MATERIAL SAFETY DATA SHEET

Cat# K810-1000, Protein Quantitation Kit **MSDS DATE: Mar 26, 2020**

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Protein Quantitation Kit**

PRODUCT CODES: **Cat# K810-1000**

RESTRICTIONS ON USE: **For laboratory research purposes. Not for drug or household use.**

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
Protein Assay Solution (5X)	Solution (contains Phosphoric acid & Methanol)	20 ml	See below
Protein Standard (1 mg/ml)	liquid	1.5 ml	No hazards

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.

Methanol:
Emergency Overview

OSHA Hazards: Flammable liquid, Target organ effect, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Irritant
Target Organs: Eyes, Kidney, Liver, Heart, Central nervous system
GHS Classification: Flammable liquids (Category 2)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity – single exposure (Category 1)

GHS Label elements, including precautionary statements
Pictogram:

Signal word: Danger
Hazard statement(s): H225 Highly flammable liquid and vapor
H301+H311 Toxic if swallowed or in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H370 Causes damage to organs.
Precautionary statement(s): P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
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.
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.
P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.

HMIS Classification
- **Health hazard**: 2
- **Fire hazard**: *
- **Flammability**: 3
- **Physical hazards**: 0

NFPA Rating
- **Health Hazard:** 2
- **Fire**: 3
- **Reactivity Hazard**: 0

Potential Health Effects
- **Inhalation:** Toxic if inhaled. Causes respiratory tract irritation.
- **Skin:** Toxic if absorbed through skin. Causes skin irritation.
- **Eyes:** Causes eye irritation.
- **Ingestion:** Toxic if swallowed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula	Concentration
Phosphoric acid	7664-38-2	231-633-2	98.00	H_3PO_4	<10%
Methanol	67-56-1	200-659-6	32.04	CH_4O	<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

Methanol:
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: Wear respiratory protection. 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 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: +4 °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

Methanol:

Components	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks:	Headache. Eye damage. Substances for which there is a Biological Exposure Index or Indices. Danger of cutaneous absorption.			
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Headache. Eye damage. Substances for which there is a Biological Exposure Index or Indices (see BEI ® section). Danger of cutaneous absorption.			
		TWA	200 ppm 260 mg/m^3	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000
	Skin notation.			
		STEL	250 ppm 325 mg/m^3	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000
	Skin notation.			
		TWA	200 ppm 260 mg/m^3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
	The value in mg/m^3 is approximate.			
		TWA	200 ppm 260 mg/m^3	USA. NIOSH recommended exposure limits
	Potential for dermal absorption.			

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

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Phosphoric acid	Methanol
Appearance:	White crystalline	Clear liquid
pH:	No data available	No data available
Water Solubility:	No data available	Completely soluble
Other Solubility:	No data available	No data available
Boiling Point (°C):	158 °C (316 °F)	64.7 °C (148.5 °F)
Melting Point (°C):	41-44 °C (106-111 °F)	-98 °C (-144 °F)
Flash Point (°C):	No data available	11.0 °C (51.8 °F)
Ignition Temperature (°C):	No data available	455 °C (851 °F)
Density:	1.685 g/ml	0.791 g/ml

SECTION 10: STABILITY AND REACTIVITY

Property	Phosphoric acid	Methanol
Chemical stability:	Stable under recommended storage conditions	
Conditions to avoid:	No data available	Heat, flames, sparks, extreme temperatures, direct sunlight
Materials to avoid:	Strong bases, powdered metals	Acid chlorides, acid anhydrides, oxidizing agents, alkali metals, reducing agents, acids
Hazardous decomposition products:	Oxides of phosphorus	Carbon oxides

SECTION 11: TOXICOLOGICAL INFORMATION

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

Methanol:

