

# KIT SAFETY DATA SHEET



**Kit Product Name** Opti-4CN Detection Kit, GAR  
**Kit Catalog Number(s)** 1708236, 1708236EDU

**Revision date** 15-Nov-2023

## Kit Contents

Catalog Number(s)	Product Name
1708241, 1721019, 1706515, 1706515EDU, 1708241EDU, 9701107	Goat Anti-Rabbit IgG (H+L) HRP Conjugate
9703212	Opti-4CN Diluent
9703210	Opti-4CN Substrate



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR)

Revision date 26-Jul-2023

Revision Number 1.1

## 1. Identification

### Product identifier

**Product Name** Goat Anti-Rabbit IgG (H+L) HRP Conjugate

### Other means of identification

**Catalog Number(s)** 1708241, 1721019, 1706515, 1706515EDU, 1708241EDU, 9701107

### Recommended use of the chemical and restrictions on use

**Recommended use** Laboratory chemicals

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

#### **Corporate Headquarters**

Bio-Rad Laboratories Inc.  
1000 Alfred Nobel Drive  
Hercules, CA 94547  
USA

#### **Manufacturer Address**

Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### **Legal Entity / Contact Address**

Bio-Rad Laboratories (Canada) Ltd.  
1329 Meyerside Drive  
Mississauga, ON L5T 1C9  
Canada

#### **Technical Service**

1-800-361-1808  
support@bio-rad.com

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Canada:1 (800) 424-9300

## 2. Hazard(s) identification

### Classification

Skin sensitization

Category 1A

### Label elements

#### **Warning**

#### **Hazard statements**

May cause an allergic skin reaction



**Precautionary Statements - Prevention**

Avoid breathing dust/fume/gas/mist/vapors/spray  
Contaminated work clothing should not be allowed out of the workplace  
Wear protective gloves/protective clothing/eye protection/face protection

**Skin**

IF ON SKIN: Wash with plenty of water and soap  
If skin irritation or rash occurs: Get medical advice/attention  
Take off contaminated clothing and wash it before reuse

**Precautionary Statements - Disposal**

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

**Other information**

Contains animal source material. (Cattle).

**3. Composition/information on ingredients****Substance**

Not applicable.

**Mixture**

The product contains no substances which at their given concentration, are considered to be hazardous to health

Chemical name	CAS No	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
5-Chloro-2-methyl-3(2H)-isothiazolone, mixture with 2-methyl-3(2H)-isothiazolone	55965-84-9	0.001 - 0.01	-	

**4. First-aid measures****Description of first aid measures**

<b>General advice</b>	Show this safety data sheet to the doctor in attendance.
<b>Inhalation</b>	Remove to fresh air.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Skin contact</b>	Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.
<b>Ingestion</b>	Rinse mouth thoroughly with water.

**Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	Itching. Rashes. Hives.
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**Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	May cause sensitization in susceptible persons. Treat symptomatically.
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## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable extinguishing media</b>	No information available.
<b>Specific hazards arising from the chemical</b>	Product is or contains a sensitizer. May cause sensitization by skin contact.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	None.
<b>Sensitivity to static discharge</b>	None.
<b>Special protective equipment for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
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### Methods and material for containment and cleaning up

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers.

## 7. Handling and storage

### Precautions for safe handling

<b>Advice on safe handling</b>	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.
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### Conditions for safe storage, including any incompatibilities

<b>Storage Conditions</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children. Store according to product and label instructions.
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## 8. Exposure controls/personal protection

### Control parameters

<b>Exposure Limits</b>	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
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### Appropriate engineering controls

<b>Engineering controls</b>	Showers Eyewash stations
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Ventilation systems.

#### **Individual protection measures, such as personal protective equipment**

<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Hand protection</b>	Wear suitable gloves.
<b>Skin and body protection</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice.

