

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product Identifier**

Perihalan Produk:

Product Description:

Cat No. :

PVA Modified Fixative**PVA Modified Fixative**

R21683; R21710; R21924; R93966; R92056

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use

Laboratory chemicals.

Uses advised against

No Information available

Details of the supplier of the safety data sheet**Company**Thermo Scientific Microbiology Sdn Bhd
No.6, Jalan TTC 6, Taman Teknologi Cheng,
Cheng, 75250 Melaka, Malaysia
+606 334 0975 .**Supplier**Remel
12076 Santa Fe Drive Lenexa,
KS 66215 United States
Telephone: 1-800-255-6730
Fax:1-800-621-8251**E-mail address**

mbd-sds@thermofisher.com

Emergency Telephone Number(603) 5122 8888
CHEMTREC Malaysia **1-800-815-308** (Malay)
CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)**SECTION 2: HAZARDS IDENTIFICATION****Classification of the substance or mixture**

Flammable liquids	Category 3 (H226)
Skin Corrosion/Irritation	Category 1 A (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Specific target organ toxicity - (single exposure)	Category 2 (H371)
Chronic aquatic toxicity	Category 3 (H412)

Label Elements

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

Signal Word

Danger

Hazard Statements

- H226 - Flammable liquid and vapor
- H314 - Causes severe skin burns and eye damage
- H371 - May cause damage to organs
- H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

- 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
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P309 + P311 - IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Other Hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Glycerin	56-81-5	2
Ethyl alcohol	64-17-5	28 - 29
Methyl alcohol	67-56-1	1.5
Acetic acid	64-19-7	5
Water	7732-18-5	58
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	1.0
Vinyl acetate-Vinyl alcohol polymer	25213-24-5	5.0

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General Advice

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Ingestion

Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Clean mouth with water. Call a physician immediately.

Inhalation

Remove from exposure, lie down. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

Self-Protection of the First Aider Remove all sources of ignition.

Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Causes burns by all exposure routes. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

None under normal use conditions.

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods and Material for Containment and Cleaning Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe mist/vapors/spray. Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat, sparks and flame.

Specific End Uses

Use in laboratories.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
Glycerin			(Vacated) TWA: 10 mg/m ³ (Vacated) TWA: 5 mg/m ³ TWA: 15 mg/m ³ TWA: 5 mg/m ³
Ethyl alcohol		STEL: 1000 ppm	(Vacated) TWA: 1000 ppm (Vacated) TWA: 1900 mg/m ³ TWA: 1000 ppm TWA: 1900 mg/m ³
Methyl alcohol		TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m ³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m ³ Skin TWA: 200 ppm TWA: 260 mg/m ³
Acetic acid		TWA: 10 ppm STEL: 15 ppm	(Vacated) TWA: 10 ppm (Vacated) TWA: 25 mg/m ³ TWA: 10 ppm TWA: 25 mg/m ³
Copper (II) sulfate pentahydrate (1:1:5)		TWA: 1 mg/m ³	

Component	European Union	The United Kingdom	Germany
Glycerin		TWA: 10 mg/m ³ 8 hr (mist only)	TWA: 200 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 200 mg/m ³ (8 Stunden). MAK Höhepunkt: 400 mg/m ³
Ethyl alcohol		TWA: 1000 ppm TWA; 1920 mg/m ³ TWA WEL - STEL: 3000 ppm STEL; 5760 mg/m ³ STEL	200 ppm TWA MAK; 380 mg/m ³ TWA MAK
Methyl alcohol	TWA: 200 ppm 8 hr TWA: 260 mg/m ³ 8 hr Skin	WEL - TWA: 200 ppm TWA; 266 mg/m ³ TWA WEL - STEL: 250 ppm STEL; 333 mg/m ³ STEL	100 ppm TWA MAK; 130 mg/m ³ TWA MAK Skin absorber
Acetic acid	TWA: 25 mg/m ³ (15min) TWA: 10 ppm (15min) STEL: 50 mg/m ³ (8h) STEL: 20 ppm (8h)	STEL: 37 mg/m ³ STEL: 15 ppm TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm (8 Stunden). AGW - exposure factor 2 TWA: 25 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 10 ppm (8 Stunden). MAK TWA: 25 mg/m ³ (8 Stunden). MAK Höhepunkt: 20 ppm

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

			Höhepunkt: 50 mg/m ³
Copper (II) sulfate pentahydrate (1:1:5)		STEL: 2 mg/m ³ 15 min TWA: 1 mg/m ³ 8 hr	TWA: 0.01 mg/m ³ (8 Stunden). MAK Höhepunkt: 0.02 mg/m ³

Exposure Controls

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles

Hand Protection

Protective gloves

Skin and body protection

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls

Local authorities should be advised if significant spillages cannot be contained Do not allow material to contaminate ground water system Prevent product from entering drains

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Light blue

Physical State

Liquid

Odor

No information available

Odor Threshold

No data available

pH

No information available

Melting Point/Range

No data available

Softening Point

No data available

Boiling Point/Range

No information available

Flash Point

29.4 °C / 84.9 °F

Method - No information available

Evaporation Rate

No data available

Flammability (solid,gas)

Not applicable

Liquid

Explosion Limits

No data available

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	Not applicable	Liquid
Water Solubility	No information available	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	log Pow
Glycerin	-1.75
Ethyl alcohol	-0.32
Methyl alcohol	-0.74
Acetic acid	-0.2

Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties		explosive air/vapour mixtures possible
Oxidizing Properties	No information available	
VOC Content(%)	37.5	

SECTION 10: STABILITY AND REACTIVITY

Reactivity

None known, based on information available.

