SAFETY DATA SHEET

Cat# K254-200, -1000, ApoSENSOR™ Cell Viability Assay Kit **SDS DATE: 14APR2015**

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **ApoSENSOR™ Cell Viability Assay Kit**

PRODUCT CODES: **Cat# K254-200, -1000**

MANUFACTURER: **BioVision, Inc.**
DIVISION:
ADDRESS: **155 South 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
Nucleotide Releasing Buffer	Proprietary Buffer (contains NP-40)	K254-200: 20 ml K254-1000: 100 ml	See below
ATP Monitoring Enzyme	Lyophilized	K254-200: 1 vial K254-1000: 5 vials	No hazards
Enzyme Reconstitution Buffer	Proprietary Buffer	K254-200: 2 ml K254-1000: 5 x 2 ml	See below
ATP	lyophilized powder	K254-200: 1 mg K254-1000: 1 mg	No hazards

NP-40:
Emergency Overview
OSHA Hazards: Irritant, Harmful by ingestion
GHS Classification: Acute toxicity, Oral (Category 4)
Serious eye damage (Category 1)
Skin irritation (Category 3)
Specific target organ toxicity – single exposure (Category 3)
Acute aquatic toxicity (Category 3)
GHS Label elements, including precautionary statements
Pictogram:

Signal word: warning
Hazard statement(s): causes eye irritation
Precautionary statement(s): 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: 2
Flammability: 1
Physical hazards: 0
NFPA Rating
Health Hazard: 2
Fire: 1
Reactivity Hazard: 0
Potential Health Effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Harmful if swallowed.

Ethylene glycol:
Emergency Overview
OSHA Hazards: Target organ effect, Harmful by ingestion, Irritant, Teratogen
Target Organs: Liver, Cardiovascular system, Eyes, Kidney, Central nervous system
GHS Classification: Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2A)
GHS Label elements, including precautionary statements
Pictogram:

Signal word: Warning
Hazard statement(s): H302 Harmful if swallowed.

H320 Causes eye irritation.
H373: May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s): 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**: 1
- **Physical hazards**: 0

NFPA Rating
- **Health hazard**: 2
- **Fire**: 1
- **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:** Harmful if swallowed.

Glycerol:

Emergency Overview

OSHA Hazards: Target organ effect

Target Organs: Kidney

GHS Classification: Skin irritation (Category 3)
Eye irritation (Category 2B)

GHS Label elements, including precautionary statements

Pictogram: **none**

Signal word: none

Hazard statement(s): none

Precautionary statement(s): 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**: 1
- **Chronic Health Hazard**: *
- **Flammability**: 1
- **Physical hazards**: 0

NFPA Rating
- **Health hazard**: 1
- **Fire**: 1
- **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.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
NP-40	9016-45-9	500-024-6	680.0	--
Ethylene glycol	107-21-1	203-473-3	62.07	$C_2H_6O_2$
Glycerol	56-81-5	200-289-5	92.09	$HOCH_2CH(OH)CH_2OH$

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. Take victim immediatlye to hospital. 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: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5: FIRE-FIGHTING MEASURES

Conditions of flammability: Not flammable or combustible.
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipmen for firefighters: Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products: Hazardous decomposition products formed under fire conditions – see section 10.

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.

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 exhause ventilation at places where dust is formed.
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

Ethylene glycol:

Components	CAS-No.	Value	Control parameters	Basis
Ethylene glycol	107-21-1	C	50 ppm 125 mg/m^3	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000
		C	100 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)
Remarks:	Eye & upper respiratory tract irritation. Not classifiable as a human carcinogen.			
	See Appendix D – substances with no established RELs.			