## **9. Physical and chemical properties**

#### **Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Appearance</b>	aqueous solution
<b>Color</b>	colorless
<b>Odor</b>	Odorless
<b>Odor threshold</b>	No information available

<b>Property</b>	<b>Values</b>	<b>Remarks • Method</b>
<b>pH</b>	6.8	
<b>Melting point / freezing point</b>	No data available	None known
<b>Initial boiling point and boiling range</b>	> 100 °C / 212 °F	
<b>Flash point</b>	No data available	None known
<b>Evaporation rate</b>	No data available	None known
<b>Flammability</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability or explosive limits</b>	No data available	
<b>Lower flammability or explosive limits</b>	No data available	
<b>Vapor pressure</b>	No data available	None known
<b>Relative vapor density</b>	No data available	None known
<b>Relative density</b>	No data available	None known
<b>Water solubility</b>	Miscible in water	
<b>Solubility in other solvents</b>	No data available	None known
<b>Partition coefficient</b>	No data available	None known
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>		None known
<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	No data available	None known

#### **Other information**

<b>Explosive properties</b>	Not applicable.
<b>Oxidizing properties</b>	Not applicable.
<b>Softening point</b>	Not applicable
<b>Molecular weight</b>	Not applicable
<b>VOC content</b>	Not applicable

## **10. Stability and reactivity**

<b>Reactivity</b>	No information available.
<b>Chemical stability</b>	Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	None under normal processing.

**Conditions to avoid** None known based on information supplied.

**Incompatible materials** None known based on information supplied.

**Hazardous decomposition products** None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

#### Product Information

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** May cause sensitization by skin contact. Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons (based on components).

**Ingestion** Specific test data for the substance or mixture is not available.

### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Itching. Rashes. Hives.

### Acute toxicity

#### Numerical measures of toxicity

#### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
5-Chloro-2-methyl-3(2H)-isothiazolone, mixture with 2-methyl-3(2H)-isothiazolone 55965-84-9	= 53 mg/kg ( Rat )	= 87.12 mg/kg ( Rabbit )	-

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitization** May cause sensitization by skin contact.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

## 12. Ecological information

**Ecotoxicity****Persistence and degradability** No information available.**Bioaccumulation** There is no data for this product.**Component Information**

Chemical name	Partition coefficient
5-Chloro-2-methyl-3(2H)-isothiazolone, mixture with 2-methyl-3(2H)-isothiazolone 55965-84-9	0.7

**Other adverse effects** No information available.**13. Disposal considerations****Disposal methods****Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.**Contaminated packaging** Do not reuse empty containers.**14. Transport information****TDG** Not regulated**DOT** Not regulated**IATA** Not regulated**15. Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****International Regulations****The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable**The Stockholm Convention on Persistent Organic Pollutants** Not applicable**The Rotterdam Convention** Not applicable**International Inventories**

Contact supplier for inventory compliance status

**16. Other information**

<b>NFPA</b>	<b>Health hazards</b> 2	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Physical and chemical properties</b> -
<b>HMIS</b>	<b>Health hazards</b> 2	<b>Flammability</b> 0	<b>Physical hazards</b> 0	<b>Personal protection</b> X

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
EPA (Environmental Protection Agency)  
Acute Exposure Guideline Level(s) (AELG(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety.

**Revision date** 26-Jul-2023

**Revision Note** Reformatted and updated existing information.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**





# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR)

Revision date 16-Aug-2022

Revision Number 1.1

## 1. Identification

### Product identifier

Product Name Opti-4CN Diluent

### Other means of identification

Catalog Number(s) 9703212

### Recommended use of the chemical and restrictions on use

Recommended use Laboratory chemicals

Restrictions on use No information available

### Details of the supplier of the safety data sheet

#### Corporate Headquarters

Bio-Rad Laboratories Inc.  
1000 Alfred Nobel Drive  
Hercules, CA 94547  
USA

#### Manufacturer Address

Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

Bio-Rad Laboratories (Canada) Ltd.  
1329 Meyerside Drive  
Mississauga, ON L5T 1C9  
Canada

#### Technical Service

1-800-361-1808  
support@bio-rad.com

### Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC Canada:1 (800) 424-9300

## 2. Hazard(s) identification

### Classification

Not classified

### Label elements

#### Hazard statements

Not classified.