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

Conditions to Avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials

None known.

Hazardous Decomposition Products

None under normal use conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

Information on Toxicological Effects

Acute Toxicity

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glycerin	12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 2.75 mg/L/4h (Rat)(mist)
Ethyl alcohol	LD50 = 7060 mg/kg (Rat)		20000 ppm/10H (Rat)
Methyl alcohol	LD50 = 1187 – 2769 mg/kg (Rat)	LD50 = 17100 mg/kg (Rabbit)	LC50 = 128.2 mg/L (Rat) 4 h
Acetic acid	3310 mg/kg (Rat)	-	> 40 mg/L (Rat) 4 h
Water	-	-	-
Copper (II) sulfate pentahydrate (1:1:5)	LD50 = 960 mg/kg (Rat)	LD50 > 8 g/kg (Rabbit)	

Chronic Toxicity

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen. This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

Legend:

X - Listed 'I' - Not Listed XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B))

Sensitization

No information available

Mutagenic Effects

No information available

Reproductive Effects

No information available

Developmental Effects

No information available

Target Organs

No information available.

Symptoms

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects

Contains a substance which is: Toxic to aquatic organisms. The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Glycerin	LC50: 51 - 57 mL/L, 96h static (Oncorhynchus mykiss)			
Ethyl alcohol	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h	EC50 (72h) = 275 mg/l (Chlorella vulgaris)	Photobacterium phosphoreum: EC50 = 34634 mg/L/30 min Photobacterium phosphoreum: EC50 =

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

				35470 mg/L/5 min
Methyl alcohol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 > 10000 mg/L 24h		EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min
Acetic acid	Pimephales promelas: LC50 = 88 mg/L/96h Lepomis macrochirus: LC50 = 75 mg/L/96h	EC50 = 95 mg/L/24h	-	Photobacterium phosphoreum: EC50 = 8.8 mg/L/15 min Photobacterium phosphoreum: EC50 = 8.8 mg/L/25 min Photobacterium phosphoreum: EC50 = 8.8 mg/L/5 min
Copper (II) sulfate pentahydrate (1:1:5)	Onchorhynchus mykiss: LC50 = 0.1-2.5 mg/L/96h	EC50 = 0.24 mg/L/48h		Photobacterium phosphoreum: EC50 = 0.25 mg/L/30min as Cu++ Photobacterium phosphoreum EC50= 1.3 mg/L/5 min as Cu++
Vinyl acetate-Vinyl alcohol polymer	Bluegill Sunfish: LC50 = 10 mg/L 96h	EC50 = 8.3 mg/L 48h		EC50 = 50 mg/L 17h

Persistence and degradability No information available

Component	Degradability
Methyl alcohol 67-56-1 (1.5)	DT50 ~ 17.2d >94% after 20d

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative potential No information available

Component	log Pow	Bioconcentration factor (BCF)
Glycerin	-1.75	No data available
Ethyl alcohol	-0.32	No data available
Methyl alcohol	-0.74	<10 dimensionless
Acetic acid	-0.2	No data available

Mobility in soil

No information available.

Other adverse effects

No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues/Unused Products

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

Contaminated Packaging

Dispose of in accordance with local regulations

Other Information

According to the European Waste Catalog, Waste Codes are not product specific, but application specific Waste codes should be assigned by the user based on the application for which the product was used Do not flush to sewer

SECTION 14: TRANSPORT INFORMATION

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

IMDG/IMO

UN-No UN1170
Hazard Class 3
Packing Group III
Proper Shipping Name Ethanol solution

Road and Rail Transport

UN-No UN1170
Hazard Class 3
Packing Group III
Proper Shipping Name Ethanol solution

IATA

UN-No UN1170
Hazard Class 3
Packing Group III
Proper Shipping Name Ethanol solution

Special Precautions for User No special precautions required

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Glycerin	-	X	X	X	X	X	X	X	KE-29297
Ethyl alcohol	-	X	X	X	X	X	X	X	KE-13217
Methyl alcohol	-	X	X	X	X	X	X	X	KE-23193
Acetic acid	-	X	X	X	X	X	X	X	X
Water	231-791-2	X	X	X	X		X	X	KE-35400
Copper (II) sulfate pentahydrate (1:1:5)	-	-	-	X	X		X	X	-
Vinyl acetate-Vinyl alcohol polymer	-	X	X	X	X	X	X	X	KE-00041

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Ethyl alcohol				Annex I - Y42
Methyl alcohol	500 tonne	5000 tonne		
Acetic acid				Annex I - Y34
Copper (II) sulfate pentahydrate (1:1:5)				Annex I - Y22

National Regulations

Persistent Organic Pollutant
Ozone Depletion Potential

This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

SECTION 16: OTHER INFORMATION

SAFETY DATA SHEET

PVA Modified Fixative

Revision Date 29-Mar-2023

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

POW - Partition coefficient Octanol:Water

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/MDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Revision Date

29-Mar-2023

Revision Summary

Not applicable.

In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

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