

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:** 3

**Chronic health hazard:** \*

**Flammability:** 0

**Physical hazards:** 0

#### NFPA Rating

**Health Hazard:** 3

**Fire:** 0

**Reactivity Hazard:** 0

### DTNB:

#### 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

**Pictogram:**



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**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/fumes/gas/mist/vapors/spray.  
P264 Wash hands 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.  
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.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.

## 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.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
Hydrogen peroxide	7722-84-1	231-765-0	34.01	H2O2
5,5'-Dithiobis(2-nitrobenzoic acid) [DTNB]	69-78-3	200-714-4	396.35	C14H8N2O8S2

## 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:** 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.

**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 breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

## SECTION 7: HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition – no smoking. Take measures to prevent the build up 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.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Hydrogen peroxide

Components	CAS-No.	Value	Control parameters	Basis
Hydrogen peroxide	7722-84-1	TWA	1 ppm	USA. ACGIH Threshold Values (TLV)
Remarks:	Eye, skin, & upper respiratory tract irritation. Confirmed animal carcinogen with unknown relevance to humans.			
		TWA	1 ppm 1.4 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		TWA	1 ppm 1.4 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) – Table Z-1 – Limits for Air Contaminants
	The value in mg/m <sup>3</sup> is approximate.			
		TWA	1 ppm 1.4 mg/m <sup>3</sup>	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000

### DTNB:

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

Tightly fitting safety goggles. Face shield (8-inch minimum). 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	Hydrogen peroxide	DTNB
Appearance:	Clear liquid	Light yellow powder
pH:	No data available	No data available
Water Solubility:	No data available	No data available
Other Solubility:	No data available	No data available
Boiling Point (°C):	No data available	No data available
Melting Point (°C):	No data available	240-250 °C (464-473 oF)
Flash Point (°C):	No data available	No data available
Ignition Temperature (°C):	No data available	No data available
Density:	1.11 g/cm <sup>3</sup>	No data available

## SECTION 10: STABILITY AND REACTIVITY

Property	Hydrogen peroxide	DTNB
Chemical stability:	Stable under recommended storage conditions	
Conditions to avoid:	No data available	No data available
Materials to avoid:	Zinc, powdered metals, iron, copper, nickel, brass, iron, and iron salts	Strong oxidizing agents, strong bases
Hazardous decomposition products:	No data available	Carbon oxides, nitrogen oxides, sulfur oxides

## SECTION 11: TOXICOLOGICAL INFORMATION

### 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

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## Carcinogenicity:

- IARC: 3 – Group 3: Not classifiable as to its carcinogenicity to humans (Hydrogen peroxide)  
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. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin:** May be harmful if absorbed through skin. Causes skin burns.

**Eyes:** Causes eye burns.

**Ingestion:** 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: not available

## DTNB:

**Acute toxicity:** LD50 Intraperitoneal – mouse – 2,080 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:** 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

**Teratogenicity:** no data available

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

**Specific target organ toxicity – repeated exposure (GHS):** 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:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional information:** RTECS: DG9650000

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## SECTION 12: ECOLOGICAL INFORMATION

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### Hydrogen peroxide:

**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:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

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## SECTION 13: DISPOSAL CONSIDERATIONS

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

**Contaminated packaging:** Dispose of as unused product.

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## SECTION 14: TRANSPORT INFORMATION

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### Hydrogen peroxide:

**DOT (US):** UN-Number: 2014, Class: 5.1 (8), Packing group: II; Proper shipping name: Hydrogen peroxide, aqueous solutions; Marine pollutant: No; Poison Inhalation Hazard: No

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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

**DTNB:**

DOT (US): Not dangerous goods.

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

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## SECTION 15: REGULATORY INFORMATION

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

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

**SARA 311/312 Hazards:**

DTNB: Acute Health Hazard

Hydrogen peroxide: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components:** Hydrogen peroxide, CAS-No. 7722-84-1; Revision Date: 1993-04-24

**Pennsylvania Right To Know Components:** Hydrogen peroxide, CAS-No. 7722-84-1; Revision Date: 1993-04-24

DTNB, CAS-No. 69-78-3

**New Jersey Right To Know Components:** Hydrogen peroxide, CAS-No. 7722-84-1; Revision Date: 1993-04-24

DTNB, CAS-No. 69-78-3

**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
Hydrogen peroxide	R22, R41	S26, S39
DTNB	R36/37/38	S22, S24/25, S36/37/39, S45

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## SECTION 16: OTHER INFORMATION

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**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.