### Other information

## 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

The product contains no substances which at their given concentration, are considered to be hazardous to health

**4. First-aid measures****Description of first aid measures**

<b>General advice</b>	No hazards which require special first aid measures.
<b>Inhalation</b>	Remove to fresh air.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Skin contact</b>	Wash skin with soap and water.
<b>Ingestion</b>	Rinse mouth thoroughly with water.

**Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	No information available.
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**Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	Treat symptomatically.
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**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable extinguishing media</b>	No information available.
<b>Specific hazards arising from the chemical</b>	None known.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	None.
<b>Sensitivity to static discharge</b>	None.
<b>Special protective equipment for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**6. Accidental release measures****Personal precautions, protective equipment and emergency procedures**

<b>Personal precautions</b>	See section 8 for more information.
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**Methods and material for containment and cleaning up**

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
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**Methods for cleaning up** Pick up and transfer to properly labeled containers.

## 7. Handling and storage

### Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Store according to product and label instructions.

## 8. Exposure controls/personal protection

### Control parameters

**Exposure Limits** This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### Appropriate engineering controls

**Engineering controls** Showers  
Eyewash stations  
Ventilation systems.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Hand protection** Wear suitable gloves.

**Skin and body protection** Wear suitable protective clothing.

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Appearance</b>	aqueous solution
<b>Color</b>	colorless
<b>Odor</b>	Odorless
<b>Odor threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>pH</b>		None known
<b>Melting point / freezing point</b>	0 °C / 32 °F	
<b>Initial boiling point and boiling range</b>	> 100 °C / 212 °F	
<b>Flash point</b>	No data available	None known
<b>Evaporation rate</b>	No data available	None known
<b>Flammability</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known

Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	Miscible in water	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<b>Other information</b>		
Explosive properties	Not applicable.	
Oxidizing properties	Not applicable.	
Softening point	Not applicable	
Molecular weight	Not applicable	
VOC content	Not applicable	

## 10. Stability and reactivity

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	None known based on information supplied.
Incompatible materials	None known based on information supplied.
Hazardous decomposition products	None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

#### Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available.

### Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	No information available.
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### Acute toxicity

#### Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	86,734.70 mg/kg
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**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

<b>Skin corrosion/irritation</b>	Based on available data, the classification criteria are not met.
<b>Serious eye damage/eye irritation</b>	Based on available data, the classification criteria are not met.
<b>Respiratory or skin sensitization</b>	Based on available data, the classification criteria are not met.
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>Reproductive toxicity</b>	Based on available data, the classification criteria are not met.
<b>STOT - single exposure</b>	Based on available data, the classification criteria are not met.
<b>STOT - repeated exposure</b>	Based on available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met.

**12. Ecological information****Ecotoxicity**

<b>Persistence and degradability</b>	No information available.
<b>Bioaccumulation</b>	There is no data for this product.
<b>Other adverse effects</b>	No information available.

**13. Disposal considerations****Disposal methods**

<b>Waste from residues/unused products</b>	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
<b>Contaminated packaging</b>	Do not reuse empty containers.

**14. Transport information**

<b><u>TDG</u></b>	Not regulated
<b><u>DOT</u></b>	Not regulated
<b><u>IATA</u></b>	Not regulated

**15. Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****International Regulations**

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

#### International Inventories

Contact supplier for inventory compliance status

## 16. Other information

<b>NFPA</b>	<b>Health hazards</b> 0	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Physical and chemical properties</b> -
<b>HMIS</b>	<b>Health hazards</b> 0	<b>Flammability</b> 0	<b>Physical hazards</b> 0	<b>Personal protection</b> X

#### Key or legend to abbreviations and acronyms used in the safety data sheet

##### **Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

#### **Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AELG(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 Japan GHS Classification  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 RTECS (Registry of Toxic Effects of Chemical Substances)  
 World Health Organization

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety.