Glycerol:

Components	CAS-No.	Value	Control parameters	Basis
Glycerol	56-81-5	TWA	10 mg/m^3	USA. OSHA – TABLE Z-1 Limits for Air Contaminants – 1910.1000
		TWA	5 mg/m^3	USA. OSHA – TABLE Z-1 Limits for Air Contaminants – 1910.1000
		TWA	10 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)
Remarks:	Upper Respiratory Tract Irritation			
		TWA	15 mg/m^3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m^3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
	See Appendix D – Substances with no established RELs			

NP-40:
Contain 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	NP-40	Ethylene glycol	Glycerol
Appearance:	Liquid	Clear liquid	Clear liquid
pH:	6	No data available	5.5-8
Water Solubility:	No data available	Soluble	Soluble
Other Solubility:	No data available	No data available	No data available
Boiling Point (°C):	No data available	196-198 ^{o}C (385-388 ^{o}F)	182 ^{o}C (360 ^{o}F)
Melting Point (°C):	57-58 ^{o}C (135-136 ^{o}F)	-13 ^{o}C (9 ^{o}F)	20 ^{o}C (68 ^{o}F)
Flash Point (°C):	113 ^{o}C (235 ^{o}F)	111 ^{o}C (232 ^{o}F)	160 ^{o}C (320 ^{o}F)
Ignition Temperature (°C):	No data available	400 ^{o}C (752 ^{o}F)	370 ^{o}C (698 ^{o}F)
Density:	1.06 g/ml	1.113 g/ml	1.25 g/ml

SECTION 10: STABILITY AND REACTIVITY

Property	NP-40	Ethylene glycol	Glycerol
Chemical stability:	Stable under recommended storage conditions		
Conditions to avoid:	No data available	No data available	No data available
Materials to avoid:	Strong oxidizing agents	Strong acids, strong oxidizing agents, strong bases, aldehydes, aluminum	Strong bases, strong oxidizing agents
Hazardous decomposition products:	No data available	Carbon oxides	Carbon oxides

SECTION 11: TOXICOLOGICAL INFORMATION

NP-40:

Acute toxicity: no data available
Skin corrosion/irritation: Skin – rabbit – mild skin irritation.
Serious eye damage/eye irritation: Eyes – rabbit – severe eye irritation.
Respiratory or skin sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.
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): Inhalation – may cause respiratory irritation.
Specific target organ toxicity – repeated exposure (GHS): no data available
Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Harmful if swallowed.

Signs and Symptoms of Exposure: Exposure may cause nausea, headache, and/or vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Additional information: RTECS: AX0247000

Ethylene glycol:

Acute toxicity: LD50 Oral – rat – 4,700 mg/kg
LD50 Dermal – rabbit – 10,626 mg/kg
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: Eyes – rabbit – mild eye irritation – 24 h
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity: This product is or contains a component that is probably not carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

- 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: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.
Teratogenicity: Laboratory experiments have shown teratogenic effects.
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: Harmful if swallowed.

Signs and Symptoms of Exposure: When ingested early symptoms mimic alcohol inebriation and are followed by nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular collapse, pulmonary edema, hypocalcemic tetany, and severe metabolic acidosis. Without treatment, death may occur in 8 to 24 hours. Victims who survive the initial toxicity period usually develop renal failure along with brain and liver damage. Exposure to and/or consumption of alcohol may increase toxic effects.
Synergistic effects: no data available

Additional information: RTECS: KW2975000

Glycerol:
Acute toxicity: LD50 Dermal – rabbit – >10,000 mg/kg
Skin corrosion/irriation: 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
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.
Synergistic effects: no data available
Additional information: RTECS: MA8050000

SECTION 12: ECOLOGICAL INFORMATION

NP-40:
Persistence and degradability: Biodegradability→ Result: 86% - readily biodegradable; Method: modified Sturm test
Toxicity: Toxicity to fish: mortality LOEC – Pimephales promelas (fathead minnow) – 2.0 mg/l – 144 h
Mortality LOEC – Pimephales promelas (fathead minnow) – 1.8 mg/l – 144 h
LC50 – Lepomis macrochirus (Bluegill) – 1.0-9.7 mg/l – 96 h
Toxicity to daphnia and other aquatic invertebrates: mortality LOEC 0 Daphnia magna (water flea) – 10.0 mg/l – 144 h
EC50- Daphnia magna (water flea) – 20.0 mg/l – 144 h
Toxicity to algae: Growth inhibition LOEC – Pseudokirchneriella subcapitata – 16.0 mg/l – 96 h
Growth inhibition LOEC – Pseudokirchneriella subcapitata – 8.0 mg/l – 96 h
Bioaccumulative potential: Does not bioaccumulate
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.

