



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** TMB Peroxidase EIA Sub Kit Solution A  
**Revision date** 16-Apr-2024  
**Revision Number** 1.1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### Product identifier

**Product Name** TMB Peroxidase EIA Sub Kit Solution A  
**Catalogue Number(s)** 9701859, 9701173

### Other means of identification

**Pure substance/mixture** Mixture

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

#### Corporate Headquarters

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

#### Manufacturer

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

#### Legal Entity / Contact Address

Bio-Rad Laboratories Ltd.  
1st and 2nd Floor, Lumpini 1 Building  
239/2, Rajdamri Road, Lumpini,  
Pathumwan, Bangkok 10330  
Thailand

**Technical Service** +66 2 652 8313  
ctsthailand@bio-rad.com

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793

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

**Recommended use** Laboratory chemicals

## SECTION 2: Hazards identification

### **Emergency Overview**

Irritating to eyes  
HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames

**Appearance** aqueous solution      **Physical state** Liquid      **Odour** Odourless

### Classification of the substance or mixture

<b>Flammable liquids</b>	Category 3
<b>Acute toxicity - Dermal</b>	Category 5
<b>Acute toxicity - Inhalation (Gases)</b>	Category 4
<b>Acute toxicity - Inhalation (Dusts/Mists)</b>	Category 5
<b>Serious eye damage/eye irritation</b>	Category 2
<b>Reproductive toxicity</b>	Category 1B

**Label elements****Signal word**

Danger

**Hazard statements**

Flammable liquid and vapour  
May be harmful in contact with skin  
May be harmful if inhaled  
Harmful if inhaled  
Causes serious eye irritation  
May damage fertility or the unborn child

**Precautionary statements****Prevention**

Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapours/spray  
Use only outdoors or in a well-ventilated area  
Wash face, hands and any exposed skin thoroughly after handling  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Use only non-sparking tools  
Take precautionary measures against static discharge

**Response**

IF exposed or concerned: Get medical advice/attention  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
Call a POISON CENTRE or doctor if you feel unwell  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

**Storage**

Store in a well-ventilated place. Keep cool

**Disposal**

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

**Physical and chemical hazards**

Flammable; may be ignited by heat, sparks or flames. Vapours may form explosive mixtures with air. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated.

**Health hazards**

Immediate Health Effects: Harmful. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. If symptoms persist, call a doctor. Causes severe irritation (tears, blurred vision and redness). Irritating, but will not permanently injure eye tissue.

Chronic effects: Contains a known or suspected reproductive toxin.

**Environmental hazards**

Not applicable

**Other hazards which do not result in classification**

Not applicable

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**SECTION 3: Composition/information on ingredients****Substance**

Not applicable.

**Mixture**

Chemical name	Weight-%	CAS No
N,N-Dimethylformamide	20 - 35	68-12-2

**SECTION 4: First aid measures****Description of necessary first aid measures**

<b>General advice</b>	Show this safety data sheet to the doctor in attendance.
<b>Inhalation</b>	Remove to fresh air. If symptoms persist, call a doctor. If breathing has stopped, give artificial respiration. Get medical attention immediately. Get medical attention immediately if symptoms occur.
<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. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical attention.
<b><u>Most important symptoms and effects, both acute and delayed</u></b>	May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.
<b><u>For emergency responders</u></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. Avoid contact with skin, eyes or clothing. Avoid breathing vapours or mists.
<b><u>Note to doctors</u></b>	Treat symptomatically.

**SECTION 5: Firefighting measures****Extinguishing media**

<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><u>Specific hazards arising from the chemical</u></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.

**Special protective actions for fire-fighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

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

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. Avoid breathing vapours or mists.

**Other information**

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

**For emergency responders**

Use personal protection recommended in Section 8.

**Environmental precautions**

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

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

Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off 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. Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

**Precautions to prevent secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations.

**SECTION 7: Handling and storage****Precautions for safe handling**

Use personal protection equipment. Avoid breathing vapours 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. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. In case of insufficient ventilation, wear suitable respiratory equipment. 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. See Section 8 for information on appropriate personal protective equipment.

**Conditions for safe storage, including any incompatibilities**

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 labelled 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 locked up. Keep out of the reach of children. Store according to product and label instructions.

**Incompatible materials**

None known based on information supplied.

**SECTION 8: Exposure controls/personal protection****Occupational exposure limits**

Chemical name	China	ACGIH TLV
N,N-Dimethylformamide - 68-12-2	TWA: 20 mg/m <sup>3</sup> Skin* G2A(C**)	TWA: 5 ppm S*

**Note**

See section 16 for terms and abbreviations

**Biological occupational exposure limits**

Chemical name	Biological standards	Monitoring and observation processes	ACGIH
N,N-Dimethylformamide - 68-12-2	135 nmol/g Hb - blood (N-Methylcarbamoylated haemo globin adduct) - anytime after 4 months of exposure		30 mg/L - urine (total N-Methylformamide) - end of shift 30 mg/L - urine (N-Acetyl-S-(N-methylcarbamoyl)cysteine) - end of shift at end of workweek

**Monitoring and observation processes**

No applicable information was found.