**Revision date** 16-Aug-2022

**Revision Note** Reformatted and updated existing information.

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**End of Safety Data Sheet**



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR)

Revision date 16-Aug-2022

Revision Number 1.1

## 1. Identification

### Product identifier

Product Name Opti-4CN Substrate

### Other means of identification

Catalog Number(s) 9703210

UN/ID no UN1993

### Recommended use of the chemical and restrictions on use

Recommended use Laboratory chemicals

Restrictions on use No information available

### Details of the supplier of the safety data sheet

#### Corporate Headquarters

Bio-Rad Laboratories Inc.  
1000 Alfred Nobel Drive  
Hercules, CA 94547  
USA

#### Manufacturer Address

Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

Bio-Rad Laboratories (Canada) Ltd.  
1329 Meyerside Drive  
Mississauga, ON L5T 1C9  
Canada

#### Technical Service

1-800-361-1808  
support@bio-rad.com

### Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC Canada:1 (800) 424-9300

## 2. Hazard(s) identification

### Classification

Flammable liquids

Category 2

### Label elements

#### **Danger**

#### **Hazard statements**

Highly flammable liquid and vapor

**Precautionary Statements - Prevention**

Ground and bond container and receiving equipment

Use non-sparking tools

Take action to prevent static discharges

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

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

**Precautionary Statements - Response****Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]

**Fire**

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

**Precautionary Statements - Storage**

Store in a well-ventilated place. Keep cool

**Precautionary Statements - Disposal**

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

**Other information**

May be harmful if inhaled. Causes mild skin irritation. Toxic to aquatic life.

**3. Composition/information on ingredients****Substance**

Not applicable.

**Mixture**

Chemical name	CAS No	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Ethyl alcohol	64-17-5	50 - 100	-	

**4. First-aid measures****Description of first aid measures****General advice**

No hazards which require special first aid measures.

**Inhalation**

Remove to fresh air.



<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
<b>Ingestion</b>	Rinse mouth thoroughly with water.
<b>Self-protection of the first aider</b>	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information.

**Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	Prolonged contact may cause redness and irritation.
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**Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	Treat symptomatically.
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**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	Dry chemical. Carbon dioxide (CO <sub>2</sub> ). Water spray. Alcohol resistant foam.
<b>Unsuitable extinguishing media</b>	No information available.
<b>Specific hazards arising from the chemical</b>	Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	None.
<b>Sensitivity to static discharge</b>	Yes.
<b>Special protective equipment for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**6. Accidental release measures****Personal precautions, protective equipment and emergency procedures**

<b>Personal precautions</b>	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material.
<b>Other information</b>	Ventilate the area.

**Methods and material for containment and cleaning up**

<b>Methods for containment</b>	Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
<b>Methods for cleaning up</b>	Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7. Handling and storage

### Precautions for safe handling

#### Advice on safe handling

Use personal protection equipment. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions.

### Conditions for safe storage, including any incompatibilities

#### Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store according to product and label instructions.

## 8. Exposure controls/personal protection

### Control parameters

#### Exposure Limits

Chemical name	Alberta	British Columbia	Ontario	Quebec
Ethyl alcohol 64-17-5	TWA: 1000 ppm TWA: 1880 mg/m <sup>3</sup>	STEL: 1000 ppm	STEL: 1000 ppm	STEL: 1000 ppm

### Appropriate engineering controls

#### Engineering controls

Showers  
Eyewash stations  
Ventilation systems.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Tight sealing safety goggles.

#### Hand protection

Wear suitable gloves. Impervious gloves.

#### Skin and body protection

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.

#### Respiratory protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

#### General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Liquid
Color	Varies

Odor	Alcohol
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH		None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	78 °C / 172.4 °F	
Flash point	13 °C / 55.4 °F	
Evaporation rate	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	Miscible in water	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<u>Other information</u>		
Explosive properties	Not applicable.	
Oxidizing properties	Not applicable.	
Softening point	Not applicable	
Molecular weight	Not applicable	
VOC content	Not applicable	

## 10. Stability and reactivity

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	None known based on information supplied.
Hazardous decomposition products	None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

#### Product Information

Inhalation	May be harmful if inhaled.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Causes mild skin irritation.
Ingestion	Specific test data for the substance or mixture is not available.

### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Prolonged contact may cause redness and irritation.