Ethylene glycol:
Persistence and degradability: no data available
Toxicity: Toxicity to fish: LC50 – Oncorhynchus mykiss (Rainbow trout) – 18,500 mg/l – 96 h
LC50 – Leuciscus idus (Golden orfe) – >10,000 mg/l – 48 h
NOEC – Pimephales promelas (fathead minnow) – 32,000 mg/l – 7 d
NOEC – Pimephales promelas (fathead minnow) – 39,140 mg/l – 96 h
Toxicity to daphnia and other aquatic invertebrates: EC50 – Daphnia magna (Water flea) – 74,000mg/l – 24 h
NOEC- Daphnia – 24,000 mg/l – 48 h
LC50 – Daphnia magna (Water flea) – 41,000 mg/l – 48 h
Bioaccumulative potential: Does not bioaccumulate.
Bioaccumulation: Other fish – 61 d
Bioconcentration factor (BCF): 0.60
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

SECTION 13: DISPOSAL CONSIDERATIONS

Product: Observe all federal, state, and local environmental regulations.
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

NP-40:
DOT (US): Not dangerous goods.
IMDG: UN- number: 3082, Class: 9; Packing group: III; EMS-No. F-A, S-F; Proper shipping name: ENVIRONMENTALLY HAZARDOUT SUBSTANCE, LIQUID, N.O.S. (4-Nonylphenyl-polyethylene glycol); Marine pollutant: Yes
IATA: UN-number: 3082, Class: 9; Packing group: III; Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (4-Nonylphenyl-polyethylene glycol)

Further information: EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packaging and combination packaging containing inner packaging with Dangerous Goods > 5L for liquids or >5 kg for solids.

Ethylene glycol:
DOT (US): UN-Number: 3082 Class: 9, Packing group: III; Proper shipping name: Environmentally hazardous substances, liquid, n.o.s. (Ethylene glycol); Reportable Quantity (RQ): 5000 lbs.; Marine pollutant: No; Poison Inhalation Hazard: No
IMDG: Not dangerous goods.
IATA: Not dangerous goods.

Glycerol:
DOT (US): Not dangerous goods.
IMDG: Not dangerous goods.
IATA: Not dangerous goods.

SECTION 15: REGULATORY INFORMATION

OSHA Hazards: NP-40: Irritant, Harmful by ingestion
Ethylene glycol: Target organ effect, Harmful by ingestion, Irritant, Teratogen
Glycerol: Target organ effect
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: The following components are subject to reporting levels established by SARA Title III, Section 313:
Ethylene glycol, CAS- No. 107-21-1; Revision Date: 2007-07-01
SARA 311/312 Hazards: NP-40: Acute Health Hazard
Ethylene glycol: Acute Health Hazard, Chronic Health Hazard
Glycerol: Chronic Health Hazard
Massachusetts Right To Know Components: Ethylene glycol, CAS- No. 107-21-1; Revision Date: 2007-07-01
Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01
Pennsylvania Right To Know Components: NP-40, CAS-No. 9016-45-9
Ethylene glycol, CAS- No. 107-21-1; Revision Date: 2007-07-01
Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01
New Jersey Right To Know Components: NP-40, CAS-No. 9016-45-9
Ethylene glycol, CAS- No. 107-21-1; Revision Date: 2007-07-01
Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01
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
NP-40	R22, R37/38, R41, R50	S23, S29, S36/37/39, S45, S56, S61
Ethylene glycol	R22, R36/38	S24/25, S36/37/39
Glycerol	--	S24/25

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.