Acute toxicity: LD50 Oral – rat – 5,628 mg/kg
LC50 Inhalation – rat – 4 h – 64000 ppm
LC50 Inhalation – rat – 4 h – 87.6 mg/l
LD50 Dermal – rabbit – 15,800 mg/kg
Skin corrosion/irritation: Skin – rabbit – no skin irritation
Serious eye damage/eye irritation: Eyes – rabbit – no eye irritation
Respiratory or skin sensitization: Guinea pig – OECD Test Guideline 406 – does not cause skin sensitization.
Germ cell mutagenicity: Genotoxicity in vitro – non-mammalian – other cell types – negative
Genotoxicity in vivo – mouse – male and female – intraperitoneal - negative
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): Causes damage to organs.
Specific target organ toxicity – repeated exposure (GHS): no data available
Potential Health Effects
Inhalation: Toxic if inhaled. Causes respiratory tract irritation.
Skin: Toxic if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Toxic if swallowed.
Signs and Symptoms of Exposure: Methyl alcohol may be fatal or cause blindness if swallowed. Cannot be made non-poisonous. Effects due to ingestion may include: nausea, headache, vomiting, gastrointestinal disturbance, dizziness, weakness, confusion, drowsiness, unconsciousness. May cause convulsions.
Additional information: Repeated dose toxicity – monkey – Gavage – 72 h→ lowest observed adverse effect level – 2,340 mg/kg
RTECS: PC1400000

SECTION 12: ECOLOGICAL INFORMATION

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.

Methanol:
Persistence and degradability: Biodegradability (aerobic)→ Result: 72% - rapidly biodegradable
Toxicity: Toxicity to fish→ LC50 – Oncorhynchus mykiss (rainbow trout) – 19,000 mg/l – 96 h
Mortality LC50 – Lepomis macrochirus (Bluegill) – 15,400 mg/l – 96 h
Toxicity to daphnia and other aquatic invertebrates→ EC50 – Daphnia magna (Water flea) – 24,500 mg/l – 48 h
EC100 – Daphnia magna (Water flea) – 10,000 mg/l – 24 h
Toxicity to algae→ Growth inhibition EC50 – Scenedesmus capricornutum (fresh water algae) – 22,000 mg/l
Bioaccumulative potential: Bioaccumulation→ Cyprinus carpio (Carp) – 72 d at 20 °C; Bioconcentration factor (BCF): 1.0
Mobility in soil: Will not adsorb on soil.
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

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

Methanol:
DOT (US): UN-number: 1230, Class: 3, Packing group: II; Proper shipping name: Methanol; Reportable Quantity (RQ): 5000 lbs.; Marine pollutant: No; Poison inhalation hazard: No
IMDG: UN-number: 1230, Class: 3 (6.1), Packing group: II; EMS-No: F-E, S-D; Proper shipping name: METHANOL; Marine pollutant: No
IATA: UN-number: 1230, Class: 3(6.1), Packing group: II; Proper shipping name: Methanol

SECTION 15: REGULATORY INFORMATION

OSHA Hazards: Phosphoric acid: Target organ effect, Highly toxic by inhalation, Harmful by ingestion, Corrosive
Methanol: Flammable liquid, Target organ effect, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Irritant
SARA 302 Components: The following components are subject to reporting levels established by SARA Title III, Section 302:
SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313:
Methanol, CAS-No. 67-56-1; Revision Date: 2007-07-01
SARA 311/312 Hazards: Phosphoric acid: Acute Health Hazard, Chronic Health Hazard

Methanol: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components: Phosphoric acid, CAS-No. 7664-38-2; Revision Date: 1993-04-24
Methanol, CAS-No. 67-56-1; Revision Date: 2007-07-01

Pennsylvania Right To Know Components: Phosphoric acid, CAS-No. 7664-38-2; Revision Date: 1993-04-24
Methanol, CAS-No. 67-56-1; Revision Date: 2007-07-01

New Jersey Right To Know Components: Phosphoric acid, CAS-No. 7664-38-2; Revision Date: 1993-04-24
Methanol, CAS-No. 67-56-1; Revision Date: 2007-07-01

California Prop. 65 Components: ⚠ WARNING: This product can expose you to chemicals including Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

EU regulations

Component	Risk Phrases	Safety Phrases
Phosphoric acid	R22, R26, R34	S26, S45
Methanol	R11, R23/24/25, R33	S16, S24/25, S36/37, 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.