**Acute toxicity**

**Numerical measures of toxicity**

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 9,379.60 mg/kg  
 ATEmix (dermal) 40,812.60 mg/kg  
 ATEmix (inhalation-dust/mist) 118.90 mg/l

**Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Ethyl alcohol 64-17-5	= 7060 mg/kg ( Rat )	-	= 116.9 mg/L ( Rat ) 4 h = 133.8 mg/L ( Rat ) 4 h

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Classification based on data available for ingredients. May cause skin irritation.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitization** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Ethyl alcohol 64-17-5	A3	Group 1	Known	X

**Legend**

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

**IARC (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to Humans

**NTP (National Toxicology Program)**

Known - Known Carcinogen

**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X - Present

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Target organ effects** Liver, Respiratory system, Eyes, Skin, Central nervous system, Blood, Reproductive system.

**Aspiration hazard** Based on available data, the classification criteria are not met.

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Ethyl alcohol 64-17-5	-	LC50: 12.0 - 16.0mL/L (96h, Oncorhynchus)	-	LC50: 9268 - 14221mg/L (48h, Daphnia magna)

		mykiss) LC50: >100mg/L (96h, Pimephales promelas) LC50: 13400 - 15100mg/L (96h, Pimephales promelas)		EC50: =2mg/L (48h, Daphnia magna)
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**Persistence and degradability** No information available.

**Bioaccumulation** There is no data for this product.

#### Component Information

Chemical name	Partition coefficient
Ethyl alcohol 64-17-5	-0.35

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

**Waste from residues/unused products** Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

### 14. Transport information

#### TDG

UN/ID no UN1993  
UN proper shipping name FLAMMABLE LIQUID, N.O.S. (Ethyl alcohol)  
Transport hazard class(es) 3  
Packing group II  
Special Provisions 16, 150  
Description UN1993, FLAMMABLE LIQUID, N.O.S. (Ethyl alcohol), 3, II

#### DOT

UN/ID no UN1993  
Extended proper shipping name FLAMMABLE LIQUIDS, N.O.S. (Ethyl alcohol)  
Transport hazard class(es) 3  
Packing group II  
Special Provisions IB2, T7, TP1, TP8, TP28  
Description UN1993, FLAMMABLE LIQUIDS, N.O.S. (Ethyl alcohol), 3, II  
Emergency Response Guide Number 128

#### MEX

UN/ID no UN1993  
UN proper shipping name FLAMMABLE LIQUID, N.O.S. (Ethyl alcohol)  
Transport hazard class(es) 3  
Special Provisions 274  
Packing group II  
Description UN1993, FLAMMABLE LIQUID, N.O.S. (Ethyl alcohol), 3, II

#### IATA

UN number or ID number UN1993

<b>UN proper shipping name</b>	Flammable liquid, n.o.s. (Ethyl alcohol)
<b>Transport hazard class(es)</b>	3
<b>Packing group</b>	II
<b>ERG Code</b>	3H
<b>Special Provisions</b>	A3
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (Ethyl alcohol), 3, II

**IMDG**

<b>UN number or ID number</b>	UN1993
<b>UN proper shipping name</b>	FLAMMABLE LIQUID, N.O.S. (Ethyl alcohol)
<b>Transport hazard class(es)</b>	3
<b>Packing group</b>	II
<b>EmS-No</b>	F-E, S-E
<b>Special Provisions</b>	274
<b>Marine pollutant</b>	NP
<b>Description</b>	UN1993, FLAMMABLE LIQUID, N.O.S. (Ethyl alcohol), 3, II, (13°C C.C.)

**15. Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****International Regulations**

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

**International Inventories**

Contact supplier for inventory compliance status

**16. Other information**

<b>NFPA</b>	<b>Health hazards</b> 1	<b>Flammability</b> 3	<b>Instability</b> 0	<b>Physical and chemical properties</b> -
<b>HMIS</b>	<b>Health hazards</b> 2	<b>Flammability</b> 3	<b>Physical hazards</b> 0	<b>Personal protection</b> X

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 Japan GHS Classification  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)

Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety.

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**Revision Note** Reformatted and updated existing information.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**