**Engineering controls**Showers  
Eyewash stations  
Ventilation systems.**Individual protection measures, such as personal protective equipment****Eye/face protection**

Tight sealing safety goggles.

**Skin and body protection**Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.  
Antistatic boots.**Hand protection**

Wear suitable gloves. Impervious gloves.

**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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties**

Appearance	aqueous solution
Colour	colourless

Physical state	Liquid
Odour	Odourless
Odour 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	> 100 °C	
Flash point	58 °C	
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	
Vapour pressure	No data available	None known
Relative vapour density	No data available	None known
Relative density	No data available	None known
Water solubility	Partially miscible	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<u>Additional information</u>		
Explosive properties	Not applicable	
Oxidising properties	Not applicable	

## SECTION 10: Stability and reactivity

<u>Stability</u>	Stable under normal conditions.
<u>Possibility of hazardous reactions</u>	None under normal processing.
<u>Sensitivity to mechanical impact</u>	None.
<u>Sensitivity to static discharge</u>	Yes.
<u>Conditions to avoid</u>	Heat, flames and sparks. Excessive heat.
<u>Incompatible materials</u>	None known based on information supplied.
<u>Hazardous decomposition products</u>	None known based on information supplied.

## SECTION 11: Toxicological information

### Acute toxicity

### Numerical measures of toxicity

No information available

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

ATEmix (oral)	10,108.30 mg/kg
ATEmix (dermal)	3,971.10 mg/kg
ATEmix (inhalation-gas)	10,866.40 mg/l

ATEmix (inhalation-dust/mist) 5.42 mg/l  
 ATEmix (inhalation-vapour) 99,999.00 mg/l

**Unknown acute toxicity**

0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
N,N-Dimethylformamide	= 2800 mg/kg ( Rat )	= 1100 mg/kg ( Rat )	> 5.85 mg/L ( Rat ) 4 h

**Skin corrosion/irritation** May cause skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

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

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

**Carcinogenicity**

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

Chemical name	China	IARC
N,N-Dimethylformamide	Probably carcinogenic to humans	Group 2A

**Legend**

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

Group 2A - Probably Carcinogenic to Humans

**Reproductive toxicity** Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

**Specific target organ toxicity — single exposure** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — repeated exposure** Based on available data, the classification criteria are not met.

**Target organ effects** Liver. Kidney. Respiratory system. Eyes. Skin. Central Vascular System (CVS).

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

**SECTION 12: Ecological information****Ecotoxicity**

**Unknown aquatic toxicity** 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
N,N-Dimethylformamide	EC50: >500mg/L (96h, <i>Desmodesmus subspicatus</i> )	LC50: =6300mg/L (96h, <i>Lepomis macrochirus</i> ) LC50: =9800mg/L (96h, <i>Oncorhynchus mykiss</i> ) LC50: =10410mg/L (96h,	EC50: =7500mg/L (48h, <i>Daphnia magna</i> ) EC50: =8485mg/L (48h, <i>Daphnia magna</i> ) EC50: 6800 - 13900mg/L (48h,

		Pimephales promelas)	Daphnia magna)
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**Persistence and degradability** No information available.

**Bioaccumulative potential** There is no data for this product.

#### Component Information

Chemical name	Partition coefficient
N,N-Dimethylformamide	-1.028

**Mobility in soil** No information available.

**Other adverse effects**

### SECTION 13: Disposal considerations

**Waste chemicals** 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.

### SECTION 14: Transport information

**IMDG** Not regulated  
**Transport in bulk according to Annex II of MARPOL and the IBC Code** No information available

**IATA** Not regulated  
**UN number or ID number** UN2265  
**Packing group** III

**China** Not regulated

**Special precautions for user**  
 Please refer to the applicable dangerous goods regulations for additional information

### SECTION 15: Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

#### National regulations

**Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

Catalogue of occupational hazard factors: Listed. Chemical hazards.  
 Catalogue of occupational diseases: Listed. Occupational poisoning.

Chemical name	Category
N,N-Dimethylformamide	Chemical hazards

#### Regulations on the Control over Safety of Hazardous Chemicals

**Inventory of hazardous chemicals**  
 The table below indicates ingredients above the cut-off threshold considered as relevant which are listed. Verify that licence requirements are met.



Flammable liquid - Category 3 Weight-% 28

Chemical name	Inventory of hazardous chemicals
N,N-Dimethylformamide	Listed

GB 18218-2009 Identification of major hazard installations for dangerous chemicals

Category

Flammable liquids

Threshold quantity (T)

5000

List of hazardous chemicals under priority management

Not applicable

Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used

Inventory of highly toxic goods

Not applicable

Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

List of toxic chemicals severely restricted for import and export in China

Not applicable

Measures for the Environmental Management of New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances Contact supplier for inventory compliance status.

**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

**SECTION 16: Other information**

Prepared By Bio-Rad Laboratories, Environmental Health and Safety

Revision date 16-Apr-2024

Revision Note Significant changes throughout SDS. Review all sections.

**Abbreviations and acronyms**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

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

**Disclaimer**

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**End of Safety Data Sheet**